

# ALMANAC XLIX TRANSITS VISIBLE FROM JUPITER IN BCE

The almanac XLIX contains a list of transits visible from Jupiter from the 125th millennium BCE to the 1st millennium BCE.

During the period of 250 000 years, the total number of transits visible from Jupiter is 170 301 transits visible from Jupiter (68 795 transits of Mercury, 49 274 transits of Venus, 23 635 transits of Earth, 23 635 transits of Moon, 4 962 transits of Mars).

## 125TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 125th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Venus	-124998-10-30 08:25 J	-43933794.35	-43933794.15	-43933793.95	0.0515	0.0026		
Mercury	-124995-03-08 04:35 J	-43932934.49	-43932934.31	-43932934.13	0.0499	0.0095		
Mercury	-124995-06-06 14:54 J	-43932843.91	-43932843.88	-43932843.85	0.0498	0.0489		
Venus	-124992-09-02 07:27 J	-43931660.36	-43931660.19	-43931660.02	0.0508	0.0301		
Venus	-124991-04-27 17:18 J	-43931422.95	-43931422.78	-43931422.61	0.0513	0.0273		
Mercury	-124989-02-02 09:51 J	-43930777.18	-43930777.09	-43930776.98	0.0526	0.0324		
Mercury	-124989-05-01 16:20 J	-43930687.94	-43930687.82	-43930687.69	0.0527	0.0134		
Mars	-124987-03-08 09:08 J	-43930012.40	-43930012.12	-43930011.85	0.0526	0.0088		
Venus	-124986-07-05 09:08 J	-43929528.31	-43929528.12	-43929527.93	0.0517	0.0179		
Venus	-124985-02-26 22:49 J	-43929291.68	-43929291.55	-43929291.41	0.0511	0.0380		
Mercury	-124984-12-25 01:56 J	-43928624.58	-43928624.42	-43928624.26	0.0499	0.0235		
Mercury	-124983-03-25 12:15 J	-43928534.12	-43928533.99	-43928533.86	0.0499	0.0348		
Venus	-124980-05-08 01:27 J	-43927394.52	-43927394.44	-43927394.34	0.0507	0.0455		
Venus	-124980-12-31 12:15 J	-43927157.19	-43927156.99	-43927156.79	0.0512	0.0116		
Earth	-124978-01-12 18:01 J	-43926779.92	-43926779.75	-43926779.58	0.0520	0.0343		
Moon	-124978-01-12 20:39 J	-43926779.81	-43926779.64	-43926779.47	0.0520	0.0321	*	
Mercury	-124978-11-21 14:25 J	-43926466.97	-43926466.90	-43926466.82	0.0526	0.0429		
Mercury	-124977-02-18 20:54 J	-43926377.75	-43926377.63	-43926377.50	0.0527	0.0031		
Mercury	-124977-05-18 03:08 J	-43926288.41	-43926288.37	-43926288.32	0.0528	0.0484		
Venus	-124974-03-10 08:54 J	-43925262.28	-43925262.13	-43925261.98	0.0518	0.0331		
Venus	-124974-11-01 21:23 J	-43925025.79	-43925025.61	-43925025.43	0.0512	0.0228		

Mercury -124972-10-12 21:51 J -43924314.70 -43924314.59 -43924314.48 0.0500 0.0391

Mercury -124971-01-11 07:56 J -43924224.34 -43924224.17 -43924224.00 0.0499 0.0190

Mars -124970-12-17 10:35 J -43923519.27 -43923519.06 -43923518.85 0.0500 0.0306

Venus -124968-09-05 06:15 J -43922891.44 -43922891.24 -43922891.03 0.0511 0.0042

Earth -124966-01-17 11:03 J -43922392.26 -43922392.04 -43922391.82 0.0522 0.0113

Moon -124966-01-17 13:27 J -43922392.17 -43922391.94 -43922391.71 0.0522 0.0111 \*

Mercury -124966-12-08 01:27 J -43922067.57 -43922067.44 -43922067.32 0.0527 0.0081

Mercury -124965-03-06 07:42 J -43921978.27 -43921978.18 -43921978.09 0.0527 0.0376

Venus -124963-11-13 08:54 J -43920996.20 -43920996.13 -43920996.06 0.0519 0.0484

Venus -124962-07-07 20:54 J -43920759.82 -43920759.63 -43920759.43 0.0514 0.0075

Mercury -124960-10-30 05:03 J -43919914.47 -43919914.29 -43919914.11 0.0499 0.0047

Venus -124956-05-11 00:01 J -43918625.68 -43918625.50 -43918625.30 0.0509 0.0200

Venus -124955-01-03 10:06 J -43918388.21 -43918388.08 -43918387.94 0.0514 0.0379

Mercury -124954-09-26 05:18 J -43917757.40 -43917757.28 -43917757.16 0.0526 0.0198

Mercury -124954-12-24 11:32 J -43917668.13 -43917668.02 -43917667.91 0.0527 0.0258

Mars -124952-12-13 10:20 J -43916948.28 -43916948.07 -43916947.83 0.0524 0.0308

Venus -124950-03-12 20:11 J -43916493.85 -43916493.66 -43916493.46 0.0516 0.0083

Venus -124950-11-04 09:51 J -43916257.16 -43916257.09 -43916257.01 0.0510 0.0473

Earth -124949-07-06 20:54 J -43916011.83 -43916011.63 -43916011.42 0.0505 0.0269

Moon -124949-07-07 00:44 J -43916011.66 -43916011.47 -43916011.28 0.0505 0.0293 \*

Mercury -124948-08-18 02:39 J -43915604.57 -43915604.39 -43915604.21 0.0499 0.0093

Mercury -124948-11-16 12:59 J -43915513.98 -43915513.96 -43915513.93 0.0499 0.0492

Venus -124944-01-13 17:32 J -43914359.91 -43914359.77 -43914359.61 0.0508 0.0356

Venus -124944-09-08 04:06 J -43914122.51 -43914122.33 -43914122.14 0.0513 0.0220

Mercury -124942-07-15 09:08 J -43913447.22 -43913447.12 -43913447.02 0.0526 0.0313

Mercury -124942-10-12 15:37 J -43913357.98 -43913357.85 -43913357.73 0.0527 0.0144

Venus -124939-11-15 20:25 J -43912227.82 -43912227.65 -43912227.47 0.0517 0.0237

Venus -124938-07-10 09:51 J -43911991.24 -43911991.09 -43911990.94 0.0512 0.0324

Earth -124937-07-11 18:30 J -43911623.95 -43911623.73 -43911623.50 0.0504 0.0173

Moon -124937-07-11 20:11 J -43911623.88 -43911623.66 -43911623.42 0.0504 0.0185 \*

Mercury -124936-06-06 00:15 J -43911294.65 -43911294.49 -43911294.33 0.0500 0.0232

Mercury -124936-09-04 10:35 J -43911204.19 -43911204.06 -43911203.93 0.0499 0.0352

Mars -124934-09-21 13:42 J -43910457.20 -43910456.93 -43910456.66 0.0500 0.0008

Venus -124932-05-13 21:08 J -43909856.82 -43909856.62 -43909856.41 0.0511 0.0059

Mercury -124930-05-03 13:13 J -43909137.03 -43909136.95 -43909136.88 0.0526 0.0429

Mercury -124930-07-31 19:27 J -43909047.81 -43909047.69 -43909047.56 0.0527 0.0031

Mercury -124930-10-29 01:42 J -43908958.47 -43908958.43 -43908958.38 0.0528 0.0484

Venus -124927-07-21 21:08 J -43907961.75 -43907961.62 -43907961.49 0.0519 0.0390

Venus -124926-03-15 10:20 J -43907725.26 -43907725.07 -43907724.88 0.0514 0.0174

Mercury -124924-03-24 21:37 J -43906984.72 -43906984.60 -43906984.48 0.0500 0.0373

Mercury -124924-06-23 07:42 J -43906894.35 -43906894.18 -43906894.01 0.0499 0.0209

Venus -124920-01-16 15:23 J -43905591.06 -43905590.86 -43905590.65 0.0510 0.0101

Venus -124920-09-11 00:59 J -43905353.53 -43905353.46 -43905353.38 0.0515 0.0475

Mercury -124918-05-20 00:01 J -43904737.62 -43904737.50 -43904737.37 0.0527 0.0079

Mercury -124918-08-17 06:15 J -43904648.32 -43904648.24 -43904648.15 0.0527 0.0379

Venus -124915-11-18 09:37 J -43903459.30 -43903459.10 -43903458.91 0.0514 0.0023

Mercury -124912-04-11 03:23 J -43902584.54 -43902584.36 -43902584.17 0.0499 0.0052

Venus -124909-09-21 08:25 J -43901325.32 -43901325.15 -43901324.97 0.0509 0.0259

Venus -124908-05-16 19:13 J -43901087.85 -43901087.70 -43901087.53 0.0514 0.0322

Mercury -124906-03-08 04:20 J -43900427.44 -43900427.32 -43900427.20 0.0526 0.0189

Mercury -124906-06-05 10:49 J -43900338.16 -43900338.05 -43900337.94 0.0527 0.0269

Venus -124903-07-24 09:23 J -43899193.31 -43899193.11 -43899192.92 0.0516 0.0137

Venus -124902-03-17 22:06 J -43898956.69 -43898956.58 -43898956.46 0.0511 0.0420

Mercury -124900-01-28 00:30 J -43898274.66 -43898274.48 -43898274.30 0.0499 0.0093

Mercury -124900-04-28 10:49 J -43898184.08 -43898184.05 -43898184.02 0.0498 0.0491

Mars -124898-06-26 10:49 J -43897395.25 -43897395.05 -43897394.83 0.0501 0.0315

Venus -124897-05-27 01:56 J -43897059.53 -43897059.42 -43897059.29 0.0507 0.0413

Venus -124896-01-19 13:13 J -43896822.15 -43896821.95 -43896821.75 0.0512 0.0163

Moon -124895-01-12 00:01 J -43896464.65 -43896464.50 -43896464.35 0.0520 0.0399

Earth -124895-01-12 02:25 J -43896464.53 -43896464.40 -43896464.25 0.0520 0.0413 \*

Mercury -124895-12-25 08:11 J -43896117.26 -43896117.16 -43896117.06 0.0526 0.0306

Mercury -124894-03-24 14:25 J -43896028.02 -43896027.90 -43896027.77 0.0527 0.0152

Venus -124891-03-29 08:11 J -43894927.32 -43894927.16 -43894927.00 0.0518 0.0294

Venus -124891-11-20 20:54 J -43894690.80 -43894690.63 -43894690.46 0.0512 0.0269

Mercury -124889-11-15 21:51 J -43893964.75 -43893964.59 -43893964.42 0.0500 0.0235

Mercury -124888-02-14 08:11 J -43893874.29 -43893874.16 -43893874.03 0.0499 0.0350

Venus -124885-09-24 06:59 J -43892556.42 -43892556.21 -43892556.00 0.0511 0.0007

Moon -124883-01-16 14:25 J -43892077.12 -43892076.90 -43892076.68 0.0521 0.0037

Earth -124883-01-16 17:03 J -43892077.02 -43892076.79 -43892076.56 0.0521 0.0034 \*

Mercury -124883-10-13 12:01 J -43891807.07 -43891807.00 -43891806.92 0.0525 0.0422

Mercury -124882-01-10 18:30 J -43891717.86 -43891717.73 -43891717.60 0.0526 0.0035

Mercury -124882-04-10 00:44 J -43891628.52 -43891628.47 -43891628.43 0.0527 0.0490

Venus -124880-12-02 07:56 J -43890661.26 -43890661.17 -43890661.07 0.0519 0.0449

Venus -124879-07-26 20:39 J -43890424.84 -43890424.64 -43890424.45 0.0514 0.0115

Mercury -124877-09-03 19:27 J -43889654.81 -43889654.69 -43889654.57 0.0500 0.0374

Mercury -124877-12-03 05:32 J -43889564.44 -43889564.27 -43889564.10 0.0499 0.0209

Venus -124873-05-29 23:32 J -43888290.72 -43888290.52 -43888290.32 0.0509 0.0160

Venus -124872-01-22 09:08 J -43888053.23 -43888053.12 -43888053.00 0.0514 0.0418

Earth -124871-01-21 06:01 J -43887689.33 -43887689.25 -43887689.16 0.0522 0.0478

Moon -124871-01-21 09:37 J -43887689.21 -43887689.10 -43887688.99 0.0522 0.0451 \*

Mercury -124871-10-29 22:20 J -43887407.70 -43887407.57 -43887407.44 0.0526 0.0082

Mercury -124870-01-27 04:35 J -43887318.40 -43887318.31 -43887318.22 0.0527 0.0375

Mars -124869-08-25 13:56 J -43886742.13 -43886741.92 -43886741.71 0.0526 0.0343

Venus -124867-03-31 21:08 J -43886158.82 -43886158.62 -43886158.42 0.0516 0.0040

Moon -124866-07-07 00:30 J -43885696.65 -43885696.48 -43885696.31 0.0506 0.0352

Earth -124866-07-07 03:51 J -43885696.51 -43885696.34 -43885696.15 0.0506 0.0332 \*

Mercury -124865-09-21 02:39 J -43885254.57 -43885254.39 -43885254.20 0.0499 0.0066

Venus -124861-02-02 17:03 J -43884024.95 -43884024.79 -43884024.62 0.0508 0.0318

Venus -124861-09-27 03:37 J -43883787.52 -43883787.35 -43883787.17 0.0513 0.0261

Mercury -124859-08-18 02:39 J -43883097.50 -43883097.39 -43883097.27 0.0526 0.0191

Mercury -124859-11-15 09:08 J -43883008.23 -43883008.12 -43883008.01 0.0527 0.0268  
 Venus -124856-12-04 20:54 J -43881892.81 -43881892.63 -43881892.44 0.0517 0.0194  
 Venus -124855-07-29 09:37 J -43881656.24 -43881656.10 -43881655.96 0.0511 0.0366  
 Moon -124854-07-11 18:59 J -43881308.94 -43881308.71 -43881308.48 0.0504 0.0096  
 Earth -124854-07-11 20:54 J -43881308.87 -43881308.63 -43881308.40 0.0504 0.0090 \*  
 Mercury -124853-07-09 22:35 J -43880944.74 -43880944.56 -43880944.38 0.0499 0.0092  
 Mercury -124853-10-08 08:39 J -43880854.16 -43880854.14 -43880854.11 0.0498 0.0491  
 Mars -124851-06-07 16:35 J -43880246.84 -43880246.81 -43880246.77 0.0499 0.0494  
 Venus -124850-10-08 09:08 J -43879759.19 -43879759.12 -43879759.05 0.0507 0.0474  
 Venus -124849-06-01 20:39 J -43879521.84 -43879521.64 -43879521.43 0.0512 0.0102  
 Mercury -124847-06-06 06:59 J -43878787.31 -43878787.21 -43878787.10 0.0526 0.0302  
 Mercury -124847-09-03 13:27 J -43878698.06 -43878697.94 -43878697.82 0.0527 0.0157  
 Venus -124844-08-09 20:54 J -43877626.77 -43877626.63 -43877626.48 0.0518 0.0350  
 Venus -124843-04-03 09:08 J -43877390.30 -43877390.12 -43877389.94 0.0513 0.0213  
 Mercury -124841-04-27 19:27 J -43876634.85 -43876634.69 -43876634.52 0.0499 0.0238  
 Mercury -124841-07-27 05:47 J -43876544.39 -43876544.26 -43876544.13 0.0498 0.0345  
 Venus -124837-02-05 14:25 J -43875256.11 -43875255.90 -43875255.69 0.0510 0.0059  
 Mercury -124835-03-25 10:49 J -43874477.13 -43874477.05 -43874476.98 0.0526 0.0420  
 Mercury -124835-06-22 17:18 J -43874387.91 -43874387.78 -43874387.66 0.0527 0.0039  
 Mercury -124835-09-19 23:18 J -43874298.57 -43874298.53 -43874298.48 0.0527 0.0494  
 Mars -124833-06-01 16:49 J -43873678.08 -43873677.80 -43873677.52 0.0525 0.0057  
 Venus -124832-04-14 19:13 J -43873360.74 -43873360.70 -43873360.65 0.0520 0.0506  
 Venus -124832-12-07 07:27 J -43873124.39 -43873124.19 -43873123.99 0.0514 0.0056  
 Mercury -124829-02-14 16:49 J -43872324.91 -43872324.80 -43872324.68 0.0500 0.0380  
 Mercury -124829-05-15 02:54 J -43872234.55 -43872234.38 -43872234.21 0.0499 0.0203  
 Venus -124826-10-11 07:56 J -43870990.35 -43870990.17 -43870989.98 0.0509 0.0219  
 Venus -124825-06-04 18:15 J -43870752.88 -43870752.74 -43870752.59 0.0514 0.0362  
 Mercury -124823-04-10 21:08 J -43870077.75 -43870077.62 -43870077.49 0.0526 0.0079  
 Mercury -124823-07-09 03:23 J -43869988.45 -43869988.36 -43869988.27 0.0527 0.0377  
 Venus -124820-08-12 06:44 J -43868858.41 -43868858.22 -43868858.02 0.0516 0.0102

Venus -124819-04-05 20:25 J -43868621.74 -43868621.65 -43868621.56 0.0511 0.0458  
 Mercury -124817-03-03 00:15 J -43867924.68 -43867924.49 -43867924.31 0.0499 0.0060  
 Mars -124815-03-12 13:13 J -43867185.20 -43867184.95 -43867184.70 0.0500 0.0192  
 Venus -124814-06-16 00:01 J -43866724.63 -43866724.50 -43866724.35 0.0507 0.0378  
 Venus -124813-02-08 10:49 J -43866487.24 -43866487.05 -43866486.86 0.0512 0.0200  
 Earth -124812-01-11 04:20 J -43866149.36 -43866149.32 -43866149.26 0.0520 0.0505  
 Moon -124812-01-11 06:59 J -43866149.27 -43866149.21 -43866149.15 0.0520 0.0496 \*  
 Mercury -124811-01-28 00:44 J -43865767.58 -43865767.47 -43865767.35 0.0526 0.0198  
 Mercury -124811-04-27 07:13 J -43865678.31 -43865678.20 -43865678.09 0.0527 0.0260  
 Venus -124808-04-17 07:13 J -43864592.37 -43864592.20 -43864592.03 0.0518 0.0257  
 Venus -124808-12-09 20:11 J -43864355.82 -43864355.66 -43864355.50 0.0512 0.0308  
 Mercury -124806-12-20 21:23 J -43863614.79 -43863614.61 -43863614.43 0.0499 0.0085  
 Venus -124802-10-14 04:35 J -43862221.52 -43862221.31 -43862221.10 0.0511 0.0039  
 Earth -124800-01-15 20:25 J -43861761.88 -43861761.65 -43861761.42 0.0521 0.0053  
 Moon -124800-01-15 23:18 J -43861761.76 -43861761.53 -43861761.30 0.0521 0.0045 \*  
 Mercury -124800-11-16 05:03 J -43861457.39 -43861457.29 -43861457.18 0.0526 0.0308  
 Mercury -124799-02-13 11:32 J -43861368.14 -43861368.02 -43861367.90 0.0527 0.0151  
 Mars -124797-03-08 17:32 J -43860613.89 -43860613.77 -43860613.62 0.0524 0.0454  
 Venus -124797-12-21 07:27 J -43860326.30 -43860326.19 -43860326.06 0.0519 0.0410  
 Venus -124796-08-14 19:42 J -43860089.87 -43860089.68 -43860089.49 0.0513 0.0156  
 Mercury -124794-10-08 17:18 J -43859304.94 -43859304.78 -43859304.62 0.0499 0.0240  
 Mercury -124793-01-07 03:23 J -43859214.49 -43859214.36 -43859214.23 0.0498 0.0342  
 Venus -124790-06-18 20:25 J -43857955.85 -43857955.65 -43857955.44 0.0510 0.0124  
 Venus -124789-02-11 07:13 J -43857718.29 -43857718.20 -43857718.11 0.0515 0.0459  
 Moon -124788-01-20 08:11 J -43857374.32 -43857374.16 -43857374.00 0.0522 0.0363  
 Earth -124788-01-20 11:47 J -43857374.16 -43857374.01 -43857373.86 0.0522 0.0398 \*  
 Mercury -124788-09-04 09:23 J -43857147.19 -43857147.11 -43857147.04 0.0526 0.0420  
 Mercury -124788-12-02 15:51 J -43857057.97 -43857057.84 -43857057.71 0.0527 0.0040  
 Mercury -124787-03-01 22:06 J -43856968.62 -43856968.58 -43856968.54 0.0528 0.0496  
 Venus -124784-04-19 19:13 J -43855823.90 -43855823.70 -43855823.50 0.0515 0.0007

Earth -124783-07-06 03:08 J -43855381.49 -43855381.37 -43855381.24 0.0505 0.0425  
 Moon -124783-07-06 06:15 J -43855381.34 -43855381.24 -43855381.12 0.0505 0.0441 \*  
 Mercury -124782-07-27 14:11 J -43854995.02 -43854994.91 -43854994.79 0.0499 0.0386  
 Mercury -124782-10-26 00:15 J -43854904.66 -43854904.49 -43854904.32 0.0498 0.0196  
 Mars -124780-12-15 01:42 J -43854123.69 -43854123.43 -43854123.16 0.0501 0.0106  
 Venus -124778-02-21 13:56 J -43853690.09 -43853689.92 -43853689.74 0.0508 0.0283  
 Venus -124778-10-17 00:59 J -43853452.62 -43853452.46 -43853452.29 0.0513 0.0301  
 Mercury -124776-09-20 19:27 J -43852747.81 -43852747.69 -43852747.56 0.0526 0.0081  
 Mercury -124776-12-19 01:42 J -43852658.51 -43852658.43 -43852658.34 0.0527 0.0377  
 Venus -124773-12-23 17:03 J -43851557.97 -43851557.79 -43851557.60 0.0517 0.0163  
 Venus -124772-08-17 05:47 J -43851321.37 -43851321.26 -43851321.13 0.0511 0.0401  
 Earth -124771-07-10 21:08 J -43850993.86 -43850993.62 -43850993.39 0.0505 0.0010  
 Moon -124771-07-10 23:03 J -43850993.79 -43850993.54 -43850993.29 0.0505 0.0003 \*  
 Mercury -124770-08-13 21:08 J -43850594.80 -43850594.62 -43850594.43 0.0499 0.0052  
 Venus -124767-10-27 07:27 J -43849424.29 -43849424.19 -43849424.08 0.0507 0.0439  
 Venus -124766-06-21 18:30 J -43849186.92 -43849186.73 -43849186.52 0.0512 0.0140  
 Mercury -124764-07-09 23:18 J -43848437.65 -43848437.53 -43848437.41 0.0526 0.0198  
 Mercury -124764-10-07 05:47 J -43848348.37 -43848348.26 -43848348.15 0.0527 0.0260  
 Venus -124761-08-28 16:20 J -43847291.97 -43847291.82 -43847291.66 0.0518 0.0321  
 Venus -124760-04-22 05:03 J -43847055.46 -43847055.29 -43847055.11 0.0513 0.0247  
 Moon -124759-07-15 12:30 J -43846606.07 -43846605.98 -43846605.88 0.0504 0.0462  
 Earth -124759-07-15 16:35 J -43846605.92 -43846605.81 -43846605.68 0.0504 0.0435 \*  
 Mercury -124758-06-01 18:30 J -43846284.91 -43846284.73 -43846284.55 0.0499 0.0093  
 Mercury -124758-08-31 04:49 J -43846194.33 -43846194.30 -43846194.28 0.0498 0.0492  
 Venus -124754-02-24 10:49 J -43844921.26 -43844921.05 -43844920.84 0.0510 0.0025  
 Mercury -124752-04-28 02:54 J -43844127.48 -43844127.38 -43844127.27 0.0526 0.0318  
 Mercury -124752-07-26 09:23 J -43844038.23 -43844038.11 -43844037.98 0.0527 0.0141  
 Venus -124749-05-03 16:20 J -43843025.89 -43843025.82 -43843025.74 0.0520 0.0475  
 Venus -124749-12-26 04:49 J -43842789.49 -43842789.30 -43842789.10 0.0515 0.0093  
 Mercury -124746-03-20 15:37 J -43841975.02 -43841974.85 -43841974.69 0.0499 0.0238



Mercury -124746-06-19 01:27 J -43841884.56 -43841884.44 -43841884.30 0.0498 0.0347

Mars -124744-09-19 01:13 J -43841061.59 -43841061.45 -43841061.29 0.0501 0.0418

Venus -124743-10-30 03:51 J -43840655.53 -43840655.34 -43840655.15 0.0509 0.0187

Venus -124742-06-24 13:56 J -43840418.04 -43840417.92 -43840417.78 0.0514 0.0396

Mercury -124740-02-14 07:13 J -43839817.27 -43839817.20 -43839817.13 0.0526 0.0429

Mercury -124740-05-14 13:42 J -43839728.06 -43839727.93 -43839727.80 0.0527 0.0030

Mercury -124740-08-11 19:56 J -43839638.72 -43839638.67 -43839638.62 0.0528 0.0486

Venus -124737-08-31 05:03 J -43838523.48 -43838523.29 -43838523.09 0.0516 0.0064

Venus -124736-04-24 18:01 J -43838286.79 -43838286.75 -43838286.70 0.0510 0.0496

Mercury -124734-01-06 11:32 J -43837665.12 -43837665.02 -43837664.90 0.0499 0.0391

Mercury -124734-04-06 21:37 J -43837574.77 -43837574.60 -43837574.43 0.0498 0.0190

Venus -124731-07-04 18:59 J -43836389.85 -43836389.71 -43836389.55 0.0508 0.0349

Venus -124730-02-27 06:30 J -43836152.41 -43836152.23 -43836152.04 0.0513 0.0235

Mercury -124728-03-02 17:47 J -43835417.88 -43835417.76 -43835417.63 0.0527 0.0084

Mercury -124728-05-31 00:15 J -43835328.58 -43835328.49 -43835328.40 0.0528 0.0375

Venus -124725-05-06 04:49 J -43834257.48 -43834257.30 -43834257.12 0.0517 0.0221

Venus -124725-12-28 17:03 J -43834020.94 -43834020.79 -43834020.64 0.0512 0.0344

Mercury -124722-01-23 18:15 J -43833264.92 -43833264.74 -43833264.55 0.0499 0.0044

Venus -124719-03-09 12:30 J -43832124.00 -43832123.98 -43832123.96 0.0506 0.0503

Venus -124719-11-02 00:15 J -43831886.70 -43831886.49 -43831886.29 0.0511 0.0074

Moon -124717-01-15 18:30 J -43831446.94 -43831446.73 -43831446.52 0.0521 0.0141

Earth -124717-01-15 21:23 J -43831446.83 -43831446.61 -43831446.39 0.0521 0.0155 \*

Mercury -124717-12-19 21:37 J -43831107.72 -43831107.60 -43831107.48 0.0526 0.0203

Mercury -124716-03-19 03:51 J -43831018.45 -43831018.34 -43831018.23 0.0527 0.0256

Mars -124715-11-19 02:54 J -43830408.63 -43830408.38 -43830408.12 0.0526 0.0231

Venus -124713-01-10 02:25 J -43829991.53 -43829991.40 -43829991.27 0.0519 0.0383

Venus -124713-09-02 14:39 J -43829755.08 -43829754.89 -43829754.71 0.0513 0.0186

Mercury -124711-11-11 15:08 J -43828955.05 -43828954.87 -43828954.68 0.0499 0.0105

Mercury -124710-02-10 01:27 J -43828864.48 -43828864.44 -43828864.39 0.0498 0.0480

Venus -124707-07-07 17:47 J -43827620.96 -43827620.76 -43827620.55 0.0510 0.0088

Venus -124706-03-02 03:51 J -43827383.39 -43827383.34 -43827383.28 0.0515 0.0494  
 Earth -124705-01-20 11:32 J -43827059.21 -43827059.02 -43827058.84 0.0522 0.0294  
 Moon -124705-01-20 14:54 J -43827059.07 -43827058.88 -43827058.69 0.0522 0.0262 \*  
 Mercury -124705-10-08 01:27 J -43826797.54 -43826797.44 -43826797.34 0.0526 0.0320  
 Mercury -124704-01-05 07:42 J -43826708.30 -43826708.18 -43826708.05 0.0527 0.0139  
 Venus -124701-05-08 13:42 J -43825489.13 -43825488.93 -43825488.73 0.0515 0.0028  
 Mercury -124699-08-30 12:15 J -43824645.14 -43824644.99 -43824644.83 0.0500 0.0249  
 Mercury -124699-11-28 22:35 J -43824554.70 -43824554.56 -43824554.43 0.0499 0.0336  
 Mars -124697-08-31 05:32 J -43823913.43 -43823913.27 -43823913.12 0.0499 0.0403  
 Venus -124695-03-12 09:51 J -43823355.27 -43823355.09 -43823354.91 0.0508 0.0251  
 Venus -124695-11-04 20:11 J -43823117.81 -43823117.66 -43823117.50 0.0513 0.0333  
 Mercury -124693-07-27 05:03 J -43822487.36 -43822487.29 -43822487.22 0.0526 0.0440  
 Mercury -124693-10-24 11:32 J -43822398.15 -43822398.02 -43822397.90 0.0527 0.0023  
 Mercury -124692-01-21 17:47 J -43822308.82 -43822308.76 -43822308.71 0.0527 0.0475  
 Venus -124689-01-12 13:27 J -43821223.13 -43821222.94 -43821222.75 0.0517 0.0130  
 Venus -124689-09-05 02:25 J -43820986.50 -43820986.40 -43820986.29 0.0511 0.0436  
 Moon -124688-07-09 18:59 J -43820678.93 -43820678.71 -43820678.48 0.0505 0.0098  
 Earth -124688-07-09 20:54 J -43820678.86 -43820678.63 -43820678.39 0.0505 0.0088 \*  
 Mercury -124687-06-18 09:23 J -43820335.22 -43820335.11 -43820334.99 0.0500 0.0393  
 Mercury -124687-09-16 19:27 J -43820244.86 -43820244.69 -43820244.52 0.0499 0.0189  
 Venus -124684-11-15 02:25 J -43819089.52 -43819089.40 -43819089.28 0.0507 0.0410  
 Venus -124683-07-10 13:13 J -43818852.14 -43818851.95 -43818851.75 0.0512 0.0171  
 Mercury -124681-08-12 15:37 J -43818087.98 -43818087.85 -43818087.73 0.0527 0.0095  
 Mercury -124681-11-09 21:51 J -43817998.68 -43817998.59 -43817998.50 0.0528 0.0363  
 Mars -124679-08-26 03:51 J -43817344.60 -43817344.34 -43817344.07 0.0525 0.0171  
 Venus -124678-09-17 14:11 J -43816957.07 -43816956.91 -43816956.75 0.0518 0.0286  
 Venus -124677-05-11 02:25 J -43816720.56 -43816720.40 -43816720.23 0.0513 0.0285  
 Earth -124676-07-14 15:23 J -43816291.03 -43816290.86 -43816290.68 0.0503 0.0339  
 Moon -124676-07-14 19:13 J -43816290.85 -43816290.70 -43816290.53 0.0503 0.0370 \*  
 Mercury -124675-07-05 15:37 J -43815935.03 -43815934.85 -43815934.66 0.0498 0.0036

Venus -124671-03-15 05:03 J -43814586.50 -43814586.29 -43814586.08 0.0511 0.0007  
 Mercury -124669-05-31 19:42 J -43813777.80 -43813777.68 -43813777.56 0.0527 0.0210  
 Mercury -124669-08-29 01:56 J -43813688.53 -43813688.42 -43813688.30 0.0528 0.0251  
 Venus -124666-05-23 13:56 J -43812691.02 -43812690.92 -43812690.81 0.0519 0.0442  
 Venus -124665-01-15 01:56 J -43812454.62 -43812454.42 -43812454.23 0.0514 0.0127  
 Mercury -124663-04-23 12:30 J -43811625.16 -43811624.98 -43811624.80 0.0499 0.0112  
 Mercury -124663-07-22 22:35 J -43811534.62 -43811534.56 -43811534.50 0.0498 0.0471  
 Mars -124661-06-04 12:44 J -43810852.23 -43810851.97 -43810851.71 0.0500 0.0116  
 Venus -124660-11-17 22:35 J -43810320.75 -43810320.56 -43810320.36 0.0509 0.0156  
 Venus -124659-07-13 09:23 J -43810083.22 -43810083.11 -43810083.00 0.0514 0.0430  
 Mercury -124657-03-19 23:32 J -43809467.62 -43809467.52 -43809467.42 0.0526 0.0327  
 Mercury -124657-06-17 05:47 J -43809378.38 -43809378.26 -43809378.13 0.0527 0.0132  
 Venus -124654-09-19 23:18 J -43808188.73 -43808188.53 -43808188.34 0.0516 0.0038  
 Mercury -124651-02-09 09:08 J -43807315.28 -43807315.12 -43807314.96 0.0499 0.0260  
 Mercury -124651-05-10 19:13 J -43807224.84 -43807224.70 -43807224.56 0.0499 0.0323  
 Venus -124648-07-23 16:20 J -43806054.98 -43806054.82 -43806054.65 0.0507 0.0316  
 Venus -124647-03-18 03:23 J -43805817.54 -43805817.36 -43805817.19 0.0513 0.0270  
 Mercury -124645-01-07 03:08 J -43805157.43 -43805157.37 -43805157.30 0.0525 0.0444  
 Mercury -124645-04-05 09:51 J -43805068.22 -43805068.09 -43805067.97 0.0526 0.0023  
 Mercury -124645-07-03 15:51 J -43804978.89 -43804978.84 -43804978.78 0.0527 0.0471  
 Venus -124642-05-25 22:06 J -43803922.76 -43803922.58 -43803922.39 0.0517 0.0197  
 Venus -124641-01-17 10:49 J -43803686.18 -43803686.05 -43803685.91 0.0512 0.0373  
 Mercury -124640-11-28 06:15 J -43803005.35 -43803005.24 -43803005.13 0.0500 0.0405  
 Mercury -124639-02-26 16:06 J -43802915.00 -43802914.83 -43802914.65 0.0499 0.0179  
 Venus -124636-03-28 08:39 J -43801789.21 -43801789.14 -43801789.07 0.0506 0.0473  
 Venus -124636-11-20 19:42 J -43801551.89 -43801551.68 -43801551.48 0.0511 0.0106  
 Earth -124634-01-14 18:30 J -43801131.92 -43801131.73 -43801131.53 0.0520 0.0265  
 Moon -124634-01-14 21:23 J -43801131.81 -43801131.61 -43801131.40 0.0520 0.0243 \*  
 Mercury -124633-01-23 13:27 J -43800758.07 -43800757.94 -43800757.82 0.0526 0.0108  
 Mercury -124633-04-21 19:42 J -43800668.78 -43800668.68 -43800668.59 0.0527 0.0351

Venus -124630-01-28 21:51 J -43799656.73 -43799656.59 -43799656.45 0.0519 0.0355

Venus -124630-09-22 10:20 J -43799420.25 -43799420.07 -43799419.88 0.0514 0.0219

Mercury -124628-12-15 13:13 J -43798605.13 -43798604.95 -43798604.77 0.0499 0.0032

Mars -124625-03-09 07:13 J -43797790.44 -43797790.20 -43797789.95 0.0500 0.0192

Venus -124624-07-26 12:15 J -43797286.20 -43797285.99 -43797285.78 0.0509 0.0059

Moon -124622-01-19 05:18 J -43796744.50 -43796744.28 -43796744.06 0.0521 0.0149

Earth -124622-01-19 08:54 J -43796744.34 -43796744.13 -43796743.92 0.0521 0.0182 \*

Mercury -124622-11-11 17:18 J -43796447.89 -43796447.78 -43796447.66 0.0526 0.0221

Mercury -124621-02-08 23:47 J -43796358.62 -43796358.51 -43796358.40 0.0527 0.0238

Venus -124619-10-03 22:49 J -43795390.59 -43795390.55 -43795390.51 0.0520 0.0508

Venus -124618-05-28 10:49 J -43795154.24 -43795154.05 -43795153.85 0.0515 0.0065

Mercury -124616-10-03 09:37 J -43794295.27 -43794295.10 -43794294.92 0.0499 0.0119

Mercury -124615-01-01 19:42 J -43794204.74 -43794204.68 -43794204.61 0.0498 0.0464

Venus -124612-03-31 03:37 J -43793020.54 -43793020.35 -43793020.16 0.0508 0.0224

Venus -124612-11-23 14:25 J -43792783.04 -43792782.90 -43792782.75 0.0514 0.0365

Mercury -124610-08-30 21:23 J -43792137.71 -43792137.61 -43792137.51 0.0526 0.0336

Mercury -124610-11-28 03:51 J -43792048.46 -43792048.34 -43792048.21 0.0527 0.0125

Venus -124606-01-31 10:35 J -43790888.25 -43790888.06 -43790887.86 0.0516 0.0097

Venus -124606-09-24 23:18 J -43790651.60 -43790651.53 -43790651.45 0.0511 0.0469

Earth -124605-07-08 19:13 J -43790363.92 -43790363.70 -43790363.48 0.0505 0.0184

Moon -124605-07-08 21:08 J -43790363.85 -43790363.62 -43790363.39 0.0505 0.0199 \*

Mercury -124604-07-22 06:30 J -43789985.38 -43789985.23 -43789985.07 0.0499 0.0265

Mercury -124604-10-20 16:35 J -43789894.95 -43789894.81 -43789894.67 0.0498 0.0317

Venus -124601-12-03 20:54 J -43788754.76 -43788754.63 -43788754.49 0.0507 0.0383

Venus -124600-07-29 08:25 J -43788517.34 -43788517.15 -43788516.96 0.0512 0.0203

Mercury -124598-06-19 01:13 J -43787827.51 -43787827.45 -43787827.38 0.0526 0.0451

Mercury -124598-09-16 07:42 J -43787738.31 -43787738.18 -43787738.05 0.0527 0.0013

Mercury -124598-12-14 13:56 J -43787648.97 -43787648.92 -43787648.86 0.0527 0.0464

Venus -124595-10-06 07:56 J -43786622.34 -43786622.17 -43786622.00 0.0518 0.0261

Venus -124594-05-30 20:11 J -43786385.82 -43786385.66 -43786385.50 0.0513 0.0312

Moon -124593-07-13 06:59 J -43785976.41 -43785976.21 -43785976.00 0.0504 0.0265  
 Earth -124593-07-13 11:03 J -43785976.25 -43785976.04 -43785975.83 0.0504 0.0235 \*  
 Mercury -124592-05-10 03:08 J -43785675.47 -43785675.37 -43785675.27 0.0500 0.0415  
 Mercury -124592-08-08 12:59 J -43785585.13 -43785584.96 -43785584.78 0.0499 0.0168  
 Venus -124588-04-03 02:39 J -43784251.60 -43784251.39 -43784251.19 0.0510 0.0042  
 Mercury -124586-07-05 11:47 J -43783428.14 -43783428.01 -43783427.89 0.0526 0.0109  
 Mercury -124586-10-02 18:01 J -43783338.85 -43783338.75 -43783338.66 0.0527 0.0349  
 Venus -124583-06-11 06:44 J -43782356.32 -43782356.22 -43782356.10 0.0519 0.0422  
 Venus -124582-02-02 18:59 J -43782119.90 -43782119.71 -43782119.52 0.0514 0.0154  
 Mercury -124580-05-27 10:06 J -43781275.27 -43781275.08 -43781274.90 0.0499 0.0022  
 Venus -124577-12-06 18:44 J -43779985.92 -43779985.72 -43779985.51 0.0509 0.0124  
 Venus -124576-08-01 04:49 J -43779748.39 -43779748.30 -43779748.21 0.0514 0.0463  
 Mercury -124574-04-23 15:23 J -43779117.98 -43779117.86 -43779117.75 0.0526 0.0229  
 Mercury -124574-07-21 21:37 J -43779028.71 -43779028.60 -43779028.48 0.0527 0.0229  
 Venus -124571-10-08 18:44 J -43777853.92 -43777853.72 -43777853.52 0.0516 0.0006  
 Mercury -124568-03-15 07:13 J -43776965.38 -43776965.20 -43776965.02 0.0499 0.0123  
 Mercury -124568-06-13 17:18 J -43776874.84 -43776874.78 -43776874.71 0.0498 0.0461  
 Venus -124565-08-11 11:18 J -43775720.20 -43775720.03 -43775719.86 0.0507 0.0286  
 Venus -124564-04-05 21:51 J -43775482.75 -43775482.59 -43775482.42 0.0512 0.0301  
 Mercury -124562-02-09 19:13 J -43774807.79 -43774807.70 -43774807.60 0.0526 0.0344  
 Mercury -124562-05-10 01:42 J -43774718.55 -43774718.43 -43774718.30 0.0527 0.0115  
 Mars -124560-02-11 02:54 J -43774075.65 -43774075.38 -43774075.11 0.0526 0.0137  
 Venus -124559-06-13 19:27 J -43773587.87 -43773587.69 -43773587.50 0.0517 0.0163  
 Venus -124558-02-05 08:25 J -43773351.27 -43773351.15 -43773351.04 0.0512 0.0409  
 Mercury -124556-01-01 04:06 J -43772655.49 -43772655.33 -43772655.18 0.0499 0.0271  
 Mercury -124556-04-01 13:56 J -43772565.06 -43772564.92 -43772564.77 0.0498 0.0312  
 Venus -124553-04-16 02:39 J -43771454.49 -43771454.39 -43771454.30 0.0506 0.0448  
 Venus -124553-12-09 13:42 J -43771217.12 -43771216.93 -43771216.72 0.0511 0.0137  
 Moon -124551-01-13 14:39 J -43770817.06 -43770816.89 -43770816.72 0.0520 0.0345  
 Earth -124551-01-13 17:18 J -43770816.93 -43770816.78 -43770816.61 0.0520 0.0371 \*

Mercury -124551-11-28 23:18 J -43770497.59 -43770497.53 -43770497.47 0.0526 0.0460  
 Mercury -124550-02-26 05:47 J -43770408.39 -43770408.26 -43770408.13 0.0527 0.0002  
 Mercury -124550-05-26 12:01 J -43770319.06 -43770319.00 -43770318.93 0.0528 0.0459  
 Venus -124547-02-16 19:42 J -43769321.83 -43769321.68 -43769321.53 0.0519 0.0321  
 Venus -124547-10-11 07:56 J -43769085.34 -43769085.17 -43769084.99 0.0513 0.0254  
 Mercury -124545-10-20 00:59 J -43768345.56 -43768345.46 -43768345.36 0.0499 0.0416  
 Mercury -124544-01-18 10:49 J -43768255.22 -43768255.05 -43768254.87 0.0498 0.0165  
 Mars -124543-11-24 04:20 J -43767580.51 -43767580.32 -43767580.11 0.0499 0.0334  
 Venus -124541-08-14 07:42 J -43766951.39 -43766951.18 -43766950.97 0.0510 0.0028  
 Earth -124539-01-18 09:23 J -43766429.34 -43766429.11 -43766428.89 0.0521 0.0083  
 Moon -124539-01-18 12:30 J -43766429.20 -43766428.98 -43766428.75 0.0521 0.0056 \*  
 Mercury -124539-12-15 09:51 J -43766098.22 -43766098.09 -43766097.97 0.0526 0.0115  
 Mercury -124538-03-14 16:06 J -43766008.93 -43766008.83 -43766008.73 0.0527 0.0343  
 Venus -124536-10-22 17:03 J -43765055.86 -43765055.79 -43765055.72 0.0520 0.0484  
 Venus -124535-06-16 04:49 J -43764819.49 -43764819.30 -43764819.10 0.0515 0.0091  
 Mercury -124533-11-06 07:13 J -43763945.39 -43763945.20 -43763945.02 0.0499 0.0014  
 Venus -124529-04-19 02:11 J -43762685.61 -43762685.41 -43762685.22 0.0508 0.0188  
 Venus -124529-12-12 12:44 J -43762448.10 -43762447.97 -43762447.84 0.0513 0.0401  
 Mercury -124527-10-03 13:42 J -43761788.04 -43761787.93 -43761787.81 0.0526 0.0230  
 Mercury -124527-12-31 20:11 J -43761698.78 -43761698.66 -43761698.55 0.0527 0.0229  
 Mars -124525-11-17 22:35 J -43761011.80 -43761011.56 -43761011.31 0.0525 0.0255  
 Venus -124523-02-19 04:06 J -43760553.53 -43760553.33 -43760553.14 0.0516 0.0072  
 Venus -124523-10-13 16:49 J -43760316.84 -43760316.80 -43760316.75 0.0511 0.0498  
 Moon -124522-07-08 13:13 J -43760049.12 -43760048.95 -43760048.76 0.0506 0.0313  
 Earth -124522-07-08 14:54 J -43760049.07 -43760048.88 -43760048.68 0.0506 0.0288 \*  
 Mercury -124521-08-25 04:20 J -43759635.50 -43759635.32 -43759635.15 0.0499 0.0132  
 Mercury -124521-11-23 14:25 J -43759544.97 -43759544.90 -43759544.82 0.0499 0.0454  
 Venus -124518-12-23 18:30 J -43758419.88 -43758419.73 -43758419.58 0.0507 0.0349  
 Venus -124517-08-17 05:18 J -43758182.46 -43758182.28 -43758182.09 0.0512 0.0238  
 Mercury -124515-07-22 17:18 J -43757477.87 -43757477.78 -43757477.68 0.0526 0.0350

Mercury -124515-10-19 23:47 J -43757388.63 -43757388.51 -43757388.38 0.0527 0.0109

Venus -124512-10-25 03:37 J -43756287.52 -43756287.35 -43756287.17 0.0518 0.0231

Venus -124511-06-18 16:35 J -43756050.96 -43756050.81 -43756050.66 0.0513 0.0345

Earth -124510-07-13 11:03 J -43755661.26 -43755661.04 -43755660.81 0.0505 0.0148

Moon -124510-07-13 14:54 J -43755661.10 -43755660.88 -43755660.66 0.0505 0.0180 \*

Mercury -124509-06-13 01:27 J -43755325.59 -43755325.44 -43755325.28 0.0500 0.0275

Mercury -124509-09-11 11:32 J -43755235.16 -43755235.02 -43755234.87 0.0499 0.0310

Mars -124507-08-28 22:35 J -43754518.82 -43754518.56 -43754518.29 0.0500 0.0027

Venus -124505-04-21 22:20 J -43753916.78 -43753916.57 -43753916.37 0.0510 0.0074

Mercury -124503-05-10 21:23 J -43753167.67 -43753167.61 -43753167.55 0.0525 0.0465

Mercury -124503-08-08 03:51 J -43753078.47 -43753078.34 -43753078.21 0.0527 0.0006

Mercury -124503-11-05 10:06 J -43752989.14 -43752989.08 -43752989.01 0.0528 0.0451

Venus -124500-06-30 04:35 J -43752021.44 -43752021.31 -43752021.18 0.0520 0.0388

Venus -124499-02-21 17:03 J -43751784.97 -43751784.79 -43751784.60 0.0514 0.0192

Mercury -124497-03-31 22:35 J -43751015.65 -43751015.56 -43751015.46 0.0499 0.0419

Mercury -124497-06-30 08:25 J -43750925.32 -43750925.15 -43750924.97 0.0499 0.0163

Venus -124494-12-26 13:56 J -43749651.12 -43749650.92 -43749650.71 0.0509 0.0094

Venus -124493-08-20 00:15 J -43749413.54 -43749413.49 -43749413.44 0.0514 0.0495

Mercury -124491-05-27 07:56 J -43748768.30 -43748768.17 -43748768.05 0.0527 0.0120

Mercury -124491-08-24 14:11 J -43748679.00 -43748678.91 -43748678.81 0.0528 0.0339

Venus -124488-10-27 17:18 J -43747518.98 -43747518.78 -43747518.58 0.0516 0.0032

Mercury -124485-04-18 05:32 J -43746615.46 -43746615.27 -43746615.09 0.0499 0.0017

Venus -124482-08-31 07:56 J -43745385.35 -43745385.17 -43745384.98 0.0508 0.0255

Venus -124481-04-24 18:59 J -43745147.86 -43745147.71 -43745147.55 0.0513 0.0336

Mercury -124479-03-15 12:01 J -43744458.11 -43744458.00 -43744457.88 0.0526 0.0233

Mercury -124479-06-12 18:30 J -43744368.85 -43744368.73 -43744368.62 0.0527 0.0226

Venus -124476-07-02 14:25 J -43743253.09 -43743252.90 -43743252.70 0.0517 0.0135

Venus -124475-02-24 03:08 J -43743016.47 -43743016.37 -43743016.27 0.0512 0.0439

Mercury -124473-02-05 01:42 J -43742305.61 -43742305.43 -43742305.25 0.0499 0.0136

Mercury -124473-05-05 11:47 J -43742215.08 -43742215.01 -43742214.92 0.0499 0.0450

Mars -124471-06-02 16:35 J -43741457.03 -43741456.81 -43741456.58 0.0501 0.0285  
 Venus -124470-05-06 02:11 J -43741119.52 -43741119.41 -43741119.28 0.0506 0.0413  
 Venus -124470-12-29 13:42 J -43740882.12 -43740881.93 -43740881.73 0.0511 0.0176  
 Earth -124468-01-12 22:49 J -43740501.66 -43740501.55 -43740501.43 0.0519 0.0447  
 Moon -124468-01-13 01:42 J -43740501.56 -43740501.43 -43740501.28 0.0519 0.0414 \*  
 Mercury -124467-01-01 16:06 J -43740147.92 -43740147.83 -43740147.73 0.0525 0.0346  
 Mercury -124467-03-31 22:35 J -43740058.68 -43740058.56 -43740058.43 0.0526 0.0112  
 Venus -124464-03-07 13:56 J -43738987.08 -43738986.92 -43738986.75 0.0518 0.0296  
 Venus -124464-10-30 02:25 J -43738750.57 -43738750.40 -43738750.24 0.0513 0.0283  
 Mercury -124462-11-23 22:49 J -43737995.70 -43737995.55 -43737995.39 0.0500 0.0280  
 Mercury -124461-02-22 08:54 J -43737905.27 -43737905.13 -43737904.98 0.0499 0.0306  
 Venus -124458-09-03 06:44 J -43736616.43 -43736616.22 -43736616.01 0.0510 0.0012  
 Moon -124456-01-17 08:54 J -43736114.36 -43736114.13 -43736113.90 0.0520 0.0034  
 Earth -124456-01-17 12:01 J -43736114.23 -43736114.00 -43736113.77 0.0520 0.0006 \*  
 Mercury -124456-10-20 19:42 J -43735837.73 -43735837.68 -43735837.62 0.0525 0.0465  
 Mercury -124455-01-18 02:25 J -43735748.53 -43735748.40 -43735748.28 0.0526 0.0019  
 Mercury -124455-04-17 08:25 J -43735659.21 -43735659.15 -43735659.08 0.0527 0.0450  
 Venus -124453-11-10 13:27 J -43734721.02 -43734720.94 -43734720.84 0.0520 0.0455  
 Venus -124452-07-05 01:56 J -43734484.61 -43734484.42 -43734484.22 0.0515 0.0126  
 Mercury -124450-09-11 20:25 J -43733685.75 -43733685.65 -43733685.55 0.0500 0.0421  
 Mercury -124450-12-11 06:15 J -43733595.41 -43733595.24 -43733595.06 0.0499 0.0162  
 Venus -124446-05-08 23:32 J -43732350.72 -43732350.52 -43732350.32 0.0508 0.0153  
 Venus -124445-01-01 09:37 J -43732113.20 -43732113.10 -43732112.99 0.0513 0.0437  
 Moon -124444-01-22 00:15 J -43731726.59 -43731726.49 -43731726.38 0.0522 0.0456  
 Earth -124444-01-22 02:11 J -43731726.53 -43731726.41 -43731726.29 0.0522 0.0440 \*  
 Mercury -124444-11-06 06:15 J -43731438.36 -43731438.24 -43731438.11 0.0526 0.0122  
 Mercury -124443-02-03 12:30 J -43731349.07 -43731348.98 -43731348.88 0.0527 0.0337  
 Mars -124442-07-31 06:30 J -43730806.38 -43730806.23 -43730806.08 0.0527 0.0441  
 Venus -124440-03-10 03:08 J -43730218.57 -43730218.37 -43730218.17 0.0517 0.0033  
 Earth -124439-07-07 19:27 J -43729733.85 -43729733.69 -43729733.52 0.0506 0.0360



Moon -124439-07-07 21:23 J -43729733.76 -43729733.61 -43729733.44 0.0506 0.0384 \*  
 Mercury -124438-09-29 03:37 J -43729285.54 -43729285.35 -43729285.17 0.0499 0.0021  
 Venus -124434-01-11 15:23 J -43728085.02 -43728084.86 -43728084.70 0.0507 0.0318  
 Venus -124434-09-06 02:25 J -43727847.58 -43727847.40 -43727847.23 0.0512 0.0273  
 Mercury -124432-08-25 10:20 J -43727128.18 -43727128.07 -43727127.95 0.0526 0.0236  
 Mercury -124432-11-22 16:49 J -43727038.92 -43727038.80 -43727038.69 0.0527 0.0223  
 Venus -124429-11-13 03:37 J -43725952.53 -43725952.35 -43725952.16 0.0518 0.0193  
 Venus -124428-07-07 16:20 J -43725715.95 -43725715.82 -43725715.69 0.0513 0.0385  
 Moon -124427-07-12 12:01 J -43725346.24 -43725346.00 -43725345.76 0.0505 0.0106  
 Earth -124427-07-12 15:37 J -43725346.09 -43725345.85 -43725345.62 0.0505 0.0077 \*  
 Mercury -124426-07-18 00:44 J -43724975.65 -43724975.47 -43724975.29 0.0499 0.0126  
 Mercury -124426-10-16 10:49 J -43724885.12 -43724885.05 -43724884.98 0.0498 0.0458  
 Venus -124423-09-16 09:23 J -43723819.17 -43723819.11 -43723819.04 0.0506 0.0475  
 Venus -124422-05-11 20:54 J -43723581.83 -43723581.63 -43723581.43 0.0511 0.0111  
 Mercury -124420-06-13 14:39 J -43722817.99 -43722817.89 -43722817.80 0.0526 0.0346  
 Mercury -124420-09-10 21:08 J -43722728.75 -43722728.62 -43722728.50 0.0527 0.0113  
 Venus -124417-07-19 01:13 J -43721686.59 -43721686.45 -43721686.30 0.0519 0.0357  
 Venus -124416-03-12 13:27 J -43721450.12 -43721449.94 -43721449.76 0.0514 0.0223  
 Moon -124415-07-17 05:18 J -43720958.35 -43720958.28 -43720958.20 0.0504 0.0473  
 Earth -124415-07-17 06:30 J -43720958.27 -43720958.23 -43720958.19 0.0504 0.0495 \*  
 Mercury -124414-05-05 20:54 J -43720665.78 -43720665.63 -43720665.48 0.0500 0.0280  
 Mercury -124414-08-04 06:59 J -43720575.36 -43720575.21 -43720575.07 0.0499 0.0305  
 Venus -124410-01-14 15:37 J -43719316.06 -43719315.85 -43719315.64 0.0509 0.0050  
 Mercury -124408-04-01 18:44 J -43718507.78 -43718507.72 -43718507.65 0.0525 0.0457  
 Mercury -124408-06-30 01:13 J -43718418.57 -43718418.45 -43718418.32 0.0526 0.0018  
 Mercury -124408-09-27 07:27 J -43718329.25 -43718329.19 -43718329.12 0.0527 0.0457  
 Mars -124406-05-07 14:39 J -43717742.18 -43717741.89 -43717741.61 0.0526 0.0026  
 Venus -124405-03-24 01:13 J -43717420.47 -43717420.45 -43717420.43 0.0520 0.0515  
 Venus -124405-11-15 12:59 J -43717184.15 -43717183.96 -43717183.76 0.0515 0.0063  
 Mercury -124402-02-21 18:01 J -43716355.84 -43716355.75 -43716355.65 0.0500 0.0422

Mercury -124402-05-23 04:06 J -43716265.50 -43716265.33 -43716265.16 0.0499 0.0162

Venus -124399-09-19 08:54 J -43715050.32 -43715050.13 -43715049.94 0.0508 0.0213

Venus -124398-05-14 19:27 J -43714812.82 -43714812.69 -43714812.55 0.0513 0.0379

Mercury -124396-04-18 05:03 J -43714108.41 -43714108.29 -43714108.16 0.0526 0.0118

Mercury -124396-07-16 11:18 J -43714019.12 -43714019.03 -43714018.93 0.0527 0.0339

Venus -124393-07-21 12:44 J -43712918.16 -43712917.97 -43712917.77 0.0517 0.0098

Venus -124392-03-15 01:56 J -43712681.48 -43712681.42 -43712681.35 0.0512 0.0478

Mercury -124390-03-11 01:27 J -43711955.62 -43711955.44 -43711955.25 0.0499 0.0022

Mars -124388-02-17 04:20 J -43711246.56 -43711246.32 -43711246.08 0.0499 0.0224

Venus -124387-05-25 01:42 J -43710784.56 -43710784.43 -43710784.28 0.0506 0.0375

Venus -124386-01-17 12:44 J -43710547.16 -43710546.97 -43710546.78 0.0511 0.0215

Moon -124385-01-12 23:18 J -43710186.58 -43710186.53 -43710186.47 0.0519 0.0501

Mercury -124384-02-04 09:08 J -43709798.24 -43709798.12 -43709798.01 0.0526 0.0232

Mercury -124384-05-04 15:23 J -43709708.97 -43709708.86 -43709708.74 0.0527 0.0226

Venus -124381-03-26 14:11 J -43708652.08 -43708651.91 -43708651.74 0.0519 0.0257

Venus -124381-11-18 02:54 J -43708415.53 -43708415.38 -43708415.22 0.0514 0.0325

Mercury -124379-12-27 23:03 J -43707645.72 -43707645.54 -43707645.36 0.0499 0.0121

Mercury -124378-03-28 09:08 J -43707555.18 -43707555.12 -43707555.05 0.0498 0.0464

Venus -124375-09-22 05:18 J -43706281.48 -43706281.28 -43706281.07 0.0510 0.0050

Earth -124373-01-17 17:03 J -43705799.02 -43705798.79 -43705798.57 0.0520 0.0085

Moon -124373-01-17 18:44 J -43705798.93 -43705798.72 -43705798.50 0.0520 0.0114 \*

Mercury -124373-11-23 13:13 J -43705488.05 -43705487.95 -43705487.86 0.0526 0.0346

Mercury -124372-02-20 19:42 J -43705398.81 -43705398.68 -43705398.56 0.0527 0.0114

Mars -124370-02-11 23:32 J -43704677.70 -43704677.52 -43704677.33 0.0525 0.0390

Venus -124370-11-30 14:54 J -43704386.00 -43704385.88 -43704385.76 0.0520 0.0415

Venus -124369-07-24 03:23 J -43704149.55 -43704149.36 -43704149.17 0.0515 0.0168

Mercury -124367-10-15 20:25 J -43703335.81 -43703335.65 -43703335.50 0.0500 0.0263

Mercury -124366-01-14 06:15 J -43703245.37 -43703245.24 -43703245.09 0.0499 0.0321

Venus -124363-05-27 23:47 J -43702015.71 -43702015.51 -43702015.31 0.0508 0.0114

Venus -124362-01-20 10:06 J -43701778.14 -43701778.08 -43701778.00 0.0514 0.0479

Earth -124361-01-22 10:20 J -43701411.22 -43701411.07 -43701410.91 0.0521 0.0377  
 Moon -124361-01-22 13:27 J -43701411.08 -43701410.94 -43701410.79 0.0521 0.0397 \*  
 Mercury -124361-09-11 17:32 J -43701177.83 -43701177.77 -43701177.71 0.0525 0.0454  
 Mercury -124361-12-10 00:01 J -43701088.63 -43701088.50 -43701088.37 0.0526 0.0004  
 Mercury -124360-03-09 06:15 J -43700999.30 -43700999.24 -43700999.18 0.0527 0.0461  
 Venus -124357-03-29 01:13 J -43699883.65 -43699883.45 -43699883.25 0.0516 0.0005  
 Moon -124356-07-06 17:18 J -43699418.85 -43699418.78 -43699418.68 0.0506 0.0470  
 Earth -124356-07-06 20:25 J -43699418.76 -43699418.65 -43699418.54 0.0506 0.0443 \*  
 Mercury -124355-08-03 16:20 J -43699025.91 -43699025.82 -43699025.72 0.0500 0.0418  
 Mercury -124355-11-02 02:25 J -43698935.58 -43698935.40 -43698935.23 0.0499 0.0166  
 Mars -124353-11-21 22:35 J -43698184.82 -43698184.56 -43698184.30 0.0500 0.0089  
 Venus -124351-01-30 18:15 J -43697749.91 -43697749.74 -43697749.56 0.0507 0.0273  
 Venus -124351-09-25 05:47 J -43697512.42 -43697512.26 -43697512.10 0.0512 0.0321  
 Mercury -124349-09-28 04:20 J -43696778.44 -43696778.32 -43696778.19 0.0526 0.0106  
 Mercury -124349-12-26 10:35 J -43696689.15 -43696689.06 -43696688.96 0.0527 0.0351  
 Venus -124346-12-03 00:59 J -43695617.65 -43695617.46 -43695617.27 0.0517 0.0159  
 Venus -124345-07-26 13:13 J -43695381.05 -43695380.95 -43695380.83 0.0512 0.0420  
 Earth -124344-07-11 16:06 J -43695031.07 -43695030.83 -43695030.59 0.0505 0.0010  
 Moon -124344-07-11 18:30 J -43695030.96 -43695030.73 -43695030.50 0.0505 0.0025 \*  
 Mercury -124343-08-20 23:47 J -43694625.70 -43694625.51 -43694625.33 0.0500 0.0026  
 Venus -124340-10-05 11:47 J -43693484.11 -43693484.01 -43693483.89 0.0506 0.0432  
 Venus -124339-05-30 23:18 J -43693246.73 -43693246.53 -43693246.33 0.0511 0.0158  
 Mercury -124337-07-17 08:11 J -43692468.28 -43692468.16 -43692468.04 0.0525 0.0224  
 Mercury -124337-10-14 14:25 J -43692379.01 -43692378.90 -43692378.78 0.0526 0.0234  
 Venus -124334-08-08 00:44 J -43691351.62 -43691351.47 -43691351.31 0.0519 0.0320  
 Venus -124333-03-31 13:27 J -43691115.11 -43691114.94 -43691114.77 0.0514 0.0264  
 Earth -124332-07-16 13:13 J -43690643.07 -43690642.95 -43690642.83 0.0504 0.0434  
 Moon -124332-07-16 15:51 J -43690642.98 -43690642.84 -43690642.69 0.0504 0.0407 \*  
 Mercury -124331-06-08 21:23 J -43690315.79 -43690315.61 -43690315.43 0.0500 0.0118  
 Mercury -124331-09-07 07:42 J -43690225.24 -43690225.18 -43690225.12 0.0499 0.0469

Venus -124327-02-02 16:35 J -43688981.02 -43688980.81 -43688980.60 0.0509 0.0009

Mercury -124325-05-05 12:15 J -43688158.09 -43688157.99 -43688157.89 0.0525 0.0338

Mercury -124325-08-02 18:30 J -43688068.85 -43688068.73 -43688068.60 0.0526 0.0121

Venus -124322-04-13 01:56 J -43687085.49 -43687085.42 -43687085.34 0.0521 0.0477

Venus -124322-12-05 14:25 J -43686849.09 -43686848.90 -43686848.70 0.0516 0.0107

Mercury -124319-03-27 18:59 J -43686005.87 -43686005.71 -43686005.55 0.0500 0.0256

Mercury -124319-06-26 05:03 J -43685915.43 -43685915.29 -43685915.15 0.0499 0.0329

Mars -124317-08-26 21:51 J -43685122.74 -43685122.59 -43685122.43 0.0501 0.0409

Venus -124316-10-08 09:08 J -43684715.31 -43684715.12 -43684714.92 0.0508 0.0174

Venus -124315-06-02 19:27 J -43684477.80 -43684477.69 -43684477.56 0.0513 0.0421

Mercury -124313-02-22 16:20 J -43683847.89 -43683847.82 -43683847.76 0.0525 0.0451

Mercury -124313-05-21 22:49 J -43683758.68 -43683758.55 -43683758.42 0.0527 0.0009

Mercury -124313-08-19 05:03 J -43683669.35 -43683669.29 -43683669.23 0.0527 0.0465

Venus -124310-08-10 15:23 J -43682583.06 -43682582.86 -43682582.66 0.0517 0.0053

Mercury -124307-01-13 16:20 J -43681695.92 -43681695.82 -43681695.70 0.0500 0.0397

Mercury -124307-04-14 02:25 J -43681605.57 -43681605.40 -43681605.23 0.0499 0.0186

Venus -124304-06-13 03:37 J -43680449.51 -43680449.35 -43680449.20 0.0506 0.0334

Venus -124303-02-05 14:39 J -43680212.07 -43680211.89 -43680211.71 0.0512 0.0260

Mercury -124301-03-10 03:23 J -43679448.49 -43679448.36 -43679448.24 0.0526 0.0101

Mercury -124301-06-07 09:37 J -43679359.19 -43679359.10 -43679359.01 0.0527 0.0358

Venus -124298-04-15 13:56 J -43678317.10 -43678316.92 -43678316.74 0.0518 0.0217

Venus -124298-12-08 01:56 J -43678080.55 -43678080.42 -43678080.28 0.0513 0.0364

Mercury -124295-01-30 22:20 J -43677295.75 -43677295.57 -43677295.39 0.0500 0.0030

Venus -124292-02-15 21:37 J -43676183.64 -43676183.60 -43676183.55 0.0506 0.0490

Venus -124292-10-11 09:51 J -43675946.30 -43675946.09 -43675945.89 0.0510 0.0100

Earth -124290-01-17 07:27 J -43675483.41 -43675483.19 -43675482.97 0.0520 0.0125

Moon -124290-01-17 07:42 J -43675483.41 -43675483.18 -43675482.95 0.0520 0.0155 \*

Mercury -124290-12-28 07:42 J -43675138.30 -43675138.18 -43675138.06 0.0526 0.0208

Mercury -124289-03-26 13:56 J -43675049.03 -43675048.92 -43675048.80 0.0527 0.0250

Mars -124288-10-24 21:23 J -43674471.85 -43674471.61 -43674471.37 0.0526 0.0284

Venus -124287-12-19 14:11 J -43674051.05 -43674050.91 -43674050.78 0.0519 0.0378  
 Venus -124286-08-13 01:42 J -43673814.61 -43673814.43 -43673814.24 0.0514 0.0207  
 Mercury -124284-11-18 19:42 J -43672985.86 -43672985.68 -43672985.50 0.0500 0.0112  
 Mercury -124283-02-17 06:01 J -43672895.30 -43672895.25 -43672895.20 0.0499 0.0475  
 Venus -124280-06-16 03:23 J -43671680.56 -43671680.36 -43671680.15 0.0509 0.0065  
 Moon -124278-01-21 18:01 J -43671095.91 -43671095.75 -43671095.58 0.0521 0.0344  
 Earth -124278-01-21 21:51 J -43671095.77 -43671095.59 -43671095.41 0.0521 0.0321 \*  
 Mercury -124278-10-16 11:32 J -43670828.12 -43670828.02 -43670827.92 0.0525 0.0325  
 Mercury -124277-01-13 18:01 J -43670738.88 -43670738.75 -43670738.63 0.0526 0.0133  
 Venus -124274-04-18 01:56 J -43669548.61 -43669548.42 -43669548.22 0.0516 0.0047  
 Earth -124273-07-06 04:35 J -43669103.33 -43669103.31 -43669103.26 0.0507 0.0501  
 Mercury -124272-09-06 17:18 J -43668675.93 -43668675.78 -43668675.61 0.0500 0.0251  
 Mercury -124272-12-06 03:37 J -43668585.49 -43668585.35 -43668585.21 0.0499 0.0336  
 Mars -124270-08-10 00:30 J -43667973.63 -43667973.48 -43667973.32 0.0499 0.0402  
 Venus -124268-02-18 20:54 J -43667414.82 -43667414.63 -43667414.44 0.0507 0.0228  
 Venus -124268-10-14 07:42 J -43667177.32 -43667177.18 -43667177.03 0.0512 0.0367  
 Mercury -124266-08-04 15:37 J -43666517.92 -43666517.85 -43666517.78 0.0525 0.0439  
 Mercury -124266-11-01 22:06 J -43666428.71 -43666428.58 -43666428.46 0.0526 0.0023  
 Mercury -124265-01-30 04:06 J -43666339.38 -43666339.33 -43666339.27 0.0527 0.0475  
 Venus -124263-12-22 03:08 J -43665282.57 -43665282.37 -43665282.18 0.0518 0.0114  
 Venus -124262-08-15 16:06 J -43665045.91 -43665045.83 -43665045.75 0.0513 0.0466  
 Moon -124261-07-11 02:39 J -43664715.64 -43664715.39 -43664715.14 0.0506 0.0024  
 Earth -124261-07-11 03:23 J -43664715.60 -43664715.36 -43664715.12 0.0506 0.0053 \*  
 Mercury -124260-06-25 15:08 J -43664365.97 -43664365.87 -43664365.75 0.0500 0.0388  
 Mercury -124260-09-24 01:13 J -43664275.62 -43664275.45 -43664275.28 0.0499 0.0197  
 Venus -124257-10-24 13:27 J -43663149.06 -43663148.94 -43663148.80 0.0506 0.0391  
 Venus -124256-06-19 00:44 J -43662911.66 -43662911.47 -43662911.28 0.0511 0.0202  
 Mercury -124254-08-21 02:11 J -43662118.54 -43662118.41 -43662118.28 0.0526 0.0094  
 Mercury -124254-11-18 08:25 J -43662029.24 -43662029.15 -43662029.06 0.0527 0.0364  
 Mars -124252-08-01 10:35 J -43661407.33 -43661407.06 -43661406.78 0.0526 0.0141

Venus -124251-08-27 04:20 J -43661016.48 -43661016.32 -43661016.15 0.0519 0.0274

Venus -124250-04-20 17:03 J -43660779.95 -43660779.79 -43660779.63 0.0514 0.0312

Moon -124249-07-15 21:08 J -43660327.78 -43660327.62 -43660327.45 0.0504 0.0361

Earth -124249-07-16 00:44 J -43660327.61 -43660327.47 -43660327.31 0.0504 0.0391 \*

Mercury -124248-07-12 22:49 J -43659965.74 -43659965.55 -43659965.37 0.0499 0.0056

Venus -124244-02-21 19:27 J -43658645.89 -43658645.69 -43658645.48 0.0509 0.0040

Mercury -124242-06-09 06:44 J -43657808.34 -43657808.22 -43657808.10 0.0526 0.0200

Mercury -124242-09-06 12:59 J -43657719.07 -43657718.96 -43657718.85 0.0527 0.0258

Venus -124239-05-02 03:37 J -43656750.46 -43656750.35 -43656750.24 0.0520 0.0434

Venus -124239-12-24 15:08 J -43656514.06 -43656513.87 -43656513.68 0.0515 0.0151

Mercury -124236-04-30 18:30 J -43655655.90 -43655655.73 -43655655.54 0.0500 0.0103

Mercury -124236-07-30 04:49 J -43655565.33 -43655565.30 -43655565.26 0.0499 0.0486

Mars -124234-05-14 16:49 J -43654912.06 -43654911.80 -43654911.53 0.0500 0.0091

Venus -124233-10-27 14:11 J -43654380.12 -43654379.91 -43654379.71 0.0509 0.0123

Venus -124232-06-22 01:13 J -43654142.52 -43654142.45 -43654142.37 0.0514 0.0474

Mercury -124230-03-28 11:18 J -43653498.14 -43653498.03 -43653497.93 0.0525 0.0308

Mercury -124230-06-25 17:32 J -43653408.89 -43653408.77 -43653408.65 0.0526 0.0150

Venus -124227-08-29 15:23 J -43652248.06 -43652247.86 -43652247.66 0.0516 0.0014

Mercury -124224-02-16 16:06 J -43651345.99 -43651345.83 -43651345.67 0.0500 0.0243

Mercury -124224-05-18 02:11 J -43651255.54 -43651255.41 -43651255.28 0.0499 0.0344

Venus -124221-07-02 07:56 J -43650114.34 -43650114.17 -43650114.00 0.0507 0.0284

Venus -124220-02-24 19:13 J -43649876.86 -43649876.70 -43649876.53 0.0512 0.0314

Mercury -124218-01-14 14:54 J -43649187.95 -43649187.88 -43649187.80 0.0525 0.0425

Mercury -124218-04-13 21:37 J -43649098.73 -43649098.60 -43649098.48 0.0526 0.0038

Mercury -124218-07-12 03:37 J -43649009.39 -43649009.35 -43649009.30 0.0527 0.0489

Venus -124215-05-04 15:37 J -43647982.04 -43647981.85 -43647981.67 0.0518 0.0173

Venus -124215-12-27 03:51 J -43647745.45 -43647745.34 -43647745.22 0.0513 0.0410

Mercury -124213-12-05 13:56 J -43647036.04 -43647035.92 -43647035.80 0.0500 0.0381

Mercury -124212-03-06 00:01 J -43646945.67 -43646945.50 -43646945.34 0.0500 0.0205

Venus -124209-03-07 01:27 J -43645848.54 -43645848.44 -43645848.34 0.0506 0.0444

Venus -124209-10-30 12:59 J -43645611.16 -43645610.96 -43645610.76 0.0510 0.0149  
 Moon -124207-01-16 15:51 J -43645168.04 -43645167.84 -43645167.64 0.0520 0.0215  
 Earth -124207-01-16 17:47 J -43645167.97 -43645167.76 -43645167.54 0.0520 0.0184 \*  
 Mercury -124206-01-31 01:42 J -43644788.56 -43644788.43 -43644788.31 0.0526 0.0083  
 Mercury -124206-04-30 07:42 J -43644699.26 -43644699.18 -43644699.09 0.0527 0.0377  
 Venus -124203-01-07 16:35 J -43643715.96 -43643715.81 -43643715.66 0.0520 0.0334  
 Venus -124203-09-01 04:49 J -43643479.47 -43643479.30 -43643479.12 0.0515 0.0255  
 Mercury -124201-12-22 21:37 J -43642635.78 -43642635.60 -43642635.41 0.0499 0.0066  
 Mars -124198-02-16 17:32 J -43641850.00 -43641849.77 -43641849.53 0.0500 0.0233  
 Venus -124197-07-05 06:01 J -43641345.46 -43641345.25 -43641345.04 0.0509 0.0020  
 Earth -124195-01-21 08:11 J -43640780.35 -43640780.16 -43640779.96 0.0521 0.0265  
 Moon -124195-01-21 11:47 J -43640780.19 -43640780.01 -43640779.82 0.0521 0.0295 \*  
 Mercury -124195-11-19 05:47 J -43640478.38 -43640478.26 -43640478.14 0.0526 0.0194  
 Mercury -124194-02-16 12:01 J -43640389.11 -43640389.00 -43640388.89 0.0527 0.0265  
 Venus -124192-09-12 18:01 J -43639449.81 -43639449.75 -43639449.68 0.0521 0.0491  
 Venus -124191-05-07 06:15 J -43639213.44 -43639213.24 -43639213.05 0.0516 0.0096  
 Mercury -124189-10-10 19:13 J -43638325.88 -43638325.70 -43638325.52 0.0500 0.0075  
 Venus -124185-03-10 00:30 J -43637079.68 -43637079.48 -43637079.29 0.0508 0.0182  
 Venus -124185-11-02 11:18 J -43636842.14 -43636842.03 -43636841.90 0.0513 0.0417  
 Mercury -124183-09-07 10:20 J -43636168.18 -43636168.07 -43636167.97 0.0525 0.0299  
 Mercury -124183-12-05 16:35 J -43636078.93 -43636078.81 -43636078.68 0.0526 0.0161  
 Venus -124179-01-10 05:18 J -43634947.48 -43634947.28 -43634947.08 0.0517 0.0067  
 Venus -124179-09-03 17:18 J -43634710.79 -43634710.78 -43634710.76 0.0512 0.0510  
 Moon -124178-07-11 08:39 J -43634400.37 -43634400.14 -43634399.92 0.0505 0.0093  
 Earth -124178-07-11 09:23 J -43634400.34 -43634400.11 -43634399.88 0.0505 0.0118 \*  
 Mercury -124177-07-29 15:08 J -43634016.03 -43634015.87 -43634015.71 0.0500 0.0232  
 Mercury -124177-10-28 01:13 J -43633925.58 -43633925.45 -43633925.32 0.0499 0.0355  
 Venus -124174-11-13 18:15 J -43632813.89 -43632813.74 -43632813.59 0.0507 0.0342  
 Venus -124173-07-08 06:15 J -43632576.42 -43632576.24 -43632576.06 0.0512 0.0257  
 Mercury -124171-06-26 14:39 J -43631857.97 -43631857.89 -43631857.81 0.0525 0.0407

Mercury -124171-09-23 21:08 J -43631768.74 -43631768.62 -43631768.49 0.0526 0.0053

Mercury -124171-12-22 03:23 J -43631679.39 -43631679.36 -43631679.33 0.0527 0.0507

Venus -124168-09-15 05:47 J -43630681.43 -43630681.26 -43630681.08 0.0518 0.0230

Venus -124167-05-09 17:32 J -43630444.91 -43630444.77 -43630444.63 0.0513 0.0355

Earth -124166-07-16 05:32 J -43630012.45 -43630012.27 -43630012.09 0.0505 0.0321

Moon -124166-07-16 09:23 J -43630012.30 -43630012.11 -43630011.92 0.0505 0.0291 \*

Mercury -124165-05-17 12:30 J -43629706.10 -43629705.98 -43629705.86 0.0500 0.0373

Mercury -124165-08-15 22:35 J -43629615.73 -43629615.56 -43629615.39 0.0499 0.0212

Venus -124162-07-19 12:01 J -43628548.02 -43628548.00 -43628547.97 0.0505 0.0500

Venus -124161-03-13 00:15 J -43628310.69 -43628310.49 -43628310.28 0.0510 0.0093

Mercury -124159-04-14 18:44 J -43627547.73 -43627547.72 -43627547.72 0.0525 0.0523

Mercury -124159-07-13 01:13 J -43627458.58 -43627458.45 -43627458.33 0.0526 0.0066

Mercury -124159-10-10 07:13 J -43627369.28 -43627369.20 -43627369.11 0.0526 0.0392

Venus -124156-05-21 05:47 J -43626415.39 -43626415.26 -43626415.13 0.0520 0.0391

Venus -124155-01-12 17:32 J -43626178.96 -43626178.77 -43626178.59 0.0515 0.0197

Mercury -124153-06-03 20:25 J -43625305.84 -43625305.65 -43625305.47 0.0500 0.0074

Venus -124150-11-16 18:01 J -43624044.96 -43624044.75 -43624044.54 0.0508 0.0073

Mercury -124147-05-01 05:03 J -43623148.41 -43623148.29 -43623148.16 0.0525 0.0180

Mercury -124147-07-29 11:32 J -43623059.13 -43623059.02 -43623058.91 0.0526 0.0278

Venus -124144-09-17 18:30 J -43621912.93 -43621912.73 -43621912.53 0.0516 0.0036

Mercury -124141-03-22 18:01 J -43620995.93 -43620995.75 -43620995.56 0.0500 0.0066

Venus -124138-07-22 10:49 J -43619779.24 -43619779.05 -43619778.87 0.0507 0.0239

Venus -124137-03-15 21:51 J -43619541.73 -43619541.59 -43619541.44 0.0512 0.0360

Mercury -124135-02-17 09:08 J -43618838.22 -43618838.12 -43618838.01 0.0525 0.0293

Mercury -124135-05-17 15:37 J -43618748.97 -43618748.85 -43618748.73 0.0526 0.0166

Mars -124133-01-20 02:39 J -43618136.67 -43618136.39 -43618136.11 0.0526 0.0105

Venus -124132-05-23 19:42 J -43617646.87 -43617646.68 -43617646.48 0.0518 0.0125

Venus -124131-01-15 08:11 J -43617410.24 -43617410.16 -43617410.07 0.0513 0.0460

Mercury -124129-01-09 15:37 J -43616686.01 -43616685.85 -43616685.68 0.0500 0.0206

Mercury -124129-04-09 01:42 J -43616595.54 -43616595.43 -43616595.31 0.0499 0.0381



Venus -124126-03-27 05:03 J -43615513.42 -43615513.29 -43615513.16 0.0506 0.0400  
 Venus -124126-11-19 16:35 J -43615276.00 -43615275.81 -43615275.61 0.0511 0.0198  
 Earth -124124-01-16 06:59 J -43614852.41 -43614852.21 -43614852.00 0.0520 0.0228  
 Moon -124124-01-16 10:20 J -43614852.27 -43614852.07 -43614851.86 0.0520 0.0253 \*  
 Mercury -124124-12-06 13:42 J -43614528.01 -43614527.93 -43614527.84 0.0525 0.0399  
 Mercury -124123-03-05 20:11 J -43614438.78 -43614438.66 -43614438.53 0.0526 0.0063  
 Mercury -124123-06-03 02:25 J -43614349.42 -43614349.40 -43614349.37 0.0527 0.0516  
 Venus -124120-01-26 19:42 J -43613380.84 -43613380.68 -43613380.51 0.0519 0.0286  
 Venus -124120-09-20 06:59 J -43613144.36 -43613144.21 -43613144.04 0.0514 0.0302  
 Mercury -124118-10-28 11:32 J -43612376.14 -43612376.02 -43612375.89 0.0500 0.0362  
 Mercury -124117-01-26 21:37 J -43612285.77 -43612285.60 -43612285.44 0.0499 0.0223  
 Mars -124116-11-03 14:54 J -43611639.10 -43611638.88 -43611638.65 0.0500 0.0266  
 Venus -124114-07-25 10:35 J -43611010.27 -43611010.06 -43611009.85 0.0510 0.0034  
 Moon -124112-01-20 22:35 J -43610464.76 -43610464.56 -43610464.36 0.0521 0.0261  
 Earth -124112-01-21 00:59 J -43610464.66 -43610464.46 -43610464.25 0.0521 0.0232 \*  
 Mercury -124112-09-24 18:15 J -43610217.77 -43610217.74 -43610217.71 0.0525 0.0506  
 Mercury -124112-12-23 00:44 J -43610128.60 -43610128.47 -43610128.34 0.0526 0.0049  
 Mercury -124111-03-22 06:59 J -43610039.29 -43610039.21 -43610039.13 0.0527 0.0409  
 Venus -124109-10-01 20:25 J -43609114.75 -43609114.65 -43609114.55 0.0520 0.0446  
 Venus -124108-05-26 07:27 J -43608878.38 -43608878.19 -43608878.00 0.0515 0.0141  
 Mercury -124106-11-14 18:59 J -43607975.90 -43607975.71 -43607975.53 0.0500 0.0081  
 Venus -124102-03-30 04:35 J -43606744.51 -43606744.31 -43606744.11 0.0508 0.0130  
 Venus -124102-11-22 15:51 J -43606506.91 -43606506.84 -43606506.75 0.0513 0.0471  
 Mercury -124100-10-11 04:35 J -43605818.43 -43605818.31 -43605818.18 0.0525 0.0166  
 Mercury -124099-01-08 11:03 J -43605729.15 -43605729.04 -43605728.94 0.0526 0.0293  
 Mars -124098-10-27 14:25 J -43605072.11 -43605071.90 -43605071.67 0.0525 0.0324  
 Venus -124096-01-29 07:13 J -43604612.40 -43604612.20 -43604612.00 0.0517 0.0022  
 Earth -124095-07-10 19:27 J -43604084.91 -43604084.69 -43604084.46 0.0506 0.0170  
 Moon -124095-07-10 21:51 J -43604084.82 -43604084.59 -43604084.35 0.0506 0.0149 \*  
 Mercury -124094-09-02 16:35 J -43603665.99 -43603665.81 -43603665.62 0.0500 0.0060

Venus -124091-12-02 22:06 J -43602478.75 -43602478.58 -43602478.41 0.0507 0.0295  
 Venus -124090-07-28 09:37 J -43602241.26 -43602241.10 -43602240.93 0.0511 0.0307  
 Mercury -124088-07-30 08:39 J -43601508.25 -43601508.14 -43601508.03 0.0525 0.0279  
 Mercury -124088-10-27 15:08 J -43601418.99 -43601418.87 -43601418.75 0.0526 0.0179  
 Venus -124085-10-04 08:11 J -43600346.35 -43600346.16 -43600345.98 0.0518 0.0185  
 Venus -124084-05-28 20:11 J -43600109.78 -43600109.66 -43600109.53 0.0513 0.0404  
 Moon -124083-07-15 14:25 J -43599697.11 -43599696.90 -43599696.68 0.0505 0.0246  
 Earth -124083-07-15 17:32 J -43599696.96 -43599696.77 -43599696.57 0.0505 0.0277 \*  
 Mercury -124082-06-21 14:25 J -43599356.07 -43599355.90 -43599355.73 0.0500 0.0197  
 Mercury -124082-09-20 00:30 J -43599265.59 -43599265.48 -43599265.36 0.0499 0.0390  
 Mars -124080-08-08 15:08 J -43598577.14 -43598576.87 -43598576.61 0.0500 0.0058  
 Venus -124079-08-07 14:54 J -43598212.97 -43598212.88 -43598212.79 0.0505 0.0456  
 Venus -124078-04-02 02:39 J -43597975.59 -43597975.39 -43597975.19 0.0510 0.0139  
 Mercury -124076-05-18 12:44 J -43597198.06 -43597197.97 -43597197.89 0.0525 0.0394  
 Mercury -124076-08-15 19:13 J -43597108.83 -43597108.70 -43597108.58 0.0526 0.0066  
 Mercury -124076-11-13 01:27 J -43597019.46 -43597019.44 -43597019.43 0.0527 0.0521  
 Venus -124073-06-09 09:23 J -43596080.26 -43596080.11 -43596079.96 0.0520 0.0345  
 Venus -124072-01-31 21:08 J -43595843.79 -43595843.62 -43595843.44 0.0515 0.0247  
 Mercury -124070-04-09 12:01 J -43595046.13 -43595046.00 -43595045.87 0.0500 0.0338  
 Mercury -124070-07-08 21:51 J -43594955.74 -43594955.59 -43594955.43 0.0499 0.0248  
 Venus -124067-12-05 20:54 J -43593709.84 -43593709.63 -43593709.42 0.0509 0.0026  
 Mercury -124064-03-06 17:18 J -43592887.82 -43592887.78 -43592887.75 0.0525 0.0500  
 Mercury -124064-06-03 23:47 J -43592798.64 -43592798.51 -43592798.38 0.0526 0.0041  
 Mercury -124064-09-01 06:01 J -43592709.33 -43592709.25 -43592709.17 0.0527 0.0416  
 Venus -124061-02-13 09:51 J -43591814.13 -43591814.09 -43591814.04 0.0520 0.0502  
 Venus -124061-10-06 20:54 J -43591577.82 -43591577.63 -43591577.43 0.0516 0.0086  
 Mercury -124058-01-26 07:56 J -43590736.19 -43590736.17 -43590736.14 0.0500 0.0493  
 Mercury -124058-04-26 17:47 J -43590645.94 -43590645.76 -43590645.58 0.0499 0.0090  
 Venus -124055-08-10 13:42 J -43589444.12 -43589443.93 -43589443.73 0.0508 0.0191  
 Venus -124054-04-05 01:56 J -43589206.54 -43589206.42 -43589206.30 0.0513 0.0413

Mercury -124052-03-23 04:06 J -43588488.45 -43588488.33 -43588488.20 0.0526 0.0151  
 Mercury -124052-06-20 10:35 J -43588399.16 -43588399.06 -43588398.96 0.0527 0.0309  
 Venus -124049-06-11 21:23 J -43587311.80 -43587311.61 -43587311.41 0.0517 0.0079  
 Venus -124048-02-03 08:54 J -43587075.16 -43587075.13 -43587075.09 0.0512 0.0503  
 Mercury -124046-02-12 14:54 J -43586336.06 -43586335.88 -43586335.69 0.0500 0.0056  
 Mars -124044-05-13 09:51 J -43585515.26 -43585515.09 -43585514.92 0.0501 0.0382  
 Venus -124043-04-15 07:27 J -43585178.33 -43585178.19 -43585178.03 0.0507 0.0354  
 Venus -124043-12-08 19:56 J -43584940.85 -43584940.67 -43584940.49 0.0511 0.0250  
 Moon -124041-01-16 15:51 J -43584537.02 -43584536.84 -43584536.66 0.0520 0.0307  
 Earth -124041-01-16 19:27 J -43584536.88 -43584536.69 -43584536.49 0.0520 0.0282 \*  
 Mercury -124040-01-09 08:11 J -43584178.27 -43584178.16 -43584178.05 0.0525 0.0267  
 Mercury -124040-04-08 14:25 J -43584089.02 -43584088.90 -43584088.78 0.0526 0.0192  
 Venus -124037-02-15 20:54 J -43583045.80 -43583045.63 -43583045.45 0.0518 0.0243  
 Venus -124037-10-09 08:25 J -43582809.29 -43582809.15 -43582809.00 0.0514 0.0347  
 Mercury -124035-12-01 12:44 J -43582026.14 -43582025.97 -43582025.80 0.0500 0.0194  
 Mercury -124034-03-01 22:49 J -43581935.66 -43581935.55 -43581935.44 0.0499 0.0394  
 Venus -124031-08-13 13:27 J -43580675.15 -43580674.94 -43580674.73 0.0510 0.0082  
 Earth -124029-01-21 10:20 J -43580149.28 -43580149.07 -43580148.85 0.0520 0.0168  
 Moon -124029-01-21 11:03 J -43580149.24 -43580149.04 -43580148.84 0.0520 0.0197 \*  
 Mercury -124029-10-28 12:01 J -43579868.09 -43579868.00 -43579867.91 0.0525 0.0382  
 Mercury -124028-01-25 18:30 J -43579778.86 -43579778.73 -43579778.61 0.0526 0.0077  
 Venus -124026-10-21 21:23 J -43578779.73 -43578779.61 -43578779.49 0.0520 0.0406  
 Venus -124025-06-14 08:54 J -43578543.31 -43578543.13 -43578542.94 0.0515 0.0187  
 Mercury -124023-09-19 10:20 J -43577716.20 -43577716.07 -43577715.93 0.0500 0.0333  
 Mercury -124023-12-18 20:25 J -43577625.81 -43577625.65 -43577625.49 0.0499 0.0254  
 Venus -124019-04-18 06:15 J -43576409.45 -43576409.24 -43576409.04 0.0508 0.0086  
 Mercury -124017-08-16 15:51 J -43575557.88 -43575557.84 -43575557.80 0.0525 0.0497  
 Mercury -124017-11-13 22:20 J -43575468.69 -43575468.57 -43575468.44 0.0526 0.0041  
 Mercury -124016-02-11 04:35 J -43575379.38 -43575379.31 -43575379.23 0.0527 0.0419  
 Mars -124015-07-09 11:18 J -43574866.23 -43574866.03 -43574865.82 0.0526 0.0364

Venus -124013-02-18 10:06 J -43574277.28 -43574277.08 -43574276.88 0.0517 0.0026

Moon -124012-07-10 02:54 J -43573769.59 -43573769.38 -43573769.16 0.0506 0.0205

Earth -124012-07-10 06:30 J -43573769.45 -43573769.23 -43573769.02 0.0506 0.0218 \*

Mercury -124011-07-08 07:56 J -43573406.22 -43573406.17 -43573406.11 0.0500 0.0473

Mercury -124011-10-06 17:47 J -43573315.94 -43573315.76 -43573315.58 0.0499 0.0111

Venus -124008-12-21 23:32 J -43572143.70 -43572143.52 -43572143.33 0.0507 0.0252

Venus -124007-08-16 11:18 J -43571906.17 -43571906.03 -43571905.87 0.0512 0.0353

Mercury -124005-09-02 02:54 J -43571158.50 -43571158.38 -43571158.25 0.0526 0.0146

Mercury -124005-11-30 09:23 J -43571069.22 -43571069.11 -43571069.01 0.0527 0.0313

Venus -124002-10-24 10:35 J -43570011.26 -43570011.06 -43570010.87 0.0517 0.0137

Venus -124001-06-16 21:37 J -43569774.69 -43569774.60 -43569774.50 0.0512 0.0450

# 124TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 124th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Earth	-124000-07-14 23:03 J	-43569381.76	-43569381.54	-43569381.32	0.0504	0.0206		
Moon	-124000-07-15 00:44 J	-43569381.69	-43569381.47	-43569381.26	0.0504	0.0181	*	
Mercury	-123999-07-25 13:42 J	-43569006.12	-43569005.93	-43569005.75	0.0499	0.0048		
Mars	-123997-04-25 09:08 J	-43568366.23	-43568366.12	-43568366.01	0.0499	0.0451		
Venus	-123996-08-26 15:37 J	-43567877.96	-43567877.85	-43567877.72	0.0506	0.0416		

Venus -123995-04-21 04:35 J -43567640.50 -43567640.31 -43567640.11 0.0511 0.0188  
 Mercury -123993-06-21 07:13 J -43566848.31 -43566848.20 -43566848.08 0.0526 0.0256  
 Mercury -123993-09-18 13:42 J -43566759.05 -43566758.93 -43566758.81 0.0527 0.0204  
 Venus -123990-06-29 10:49 J -43565745.20 -43565745.05 -43565744.88 0.0519 0.0301  
 Venus -123989-02-20 21:51 J -43565508.75 -43565508.59 -43565508.42 0.0514 0.0291  
 Mercury -123987-05-13 10:49 J -43564696.22 -43564696.05 -43564695.88 0.0500 0.0192  
 Mercury -123987-08-11 20:54 J -43564605.74 -43564605.63 -43564605.52 0.0499 0.0395  
 Venus -123984-12-24 22:20 J -43563374.78 -43563374.57 -43563374.36 0.0509 0.0022  
 Mercury -123981-04-09 11:03 J -43562538.12 -43562538.04 -43562537.95 0.0525 0.0373  
 Mercury -123981-07-07 17:32 J -43562448.89 -43562448.77 -43562448.64 0.0526 0.0087  
 Mars -123979-04-16 01:42 J -43561801.71 -43561801.43 -43561801.14 0.0525 0.0072  
 Venus -123978-03-04 10:06 J -43561479.16 -43561479.08 -43561478.99 0.0520 0.0465  
 Venus -123978-10-26 21:08 J -43561242.81 -43561242.62 -43561242.43 0.0515 0.0127  
 Mercury -123975-03-01 08:25 J -43560386.29 -43560386.15 -43560386.01 0.0500 0.0333  
 Mercury -123975-05-30 18:30 J -43560295.89 -43560295.73 -43560295.58 0.0499 0.0254  
 Venus -123972-08-29 15:51 J -43559109.04 -43559108.84 -43559108.64 0.0508 0.0146  
 Venus -123971-04-24 03:37 J -43558871.44 -43558871.35 -43558871.27 0.0513 0.0459  
 Mercury -123969-01-27 14:54 J -43558227.92 -43558227.88 -43558227.83 0.0525 0.0489  
 Mercury -123969-04-25 21:37 J -43558138.73 -43558138.60 -43558138.47 0.0526 0.0031  
 Mercury -123969-07-24 03:51 J -43558049.42 -43558049.34 -43558049.27 0.0527 0.0427  
 Venus -123966-07-01 21:23 J -43556976.81 -43556976.61 -43556976.42 0.0517 0.0038  
 Mercury -123964-12-18 06:01 J -43556076.30 -43556076.25 -43556076.19 0.0501 0.0472  
 Mercury -123963-03-18 15:51 J -43555986.02 -43555985.84 -43555985.66 0.0500 0.0112  
 Mars -123961-01-29 04:20 J -43555304.57 -43555304.32 -43555304.06 0.0500 0.0133  
 Venus -123960-05-04 08:11 J -43554843.32 -43554843.16 -43554842.99 0.0506 0.0313  
 Venus -123960-12-27 19:56 J -43554605.84 -43554605.67 -43554605.50 0.0511 0.0292  
 Earth -123958-01-16 01:13 J -43554221.61 -43554221.45 -43554221.28 0.0519 0.0358  
 Moon -123958-01-16 04:49 J -43554221.45 -43554221.30 -43554221.14 0.0519 0.0373 \*  
 Mercury -123957-02-13 01:27 J -43553828.56 -43553828.44 -43553828.32 0.0526 0.0147  
 Mercury -123957-05-12 07:42 J -43553739.28 -43553739.18 -43553739.08 0.0527 0.0312

Venus -123954-03-06 22:20 J -43552710.75 -43552710.57 -43552710.39 0.0519 0.0200

Venus -123954-10-29 10:06 J -43552474.21 -43552474.08 -43552473.95 0.0514 0.0392

Mercury -123951-01-04 13:13 J -43551676.14 -43551675.95 -43551675.77 0.0500 0.0032

Venus -123948-01-07 01:13 J -43550577.52 -43550577.45 -43550577.38 0.0505 0.0475

Venus -123948-09-01 13:42 J -43550340.13 -43550339.93 -43550339.73 0.0510 0.0125

Earth -123946-01-20 18:01 J -43549833.97 -43549833.75 -43549833.52 0.0521 0.0099

Moon -123946-01-20 19:13 J -43549833.93 -43549833.70 -43549833.47 0.0521 0.0127 \*

Mercury -123946-12-02 05:47 J -43549518.37 -43549518.26 -43549518.15 0.0526 0.0256

Mercury -123945-02-29 12:15 J -43549429.11 -43549428.99 -43549428.87 0.0527 0.0204

Mars -123943-01-21 13:56 J -43548736.99 -43548736.92 -43548736.83 0.0524 0.0502

Venus -123943-11-09 23:03 J -43548444.68 -43548444.54 -43548444.39 0.0519 0.0361

Venus -123942-07-04 10:06 J -43548208.26 -43548208.08 -43548207.90 0.0514 0.0232

Mercury -123940-10-23 09:08 J -43547366.29 -43547366.12 -43547365.95 0.0500 0.0188

Mercury -123939-01-21 19:13 J -43547275.81 -43547275.70 -43547275.59 0.0499 0.0398

Venus -123936-05-07 05:47 J -43546074.47 -43546074.26 -43546074.05 0.0509 0.0044

Moon -123934-01-25 06:30 J -43545446.23 -43545446.23 -43545446.23 0.0522 0.0522

Mercury -123934-09-20 10:06 J -43545208.17 -43545208.08 -43545207.99 0.0526 0.0367

Mercury -123934-12-18 16:35 J -43545118.94 -43545118.81 -43545118.68 0.0526 0.0094

Venus -123930-03-09 10:20 J -43543942.27 -43543942.07 -43543941.87 0.0516 0.0069

Earth -123929-07-09 08:39 J -43543454.32 -43543454.14 -43543453.94 0.0506 0.0301

Moon -123929-07-09 12:30 J -43543454.17 -43543453.98 -43543453.78 0.0506 0.0294 \*

Mercury -123928-08-11 06:15 J -43543056.37 -43543056.24 -43543056.10 0.0500 0.0333

Mercury -123928-11-09 16:06 J -43542965.99 -43542965.83 -43542965.67 0.0499 0.0252

Mars -123926-11-02 15:51 J -43542243.09 -43542242.84 -43542242.59 0.0501 0.0180

Venus -123924-01-09 23:03 J -43541808.73 -43541808.54 -43541808.35 0.0508 0.0211

Venus -123924-09-04 11:32 J -43541571.15 -43541571.02 -43541570.89 0.0512 0.0398

Mercury -123922-07-09 13:56 J -43540897.97 -43540897.92 -43540897.88 0.0525 0.0484

Mercury -123922-10-06 20:25 J -43540808.78 -43540808.65 -43540808.52 0.0526 0.0025

Mercury -123921-01-04 02:39 J -43540719.46 -43540719.39 -43540719.32 0.0527 0.0432

Venus -123919-11-12 09:08 J -43539676.31 -43539676.12 -43539675.92 0.0517 0.0099

Venus -123918-07-06 20:39 J -43539439.70 -43539439.64 -43539439.58 0.0512 0.0489  
 Moon -123917-07-14 02:54 J -43539066.62 -43539066.38 -43539066.13 0.0505 0.0107  
 Earth -123917-07-14 03:08 J -43539066.59 -43539066.37 -43539066.13 0.0505 0.0132 \*  
 Mercury -123916-05-30 03:37 J -43538746.40 -43538746.35 -43538746.29 0.0500 0.0476  
 Mercury -123916-08-28 13:27 J -43538656.12 -43538655.94 -43538655.76 0.0500 0.0108  
 Venus -123913-09-14 16:35 J -43537542.95 -43537542.81 -43537542.67 0.0506 0.0375  
 Venus -123912-05-10 05:03 J -43537305.48 -43537305.29 -43537305.10 0.0511 0.0231  
 Mercury -123910-07-26 00:15 J -43536498.61 -43536498.49 -43536498.36 0.0526 0.0142  
 Mercury -123910-10-23 06:30 J -43536409.33 -43536409.23 -43536409.12 0.0526 0.0317  
 Venus -123907-07-18 08:54 J -43535410.30 -43535410.13 -43535409.96 0.0519 0.0266  
 Venus -123906-03-11 20:25 J -43535173.80 -43535173.65 -43535173.49 0.0514 0.0330  
 Mercury -123904-06-16 10:49 J -43534346.23 -43534346.05 -43534345.87 0.0500 0.0034  
 Venus -123900-01-12 21:08 J -43533039.83 -43533039.62 -43533039.41 0.0509 0.0061  
 Mercury -123898-05-14 04:06 J -43532188.44 -43532188.33 -43532188.22 0.0525 0.0260  
 Mercury -123898-08-11 10:20 J -43532099.18 -43532099.07 -43532098.95 0.0526 0.0200  
 Venus -123895-03-23 09:37 J -43531144.21 -43531144.10 -43531143.99 0.0520 0.0428  
 Venus -123895-11-14 20:54 J -43530907.81 -43530907.63 -43530907.44 0.0516 0.0169  
 Mercury -123892-04-04 07:56 J -43530036.34 -43530036.17 -43530035.99 0.0500 0.0179  
 Mercury -123892-07-03 18:01 J -43529945.85 -43529945.75 -43529945.64 0.0499 0.0409  
 Venus -123889-09-17 14:11 J -43528774.11 -43528773.91 -43528773.70 0.0508 0.0108  
 Venus -123888-05-13 01:42 J -43528536.47 -43528536.43 -43528536.38 0.0513 0.0499  
 Mercury -123886-03-02 08:11 J -43527878.24 -43527878.16 -43527878.06 0.0525 0.0371  
 Mercury -123886-05-30 14:54 J -43527789.01 -43527788.88 -43527788.76 0.0526 0.0090  
 Venus -123883-07-20 21:37 J -43526641.80 -43526641.60 -43526641.40 0.0516 0.0008  
 Mercury -123880-01-21 04:06 J -43525726.46 -43525726.33 -43525726.19 0.0500 0.0334  
 Mercury -123880-04-21 13:56 J -43525636.08 -43525635.92 -43525635.76 0.0499 0.0251  
 Venus -123877-05-23 05:18 J -43524508.46 -43524508.28 -43524508.11 0.0507 0.0278  
 Venus -123876-01-15 17:47 J -43524270.91 -43524270.76 -43524270.59 0.0512 0.0333  
 Moon -123875-01-15 04:20 J -43523906.43 -43523906.32 -43523906.20 0.0520 0.0448  
 Earth -123875-01-15 06:59 J -43523906.33 -43523906.21 -43523906.09 0.0520 0.0439 \*

Mercury -123875-12-19 12:30 J -43523568.03 -43523567.98 -43523567.93 0.0525 0.0484

Mercury -123874-03-18 18:59 J -43523478.84 -43523478.71 -43523478.58 0.0526 0.0026

Mercury -123874-06-16 01:13 J -43523389.51 -43523389.45 -43523389.37 0.0527 0.0436

Venus -123871-03-25 21:51 J -43522375.77 -43522375.59 -43522375.40 0.0518 0.0160

Venus -123871-11-17 08:54 J -43522139.23 -43522139.13 -43522139.02 0.0513 0.0432

Mercury -123869-11-09 01:13 J -43521416.49 -43521416.45 -43521416.39 0.0500 0.0479

Mercury -123868-02-07 10:49 J -43521326.23 -43521326.05 -43521325.86 0.0499 0.0105

Venus -123865-01-26 22:20 J -43520242.67 -43520242.57 -43520242.47 0.0506 0.0442

Venus -123865-09-20 11:32 J -43520005.22 -43520005.02 -43520004.82 0.0510 0.0165

Moon -123863-01-19 20:11 J -43519518.88 -43519518.66 -43519518.44 0.0520 0.0039

Earth -123863-01-19 22:20 J -43519518.79 -43519518.57 -43519518.34 0.0520 0.0016 \*

Mercury -123862-01-04 22:49 J -43519168.67 -43519168.55 -43519168.42 0.0526 0.0141

Mercury -123862-04-04 05:18 J -43519079.39 -43519079.28 -43519079.18 0.0527 0.0318

Mars -123861-10-02 17:47 J -43518532.02 -43518531.76 -43518531.50 0.0526 0.0220

Venus -123860-11-28 20:11 J -43518109.81 -43518109.66 -43518109.51 0.0519 0.0329

Venus -123859-07-23 06:59 J -43517873.37 -43517873.21 -43517873.03 0.0514 0.0269

Mercury -123857-11-26 08:11 J -43517016.35 -43517016.16 -43517015.98 0.0500 0.0043

Venus -123853-05-26 04:49 J -43515739.51 -43515739.30 -43515739.09 0.0509 0.0004

Earth -123851-01-24 12:59 J -43515131.06 -43515130.96 -43515130.85 0.0521 0.0462

Moon -123851-01-24 16:35 J -43515130.93 -43515130.81 -43515130.69 0.0521 0.0433 \*

Mercury -123851-10-24 02:39 J -43514858.50 -43514858.39 -43514858.28 0.0525 0.0258

Mercury -123850-01-21 09:08 J -43514769.24 -43514769.12 -43514769.00 0.0526 0.0201

Venus -123848-08-03 19:42 J -43513843.74 -43513843.68 -43513843.62 0.0521 0.0494

Venus -123847-03-28 06:59 J -43513607.41 -43513607.21 -43513607.02 0.0516 0.0103

Moon -123846-07-09 06:44 J -43513139.37 -43513139.22 -43513139.06 0.0506 0.0385

Earth -123846-07-09 10:20 J -43513139.22 -43513139.07 -43513138.91 0.0506 0.0385 \*

Mercury -123845-09-14 05:18 J -43512706.45 -43512706.28 -43512706.11 0.0500 0.0185

Mercury -123845-12-13 15:23 J -43512615.96 -43512615.86 -43512615.75 0.0499 0.0403

Mars -123843-07-20 08:11 J -43512032.34 -43512032.16 -43512031.96 0.0499 0.0343

Venus -123841-01-29 20:39 J -43511473.83 -43511473.64 -43511473.44 0.0507 0.0174



Venus -123841-09-23 08:39 J -43511236.25 -43511236.14 -43511236.03 0.0512 0.0435  
 Mercury -123839-08-12 06:15 J -43510548.32 -43510548.24 -43510548.15 0.0525 0.0378  
 Mercury -123839-11-09 12:44 J -43510459.09 -43510458.97 -43510458.84 0.0526 0.0083  
 Venus -123836-12-01 06:59 J -43509341.40 -43509341.21 -43509341.01 0.0518 0.0063  
 Moon -123834-07-14 05:18 J -43508751.51 -43508751.28 -43508751.05 0.0505 0.0033  
 Earth -123834-07-14 06:15 J -43508751.48 -43508751.24 -43508751.00 0.0505 0.0054 \*  
 Mercury -123833-07-03 02:39 J -43508396.53 -43508396.39 -43508396.26 0.0500 0.0329  
 Mercury -123833-10-01 12:30 J -43508306.14 -43508305.98 -43508305.82 0.0499 0.0257  
 Venus -123830-10-04 13:13 J -43507208.10 -43507207.95 -43507207.79 0.0506 0.0343  
 Venus -123829-05-29 01:27 J -43506970.62 -43506970.44 -43506970.26 0.0511 0.0267  
 Mercury -123827-05-31 10:20 J -43506238.11 -43506238.07 -43506238.02 0.0525 0.0491  
 Mercury -123827-08-28 17:03 J -43506148.92 -43506148.79 -43506148.66 0.0526 0.0030  
 Mercury -123827-11-25 23:18 J -43506059.60 -43506059.53 -43506059.46 0.0527 0.0428  
 Mars -123825-07-10 03:23 J -43505467.62 -43505467.36 -43505467.10 0.0525 0.0213  
 Venus -123824-08-06 07:56 J -43505075.34 -43505075.17 -43505074.99 0.0519 0.0226  
 Venus -123823-03-30 19:13 J -43504838.83 -43504838.70 -43504838.56 0.0513 0.0371  
 Earth -123822-07-19 00:01 J -43504363.57 -43504363.50 -43504363.43 0.0504 0.0480  
 Mercury -123821-04-20 22:49 J -43504086.59 -43504086.55 -43504086.50 0.0500 0.0482  
 Mercury -123821-07-20 08:25 J -43503996.33 -43503996.15 -43503995.96 0.0499 0.0101  
 Venus -123817-02-01 16:49 J -43502705.01 -43502704.80 -43502704.60 0.0510 0.0096  
 Mercury -123815-06-16 21:08 J -43501838.74 -43501838.62 -43501838.49 0.0526 0.0144  
 Mercury -123815-09-14 03:37 J -43501749.45 -43501749.35 -43501749.25 0.0527 0.0316  
 Venus -123812-04-11 08:11 J -43500809.28 -43500809.16 -43500809.02 0.0520 0.0392  
 Venus -123812-12-03 18:59 J -43500572.89 -43500572.71 -43500572.52 0.0515 0.0208  
 Mercury -123809-05-08 05:18 J -43499686.46 -43499686.28 -43499686.09 0.0499 0.0049  
 Mars -123807-04-23 12:15 J -43498971.26 -43498970.99 -43498970.72 0.0500 0.0043  
 Venus -123806-10-07 09:51 J -43498439.29 -43498439.09 -43498438.88 0.0508 0.0076  
 Mercury -123803-04-05 00:59 J -43497528.57 -43497528.46 -43497528.35 0.0526 0.0262  
 Mercury -123803-07-03 07:27 J -43497439.31 -43497439.19 -43497439.07 0.0526 0.0198  
 Venus -123800-08-08 17:03 J -43496306.99 -43496306.79 -43496306.59 0.0516 0.0037

Mercury -123797-02-25 02:25 J -43495376.57 -43495376.40 -43495376.23 0.0500 0.0195

Mercury -123797-05-25 12:30 J -43495286.10 -43495285.98 -43495285.87 0.0499 0.0393

Venus -123794-06-12 03:23 J -43494173.55 -43494173.36 -43494173.18 0.0507 0.0242

Venus -123793-02-04 15:37 J -43493935.99 -43493935.85 -43493935.71 0.0512 0.0370

Mercury -123791-01-22 04:49 J -43493218.39 -43493218.30 -43493218.21 0.0525 0.0379

Mercury -123791-04-21 11:18 J -43493129.16 -43493129.03 -43493128.90 0.0526 0.0081

Venus -123788-04-13 16:35 J -43492041.00 -43492040.81 -43492040.62 0.0518 0.0132

Venus -123788-12-06 03:51 J -43491804.42 -43491804.34 -43491804.25 0.0513 0.0463

Mercury -123786-12-13 23:32 J -43491066.65 -43491066.52 -43491066.39 0.0500 0.0339

Mercury -123785-03-13 09:23 J -43490976.27 -43490976.11 -43490975.95 0.0499 0.0247

Venus -123782-02-14 19:13 J -43489907.82 -43489907.70 -43489907.57 0.0505 0.0409

Venus -123782-10-10 07:42 J -43489670.37 -43489670.18 -43489669.99 0.0510 0.0200

Earth -123780-01-18 21:08 J -43489203.84 -43489203.62 -43489203.39 0.0520 0.0094

Moon -123780-01-19 00:30 J -43489203.71 -43489203.48 -43489203.25 0.0520 0.0068 \*

Mercury -123780-11-10 08:25 J -43488908.19 -43488908.15 -43488908.12 0.0525 0.0500

Mercury -123779-02-07 14:54 J -43488819.01 -43488818.88 -43488818.75 0.0526 0.0040

Mercury -123779-05-07 21:08 J -43488729.69 -43488729.62 -43488729.54 0.0527 0.0418

Venus -123777-12-17 16:20 J -43487774.98 -43487774.82 -43487774.66 0.0520 0.0298

Venus -123776-08-11 03:37 J -43487538.50 -43487538.35 -43487538.18 0.0515 0.0304

Mercury -123774-10-01 20:39 J -43486756.68 -43486756.64 -43486756.59 0.0500 0.0483

Mercury -123774-12-31 06:30 J -43486666.41 -43486666.23 -43486666.05 0.0499 0.0101

Mars -123771-01-26 03:23 J -43485909.58 -43485909.36 -43485909.13 0.0500 0.0278

Venus -123770-06-15 00:01 J -43485404.71 -43485404.50 -43485404.29 0.0509 0.0028

Moon -123768-01-23 09:23 J -43484816.29 -43484816.11 -43484815.92 0.0521 0.0326

Earth -123768-01-23 12:01 J -43484816.16 -43484816.00 -43484815.83 0.0521 0.0357 \*

Mercury -123768-11-26 18:59 J -43484508.83 -43484508.71 -43484508.59 0.0526 0.0154

Mercury -123767-02-24 01:27 J -43484419.55 -43484419.44 -43484419.34 0.0527 0.0306

Venus -123765-08-22 17:32 J -43483508.86 -43483508.77 -43483508.68 0.0521 0.0461

Venus -123764-04-16 04:35 J -43483272.50 -43483272.31 -43483272.11 0.0516 0.0142

Earth -123763-07-08 10:49 J -43482824.13 -43482824.05 -43482823.97 0.0506 0.0475

Moon -123763-07-08 13:13 J -43482824.02 -43482823.95 -43482823.89 0.0506 0.0483 \*  
 Mercury -123762-10-19 02:39 J -43482356.57 -43482356.39 -43482356.20 0.0499 0.0055  
 Venus -123758-02-17 14:39 J -43481139.09 -43481138.89 -43481138.69 0.0508 0.0146  
 Venus -123758-10-13 03:08 J -43480901.45 -43480901.37 -43480901.28 0.0513 0.0468  
 Mercury -123756-09-14 23:03 J -43480198.65 -43480198.54 -43480198.43 0.0526 0.0269  
 Mercury -123756-12-13 05:32 J -43480109.39 -43480109.27 -43480109.15 0.0527 0.0192  
 Venus -123753-12-20 04:49 J -43479006.50 -43479006.30 -43479006.11 0.0517 0.0028  
 Earth -123751-07-13 04:49 J -43478436.54 -43478436.30 -43478436.07 0.0505 0.0043  
 Moon -123751-07-13 07:13 J -43478436.45 -43478436.20 -43478435.96 0.0505 0.0060 \*  
 Mercury -123750-08-06 23:32 J -43478046.68 -43478046.52 -43478046.35 0.0499 0.0202  
 Mercury -123750-11-05 09:23 J -43477956.22 -43477956.11 -43477955.99 0.0499 0.0385  
 Venus -123747-10-23 07:42 J -43476873.34 -43476873.18 -43476873.01 0.0506 0.0314  
 Venus -123746-06-17 20:25 J -43476635.81 -43476635.65 -43476635.48 0.0511 0.0301  
 Mercury -123744-07-04 02:54 J -43475888.47 -43475888.38 -43475888.30 0.0525 0.0387  
 Mercury -123744-10-01 09:23 J -43475799.24 -43475799.11 -43475798.98 0.0526 0.0074  
 Venus -123741-08-25 02:25 J -43474740.58 -43474740.40 -43474740.22 0.0518 0.0199  
 Venus -123740-04-18 13:42 J -43474504.06 -43474503.93 -43474503.81 0.0513 0.0400  
 Moon -123739-07-17 17:32 J -43474048.91 -43474048.77 -43474048.63 0.0504 0.0408  
 Earth -123739-07-17 20:39 J -43474048.79 -43474048.64 -43474048.48 0.0504 0.0380 \*  
 Mercury -123738-05-25 20:25 J -43473736.78 -43473736.65 -43473736.52 0.0500 0.0350  
 Mercury -123738-08-24 06:15 J -43473646.40 -43473646.24 -43473646.08 0.0499 0.0235  
 Venus -123735-06-28 00:59 J -43472607.51 -43472607.46 -43472607.38 0.0505 0.0479  
 Venus -123734-02-20 13:56 J -43472370.12 -43472369.92 -43472369.71 0.0510 0.0132  
 Mercury -123732-04-22 06:44 J -43471578.26 -43471578.22 -43471578.19 0.0525 0.0503  
 Mercury -123732-07-20 13:13 J -43471489.08 -43471488.95 -43471488.82 0.0526 0.0043  
 Mercury -123732-10-17 19:27 J -43471399.76 -43471399.69 -43471399.61 0.0527 0.0415  
 Venus -123729-04-30 01:42 J -43470474.57 -43470474.43 -43470474.29 0.0520 0.0368  
 Venus -123729-12-22 12:44 J -43470238.15 -43470237.97 -43470237.79 0.0515 0.0235  
 Mercury -123726-03-13 17:32 J -43469426.79 -43469426.77 -43469426.74 0.0500 0.0495  
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Venus -123723-10-26 06:01 J -43468104.46 -43468104.25 -43468104.04 0.0508 0.0041  
 Mercury -123720-05-08 16:49 J -43467178.92 -43467178.80 -43467178.68 0.0526 0.0164  
 Mercury -123720-08-05 23:03 J -43467089.64 -43467089.54 -43467089.43 0.0527 0.0295  
 Venus -123717-08-27 12:30 J -43465972.17 -43465971.98 -43465971.78 0.0517 0.0070  
 Mercury -123714-03-31 00:15 J -43465026.67 -43465026.49 -43465026.31 0.0500 0.0057  
 Venus -123711-06-30 22:06 J -43463838.77 -43463838.58 -43463838.39 0.0507 0.0213  
 Venus -123710-02-23 10:06 J -43463601.21 -43463601.08 -43463600.95 0.0512 0.0401  
 Mercury -123708-02-24 20:54 J -43462868.74 -43462868.63 -43462868.53 0.0526 0.0280  
 Mercury -123708-05-25 03:08 J -43462779.48 -43462779.37 -43462779.24 0.0527 0.0182  
 Mars -123707-12-26 21:08 J -43462198.89 -43462198.62 -43462198.34 0.0526 0.0116  
 Venus -123705-05-02 13:42 J -43461706.12 -43461705.93 -43461705.74 0.0518 0.0096  
 Venus -123705-12-25 01:13 J -43461469.49 -43461469.45 -43461469.41 0.0513 0.0500  
 Mercury -123702-01-16 20:54 J -43460716.79 -43460716.63 -43460716.46 0.0499 0.0208  
 Mercury -123702-04-17 06:44 J -43460626.34 -43460626.22 -43460626.10 0.0499 0.0377  
 Venus -123699-03-05 12:30 J -43459573.11 -43459572.98 -43459572.84 0.0506 0.0385  
 Venus -123699-10-29 01:13 J -43459335.63 -43459335.45 -43459335.26 0.0510 0.0229  
 Moon -123697-01-18 15:37 J -43458889.06 -43458888.85 -43458888.64 0.0520 0.0182  
 Earth -123697-01-18 19:13 J -43458888.90 -43458888.70 -43458888.48 0.0520 0.0204 \*  
 Mercury -123697-12-14 00:44 J -43458558.55 -43458558.47 -43458558.39 0.0526 0.0396  
 Mercury -123696-03-13 07:13 J -43458469.32 -43458469.20 -43458469.07 0.0527 0.0068  
 Mercury -123696-06-10 13:27 J -43458379.94 -43458379.94 -43458379.92 0.0527 0.0525  
 Venus -123693-01-06 13:56 J -43457440.09 -43457439.92 -43457439.75 0.0519 0.0265  
 Venus -123693-08-30 00:58 J -43457203.61 -43457203.46 -43457203.31 0.0514 0.0338  
 Mercury -123691-11-04 17:46 J -43456406.88 -43456406.76 -43456406.63 0.0500 0.0355  
 Mercury -123690-02-03 03:37 J -43456316.52 -43456316.35 -43456316.19 0.0499 0.0229  
 Mars -123689-10-12 06:15 J -43455699.45 -43455699.24 -43455699.01 0.0499 0.0273  
 Venus -123687-07-03 18:30 J -43455069.94 -43455069.73 -43455069.52 0.0509 0.0058  
 Earth -123685-01-23 11:03 J -43454501.24 -43454501.04 -43454500.84 0.0521 0.0252  
 Moon -123685-01-23 11:46 J -43454501.21 -43454501.01 -43454500.81 0.0521 0.0225 \*  
 Mercury -123685-10-02 04:34 J -43454248.33 -43454248.31 -43454248.28 0.0525 0.0512

Mercury -123685-12-30 11:18 J -43454159.16 -43454159.03 -43454158.91 0.0526 0.0053  
 Mercury -123684-03-29 17:32 J -43454069.85 -43454069.77 -43454069.69 0.0527 0.0407  
 Venus -123682-09-11 11:32 J -43453174.12 -43453174.02 -43453173.91 0.0520 0.0437  
 Venus -123681-05-04 22:20 J -43452937.75 -43452937.57 -43452937.38 0.0516 0.0169  
 Mercury -123679-11-22 00:01 J -43452006.68 -43452006.50 -43452006.32 0.0499 0.0078  
 Venus -123675-03-08 12:15 J -43450804.20 -43450803.99 -43450803.79 0.0508 0.0112  
 Venus -123675-11-01 00:15 J -43450566.52 -43450566.49 -43450566.45 0.0513 0.0504  
 Mercury -123673-10-18 15:08 J -43449848.99 -43449848.87 -43449848.75 0.0526 0.0167  
 Mercury -123672-01-15 21:22 J -43449759.71 -43449759.61 -43449759.50 0.0526 0.0292  
 Mars -123671-10-02 21:08 J -43449134.84 -43449134.62 -43449134.38 0.0525 0.0301  
 Venus -123669-01-08 21:37 J -43448671.80 -43448671.60 -43448671.40 0.0517 0.0006  
 Moon -123668-07-11 20:39 J -43448121.86 -43448121.64 -43448121.42 0.0506 0.0165  
 Earth -123668-07-12 00:01 J -43448121.73 -43448121.50 -43448121.27 0.0506 0.0149 \*  
 Mercury -123667-09-09 21:08 J -43447696.80 -43447696.62 -43447696.44 0.0500 0.0069  
 Venus -123664-11-11 04:20 J -43446538.49 -43446538.32 -43446538.14 0.0506 0.0281  
 Venus -123663-07-06 16:20 J -43446300.97 -43446300.82 -43446300.66 0.0511 0.0335  
 Mercury -123661-08-06 18:44 J -43445538.83 -43445538.72 -43445538.61 0.0525 0.0289  
 Mercury -123661-11-04 01:13 J -43445449.57 -43445449.45 -43445449.33 0.0526 0.0172  
 Venus -123658-09-13 21:22 J -43444405.79 -43444405.61 -43444405.42 0.0519 0.0171  
 Venus -123657-05-07 08:54 J -43444169.23 -43444169.13 -43444169.02 0.0514 0.0433  
 Earth -123656-07-16 19:13 J -43443733.89 -43443733.70 -43443733.50 0.0505 0.0287  
 Moon -123656-07-16 21:08 J -43443733.80 -43443733.62 -43443733.44 0.0505 0.0314 \*  
 Mercury -123655-06-28 18:15 J -43443386.91 -43443386.74 -43443386.57 0.0500 0.0214  
 Mercury -123655-09-27 04:06 J -43443296.45 -43443296.33 -43443296.20 0.0499 0.0374  
 Mars -123653-07-16 18:44 J -43442637.98 -43442637.72 -43442637.45 0.0500 0.0045  
 Venus -123652-07-16 20:10 J -43442272.75 -43442272.66 -43442272.56 0.0505 0.0450  
 Venus -123651-03-11 08:39 J -43442035.34 -43442035.14 -43442034.94 0.0509 0.0162  
 Mercury -123649-05-25 22:34 J -43441228.64 -43441228.56 -43441228.48 0.0525 0.0405  
 Mercury -123649-08-23 05:03 J -43441139.41 -43441139.29 -43441139.16 0.0526 0.0057  
 Mercury -123649-11-20 11:18 J -43441050.05 -43441050.03 -43441050.00 0.0527 0.0514

Venus -123646-05-19 22:34 J -43440139.71 -43440139.56 -43440139.41 0.0520 0.0337  
 Venus -123645-01-11 09:51 J -43439903.26 -43439903.09 -43439902.92 0.0515 0.0271  
 Mercury -123643-04-16 15:08 J -43439076.99 -43439076.87 -43439076.74 0.0500 0.0361  
 Mercury -123643-07-16 00:44 J -43438986.63 -43438986.47 -43438986.30 0.0499 0.0224  
 Venus -123640-11-13 23:32 J -43437769.73 -43437769.52 -43437769.31 0.0508 0.0017  
 Mercury -123637-03-14 02:25 J -43436918.41 -43436918.40 -43436918.39 0.0525 0.0522  
 Mercury -123637-06-11 09:08 J -43436829.25 -43436829.12 -43436828.99 0.0526 0.0060  
 Mercury -123637-09-08 15:22 J -43436739.94 -43436739.86 -43436739.77 0.0527 0.0401  
 Venus -123634-01-22 23:03 J -43435873.59 -43435873.54 -43435873.49 0.0521 0.0503  
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 Mercury -123631-05-03 21:37 J -43434676.78 -43434676.60 -43434676.41 0.0499 0.0076  
 Venus -123628-07-19 16:49 J -43433504.00 -43433503.80 -43433503.60 0.0507 0.0185  
 Venus -123627-03-14 05:03 J -43433266.39 -43433266.29 -43433266.18 0.0512 0.0434  
 Mercury -123625-03-30 13:13 J -43432519.08 -43432518.95 -43432518.83 0.0526 0.0175  
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 Venus -123622-05-22 07:42 J -43431371.38 -43431371.18 -43431370.99 0.0518 0.0070  
 Mercury -123619-02-19 18:01 J -43430366.93 -43430366.75 -43430366.57 0.0500 0.0078  
 Mars -123617-04-20 05:18 J -43429576.46 -43429576.28 -43429576.09 0.0501 0.0361  
 Venus -123616-03-24 10:34 J -43429238.21 -43429238.06 -43429237.90 0.0506 0.0351  
 Venus -123616-11-16 23:18 J -43429000.71 -43429000.53 -43429000.35 0.0510 0.0266  
 Earth -123614-01-17 21:08 J -43428573.80 -43428573.62 -43428573.43 0.0519 0.0293  
 Moon -123614-01-18 00:44 J -43428573.66 -43428573.47 -43428573.28 0.0519 0.0278 \*  
 Mercury -123613-01-17 17:03 J -43428208.89 -43428208.79 -43428208.68 0.0525 0.0289  
 Mercury -123613-04-15 23:32 J -43428119.64 -43428119.52 -43428119.40 0.0526 0.0170  
 Venus -123610-01-25 06:58 J -43427105.38 -43427105.21 -43427105.03 0.0519 0.0241  
 Venus -123610-09-18 18:01 J -43426868.89 -43426868.75 -43426868.61 0.0514 0.0364  
 Mercury -123608-12-08 15:08 J -43426057.03 -43426056.87 -43426056.70 0.0500 0.0224  
 Mercury -123607-03-09 01:13 J -43425966.58 -43425966.45 -43425966.33 0.0499 0.0364  
 Venus -123604-07-22 15:22 J -43424735.06 -43424734.86 -43424734.65 0.0509 0.0095  
 Earth -123602-01-22 10:06 J -43424186.29 -43424186.08 -43424185.86 0.0520 0.0149

Moon -123602-01-22 11:18 J -43424186.26 -43424186.03 -43424185.80 0.0520 0.0122 \*  
 Mercury -123602-11-05 20:39 J -43423898.72 -43423898.64 -43423898.56 0.0525 0.0411  
 Mercury -123601-02-03 03:08 J -43423809.50 -43423809.37 -43423809.24 0.0526 0.0050  
 Mercury -123601-05-02 09:22 J -43423720.14 -43423720.11 -43423720.08 0.0527 0.0506  
 Venus -123599-09-30 06:30 J -43422839.34 -43422839.23 -43422839.10 0.0521 0.0410  
 Venus -123598-05-24 18:01 J -43422602.94 -43422602.75 -43422602.57 0.0516 0.0200  
 Mercury -123596-09-26 12:30 J -43421747.10 -43421746.98 -43421746.86 0.0500 0.0367  
 Mercury -123596-12-25 22:20 J -43421656.74 -43421656.57 -43421656.41 0.0499 0.0219  
 Venus -123592-03-27 07:42 J -43420469.38 -43420469.18 -43420468.97 0.0507 0.0080  
 Mercury -123590-11-22 07:13 J -43419499.33 -43419499.20 -43419499.07 0.0526 0.0067  
 Mercury -123589-02-19 13:27 J -43419410.02 -43419409.94 -43419409.86 0.0527 0.0392  
 Mars -123588-06-13 08:25 J -43418930.28 -43418930.15 -43418930.00 0.0527 0.0457  
 Venus -123586-01-27 18:58 J -43418336.91 -43418336.71 -43418336.51 0.0517 0.0034  
 Earth -123585-07-11 01:27 J -43417806.65 -43417806.44 -43417806.22 0.0506 0.0233  
 Moon -123585-07-11 05:18 J -43417806.49 -43417806.28 -43417806.07 0.0506 0.0236 \*  
 Mercury -123584-10-13 19:13 J -43417346.88 -43417346.70 -43417346.52 0.0499 0.0071  
 Venus -123581-11-29 22:49 J -43416203.73 -43416203.55 -43416203.37 0.0506 0.0254  
 Venus -123580-07-25 10:49 J -43415966.19 -43415966.05 -43415965.90 0.0511 0.0365  
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 Mercury -123578-12-08 17:32 J -43415099.88 -43415099.77 -43415099.66 0.0527 0.0279  
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 Venus -123574-05-27 06:58 J -43413834.29 -43413834.21 -43413834.13 0.0513 0.0469  
 Moon -123573-07-15 20:10 J -43413418.87 -43413418.66 -43413418.43 0.0505 0.0225  
 Earth -123573-07-15 20:39 J -43413418.86 -43413418.64 -43413418.43 0.0505 0.0203 \*  
 Mercury -123572-08-01 16:20 J -43413037.00 -43413036.82 -43413036.64 0.0499 0.0075  
 Mars -123570-04-03 07:42 J -43412427.20 -43412427.18 -43412427.13 0.0498 0.0493  
 Venus -123569-08-04 16:06 J -43411937.95 -43411937.83 -43411937.72 0.0505 0.0421  
 Venus -123568-03-30 04:34 J -43411700.50 -43411700.31 -43411700.11 0.0510 0.0195  
 Mercury -123566-06-29 15:08 J -43410878.97 -43410878.87 -43410878.76 0.0525 0.0296  
 Mercury -123566-09-26 21:37 J -43410789.72 -43410789.60 -43410789.48 0.0526 0.0165

Venus -123563-06-07 17:18 J -43409804.93 -43409804.78 -43409804.62 0.0520 0.0310  
 Venus -123562-01-30 04:20 J -43409568.48 -43409568.32 -43409568.16 0.0515 0.0300  
 Mercury -123560-05-20 12:30 J -43408727.14 -43408726.98 -43408726.82 0.0500 0.0229  
 Mercury -123560-08-18 22:20 J -43408636.69 -43408636.57 -43408636.44 0.0499 0.0358  
 Venus -123557-12-02 22:49 J -43407434.76 -43407434.55 -43407434.34 0.0508 0.0026  
 Mercury -123554-04-17 19:13 J -43406568.77 -43406568.70 -43406568.62 0.0525 0.0409  
 Mercury -123554-07-16 01:56 J -43406479.55 -43406479.42 -43406479.30 0.0526 0.0055  
 Mercury -123554-10-13 07:56 J -43406390.19 -43406390.17 -43406390.14 0.0527 0.0509  
 Mars -123552-03-20 19:13 J -43405865.99 -43405865.70 -43405865.42 0.0526 0.0018  
 Venus -123551-02-10 17:03 J -43405538.86 -43405538.79 -43405538.71 0.0521 0.0478  
 Venus -123551-10-05 03:51 J -43405302.53 -43405302.34 -43405302.15 0.0516 0.0131  
 Mercury -123548-03-08 09:37 J -43404417.22 -43404417.10 -43404416.98 0.0500 0.0374  
 Mercury -123548-06-06 19:27 J -43404326.86 -43404326.69 -43404326.52 0.0500 0.0212  
 Venus -123545-08-07 15:22 J -43403169.06 -43403168.86 -43403168.66 0.0507 0.0146  
 Venus -123544-04-02 03:08 J -43402931.44 -43402931.37 -43402931.28 0.0512 0.0473  
 Mercury -123542-05-04 05:32 J -43402169.40 -43402169.27 -43402169.14 0.0526 0.0069  
 Mercury -123542-08-01 11:46 J -43402080.09 -43402080.01 -43402079.93 0.0526 0.0389  
 Venus -123539-06-10 03:37 J -43401036.54 -43401036.35 -43401036.15 0.0518 0.0040  
 Mercury -123536-03-25 16:49 J -43400016.98 -43400016.80 -43400016.62 0.0500 0.0068  
 Mars -123534-01-05 18:44 J -43399365.96 -43399365.72 -43399365.47 0.0499 0.0176  
 Venus -123533-04-12 07:42 J -43398903.34 -43398903.18 -43398903.01 0.0505 0.0317  
 Venus -123533-12-05 19:56 J -43398665.84 -43398665.67 -43398665.50 0.0510 0.0302  
 Moon -123531-01-16 18:44 J -43398258.88 -43398258.72 -43398258.56 0.0519 0.0386  
 Earth -123531-01-16 21:08 J -43398258.76 -43398258.62 -43398258.46 0.0519 0.0392 \*  
 Mercury -123530-02-20 09:22 J -43397859.23 -43397859.11 -43397858.99 0.0526 0.0185  
 Mercury -123530-05-20 15:51 J -43397769.95 -43397769.84 -43397769.73 0.0526 0.0275  
 Venus -123527-02-13 04:49 J -43396770.48 -43396770.30 -43396770.11 0.0519 0.0206  
 Venus -123527-10-07 16:34 J -43396533.93 -43396533.81 -43396533.69 0.0514 0.0403  
 Mercury -123524-01-11 14:10 J -43395707.10 -43395706.91 -43395706.73 0.0500 0.0077  
 Venus -123522-12-16 22:49 J -43394637.59 -43394637.55 -43394637.49 0.0504 0.0487



Venus -123521-08-10 11:32 J -43394400.23 -43394400.02 -43394399.82 0.0509 0.0127  
 Moon -123519-01-21 08:54 J -43393871.35 -43393871.13 -43393870.91 0.0520 0.0028  
 Earth -123519-01-21 11:18 J -43393871.26 -43393871.03 -43393870.80 0.0520 0.0054 \*  
 Mercury -123519-12-09 13:27 J -43393549.05 -43393548.94 -43393548.84 0.0526 0.0300  
 Mercury -123518-03-08 19:56 J -43393459.79 -43393459.67 -43393459.55 0.0527 0.0161  
 Mars -123517-12-26 07:42 J -43392801.34 -43392801.18 -43392801.00 0.0526 0.0421  
 Venus -123516-10-19 05:46 J -43392504.39 -43392504.26 -43392504.12 0.0521 0.0374  
 Venus -123515-06-12 17:03 J -43392267.96 -43392267.79 -43392267.61 0.0516 0.0239  
 Mercury -123513-10-30 11:18 J -43391397.19 -43391397.03 -43391396.87 0.0500 0.0221  
 Mercury -123512-01-28 20:54 J -43391306.75 -43391306.63 -43391306.50 0.0499 0.0366  
 Venus -123509-04-15 05:18 J -43390134.49 -43390134.28 -43390134.07 0.0508 0.0045  
 Earth -123507-01-26 04:06 J -43389483.36 -43389483.33 -43389483.29 0.0521 0.0513  
 Mercury -123507-09-27 17:32 J -43389238.85 -43389238.77 -43389238.69 0.0525 0.0411  
 Mercury -123507-12-26 00:15 J -43389149.62 -43389149.49 -43389149.37 0.0526 0.0053  
 Mercury -123506-03-25 06:15 J -43389060.27 -43389060.24 -43389060.20 0.0527 0.0507  
 Venus -123503-02-15 14:54 J -43388002.07 -43388001.88 -43388001.68 0.0517 0.0066  
 Moon -123502-07-10 19:42 J -43387491.85 -43387491.68 -43387491.49 0.0506 0.0329  
 Earth -123502-07-10 23:18 J -43387491.71 -43387491.53 -43387491.35 0.0506 0.0329 \*  
 Mercury -123501-08-18 07:27 J -43387087.31 -43387087.19 -43387087.07 0.0500 0.0376  
 Mercury -123501-11-16 17:03 J -43386996.95 -43386996.79 -43386996.62 0.0499 0.0211  
 Mars -123499-10-10 06:15 J -43386304.49 -43386304.24 -43386303.98 0.0500 0.0143  
 Venus -123498-12-19 23:03 J -43385868.72 -43385868.54 -43385868.34 0.0507 0.0214  
 Venus -123497-08-13 11:46 J -43385631.13 -43385631.01 -43385630.89 0.0511 0.0408  
 Mercury -123495-07-16 21:37 J -43384928.60 -43384928.60 -43384928.59 0.0525 0.0523  
 Mercury -123495-10-14 04:20 J -43384839.45 -43384839.32 -43384839.19 0.0526 0.0063  
 Mercury -123494-01-11 10:34 J -43384750.14 -43384750.06 -43384749.97 0.0526 0.0396  
 Venus -123492-10-21 14:54 J -43383736.07 -43383735.88 -43383735.69 0.0518 0.0105  
 Venus -123491-06-15 01:56 J -43383499.46 -43383499.42 -43383499.37 0.0513 0.0499  
 Moon -123490-07-15 16:49 J -43383104.02 -43383103.80 -43383103.57 0.0505 0.0128  
 Earth -123490-07-15 18:01 J -43383103.98 -43383103.75 -43383103.51 0.0505 0.0108 \*

Mercury -123489-09-04 14:25 J -43382687.09 -43382686.90 -43382686.72 0.0500 0.0066

Venus -123486-08-24 16:06 J -43381602.96 -43381602.83 -43381602.68 0.0505 0.0381

Venus -123485-04-18 04:49 J -43381365.48 -43381365.30 -43381365.12 0.0510 0.0238

Mercury -123483-08-02 08:10 J -43380529.28 -43380529.16 -43380529.04 0.0525 0.0182

Mercury -123483-10-30 14:25 J -43380440.01 -43380439.90 -43380439.79 0.0526 0.0277

Venus -123480-06-26 14:39 J -43379470.05 -43379469.89 -43379469.72 0.0520 0.0276

Venus -123479-02-18 01:56 J -43379233.57 -43379233.42 -43379233.27 0.0515 0.0337

Mercury -123477-06-23 11:46 J -43378377.19 -43378377.01 -43378376.83 0.0500 0.0077

Venus -123474-12-22 21:22 J -43377099.82 -43377099.61 -43377099.40 0.0508 0.0064

Mercury -123471-05-21 12:01 J -43376219.10 -43376219.00 -43376218.89 0.0525 0.0298

Mercury -123471-08-18 18:30 J -43376129.85 -43376129.73 -43376129.61 0.0526 0.0162

Venus -123468-03-01 15:51 J -43375203.94 -43375203.84 -43375203.74 0.0521 0.0443

Venus -123468-10-24 03:22 J -43374967.55 -43374967.36 -43374967.17 0.0517 0.0172

Mercury -123465-04-11 09:22 J -43374067.27 -43374067.11 -43374066.94 0.0500 0.0218

Mercury -123465-07-10 19:13 J -43373976.82 -43373976.70 -43373976.57 0.0499 0.0369

Mars -123463-07-14 21:22 J -43373242.70 -43373242.61 -43373242.52 0.0500 0.0468

Venus -123462-08-27 13:13 J -43372834.15 -43372833.95 -43372833.74 0.0507 0.0111

Venus -123461-04-21 00:58 J -43372596.47 -43372596.46 -43372596.44 0.0512 0.0510

Mercury -123459-03-09 15:51 J -43371908.91 -43371908.84 -43371908.76 0.0525 0.0414

Mercury -123459-06-06 22:34 J -43371819.69 -43371819.56 -43371819.43 0.0526 0.0048

Mercury -123459-09-04 04:49 J -43371730.33 -43371730.30 -43371730.27 0.0527 0.0506

Venus -123456-06-29 04:20 J -43370701.52 -43370701.32 -43370701.12 0.0518 0.0004

Mercury -123453-01-29 06:44 J -43369757.34 -43369757.22 -43369757.09 0.0500 0.0361

Mercury -123453-04-28 16:20 J -43369666.98 -43369666.82 -43369666.65 0.0499 0.0225

Venus -123450-05-02 06:58 J -43368568.38 -43368568.21 -43368568.03 0.0506 0.0281

Venus -123450-12-25 19:13 J -43368330.85 -43368330.70 -43368330.54 0.0511 0.0342

Earth -123448-01-16 03:22 J -43367943.45 -43367943.36 -43367943.25 0.0519 0.0464

Moon -123448-01-16 04:06 J -43367943.41 -43367943.33 -43367943.23 0.0519 0.0471 \*

Mercury -123448-12-26 20:10 J -43367598.66 -43367598.66 -43367598.65 0.0525 0.0522

Mercury -123447-03-26 02:54 J -43367509.51 -43367509.38 -43367509.25 0.0526 0.0061

Mercury -123447-06-23 09:08 J -43367420.20 -43367420.12 -43367420.03 0.0527 0.0398

Venus -123444-03-04 02:54 J -43366435.57 -43366435.38 -43366435.20 0.0519 0.0170

Venus -123444-10-26 13:42 J -43366199.03 -43366198.93 -43366198.82 0.0514 0.0439

Mercury -123441-02-15 12:30 J -43365357.16 -43365356.98 -43365356.80 0.0500 0.0068

Venus -123438-01-05 00:30 J -43364302.57 -43364302.48 -43364302.38 0.0505 0.0446

Venus -123438-08-30 13:42 J -43364065.12 -43364064.93 -43364064.73 0.0509 0.0175

Earth -123436-01-20 21:37 J -43363555.83 -43363555.60 -43363555.37 0.0520 0.0003

Moon -123436-01-21 01:13 J -43363555.68 -43363555.45 -43363555.22 0.0520 0.0020 \*

Mercury -123435-01-12 07:13 J -43363199.32 -43363199.20 -43363199.08 0.0525 0.0172

Mercury -123435-04-11 13:42 J -43363110.04 -43363109.93 -43363109.83 0.0526 0.0288

Mars -123434-09-07 06:30 J -43362596.45 -43362596.23 -43362595.99 0.0526 0.0319

Venus -123433-11-07 03:08 J -43362169.52 -43362169.37 -43362169.22 0.0520 0.0340

Venus -123432-07-01 13:42 J -43361933.09 -43361932.93 -43361932.76 0.0515 0.0273

Mercury -123430-12-04 09:37 J -43361047.28 -43361047.10 -43361046.91 0.0500 0.0077

Venus -123426-05-05 07:13 J -43359799.41 -43359799.20 -43359798.99 0.0508 0.0011

Moon -123424-01-25 09:37 J -43359168.19 -43359168.10 -43359167.99 0.0521 0.0472

Earth -123424-01-25 12:01 J -43359168.12 -43359168.00 -43359167.88 0.0521 0.0443 \*

Mercury -123424-10-31 11:03 J -43358889.15 -43358889.04 -43358888.93 0.0525 0.0290

Mercury -123423-01-28 17:32 J -43358799.89 -43358799.77 -43358799.65 0.0526 0.0170

Venus -123421-07-13 02:39 J -43357903.42 -43357903.39 -43357903.34 0.0522 0.0509

Venus -123420-03-06 13:56 J -43357667.11 -43357666.92 -43357666.72 0.0517 0.0106

Earth -123419-07-10 04:34 J -43357176.46 -43357176.31 -43357176.17 0.0507 0.0399

Moon -123419-07-10 06:30 J -43357176.37 -43357176.23 -43357176.08 0.0507 0.0388 \*

Mercury -123418-09-22 07:27 J -43356737.36 -43356737.19 -43356737.03 0.0500 0.0217

Mercury -123418-12-21 17:18 J -43356646.90 -43356646.78 -43356646.65 0.0500 0.0372

Mars -123416-06-27 10:06 J -43356093.25 -43356093.08 -43356092.91 0.0499 0.0375

Venus -123414-01-07 23:46 J -43355533.71 -43355533.51 -43355533.31 0.0506 0.0171

Venus -123414-09-02 11:46 J -43355296.10 -43355296.01 -43355295.91 0.0511 0.0452

Mercury -123412-08-19 14:54 J -43354578.96 -43354578.88 -43354578.80 0.0525 0.0406

Mercury -123412-11-16 21:22 J -43354489.73 -43354489.61 -43354489.48 0.0526 0.0058

Mercury -123411-02-14 03:37 J -43354400.37 -43354400.35 -43354400.32 0.0527 0.0512

Venus -123409-11-09 15:08 J -43353401.06 -43353400.87 -43353400.67 0.0519 0.0065

Earth -123407-07-15 02:25 J -43352788.64 -43352788.40 -43352788.17 0.0506 0.0050

Moon -123407-07-15 05:03 J -43352788.53 -43352788.29 -43352788.04 0.0506 0.0063 \*

Mercury -123406-07-11 05:18 J -43352427.41 -43352427.28 -43352427.16 0.0500 0.0356

Mercury -123406-10-09 14:54 J -43352337.04 -43352336.88 -43352336.71 0.0499 0.0231

Venus -123403-09-12 15:51 J -43351267.99 -43351267.84 -43351267.68 0.0505 0.0344

Venus -123402-05-08 04:20 J -43351030.49 -43351030.32 -43351030.15 0.0510 0.0279

Mercury -123400-06-07 18:58 J -43350268.72 -43350268.71 -43350268.70 0.0525 0.0520

Mercury -123400-09-05 01:27 J -43350179.56 -43350179.44 -43350179.31 0.0526 0.0062

Mercury -123400-12-03 07:56 J -43350090.25 -43350090.17 -43350090.09 0.0527 0.0400

Mars -123398-06-15 00:01 J -43349531.78 -43349531.50 -43349531.23 0.0526 0.0132

Venus -123397-07-15 16:20 J -43349134.99 -43349134.82 -43349134.64 0.0520 0.0233

Venus -123396-03-09 04:06 J -43348898.46 -43348898.33 -43348898.20 0.0515 0.0382

Moon -123395-07-19 19:56 J -43348400.76 -43348400.67 -43348400.57 0.0505 0.0465

Earth -123395-07-19 22:49 J -43348400.59 -43348400.55 -43348400.49 0.0505 0.0493 \*

Mercury -123394-04-29 02:39 J -43348117.40 -43348117.39 -43348117.36 0.0500 0.0497

Mercury -123394-07-28 12:15 J -43348027.17 -43348026.99 -43348026.81 0.0500 0.0087

Venus -123390-01-10 22:20 J -43346764.77 -43346764.57 -43346764.36 0.0509 0.0107

Mercury -123388-06-24 06:01 J -43345869.37 -43345869.25 -43345869.13 0.0525 0.0167

Mercury -123388-09-21 12:30 J -43345780.09 -43345779.98 -43345779.88 0.0526 0.0293

Venus -123385-03-20 15:51 J -43344868.96 -43344868.84 -43344868.72 0.0521 0.0403

Venus -123385-11-12 02:25 J -43344632.58 -43344632.40 -43344632.22 0.0516 0.0212

Mercury -123382-05-16 08:10 J -43343717.34 -43343717.16 -43343716.98 0.0500 0.0070

Mars -123380-03-31 20:54 J -43343031.90 -43343031.63 -43343031.37 0.0500 0.0055

Venus -123379-09-15 16:34 J -43342499.02 -43342498.81 -43342498.60 0.0508 0.0062

Mercury -123376-04-12 10:20 J -43341559.17 -43341559.07 -43341558.96 0.0525 0.0276

Mercury -123376-07-10 16:49 J -43341469.92 -43341469.80 -43341469.68 0.0526 0.0184

Venus -123373-07-18 02:54 J -43340366.58 -43340366.38 -43340366.19 0.0517 0.0044

Mercury -123370-03-04 05:32 J -43339407.43 -43339407.27 -43339407.10 0.0500 0.0213

Mercury -123370-06-02 15:37 J -43339316.97 -43339316.85 -43339316.73 0.0500 0.0376

Venus -123367-05-21 09:51 J -43338233.27 -43338233.09 -43338232.90 0.0506 0.0232

Venus -123366-01-13 22:34 J -43337995.69 -43337995.56 -43337995.43 0.0511 0.0393

Mercury -123364-01-29 14:10 J -43337248.99 -43337248.91 -43337248.82 0.0525 0.0394

Mercury -123364-04-28 20:39 J -43337159.76 -43337159.64 -43337159.51 0.0526 0.0068

Mercury -123364-07-27 02:54 J -43337070.39 -43337070.38 -43337070.37 0.0526 0.0522

Venus -123361-03-23 03:08 J -43336100.56 -43336100.37 -43336100.18 0.0519 0.0129

Venus -123361-11-14 14:10 J -43335863.97 -43335863.91 -43335863.84 0.0514 0.0483

Mercury -123359-12-21 03:22 J -43335097.48 -43335097.36 -43335097.23 0.0501 0.0353

Mercury -123358-03-21 13:13 J -43335007.11 -43335006.95 -43335006.79 0.0500 0.0236

Venus -123355-01-24 02:54 J -43333967.50 -43333967.38 -43333967.25 0.0505 0.0402

Venus -123355-09-18 15:51 J -43333730.03 -43333729.84 -43333729.65 0.0509 0.0221

Moon -123353-01-21 01:42 J -43333240.65 -43333240.43 -43333240.20 0.0519 0.0086

Earth -123353-01-21 05:32 J -43333240.49 -43333240.27 -43333240.04 0.0519 0.0071 \*

Mercury -123353-11-17 18:15 J -43332938.77 -43332938.74 -43332938.71 0.0524 0.0509

Mercury -123352-02-15 00:44 J -43332849.60 -43332849.47 -43332849.34 0.0525 0.0049

Mercury -123352-05-15 06:58 J -43332760.28 -43332760.21 -43332760.13 0.0526 0.0409

Venus -123350-11-27 04:06 J -43331834.49 -43331834.33 -43331834.17 0.0520 0.0298

Venus -123349-07-20 15:22 J -43331598.01 -43331597.86 -43331597.70 0.0516 0.0320

Mercury -123347-10-09 01:27 J -43330787.47 -43330787.44 -43330787.40 0.0501 0.0489

Mercury -123346-01-07 11:03 J -43330697.22 -43330697.04 -43330696.86 0.0500 0.0096

Mars -123344-01-03 15:37 J -43329970.07 -43329969.85 -43329969.63 0.0500 0.0278

Venus -123343-05-24 08:10 J -43329464.37 -43329464.16 -43329463.95 0.0508 0.0046

Earth -123341-01-25 20:10 J -43328852.81 -43328852.66 -43328852.50 0.0521 0.0379

Moon -123341-01-25 19:56 J -43328852.80 -43328852.67 -43328852.52 0.0521 0.0405 \*

Mercury -123341-12-04 04:49 J -43328539.42 -43328539.30 -43328539.18 0.0526 0.0163

Mercury -123340-03-03 11:18 J -43328450.14 -43328450.03 -43328449.93 0.0526 0.0297

Venus -123338-08-02 05:18 J -43327568.36 -43327568.28 -43327568.18 0.0522 0.0466

Venus -123337-03-25 16:49 J -43327331.98 -43327331.80 -43327331.60 0.0517 0.0154

Moon -123336-07-09 15:08 J -43326861.00 -43326860.87 -43326860.73 0.0507 0.0425

Earth -123336-07-09 15:37 J -43326860.96 -43326860.85 -43326860.74 0.0507 0.0445 \*  
 Mercury -123335-10-26 08:25 J -43326387.33 -43326387.15 -43326386.96 0.0500 0.0048  
 Venus -123331-01-27 01:56 J -43325198.62 -43325198.42 -43325198.21 0.0507 0.0126  
 Venus -123331-09-21 14:25 J -43324960.94 -43324960.90 -43324960.85 0.0512 0.0499  
 Mercury -123329-09-22 09:22 J -43324229.22 -43324229.11 -43324229.00 0.0525 0.0269  
 Mercury -123329-12-20 15:51 J -43324139.96 -43324139.84 -43324139.72 0.0526 0.0191  
 Venus -123326-11-29 16:06 J -43323066.03 -43323065.83 -43323065.63 0.0518 0.0019  
 Moon -123324-07-14 03:08 J -43322473.61 -43322473.37 -43322473.14 0.0506 0.0018  
 Earth -123324-07-14 06:44 J -43322473.46 -43322473.22 -43322472.98 0.0506 0.0023 \*  
 Mercury -123323-08-14 04:20 J -43322077.48 -43322077.32 -43322077.15 0.0500 0.0204  
 Mercury -123323-11-12 14:25 J -43321987.01 -43321986.90 -43321986.78 0.0500 0.0386  
 Venus -123320-10-01 19:42 J -43320932.85 -43320932.68 -43320932.51 0.0506 0.0295  
 Venus -123319-05-27 08:54 J -43320695.29 -43320695.13 -43320694.97 0.0511 0.0333  
 Mercury -123317-07-11 13:42 J -43319919.01 -43319918.93 -43319918.84 0.0525 0.0378  
 Mercury -123317-10-08 20:25 J -43319829.78 -43319829.65 -43319829.53 0.0526 0.0084  
 Venus -123314-08-04 16:49 J -43318799.98 -43318799.80 -43318799.62 0.0519 0.0189  
 Venus -123313-03-28 03:22 J -43318563.46 -43318563.36 -43318563.24 0.0514 0.0424  
 Earth -123312-07-19 02:25 J -43318085.53 -43318085.40 -43318085.27 0.0505 0.0417  
 Moon -123312-07-19 03:22 J -43318085.50 -43318085.36 -43318085.22 0.0505 0.0399 \*  
 Mercury -123311-06-02 01:56 J -43317767.55 -43317767.42 -43317767.29 0.0501 0.0346  
 Mercury -123311-08-31 11:46 J -43317677.17 -43317677.01 -43317676.85 0.0500 0.0242  
 Venus -123308-06-06 13:13 J -43316667.03 -43316666.95 -43316666.86 0.0505 0.0461  
 Venus -123307-01-30 02:25 J -43316429.60 -43316429.40 -43316429.20 0.0509 0.0162  
 Mercury -123305-04-29 17:32 J -43315608.80 -43315608.77 -43315608.72 0.0524 0.0495  
 Mercury -123305-07-28 00:15 J -43315519.62 -43315519.49 -43315519.36 0.0525 0.0034  
 Mercury -123305-10-25 06:30 J -43315430.30 -43315430.23 -43315430.16 0.0526 0.0423  
 Venus -123302-04-09 16:49 J -43314533.94 -43314533.80 -43314533.65 0.0520 0.0361  
 Venus -123302-12-02 03:51 J -43314297.52 -43314297.34 -43314297.17 0.0516 0.0258  
 Mercury -123299-03-20 23:46 J -43313457.55 -43313457.51 -43313457.46 0.0501 0.0484  
 Mercury -123299-06-19 09:37 J -43313367.28 -43313367.10 -43313366.92 0.0500 0.0103

Venus -123296-10-04 19:56 J -43312163.88 -43312163.67 -43312163.46 0.0508 0.0015  
 Mercury -123293-05-16 04:20 J -43311209.45 -43311209.32 -43311209.20 0.0525 0.0149  
 Mercury -123293-08-13 10:34 J -43311120.16 -43311120.06 -43311119.96 0.0526 0.0310  
 Venus -123290-08-07 05:03 J -43310031.49 -43310031.29 -43310031.10 0.0517 0.0091  
 Mercury -123287-04-07 07:27 J -43309057.38 -43309057.19 -43309057.01 0.0500 0.0037  
 Venus -123284-06-09 12:15 J -43307898.19 -43307897.99 -43307897.79 0.0506 0.0187  
 Venus -123283-02-02 00:30 J -43307660.58 -43307660.48 -43307660.37 0.0511 0.0440  
 Mercury -123281-03-04 08:25 J -43306899.26 -43306899.15 -43306899.04 0.0525 0.0263  
 Mercury -123281-06-01 14:39 J -43306810.00 -43306809.89 -43306809.77 0.0526 0.0198  
 Mars -123280-12-02 05:32 J -43306261.55 -43306261.27 -43306261.00 0.0526 0.0141  
 Venus -123278-04-12 06:44 J -43305765.42 -43305765.22 -43305765.03 0.0519 0.0080  
 Mercury -123275-01-24 05:03 J -43304747.46 -43304747.29 -43304747.12 0.0500 0.0177  
 Mercury -123275-04-24 14:54 J -43304656.98 -43304656.88 -43304656.77 0.0499 0.0412  
 Venus -123272-02-12 06:01 J -43303632.39 -43303632.25 -43303632.10 0.0505 0.0357  
 Venus -123272-10-07 18:58 J -43303394.88 -43303394.71 -43303394.53 0.0510 0.0270  
 Earth -123270-01-20 18:15 J -43302924.96 -43302924.74 -43302924.51 0.0519 0.0117  
 Moon -123270-01-20 21:08 J -43302924.83 -43302924.62 -43302924.40 0.0519 0.0117 \*  
 Mercury -123270-12-22 12:44 J -43302589.06 -43302588.97 -43302588.88 0.0525 0.0370  
 Mercury -123269-03-20 19:27 J -43302499.82 -43302499.69 -43302499.57 0.0526 0.0092  
 Venus -123267-12-16 06:30 J -43301499.40 -43301499.23 -43301499.05 0.0519 0.0250  
 Venus -123266-08-09 17:03 J -43301262.93 -43301262.79 -43301262.65 0.0515 0.0367  
 Mercury -123264-11-12 00:58 J -43300437.59 -43300437.46 -43300437.32 0.0500 0.0334  
 Mercury -123263-02-10 10:49 J -43300347.21 -43300347.05 -43300346.89 0.0500 0.0253  
 Mars -123262-09-21 21:22 J -43299758.84 -43299758.61 -43299758.37 0.0500 0.0240  
 Venus -123260-06-12 12:44 J -43299129.18 -43299128.97 -43299128.77 0.0509 0.0100  
 Earth -123258-01-25 12:44 J -43298537.14 -43298536.97 -43298536.80 0.0521 0.0347  
 Moon -123258-01-25 15:08 J -43298537.04 -43298536.87 -43298536.70 0.0521 0.0362 \*  
 Mercury -123258-10-10 17:18 J -43298278.83 -43298278.78 -43298278.73 0.0525 0.0477  
 Mercury -123257-01-08 00:01 J -43298189.63 -43298189.50 -43298189.38 0.0526 0.0025  
 Mercury -123257-04-06 06:15 J -43298100.31 -43298100.24 -43298100.18 0.0526 0.0441

Venus -123255-08-21 07:27 J -43297233.30 -43297233.19 -43297233.07 0.0520 0.0420  
 Venus -123254-04-14 18:01 J -43296996.93 -43296996.75 -43296996.57 0.0516 0.0199  
 Moon -123253-07-08 19:27 J -43296545.73 -43296545.69 -43296545.64 0.0507 0.0495  
 Mercury -123252-08-30 22:34 J -43296127.61 -43296127.56 -43296127.50 0.0501 0.0475  
 Mercury -123252-11-29 08:10 J -43296037.34 -43296037.16 -43296036.98 0.0500 0.0110  
 Venus -123248-02-15 06:15 J -43294863.44 -43294863.24 -43294863.03 0.0507 0.0074  
 Mercury -123246-10-27 03:51 J -43293879.46 -43293879.34 -43293879.22 0.0525 0.0133  
 Mercury -123245-01-24 10:06 J -43293790.18 -43293790.08 -43293789.98 0.0526 0.0325  
 Mars -123244-09-09 01:13 J -43293196.67 -43293196.45 -43293196.22 0.0525 0.0319  
 Venus -123243-12-18 18:01 J -43292730.95 -43292730.75 -43292730.55 0.0518 0.0028  
 Earth -123241-07-13 16:49 J -43292158.03 -43292157.80 -43292157.56 0.0506 0.0074  
 Moon -123241-07-13 20:25 J -43292157.88 -43292157.65 -43292157.42 0.0506 0.0081 \*  
 Mercury -123240-09-17 06:01 J -43291727.44 -43291727.25 -43291727.07 0.0500 0.0030  
 Venus -123237-10-20 23:46 J -43290597.69 -43290597.51 -43290597.32 0.0506 0.0245  
 Venus -123236-06-15 12:30 J -43290360.11 -43290359.98 -43290359.84 0.0510 0.0384  
 Mercury -123234-08-15 07:56 J -43289569.29 -43289569.17 -43289569.06 0.0525 0.0248  
 Mercury -123234-11-12 14:10 J -43289480.02 -43289479.91 -43289479.79 0.0526 0.0212  
 Venus -123231-08-23 19:13 J -43288464.89 -43288464.70 -43288464.51 0.0519 0.0143  
 Venus -123230-04-17 06:15 J -43288228.31 -43288228.24 -43288228.16 0.0514 0.0474  
 Earth -123229-07-18 14:39 J -43287770.05 -43287769.89 -43287769.73 0.0505 0.0375  
 Moon -123229-07-18 15:37 J -43287770.02 -43287769.85 -43287769.67 0.0505 0.0363 \*  
 Mercury -123228-07-06 03:51 J -43287417.51 -43287417.34 -43287417.17 0.0500 0.0167  
 Mercury -123228-10-04 13:56 J -43287327.02 -43287326.92 -43287326.82 0.0500 0.0423  
 Mars -123226-06-26 17:46 J -43286697.01 -43286696.76 -43286696.49 0.0500 0.0097  
 Venus -123225-06-25 16:20 J -43286331.93 -43286331.82 -43286331.70 0.0505 0.0416  
 Venus -123224-02-18 05:18 J -43286094.47 -43286094.28 -43286094.09 0.0509 0.0210  
 Mercury -123222-06-03 11:46 J -43285259.10 -43285259.01 -43285258.92 0.0525 0.0363  
 Mercury -123222-08-31 18:15 J -43285169.86 -43285169.74 -43285169.61 0.0526 0.0099  
 Venus -123219-04-28 20:39 J -43284198.79 -43284198.64 -43284198.48 0.0520 0.0313  
 Venus -123219-12-21 07:42 J -43283962.33 -43283962.18 -43283962.02 0.0516 0.0310



Mercury -123216-04-24 01:42 J -43283107.58 -43283107.43 -43283107.29 0.0500 0.0308

Mercury -123216-07-23 11:18 J -43283017.18 -43283017.03 -43283016.87 0.0500 0.0280

Venus -123213-10-23 23:18 J -43281828.74 -43281828.53 -43281828.32 0.0508 0.0037

Mercury -123210-03-22 16:20 J -43280948.87 -43280948.82 -43280948.76 0.0525 0.0469

Mercury -123210-06-19 23:03 J -43280859.67 -43280859.54 -43280859.42 0.0526 0.0016

Mercury -123210-09-17 05:18 J -43280770.35 -43280770.28 -43280770.22 0.0526 0.0450

Venus -123207-01-01 21:37 J -43279932.68 -43279932.60 -43279932.53 0.0521 0.0479

Venus -123207-08-26 07:42 J -43279696.37 -43279696.18 -43279695.99 0.0516 0.0141

Mercury -123204-02-09 21:37 J -43278797.66 -43278797.60 -43278797.53 0.0501 0.0464

Mercury -123204-05-11 07:13 J -43278707.38 -43278707.20 -43278707.02 0.0500 0.0122

Venus -123201-06-28 16:06 J -43277563.03 -43277562.83 -43277562.63 0.0507 0.0136

Venus -123200-02-21 05:32 J -43277325.32 -43277325.27 -43277325.22 0.0512 0.0496

Mercury -123198-04-08 03:22 J -43276549.48 -43276549.36 -43276549.23 0.0525 0.0117

Mercury -123198-07-06 09:51 J -43276460.19 -43276460.09 -43276460.00 0.0526 0.0343

Venus -123195-05-01 08:54 J -43275430.33 -43275430.13 -43275429.94 0.0518 0.0032

Mercury -123192-02-27 04:34 J -43274397.49 -43274397.31 -43274397.12 0.0500 0.0022

Mars -123190-03-31 09:22 J -43273635.24 -43273635.11 -43273634.97 0.0501 0.0433

Venus -123189-03-03 09:51 J -43273297.25 -43273297.09 -43273296.92 0.0506 0.0307

Venus -123189-10-26 23:32 J -43273059.68 -43273059.52 -43273059.36 0.0510 0.0326

Moon -123187-01-20 07:27 J -43272609.42 -43272609.19 -43272608.96 0.0519 0.0150

Earth -123187-01-20 08:25 J -43272609.37 -43272609.15 -43272608.94 0.0519 0.0164 \*

Mercury -123186-01-25 07:27 J -43272239.31 -43272239.19 -43272239.08 0.0525 0.0232

Mercury -123186-04-24 13:42 J -43272150.04 -43272149.93 -43272149.81 0.0526 0.0228

Venus -123183-01-04 08:39 J -43271164.32 -43271164.14 -43271163.96 0.0519 0.0204

Venus -123183-08-28 19:13 J -43270927.81 -43270927.70 -43270927.58 0.0515 0.0415

Mercury -123181-12-16 02:25 J -43270087.57 -43270087.40 -43270087.23 0.0500 0.0162

Mercury -123180-03-16 12:15 J -43269997.07 -43269996.99 -43269996.89 0.0500 0.0430

Venus -123178-11-07 03:22 J -43269031.42 -43269031.36 -43269031.29 0.0505 0.0475

Venus -123177-07-01 16:49 J -43268794.00 -43268793.80 -43268793.60 0.0509 0.0152

Moon -123175-01-24 20:10 J -43268221.84 -43268221.66 -43268221.48 0.0520 0.0299

Earth -123175-01-24 23:46 J -43268221.70 -43268221.51 -43268221.32 0.0520 0.0290 \*  
 Mercury -123175-11-13 11:18 J -43267929.12 -43267929.03 -43267928.93 0.0525 0.0348  
 Mercury -123174-02-10 17:46 J -43267839.88 -43267839.76 -43267839.63 0.0526 0.0114  
 Venus -123172-09-09 09:37 J -43266898.23 -43266898.10 -43266897.96 0.0521 0.0376  
 Venus -123171-05-03 20:10 J -43266661.83 -43266661.66 -43266661.48 0.0516 0.0249  
 Mercury -123169-10-04 00:15 J -43265777.63 -43265777.49 -43265777.34 0.0501 0.0299  
 Mercury -123168-01-02 10:06 J -43265687.23 -43265687.08 -43265686.93 0.0500 0.0290  
 Venus -123165-03-06 09:22 J -43264528.32 -43264528.11 -43264527.90 0.0507 0.0025  
 Mercury -123163-09-01 15:08 J -43263618.92 -43263618.87 -43263618.81 0.0525 0.0464  
 Mercury -123163-11-29 21:51 J -43263529.72 -43263529.59 -43263529.46 0.0526 0.0007  
 Mercury -123162-02-27 04:06 J -43263440.39 -43263440.33 -43263440.27 0.0526 0.0456  
 Mars -123161-05-21 12:58 J -43262991.13 -43262990.96 -43262990.78 0.0526 0.0413  
 Venus -123159-01-06 21:51 J -43262395.79 -43262395.59 -43262395.40 0.0518 0.0079  
 Moon -123158-07-14 03:08 J -43261842.60 -43261842.37 -43261842.13 0.0506 0.0134  
 Earth -123158-07-14 05:32 J -43261842.50 -43261842.27 -43261842.04 0.0506 0.0115 \*  
 Mercury -123157-07-22 22:06 J -43261467.66 -43261467.58 -43261467.49 0.0501 0.0439  
 Mercury -123157-10-21 07:42 J -43261377.36 -43261377.18 -43261377.00 0.0500 0.0147  
 Venus -123154-11-10 02:54 J -43260262.57 -43260262.38 -43260262.18 0.0506 0.0198  
 Venus -123153-07-04 15:51 J -43260024.95 -43260024.84 -43260024.73 0.0511 0.0434  
 Mercury -123151-09-18 02:25 J -43259219.52 -43259219.40 -43259219.27 0.0525 0.0109  
 Mercury -123151-12-16 08:39 J -43259130.23 -43259130.14 -43259130.04 0.0526 0.0352  
 Venus -123148-09-11 22:34 J -43258129.76 -43258129.56 -43258129.37 0.0518 0.0091  
 Moon -123146-07-18 19:13 J -43257454.89 -43257454.70 -43257454.52 0.0505 0.0304  
 Earth -123146-07-18 21:37 J -43257454.78 -43257454.60 -43257454.41 0.0505 0.0310 \*  
 Mercury -123145-08-09 03:37 J -43257067.53 -43257067.35 -43257067.17 0.0500 0.0011  
 Mars -123143-03-13 23:03 J -43256485.66 -43256485.54 -43256485.39 0.0499 0.0426  
 Venus -123142-07-15 18:44 J -43255996.85 -43255996.72 -43255996.57 0.0506 0.0371  
 Venus -123141-03-09 08:39 J -43255759.31 -43255759.14 -43255758.95 0.0510 0.0263  
 Mercury -123139-07-07 06:58 J -43254909.33 -43254909.21 -43254909.10 0.0525 0.0217  
 Mercury -123139-10-04 13:13 J -43254820.06 -43254819.95 -43254819.83 0.0526 0.0244

Venus -123136-05-17 23:32 J -43253863.68 -43253863.52 -43253863.35 0.0519 0.0263

Venus -123135-01-09 09:22 J -43253627.24 -43253627.11 -43253626.96 0.0515 0.0358

Mercury -123133-05-28 00:58 J -43252757.63 -43252757.46 -43252757.29 0.0500 0.0155

Mercury -123133-08-26 10:49 J -43252667.13 -43252667.05 -43252666.96 0.0499 0.0435

Venus -123130-11-13 02:39 J -43251493.60 -43251493.39 -43251493.19 0.0509 0.0090

Mercury -123127-04-25 10:49 J -43250599.15 -43250599.05 -43250598.95 0.0525 0.0334

Mercury -123127-07-23 17:18 J -43250509.90 -43250509.78 -43250509.66 0.0526 0.0127

Mars -123125-02-27 13:56 J -43249926.21 -43249925.92 -43249925.64 0.0525 0.0057

Venus -123124-01-20 23:18 J -43249597.64 -43249597.53 -43249597.43 0.0521 0.0437

Venus -123124-09-14 09:22 J -43249361.29 -43249361.11 -43249360.92 0.0516 0.0187

Mercury -123121-03-15 22:49 J -43248447.70 -43248447.55 -43248447.40 0.0501 0.0295

Mercury -123121-06-14 08:25 J -43248357.29 -43248357.15 -43248357.00 0.0500 0.0295

Venus -123118-07-18 19:56 J -43247227.88 -43247227.67 -43247227.47 0.0507 0.0086

Mercury -123115-02-11 14:39 J -43246288.95 -43246288.89 -43246288.82 0.0524 0.0449

Mercury -123115-05-11 21:22 J -43246199.74 -43246199.61 -43246199.48 0.0525 0.0016

Mercury -123115-08-09 03:22 J -43246110.41 -43246110.36 -43246110.30 0.0526 0.0469

Venus -123112-05-20 10:06 J -43245095.27 -43245095.08 -43245094.88 0.0518 0.0019

Mercury -123109-01-02 20:39 J -43244137.73 -43244137.64 -43244137.55 0.0501 0.0433

Mercury -123109-04-02 06:15 J -43244047.41 -43244047.24 -43244047.06 0.0500 0.0154

Mars -123108-12-16 17:32 J -43243424.03 -43243423.77 -43243423.51 0.0500 0.0092

Venus -123106-03-23 12:30 J -43242962.16 -43242961.98 -43242961.80 0.0506 0.0261

Venus -123106-11-16 01:27 J -43242724.58 -43242724.44 -43242724.30 0.0510 0.0373

Moon -123104-01-19 15:51 J -43242294.04 -43242293.84 -43242293.64 0.0519 0.0205

Earth -123104-01-19 17:03 J -43242293.99 -43242293.79 -43242293.58 0.0519 0.0228 \*

Mercury -123103-02-28 01:13 J -43241889.57 -43241889.45 -43241889.32 0.0525 0.0104

Mercury -123103-05-28 07:27 J -43241800.28 -43241800.19 -43241800.09 0.0526 0.0355

Venus -123100-01-23 11:32 J -43240829.21 -43240829.02 -43240828.83 0.0519 0.0157

Venus -123100-09-16 22:20 J -43240592.65 -43240592.57 -43240592.48 0.0515 0.0464

Mercury -123097-01-20 03:51 J -43239737.53 -43239737.34 -43239737.16 0.0500 0.0016

Venus -123095-11-26 05:32 J -43238696.37 -43238696.27 -43238696.16 0.0505 0.0432

Venus -123094-07-21 18:58 J -43238458.91 -43238458.71 -43238458.52 0.0509 0.0199  
 Earth -123092-01-24 10:34 J -43237906.26 -43237906.06 -43237905.85 0.0520 0.0235  
 Moon -123092-01-24 14:25 J -43237906.10 -43237905.90 -43237905.69 0.0520 0.0237 \*  
 Mercury -123092-12-17 05:46 J -43237579.38 -43237579.26 -43237579.14 0.0525 0.0212  
 Mercury -123091-03-16 12:15 J -43237490.11 -43237489.99 -43237489.88 0.0526 0.0249  
 Mars -123090-12-05 12:01 J -43236861.01 -43236861.00 -43236860.97 0.0525 0.0523  
 Venus -123089-09-28 12:44 J -43236563.12 -43236562.97 -43236562.81 0.0520 0.0326  
 Venus -123088-05-22 22:49 J -43236326.71 -43236326.55 -43236326.39 0.0515 0.0298  
 Mercury -123086-11-07 23:46 J -43235427.69 -43235427.51 -43235427.33 0.0500 0.0146  
 Mercury -123085-02-06 09:37 J -43235337.18 -43235337.10 -43235337.02 0.0499 0.0443  
 Venus -123082-03-26 10:49 J -43234193.25 -43234193.05 -43234192.83 0.0508 0.0026  
 Mercury -123080-10-05 10:06 J -43233269.18 -43233269.08 -43233268.98 0.0525 0.0322  
 Mercury -123079-01-02 16:34 J -43233179.93 -43233179.81 -43233179.68 0.0526 0.0140  
 Venus -123077-06-03 13:42 J -43232296.98 -43232296.93 -43232296.86 0.0521 0.0497  
 Venus -123076-01-25 23:46 J -43232060.71 -43232060.51 -43232060.32 0.0516 0.0128  
 Earth -123075-07-13 10:49 J -43231527.27 -43231527.05 -43231526.83 0.0506 0.0188  
 Moon -123075-07-13 11:03 J -43231527.24 -43231527.04 -43231526.83 0.0506 0.0214 \*  
 Mercury -123074-08-26 21:08 J -43231117.77 -43231117.62 -43231117.47 0.0500 0.0290  
 Mercury -123074-11-25 06:44 J -43231027.36 -43231027.22 -43231027.07 0.0500 0.0298  
 Mars -123072-09-20 03:51 J -43230362.57 -43230362.34 -43230362.11 0.0501 0.0235  
 Venus -123071-11-29 04:20 J -43229927.52 -43229927.32 -43229927.11 0.0507 0.0152  
 Venus -123070-07-24 18:01 J -43229689.81 -43229689.75 -43229689.69 0.0512 0.0486  
 Mercury -123068-07-24 13:56 J -43228958.99 -43228958.92 -43228958.85 0.0525 0.0439  
 Mercury -123068-10-21 20:39 J -43228869.77 -43228869.64 -43228869.52 0.0525 0.0027  
 Mercury -123067-01-19 02:39 J -43228780.43 -43228780.39 -43228780.33 0.0526 0.0480  
 Venus -123065-09-30 23:18 J -43227794.73 -43227794.53 -43227794.33 0.0518 0.0048  
 Earth -123063-07-18 05:32 J -43227139.47 -43227139.27 -43227139.06 0.0505 0.0250  
 Moon -123063-07-18 09:22 J -43227139.32 -43227139.11 -43227138.90 0.0505 0.0255 \*  
 Mercury -123062-06-14 18:44 J -43226807.81 -43226807.72 -43226807.62 0.0501 0.0431  
 Mercury -123062-09-13 04:20 J -43226717.49 -43226717.32 -43226717.14 0.0500 0.0156

Venus -123059-08-03 21:51 J -43225661.75 -43225661.59 -43225661.43 0.0506 0.0325  
 Venus -123058-03-29 11:18 J -43225424.19 -43225424.03 -43225423.86 0.0510 0.0312  
 Mercury -123056-08-10 00:30 J -43224559.61 -43224559.48 -43224559.35 0.0525 0.0094  
 Mercury -123056-11-07 06:44 J -43224470.31 -43224470.22 -43224470.13 0.0526 0.0365  
 Venus -123053-06-05 23:32 J -43223528.69 -43223528.52 -43223528.34 0.0520 0.0224  
 Venus -123052-01-28 09:51 J -43223292.21 -43223292.09 -43223291.96 0.0515 0.0402  
 Mercury -123050-07-02 01:56 J -43222407.60 -43222407.42 -43222407.23 0.0500 0.0016  
 Venus -123047-04-08 14:10 J -43221395.94 -43221395.91 -43221395.86 0.0504 0.0496  
 Venus -123047-12-02 03:37 J -43221158.55 -43221158.35 -43221158.14 0.0508 0.0135  
 Mercury -123044-05-29 04:20 J -43220249.44 -43220249.32 -43220249.20 0.0525 0.0211  
 Mercury -123044-08-26 10:49 J -43220160.16 -43220160.05 -43220159.94 0.0526 0.0249  
 Venus -123041-02-10 00:44 J -43219262.60 -43219262.47 -43219262.34 0.0521 0.0395  
 Venus -123041-10-03 11:03 J -43219026.21 -43219026.04 -43219025.86 0.0516 0.0235  
 Mercury -123038-04-19 23:32 J -43218097.70 -43218097.52 -43218097.35 0.0500 0.0129  
 Mercury -123038-07-19 09:22 J -43218007.18 -43218007.11 -43218007.04 0.0499 0.0462  
 Venus -123035-08-06 20:39 J -43216892.85 -43216892.64 -43216892.43 0.0507 0.0042  
 Mercury -123032-03-17 08:39 J -43215939.24 -43215939.14 -43215939.04 0.0525 0.0321  
 Mercury -123032-06-14 15:08 J -43215849.99 -43215849.87 -43215849.74 0.0526 0.0142  
 Venus -123029-06-08 12:15 J -43214760.18 -43214759.99 -43214759.79 0.0517 0.0064  
 Mercury -123026-02-05 19:27 J -43213787.83 -43213787.69 -43213787.53 0.0500 0.0285  
 Mercury -123026-05-07 05:18 J -43213697.43 -43213697.28 -43213697.14 0.0499 0.0303  
 Venus -123023-04-11 11:46 J -43212627.20 -43212627.01 -43212626.82 0.0506 0.0220  
 Venus -123023-12-05 01:42 J -43212389.54 -43212389.43 -43212389.31 0.0511 0.0420  
 Earth -123021-01-20 02:54 J -43211978.57 -43211978.38 -43211978.19 0.0520 0.0291  
 Moon -123021-01-20 06:01 J -43211978.45 -43211978.25 -43211978.04 0.0520 0.0258 \*  
 Mercury -123020-01-03 12:58 J -43211629.03 -43211628.96 -43211628.89 0.0525 0.0432  
 Mercury -123020-04-02 19:42 J -43211539.81 -43211539.68 -43211539.56 0.0526 0.0035  
 Mercury -123020-07-01 01:56 J -43211450.47 -43211450.42 -43211450.38 0.0527 0.0489  
 Venus -123017-02-12 13:13 J -43210494.14 -43210493.95 -43210493.76 0.0518 0.0110  
 Venus -123017-10-05 23:03 J -43210257.56 -43210257.54 -43210257.52 0.0513 0.0509

Mercury -123015-11-24 17:03 J -43209477.89 -43209477.79 -43209477.70 0.0500 0.0429  
 Mercury -123014-02-23 02:25 J -43209387.58 -43209387.40 -43209387.23 0.0500 0.0157  
 Venus -123012-12-15 04:49 J -43208361.42 -43208361.30 -43208361.16 0.0505 0.0393  
 Venus -123011-08-09 18:58 J -43208123.89 -43208123.71 -43208123.52 0.0510 0.0246  
 Moon -123009-01-24 16:06 J -43207591.05 -43207590.83 -43207590.61 0.0520 0.0156  
 Earth -123009-01-24 19:13 J -43207590.92 -43207590.70 -43207590.48 0.0520 0.0165 \*  
 Mercury -123008-01-19 23:32 J -43207229.65 -43207229.52 -43207229.40 0.0525 0.0087  
 Mercury -123008-04-19 05:46 J -43207140.35 -43207140.26 -43207140.17 0.0526 0.0372  
 Mars -123007-08-16 12:58 J -43206656.21 -43206655.96 -43206655.70 0.0526 0.0235  
 Venus -123006-10-18 12:30 J -43206228.15 -43206227.98 -43206227.82 0.0520 0.0288  
 Venus -123005-06-10 22:20 J -43205991.72 -43205991.57 -43205991.42 0.0515 0.0339  
 Mercury -123003-12-11 23:46 J -43205077.69 -43205077.51 -43205077.33 0.0500 0.0013

# 123RD MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 123rd millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Venus	-122999-04-14 12:30 J	-43203858.19	-43203857.98	-43203857.77	0.0508	0.0069		
Mercury	-122997-11-08 03:22 J	-43202919.48	-43202919.36	-43202919.24	0.0525	0.0204		
Mercury	-122996-02-05 09:51 J	-43202830.21	-43202830.09	-43202829.98	0.0526	0.0257		
Venus	-122994-06-23 12:15 J	-43201962.07	-43201961.99	-43201961.90	0.0521	0.0463		

Venus -122993-02-14 22:34 J -43201725.75 -43201725.56 -43201725.38 0.0517 0.0167  
 Earth -122992-07-12 16:34 J -43201212.01 -43201211.81 -43201211.61 0.0507 0.0256  
 Moon -122992-07-12 18:01 J -43201211.95 -43201211.75 -43201211.54 0.0507 0.0286 \*  
 Mercury -122991-09-29 21:22 J -43200767.79 -43200767.61 -43200767.44 0.0500 0.0130  
 Mercury -122991-12-29 07:13 J -43200677.27 -43200677.20 -43200677.13 0.0500 0.0461  
 Mars -122989-06-07 09:37 J -43200151.30 -43200151.10 -43200150.88 0.0499 0.0299  
 Venus -122988-12-18 04:34 J -43199592.52 -43199592.31 -43199592.11 0.0507 0.0110  
 Mercury -122985-08-27 06:58 J -43198609.31 -43198609.21 -43198609.10 0.0525 0.0323  
 Mercury -122985-11-24 13:42 J -43198520.06 -43198519.93 -43198519.81 0.0526 0.0140  
 Venus -122982-10-20 23:32 J -43197459.72 -43197459.52 -43197459.33 0.0518 0.0013  
 Moon -122980-07-17 08:39 J -43196824.35 -43196824.14 -43196823.91 0.0505 0.0198  
 Earth -122980-07-17 12:30 J -43196824.20 -43196823.98 -43196823.75 0.0505 0.0186 \*  
 Mercury -122979-07-18 18:44 J -43196457.87 -43196457.72 -43196457.57 0.0500 0.0273  
 Mercury -122979-10-17 04:20 J -43196367.46 -43196367.32 -43196367.17 0.0500 0.0316  
 Venus -122976-08-22 21:08 J -43195326.79 -43195326.62 -43195326.45 0.0506 0.0286  
 Venus -122975-04-17 10:34 J -43195089.21 -43195089.06 -43195088.91 0.0510 0.0353  
 Mercury -122973-06-15 11:18 J -43194299.10 -43194299.03 -43194298.96 0.0525 0.0434  
 Mercury -122973-09-12 18:01 J -43194209.88 -43194209.75 -43194209.62 0.0526 0.0031  
 Mercury -122973-12-11 00:15 J -43194120.54 -43194120.49 -43194120.44 0.0527 0.0487  
 Mars -122971-05-24 07:56 J -43193591.42 -43193591.17 -43193590.91 0.0525 0.0232  
 Venus -122970-06-26 00:44 J -43193193.65 -43193193.47 -43193193.28 0.0519 0.0178  
 Venus -122969-02-17 10:49 J -43192957.15 -43192957.05 -43192956.95 0.0514 0.0447  
 Mercury -122967-05-06 15:08 J -43192147.96 -43192147.87 -43192147.78 0.0500 0.0427  
 Mercury -122967-08-05 00:30 J -43192057.66 -43192057.48 -43192057.31 0.0499 0.0158  
 Venus -122964-04-27 11:18 J -43191061.10 -43191061.03 -43191060.94 0.0505 0.0463  
 Venus -122964-12-21 01:27 J -43190823.63 -43190823.44 -43190823.24 0.0509 0.0175  
 Mercury -122961-07-01 22:06 J -43189899.70 -43189899.58 -43189899.45 0.0526 0.0085  
 Mercury -122961-09-29 04:34 J -43189810.40 -43189810.31 -43189810.22 0.0527 0.0376  
 Venus -122958-03-01 01:42 J -43188927.57 -43188927.43 -43188927.29 0.0520 0.0352  
 Venus -122958-10-23 11:32 J -43188691.19 -43188691.02 -43188690.86 0.0515 0.0278

Mercury -122955-05-23 21:37 J -43187747.79 -43187747.60 -43187747.42 0.0500 0.0015

Mars -122953-03-11 12:30 J -43187090.25 -43187089.98 -43187089.72 0.0500 0.0017

Venus -122952-08-25 18:44 J -43186557.93 -43186557.72 -43186557.51 0.0508 0.0004

Mercury -122949-04-20 01:56 J -43185589.53 -43185589.42 -43185589.30 0.0525 0.0202

Mercury -122949-07-18 08:25 J -43185500.26 -43185500.15 -43185500.04 0.0526 0.0259

Venus -122946-06-28 10:06 J -43184425.27 -43184425.08 -43184424.88 0.0517 0.0101

Mercury -122943-03-11 18:44 J -43183437.90 -43183437.72 -43183437.54 0.0500 0.0135

Mercury -122943-06-10 04:34 J -43183347.38 -43183347.31 -43183347.23 0.0499 0.0456

Venus -122940-04-30 12:01 J -43182292.20 -43182292.00 -43182291.80 0.0506 0.0180

Venus -122940-12-24 01:42 J -43182054.52 -43182054.43 -43182054.35 0.0511 0.0462

Moon -122938-01-19 03:22 J -43181663.52 -43181663.36 -43181663.18 0.0519 0.0342

Earth -122938-01-19 07:27 J -43181663.35 -43181663.19 -43181663.03 0.0519 0.0373 \*

Mercury -122937-02-07 05:46 J -43181279.36 -43181279.26 -43181279.15 0.0525 0.0319

Mercury -122937-05-06 12:15 J -43181190.11 -43181189.99 -43181189.86 0.0526 0.0144

Venus -122934-03-03 10:06 J -43180159.27 -43180159.08 -43180158.88 0.0518 0.0077

Mercury -122932-12-28 16:06 J -43179127.98 -43179127.83 -43179127.67 0.0500 0.0278

Mercury -122931-03-29 01:42 J -43179037.56 -43179037.43 -43179037.28 0.0500 0.0312

Venus -122928-01-03 03:51 J -43178026.49 -43178026.34 -43178026.19 0.0505 0.0355

Venus -122928-08-28 17:18 J -43177788.94 -43177788.78 -43177788.60 0.0509 0.0286

Earth -122926-01-23 20:54 J -43177275.86 -43177275.63 -43177275.40 0.0520 0.0072

Moon -122926-01-23 22:06 J -43177275.80 -43177275.58 -43177275.36 0.0520 0.0054 \*

Mercury -122926-11-26 09:22 J -43176969.18 -43176969.11 -43176969.04 0.0525 0.0440

Mercury -122925-02-23 16:06 J -43176879.96 -43176879.83 -43176879.70 0.0526 0.0023

Mercury -122925-05-22 22:20 J -43176790.62 -43176790.57 -43176790.52 0.0526 0.0481

Venus -122923-11-06 10:34 J -43175893.23 -43175893.06 -43175892.89 0.0520 0.0252

Venus -122922-06-30 20:54 J -43175656.76 -43175656.63 -43175656.50 0.0515 0.0379

Mercury -122920-10-16 13:27 J -43174818.03 -43174817.94 -43174817.84 0.0501 0.0421

Mercury -122919-01-14 23:03 J -43174727.71 -43174727.54 -43174727.37 0.0500 0.0165

Mars -122918-12-15 02:25 J -43174028.58 -43174028.40 -43174028.20 0.0500 0.0353

Venus -122916-05-03 09:51 J -43173523.30 -43173523.09 -43173522.89 0.0508 0.0106



Mercury -122914-12-12 20:10 J -43172569.78 -43172569.66 -43172569.53 0.0526 0.0091  
 Mercury -122913-03-11 02:39 J -43172480.48 -43172480.39 -43172480.30 0.0526 0.0370  
 Venus -122911-07-12 12:01 J -43171627.11 -43171627.00 -43171626.89 0.0521 0.0423  
 Venus -122910-03-05 22:06 J -43171390.76 -43171390.58 -43171390.40 0.0516 0.0210  
 Moon -122909-07-11 16:34 J -43170896.96 -43170896.81 -43170896.65 0.0506 0.0371  
 Earth -122909-07-11 19:27 J -43170896.86 -43170896.69 -43170896.51 0.0506 0.0338 \*  
 Mercury -122908-11-02 19:13 J -43170417.88 -43170417.70 -43170417.51 0.0499 0.0011  
 Venus -122904-01-06 00:01 J -43169257.71 -43169257.50 -43169257.29 0.0507 0.0077  
 Mercury -122902-10-01 00:15 J -43168259.60 -43168259.49 -43168259.37 0.0526 0.0205  
 Mercury -122902-12-29 06:44 J -43168170.33 -43168170.22 -43168170.10 0.0527 0.0259  
 Venus -122899-11-08 22:49 J -43167124.75 -43167124.55 -43167124.35 0.0518 0.0035  
 Earth -122897-07-16 13:13 J -43166509.18 -43166508.95 -43166508.71 0.0505 0.0096  
 Moon -122897-07-16 15:51 J -43166509.07 -43166508.84 -43166508.62 0.0505 0.0120 \*  
 Mercury -122896-08-21 16:20 J -43166108.00 -43166107.82 -43166107.65 0.0500 0.0139  
 Mercury -122896-11-20 01:56 J -43166017.49 -43166017.42 -43166017.34 0.0499 0.0450  
 Venus -122893-09-10 17:03 J -43164991.97 -43164991.79 -43164991.61 0.0506 0.0254  
 Venus -122892-05-06 06:58 J -43164754.34 -43164754.21 -43164754.07 0.0511 0.0391  
 Mercury -122890-07-20 04:06 J -43163949.43 -43163949.33 -43163949.23 0.0525 0.0322  
 Mercury -122890-10-17 10:49 J -43163860.18 -43163860.05 -43163859.93 0.0526 0.0141  
 Venus -122887-07-14 21:08 J -43162858.81 -43162858.62 -43162858.43 0.0519 0.0147  
 Venus -122886-03-08 06:58 J -43162622.27 -43162622.21 -43162622.14 0.0514 0.0481  
 Mercury -122884-06-09 13:13 J -43161798.09 -43161797.95 -43161797.79 0.0500 0.0286  
 Mercury -122884-09-07 23:03 J -43161707.69 -43161707.54 -43161707.40 0.0500 0.0303  
 Venus -122881-05-16 10:06 J -43160726.18 -43160726.08 -43160725.96 0.0505 0.0428  
 Venus -122880-01-09 00:01 J -43160488.68 -43160488.50 -43160488.30 0.0509 0.0214  
 Mercury -122878-05-08 07:56 J -43159639.24 -43159639.17 -43159639.10 0.0525 0.0439  
 Mercury -122878-08-05 14:39 J -43159550.02 -43159549.89 -43159549.76 0.0526 0.0025  
 Mercury -122878-11-02 20:54 J -43159460.68 -43159460.63 -43159460.58 0.0526 0.0481  
 Venus -122875-03-19 20:39 J -43158592.79 -43158592.64 -43158592.48 0.0520 0.0325  
 Venus -122875-11-11 06:44 J -43158356.38 -43158356.22 -43158356.06 0.0516 0.0309

Mercury -122872-03-28 10:34 J -43157488.15 -43157488.06 -43157487.96 0.0501 0.0430

Mercury -122872-06-26 20:10 J -43157397.84 -43157397.66 -43157397.49 0.0500 0.0157

Venus -122869-09-13 16:06 J -43156223.04 -43156222.83 -43156222.62 0.0507 0.0034

Mercury -122866-05-24 18:15 J -43155239.87 -43155239.74 -43155239.61 0.0525 0.0098

Mercury -122866-08-22 00:30 J -43155150.57 -43155150.48 -43155150.38 0.0526 0.0362

Venus -122864-11-22 20:25 J -43154326.69 -43154326.65 -43154326.59 0.0522 0.0500

Venus -122863-07-17 06:58 J -43154090.40 -43154090.21 -43154090.02 0.0517 0.0136

Mercury -122860-04-14 17:18 J -43153087.96 -43153087.78 -43153087.60 0.0500 0.0010

Venus -122857-05-19 07:56 J -43151957.37 -43151957.17 -43151956.97 0.0506 0.0147

Venus -122856-01-11 21:08 J -43151719.66 -43151719.62 -43151719.57 0.0511 0.0497

Earth -122855-01-18 06:30 J -43151348.31 -43151348.23 -43151348.14 0.0519 0.0476

Moon -122855-01-18 10:06 J -43151348.19 -43151348.08 -43151347.96 0.0519 0.0443 \*

Mercury -122854-03-12 22:20 J -43150929.69 -43150929.57 -43150929.46 0.0525 0.0213

Mercury -122854-06-10 04:49 J -43150840.41 -43150840.30 -43150840.19 0.0526 0.0249

Mars -122853-11-09 05:03 J -43150322.57 -43150322.29 -43150322.00 0.0526 0.0106

Venus -122851-03-22 08:25 J -43149824.34 -43149824.15 -43149823.95 0.0518 0.0038

Mercury -122848-01-31 13:42 J -43148778.10 -43148777.93 -43148777.75 0.0500 0.0144

Mercury -122848-05-01 23:18 J -43148687.60 -43148687.53 -43148687.44 0.0499 0.0445

Venus -122845-01-22 21:51 J -43147691.75 -43147691.59 -43147691.43 0.0505 0.0328

Venus -122845-09-16 11:46 J -43147454.17 -43147454.01 -43147453.84 0.0510 0.0317

Earth -122843-01-22 20:54 J -43146960.86 -43146960.63 -43146960.40 0.0520 0.0030

Moon -122843-01-22 21:51 J -43146960.82 -43146960.59 -43146960.35 0.0520 0.0056 \*

Mercury -122843-12-30 02:10 J -43146619.51 -43146619.41 -43146619.31 0.0526 0.0329

Mercury -122842-03-29 08:54 J -43146530.26 -43146530.13 -43146530.01 0.0526 0.0135

Venus -122840-11-25 08:54 J -43145558.30 -43145558.13 -43145557.95 0.0520 0.0215

Venus -122839-07-19 18:58 J -43145321.83 -43145321.71 -43145321.60 0.0515 0.0417

Mercury -122837-11-19 10:49 J -43144468.20 -43144468.05 -43144467.90 0.0500 0.0290

Mercury -122836-02-17 20:10 J -43144377.80 -43144377.66 -43144377.51 0.0499 0.0296

Mars -122835-08-31 13:56 J -43143818.15 -43143817.92 -43143817.68 0.0499 0.0218

Venus -122834-09-27 14:25 J -43143425.90 -43143425.90 -43143425.88 0.0504 0.0503

Venus -122833-05-22 04:34 J -43143188.51 -43143188.31 -43143188.11 0.0509 0.0138  
 Moon -122831-01-27 08:54 J -43142573.25 -43142573.13 -43142573.00 0.0521 0.0432  
 Earth -122831-01-27 12:58 J -43142573.09 -43142572.96 -43142572.83 0.0521 0.0426 \*  
 Mercury -122831-10-18 06:01 J -43142309.31 -43142309.25 -43142309.18 0.0525 0.0446  
 Mercury -122830-01-15 12:44 J -43142220.10 -43142219.97 -43142219.84 0.0526 0.0017  
 Mercury -122830-04-14 18:58 J -43142130.76 -43142130.71 -43142130.66 0.0526 0.0476  
 Venus -122828-07-31 06:58 J -43141292.33 -43141292.21 -43141292.08 0.0521 0.0397  
 Venus -122827-03-24 17:03 J -43141055.96 -43141055.79 -43141055.61 0.0516 0.0240  
 Earth -122826-07-11 16:49 J -43140581.91 -43140581.80 -43140581.68 0.0507 0.0438  
 Moon -122826-07-11 20:39 J -43140581.73 -43140581.64 -43140581.55 0.0507 0.0467 \*  
 Mercury -122825-09-07 07:42 J -43140158.26 -43140158.18 -43140158.10 0.0500 0.0439  
 Mercury -122825-12-06 17:03 J -43140067.97 -43140067.79 -43140067.62 0.0500 0.0146  
 Venus -122821-01-25 21:51 J -43138922.80 -43138922.59 -43138922.38 0.0507 0.0041  
 Mercury -122819-11-03 16:34 J -43137909.94 -43137909.81 -43137909.68 0.0525 0.0100  
 Mercury -122818-01-31 23:03 J -43137820.64 -43137820.54 -43137820.45 0.0526 0.0360  
 Mars -122817-08-16 11:46 J -43137258.22 -43137258.01 -43137257.79 0.0525 0.0338  
 Venus -122816-11-27 16:34 J -43136790.01 -43136789.81 -43136789.62 0.0518 0.0062  
 Moon -122814-07-16 09:37 J -43136194.35 -43136194.10 -43136193.85 0.0506 0.0024  
 Earth -122814-07-16 10:34 J -43136194.30 -43136194.06 -43136193.83 0.0506 0.0008 \*  
 Mercury -122813-09-24 14:10 J -43135758.10 -43135757.91 -43135757.73 0.0500 0.0005  
 Venus -122810-09-30 13:42 J -43134657.11 -43134656.93 -43134656.74 0.0506 0.0220  
 Venus -122809-05-25 03:08 J -43134419.48 -43134419.37 -43134419.25 0.0510 0.0426  
 Mercury -122807-08-22 20:10 J -43133599.78 -43133599.66 -43133599.54 0.0525 0.0222  
 Mercury -122807-11-20 02:39 J -43133510.51 -43133510.39 -43133510.28 0.0526 0.0239  
 Venus -122804-08-02 16:20 J -43132524.01 -43132523.82 -43132523.62 0.0519 0.0116  
 Moon -122802-07-21 01:42 J -43131806.55 -43131806.43 -43131806.30 0.0505 0.0424  
 Earth -122802-07-21 05:18 J -43131806.40 -43131806.28 -43131806.16 0.0505 0.0434 \*  
 Mercury -122801-07-13 11:18 J -43131448.20 -43131448.03 -43131447.85 0.0500 0.0147  
 Mercury -122801-10-11 20:54 J -43131357.70 -43131357.63 -43131357.54 0.0499 0.0444  
 Mars -122799-06-04 23:18 J -43130756.79 -43130756.53 -43130756.28 0.0500 0.0112

Venus -122798-06-05 05:32 J -43130391.40 -43130391.27 -43130391.14 0.0504 0.0397  
 Venus -122797-01-28 18:58 J -43130153.89 -43130153.71 -43130153.53 0.0509 0.0246  
 Mercury -122795-06-11 00:01 J -43129289.60 -43129289.50 -43129289.40 0.0525 0.0338  
 Mercury -122795-09-08 06:44 J -43129200.35 -43129200.22 -43129200.10 0.0526 0.0125  
 Venus -122792-04-07 17:46 J -43128257.92 -43128257.76 -43128257.60 0.0520 0.0291  
 Venus -122792-11-30 04:06 J -43128021.48 -43128021.33 -43128021.18 0.0516 0.0347  
 Mercury -122789-05-01 08:10 J -43127138.31 -43127138.16 -43127138.02 0.0500 0.0297  
 Mercury -122789-07-30 17:32 J -43127047.92 -43127047.77 -43127047.62 0.0499 0.0289  
 Venus -122786-10-03 09:22 J -43125888.32 -43125888.11 -43125887.90 0.0508 0.0062  
 Mercury -122783-03-30 03:51 J -43124979.40 -43124979.34 -43124979.28 0.0525 0.0456  
 Mercury -122783-06-27 10:34 J -43124890.19 -43124890.06 -43124889.93 0.0526 0.0013  
 Mercury -122783-09-24 17:03 J -43124800.85 -43124800.79 -43124800.74 0.0527 0.0469  
 Venus -122781-12-11 18:15 J -43123991.82 -43123991.74 -43123991.65 0.0522 0.0467  
 Venus -122780-08-05 04:34 J -43123755.50 -43123755.31 -43123755.13 0.0517 0.0172  
 Mercury -122777-02-18 05:03 J -43122828.36 -43122828.29 -43122828.20 0.0500 0.0443  
 Mercury -122777-05-18 14:25 J -43122738.08 -43122737.90 -43122737.72 0.0499 0.0140  
 Venus -122774-06-08 01:56 J -43121622.63 -43121622.42 -43121622.22 0.0507 0.0119  
 Mercury -122771-04-15 14:25 J -43120580.02 -43120579.90 -43120579.77 0.0526 0.0110  
 Mercury -122771-07-13 20:54 J -43120490.72 -43120490.63 -43120490.53 0.0526 0.0353  
 Venus -122768-04-10 02:39 J -43119489.59 -43119489.39 -43119489.20 0.0518 0.0013  
 Mercury -122765-03-06 11:03 J -43118428.23 -43118428.04 -43118427.86 0.0500 0.0015  
 Mars -122763-03-09 04:20 J -43117695.44 -43117695.32 -43117695.19 0.0501 0.0436  
 Venus -122762-02-10 19:13 J -43117356.87 -43117356.70 -43117356.52 0.0505 0.0295  
 Venus -122762-10-06 09:08 J -43117119.26 -43117119.12 -43117118.96 0.0510 0.0354  
 Moon -122760-01-21 18:58 J -43116645.92 -43116645.71 -43116645.50 0.0519 0.0158  
 Earth -122760-01-21 21:37 J -43116645.82 -43116645.60 -43116645.38 0.0519 0.0125 \*  
 Mercury -122759-02-01 18:30 J -43116269.85 -43116269.73 -43116269.62 0.0525 0.0225  
 Mercury -122759-05-02 00:58 J -43116180.58 -43116180.46 -43116180.35 0.0526 0.0237  
 Venus -122757-12-14 01:56 J -43115223.60 -43115223.42 -43115223.24 0.0520 0.0191  
 Venus -122756-08-07 11:46 J -43114987.10 -43114987.01 -43114986.90 0.0515 0.0444

Mercury -122754-12-24 07:56 J -43114118.34 -43114118.17 -43114117.99 0.0500 0.0159

Mercury -122753-03-23 17:46 J -43114027.85 -43114027.76 -43114027.67 0.0499 0.0432

Venus -122751-10-16 11:32 J -43113091.09 -43113091.02 -43113090.95 0.0504 0.0469

Venus -122750-06-11 00:58 J -43112853.66 -43112853.46 -43112853.26 0.0508 0.0173

Earth -122748-01-26 10:34 J -43112258.24 -43112258.06 -43112257.88 0.0520 0.0317

Moon -122748-01-26 14:10 J -43112258.08 -43112257.91 -43112257.74 0.0520 0.0331 \*

Mercury -122748-11-20 21:51 J -43111959.68 -43111959.59 -43111959.49 0.0525 0.0347

Mercury -122747-02-18 04:34 J -43111870.44 -43111870.31 -43111870.19 0.0526 0.0116

Venus -122745-08-19 01:27 J -43110957.57 -43110957.44 -43110957.30 0.0521 0.0370

Venus -122744-04-12 12:01 J -43110721.17 -43110721.00 -43110720.83 0.0517 0.0271

Mercury -122742-10-12 05:18 J -43109808.42 -43109808.28 -43109808.13 0.0500 0.0304

Mercury -122741-01-10 14:54 J -43109718.03 -43109717.88 -43109717.73 0.0500 0.0284

Venus -122738-02-13 16:34 J -43108588.02 -43108587.81 -43108587.59 0.0507 0.0015

Mercury -122736-09-09 01:42 J -43107649.49 -43107649.43 -43107649.37 0.0525 0.0465

Mercury -122736-12-07 08:25 J -43107560.28 -43107560.15 -43107560.02 0.0526 0.0007

Mercury -122735-03-06 14:39 J -43107470.94 -43107470.89 -43107470.82 0.0527 0.0459

Mars -122734-04-27 08:54 J -43107054.24 -43107054.13 -43107054.00 0.0527 0.0474

Venus -122733-12-16 13:13 J -43106455.14 -43106454.95 -43106454.75 0.0518 0.0097

Moon -122731-07-15 09:37 J -43105879.32 -43105879.10 -43105878.87 0.0506 0.0064

Earth -122731-07-15 10:34 J -43105879.29 -43105879.06 -43105878.82 0.0506 0.0094 \*

Mercury -122730-07-31 02:25 J -43105498.47 -43105498.40 -43105498.32 0.0500 0.0450

Mercury -122730-10-29 11:46 J -43105408.19 -43105408.01 -43105407.84 0.0499 0.0135

Venus -122727-10-19 06:58 J -43104322.40 -43104322.21 -43104322.02 0.0506 0.0194

Venus -122726-06-13 20:25 J -43104084.74 -43104084.65 -43104084.56 0.0510 0.0455

Mercury -122724-09-25 12:15 J -43103250.11 -43103249.99 -43103249.86 0.0526 0.0120

Mercury -122724-12-23 18:44 J -43103160.81 -43103160.72 -43103160.62 0.0527 0.0344

Venus -122721-08-21 13:56 J -43102189.12 -43102188.92 -43102188.73 0.0519 0.0082

Earth -122719-07-20 04:20 J -43101491.49 -43101491.32 -43101491.14 0.0505 0.0342

Moon -122719-07-20 08:10 J -43101491.33 -43101491.16 -43101490.97 0.0505 0.0327 \*

Mercury -122718-08-17 08:39 J -43101098.32 -43101098.14 -43101097.96 0.0499 0.0015

Mars -122716-02-19 14:25 J -43100546.00 -43100545.90 -43100545.79 0.0499 0.0454  
 Venus -122715-06-23 23:32 J -43100056.66 -43100056.52 -43100056.37 0.0505 0.0372  
 Venus -122714-02-16 13:27 J -43099819.12 -43099818.94 -43099818.77 0.0509 0.0276  
 Mercury -122712-07-14 16:20 J -43098939.93 -43098939.82 -43098939.70 0.0525 0.0234  
 Mercury -122712-10-11 22:49 J -43098850.66 -43098850.55 -43098850.43 0.0526 0.0229  
 Venus -122709-04-26 11:46 J -43097923.17 -43097923.01 -43097922.83 0.0520 0.0266  
 Venus -122709-12-18 21:51 J -43097686.72 -43097686.59 -43097686.45 0.0515 0.0374  
 Mercury -122706-06-05 05:03 J -43096788.46 -43096788.29 -43096788.12 0.0500 0.0168  
 Mercury -122706-09-03 14:39 J -43096697.98 -43096697.89 -43096697.79 0.0499 0.0422  
 Venus -122703-10-22 06:58 J -43095553.41 -43095553.21 -43095553.00 0.0508 0.0098  
 Mercury -122700-05-02 20:25 J -43094629.75 -43094629.65 -43094629.56 0.0525 0.0349  
 Mercury -122700-07-31 02:54 J -43094540.51 -43094540.38 -43094540.26 0.0526 0.0114  
 Mars -122698-02-01 22:34 J -43093989.85 -43093989.56 -43093989.27 0.0526 0.0012  
 Venus -122698-12-31 11:32 J -43093657.12 -43093657.02 -43093656.92 0.0521 0.0445  
 Venus -122697-08-23 21:22 J -43093420.79 -43093420.61 -43093420.43 0.0517 0.0197  
 Mercury -122694-03-24 02:10 J -43092478.55 -43092478.41 -43092478.27 0.0500 0.0314  
 Mercury -122694-06-22 11:32 J -43092388.17 -43092388.02 -43092387.86 0.0500 0.0275  
 Venus -122691-06-26 23:03 J -43091287.75 -43091287.54 -43091287.33 0.0506 0.0082  
 Mercury -122688-02-18 23:46 J -43090319.56 -43090319.51 -43090319.45 0.0524 0.0471  
 Mercury -122688-05-19 06:30 J -43090230.36 -43090230.23 -43090230.10 0.0525 0.0008  
 Mercury -122688-08-16 12:44 J -43090141.03 -43090140.97 -43090140.90 0.0526 0.0451  
 Venus -122685-04-28 21:22 J -43089154.81 -43089154.61 -43089154.42 0.0519 0.0021  
 Mercury -122682-01-09 23:32 J -43088168.59 -43088168.52 -43088168.44 0.0501 0.0458  
 Mercury -122682-04-10 08:54 J -43088078.31 -43088078.13 -43088077.95 0.0500 0.0128  
 Mars -122681-11-23 21:08 J -43087484.87 -43087484.62 -43087484.37 0.0499 0.0128  
 Venus -122679-03-01 14:54 J -43087022.06 -43087021.88 -43087021.70 0.0505 0.0264  
 Venus -122679-10-25 04:20 J -43086784.46 -43086784.32 -43086784.19 0.0510 0.0386  
 Earth -122677-01-21 18:30 J -43086330.93 -43086330.73 -43086330.52 0.0519 0.0237  
 Moon -122677-01-21 22:20 J -43086330.77 -43086330.57 -43086330.37 0.0519 0.0269 \*  
 Mercury -122676-03-07 10:20 J -43085920.19 -43085920.07 -43085919.94 0.0525 0.0125

Mercury -122676-06-04 16:49 J -43085830.90 -43085830.80 -43085830.70 0.0526 0.0336

Venus -122673-01-02 22:20 J -43084888.75 -43084888.57 -43084888.38 0.0520 0.0159

Venus -122673-08-26 08:54 J -43084652.19 -43084652.13 -43084652.06 0.0515 0.0480

Mercury -122670-01-27 06:01 J -43083768.43 -43083768.25 -43083768.07 0.0500 0.0019

Venus -122668-11-04 05:32 J -43082756.37 -43082756.27 -43082756.17 0.0504 0.0444

Venus -122667-06-29 18:44 J -43082518.91 -43082518.72 -43082518.52 0.0508 0.0202

Moon -122665-01-26 05:46 J -43081943.47 -43081943.26 -43081943.04 0.0520 0.0225

Earth -122665-01-26 08:10 J -43081943.36 -43081943.16 -43081942.94 0.0520 0.0209 \*

Mercury -122665-12-24 14:10 J -43081610.02 -43081609.91 -43081609.79 0.0526 0.0243

Mercury -122664-03-23 20:39 J -43081520.75 -43081520.64 -43081520.52 0.0527 0.0221

Mars -122663-11-09 13:56 J -43080925.06 -43080924.92 -43080924.76 0.0526 0.0451

Venus -122662-09-07 23:18 J -43080622.68 -43080622.53 -43080622.38 0.0521 0.0337

Venus -122661-05-01 09:37 J -43080386.25 -43080386.10 -43080385.94 0.0516 0.0308

Mercury -122659-11-15 03:08 J -43079458.54 -43079458.37 -43079458.20 0.0500 0.0166

Mercury -122658-02-13 12:44 J -43079368.07 -43079367.97 -43079367.87 0.0499 0.0422

Venus -122655-03-04 11:46 J -43078253.22 -43078253.01 -43078252.80 0.0507 0.0021

Mercury -122653-10-12 18:15 J -43077299.83 -43077299.74 -43077299.65 0.0525 0.0356

Mercury -122652-01-10 00:58 J -43077210.59 -43077210.46 -43077210.34 0.0526 0.0108

Venus -122650-05-13 21:37 J -43076356.62 -43076356.60 -43076356.58 0.0522 0.0517

Venus -122649-01-05 07:42 J -43076120.37 -43076120.18 -43076119.99 0.0518 0.0126

Earth -122648-07-14 06:01 J -43075564.47 -43075564.25 -43075564.03 0.0506 0.0199

Moon -122648-07-14 08:25 J -43075564.38 -43075564.15 -43075563.92 0.0506 0.0165 \*

Mercury -122647-09-02 23:18 J -43075148.66 -43075148.53 -43075148.39 0.0500 0.0321

Mercury -122647-12-02 08:54 J -43075058.29 -43075058.13 -43075057.98 0.0500 0.0267

Mars -122645-08-28 02:25 J -43074423.64 -43074423.40 -43074423.16 0.0500 0.0198

Venus -122644-11-07 05:18 J -43073987.47 -43073987.28 -43073987.07 0.0506 0.0157

Venus -122643-07-02 18:58 J -43073749.75 -43073749.71 -43073749.65 0.0511 0.0495

Mercury -122641-07-31 22:20 J -43072989.63 -43072989.57 -43072989.52 0.0524 0.0470

Mercury -122641-10-29 05:03 J -43072900.42 -43072900.29 -43072900.16 0.0525 0.0010

Mercury -122640-01-26 11:18 J -43072811.09 -43072811.03 -43072810.97 0.0526 0.0452

Venus -122638-09-10 07:27 J -43071854.39 -43071854.19 -43071853.99 0.0519 0.0055  
 Moon -122636-07-18 20:25 J -43071176.87 -43071176.65 -43071176.43 0.0506 0.0215  
 Earth -122636-07-18 23:46 J -43071176.72 -43071176.51 -43071176.30 0.0506 0.0237 \*  
 Mercury -122635-06-21 20:39 J -43070838.70 -43070838.64 -43070838.57 0.0501 0.0466  
 Mercury -122635-09-20 06:01 J -43070748.43 -43070748.25 -43070748.07 0.0500 0.0120  
 Venus -122632-07-12 21:51 J -43069721.75 -43069721.59 -43069721.43 0.0505 0.0335  
 Venus -122631-03-07 11:18 J -43069484.19 -43069484.03 -43069483.86 0.0509 0.0316  
 Mercury -122629-08-17 08:39 J -43068590.27 -43068590.14 -43068590.02 0.0525 0.0128  
 Mercury -122629-11-14 14:54 J -43068500.97 -43068500.88 -43068500.78 0.0526 0.0333  
 Venus -122626-05-16 07:13 J -43067588.38 -43067588.20 -43067588.03 0.0520 0.0235  
 Venus -122625-01-07 17:18 J -43067351.89 -43067351.78 -43067351.65 0.0516 0.0408  
 Mercury -122623-07-09 03:22 J -43066438.55 -43066438.36 -43066438.18 0.0500 0.0027  
 Venus -122620-11-10 03:22 J -43065218.56 -43065218.36 -43065218.15 0.0508 0.0134  
 Mercury -122617-06-05 12:30 J -43064280.09 -43064279.98 -43064279.87 0.0525 0.0246  
 Mercury -122617-09-02 18:58 J -43064190.83 -43064190.71 -43064190.59 0.0526 0.0216  
 Venus -122614-01-19 08:10 J -43063322.28 -43063322.16 -43063322.04 0.0522 0.0413  
 Venus -122614-09-12 18:44 J -43063085.89 -43063085.72 -43063085.54 0.0517 0.0234  
 Mercury -122611-04-27 00:44 J -43062128.64 -43062128.47 -43062128.30 0.0500 0.0169  
 Mercury -122611-07-26 10:20 J -43062038.17 -43062038.07 -43062037.97 0.0499 0.0420  
 Venus -122608-07-15 18:15 J -43060952.95 -43060952.74 -43060952.53 0.0506 0.0052  
 Mercury -122605-03-24 16:20 J -43059969.91 -43059969.82 -43059969.73 0.0525 0.0363  
 Mercury -122605-06-21 23:03 J -43059880.67 -43059880.54 -43059880.42 0.0526 0.0102  
 Venus -122602-05-18 19:42 J -43058819.87 -43058819.68 -43058819.48 0.0519 0.0058  
 Mercury -122599-02-12 21:51 J -43057818.72 -43057818.59 -43057818.44 0.0500 0.0314  
 Mercury -122599-05-14 07:13 J -43057728.35 -43057728.20 -43057728.04 0.0499 0.0274  
 Venus -122596-03-20 11:18 J -43056687.21 -43056687.03 -43056686.84 0.0505 0.0232  
 Venus -122596-11-13 00:44 J -43056449.58 -43056449.47 -43056449.35 0.0510 0.0422  
 Moon -122594-01-20 16:34 J -43056015.97 -43056015.81 -43056015.64 0.0519 0.0361  
 Earth -122594-01-20 20:39 J -43056015.82 -43056015.64 -43056015.46 0.0519 0.0326 \*  
 Mercury -122593-01-11 20:25 J -43055659.70 -43055659.65 -43055659.60 0.0525 0.0475



Mercury -122593-04-10 03:08 J -43055570.50 -43055570.37 -43055570.24 0.0526 0.0015

Mercury -122593-07-08 09:37 J -43055481.17 -43055481.10 -43055481.04 0.0526 0.0448

Venus -122590-01-21 18:15 J -43054553.93 -43054553.74 -43054553.55 0.0519 0.0126

Venus -122590-09-15 04:06 J -43054317.34 -43054317.33 -43054317.31 0.0515 0.0512

Mercury -122588-12-01 18:15 J -43053508.80 -43053508.74 -43053508.68 0.0501 0.0469

Mercury -122587-03-02 03:22 J -43053418.54 -43053418.36 -43053418.18 0.0500 0.0117

Venus -122585-11-23 04:49 J -43052421.42 -43052421.30 -43052421.18 0.0504 0.0407

Venus -122584-07-18 18:44 J -43052183.90 -43052183.72 -43052183.54 0.0509 0.0245

Earth -122582-01-25 14:25 J -43051628.11 -43051627.90 -43051627.67 0.0520 0.0137

Moon -122582-01-25 14:39 J -43051628.10 -43051627.89 -43051627.68 0.0520 0.0162 \*

Mercury -122581-01-28 07:27 J -43051260.32 -43051260.19 -43051260.07 0.0525 0.0124

Mercury -122581-04-26 13:42 J -43051171.02 -43051170.93 -43051170.83 0.0526 0.0337

Mars -122580-07-20 15:22 J -43050721.06 -43050720.86 -43050720.64 0.0526 0.0355

Venus -122579-09-26 18:15 J -43050287.89 -43050287.74 -43050287.57 0.0521 0.0308

Venus -122578-05-21 04:20 J -43050051.47 -43050051.32 -43050051.17 0.0516 0.0338

Mercury -122576-12-19 00:44 J -43049108.66 -43049108.47 -43049108.29 0.0500 0.0030

Venus -122572-03-23 11:18 J -43047918.23 -43047918.03 -43047917.82 0.0507 0.0065

Mercury -122570-11-16 11:03 J -43046950.15 -43046950.04 -43046949.93 0.0525 0.0244

Mercury -122569-02-13 17:32 J -43046860.89 -43046860.77 -43046860.65 0.0526 0.0217

Venus -122567-06-01 17:46 J -43046021.82 -43046021.76 -43046021.68 0.0522 0.0487

Venus -122566-01-24 04:20 J -43045785.51 -43045785.32 -43045785.13 0.0518 0.0161

Moon -122565-07-13 04:20 J -43045249.51 -43045249.32 -43045249.11 0.0507 0.0252

Earth -122565-07-13 07:56 J -43045249.37 -43045249.17 -43045248.98 0.0507 0.0282 \*

Mercury -122564-10-06 22:06 J -43044798.75 -43044798.58 -43044798.40 0.0500 0.0173

Mercury -122563-01-05 07:56 J -43044708.27 -43044708.17 -43044708.07 0.0500 0.0418

Mars -122562-05-16 06:15 J -43044212.42 -43044212.24 -43044212.05 0.0499 0.0350

Venus -122561-11-26 03:37 J -43043652.55 -43043652.35 -43043652.14 0.0506 0.0119

Mercury -122558-09-04 14:54 J -43042639.97 -43042639.88 -43042639.79 0.0525 0.0361

Mercury -122558-12-02 21:37 J -43042550.73 -43042550.60 -43042550.48 0.0526 0.0103

Venus -122555-09-29 05:32 J -43041519.46 -43041519.27 -43041519.07 0.0519 0.0021

Earth -122553-07-18 04:34 J -43040861.53 -43040861.31 -43040861.08 0.0506 0.0166  
 Moon -122553-07-18 06:15 J -43040861.46 -43040861.24 -43040861.02 0.0506 0.0140 \*  
 Mercury -122552-07-25 19:56 J -43040488.81 -43040488.67 -43040488.53 0.0500 0.0313  
 Mercury -122552-10-24 05:18 J -43040398.43 -43040398.28 -43040398.12 0.0499 0.0274  
 Venus -122549-07-31 18:58 J -43039386.87 -43039386.71 -43039386.54 0.0505 0.0301  
 Venus -122548-03-26 08:10 J -43039149.30 -43039149.16 -43039149.00 0.0509 0.0352  
 Mercury -122546-06-23 18:44 J -43038329.77 -43038329.72 -43038329.67 0.0525 0.0478  
 Mercury -122546-09-21 01:27 J -43038240.57 -43038240.44 -43038240.31 0.0526 0.0015  
 Mercury -122546-12-19 07:56 J -43038151.24 -43038151.17 -43038151.11 0.0527 0.0446  
 Mars -122544-04-27 10:34 J -43037656.34 -43037656.06 -43037655.78 0.0526 0.0118  
 Venus -122543-06-04 06:44 J -43037253.40 -43037253.22 -43037253.03 0.0520 0.0197  
 Venus -122542-01-26 17:03 J -43037016.87 -43037016.79 -43037016.68 0.0516 0.0450  
 Mercury -122540-05-13 17:32 J -43036178.85 -43036178.77 -43036178.70 0.0501 0.0456  
 Mercury -122540-08-12 02:39 J -43036088.57 -43036088.39 -43036088.21 0.0500 0.0129  
 Venus -122537-04-05 12:15 J -43035121.05 -43035120.99 -43035120.92 0.0504 0.0477  
 Venus -122537-11-29 01:42 J -43034883.62 -43034883.43 -43034883.23 0.0508 0.0173  
 Mercury -122534-07-10 05:46 J -43033930.38 -43033930.26 -43033930.13 0.0525 0.0125  
 Mercury -122534-10-07 12:15 J -43033841.09 -43033840.99 -43033840.89 0.0526 0.0336  
 Venus -122531-02-07 05:46 J -43032987.38 -43032987.26 -43032987.12 0.0521 0.0378  
 Venus -122531-10-01 15:51 J -43032751.00 -43032750.84 -43032750.67 0.0517 0.0271  
 Mercury -122528-05-30 22:34 J -43031778.74 -43031778.56 -43031778.38 0.0500 0.0029  
 Mars -122526-02-17 11:18 J -43031151.29 -43031151.03 -43031150.76 0.0500 0.0023  
 Venus -122525-08-03 19:27 J -43030617.90 -43030617.69 -43030617.48 0.0507 0.0008  
 Mercury -122522-04-28 10:06 J -43029620.19 -43029620.08 -43029619.96 0.0525 0.0235  
 Mercury -122522-07-26 16:34 J -43029530.92 -43029530.81 -43029530.69 0.0526 0.0226  
 Venus -122519-06-06 16:20 J -43028485.01 -43028484.82 -43028484.63 0.0518 0.0092  
 Mercury -122516-03-18 19:56 J -43027468.84 -43027468.67 -43027468.50 0.0501 0.0173  
 Mercury -122516-06-17 05:32 J -43027378.36 -43027378.27 -43027378.16 0.0500 0.0418  
 Venus -122513-04-08 12:30 J -43026352.17 -43026351.98 -43026351.78 0.0506 0.0186  
 Venus -122513-12-02 02:10 J -43026114.49 -43026114.41 -43026114.33 0.0510 0.0470

Earth -122511-01-20 03:37 J -43025700.49 -43025700.35 -43025700.20 0.0518 0.0397  
 Moon -122511-01-20 06:44 J -43025700.34 -43025700.22 -43025700.08 0.0518 0.0425 \*  
 Mercury -122510-02-14 13:56 J -43025310.02 -43025309.92 -43025309.83 0.0524 0.0355  
 Mercury -122510-05-14 20:25 J -43025220.78 -43025220.65 -43025220.53 0.0525 0.0108  
 Venus -122507-02-09 16:20 J -43024219.01 -43024218.82 -43024218.62 0.0519 0.0089  
 Mercury -122504-01-04 17:32 J -43023158.90 -43023158.77 -43023158.62 0.0501 0.0315  
 Mercury -122504-04-05 03:08 J -43023068.52 -43023068.37 -43023068.21 0.0500 0.0275  
 Venus -122502-12-13 05:03 J -43022086.43 -43022086.29 -43022086.14 0.0504 0.0366  
 Venus -122501-08-06 18:30 J -43021848.89 -43021848.73 -43021848.55 0.0509 0.0289  
 Earth -122499-01-24 18:58 J -43021312.94 -43021312.71 -43021312.49 0.0519 0.0054  
 Moon -122499-01-24 20:54 J -43021312.86 -43021312.63 -43021312.40 0.0519 0.0085 \*  
 Mercury -122499-12-03 17:32 J -43020999.82 -43020999.77 -43020999.71 0.0524 0.0472  
 Mercury -122498-03-03 00:15 J -43020910.61 -43020910.49 -43020910.36 0.0525 0.0019  
 Mercury -122498-05-31 06:30 J -43020821.29 -43020821.23 -43020821.16 0.0526 0.0452  
 Venus -122496-10-15 17:32 J -43019952.93 -43019952.77 -43019952.60 0.0521 0.0269  
 Venus -122495-06-09 03:51 J -43019716.46 -43019716.34 -43019716.20 0.0516 0.0382  
 Mercury -122493-10-23 15:37 J -43018848.92 -43018848.85 -43018848.77 0.0501 0.0452  
 Mercury -122492-01-22 00:58 J -43018758.64 -43018758.46 -43018758.29 0.0500 0.0134  
 Mars -122491-11-22 00:30 J -43018089.68 -43018089.48 -43018089.28 0.0500 0.0319  
 Venus -122489-04-11 10:20 J -43017583.27 -43017583.07 -43017582.86 0.0507 0.0105  
 Moon -122487-01-29 05:18 J -43016925.35 -43016925.28 -43016925.20 0.0520 0.0487  
 Earth -122487-01-29 09:22 J -43016925.16 -43016925.11 -43016925.06 0.0520 0.0504  
 Mercury -122487-12-20 04:20 J -43016600.45 -43016600.32 -43016600.19 0.0525 0.0124  
 Mercury -122486-03-19 10:49 J -43016511.15 -43016511.05 -43016510.95 0.0526 0.0337  
 Venus -122484-06-20 18:58 J -43015686.81 -43015686.71 -43015686.61 0.0522 0.0446  
 Venus -122483-02-12 05:32 J -43015450.45 -43015450.27 -43015450.09 0.0518 0.0206  
 Earth -122482-07-13 15:51 J -43014934.01 -43014933.84 -43014933.66 0.0507 0.0340  
 Moon -122482-07-13 19:42 J -43014933.86 -43014933.68 -43014933.49 0.0507 0.0310 \*  
 Mercury -122481-11-09 22:20 J -43014448.75 -43014448.57 -43014448.39 0.0500 0.0011  
 Venus -122478-12-16 03:51 J -43013317.55 -43013317.34 -43013317.13 0.0506 0.0077

Mercury -122475-10-08 08:39 J -43012290.25 -43012290.14 -43012290.02 0.0525 0.0233

Mercury -122474-01-05 15:08 J -43012200.98 -43012200.87 -43012200.75 0.0526 0.0230

Venus -122472-10-18 04:49 J -43011184.49 -43011184.30 -43011184.10 0.0518 0.0027

Moon -122470-07-18 05:46 J -43010546.51 -43010546.26 -43010546.02 0.0506 0.0053

Earth -122470-07-18 06:15 J -43010546.48 -43010546.24 -43010546.01 0.0506 0.0083 \*

Mercury -122469-08-28 18:15 J -43010138.91 -43010138.74 -43010138.56 0.0500 0.0169

Mercury -122469-11-27 04:06 J -43010048.43 -43010048.33 -43010048.24 0.0500 0.0423

Venus -122466-08-20 20:54 J -43009051.80 -43009051.63 -43009051.44 0.0505 0.0256

Venus -122465-04-14 11:18 J -43008814.15 -43008814.03 -43008813.90 0.0510 0.0403

Mercury -122463-07-27 12:58 J -43007980.05 -43007979.96 -43007979.86 0.0525 0.0343

Mercury -122463-10-24 19:42 J -43007890.81 -43007890.68 -43007890.56 0.0525 0.0120

Venus -122460-06-23 05:32 J -43006918.45 -43006918.27 -43006918.08 0.0520 0.0156

Venus -122459-02-14 15:08 J -43006681.92 -43006681.87 -43006681.80 0.0515 0.0488

Mercury -122457-06-16 15:51 J -43005828.98 -43005828.84 -43005828.70 0.0501 0.0311

Mercury -122457-09-15 01:27 J -43005738.60 -43005738.44 -43005738.29 0.0500 0.0278

Venus -122454-04-25 14:25 J -43004786.00 -43004785.90 -43004785.79 0.0504 0.0431

Venus -122454-12-19 04:34 J -43004548.50 -43004548.31 -43004548.12 0.0508 0.0224

Mercury -122451-05-15 16:49 J -43003669.86 -43003669.80 -43003669.74 0.0524 0.0460

Mercury -122451-08-12 23:32 J -43003580.65 -43003580.52 -43003580.39 0.0525 0.0006

Mercury -122451-11-10 05:46 J -43003491.32 -43003491.26 -43003491.20 0.0526 0.0461

Venus -122448-02-26 05:46 J -43002652.41 -43002652.26 -43002652.12 0.0521 0.0337

Venus -122448-10-20 15:37 J -43002416.00 -43002415.85 -43002415.69 0.0517 0.0314

Mercury -122445-04-04 13:42 J -43001519.00 -43001518.93 -43001518.85 0.0501 0.0451

Mercury -122445-07-03 23:03 J -43001428.72 -43001428.54 -43001428.36 0.0500 0.0136

Venus -122442-08-23 21:22 J -43000282.82 -43000282.61 -43000282.40 0.0507 0.0041

Mercury -122439-06-01 03:37 J -42999270.48 -42999270.35 -42999270.23 0.0525 0.0114

Mercury -122439-08-29 09:51 J -42999181.18 -42999181.09 -42999180.99 0.0526 0.0347

Venus -122437-11-01 06:30 J -42998386.25 -42998386.23 -42998386.20 0.0522 0.0516

Venus -122436-06-25 17:03 J -42998149.98 -42998149.79 -42998149.60 0.0518 0.0137

Mercury -122433-04-21 20:54 J -42997118.81 -42997118.63 -42997118.45 0.0500 0.0004

Venus -122430-04-28 13:27 J -42996017.14 -42996016.94 -42996016.74 0.0505 0.0143  
 Moon -122428-01-19 07:27 J -42995385.25 -42995385.19 -42995385.12 0.0518 0.0497  
 Earth -122428-01-19 10:20 J -42995385.16 -42995385.07 -42995384.96 0.0518 0.0467 \*  
 Mercury -122427-03-20 07:27 J -42994960.30 -42994960.19 -42994960.07 0.0525 0.0229  
 Mercury -122427-06-17 13:56 J -42994871.03 -42994870.92 -42994870.80 0.0526 0.0234  
 Mars -122426-10-15 00:58 J -42994386.73 -42994386.46 -42994386.20 0.0526 0.0191  
 Venus -122424-02-28 18:44 J -42993883.92 -42993883.72 -42993883.52 0.0520 0.0041  
 Mercury -122421-02-08 18:30 J -42992808.90 -42992808.73 -42992808.55 0.0500 0.0145  
 Mercury -122421-05-09 04:06 J -42992718.41 -42992718.33 -42992718.24 0.0500 0.0445  
 Venus -122418-01-01 06:44 J -42991751.38 -42991751.22 -42991751.06 0.0504 0.0322  
 Venus -122418-08-26 20:25 J -42991513.80 -42991513.65 -42991513.49 0.0509 0.0336  
 Moon -122416-01-24 02:54 J -42990997.60 -42990997.38 -42990997.16 0.0519 0.0028  
 Earth -122416-01-24 05:03 J -42990997.52 -42990997.29 -42990997.06 0.0519 0.0002 \*  
 Mercury -122415-01-06 12:01 J -42990650.10 -42990650.00 -42990649.90 0.0525 0.0337  
 Mercury -122415-04-05 18:30 J -42990560.85 -42990560.73 -42990560.60 0.0526 0.0126  
 Venus -122413-11-03 18:44 J -42989617.89 -42989617.72 -42989617.54 0.0520 0.0222  
 Venus -122412-06-28 04:20 J -42989381.42 -42989381.32 -42989381.20 0.0516 0.0427  
 Mercury -122410-11-27 14:39 J -42988499.04 -42988498.89 -42988498.75 0.0501 0.0303  
 Mercury -122409-02-26 00:01 J -42988408.65 -42988408.50 -42988408.35 0.0500 0.0286  
 Mars -122408-08-09 09:51 J -42987878.32 -42987878.09 -42987877.85 0.0500 0.0223  
 Venus -122407-09-05 23:32 J -42987485.55 -42987485.52 -42987485.49 0.0504 0.0498  
 Venus -122406-05-01 13:56 J -42987248.12 -42987247.92 -42987247.72 0.0508 0.0157  
 Earth -122404-01-28 23:46 J -42986609.60 -42986609.51 -42986609.40 0.0520 0.0464  
 Moon -122404-01-29 03:37 J -42986609.45 -42986609.35 -42986609.24 0.0520 0.0454 \*  
 Mercury -122404-10-25 16:20 J -42986339.89 -42986339.82 -42986339.75 0.0524 0.0446  
 Mercury -122403-01-22 23:03 J -42986250.67 -42986250.54 -42986250.41 0.0525 0.0018  
 Mercury -122403-04-22 05:18 J -42986161.33 -42986161.28 -42986161.23 0.0526 0.0476  
 Venus -122401-07-09 19:42 J -42985351.80 -42985351.68 -42985351.55 0.0521 0.0401  
 Venus -122400-03-03 05:18 J -42985115.45 -42985115.28 -42985115.10 0.0517 0.0251  
 Moon -122399-07-12 15:37 J -42984619.00 -42984618.85 -42984618.70 0.0507 0.0389

Earth -122399-07-12 19:13 J -42984618.82 -42984618.70 -42984618.55 0.0507 0.0419 \*  
 Mercury -122398-09-15 12:15 J -42984189.07 -42984188.99 -42984188.91 0.0501 0.0444  
 Mercury -122398-12-14 21:22 J -42984098.78 -42984098.61 -42984098.43 0.0500 0.0143  
 Venus -122394-01-04 07:13 J -42982982.41 -42982982.20 -42982981.99 0.0507 0.0025  
 Mercury -122392-11-11 02:54 J -42981940.50 -42981940.38 -42981940.25 0.0525 0.0100  
 Mercury -122391-02-08 09:22 J -42981851.20 -42981851.11 -42981851.02 0.0526 0.0361  
 Mars -122390-07-23 01:56 J -42981321.65 -42981321.42 -42981321.17 0.0525 0.0298  
 Venus -122389-11-06 05:46 J -42980849.46 -42980849.26 -42980849.06 0.0518 0.0070  
 Earth -122387-07-17 14:54 J -42980231.11 -42980230.88 -42980230.64 0.0506 0.0028  
 Moon -122387-07-17 15:22 J -42980231.09 -42980230.86 -42980230.63 0.0506 0.0003 \*  
 Mercury -122386-10-02 19:13 J -42979788.88 -42979788.70 -42979788.51 0.0500 0.0010  
 Venus -122383-09-09 00:30 J -42978716.67 -42978716.48 -42978716.29 0.0505 0.0206  
 Venus -122382-05-04 14:10 J -42978478.99 -42978478.91 -42978478.81 0.0510 0.0455  
 Mercury -122380-08-30 06:58 J -42977630.33 -42977630.21 -42977630.09 0.0525 0.0215  
 Mercury -122380-11-27 13:27 J -42977541.06 -42977540.94 -42977540.83 0.0526 0.0247  
 Venus -122377-07-12 06:58 J -42976583.40 -42976583.21 -42976583.02 0.0520 0.0110  
 Earth -122375-07-22 12:15 J -42975843.06 -42975842.99 -42975842.91 0.0506 0.0476  
 Moon -122375-07-22 16:06 J -42975842.89 -42975842.83 -42975842.77 0.0506 0.0486  
 Mercury -122374-07-21 17:18 J -42975478.96 -42975478.78 -42975478.60 0.0501 0.0136  
 Mercury -122374-10-20 02:54 J -42975388.45 -42975388.38 -42975388.30 0.0500 0.0456  
 Mars -122372-05-14 02:25 J -42974816.66 -42974816.40 -42974816.15 0.0500 0.0125  
 Venus -122371-05-14 16:49 J -42974450.93 -42974450.80 -42974450.66 0.0504 0.0386  
 Venus -122370-01-07 06:30 J -42974213.41 -42974213.23 -42974213.06 0.0508 0.0271  
 Mercury -122368-06-18 10:49 J -42973320.15 -42973320.05 -42973319.95 0.0525 0.0331  
 Mercury -122368-09-15 17:32 J -42973230.90 -42973230.77 -42973230.65 0.0526 0.0133  
 Venus -122365-03-17 08:39 J -42972317.30 -42972317.14 -42972316.97 0.0521 0.0289  
 Venus -122365-11-08 18:58 J -42972080.85 -42972080.71 -42972080.57 0.0517 0.0365  
 Mercury -122362-05-09 15:08 J -42971169.02 -42971168.87 -42971168.72 0.0501 0.0277  
 Mercury -122362-08-08 00:30 J -42971078.62 -42971078.48 -42971078.34 0.0500 0.0313  
 Venus -122359-09-12 00:01 J -42969947.70 -42969947.50 -42969947.29 0.0507 0.0091

Mercury -122356-04-06 15:22 J -42969009.93 -42969009.86 -42969009.79 0.0524 0.0438

Mercury -122356-07-04 22:06 J -42968920.71 -42968920.58 -42968920.45 0.0525 0.0028

Mercury -122356-10-02 04:20 J -42968831.37 -42968831.32 -42968831.27 0.0526 0.0485

Venus -122354-11-21 09:22 J -42968051.19 -42968051.11 -42968051.02 0.0522 0.0466

Venus -122353-07-14 19:13 J -42967814.89 -42967814.70 -42967814.52 0.0517 0.0188

Mercury -122350-02-25 11:18 J -42966859.12 -42966859.03 -42966858.94 0.0501 0.0433

Mercury -122350-05-26 20:25 J -42966768.82 -42966768.65 -42966768.47 0.0500 0.0153

Venus -122347-05-17 16:49 J -42965682.01 -42965681.80 -42965681.59 0.0506 0.0091

Earth -122345-01-20 02:10 J -42965069.46 -42965069.41 -42965069.36 0.0518 0.0505

Mercury -122344-04-23 02:39 J -42964610.52 -42964610.39 -42964610.27 0.0525 0.0084

Mercury -122344-07-21 08:54 J -42964521.22 -42964521.13 -42964521.04 0.0526 0.0378

Venus -122341-03-19 20:25 J -42963548.84 -42963548.65 -42963548.45 0.0518 0.0012

Mercury -122338-03-14 18:01 J -42962458.94 -42962458.75 -42962458.57 0.0500 0.0012

Mars -122336-02-15 13:56 J -42961754.99 -42961754.92 -42961754.82 0.0501 0.0472

Venus -122335-01-20 10:20 J -42961416.25 -42961416.07 -42961415.89 0.0505 0.0271

Venus -122335-09-15 00:58 J -42961178.59 -42961178.46 -42961178.33 0.0509 0.0393

Earth -122333-01-24 18:58 J -42960681.94 -42960681.71 -42960681.48 0.0519 0.0048

Moon -122333-01-24 21:37 J -42960681.84 -42960681.60 -42960681.37 0.0519 0.0019 \*

Mercury -122332-02-09 06:30 J -42960300.35 -42960300.23 -42960300.11 0.0525 0.0199

Mercury -122332-05-09 12:58 J -42960211.07 -42960210.96 -42960210.85 0.0525 0.0262

Venus -122330-11-23 20:39 J -42959282.83 -42959282.64 -42959282.46 0.0520 0.0176

Venus -122329-07-17 06:15 J -42959046.31 -42959046.24 -42959046.16 0.0515 0.0474

Mercury -122327-12-31 15:51 J -42958149.02 -42958148.84 -42958148.66 0.0501 0.0130

Mercury -122326-04-01 01:27 J -42958058.50 -42958058.44 -42958058.37 0.0500 0.0463

Venus -122324-09-25 03:51 J -42957150.43 -42957150.34 -42957150.24 0.0504 0.0449

Venus -122323-05-20 18:01 J -42956912.94 -42956912.75 -42956912.56 0.0508 0.0210

Moon -122321-01-29 07:13 J -42956294.34 -42956294.20 -42956294.05 0.0520 0.0403

Earth -122321-01-29 10:49 J -42956294.18 -42956294.05 -42956293.90 0.0520 0.0408 \*

Mercury -122321-11-28 10:34 J -42955990.17 -42955990.06 -42955989.96 0.0524 0.0315

Mercury -122320-02-25 17:03 J -42955900.91 -42955900.79 -42955900.67 0.0525 0.0148

Venus -122318-07-29 21:37 J -42955016.74 -42955016.60 -42955016.46 0.0521 0.0357  
 Venus -122317-03-22 07:42 J -42954780.34 -42954780.18 -42954780.02 0.0517 0.0300  
 Earth -122316-07-12 07:27 J -42954303.28 -42954303.19 -42954303.09 0.0508 0.0463  
 Moon -122316-07-12 11:03 J -42954303.15 -42954303.04 -42954302.91 0.0508 0.0432 \*  
 Mercury -122315-10-19 13:56 J -42953839.07 -42953838.92 -42953838.76 0.0501 0.0267  
 Mercury -122314-01-17 23:18 J -42953748.66 -42953748.53 -42953748.38 0.0500 0.0324  
 Venus -122311-01-23 10:20 J -42952647.28 -42952647.07 -42952646.86 0.0507 0.0026  
 Mercury -122309-09-16 14:25 J -42951679.97 -42951679.90 -42951679.83 0.0524 0.0431  
 Mercury -122309-12-14 21:08 J -42951590.75 -42951590.62 -42951590.49 0.0525 0.0036  
 Mercury -122308-03-14 03:22 J -42951501.40 -42951501.36 -42951501.32 0.0526 0.0492  
 Mars -122307-04-03 02:25 J -42951116.51 -42951116.40 -42951116.29 0.0526 0.0484  
 Venus -122306-11-26 09:37 J -42950514.29 -42950514.10 -42950513.91 0.0518 0.0123  
 Moon -122304-07-17 03:51 J -42949915.58 -42949915.34 -42949915.09 0.0507 0.0040  
 Earth -122304-07-17 04:06 J -42949915.56 -42949915.33 -42949915.09 0.0507 0.0015 \*  
 Mercury -122303-08-07 11:46 J -42949529.11 -42949529.01 -42949528.90 0.0501 0.0406  
 Mercury -122303-11-05 21:08 J -42949438.79 -42949438.62 -42949438.45 0.0500 0.0181  
 Venus -122300-09-28 03:51 J -42948381.54 -42948381.34 -42948381.14 0.0506 0.0157  
 Venus -122299-05-23 17:32 J -42948143.78 -42948143.77 -42948143.74 0.0510 0.0506  
 Mercury -122297-10-03 01:42 J -42947280.56 -42947280.43 -42947280.31 0.0525 0.0075  
 Mercury -122297-12-31 07:56 J -42947191.25 -42947191.17 -42947191.08 0.0526 0.0387  
 Venus -122294-08-01 10:20 J -42946248.26 -42946248.07 -42946247.87 0.0519 0.0057  
 Moon -122292-07-21 16:06 J -42945527.96 -42945527.83 -42945527.69 0.0505 0.0411  
 Earth -122292-07-21 19:42 J -42945527.81 -42945527.68 -42945527.54 0.0505 0.0412 \*  
 Mercury -122291-08-24 17:03 J -42945128.97 -42945128.79 -42945128.61 0.0500 0.0022  
 Mars -122289-01-30 15:08 J -42944605.01 -42944604.87 -42944604.73 0.0500 0.0416  
 Venus -122288-06-02 19:42 J -42944115.83 -42944115.68 -42944115.52 0.0505 0.0338  
 Venus -122287-01-26 10:34 J -42943878.22 -42943878.06 -42943877.90 0.0509 0.0327  
 Mercury -122285-07-22 06:01 J -42942970.37 -42942970.25 -42942970.12 0.0525 0.0183  
 Mercury -122285-10-19 12:30 J -42942881.08 -42942880.98 -42942880.87 0.0526 0.0281  
 Venus -122282-04-06 12:01 J -42941982.18 -42941982.00 -42941981.83 0.0520 0.0238



Venus -122282-11-28 21:08 J -42941745.73 -42941745.62 -42941745.50 0.0516 0.0415  
 Mercury -122279-06-12 14:39 J -42940819.07 -42940818.89 -42940818.71 0.0500 0.0121  
 Mercury -122279-09-11 00:15 J -42940728.54 -42940728.49 -42940728.43 0.0500 0.0471  
 Venus -122276-10-01 04:20 J -42939612.52 -42939612.32 -42939612.12 0.0508 0.0146  
 Mercury -122273-05-10 10:06 J -42938660.19 -42938660.08 -42938659.98 0.0524 0.0298  
 Mercury -122273-08-07 16:34 J -42938570.93 -42938570.81 -42938570.69 0.0525 0.0164  
 Mars -122271-01-09 11:32 J -42938051.31 -42938051.02 -42938050.73 0.0525 0.0019  
 Venus -122271-12-10 11:46 J -42937716.12 -42937716.01 -42937715.90 0.0521 0.0421  
 Venus -122270-08-03 21:22 J -42937479.79 -42937479.61 -42937479.44 0.0517 0.0236  
 Mercury -122267-03-31 12:30 J -42936509.13 -42936508.98 -42936508.82 0.0501 0.0261  
 Mercury -122267-06-29 22:06 J -42936418.72 -42936418.58 -42936418.44 0.0500 0.0331  
 Venus -122264-06-05 21:22 J -42935346.82 -42935346.61 -42935346.40 0.0506 0.0039  
 Mercury -122261-02-27 13:56 J -42934349.99 -42934349.92 -42934349.84 0.0524 0.0414  
 Mercury -122261-05-26 20:39 J -42934260.77 -42934260.64 -42934260.51 0.0525 0.0049  
 Mercury -122261-08-24 02:54 J -42934171.41 -42934171.38 -42934171.35 0.0526 0.0507  
 Venus -122258-04-08 22:34 J -42933213.75 -42933213.56 -42933213.36 0.0519 0.0057  
 Mercury -122255-01-17 10:34 J -42932199.16 -42932199.06 -42932198.95 0.0501 0.0397  
 Mercury -122255-04-17 19:56 J -42932108.84 -42932108.67 -42932108.50 0.0500 0.0191  
 Mars -122254-11-04 08:25 J -42931543.41 -42931543.15 -42931542.89 0.0500 0.0066  
 Venus -122252-02-08 13:56 J -42931081.11 -42931080.92 -42931080.73 0.0505 0.0221  
 Venus -122252-10-04 04:06 J -42930843.43 -42930843.33 -42930843.23 0.0509 0.0443  
 Moon -122250-01-24 02:54 J -42930366.60 -42930366.38 -42930366.16 0.0519 0.0081  
 Earth -122250-01-24 05:18 J -42930366.51 -42930366.28 -42930366.06 0.0519 0.0106 \*  
 Mercury -122249-03-15 00:44 J -42929950.60 -42929950.47 -42929950.35 0.0525 0.0068  
 Mercury -122249-06-12 06:58 J -42929861.29 -42929861.21 -42929861.13 0.0526 0.0394  
 Venus -122247-12-13 00:15 J -42928947.68 -42928947.49 -42928947.30 0.0520 0.0124  
 Mercury -122243-02-03 17:32 J -42927798.95 -42927798.77 -42927798.58 0.0500 0.0050  
 Venus -122241-10-14 07:27 J -42926815.32 -42926815.19 -42926815.07 0.0504 0.0401  
 Venus -122240-06-08 21:22 J -42926577.79 -42926577.61 -42926577.43 0.0508 0.0262  
 Earth -122238-01-28 23:32 J -42925978.68 -42925978.52 -42925978.36 0.0520 0.0360

Moon -122238-01-29 02:54 J -42925978.53 -42925978.38 -42925978.21 0.0520 0.0361 \*  
 Mercury -122237-01-02 05:03 J -42925640.41 -42925640.29 -42925640.17 0.0525 0.0174  
 Mercury -122237-03-31 11:32 J -42925551.12 -42925551.02 -42925550.91 0.0526 0.0288  
 Mars -122236-10-17 17:18 J -42924985.81 -42924985.78 -42924985.72 0.0525 0.0518  
 Venus -122235-08-18 01:42 J -42924681.59 -42924681.43 -42924681.27 0.0521 0.0303  
 Venus -122234-04-11 11:03 J -42924445.18 -42924445.04 -42924444.89 0.0516 0.0354  
 Moon -122233-07-11 12:15 J -42923988.03 -42923987.99 -42923987.92 0.0507 0.0492  
 Mercury -122232-11-22 13:42 J -42923489.11 -42923488.93 -42923488.75 0.0500 0.0109  
 Mercury -122231-02-20 23:18 J -42923398.57 -42923398.53 -42923398.48 0.0500 0.0483  
 Venus -122228-02-11 13:27 J -42922312.15 -42922311.94 -42922311.73 0.0508 0.0078  
 Mercury -122226-10-21 09:37 J -42921330.21 -42921330.10 -42921329.99 0.0525 0.0283  
 Mercury -122225-01-18 16:06 J -42921240.95 -42921240.83 -42921240.71 0.0526 0.0181  
 Venus -122223-04-23 03:08 J -42920415.44 -42920415.37 -42920415.30 0.0521 0.0483  
 Venus -122223-12-15 12:30 J -42920179.17 -42920178.98 -42920178.79 0.0517 0.0175  
 Earth -122221-07-16 10:49 J -42919600.28 -42919600.05 -42919599.81 0.0506 0.0081  
 Moon -122221-07-16 11:18 J -42919600.25 -42919600.03 -42919599.80 0.0506 0.0101 \*  
 Mercury -122220-09-10 11:18 J -42919179.19 -42919179.03 -42919178.87 0.0501 0.0252  
 Mercury -122220-12-09 20:39 J -42919088.77 -42919088.64 -42919088.50 0.0500 0.0339  
 Mars -122218-08-08 16:49 J -42918482.02 -42918481.80 -42918481.58 0.0501 0.0274  
 Venus -122217-10-17 06:58 J -42918046.42 -42918046.21 -42918046.00 0.0506 0.0105  
 Mercury -122214-08-09 13:27 J -42917020.02 -42917019.94 -42917019.86 0.0524 0.0399  
 Mercury -122214-11-06 20:10 J -42916930.79 -42916930.66 -42916930.53 0.0525 0.0065  
 Mercury -122213-02-04 02:25 J -42916841.41 -42916841.40 -42916841.39 0.0526 0.0522  
 Venus -122211-08-20 12:30 J -42915913.17 -42915912.98 -42915912.78 0.0519 0.0010  
 Earth -122209-07-21 05:46 J -42915212.42 -42915212.26 -42915212.09 0.0506 0.0360  
 Moon -122209-07-21 09:37 J -42915212.27 -42915212.10 -42915211.93 0.0506 0.0359 \*  
 Mercury -122208-06-29 09:08 J -42914869.23 -42914869.12 -42914869.00 0.0501 0.0391  
 Mercury -122208-09-27 18:30 J -42914778.90 -42914778.73 -42914778.56 0.0500 0.0197  
 Venus -122205-06-22 00:30 J -42913780.66 -42913780.48 -42913780.31 0.0505 0.0287  
 Venus -122204-02-14 14:54 J -42913543.02 -42913542.88 -42913542.74 0.0509 0.0381

Mercury -122202-05-28 17:18 J -42912709.80 -42912709.78 -42912709.75 0.0524 0.0515

Mercury -122202-08-26 00:15 J -42912620.62 -42912620.49 -42912620.36 0.0525 0.0052

Mercury -122202-11-23 06:30 J -42912531.31 -42912531.23 -42912531.15 0.0526 0.0409

Venus -122199-04-25 13:27 J -42911647.12 -42911646.94 -42911646.76 0.0520 0.0193

Venus -122199-12-17 22:49 J -42911410.62 -42911410.55 -42911410.46 0.0516 0.0464

Mercury -122196-07-16 16:20 J -42910469.00 -42910468.82 -42910468.64 0.0500 0.0058

Venus -122193-02-25 17:03 J -42909514.86 -42909514.79 -42909514.71 0.0504 0.0467

Venus -122193-10-20 07:13 J -42909277.39 -42909277.20 -42909277.00 0.0508 0.0196

Mercury -122190-06-14 04:06 J -42908310.45 -42908310.33 -42908310.21 0.0525 0.0168

Mercury -122190-09-11 10:34 J -42908221.17 -42908221.06 -42908220.96 0.0526 0.0294

Venus -122188-12-29 14:39 J -42907381.02 -42907380.89 -42907380.75 0.0521 0.0374

Venus -122187-08-23 00:44 J -42907144.64 -42907144.47 -42907144.31 0.0517 0.0288

Mercury -122184-05-04 13:56 J -42906159.10 -42906158.92 -42906158.74 0.0500 0.0085

Venus -122181-06-25 00:15 J -42905011.70 -42905011.49 -42905011.28 0.0507 0.0011

Mercury -122178-04-02 08:25 J -42904000.26 -42904000.15 -42904000.04 0.0525 0.0277

Mercury -122178-06-30 15:08 J -42903910.99 -42903910.87 -42903910.75 0.0526 0.0187

Venus -122175-04-28 02:10 J -42902878.60 -42902878.41 -42902878.22 0.0518 0.0110

Mercury -122172-02-20 10:20 J -42901849.23 -42901849.07 -42901848.91 0.0500 0.0241

Mercury -122172-05-21 19:27 J -42901758.81 -42901758.69 -42901758.55 0.0500 0.0349

Venus -122169-02-28 15:22 J -42900746.06 -42900745.86 -42900745.66 0.0506 0.0176

Venus -122169-10-23 06:15 J -42900508.28 -42900508.24 -42900508.18 0.0510 0.0496

Earth -122167-01-23 18:44 J -42900050.94 -42900050.72 -42900050.50 0.0519 0.0155

Moon -122167-01-23 21:08 J -42900050.85 -42900050.62 -42900050.39 0.0519 0.0131 \*

Mercury -122166-01-19 12:44 J -42899690.05 -42899689.97 -42899689.88 0.0525 0.0387

Mercury -122166-04-18 19:27 J -42899600.81 -42899600.69 -42899600.56 0.0526 0.0080

Venus -122163-01-01 03:37 J -42898612.55 -42898612.35 -42898612.16 0.0519 0.0073

Mercury -122161-12-09 07:56 J -42897539.29 -42897539.17 -42897539.06 0.0501 0.0384

Mercury -122160-03-09 17:03 J -42897448.96 -42897448.79 -42897448.62 0.0500 0.0203

Venus -122158-11-03 08:39 J -42896480.28 -42896480.14 -42896479.98 0.0505 0.0357

Venus -122157-06-27 23:46 J -42896242.67 -42896242.51 -42896242.35 0.0509 0.0314

Moon -122155-01-28 08:25 J -42895663.33 -42895663.15 -42895662.96 0.0520 0.0310  
 Earth -122155-01-28 11:46 J -42895663.19 -42895663.01 -42895662.82 0.0520 0.0307 \*  
 Mercury -122155-11-07 16:49 J -42895379.84 -42895379.80 -42895379.77 0.0524 0.0503  
 Mercury -122154-02-04 23:32 J -42895290.65 -42895290.52 -42895290.39 0.0525 0.0038  
 Mercury -122154-05-05 05:46 J -42895201.33 -42895201.26 -42895201.18 0.0526 0.0422  
 Mars -122153-06-28 16:20 J -42894781.07 -42894780.82 -42894780.57 0.0526 0.0276  
 Venus -122152-09-06 03:22 J -42894346.53 -42894346.36 -42894346.19 0.0520 0.0260  
 Venus -122151-04-30 12:30 J -42894110.10 -42894109.98 -42894109.86 0.0516 0.0400  
 Mercury -122149-12-26 14:39 J -42893139.07 -42893138.89 -42893138.71 0.0500 0.0061  
 Venus -122145-03-02 17:03 J -42891976.99 -42891976.79 -42891976.59 0.0508 0.0129  
 Mercury -122143-11-24 03:22 J -42890980.48 -42890980.36 -42890980.23 0.0525 0.0156  
 Mercury -122142-02-21 09:51 J -42890891.19 -42890891.09 -42890890.98 0.0526 0.0307  
 Venus -122140-05-12 03:37 J -42890080.45 -42890080.35 -42890080.24 0.0522 0.0443  
 Venus -122139-01-03 13:13 J -42889844.13 -42889843.95 -42889843.77 0.0517 0.0220  
 Moon -122138-07-16 19:56 J -42889284.90 -42889284.67 -42889284.43 0.0507 0.0149  
 Earth -122138-07-16 20:39 J -42889284.87 -42889284.64 -42889284.42 0.0507 0.0135 \*  
 Mercury -122137-10-14 12:30 J -42888829.16 -42888828.98 -42888828.80 0.0501 0.0079  
 Mars -122135-04-26 10:49 J -42888270.27 -42888270.05 -42888269.83 0.0500 0.0269  
 Venus -122134-11-06 09:22 J -42887711.32 -42887711.11 -42887710.90 0.0506 0.0057  
 Mercury -122131-09-12 07:13 J -42886670.31 -42886670.20 -42886670.09 0.0525 0.0273  
 Mercury -122131-12-10 13:42 J -42886581.04 -42886580.93 -42886580.80 0.0526 0.0192  
 Venus -122128-09-08 14:39 J -42885578.09 -42885577.89 -42885577.70 0.0519 0.0039  
 Moon -122126-07-21 12:58 J -42884897.15 -42884896.96 -42884896.77 0.0506 0.0302  
 Earth -122126-07-21 16:34 J -42884896.99 -42884896.81 -42884896.62 0.0506 0.0311 \*  
 Mercury -122125-08-02 10:06 J -42884519.24 -42884519.08 -42884518.91 0.0501 0.0221  
 Mercury -122125-10-31 19:27 J -42884428.81 -42884428.69 -42884428.56 0.0500 0.0370  
 Venus -122122-07-12 01:56 J -42883445.60 -42883445.42 -42883445.23 0.0505 0.0242  
 Venus -122121-03-05 16:20 J -42883207.93 -42883207.82 -42883207.71 0.0509 0.0429  
 Mercury -122119-07-01 11:32 J -42882360.11 -42882360.02 -42882359.93 0.0525 0.0383  
 Mercury -122119-09-28 18:15 J -42882270.87 -42882270.74 -42882270.61 0.0526 0.0081

Mars -122117-04-05 20:10 J -42881715.92 -42881715.66 -42881715.40 0.0525 0.0225  
 Venus -122116-05-14 16:20 J -42881312.00 -42881311.82 -42881311.63 0.0520 0.0142  
 Venus -122115-01-06 01:27 J -42881075.44 -42881075.44 -42881075.44 0.0515 0.0515  
 Mercury -122113-05-21 06:30 J -42880209.35 -42880209.23 -42880209.11 0.0500 0.0376  
 Mercury -122113-08-19 15:37 J -42880119.01 -42880118.85 -42880118.68 0.0500 0.0210  
 Venus -122110-03-16 16:20 J -42879179.92 -42879179.82 -42879179.70 0.0504 0.0429  
 Venus -122110-11-09 07:27 J -42878942.37 -42878942.19 -42878942.00 0.0509 0.0243  
 Mercury -122107-04-19 15:51 J -42878049.88 -42878049.84 -42878049.80 0.0525 0.0496  
 Mercury -122107-07-17 22:34 J -42877960.69 -42877960.56 -42877960.43 0.0526 0.0031  
 Mercury -122107-10-15 05:03 J -42877871.36 -42877871.29 -42877871.22 0.0526 0.0432  
 Venus -122104-01-17 17:46 J -42877045.91 -42877045.76 -42877045.61 0.0521 0.0325  
 Venus -122104-09-11 02:39 J -42876809.53 -42876809.39 -42876809.24 0.0516 0.0338  
 Mercury -122101-06-07 12:58 J -42875809.14 -42875808.96 -42875808.78 0.0500 0.0065  
 Mars -122099-01-28 13:13 J -42875209.21 -42875208.95 -42875208.69 0.0500 0.0061  
 Venus -122098-07-15 00:30 J -42874676.68 -42874676.48 -42874676.27 0.0507 0.0058  
 Mercury -122095-05-06 02:39 J -42873650.52 -42873650.39 -42873650.27 0.0525 0.0147  
 Mercury -122095-08-03 08:54 J -42873561.23 -42873561.13 -42873561.02 0.0526 0.0317  
 Venus -122093-09-22 17:03 J -42872779.83 -42872779.79 -42872779.75 0.0522 0.0511  
 Venus -122092-05-17 02:25 J -42872543.59 -42872543.40 -42872543.21 0.0518 0.0153  
 Mercury -122089-03-26 10:34 J -42871499.24 -42871499.06 -42871498.88 0.0500 0.0079  
 Venus -122086-03-19 18:01 J -42870410.96 -42870410.75 -42870410.55 0.0506 0.0128  
 Moon -122084-01-23 00:44 J -42869735.68 -42869735.47 -42869735.27 0.0519 0.0207  
 Earth -122084-01-23 02:54 J -42869735.58 -42869735.38 -42869735.17 0.0519 0.0221 \*  
 Mercury -122083-02-22 06:30 J -42869340.34 -42869340.23 -42869340.12 0.0525 0.0263  
 Mercury -122083-05-22 12:58 J -42869251.08 -42869250.96 -42869250.84 0.0525 0.0200  
 Venus -122080-01-20 02:54 J -42868277.58 -42868277.38 -42868277.19 0.0519 0.0033  
 Mercury -122077-01-13 08:10 J -42867189.32 -42867189.16 -42867189.00 0.0501 0.0220  
 Mercury -122077-04-12 17:46 J -42867098.88 -42867098.76 -42867098.64 0.0500 0.0371  
 Venus -122075-11-22 10:20 J -42866145.24 -42866145.07 -42866144.90 0.0505 0.0312  
 Venus -122074-07-18 00:30 J -42865907.62 -42865907.48 -42865907.33 0.0509 0.0360

Earth -122072-01-27 17:18 J -42865347.98 -42865347.78 -42865347.57 0.0520 0.0229  
 Moon -122072-01-27 20:39 J -42865347.84 -42865347.64 -42865347.44 0.0520 0.0238 \*  
 Mercury -122072-12-11 10:06 J -42865030.17 -42865030.08 -42865029.99 0.0524 0.0383  
 Mercury -122071-03-10 16:49 J -42864940.93 -42864940.80 -42864940.67 0.0525 0.0082  
 Venus -122069-09-25 03:51 J -42864011.52 -42864011.34 -42864011.16 0.0520 0.0216  
 Venus -122068-05-19 13:13 J -42863775.04 -42863774.95 -42863774.85 0.0516 0.0447  
 Mercury -122066-11-01 05:46 J -42862879.38 -42862879.26 -42862879.13 0.0501 0.0362  
 Mercury -122065-01-30 15:08 J -42862789.04 -42862788.87 -42862788.71 0.0500 0.0226  
 Mars -122064-11-02 04:06 J -42862147.47 -42862147.33 -42862147.18 0.0500 0.0414  
 Venus -122063-07-28 02:39 J -42861879.42 -42861879.39 -42861879.35 0.0504 0.0495  
 Venus -122062-03-22 17:03 J -42861641.99 -42861641.79 -42861641.59 0.0508 0.0173  
 Mercury -122060-09-29 14:10 J -42860719.95 -42860719.91 -42860719.87 0.0524 0.0495  
 Mercury -122060-12-27 21:08 J -42860630.75 -42860630.62 -42860630.49 0.0525 0.0030  
 Mercury -122059-03-27 03:22 J -42860541.42 -42860541.36 -42860541.28 0.0526 0.0432  
 Venus -122057-05-31 05:32 J -42859745.39 -42859745.27 -42859745.14 0.0521 0.0397  
 Venus -122056-01-22 14:54 J -42859509.05 -42859508.88 -42859508.71 0.0517 0.0270  
 Earth -122055-07-16 02:39 J -42858969.60 -42858969.39 -42858969.16 0.0506 0.0206  
 Moon -122055-07-16 03:22 J -42858969.57 -42858969.36 -42858969.15 0.0506 0.0212 \*  
 Mercury -122054-11-18 11:18 J -42858479.21 -42858479.03 -42858478.85 0.0500 0.0069  
 Venus -122051-11-25 07:27 J -42857376.40 -42857376.19 -42857375.98 0.0507 0.0018  
 Mercury -122048-10-16 01:13 J -42856320.57 -42856320.45 -42856320.32 0.0526 0.0143  
 Mercury -122047-01-13 07:56 J -42856231.27 -42856231.17 -42856231.07 0.0526 0.0321  
 Venus -122045-09-27 16:06 J -42855243.02 -42855242.83 -42855242.63 0.0518 0.0088  
 Earth -122043-07-20 20:39 J -42854581.85 -42854581.64 -42854581.43 0.0505 0.0233  
 Moon -122043-07-21 00:15 J -42854581.70 -42854581.49 -42854581.27 0.0505 0.0224 \*  
 Mercury -122042-09-06 08:25 J -42854169.33 -42854169.15 -42854168.96 0.0500 0.0079  
 Venus -122039-07-31 00:15 J -42853110.68 -42853110.49 -42853110.30 0.0506 0.0204  
 Venus -122038-03-25 15:22 J -42852872.93 -42852872.86 -42852872.78 0.0510 0.0473  
 Mercury -122036-08-04 05:18 J -42852010.40 -42852010.28 -42852010.17 0.0525 0.0260  
 Mercury -122036-11-01 11:46 J -42851921.13 -42851921.01 -42851920.89 0.0526 0.0204

Venus -122033-06-02 15:22 J -42850977.05 -42850976.86 -42850976.67 0.0519 0.0103

Mercury -122030-06-25 05:46 J -42849859.42 -42849859.26 -42849859.09 0.0500 0.0223

Mercury -122030-09-23 15:08 J -42849768.99 -42849768.87 -42849768.74 0.0500 0.0368

Venus -122027-04-04 17:46 J -42848844.89 -42848844.76 -42848844.62 0.0504 0.0387

Venus -122027-11-28 08:25 J -42848607.32 -42848607.15 -42848606.97 0.0509 0.0289

Mercury -122024-05-23 08:54 J -42847700.21 -42847700.13 -42847700.04 0.0524 0.0377

Mercury -122024-08-20 15:37 J -42847610.97 -42847610.85 -42847610.72 0.0525 0.0090

Venus -122021-02-06 15:22 J -42846711.02 -42846710.86 -42846710.70 0.0521 0.0291

Venus -122021-09-30 00:30 J -42846474.61 -42846474.48 -42846474.34 0.0516 0.0376

Mercury -122018-04-13 03:37 J -42845549.48 -42845549.35 -42845549.23 0.0501 0.0365

Mercury -122018-07-12 12:44 J -42845459.13 -42845458.97 -42845458.81 0.0500 0.0223

Mars -122017-10-16 02:54 J -42844997.41 -42844997.38 -42844997.33 0.0499 0.0492

Venus -122015-08-03 00:15 J -42844341.69 -42844341.49 -42844341.28 0.0507 0.0100

Mercury -122012-03-11 12:30 J -42843390.01 -42843389.98 -42843389.94 0.0524 0.0498

Mercury -122012-06-08 19:27 J -42843300.82 -42843300.69 -42843300.56 0.0525 0.0034

Mercury -122012-09-06 01:42 J -42843211.50 -42843211.43 -42843211.35 0.0526 0.0428

Venus -122010-10-12 15:37 J -42842444.92 -42842444.85 -42842444.77 0.0522 0.0475

Venus -122009-06-05 01:27 J -42842208.62 -42842208.44 -42842208.26 0.0518 0.0195

Mercury -122006-04-30 10:06 J -42841149.26 -42841149.08 -42841148.90 0.0500 0.0078

Venus -122003-04-07 16:20 J -42840076.02 -42840075.82 -42840075.61 0.0506 0.0090

Earth -122001-01-23 05:46 J -42839420.44 -42839420.26 -42839420.07 0.0519 0.0309

Moon -122001-01-23 08:10 J -42839420.35 -42839420.16 -42839419.96 0.0519 0.0299 \*

# 122ND MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 122nd millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-122000-03-27 23:32 J	-42838990.64	-42838990.52	-42838990.39	0.0525	0.0146		
Mercury	-122000-06-25 06:01 J	-42838901.35	-42838901.25	-42838901.15	0.0526	0.0317		
Mars	-121999-09-23 02:39 J	-42838446.67	-42838446.39	-42838446.10	0.0526	0.0112		
Venus	-121997-02-09 03:08 J	-42837942.56	-42837942.37	-42837942.17	0.0519	0.0018		
Mercury	-121994-02-16 06:30 J	-42836839.41	-42836839.23	-42836839.05	0.0500	0.0077		
Venus	-121992-12-11 06:15 J	-42835810.42	-42835810.24	-42835810.07	0.0505	0.0281		
Venus	-121991-08-05 20:54 J	-42835572.75	-42835572.63	-42835572.49	0.0509	0.0398		
Moon	-121989-01-27 18:01 J	-42835032.97	-42835032.75	-42835032.52	0.0520	0.0157		
Earth	-121989-01-27 21:22 J	-42835032.83	-42835032.61	-42835032.39	0.0520	0.0143	*	
Mercury	-121988-01-14 03:37 J	-42834680.46	-42834680.35	-42834680.24	0.0525	0.0261		
Mercury	-121988-04-13 10:20 J	-42834591.19	-42834591.07	-42834590.95	0.0526	0.0205		
Venus	-121986-10-15 04:20 J	-42833676.50	-42833676.32	-42833676.13	0.0520	0.0173		
Venus	-121985-06-07 13:13 J	-42833440.01	-42833439.95	-42833439.89	0.0515	0.0490		
Mercury	-121983-12-05 03:37 J	-42832529.51	-42832529.35	-42832529.18	0.0500	0.0224		
Mercury	-121982-03-05 12:58 J	-42832439.08	-42832438.96	-42832438.84	0.0499	0.0365		
Mars	-121981-07-20 01:13 J	-42831936.70	-42831936.45	-42831936.20	0.0499	0.0171		
Venus	-121980-08-15 23:03 J	-42831544.62	-42831544.54	-42831544.46	0.0504	0.0464		
Venus	-121979-04-10 13:56 J	-42831307.11	-42831306.92	-42831306.73	0.0508	0.0210		
Mercury	-121977-11-02 07:27 J	-42830370.28	-42830370.19	-42830370.10	0.0525	0.0378		
Mercury	-121976-01-30 14:10 J	-42830281.04	-42830280.91	-42830280.78	0.0526	0.0087		
Venus	-121974-06-20 02:53 J	-42829410.51	-42829410.38	-42829410.24	0.0521	0.0365		
Venus	-121973-02-11 12:01 J	-42829174.15	-42829174.00	-42829173.84	0.0517	0.0305		
Moon	-121972-07-15 03:22 J	-42828654.56	-42828654.36	-42828654.15	0.0507	0.0287		
Earth	-121972-07-15 04:05 J	-42828654.52	-42828654.33	-42828654.13	0.0507	0.0290	*	



Mercury -121971-09-23 00:44 J -42828219.58 -42828219.47 -42828219.34 0.0501 0.0371

Mercury -121971-12-22 10:05 J -42828129.25 -42828129.08 -42828128.92 0.0500 0.0217

Venus -121968-12-14 06:58 J -42827041.42 -42827041.21 -42827041.00 0.0507 0.0023

Mercury -121965-08-21 11:17 J -42826060.07 -42826060.03 -42826059.99 0.0524 0.0496

Mercury -121965-11-18 18:01 J -42825970.88 -42825970.75 -42825970.62 0.0525 0.0031

Mercury -121964-02-16 00:29 J -42825881.55 -42825881.48 -42825881.41 0.0526 0.0430

Mars -121963-06-30 17:46 J -42825381.97 -42825381.76 -42825381.55 0.0525 0.0365

Venus -121962-10-17 12:15 J -42824908.19 -42824907.99 -42824907.80 0.0518 0.0119

Moon -121960-07-19 18:01 J -42824266.98 -42824266.75 -42824266.53 0.0506 0.0128

Earth -121960-07-19 21:37 J -42824266.82 -42824266.60 -42824266.37 0.0506 0.0148 \*

Mercury -121959-10-10 07:13 J -42823819.38 -42823819.20 -42823819.01 0.0500 0.0072

Venus -121956-08-18 22:49 J -42822775.75 -42822775.55 -42822775.35 0.0505 0.0165

Mercury -121953-09-06 21:37 J -42821660.72 -42821660.60 -42821660.48 0.0525 0.0152

Mercury -121953-12-05 04:05 J -42821571.43 -42821571.33 -42821571.23 0.0526 0.0311

Venus -121950-06-22 12:29 J -42820642.18 -42820641.98 -42820641.79 0.0520 0.0068

Mercury -121947-07-29 04:34 J -42819509.49 -42819509.31 -42819509.13 0.0500 0.0075

Mars -121945-04-23 09:37 J -42818875.34 -42818875.10 -42818874.85 0.0500 0.0175

Venus -121944-04-23 14:39 J -42818510.03 -42818509.89 -42818509.73 0.0504 0.0353

Venus -121944-12-17 05:03 J -42818272.45 -42818272.29 -42818272.13 0.0508 0.0325

Mercury -121941-06-26 01:41 J -42817350.54 -42817350.43 -42817350.32 0.0525 0.0268

Mercury -121941-09-23 08:10 J -42817261.27 -42817261.16 -42817261.04 0.0526 0.0198

Venus -121938-02-25 14:10 J -42816376.08 -42816375.91 -42816375.74 0.0521 0.0252

Venus -121938-10-19 23:32 J -42816139.64 -42816139.52 -42816139.41 0.0516 0.0418

Mercury -121935-05-17 01:13 J -42815199.61 -42815199.45 -42815199.28 0.0500 0.0227

Mercury -121935-08-15 10:34 J -42815109.19 -42815109.06 -42815108.93 0.0499 0.0361

Venus -121932-08-21 18:44 J -42814006.92 -42814006.72 -42814006.51 0.0507 0.0131

Mercury -121929-04-14 05:32 J -42813040.36 -42813040.27 -42813040.18 0.0525 0.0385

Mercury -121929-07-12 12:15 J -42812951.11 -42812950.99 -42812950.86 0.0526 0.0083

Venus -121927-10-31 14:53 J -42812109.98 -42812109.88 -42812109.77 0.0522 0.0438

Venus -121926-06-25 00:15 J -42811873.66 -42811873.49 -42811873.31 0.0517 0.0235

Mercury -121923-03-04 22:34 J -42810889.68 -42810889.56 -42810889.44 0.0500 0.0373

Mercury -121923-06-03 07:27 J -42810799.35 -42810799.19 -42810799.02 0.0499 0.0212

Venus -121920-04-26 11:32 J -42809741.23 -42809741.02 -42809740.81 0.0506 0.0060

Moon -121918-01-22 04:05 J -42809105.45 -42809105.33 -42809105.18 0.0519 0.0412

Earth -121918-01-22 06:15 J -42809105.38 -42809105.24 -42809105.10 0.0519 0.0407 \*

Mercury -121917-02-01 09:22 J -42808730.15 -42808730.11 -42808730.08 0.0525 0.0502

Mercury -121917-04-30 16:20 J -42808640.95 -42808640.82 -42808640.70 0.0526 0.0039

Mercury -121917-07-28 22:34 J -42808551.63 -42808551.56 -42808551.48 0.0526 0.0427

Venus -121914-02-27 23:03 J -42807607.74 -42807607.54 -42807607.35 0.0519 0.0045

Mercury -121911-03-22 04:20 J -42806489.50 -42806489.32 -42806489.14 0.0500 0.0062

Venus -121909-12-30 04:20 J -42805475.50 -42805475.32 -42805475.13 0.0505 0.0245

Venus -121908-08-24 19:27 J -42805237.80 -42805237.69 -42805237.59 0.0509 0.0437

Earth -121906-01-26 23:03 J -42804717.77 -42804717.54 -42804717.31 0.0520 0.0052

Moon -121906-01-27 02:25 J -42804717.62 -42804717.40 -42804717.17 0.0520 0.0076 \*

Mercury -121905-02-17 20:10 J -42804330.79 -42804330.66 -42804330.54 0.0525 0.0153

Mercury -121905-05-17 02:39 J -42804241.50 -42804241.39 -42804241.29 0.0526 0.0310

Venus -121903-11-02 22:34 J -42803341.74 -42803341.56 -42803341.37 0.0520 0.0147

Mercury -121899-01-08 01:27 J -42802179.61 -42802179.44 -42802179.25 0.0500 0.0086

Venus -121897-09-03 20:39 J -42801209.75 -42801209.64 -42801209.53 0.0504 0.0429

Venus -121896-04-29 11:03 J -42800972.22 -42800972.04 -42800971.86 0.0508 0.0248

Moon -121894-01-31 12:44 J -42800330.07 -42800329.97 -42800329.86 0.0520 0.0464

Earth -121894-01-31 12:44 J -42800330.03 -42800329.97 -42800329.90 0.0520 0.0498 \*

Mercury -121894-12-06 23:32 J -42800020.63 -42800020.52 -42800020.41 0.0525 0.0276

Mercury -121893-03-05 06:15 J -42799931.36 -42799931.24 -42799931.12 0.0526 0.0189

Venus -121891-07-08 22:20 J -42799075.72 -42799075.57 -42799075.42 0.0521 0.0335

Venus -121890-03-02 07:56 J -42798839.31 -42798839.17 -42798839.02 0.0517 0.0339

Earth -121889-07-14 04:34 J -42798339.46 -42798339.31 -42798339.15 0.0507 0.0380

Moon -121889-07-14 06:29 J -42798339.38 -42798339.23 -42798339.06 0.0507 0.0362 \*

Mercury -121888-10-26 22:49 J -42797869.71 -42797869.55 -42797869.38 0.0500 0.0230

Mercury -121887-01-25 08:10 J -42797779.28 -42797779.16 -42797779.03 0.0500 0.0360

Venus -121884-01-02 02:25 J -42796706.61 -42796706.40 -42796706.19 0.0506 0.0056  
 Mercury -121882-09-25 03:22 J -42795710.44 -42795710.36 -42795710.27 0.0525 0.0393  
 Mercury -121882-12-23 10:05 J -42795621.20 -42795621.08 -42795620.95 0.0526 0.0075  
 Mars -121880-03-10 08:39 J -42795178.23 -42795178.14 -42795178.03 0.0527 0.0491  
 Venus -121879-03-13 23:32 J -42794809.53 -42794809.52 -42794809.50 0.0523 0.0520  
 Venus -121879-11-05 09:37 J -42794573.29 -42794573.10 -42794572.91 0.0518 0.0157  
 Earth -121877-07-18 23:03 J -42793951.78 -42793951.54 -42793951.31 0.0506 0.0061  
 Moon -121877-07-19 01:56 J -42793951.66 -42793951.42 -42793951.18 0.0506 0.0032 \*  
 Mercury -121876-08-14 19:56 J -42793559.79 -42793559.67 -42793559.55 0.0500 0.0378  
 Mercury -121876-11-13 04:49 J -42793469.47 -42793469.30 -42793469.13 0.0499 0.0207  
 Venus -121873-09-06 16:05 J -42792441.03 -42792440.83 -42792440.62 0.0505 0.0139  
 Mercury -121870-07-14 07:13 J -42791400.23 -42791400.20 -42791400.18 0.0525 0.0512  
 Mercury -121870-10-11 14:10 J -42791311.04 -42791310.91 -42791310.78 0.0526 0.0046  
 Mercury -121869-01-08 20:39 J -42791221.72 -42791221.64 -42791221.57 0.0527 0.0419  
 Venus -121867-07-11 10:20 J -42790307.26 -42790307.07 -42790306.87 0.0519 0.0032  
 Earth -121865-07-23 16:05 J -42789563.87 -42789563.83 -42789563.78 0.0505 0.0495  
 Mercury -121864-09-01 01:56 J -42789159.61 -42789159.42 -42789159.24 0.0499 0.0059  
 Mars -121862-01-09 05:17 J -42788664.42 -42788664.28 -42788664.13 0.0499 0.0416  
 Venus -121861-05-12 08:25 J -42788175.30 -42788175.15 -42788174.98 0.0504 0.0327  
 Venus -121860-01-04 23:17 J -42787937.68 -42787937.53 -42787937.38 0.0509 0.0355  
 Mercury -121858-07-30 18:01 J -42787000.87 -42787000.75 -42787000.63 0.0525 0.0161  
 Mercury -121858-10-28 00:29 J -42786911.58 -42786911.48 -42786911.37 0.0526 0.0303  
 Venus -121855-03-16 08:53 J -42786041.31 -42786041.13 -42786040.95 0.0520 0.0224  
 Venus -121855-11-07 17:46 J -42785804.85 -42785804.76 -42785804.66 0.0516 0.0447  
 Mercury -121852-06-19 22:34 J -42784849.74 -42784849.56 -42784849.38 0.0500 0.0095  
 Mercury -121852-09-18 07:56 J -42784759.18 -42784759.17 -42784759.15 0.0499 0.0497  
 Venus -121849-09-09 16:34 J -42783672.01 -42783671.81 -42783671.61 0.0507 0.0168  
 Mercury -121846-05-18 21:51 J -42782690.70 -42782690.59 -42782690.48 0.0525 0.0278  
 Mercury -121846-08-16 04:34 J -42782601.43 -42782601.31 -42782601.19 0.0526 0.0187  
 Mars -121845-12-16 02:25 J -42782113.69 -42782113.40 -42782113.11 0.0526 0.0005

Venus -121844-11-19 08:10 J -42781775.27 -42781775.16 -42781775.04 0.0522 0.0415  
 Venus -121843-07-13 17:32 J -42781538.94 -42781538.77 -42781538.60 0.0517 0.0262  
 Mercury -121840-04-07 19:41 J -42780539.84 -42780539.68 -42780539.52 0.0500 0.0241  
 Mercury -121840-07-07 05:03 J -42780449.42 -42780449.29 -42780449.16 0.0500 0.0349  
 Venus -121837-05-15 08:10 J -42779406.37 -42779406.16 -42779405.95 0.0506 0.0023  
 Earth -121835-01-21 04:20 J -42778790.34 -42778790.32 -42778790.28 0.0518 0.0512  
 Mercury -121834-03-07 01:13 J -42778380.53 -42778380.45 -42778380.36 0.0524 0.0401  
 Mercury -121834-06-04 08:10 J -42778291.29 -42778291.16 -42778291.04 0.0525 0.0066  
 Mercury -121834-09-01 14:25 J -42778201.91 -42778201.90 -42778201.89 0.0526 0.0523  
 Venus -121831-03-18 17:46 J -42777272.96 -42777272.76 -42777272.57 0.0519 0.0075  
 Mercury -121828-01-24 17:03 J -42776229.90 -42776229.79 -42776229.67 0.0501 0.0386  
 Mercury -121828-04-25 02:10 J -42776139.58 -42776139.41 -42776139.24 0.0500 0.0201  
 Mars -121827-10-13 10:05 J -42775603.33 -42775603.08 -42775602.82 0.0499 0.0077  
 Venus -121825-01-18 23:32 J -42775140.71 -42775140.52 -42775140.32 0.0505 0.0214  
 Venus -121825-09-12 14:10 J -42774902.99 -42774902.91 -42774902.83 0.0509 0.0469  
 Moon -121823-01-25 17:03 J -42774403.01 -42774402.79 -42774402.57 0.0519 0.0039  
 Earth -121823-01-25 19:27 J -42774402.91 -42774402.69 -42774402.46 0.0519 0.0063 \*  
 Mercury -121823-12-24 05:03 J -42774070.30 -42774070.29 -42774070.28 0.0524 0.0520  
 Mercury -121822-03-23 12:01 J -42773981.13 -42773981.00 -42773980.87 0.0525 0.0054  
 Mercury -121822-06-20 18:29 J -42773891.81 -42773891.73 -42773891.65 0.0526 0.0409  
 Venus -121820-11-21 18:58 J -42773006.90 -42773006.71 -42773006.52 0.0520 0.0113  
 Mercury -121816-02-10 23:03 J -42771829.72 -42771829.54 -42771829.36 0.0500 0.0051  
 Venus -121814-09-23 13:41 J -42770875.05 -42770874.93 -42770874.80 0.0504 0.0405  
 Venus -121813-05-18 03:51 J -42770637.51 -42770637.34 -42770637.16 0.0508 0.0275  
 Earth -121811-01-30 09:22 J -42770015.26 -42770015.11 -42770014.96 0.0521 0.0385  
 Moon -121811-01-30 12:58 J -42770015.10 -42770014.96 -42770014.81 0.0521 0.0389 \*  
 Mercury -121810-01-09 15:51 J -42769670.97 -42769670.84 -42769670.72 0.0526 0.0172  
 Mercury -121810-04-08 22:20 J -42769581.67 -42769581.57 -42769581.46 0.0526 0.0293  
 Mars -121809-09-22 21:08 J -42769048.72 -42769048.62 -42769048.50 0.0526 0.0484  
 Venus -121808-07-27 19:41 J -42768740.84 -42768740.68 -42768740.52 0.0521 0.0302

Venus -121807-03-21 05:17 J -42768504.41 -42768504.28 -42768504.14 0.0517 0.0376  
 Moon -121806-07-14 00:58 J -42768024.57 -42768024.46 -42768024.34 0.0507 0.0441  
 Earth -121806-07-14 04:49 J -42768024.38 -42768024.30 -42768024.20 0.0507 0.0468 \*  
 Mercury -121805-11-29 20:10 J -42767519.84 -42767519.66 -42767519.48 0.0500 0.0097  
 Mercury -121804-02-28 05:32 J -42767429.30 -42767429.27 -42767429.24 0.0499 0.0492  
 Venus -121801-01-21 20:10 J -42766371.87 -42766371.66 -42766371.45 0.0507 0.0085  
 Mercury -121799-10-28 19:41 J -42765360.79 -42765360.68 -42765360.57 0.0525 0.0288  
 Mercury -121798-01-26 02:25 J -42765271.52 -42765271.40 -42765271.28 0.0526 0.0178  
 Venus -121796-04-01 18:01 J -42764474.81 -42764474.75 -42764474.68 0.0522 0.0493  
 Venus -121796-11-24 03:37 J -42764238.53 -42764238.35 -42764238.16 0.0518 0.0185  
 Earth -121794-07-18 18:01 J -42763636.98 -42763636.75 -42763636.51 0.0506 0.0047  
 Moon -121794-07-18 19:56 J -42763636.90 -42763636.67 -42763636.45 0.0506 0.0052 \*  
 Mercury -121793-09-17 16:34 J -42763209.96 -42763209.81 -42763209.65 0.0500 0.0251  
 Mercury -121793-12-17 01:41 J -42763119.56 -42763119.43 -42763119.29 0.0500 0.0339  
 Mars -121791-07-17 10:05 J -42762542.29 -42762542.08 -42762541.85 0.0500 0.0258  
 Venus -121790-09-26 13:27 J -42762106.14 -42762105.94 -42762105.73 0.0506 0.0104  
 Mercury -121787-08-16 23:32 J -42761050.60 -42761050.52 -42761050.44 0.0525 0.0404  
 Mercury -121787-11-14 06:29 J -42760961.36 -42760961.23 -42760961.11 0.0525 0.0064  
 Mercury -121786-02-11 12:44 J -42760871.98 -42760871.97 -42760871.96 0.0526 0.0522  
 Venus -121784-07-30 03:22 J -42759972.56 -42759972.36 -42759972.16 0.0519 0.0006  
 Earth -121782-07-23 10:34 J -42759249.20 -42759249.06 -42759248.90 0.0505 0.0388  
 Moon -121782-07-23 13:41 J -42759249.10 -42759248.93 -42759248.77 0.0505 0.0369 \*  
 Mercury -121781-07-06 13:56 J -42758900.03 -42758899.92 -42758899.81 0.0501 0.0397  
 Mercury -121781-10-04 22:49 J -42758809.72 -42758809.55 -42758809.38 0.0500 0.0191  
 Venus -121778-06-01 05:32 J -42757840.44 -42757840.27 -42757840.09 0.0504 0.0291  
 Venus -121777-01-24 19:56 J -42757602.80 -42757602.67 -42757602.53 0.0508 0.0393  
 Mercury -121775-09-02 09:51 J -42756651.22 -42756651.09 -42756650.96 0.0525 0.0062  
 Mercury -121775-11-30 16:20 J -42756561.90 -42756561.82 -42756561.74 0.0526 0.0401  
 Venus -121772-04-04 03:08 J -42755706.55 -42755706.37 -42755706.19 0.0521 0.0197  
 Venus -121772-11-26 12:29 J -42755470.05 -42755469.98 -42755469.90 0.0516 0.0478

Mercury -121769-07-23 20:10 J -42754499.84 -42754499.66 -42754499.48 0.0500 0.0044

Venus -121766-02-03 21:22 J -42753574.67 -42753574.61 -42753574.54 0.0503 0.0478

Venus -121766-09-29 11:32 J -42753337.21 -42753337.02 -42753336.82 0.0507 0.0201

Mercury -121763-06-21 13:41 J -42752341.05 -42752340.93 -42752340.81 0.0525 0.0179

Mercury -121763-09-18 20:25 J -42752251.76 -42752251.65 -42752251.55 0.0526 0.0285

Venus -121761-12-08 03:51 J -42751440.46 -42751440.34 -42751440.20 0.0522 0.0385

Venus -121760-08-01 13:56 J -42751204.08 -42751203.92 -42751203.76 0.0518 0.0297

Mercury -121757-05-11 17:17 J -42750189.95 -42750189.78 -42750189.60 0.0500 0.0104

Mercury -121757-08-10 02:39 J -42750099.42 -42750099.39 -42750099.35 0.0499 0.0487

Venus -121754-06-04 01:41 J -42749071.65 -42749071.43 -42749071.22 0.0506 0.0011

Mercury -121751-04-09 17:32 J -42748030.88 -42748030.77 -42748030.67 0.0525 0.0299

Mercury -121751-07-08 00:15 J -42747941.61 -42747941.49 -42747941.37 0.0526 0.0168

Venus -121748-04-06 15:08 J -42746938.07 -42746937.87 -42746937.68 0.0519 0.0110

Mercury -121745-02-28 14:39 J -42745880.05 -42745879.89 -42745879.73 0.0500 0.0250

Mercury -121745-05-28 23:32 J -42745789.65 -42745789.52 -42745789.38 0.0499 0.0338

Venus -121742-02-06 18:01 J -42744805.95 -42744805.75 -42744805.55 0.0505 0.0185

Venus -121742-10-02 08:39 J -42744568.17 -42744568.14 -42744568.10 0.0509 0.0500

Moon -121740-01-24 15:51 J -42744088.06 -42744087.84 -42744087.62 0.0519 0.0185

Earth -121740-01-24 18:01 J -42744087.97 -42744087.75 -42744087.54 0.0519 0.0165 \*

Mercury -121739-01-26 21:22 J -42743720.69 -42743720.61 -42743720.53 0.0525 0.0413

Mercury -121739-04-26 04:20 J -42743631.45 -42743631.32 -42743631.19 0.0526 0.0055

Mercury -121739-07-24 10:34 J -42743542.08 -42743542.06 -42743542.03 0.0526 0.0514

Venus -121737-12-10 13:27 J -42742672.13 -42742671.94 -42742671.75 0.0520 0.0084

Mercury -121734-12-17 10:49 J -42741570.15 -42741570.05 -42741569.94 0.0501 0.0405

Mercury -121733-03-16 19:56 J -42741479.84 -42741479.67 -42741479.50 0.0500 0.0182

Venus -121731-10-12 11:17 J -42740540.17 -42740540.03 -42740539.89 0.0504 0.0371

Venus -121730-06-07 01:56 J -42740302.59 -42740302.42 -42740302.26 0.0508 0.0315

Moon -121728-01-29 09:08 J -42739700.28 -42739700.12 -42739699.94 0.0520 0.0330

Earth -121728-01-29 11:46 J -42739700.19 -42739700.01 -42739699.82 0.0520 0.0298 \*

Mercury -121727-02-12 08:25 J -42739321.28 -42739321.15 -42739321.02 0.0525 0.0062

Mercury -121727-05-12 14:53 J -42739231.96 -42739231.88 -42739231.80 0.0526 0.0401  
 Mars -121726-06-03 05:03 J -42738845.48 -42738845.29 -42738845.09 0.0526 0.0385  
 Venus -121725-08-15 13:13 J -42738406.11 -42738405.95 -42738405.78 0.0521 0.0276  
 Venus -121724-04-08 22:34 J -42738169.68 -42738169.56 -42738169.43 0.0517 0.0403  
 Mercury -121721-01-03 17:03 J -42737169.97 -42737169.79 -42737169.61 0.0500 0.0034  
 Venus -121718-02-09 18:01 J -42736036.96 -42736036.75 -42736036.55 0.0507 0.0124  
 Mercury -121716-12-01 11:46 J -42735011.13 -42735011.01 -42735010.88 0.0525 0.0184  
 Mercury -121715-02-28 18:29 J -42734921.84 -42734921.73 -42734921.62 0.0526 0.0280  
 Venus -121713-04-20 12:29 J -42734140.06 -42734139.98 -42734139.89 0.0522 0.0466  
 Venus -121713-12-12 22:20 J -42733903.74 -42733903.57 -42733903.39 0.0518 0.0217  
 Moon -121711-07-17 13:13 J -42733322.18 -42733321.95 -42733321.72 0.0507 0.0113  
 Earth -121711-07-17 17:03 J -42733322.02 -42733321.79 -42733321.57 0.0507 0.0142 \*  
 Mercury -121710-10-22 14:25 J -42732860.07 -42732859.90 -42732859.72 0.0500 0.0111  
 Mercury -121709-01-20 23:46 J -42732769.55 -42732769.51 -42732769.46 0.0500 0.0481  
 Mars -121708-04-03 13:27 J -42732331.13 -42732330.94 -42732330.73 0.0499 0.0322  
 Venus -121707-10-15 09:37 J -42731771.30 -42731771.10 -42731770.89 0.0505 0.0070  
 Mercury -121704-09-19 15:37 J -42730700.95 -42730700.85 -42730700.74 0.0525 0.0302  
 Mercury -121704-12-17 22:20 J -42730611.69 -42730611.57 -42730611.45 0.0526 0.0163  
 Venus -121701-08-17 23:46 J -42729637.71 -42729637.51 -42729637.32 0.0520 0.0030  
 Earth -121699-07-22 12:15 J -42728934.17 -42728933.99 -42728933.79 0.0506 0.0305  
 Moon -121699-07-22 13:56 J -42728934.10 -42728933.92 -42728933.72 0.0506 0.0280 \*  
 Mercury -121698-08-10 12:01 J -42728550.15 -42728550.00 -42728549.84 0.0500 0.0254  
 Mercury -121698-11-08 21:08 J -42728459.75 -42728459.62 -42728459.48 0.0499 0.0334  
 Venus -121695-06-20 00:15 J -42727505.67 -42727505.49 -42727505.31 0.0504 0.0262  
 Venus -121694-02-12 14:25 J -42727268.01 -42727267.90 -42727267.79 0.0508 0.0424  
 Mercury -121692-07-08 19:13 J -42726390.77 -42726390.70 -42726390.62 0.0525 0.0422  
 Mercury -121692-10-06 02:10 J -42726301.54 -42726301.41 -42726301.28 0.0526 0.0046  
 Mercury -121691-01-03 08:39 J -42726212.17 -42726212.14 -42726212.11 0.0527 0.0507  
 Mars -121690-03-11 00:44 J -42725780.75 -42725780.47 -42725780.19 0.0526 0.0109  
 Venus -121689-04-23 00:44 J -42725371.65 -42725371.47 -42725371.28 0.0521 0.0161

Mercury -121686-05-29 09:22 J -42724240.21 -42724240.11 -42724240.00 0.0500 0.0399

Mercury -121686-08-27 18:15 J -42724149.91 -42724149.74 -42724149.57 0.0500 0.0186

Venus -121683-02-22 17:03 J -42723239.88 -42723239.79 -42723239.70 0.0503 0.0449

Venus -121683-10-18 07:13 J -42723002.39 -42723002.20 -42723002.01 0.0507 0.0234

Mercury -121680-07-25 06:15 J -42721991.36 -42721991.24 -42721991.11 0.0525 0.0070

Mercury -121680-10-22 12:58 J -42721902.05 -42721901.96 -42721901.88 0.0526 0.0395

Venus -121678-12-27 23:32 J -42721105.66 -42721105.52 -42721105.37 0.0522 0.0353

Venus -121677-08-20 08:53 J -42720869.28 -42720869.13 -42720868.97 0.0517 0.0329

Mercury -121674-06-15 14:25 J -42719840.08 -42719839.90 -42719839.72 0.0500 0.0029

Mars -121672-01-05 13:27 J -42719270.20 -42719269.94 -42719269.68 0.0500 0.0015

Venus -121671-06-23 00:15 J -42718736.70 -42718736.49 -42718736.28 0.0506 0.0046

Mercury -121668-05-13 10:34 J -42717681.18 -42717681.06 -42717680.94 0.0525 0.0181

Mercury -121668-08-10 17:03 J -42717591.90 -42717591.79 -42717591.68 0.0526 0.0283

Venus -121665-04-25 09:22 J -42716603.30 -42716603.11 -42716602.92 0.0518 0.0141

Mercury -121662-04-03 11:32 J -42715530.19 -42715530.02 -42715529.84 0.0500 0.0119

Mercury -121662-07-02 20:53 J -42715439.67 -42715439.63 -42715439.57 0.0500 0.0475

Venus -121659-02-25 16:49 J -42714471.00 -42714470.80 -42714470.60 0.0505 0.0144

Earth -121657-01-24 20:39 J -42713772.84 -42713772.64 -42713772.44 0.0518 0.0253

Moon -121657-01-25 00:29 J -42713772.68 -42713772.48 -42713772.29 0.0518 0.0280 \*

Mercury -121656-03-01 14:10 J -42713371.02 -42713370.91 -42713370.81 0.0524 0.0302

Mercury -121656-05-29 20:53 J -42713281.76 -42713281.63 -42713281.51 0.0525 0.0164

Venus -121654-12-30 09:08 J -42712337.32 -42712337.12 -42712336.93 0.0520 0.0051

Mercury -121650-01-20 09:22 J -42711220.27 -42711220.11 -42711219.96 0.0501 0.0261

Mercury -121650-04-20 18:29 J -42711129.87 -42711129.73 -42711129.59 0.0500 0.0329

Venus -121648-10-31 08:53 J -42710205.28 -42710205.13 -42710204.96 0.0504 0.0334

Venus -121647-06-25 23:03 J -42709967.68 -42709967.54 -42709967.38 0.0508 0.0354

Moon -121645-01-29 10:05 J -42709385.30 -42709385.08 -42709384.86 0.0519 0.0202

Earth -121645-01-29 12:01 J -42709385.21 -42709385.00 -42709384.79 0.0519 0.0199 \*

Mercury -121645-12-18 17:46 J -42709060.83 -42709060.76 -42709060.68 0.0524 0.0421

Mercury -121644-03-18 00:44 J -42708971.60 -42708971.47 -42708971.34 0.0525 0.0046



Mercury -121644-06-15 06:58 J -42708882.24 -42708882.21 -42708882.17 0.0526 0.0505

Venus -121642-09-04 10:05 J -42708071.25 -42708071.08 -42708070.90 0.0521 0.0242

Venus -121641-04-27 19:56 J -42707834.77 -42707834.67 -42707834.56 0.0517 0.0442

Mercury -121639-11-08 07:13 J -42706910.31 -42706910.20 -42706910.09 0.0501 0.0401

Mercury -121638-02-06 15:51 J -42706820.00 -42706819.84 -42706819.66 0.0500 0.0186

Mars -121637-10-09 20:39 J -42706208.81 -42706208.64 -42706208.45 0.0500 0.0362

Venus -121635-02-28 14:10 J -42705702.11 -42705701.91 -42705701.71 0.0506 0.0159

Mercury -121632-01-04 04:34 J -42704661.44 -42704661.31 -42704661.19 0.0525 0.0074

Mercury -121632-04-03 11:03 J -42704572.13 -42704572.04 -42704571.96 0.0526 0.0391

Venus -121630-05-10 11:03 J -42703805.15 -42703805.04 -42703804.93 0.0523 0.0430

Venus -121629-01-01 21:22 J -42703568.78 -42703568.61 -42703568.44 0.0518 0.0258

Earth -121628-07-16 21:22 J -42703006.83 -42703006.61 -42703006.40 0.0507 0.0214

Moon -121628-07-16 21:37 J -42703006.82 -42703006.60 -42703006.37 0.0507 0.0203 \*

Mercury -121627-11-25 13:13 J -42702510.13 -42702509.95 -42702509.76 0.0500 0.0041

Venus -121624-11-03 06:58 J -42701436.42 -42701436.21 -42701436.00 0.0505 0.0032

Mercury -121621-10-23 08:39 J -42700351.26 -42700351.14 -42700351.02 0.0525 0.0184

Mercury -121620-01-20 15:22 J -42700261.97 -42700261.86 -42700261.75 0.0526 0.0280

Venus -121618-09-06 20:25 J -42699302.84 -42699302.65 -42699302.45 0.0519 0.0067

Moon -121616-07-21 06:44 J -42698619.43 -42698619.22 -42698619.01 0.0506 0.0220

Earth -121616-07-21 10:34 J -42698619.28 -42698619.06 -42698618.84 0.0506 0.0207 \*

Mercury -121615-09-13 09:22 J -42698200.29 -42698200.11 -42698199.93 0.0500 0.0119

Mercury -121615-12-12 18:44 J -42698109.77 -42698109.72 -42698109.66 0.0500 0.0473

Venus -121612-07-08 23:46 J -42697170.70 -42697170.51 -42697170.32 0.0505 0.0221

Venus -121611-03-03 14:39 J -42696932.96 -42696932.89 -42696932.81 0.0509 0.0471

Mercury -121609-08-11 12:58 J -42696041.07 -42696040.96 -42696040.85 0.0525 0.0295

Mercury -121609-11-08 19:41 J -42695951.80 -42695951.68 -42695951.56 0.0525 0.0169

Venus -121606-05-12 21:08 J -42695036.81 -42695036.62 -42695036.43 0.0520 0.0125

Mercury -121603-07-02 06:44 J -42693890.37 -42693890.22 -42693890.06 0.0501 0.0264

Mercury -121603-09-30 15:51 J -42693799.97 -42693799.84 -42693799.69 0.0500 0.0327

Venus -121600-03-13 17:03 J -42692904.92 -42692904.79 -42692904.67 0.0504 0.0407

Venus -121600-11-06 07:27 J -42692667.36 -42692667.19 -42692667.01 0.0508 0.0282  
 Mercury -121597-05-30 16:34 J -42691730.88 -42691730.81 -42691730.73 0.0524 0.0416  
 Mercury -121597-08-27 23:32 J -42691641.65 -42691641.52 -42691641.40 0.0525 0.0053  
 Mercury -121597-11-25 05:46 J -42691552.29 -42691552.26 -42691552.23 0.0526 0.0509  
 Venus -121594-01-15 20:39 J -42690770.79 -42690770.64 -42690770.48 0.0521 0.0319  
 Venus -121594-09-09 06:15 J -42690534.38 -42690534.24 -42690534.10 0.0517 0.0367  
 Mercury -121591-04-20 04:34 J -42689580.41 -42689580.31 -42689580.20 0.0501 0.0405  
 Mercury -121591-07-19 13:27 J -42689490.10 -42689489.94 -42689489.76 0.0500 0.0183  
 Venus -121588-07-11 23:46 J -42688401.72 -42688401.51 -42688401.31 0.0506 0.0089  
 Mercury -121585-06-16 03:22 J -42687331.49 -42687331.36 -42687331.23 0.0525 0.0068  
 Mercury -121585-09-13 09:51 J -42687242.18 -42687242.09 -42687242.01 0.0526 0.0395  
 Venus -121583-09-20 21:37 J -42686504.64 -42686504.60 -42686504.56 0.0523 0.0508  
 Venus -121582-05-15 07:41 J -42686268.36 -42686268.18 -42686267.99 0.0519 0.0181  
 Mercury -121579-05-07 11:17 J -42685180.21 -42685180.03 -42685179.84 0.0500 0.0042  
 Venus -121576-03-16 15:08 J -42684136.07 -42684135.87 -42684135.66 0.0505 0.0105  
 Moon -121574-01-23 22:49 J -42683457.72 -42683457.55 -42683457.38 0.0518 0.0329  
 Earth -121574-01-23 23:03 J -42683457.71 -42683457.54 -42683457.36 0.0518 0.0342 \*  
 Mercury -121573-04-04 07:13 J -42683021.32 -42683021.20 -42683021.08 0.0525 0.0185  
 Mercury -121573-07-02 13:41 J -42682932.03 -42682931.93 -42682931.82 0.0526 0.0279  
 Mars -121572-08-26 19:27 J -42682511.94 -42682511.69 -42682511.43 0.0527 0.0246  
 Venus -121570-01-18 09:08 J -42682002.31 -42682002.12 -42682001.92 0.0520 0.0009  
 Mercury -121567-02-23 08:53 J -42680870.31 -42680870.13 -42680869.95 0.0500 0.0103  
 Mercury -121567-05-24 18:15 J -42680779.77 -42680779.74 -42680779.70 0.0500 0.0488  
 Venus -121565-11-19 08:10 J -42679870.33 -42679870.16 -42679869.98 0.0504 0.0295  
 Venus -121564-07-14 22:20 J -42679632.69 -42679632.57 -42679632.43 0.0508 0.0396  
 Earth -121562-01-28 17:32 J -42679069.99 -42679069.77 -42679069.55 0.0519 0.0126  
 Moon -121562-01-28 21:08 J -42679069.84 -42679069.62 -42679069.39 0.0519 0.0097 \*  
 Mercury -121561-01-22 11:32 J -42678711.13 -42678711.02 -42678710.92 0.0525 0.0296  
 Mercury -121561-04-20 18:15 J -42678621.87 -42678621.74 -42678621.62 0.0526 0.0171  
 Venus -121559-09-23 09:08 J -42677736.30 -42677736.12 -42677735.94 0.0521 0.0199

Venus -121558-05-17 18:01 J -42677499.81 -42677499.75 -42677499.67 0.0516 0.0484  
 Mercury -121556-12-12 05:03 J -42676560.44 -42676560.29 -42676560.14 0.0501 0.0260  
 Mercury -121555-03-12 14:10 J -42676470.05 -42676469.91 -42676469.77 0.0500 0.0329  
 Mars -121554-06-28 05:32 J -42675997.50 -42675997.27 -42675997.03 0.0500 0.0209  
 Venus -121553-07-25 00:44 J -42675604.53 -42675604.47 -42675604.40 0.0504 0.0480  
 Venus -121552-03-19 15:22 J -42675367.05 -42675366.86 -42675366.66 0.0507 0.0209  
 Mercury -121550-11-10 15:37 J -42674400.92 -42674400.85 -42674400.76 0.0524 0.0407  
 Mercury -121549-02-07 22:34 J -42674311.69 -42674311.56 -42674311.43 0.0525 0.0060  
 Mercury -121549-05-07 05:03 J -42674222.31 -42674222.29 -42674222.28 0.0526 0.0520  
 Venus -121547-05-29 09:51 J -42673470.21 -42673470.09 -42673469.96 0.0522 0.0390  
 Venus -121546-01-20 18:58 J -42673233.86 -42673233.71 -42673233.54 0.0517 0.0298  
 Earth -121545-07-15 21:22 J -42672691.80 -42672691.61 -42672691.42 0.0507 0.0304  
 Moon -121545-07-16 00:58 J -42672691.63 -42672691.46 -42672691.28 0.0507 0.0333 \*  
 Mercury -121544-09-30 02:39 J -42672250.50 -42672250.39 -42672250.28 0.0501 0.0403  
 Mercury -121544-12-29 11:32 J -42672160.19 -42672160.02 -42672159.85 0.0500 0.0184  
 Venus -121541-11-22 08:39 J -42671101.35 -42671101.14 -42671100.93 0.0506 0.0018  
 Mercury -121538-11-27 02:25 J -42670001.53 -42670001.40 -42670001.27 0.0525 0.0058  
 Mercury -121537-02-24 08:53 J -42669912.21 -42669912.13 -42669912.05 0.0526 0.0403  
 Mars -121536-06-03 22:20 J -42669446.82 -42669446.57 -42669446.32 0.0525 0.0266  
 Venus -121535-09-25 19:27 J -42668967.88 -42668967.69 -42668967.50 0.0519 0.0107  
 Earth -121533-07-20 15:51 J -42668304.06 -42668303.84 -42668303.61 0.0506 0.0137  
 Moon -121533-07-20 16:20 J -42668304.05 -42668303.82 -42668303.59 0.0506 0.0162 \*  
 Mercury -121532-10-17 09:22 J -42667850.30 -42667850.11 -42667849.93 0.0500 0.0043  
 Venus -121529-07-28 01:13 J -42666835.64 -42666835.45 -42666835.25 0.0505 0.0175  
 Mercury -121526-09-15 06:15 J -42665691.36 -42665691.24 -42665691.12 0.0525 0.0175  
 Mercury -121526-12-13 12:44 J -42665602.07 -42665601.97 -42665601.86 0.0525 0.0289  
 Venus -121523-05-31 20:39 J -42664701.83 -42664701.64 -42664701.45 0.0520 0.0083  
 Mercury -121520-08-05 07:13 J -42663540.38 -42663540.20 -42663540.02 0.0500 0.0098  
 Mercury -121520-11-03 16:34 J -42663449.83 -42663449.81 -42663449.78 0.0500 0.0495  
 Mars -121518-04-01 17:03 J -42662936.04 -42662935.79 -42662935.54 0.0500 0.0147

Venus -121517-04-01 17:32 J -42662569.91 -42662569.77 -42662569.62 0.0503 0.0364

Venus -121517-11-25 07:27 J -42662332.35 -42662332.19 -42662332.02 0.0507 0.0327

Mercury -121514-07-04 10:05 J -42661381.19 -42661381.08 -42661380.97 0.0525 0.0293

Mercury -121514-10-01 16:49 J -42661291.92 -42661291.80 -42661291.68 0.0526 0.0173

Venus -121511-02-03 22:05 J -42660435.74 -42660435.58 -42660435.41 0.0522 0.0273

Venus -121511-09-28 07:56 J -42660199.29 -42660199.17 -42660199.05 0.0517 0.0416

Mercury -121508-05-24 05:03 J -42659230.45 -42659230.29 -42659230.13 0.0501 0.0240

Mercury -121508-08-22 13:56 J -42659140.04 -42659139.92 -42659139.78 0.0500 0.0351

Venus -121505-07-31 00:29 J -42658066.68 -42658066.48 -42658066.27 0.0506 0.0135

Mercury -121502-04-22 14:25 J -42657070.98 -42657070.90 -42657070.82 0.0524 0.0402

Mercury -121502-07-20 21:22 J -42656981.74 -42656981.61 -42656981.49 0.0525 0.0066

Mercury -121502-10-18 03:37 J -42656892.35 -42656892.35 -42656892.34 0.0526 0.0524

Venus -121500-10-09 22:34 J -42656169.64 -42656169.56 -42656169.47 0.0522 0.0461

Venus -121499-06-03 07:56 J -42655933.34 -42655933.17 -42655932.99 0.0518 0.0229

Mercury -121496-03-12 01:13 J -42654920.56 -42654920.45 -42654920.34 0.0501 0.0396

Mercury -121496-06-10 10:05 J -42654830.25 -42654830.08 -42654829.91 0.0500 0.0191

Venus -121493-04-04 17:17 J -42653800.99 -42653800.78 -42653800.57 0.0506 0.0056

Moon -121491-01-23 08:25 J -42653142.32 -42653142.15 -42653141.98 0.0518 0.0358

Earth -121491-01-23 12:01 J -42653142.15 -42653142.00 -42653141.85 0.0518 0.0389 \*

Mercury -121490-02-08 18:44 J -42652760.74 -42652760.72 -42652760.69 0.0524 0.0512

Mercury -121490-05-09 01:41 J -42652671.56 -42652671.43 -42652671.30 0.0525 0.0046

Mercury -121490-08-06 08:10 J -42652582.23 -42652582.16 -42652582.08 0.0526 0.0417

Venus -121487-02-06 09:22 J -42651667.31 -42651667.11 -42651666.91 0.0519 0.0039

Mercury -121484-03-29 07:27 J -42650520.37 -42650520.19 -42650520.00 0.0500 0.0049

Venus -121482-12-09 10:34 J -42649535.24 -42649535.06 -42649534.87 0.0505 0.0245

Venus -121481-08-03 01:41 J -42649297.53 -42649297.43 -42649297.34 0.0509 0.0451

Moon -121479-01-28 04:49 J -42648754.52 -42648754.30 -42648754.08 0.0519 0.0059

Earth -121479-01-28 05:17 J -42648754.51 -42648754.28 -42648754.05 0.0519 0.0071 \*

Mercury -121478-02-25 05:32 J -42648361.39 -42648361.27 -42648361.14 0.0525 0.0163

Mercury -121478-05-25 12:15 J -42648272.10 -42648271.99 -42648271.89 0.0525 0.0301

Venus -121476-10-12 09:22 J -42647401.29 -42647401.11 -42647400.92 0.0520 0.0156

Mercury -121472-01-15 05:32 J -42646210.45 -42646210.27 -42646210.09 0.0501 0.0094

Mercury -121472-04-15 14:53 J -42646119.88 -42646119.88 -42646119.87 0.0500 0.0499

Venus -121470-08-14 03:51 J -42645269.44 -42645269.34 -42645269.23 0.0504 0.0433

Venus -121469-04-07 18:29 J -42645031.91 -42645031.73 -42645031.55 0.0507 0.0260

Moon -121467-02-02 01:13 J -42644366.47 -42644366.45 -42644366.42 0.0520 0.0517

Mercury -121467-12-14 09:37 J -42644051.21 -42644051.10 -42644050.99 0.0524 0.0279

Mercury -121466-03-13 16:05 J -42643961.95 -42643961.83 -42643961.71 0.0525 0.0186

Venus -121464-06-17 10:20 J -42643135.21 -42643135.07 -42643134.92 0.0522 0.0348

Venus -121463-02-08 19:56 J -42642898.81 -42642898.67 -42642898.52 0.0518 0.0345

Moon -121462-07-16 04:34 J -42642376.46 -42642376.31 -42642376.16 0.0508 0.0379

Earth -121462-07-16 07:27 J -42642376.35 -42642376.19 -42642376.02 0.0508 0.0357 \*

Mercury -121461-11-03 03:37 J -42641900.51 -42641900.35 -42641900.19 0.0501 0.0232

Mercury -121460-02-01 12:44 J -42641810.09 -42641809.97 -42641809.84 0.0500 0.0359

Venus -121458-12-12 10:20 J -42640766.28 -42640766.07 -42640765.86 0.0506 0.0066

Mercury -121455-10-02 13:13 J -42639741.03 -42639740.95 -42639740.86 0.0524 0.0397

Mercury -121455-12-30 20:10 J -42639651.79 -42639651.66 -42639651.53 0.0525 0.0070

Venus -121452-10-14 21:51 J -42638632.77 -42638632.59 -42638632.40 0.0519 0.0159

Earth -121450-07-21 03:22 J -42637988.59 -42637988.36 -42637988.13 0.0507 0.0091

Moon -121450-07-21 06:44 J -42637988.45 -42637988.22 -42637987.99 0.0507 0.0083 \*

Mercury -121449-08-22 01:27 J -42637590.56 -42637590.44 -42637590.32 0.0501 0.0372

Mercury -121449-11-20 10:20 J -42637500.23 -42637500.07 -42637499.90 0.0500 0.0216

Venus -121446-08-17 03:37 J -42636500.56 -42636500.35 -42636500.15 0.0505 0.0126

Mercury -121443-07-21 17:32 J -42635430.79 -42635430.77 -42635430.73 0.0524 0.0506

Mercury -121443-10-19 00:44 J -42635341.60 -42635341.47 -42635341.34 0.0525 0.0041

Mercury -121442-01-16 07:13 J -42635252.28 -42635252.20 -42635252.13 0.0526 0.0424

Venus -121440-06-19 22:49 J -42634366.75 -42634366.55 -42634366.35 0.0520 0.0031

Mercury -121437-09-08 06:29 J -42633190.41 -42633190.23 -42633190.05 0.0500 0.0057

Mars -121436-12-18 07:56 J -42632724.30 -42632724.17 -42632724.02 0.0500 0.0419

Venus -121434-04-21 19:41 J -42632234.85 -42632234.68 -42632234.52 0.0504 0.0317

Venus -121434-12-15 10:49 J -42631997.19 -42631997.05 -42631996.91 0.0508 0.0382  
 Mercury -121431-08-07 05:03 J -42631031.41 -42631031.29 -42631031.16 0.0525 0.0148  
 Mercury -121431-11-04 11:46 J -42630942.11 -42630942.01 -42630941.91 0.0526 0.0317  
 Venus -121428-02-23 00:15 J -42630100.66 -42630100.49 -42630100.31 0.0521 0.0223  
 Venus -121428-10-17 09:08 J -42629864.20 -42629864.12 -42629864.04 0.0516 0.0464  
 Mercury -121425-06-27 04:05 J -42628880.51 -42628880.33 -42628880.15 0.0501 0.0087  
 Venus -121423-12-25 13:13 J -42627968.96 -42627968.95 -42627968.94 0.0504 0.0503  
 Venus -121422-08-20 04:05 J -42627731.52 -42627731.33 -42627731.13 0.0507 0.0191  
 Mercury -121419-05-26 09:08 J -42626721.23 -42626721.12 -42626721.01 0.0524 0.0264  
 Mercury -121419-08-23 15:37 J -42626631.96 -42626631.85 -42626631.73 0.0525 0.0202  
 Mars -121418-11-21 21:37 J -42626176.89 -42626176.60 -42626176.31 0.0525 0.0043  
 Venus -121417-10-29 00:15 J -42625834.60 -42625834.49 -42625834.37 0.0522 0.0417  
 Venus -121416-06-22 09:22 J -42625598.27 -42625598.11 -42625597.94 0.0518 0.0277  
 Mercury -121413-04-15 01:56 J -42624570.57 -42624570.42 -42624570.25 0.0501 0.0227  
 Mercury -121413-07-14 11:17 J -42624480.15 -42624480.03 -42624479.91 0.0500 0.0365  
 Venus -121410-04-24 21:22 J -42623465.82 -42623465.61 -42623465.40 0.0506 0.0004  
 Earth -121408-01-22 22:34 J -42622826.67 -42622826.56 -42622826.44 0.0518 0.0445  
 Moon -121408-01-23 02:10 J -42622826.53 -42622826.41 -42622826.29 0.0518 0.0441 \*  
 Mercury -121407-03-14 12:58 J -42622411.05 -42622410.96 -42622410.87 0.0524 0.0380  
 Mercury -121407-06-11 19:41 J -42622321.81 -42622321.68 -42622321.55 0.0525 0.0086  
 Venus -121404-02-25 11:03 J -42621332.24 -42621332.04 -42621331.85 0.0519 0.0088  
 Mercury -121401-02-02 00:15 J -42620260.61 -42620260.49 -42620260.36 0.0501 0.0363  
 Mercury -121401-05-02 09:22 J -42620170.28 -42620170.11 -42620169.95 0.0500 0.0226  
 Mars -121400-09-21 23:32 J -42619662.78 -42619662.52 -42619662.26 0.0500 0.0056  
 Venus -121399-12-28 13:41 J -42619200.13 -42619199.93 -42619199.74 0.0504 0.0195  
 Venus -121398-08-23 04:20 J -42618962.35 -42618962.32 -42618962.29 0.0509 0.0503  
 Moon -121396-01-27 11:03 J -42618439.27 -42618439.04 -42618438.80 0.0519 0.0037  
 Earth -121396-01-27 14:39 J -42618439.12 -42618438.89 -42618438.66 0.0519 0.0011 \*  
 Mercury -121396-12-31 16:34 J -42618100.84 -42618100.81 -42618100.77 0.0524 0.0498  
 Mercury -121395-03-30 23:46 J -42618011.64 -42618011.51 -42618011.39 0.0525 0.0035

Mercury -121395-06-28 06:01 J -42617922.32 -42617922.25 -42617922.17 0.0526 0.0432

Venus -121393-10-31 12:44 J -42617066.16 -42617065.97 -42617065.78 0.0521 0.0103

Mercury -121390-11-20 22:20 J -42615950.57 -42615950.57 -42615950.57 0.0501 0.0501

Mercury -121389-02-19 06:58 J -42615860.39 -42615860.21 -42615860.03 0.0500 0.0084

Venus -121387-09-02 06:58 J -42614934.34 -42614934.21 -42614934.07 0.0504 0.0384

Venus -121386-04-27 21:22 J -42614696.77 -42614696.61 -42614696.44 0.0507 0.0313

Moon -121384-02-01 08:39 J -42614051.25 -42614051.14 -42614051.03 0.0520 0.0450

Earth -121384-02-01 09:37 J -42614051.19 -42614051.10 -42614051.02 0.0520 0.0479 \*

Mercury -121383-01-17 04:05 J -42613701.45 -42613701.33 -42613701.20 0.0525 0.0139

Mercury -121383-04-16 10:34 J -42613612.15 -42613612.06 -42613611.95 0.0526 0.0326

Mars -121382-08-30 07:41 J -42613111.27 -42613111.18 -42613111.06 0.0525 0.0487

Venus -121381-07-06 13:56 J -42612800.08 -42612799.92 -42612799.75 0.0521 0.0293

Venus -121380-02-27 23:03 J -42612563.66 -42612563.54 -42612563.42 0.0517 0.0399

Moon -121379-07-15 14:39 J -42612061.04 -42612060.89 -42612060.74 0.0507 0.0398

Earth -121379-07-15 15:51 J -42612060.97 -42612060.84 -42612060.71 0.0507 0.0420 \*

Mercury -121378-12-08 03:08 J -42611550.55 -42611550.37 -42611550.19 0.0500 0.0075

Venus -121375-12-31 13:13 J -42610431.15 -42610430.95 -42610430.74 0.0507 0.0120

Mercury -121372-11-05 08:39 J -42609391.26 -42609391.14 -42609391.03 0.0525 0.0248

Mercury -121371-02-02 15:22 J -42609301.98 -42609301.86 -42609301.75 0.0526 0.0218

Venus -121369-03-11 15:37 J -42608533.92 -42608533.85 -42608533.77 0.0522 0.0483

Venus -121369-11-03 00:44 J -42608297.65 -42608297.47 -42608297.29 0.0518 0.0212

Moon -121367-07-20 07:27 J -42607673.42 -42607673.19 -42607672.96 0.0506 0.0010

Earth -121367-07-20 10:05 J -42607673.31 -42607673.08 -42607672.84 0.0506 0.0025 \*

Mercury -121366-09-26 00:44 J -42607240.63 -42607240.47 -42607240.30 0.0501 0.0218

Mercury -121366-12-25 09:51 J -42607150.20 -42607150.09 -42607149.96 0.0500 0.0374

Mars -121364-06-26 05:03 J -42606601.49 -42606601.29 -42606601.07 0.0500 0.0297

Venus -121363-09-05 06:58 J -42606165.42 -42606165.21 -42606165.00 0.0506 0.0073

Mercury -121360-08-24 12:29 J -42605081.07 -42605080.98 -42605080.89 0.0524 0.0364

Mercury -121360-11-21 19:13 J -42604991.82 -42604991.70 -42604991.57 0.0525 0.0104

Venus -121357-07-09 00:58 J -42604031.65 -42604031.46 -42604031.26 0.0519 0.0021

Earth -121355-07-25 04:34 J -42603285.40 -42603285.31 -42603285.22 0.0506 0.0465  
 Moon -121355-07-25 07:56 J -42603285.23 -42603285.17 -42603285.10 0.0506 0.0484 \*  
 Mercury -121354-07-14 22:49 J -42602930.67 -42602930.55 -42602930.42 0.0501 0.0357  
 Mercury -121354-10-13 07:41 J -42602840.33 -42602840.18 -42602840.01 0.0500 0.0234  
 Venus -121351-05-11 00:15 J -42601899.66 -42601899.49 -42601899.30 0.0505 0.0265  
 Venus -121350-01-03 15:22 J -42601661.96 -42601661.86 -42601661.75 0.0508 0.0437  
 Mercury -121348-06-12 16:20 J -42600770.87 -42600770.82 -42600770.77 0.0524 0.0480  
 Mercury -121348-09-09 23:17 J -42600681.66 -42600681.53 -42600681.40 0.0525 0.0015  
 Mercury -121348-12-08 05:46 J -42600592.33 -42600592.26 -42600592.20 0.0526 0.0448  
 Venus -121345-03-14 02:10 J -42599765.59 -42599765.41 -42599765.22 0.0521 0.0176  
 Venus -121345-11-05 11:17 J -42599529.04 -42599529.03 -42599529.02 0.0516 0.0515  
 Mercury -121342-05-02 21:22 J -42598620.64 -42598620.61 -42598620.58 0.0501 0.0491  
 Mercury -121342-08-01 06:01 J -42598530.43 -42598530.25 -42598530.07 0.0500 0.0095  
 Venus -121339-01-13 17:03 J -42597633.87 -42597633.79 -42597633.69 0.0503 0.0453  
 Venus -121339-09-08 07:41 J -42597396.36 -42597396.18 -42597395.99 0.0507 0.0244  
 Mercury -121336-06-29 03:08 J -42596371.49 -42596371.37 -42596371.24 0.0525 0.0131  
 Mercury -121336-09-26 09:51 J -42596282.19 -42596282.09 -42596281.99 0.0526 0.0333  
 Venus -121334-11-18 03:37 J -42595499.49 -42595499.35 -42595499.21 0.0522 0.0366  
 Venus -121333-07-11 13:13 J -42595263.10 -42595262.95 -42595262.80 0.0518 0.0331  
 Mercury -121330-05-20 03:37 J -42594220.53 -42594220.35 -42594220.16 0.0501 0.0049  
 Venus -121327-05-14 00:44 J -42593130.68 -42593130.47 -42593130.26 0.0506 0.0050  
 Earth -121325-01-23 10:20 J -42592511.12 -42592511.07 -42592511.00 0.0518 0.0496  
 Mercury -121324-04-17 07:41 J -42592061.30 -42592061.18 -42592061.07 0.0525 0.0239  
 Mercury -121324-07-15 14:25 J -42591972.02 -42591971.90 -42591971.79 0.0526 0.0227  
 Venus -121321-03-16 14:53 J -42590997.07 -42590996.88 -42590996.69 0.0519 0.0144  
 Mercury -121318-03-08 00:01 J -42589910.66 -42589910.50 -42589910.33 0.0500 0.0205  
 Mercury -121318-06-06 09:08 J -42589820.23 -42589820.12 -42589820.00 0.0500 0.0386  
 Venus -121315-01-16 15:51 J -42588865.04 -42588864.84 -42588864.64 0.0505 0.0146  
 Earth -121313-01-28 05:32 J -42588123.50 -42588123.27 -42588123.04 0.0519 0.0031  
 Moon -121313-01-28 07:41 J -42588123.42 -42588123.18 -42588122.94 0.0519 0.0016 \*



Mercury -121312-02-03 12:01 J -42587751.09 -42587751.00 -42587750.90 0.0525 0.0349

Mercury -121312-05-03 18:58 J -42587661.84 -42587661.71 -42587661.59 0.0525 0.0119

Venus -121310-11-20 16:34 J -42586731.00 -42586730.81 -42586730.61 0.0520 0.0049

Mercury -121307-12-24 21:51 J -42585600.72 -42585600.59 -42585600.46 0.0501 0.0346

Mercury -121306-03-25 06:29 J -42585510.38 -42585510.23 -42585510.06 0.0500 0.0243

Venus -121304-09-21 09:37 J -42584599.26 -42584599.10 -42584598.94 0.0504 0.0336

Venus -121303-05-17 00:58 J -42584361.60 -42584361.46 -42584361.31 0.0508 0.0369

Moon -121301-02-01 19:56 J -42583735.78 -42583735.67 -42583735.55 0.0520 0.0451

Earth -121301-02-01 23:32 J -42583735.64 -42583735.52 -42583735.39 0.0520 0.0433 \*

Mercury -121301-11-22 15:51 J -42583440.89 -42583440.84 -42583440.78 0.0524 0.0465

Mercury -121300-02-19 22:49 J -42583351.68 -42583351.55 -42583351.42 0.0525 0.0013

Mercury -121300-05-20 05:17 J -42583262.34 -42583262.28 -42583262.22 0.0526 0.0464

Mars -121299-05-11 02:10 J -42582906.62 -42582906.41 -42582906.18 0.0526 0.0349

Venus -121298-07-26 16:34 J -42582464.98 -42582464.81 -42582464.63 0.0521 0.0244

Venus -121297-03-19 01:27 J -42582228.53 -42582228.44 -42582228.34 0.0517 0.0449

Earth -121296-07-15 02:25 J -42581745.48 -42581745.40 -42581745.31 0.0507 0.0471

Moon -121296-07-15 06:15 J -42581745.34 -42581745.24 -42581745.12 0.0507 0.0449 \*

Mercury -121295-10-12 19:41 J -42581290.71 -42581290.68 -42581290.63 0.0501 0.0486

Mercury -121294-01-11 04:34 J -42581200.49 -42581200.31 -42581200.13 0.0500 0.0101

Venus -121291-01-19 18:15 J -42580095.94 -42580095.74 -42580095.54 0.0507 0.0175

Mercury -121289-12-09 02:53 J -42579041.51 -42579041.38 -42579041.25 0.0525 0.0113

Mercury -121288-03-08 09:22 J -42578952.20 -42578952.11 -42578952.01 0.0525 0.0349

Venus -121286-03-31 17:32 J -42578198.88 -42578198.77 -42578198.67 0.0522 0.0438

Venus -121286-11-23 02:39 J -42577962.56 -42577962.39 -42577962.22 0.0518 0.0261

Moon -121284-07-19 18:15 J -42577357.98 -42577357.74 -42577357.49 0.0507 0.0009

Earth -121284-07-19 21:51 J -42577357.83 -42577357.59 -42577357.35 0.0507 0.0024 \*

Mercury -121283-10-30 02:39 J -42576890.58 -42576890.39 -42576890.21 0.0501 0.0040

Mars -121281-03-14 07:27 J -42576389.41 -42576389.19 -42576388.97 0.0500 0.0261

Venus -121280-09-24 10:49 J -42575830.26 -42575830.05 -42575829.84 0.0506 0.0020

Mercury -121277-09-27 06:44 J -42574731.34 -42574731.22 -42574731.11 0.0525 0.0232

Mercury -121277-12-25 13:13 J -42574642.06 -42574641.95 -42574641.83 0.0525 0.0235

Venus -121274-07-29 04:20 J -42573696.52 -42573696.32 -42573696.13 0.0519 0.0071

Moon -121272-07-24 17:17 J -42572969.92 -42572969.78 -42572969.64 0.0506 0.0398

Earth -121272-07-24 17:32 J -42572969.89 -42572969.77 -42572969.64 0.0506 0.0425 \*

Mercury -121271-08-18 00:29 J -42572580.65 -42572580.48 -42572580.31 0.0501 0.0180

Mercury -121271-11-16 09:37 J -42572490.20 -42572490.10 -42572490.00 0.0500 0.0412

Venus -121268-05-30 03:37 J -42571564.54 -42571564.35 -42571564.16 0.0505 0.0214

Venus -121267-01-22 18:29 J -42571326.78 -42571326.73 -42571326.67 0.0509 0.0490

Mercury -121265-07-16 11:03 J -42570421.14 -42570421.04 -42570420.94 0.0525 0.0341

Mercury -121265-10-13 17:46 J -42570331.88 -42570331.76 -42570331.63 0.0525 0.0126

Mars -121263-02-16 12:58 J -42569841.23 -42569840.96 -42569840.69 0.0526 0.0184

Venus -121262-04-03 06:29 J -42569430.42 -42569430.23 -42569430.04 0.0520 0.0119

Mercury -121259-06-05 20:53 J -42568270.76 -42568270.63 -42568270.49 0.0501 0.0334

Mercury -121259-09-04 05:32 J -42568180.42 -42568180.27 -42568180.11 0.0500 0.0254

Venus -121256-02-01 18:15 J -42567298.86 -42567298.74 -42567298.62 0.0504 0.0409

Venus -121256-09-27 09:37 J -42567061.26 -42567061.10 -42567060.92 0.0508 0.0296

Mercury -121253-05-04 15:22 J -42566110.93 -42566110.86 -42566110.80 0.0525 0.0453

Mercury -121253-08-01 22:20 J -42566021.70 -42566021.57 -42566021.44 0.0525 0.0019

Mercury -121253-10-30 04:49 J -42565932.35 -42565932.30 -42565932.25 0.0526 0.0478

Venus -121251-12-07 07:56 J -42565164.32 -42565164.17 -42565164.01 0.0521 0.0312

Venus -121250-07-31 16:34 J -42564927.94 -42564927.81 -42564927.68 0.0517 0.0385

Mercury -121247-03-24 18:44 J -42563960.77 -42563960.72 -42563960.67 0.0501 0.0475

Mercury -121247-06-23 03:08 J -42563870.54 -42563870.37 -42563870.19 0.0500 0.0109

Mars -121246-12-17 09:37 J -42563328.36 -42563328.10 -42563327.84 0.0500 0.0085

Venus -121244-06-02 02:53 J -42562795.59 -42562795.38 -42562795.17 0.0507 0.0101

Mercury -121241-05-21 02:10 J -42561711.53 -42561711.41 -42561711.28 0.0525 0.0101

Mercury -121241-08-18 08:53 J -42561622.22 -42561622.13 -42561622.04 0.0526 0.0364

Venus -121239-08-12 07:27 J -42560898.22 -42560898.19 -42560898.14 0.0522 0.0509

Venus -121238-04-05 17:03 J -42560661.98 -42560661.79 -42560661.61 0.0518 0.0193

Mercury -121235-04-11 00:58 J -42559560.64 -42559560.46 -42559560.28 0.0501 0.0033

Venus -121232-02-04 20:10 J -42558529.86 -42558529.66 -42558529.45 0.0506 0.0094

Earth -121230-01-27 16:49 J -42557808.03 -42557807.80 -42557807.58 0.0519 0.0085

Moon -121230-01-27 20:39 J -42557807.86 -42557807.64 -42557807.42 0.0519 0.0118 \*

Mercury -121229-03-09 06:15 J -42557401.36 -42557401.24 -42557401.12 0.0525 0.0216

Mercury -121229-06-06 12:44 J -42557312.08 -42557311.97 -42557311.85 0.0525 0.0249

Venus -121227-12-09 17:46 J -42556395.96 -42556395.76 -42556395.57 0.0520 0.0008

Mercury -121223-01-27 23:03 J -42555250.71 -42555250.54 -42555250.37 0.0501 0.0172

Mercury -121223-04-28 08:10 J -42555160.26 -42555160.16 -42555160.06 0.0500 0.0420

Venus -121221-10-10 12:58 J -42554264.13 -42554263.96 -42554263.78 0.0504 0.0286

Venus -121220-06-05 03:51 J -42554026.45 -42554026.34 -42554026.22 0.0508 0.0420

Moon -121218-02-01 06:44 J -42553420.38 -42553420.22 -42553420.06 0.0520 0.0372

Earth -121218-02-01 08:25 J -42553420.31 -42553420.15 -42553419.99 0.0520 0.0369 \*

Mercury -121218-12-27 09:51 J -42553091.19 -42553091.09 -42553090.99 0.0524 0.0336

Mercury -121217-03-25 16:49 J -42553001.93 -42553001.80 -42553001.68 0.0525 0.0132

Venus -121215-08-14 18:44 J -42552129.90 -42552129.72 -42552129.53 0.0521 0.0196

Venus -121214-04-08 04:05 J -42551893.37 -42551893.33 -42551893.29 0.0517 0.0501

Mercury -121212-11-15 20:53 J -42550940.77 -42550940.63 -42550940.49 0.0501 0.0313

Mercury -121211-02-14 05:46 J -42550850.41 -42550850.26 -42550850.11 0.0500 0.0276

Mars -121210-09-21 01:13 J -42550266.55 -42550266.45 -42550266.34 0.0500 0.0454

Venus -121209-06-15 05:32 J -42549998.32 -42549998.27 -42549998.19 0.0503 0.0478

Venus -121208-02-07 20:25 J -42549760.84 -42549760.65 -42549760.46 0.0507 0.0225

Mercury -121206-10-15 14:10 J -42548780.98 -42548780.91 -42548780.84 0.0524 0.0447

Mercury -121205-01-12 21:08 J -42548691.75 -42548691.62 -42548691.49 0.0525 0.0022

Mercury -121205-04-11 03:37 J -42548602.40 -42548602.35 -42548602.30 0.0526 0.0483

Venus -121203-04-19 20:53 J -42547863.75 -42547863.63 -42547863.49 0.0522 0.0386

Venus -121203-12-12 06:01 J -42547627.40 -42547627.25 -42547627.09 0.0518 0.0316

Earth -121201-07-19 06:58 J -42547042.45 -42547042.21 -42547041.98 0.0506 0.0083

Moon -121201-07-19 07:41 J -42547042.42 -42547042.18 -42547041.93 0.0506 0.0070 \*

Mercury -121200-09-03 17:32 J -42546630.83 -42546630.77 -42546630.70 0.0501 0.0466

Mercury -121200-12-03 02:10 J -42546540.59 -42546540.41 -42546540.24 0.0500 0.0119

Venus -121197-10-13 10:49 J -42545495.26 -42545495.05 -42545494.83 0.0506 0.0027

Mercury -121194-11-01 01:27 J -42544381.57 -42544381.44 -42544381.31 0.0525 0.0090

Mercury -121193-01-29 07:56 J -42544292.25 -42544292.17 -42544292.08 0.0526 0.0375

Venus -121191-08-17 07:41 J -42543361.37 -42543361.18 -42543360.99 0.0519 0.0125

Moon -121189-07-23 21:08 J -42542654.77 -42542654.62 -42542654.47 0.0505 0.0381

Earth -121189-07-24 00:44 J -42542654.64 -42542654.47 -42542654.30 0.0505 0.0357 \*

Mercury -121188-09-20 23:32 J -42542230.70 -42542230.52 -42542230.34 0.0500 0.0027

Venus -121185-06-18 03:51 J -42541229.53 -42541229.34 -42541229.14 0.0505 0.0170

Mercury -121182-08-20 05:17 J -42540071.40 -42540071.28 -42540071.16 0.0525 0.0207

Mercury -121182-11-17 12:01 J -42539982.11 -42539982.00 -42539981.89 0.0526 0.0259

Venus -121179-04-22 07:27 J -42539095.38 -42539095.19 -42539094.99 0.0520 0.0074

Mercury -121176-07-09 21:22 J -42537920.78 -42537920.61 -42537920.44 0.0501 0.0170

Mercury -121176-10-08 06:15 J -42537830.33 -42537830.24 -42537830.14 0.0500 0.0423

Venus -121173-02-21 21:37 J -42536963.75 -42536963.60 -42536963.45 0.0504 0.0362

Venus -121173-10-16 12:58 J -42536726.11 -42536725.96 -42536725.81 0.0508 0.0347

Mercury -121170-06-08 09:08 J -42535761.22 -42535761.12 -42535761.01 0.0524 0.0324

Mercury -121170-09-05 16:05 J -42535671.96 -42535671.83 -42535671.71 0.0525 0.0144

Venus -121168-12-26 07:56 J -42534829.34 -42534829.17 -42534829.01 0.0521 0.0271

Venus -121167-08-19 16:34 J -42534592.91 -42534592.81 -42534592.70 0.0517 0.0430

Mercury -121164-04-27 19:13 J -42533610.84 -42533610.70 -42533610.56 0.0501 0.0309

Mercury -121164-07-27 04:05 J -42533520.48 -42533520.33 -42533520.18 0.0500 0.0280

Mars -121163-09-04 10:05 J -42533116.15 -42533116.08 -42533116.01 0.0499 0.0480

Venus -121161-06-21 05:03 J -42532460.49 -42532460.29 -42532460.09 0.0507 0.0151

Mercury -121158-03-27 12:44 J -42531451.03 -42531450.97 -42531450.90 0.0524 0.0444

Mercury -121158-06-24 19:41 J -42531361.80 -42531361.68 -42531361.55 0.0525 0.0030

Mercury -121158-09-22 02:10 J -42531272.45 -42531272.41 -42531272.36 0.0526 0.0486

Venus -121156-08-31 08:25 J -42530563.23 -42530563.15 -42530563.06 0.0522 0.0466

Venus -121155-04-24 18:01 J -42530326.92 -42530326.75 -42530326.58 0.0518 0.0241

Mercury -121152-02-13 17:03 J -42529300.86 -42529300.79 -42529300.71 0.0501 0.0450

Mercury -121152-05-15 01:41 J -42529210.61 -42529210.43 -42529210.26 0.0500 0.0136

Venus -121149-02-24 21:22 J -42528194.82 -42528194.61 -42528194.40 0.0505 0.0047

Earth -121147-01-26 23:46 J -42527492.73 -42527492.51 -42527492.29 0.0519 0.0157

Moon -121147-01-27 00:44 J -42527492.69 -42527492.47 -42527492.26 0.0519 0.0135 \*

Mercury -121146-04-13 00:01 J -42527051.63 -42527051.50 -42527051.37 0.0525 0.0088

Mercury -121146-07-11 06:29 J -42526962.31 -42526962.23 -42526962.14 0.0526 0.0377

Mars -121145-08-05 06:01 J -42526571.52 -42526571.25 -42526570.97 0.0526 0.0149

Venus -121144-12-28 20:10 J -42526060.86 -42526060.66 -42526060.47 0.0519 0.0051

Mercury -121140-03-02 22:05 J -42524900.76 -42524900.58 -42524900.40 0.0500 0.0021

Venus -121138-10-30 11:17 J -42523929.21 -42523929.03 -42523928.85 0.0505 0.0248

Venus -121137-06-24 02:39 J -42523691.47 -42523691.39 -42523691.30 0.0509 0.0465

Earth -121135-01-31 16:34 J -42523104.99 -42523104.81 -42523104.62 0.0520 0.0302

Moon -121135-01-31 19:27 J -42523104.89 -42523104.69 -42523104.49 0.0520 0.0271 \*

Mercury -121134-01-30 04:05 J -42522741.45 -42522741.33 -42522741.21 0.0525 0.0202

Mercury -121134-04-29 10:49 J -42522652.16 -42522652.05 -42522651.93 0.0526 0.0266

Venus -121132-09-02 21:37 J -42521794.79 -42521794.60 -42521794.41 0.0520 0.0146

Mercury -121129-12-19 19:41 J -42520590.85 -42520590.68 -42520590.51 0.0500 0.0165

Mercury -121128-03-20 04:34 J -42520500.40 -42520500.31 -42520500.21 0.0499 0.0425

Mars -121127-06-08 08:25 J -42520055.39 -42520055.15 -42520054.89 0.0500 0.0143

Venus -121126-07-05 04:05 J -42519663.42 -42519663.33 -42519663.22 0.0504 0.0441

Venus -121125-02-27 19:41 J -42519425.86 -42519425.68 -42519425.50 0.0508 0.0269

Mercury -121123-11-18 08:10 J -42518431.27 -42518431.16 -42518431.06 0.0525 0.0318

Mercury -121122-02-15 14:53 J -42518342.00 -42518341.88 -42518341.75 0.0526 0.0150

Venus -121120-05-08 20:53 J -42517528.77 -42517528.63 -42517528.48 0.0521 0.0345

Venus -121120-12-31 05:32 J -42517292.41 -42517292.27 -42517292.13 0.0517 0.0359

Earth -121118-07-19 12:29 J -42516727.20 -42516726.98 -42516726.75 0.0506 0.0151

Moon -121118-07-19 16:05 J -42516727.05 -42516726.83 -42516726.60 0.0506 0.0179 \*

Mercury -121117-10-07 17:03 J -42516280.93 -42516280.79 -42516280.64 0.0501 0.0309

Mercury -121116-01-06 01:56 J -42516190.57 -42516190.42 -42516190.27 0.0500 0.0279

Venus -121114-11-02 12:58 J -42515160.17 -42515159.96 -42515159.76 0.0506 0.0074

Mercury -121111-09-06 11:46 J -42514121.07 -42514121.01 -42514120.93 0.0524 0.0436

Mercury -121111-12-04 18:44 J -42514031.84 -42514031.72 -42514031.59 0.0525 0.0038  
 Mercury -121110-03-04 01:13 J -42513942.49 -42513942.45 -42513942.40 0.0526 0.0494  
 Mars -121109-05-13 06:15 J -42513506.45 -42513506.24 -42513506.03 0.0525 0.0362  
 Venus -121108-09-05 06:01 J -42513026.43 -42513026.25 -42513026.06 0.0519 0.0164  
 Moon -121106-07-24 03:08 J -42512339.57 -42512339.37 -42512339.17 0.0506 0.0291  
 Earth -121106-07-24 06:01 J -42512339.44 -42512339.25 -42512339.05 0.0506 0.0289 \*  
 Mercury -121105-07-26 14:53 J -42511970.95 -42511970.88 -42511970.80 0.0501 0.0450  
 Mercury -121105-10-24 23:32 J -42511880.70 -42511880.52 -42511880.34 0.0500 0.0136  
 Venus -121102-07-08 05:03 J -42510894.50 -42510894.29 -42510894.09 0.0505 0.0124  
 Mercury -121099-09-22 22:34 J -42509721.69 -42509721.56 -42509721.44 0.0525 0.0089  
 Mercury -121099-12-21 05:03 J -42509632.38 -42509632.29 -42509632.20 0.0526 0.0376  
 Venus -121096-05-11 06:58 J -42508760.41 -42508760.21 -42508760.02 0.0520 0.0033  
 Mercury -121093-08-12 21:08 J -42507570.80 -42507570.62 -42507570.44 0.0500 0.0010  
 Mars -121091-03-12 18:15 J -42506993.97 -42506993.74 -42506993.50 0.0500 0.0221  
 Venus -121090-03-12 21:08 J -42506628.78 -42506628.62 -42506628.45 0.0504 0.0321  
 Venus -121090-11-05 12:15 J -42506391.12 -42506390.99 -42506390.86 0.0508 0.0391  
 Mercury -121087-07-12 02:39 J -42505411.51 -42505411.39 -42505411.27 0.0525 0.0203  
 Mercury -121087-10-09 09:22 J -42505322.22 -42505322.11 -42505322.00 0.0526 0.0264  
 Venus -121084-01-14 08:53 J -42504494.31 -42504494.13 -42504493.96 0.0521 0.0225  
 Venus -121084-09-07 17:32 J -42504257.84 -42504257.77 -42504257.69 0.0517 0.0478  
 Mercury -121081-05-31 17:46 J -42503260.93 -42503260.76 -42503260.59 0.0500 0.0162  
 Mercury -121081-08-30 02:39 J -42503170.48 -42503170.39 -42503170.29 0.0499 0.0427  
 Venus -121078-07-11 01:41 J -42502125.62 -42502125.43 -42502125.23 0.0507 0.0188  
 Mercury -121075-04-30 06:29 J -42501101.33 -42501101.23 -42501101.12 0.0525 0.0319  
 Mercury -121075-07-28 13:27 J -42501012.06 -42501011.94 -42501011.82 0.0526 0.0150  
 Venus -121073-09-19 10:05 J -42500228.19 -42500228.08 -42500227.96 0.0522 0.0421  
 Venus -121072-05-13 19:13 J -42499991.86 -42499991.70 -42499991.54 0.0518 0.0288  
 Mercury -121069-03-19 15:22 J -42498951.01 -42498950.86 -42498950.72 0.0500 0.0307  
 Mercury -121069-06-17 23:46 J -42498860.66 -42498860.51 -42498860.35 0.0499 0.0280  
 Venus -121066-03-15 18:29 J -42497859.94 -42497859.73 -42497859.52 0.0506 0.0013

Moon -121064-01-26 01:41 J -42497177.63 -42497177.43 -42497177.23 0.0519 0.0243  
 Earth -121064-01-26 04:05 J -42497177.54 -42497177.33 -42497177.13 0.0519 0.0240 \*  
 Mercury -121063-02-16 10:20 J -42496791.14 -42496791.07 -42496791.00 0.0525 0.0436  
 Mercury -121063-05-16 17:17 J -42496701.90 -42496701.78 -42496701.65 0.0525 0.0039  
 Mercury -121063-08-13 23:46 J -42496612.54 -42496612.51 -42496612.46 0.0526 0.0496  
 Venus -121060-01-16 18:15 J -42495725.93 -42495725.74 -42495725.54 0.0519 0.0089  
 Mercury -121057-01-06 12:29 J -42494641.05 -42494640.98 -42494640.90 0.0501 0.0453  
 Mercury -121057-04-05 21:08 J -42494550.80 -42494550.62 -42494550.45 0.0500 0.0132  
 Venus -121055-11-18 11:46 J -42493594.20 -42493594.01 -42493593.82 0.0505 0.0206  
 Earth -121052-01-30 21:22 J -42492789.81 -42492789.61 -42492789.40 0.0520 0.0224  
 Moon -121052-01-31 00:58 J -42492789.65 -42492789.46 -42492789.26 0.0520 0.0253 \*  
 Mercury -121051-03-04 21:22 J -42492391.74 -42492391.61 -42492391.49 0.0525 0.0085  
 Mercury -121051-06-02 03:51 J -42492302.43 -42492302.34 -42492302.25 0.0526 0.0380  
 Venus -121049-09-21 18:29 J -42491459.92 -42491459.73 -42491459.54 0.0520 0.0112  
 Mercury -121045-01-23 18:29 J -42490240.91 -42490240.73 -42490240.54 0.0500 0.0016  
 Venus -121043-07-24 04:05 J -42489328.45 -42489328.33 -42489328.20 0.0504 0.0400  
 Venus -121042-03-18 18:58 J -42489090.88 -42489090.71 -42489090.55 0.0507 0.0312  
 Mercury -121040-12-22 00:44 J -42488081.59 -42488081.47 -42488081.35 0.0525 0.0207  
 Mercury -121039-03-21 07:27 J -42487992.30 -42487992.19 -42487992.08 0.0526 0.0260  
 Venus -121037-05-27 18:15 J -42487193.89 -42487193.74 -42487193.58 0.0522 0.0311  
 Venus -121036-01-19 03:22 J -42486957.48 -42486957.36 -42486957.23 0.0517 0.0399  
 Earth -121035-07-18 16:34 J -42486412.02 -42486411.81 -42486411.60 0.0507 0.0228  
 Moon -121035-07-18 19:41 J -42486411.89 -42486411.68 -42486411.46 0.0507 0.0198 \*  
 Mercury -121034-11-11 16:05 J -42485931.00 -42485930.83 -42485930.66 0.0500 0.0158  
 Mercury -121033-02-10 01:13 J -42485840.54 -42485840.45 -42485840.36 0.0500 0.0433  
 Venus -121031-11-21 10:34 J -42484825.26 -42484825.06 -42484824.85 0.0506 0.0112  
 Mercury -121028-10-10 04:49 J -42483771.40 -42483771.30 -42483771.20 0.0525 0.0323  
 Mercury -121027-01-07 11:32 J -42483682.14 -42483682.02 -42483681.89 0.0526 0.0146  
 Mars -121026-01-21 23:03 J -42483302.54 -42483302.54 -42483302.53 0.0526 0.0526  
 Venus -121025-01-31 19:56 J -42482927.72 -42482927.67 -42482927.62 0.0523 0.0505

Venus -121025-09-24 05:32 J -42482691.45 -42482691.27 -42482691.09 0.0519 0.0208  
 Earth -121023-07-23 10:05 J -42482024.29 -42482024.08 -42482023.86 0.0505 0.0212  
 Moon -121023-07-23 11:17 J -42482024.26 -42482024.03 -42482023.81 0.0505 0.0187 \*  
 Mercury -121022-08-30 12:58 J -42481621.10 -42481620.96 -42481620.81 0.0500 0.0308  
 Mercury -121022-11-28 21:37 J -42481530.75 -42481530.60 -42481530.44 0.0499 0.0278  
 Venus -121019-07-27 00:01 J -42480559.71 -42480559.50 -42480559.29 0.0505 0.0094  
 Mercury -121016-07-29 08:25 J -42479461.21 -42479461.15 -42479461.08 0.0525 0.0442  
 Mercury -121016-10-26 15:37 J -42479371.98 -42479371.85 -42479371.72 0.0526 0.0029  
 Mercury -121015-01-23 22:05 J -42479282.62 -42479282.58 -42479282.54 0.0527 0.0493  
 Venus -121013-05-30 06:44 J -42478425.41 -42478425.22 -42478425.02 0.0520 0.0014  
 Mercury -121010-06-18 10:34 J -42477311.13 -42477311.06 -42477310.99 0.0500 0.0453  
 Mercury -121010-09-16 18:44 J -42477220.89 -42477220.72 -42477220.54 0.0499 0.0130  
 Mars -121009-11-27 21:22 J -42476782.78 -42476782.61 -42476782.45 0.0499 0.0386  
 Venus -121007-03-31 16:34 J -42476293.98 -42476293.81 -42476293.64 0.0504 0.0291  
 Venus -121007-11-24 07:41 J -42476056.28 -42476056.18 -42476056.06 0.0508 0.0427  
 Mercury -121004-08-14 19:27 J -42475061.82 -42475061.69 -42475061.56 0.0525 0.0088  
 Mercury -121004-11-12 02:10 J -42474972.50 -42474972.41 -42474972.32 0.0526 0.0377  
 Venus -121001-02-03 05:46 J -42474159.45 -42474159.26 -42474159.08 0.0521 0.0192  
 Venus -121001-09-26 14:10 J -42473922.93 -42473922.91 -42473922.89 0.0516 0.0512

# 121ST MILLENNIUM BCE

This is a list of transits visible from Jupiter in the 121st millennium BCE.



PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-120998-07-05 15:51 J		-42472911.02	-42472910.84	-42472910.66	0.0500	0.0020	
Venus	-120996-12-04 09:51 J		-42472028.14	-42472028.09	-42472028.03	0.0503	0.0483	
Venus	-120995-07-30 00:44 J		-42471790.65	-42471790.47	-42471790.28	0.0507	0.0230	
Mercury	-120992-06-02 23:17 J		-42470751.65	-42470751.53	-42470751.41	0.0525	0.0205	
Mercury	-120992-08-31 06:01 J		-42470662.36	-42470662.25	-42470662.14	0.0526	0.0261	
Mars	-120991-10-29 22:34 J		-42470237.85	-42470237.56	-42470237.27	0.0526	0.0011	
Venus	-120990-10-09 05:17 J		-42469893.41	-42469893.28	-42469893.15	0.0522	0.0393	
Venus	-120989-06-01 14:10 J		-42469657.06	-42469656.91	-42469656.75	0.0518	0.0319	
Mercury	-120986-04-23 13:13 J		-42468601.12	-42468600.95	-42468600.78	0.0500	0.0166	
Mercury	-120986-07-22 22:05 J		-42468510.67	-42468510.58	-42468510.48	0.0500	0.0426	
Venus	-120983-04-03 16:49 J		-42467525.02	-42467524.80	-42467524.59	0.0506	0.0032	
Moon	-120981-01-26 00:01 J		-42466862.66	-42466862.50	-42466862.33	0.0518	0.0359	
Earth	-120981-01-26 03:51 J		-42466862.51	-42466862.34	-42466862.16	0.0518	0.0339	*
Mercury	-120980-03-22 02:39 J		-42466441.48	-42466441.39	-42466441.28	0.0525	0.0330	
Mercury	-120980-06-19 09:37 J		-42466352.22	-42466352.10	-42466351.98	0.0525	0.0139	
Venus	-120977-02-05 14:25 J		-42465391.09	-42465390.90	-42465390.71	0.0519	0.0122	
Mercury	-120974-02-09 10:49 J		-42464291.19	-42464291.05	-42464290.91	0.0501	0.0310	
Mercury	-120974-05-10 19:27 J		-42464200.84	-42464200.69	-42464200.54	0.0500	0.0278	
Mars	-120973-09-01 02:39 J		-42463721.65	-42463721.39	-42463721.13	0.0499	0.0032	
Venus	-120972-12-07 08:10 J		-42463259.36	-42463259.16	-42463258.96	0.0504	0.0171	
Earth	-120969-01-30 19:56 J		-42462474.89	-42462474.67	-42462474.44	0.0519	0.0118	
Moon	-120969-01-30 21:08 J		-42462474.83	-42462474.62	-42462474.40	0.0519	0.0108	*
Mercury	-120968-01-08 06:29 J		-42462131.29	-42462131.23	-42462131.16	0.0525	0.0447	
Mercury	-120968-04-07 13:41 J		-42462042.06	-42462041.93	-42462041.81	0.0526	0.0028	
Mercury	-120968-07-05 20:10 J		-42461952.71	-42461952.66	-42461952.62	0.0526	0.0485	
Venus	-120966-10-11 16:05 J		-42461125.02	-42461124.83	-42461124.64	0.0521	0.0074	
Mercury	-120963-11-28 07:56 J		-42459981.23	-42459981.17	-42459981.09	0.0500	0.0457	

Mercury -120962-02-26 16:20 J -42459891.00 -42459890.82 -42459890.64 0.0499 0.0126

Venus -120960-08-11 21:51 J -42458993.73 -42458993.59 -42458993.45 0.0503 0.0374

Venus -120959-04-06 12:44 J -42458756.13 -42458755.97 -42458755.82 0.0507 0.0342

Mercury -120956-01-24 17:17 J -42457731.90 -42457731.78 -42457731.65 0.0526 0.0098

Mercury -120956-04-24 00:01 J -42457642.59 -42457642.50 -42457642.41 0.0526 0.0370

Mars -120955-08-06 22:49 J -42457172.61 -42457172.55 -42457172.46 0.0526 0.0507

Venus -120954-06-16 16:49 J -42456858.96 -42456858.80 -42456858.63 0.0522 0.0274

Venus -120953-02-08 01:56 J -42456622.52 -42456622.42 -42456622.31 0.0517 0.0438

Moon -120952-07-17 18:01 J -42456096.92 -42456096.75 -42456096.57 0.0507 0.0322

Earth -120952-07-17 18:44 J -42456096.91 -42456096.72 -42456096.54 0.0507 0.0310 \*

Mercury -120951-12-15 13:27 J -42455581.12 -42455580.94 -42455580.76 0.0500 0.0023

Venus -120948-12-10 04:49 J -42454490.50 -42454490.30 -42454490.10 0.0506 0.0142

Mercury -120945-11-12 21:22 J -42453421.73 -42453421.61 -42453421.49 0.0525 0.0213

Mercury -120944-02-10 04:05 J -42453332.44 -42453332.33 -42453332.22 0.0526 0.0254

Venus -120942-02-19 15:22 J -42452592.93 -42452592.86 -42452592.77 0.0522 0.0476

Venus -120942-10-14 00:44 J -42452356.64 -42452356.47 -42452356.29 0.0518 0.0240

Earth -120940-07-22 07:41 J -42451709.41 -42451709.18 -42451708.94 0.0506 0.0114

Moon -120940-07-22 11:17 J -42451709.26 -42451709.03 -42451708.80 0.0506 0.0145 \*

Mercury -120939-10-03 10:20 J -42451271.24 -42451271.07 -42451270.90 0.0500 0.0174

Mercury -120938-01-01 18:58 J -42451180.80 -42451180.71 -42451180.60 0.0500 0.0417

Mars -120937-06-05 00:01 J -42450660.69 -42450660.50 -42450660.29 0.0500 0.0314

Venus -120936-08-14 21:51 J -42450224.80 -42450224.59 -42450224.38 0.0505 0.0056

Mercury -120933-09-01 01:13 J -42449111.55 -42449111.45 -42449111.35 0.0525 0.0331

Mercury -120933-11-29 07:56 J -42449022.29 -42449022.17 -42449022.04 0.0525 0.0138

Venus -120930-06-19 00:44 J -42448090.67 -42448090.47 -42448090.28 0.0520 0.0040

Mercury -120927-07-22 07:41 J -42446961.32 -42446961.18 -42446961.04 0.0501 0.0320

Mercury -120927-10-20 16:20 J -42446870.97 -42446870.82 -42446870.67 0.0500 0.0268

Venus -120924-04-19 13:56 J -42445959.10 -42445958.92 -42445958.73 0.0504 0.0254

Venus -120924-12-13 04:49 J -42445721.37 -42445721.30 -42445721.21 0.0508 0.0465

Mercury -120921-06-20 04:34 J -42444801.38 -42444801.31 -42444801.25 0.0524 0.0455

Mercury -120921-09-17 11:32 J -42444712.15 -42444712.02 -42444711.89 0.0525 0.0014

Mercury -120921-12-15 18:01 J -42444622.80 -42444622.75 -42444622.70 0.0526 0.0477

Venus -120918-02-22 00:15 J -42443824.67 -42443824.49 -42443824.30 0.0521 0.0162

Mercury -120915-05-10 05:17 J -42442651.34 -42442651.28 -42442651.21 0.0501 0.0463

Mercury -120915-08-08 13:41 J -42442561.11 -42442560.93 -42442560.75 0.0500 0.0121

Venus -120913-12-23 05:32 J -42441693.35 -42441693.27 -42441693.17 0.0503 0.0452

Venus -120912-08-17 20:10 J -42441455.84 -42441455.66 -42441455.48 0.0507 0.0263

Mercury -120909-07-06 15:22 J -42440401.99 -42440401.86 -42440401.73 0.0525 0.0104

Mercury -120909-10-03 21:51 J -42440312.68 -42440312.59 -42440312.49 0.0526 0.0362

Venus -120907-10-28 01:27 J -42439558.58 -42439558.44 -42439558.30 0.0522 0.0361

Venus -120906-06-21 10:49 J -42439322.19 -42439322.05 -42439321.90 0.0518 0.0356

Mercury -120903-05-27 10:49 J -42438251.23 -42438251.05 -42438250.87 0.0500 0.0028

Venus -120900-04-22 09:51 J -42437190.30 -42437190.09 -42437189.88 0.0505 0.0057

Moon -120898-01-24 22:05 J -42436547.71 -42436547.58 -42436547.44 0.0518 0.0421

Earth -120898-01-24 23:17 J -42436547.63 -42436547.53 -42436547.41 0.0518 0.0455 \*

Mercury -120897-04-24 18:58 J -42436091.83 -42436091.71 -42436091.59 0.0526 0.0225

Mercury -120897-07-23 01:56 J -42436002.54 -42436002.42 -42436002.31 0.0526 0.0244

Venus -120894-02-24 12:01 J -42435056.19 -42435056.00 -42435055.81 0.0519 0.0160

Mercury -120891-03-15 07:56 J -42433941.34 -42433941.17 -42433941.00 0.0500 0.0176

Mercury -120891-06-13 16:49 J -42433850.90 -42433850.80 -42433850.70 0.0499 0.0412

Venus -120889-12-26 01:56 J -42432924.63 -42432924.42 -42432924.22 0.0504 0.0145

Moon -120886-01-29 15:22 J -42432160.08 -42432159.86 -42432159.63 0.0519 0.0008

Earth -120886-01-29 17:32 J -42432160.00 -42432159.77 -42432159.54 0.0519 0.0013 \*

Mercury -120885-02-11 22:49 J -42431781.64 -42431781.55 -42431781.45 0.0525 0.0341

Mercury -120885-05-11 05:46 J -42431692.38 -42431692.26 -42431692.13 0.0526 0.0129

Venus -120883-10-30 10:49 J -42430790.25 -42430790.05 -42430789.86 0.0520 0.0045

Mercury -120879-01-01 04:49 J -42429631.44 -42429631.30 -42429631.17 0.0500 0.0329

Mercury -120879-04-01 13:13 J -42429541.10 -42429540.95 -42429540.79 0.0500 0.0258

Venus -120877-08-30 18:58 J -42428658.86 -42428658.71 -42428658.55 0.0504 0.0339

Venus -120876-04-25 10:05 J -42428421.21 -42428421.08 -42428420.94 0.0508 0.0381

Earth -120874-02-03 11:32 J -42427772.10 -42427772.02 -42427771.92 0.0520 0.0476  
 Moon -120874-02-03 15:08 J -42427771.97 -42427771.87 -42427771.76 0.0520 0.0460 \*  
 Mercury -120874-12-01 02:39 J -42427471.45 -42427471.39 -42427471.32 0.0524 0.0458  
 Mercury -120873-02-28 09:51 J -42427382.22 -42427382.09 -42427381.96 0.0525 0.0015  
 Mercury -120873-05-27 16:20 J -42427292.87 -42427292.82 -42427292.77 0.0526 0.0475  
 Mars -120872-04-15 21:51 J -42426969.77 -42426969.59 -42426969.41 0.0526 0.0414  
 Venus -120871-07-05 10:20 J -42426524.24 -42426524.07 -42426523.90 0.0521 0.0247  
 Venus -120870-02-26 18:58 J -42426287.78 -42426287.71 -42426287.62 0.0517 0.0466  
 Moon -120869-07-16 09:51 J -42425782.20 -42425782.09 -42425781.97 0.0507 0.0439  
 Earth -120869-07-16 13:41 J -42425782.06 -42425781.93 -42425781.80 0.0507 0.0420 \*  
 Mercury -120868-10-20 02:10 J -42425321.47 -42425321.41 -42425321.36 0.0501 0.0474  
 Mercury -120867-01-18 10:20 J -42425231.25 -42425231.07 -42425230.89 0.0500 0.0110  
 Venus -120865-12-29 01:56 J -42424155.62 -42424155.42 -42424155.23 0.0506 0.0180  
 Mercury -120862-12-17 13:13 J -42423072.07 -42423071.95 -42423071.82 0.0525 0.0112  
 Mercury -120861-03-15 19:56 J -42422982.76 -42422982.67 -42422982.58 0.0526 0.0354  
 Venus -120859-03-10 09:37 J -42422258.20 -42422258.10 -42422258.00 0.0523 0.0450  
 Venus -120859-11-01 19:13 J -42422021.87 -42422021.70 -42422021.54 0.0519 0.0270  
 Earth -120857-07-21 06:15 J -42421394.48 -42421394.24 -42421394.01 0.0506 0.0017  
 Moon -120857-07-21 09:37 J -42421394.33 -42421394.10 -42421393.87 0.0506 0.0004 \*  
 Mercury -120856-11-06 07:41 J -42420921.36 -42420921.18 -42420920.99 0.0500 0.0039  
 Mars -120854-02-21 05:32 J -42420449.48 -42420449.27 -42420449.06 0.0499 0.0291  
 Venus -120853-09-02 17:17 J -42419889.99 -42419889.78 -42419889.57 0.0505 0.0023  
 Mercury -120850-10-05 17:03 J -42418761.91 -42418761.79 -42418761.68 0.0525 0.0231  
 Mercury -120849-01-02 23:46 J -42418672.62 -42418672.51 -42418672.39 0.0526 0.0236  
 Venus -120847-07-07 20:25 J -42417755.84 -42417755.65 -42417755.46 0.0520 0.0072  
 Earth -120845-07-26 00:29 J -42417006.57 -42417006.48 -42417006.38 0.0505 0.0459  
 Moon -120845-07-26 00:44 J -42417006.53 -42417006.47 -42417006.40 0.0505 0.0486 \*  
 Mercury -120844-08-25 05:17 J -42416611.45 -42416611.28 -42416611.11 0.0500 0.0182  
 Mercury -120844-11-23 13:56 J -42416521.02 -42416520.92 -42416520.81 0.0499 0.0406  
 Venus -120841-05-08 07:27 J -42415624.38 -42415624.19 -42415624.00 0.0504 0.0228

Venus -120841-12-31 21:51 J -42415386.63 -42415386.59 -42415386.53 0.0508 0.0493  
 Mercury -120838-07-24 20:25 J -42414451.74 -42414451.65 -42414451.55 0.0525 0.0354  
 Mercury -120838-10-22 03:37 J -42414362.48 -42414362.35 -42414362.23 0.0526 0.0118  
 Mars -120836-01-21 18:44 J -42413905.01 -42413904.72 -42413904.44 0.0526 0.0102  
 Venus -120835-03-12 21:22 J -42413489.80 -42413489.61 -42413489.42 0.0521 0.0128  
 Mercury -120832-06-13 02:39 J -42412301.53 -42412301.39 -42412301.26 0.0500 0.0328  
 Mercury -120832-09-11 11:03 J -42412211.20 -42412211.04 -42412210.88 0.0499 0.0257  
 Venus -120829-01-11 23:32 J -42411358.62 -42411358.52 -42411358.40 0.0503 0.0425  
 Venus -120829-09-05 14:10 J -42411121.08 -42411120.91 -42411120.74 0.0507 0.0293  
 Mercury -120826-05-13 00:29 J -42410141.54 -42410141.48 -42410141.42 0.0525 0.0468  
 Mercury -120826-08-10 07:41 J -42410052.31 -42410052.18 -42410052.05 0.0526 0.0015  
 Mercury -120826-11-07 14:10 J -42409962.97 -42409962.91 -42409962.85 0.0526 0.0466  
 Venus -120824-11-15 19:56 J -42409223.81 -42409223.67 -42409223.51 0.0522 0.0332  
 Venus -120823-07-10 05:03 J -42408987.41 -42408987.29 -42408987.15 0.0518 0.0387  
 Mercury -120820-03-31 23:17 J -42407991.58 -42407991.53 -42407991.49 0.0501 0.0482  
 Mercury -120820-06-30 07:27 J -42407901.37 -42407901.19 -42407901.01 0.0500 0.0101  
 Mars -120819-11-25 01:56 J -42407388.68 -42407388.42 -42407388.16 0.0500 0.0055  
 Venus -120817-05-11 06:58 J -42406855.41 -42406855.21 -42406855.00 0.0506 0.0096  
 Mercury -120814-05-29 11:32 J -42405742.14 -42405742.02 -42405741.89 0.0525 0.0114  
 Mercury -120814-08-26 18:15 J -42405652.83 -42405652.74 -42405652.64 0.0526 0.0353  
 Venus -120811-03-15 05:17 J -42404721.46 -42404721.28 -42404721.09 0.0519 0.0188  
 Mercury -120808-04-18 04:34 J -42403591.49 -42403591.31 -42403591.13 0.0500 0.0047  
 Venus -120805-01-14 23:17 J -42402589.74 -42402589.53 -42402589.33 0.0505 0.0106  
 Moon -120803-01-28 13:13 J -42401845.18 -42401844.95 -42401844.72 0.0519 0.0059  
 Earth -120803-01-28 17:17 J -42401845.01 -42401844.78 -42401844.55 0.0519 0.0090 \*  
 Mercury -120802-03-17 15:08 J -42401431.99 -42401431.87 -42401431.76 0.0525 0.0236  
 Mercury -120802-06-14 21:51 J -42401342.70 -42401342.59 -42401342.47 0.0525 0.0231  
 Venus -120800-11-18 05:03 J -42400455.49 -42400455.29 -42400455.10 0.0520 0.0016  
 Mercury -120796-02-04 02:10 J -42399281.58 -42399281.41 -42399281.24 0.0500 0.0192  
 Mercury -120796-05-05 10:49 J -42399191.15 -42399191.05 -42399190.93 0.0500 0.0399

Venus -120794-09-19 15:08 J -42398324.03 -42398323.87 -42398323.70 0.0504 0.0306  
 Venus -120793-05-14 05:46 J -42398086.37 -42398086.26 -42398086.14 0.0507 0.0416  
 Earth -120791-02-02 08:39 J -42397457.30 -42397457.14 -42397456.98 0.0520 0.0364  
 Moon -120791-02-02 10:34 J -42397457.22 -42397457.06 -42397456.90 0.0520 0.0366 \*  
 Mercury -120790-01-03 18:44 J -42397121.81 -42397121.72 -42397121.62 0.0525 0.0356  
 Mercury -120790-04-03 01:41 J -42397032.56 -42397032.43 -42397032.30 0.0525 0.0112  
 Venus -120788-07-24 05:46 J -42396189.44 -42396189.26 -42396189.08 0.0522 0.0216  
 Venus -120787-03-17 15:08 J -42395952.91 -42395952.87 -42395952.82 0.0517 0.0502  
 Moon -120786-07-16 11:46 J -42395467.08 -42395467.01 -42395466.93 0.0508 0.0478  
 Earth -120786-07-16 14:39 J -42395466.89 -42395466.89 -42395466.86 0.0508 0.0507  
 Mercury -120785-11-22 23:46 J -42394971.64 -42394971.51 -42394971.37 0.0500 0.0334  
 Mercury -120784-02-21 08:25 J -42394881.31 -42394881.15 -42394880.99 0.0500 0.0252  
 Mars -120783-08-29 04:20 J -42394327.47 -42394327.32 -42394327.17 0.0499 0.0408  
 Venus -120781-01-17 19:41 J -42393820.87 -42393820.68 -42393820.48 0.0506 0.0211  
 Mercury -120779-10-22 22:20 J -42392811.62 -42392811.57 -42392811.52 0.0525 0.0478  
 Mercury -120778-01-20 05:32 J -42392722.40 -42392722.27 -42392722.15 0.0526 0.0020  
 Mercury -120778-04-19 12:01 J -42392633.06 -42392633.00 -42392632.94 0.0526 0.0457  
 Venus -120776-03-29 06:29 J -42391923.34 -42391923.23 -42391923.11 0.0523 0.0416  
 Venus -120776-11-20 16:34 J -42391686.97 -42391686.81 -42391686.65 0.0519 0.0308  
 Moon -120774-07-21 06:58 J -42391079.43 -42391079.21 -42391078.98 0.0507 0.0078  
 Earth -120774-07-21 07:56 J -42391079.40 -42391079.17 -42391078.93 0.0507 0.0067 \*  
 Mercury -120773-09-10 21:22 J -42390661.65 -42390661.61 -42390661.55 0.0500 0.0478  
 Mercury -120773-12-10 05:32 J -42390571.45 -42390571.27 -42390571.09 0.0500 0.0104  
 Venus -120770-09-22 12:15 J -42389555.20 -42389554.99 -42389554.78 0.0505 0.0009  
 Mercury -120767-11-08 09:22 J -42388412.23 -42388412.11 -42388411.98 0.0525 0.0123  
 Mercury -120766-02-05 16:05 J -42388322.92 -42388322.83 -42388322.73 0.0526 0.0346  
 Venus -120764-07-26 15:37 J -42387421.05 -42387420.85 -42387420.66 0.0520 0.0107  
 Earth -120762-07-25 20:10 J -42386691.82 -42386691.66 -42386691.49 0.0506 0.0354  
 Moon -120762-07-25 23:46 J -42386691.69 -42386691.51 -42386691.33 0.0506 0.0327 \*  
 Mercury -120761-09-28 01:56 J -42386261.60 -42386261.42 -42386261.24 0.0500 0.0054

Venus -120758-05-28 04:49 J -42385289.49 -42385289.30 -42385289.10 0.0504 0.0190  
 Mercury -120755-08-27 13:27 J -42384102.05 -42384101.94 -42384101.82 0.0525 0.0236  
 Mercury -120755-11-24 20:25 J -42384012.77 -42384012.65 -42384012.54 0.0526 0.0232  
 Venus -120752-03-31 15:51 J -42383155.03 -42383154.84 -42383154.65 0.0521 0.0097  
 Mercury -120749-07-16 23:17 J -42381951.70 -42381951.53 -42381951.37 0.0501 0.0200  
 Mercury -120749-10-15 07:56 J -42381861.28 -42381861.17 -42381861.05 0.0500 0.0391  
 Venus -120746-01-30 21:37 J -42381023.73 -42381023.60 -42381023.46 0.0503 0.0386  
 Venus -120746-09-25 12:29 J -42380786.13 -42380785.98 -42380785.82 0.0507 0.0337  
 Mercury -120743-06-15 17:03 J -42379791.88 -42379791.79 -42379791.69 0.0524 0.0358  
 Mercury -120743-09-13 00:01 J -42379702.62 -42379702.50 -42379702.37 0.0525 0.0111  
 Venus -120741-12-04 15:08 J -42378889.03 -42378888.87 -42378888.71 0.0522 0.0301  
 Venus -120740-07-29 00:15 J -42378652.60 -42378652.49 -42378652.37 0.0518 0.0420  
 Mercury -120737-05-04 20:53 J -42377641.76 -42377641.63 -42377641.50 0.0501 0.0343  
 Mercury -120737-08-03 05:32 J -42377551.43 -42377551.27 -42377551.11 0.0500 0.0245  
 Venus -120734-05-31 04:05 J -42376520.53 -42376520.33 -42376520.12 0.0506 0.0133  
 Mercury -120731-04-03 20:39 J -42375481.69 -42375481.64 -42375481.59 0.0524 0.0478  
 Mercury -120731-07-02 03:51 J -42375392.47 -42375392.34 -42375392.21 0.0525 0.0009  
 Mercury -120731-09-29 10:20 J -42375303.13 -42375303.07 -42375303.01 0.0526 0.0455  
 Venus -120729-08-09 15:37 J -42374622.90 -42374622.85 -42374622.80 0.0523 0.0503  
 Venus -120728-04-03 01:41 J -42374386.60 -42374386.43 -42374386.25 0.0519 0.0224  
 Mercury -120725-02-21 18:58 J -42373331.75 -42373331.71 -42373331.66 0.0501 0.0481  
 Mercury -120725-05-22 03:08 J -42373241.55 -42373241.37 -42373241.19 0.0500 0.0101  
 Venus -120722-02-02 18:58 J -42372254.92 -42372254.71 -42372254.50 0.0504 0.0071  
 Moon -120720-01-27 11:32 J -42371530.23 -42371530.02 -42371529.81 0.0518 0.0225  
 Earth -120720-01-27 15:08 J -42371530.08 -42371529.87 -42371529.66 0.0518 0.0195 \*  
 Mercury -120719-04-20 07:27 J -42371082.31 -42371082.19 -42371082.06 0.0525 0.0128  
 Mercury -120719-07-18 14:10 J -42370993.00 -42370992.91 -42370992.81 0.0526 0.0339  
 Mars -120718-07-09 20:39 J -42370636.88 -42370636.64 -42370636.40 0.0527 0.0297  
 Venus -120717-12-07 02:53 J -42370120.58 -42370120.38 -42370120.18 0.0521 0.0025  
 Mercury -120713-03-10 00:29 J -42368931.66 -42368931.48 -42368931.30 0.0500 0.0046

Venus -120711-10-08 11:32 J -42367989.19 -42367989.02 -42367988.84 0.0503 0.0272  
 Venus -120710-06-03 02:10 J -42367751.50 -42367751.41 -42367751.32 0.0507 0.0453  
 Earth -120708-02-01 09:37 J -42367142.29 -42367142.10 -42367141.90 0.0520 0.0273  
 Moon -120708-02-01 10:49 J -42367142.24 -42367142.05 -42367141.86 0.0520 0.0275 \*  
 Mercury -120707-02-06 11:32 J -42366772.13 -42366772.02 -42366771.90 0.0525 0.0242  
 Mercury -120707-05-06 18:29 J -42366682.85 -42366682.73 -42366682.61 0.0526 0.0227  
 Venus -120705-08-12 02:25 J -42365854.58 -42365854.40 -42365854.22 0.0521 0.0178  
 Mercury -120702-12-27 20:53 J -42364621.80 -42364621.63 -42364621.47 0.0500 0.0203  
 Mercury -120701-03-27 05:32 J -42364531.38 -42364531.27 -42364531.15 0.0500 0.0387  
 Mars -120700-05-16 11:17 J -42364116.26 -42364116.03 -42364115.78 0.0499 0.0194  
 Venus -120699-06-13 04:05 J -42363723.40 -42363723.33 -42363723.25 0.0503 0.0467  
 Venus -120698-02-05 18:44 J -42363485.90 -42363485.72 -42363485.53 0.0507 0.0256  
 Mercury -120696-11-25 15:51 J -42362461.94 -42362461.84 -42362461.75 0.0525 0.0353  
 Mercury -120695-02-22 22:49 J -42362372.68 -42362372.55 -42362372.43 0.0525 0.0116  
 Venus -120693-04-17 02:53 J -42361588.51 -42361588.38 -42361588.25 0.0522 0.0381  
 Venus -120693-12-09 12:01 J -42361352.15 -42361352.00 -42361351.85 0.0518 0.0343  
 Earth -120691-07-20 04:49 J -42360764.52 -42360764.30 -42360764.08 0.0507 0.0170  
 Moon -120691-07-20 06:01 J -42360764.46 -42360764.25 -42360764.04 0.0507 0.0182 \*  
 Mercury -120690-10-15 18:29 J -42360311.86 -42360311.73 -42360311.61 0.0501 0.0347  
 Mercury -120689-01-14 02:53 J -42360221.54 -42360221.38 -42360221.22 0.0500 0.0240  
 Venus -120687-10-11 11:32 J -42359220.23 -42359220.02 -42359219.81 0.0506 0.0054  
 Mercury -120684-09-13 19:27 J -42358151.74 -42358151.69 -42358151.64 0.0524 0.0474  
 Mercury -120684-12-12 02:25 J -42358062.53 -42358062.40 -42358062.27 0.0525 0.0012  
 Mercury -120683-03-11 08:53 J -42357973.18 -42357973.13 -42357973.06 0.0526 0.0458  
 Mars -120682-04-16 22:34 J -42357571.82 -42357571.56 -42357571.30 0.0526 0.0234  
 Venus -120681-08-14 11:46 J -42357086.19 -42357086.01 -42357085.81 0.0520 0.0143  
 Earth -120679-07-24 21:51 J -42356376.78 -42356376.59 -42356376.38 0.0506 0.0270  
 Moon -120679-07-25 00:29 J -42356376.67 -42356376.48 -42356376.28 0.0506 0.0299 \*  
 Mercury -120678-08-03 16:05 J -42356001.86 -42356001.83 -42356001.78 0.0501 0.0489  
 Mercury -120678-11-02 00:29 J -42355911.66 -42355911.48 -42355911.30 0.0500 0.0096



Venus -120675-06-16 03:51 J -42354954.54 -42354954.34 -42354954.14 0.0504 0.0148

Mercury -120672-09-30 06:15 J -42353752.37 -42353752.24 -42353752.11 0.0525 0.0124

Mercury -120672-12-28 12:58 J -42353663.06 -42353662.96 -42353662.86 0.0526 0.0342

Venus -120669-04-19 12:58 J -42352820.15 -42352819.96 -42352819.76 0.0521 0.0060

Mercury -120666-08-20 22:20 J -42351601.75 -42351601.57 -42351601.39 0.0500 0.0046

Mars -120664-02-17 17:46 J -42351055.00 -42351054.76 -42351054.51 0.0499 0.0171

Venus -120663-02-18 19:27 J -42350688.84 -42350688.69 -42350688.53 0.0503 0.0349

Venus -120663-10-14 09:51 J -42350451.23 -42350451.09 -42350450.95 0.0507 0.0376

Mercury -120660-07-19 09:51 J -42349442.20 -42349442.09 -42349441.97 0.0525 0.0244

Mercury -120660-10-16 16:49 J -42349352.92 -42349352.80 -42349352.68 0.0526 0.0224

Venus -120658-12-24 13:56 J -42348554.09 -42348553.92 -42348553.75 0.0522 0.0261

Venus -120657-08-16 23:32 J -42348317.60 -42348317.52 -42348317.43 0.0518 0.0464

Mercury -120654-06-08 20:10 J -42347291.83 -42347291.66 -42347291.50 0.0500 0.0189

Mercury -120654-09-07 04:49 J -42347201.41 -42347201.30 -42347201.19 0.0500 0.0401

Venus -120651-06-19 02:25 J -42346185.60 -42346185.40 -42346185.20 0.0506 0.0175

Mercury -120648-05-07 14:10 J -42345132.01 -42345131.91 -42345131.82 0.0525 0.0356

Mercury -120648-08-04 21:08 J -42345042.75 -42345042.62 -42345042.50 0.0526 0.0114

Venus -120646-08-29 14:10 J -42344288.00 -42344287.91 -42344287.82 0.0523 0.0461

Venus -120645-04-21 23:46 J -42344051.68 -42344051.51 -42344051.34 0.0519 0.0267

Mercury -120642-03-27 16:20 J -42342981.95 -42342981.82 -42342981.69 0.0501 0.0346

Mercury -120642-06-26 00:44 J -42342891.63 -42342891.47 -42342891.31 0.0500 0.0242

Venus -120639-02-21 18:44 J -42341919.93 -42341919.72 -42341919.51 0.0505 0.0026

Moon -120637-01-27 19:56 J -42341214.87 -42341214.67 -42341214.47 0.0518 0.0240

Earth -120637-01-28 00:01 J -42341214.70 -42341214.50 -42341214.30 0.0518 0.0259 \*

Mercury -120636-02-23 18:15 J -42340821.79 -42340821.74 -42340821.68 0.0524 0.0467

Mercury -120636-05-24 01:27 J -42340732.57 -42340732.44 -42340732.31 0.0525 0.0003

Mercury -120636-08-21 07:56 J -42340643.22 -42340643.17 -42340643.11 0.0526 0.0467

Venus -120634-12-27 00:44 J -42339785.67 -42339785.47 -42339785.28 0.0520 0.0066

Mercury -120630-01-13 14:10 J -42338671.95 -42338671.91 -42338671.87 0.0501 0.0488

Mercury -120630-04-13 22:20 J -42338581.75 -42338581.57 -42338581.39 0.0500 0.0096

Venus -120628-10-27 12:01 J -42337654.19 -42337654.00 -42337653.81 0.0504 0.0226

Venus -120627-06-22 03:08 J -42337416.39 -42337416.37 -42337416.35 0.0508 0.0505

Earth -120625-02-01 17:17 J -42336826.99 -42336826.78 -42336826.56 0.0519 0.0203

Moon -120625-02-01 19:56 J -42336826.87 -42336826.67 -42336826.46 0.0519 0.0224 \*

Mercury -120624-03-12 05:17 J -42336422.41 -42336422.28 -42336422.16 0.0525 0.0116

Mercury -120624-06-09 11:46 J -42336333.10 -42336333.01 -42336332.91 0.0525 0.0349

Venus -120622-09-01 00:29 J -42335519.67 -42335519.48 -42335519.29 0.0521 0.0140

Mercury -120618-01-30 20:10 J -42334271.84 -42334271.66 -42334271.48 0.0501 0.0047

Venus -120616-07-02 04:49 J -42333388.41 -42333388.30 -42333388.18 0.0503 0.0424

Venus -120615-02-24 19:27 J -42333150.86 -42333150.69 -42333150.52 0.0507 0.0303

Mercury -120613-12-29 08:53 J -42332112.24 -42332112.13 -42332112.01 0.0525 0.0235

Mercury -120612-03-28 15:51 J -42332022.96 -42332022.84 -42332022.73 0.0525 0.0233

Venus -120610-05-07 01:13 J -42331253.59 -42331253.45 -42331253.30 0.0522 0.0342

Venus -120610-12-29 10:49 J -42331017.18 -42331017.05 -42331016.92 0.0518 0.0386

Earth -120608-07-19 11:32 J -42330449.22 -42330449.02 -42330448.81 0.0507 0.0236

Moon -120608-07-19 13:27 J -42330449.14 -42330448.94 -42330448.73 0.0507 0.0212 \*

Mercury -120607-11-18 18:15 J -42329961.91 -42329961.74 -42329961.57 0.0501 0.0185

Mercury -120606-02-17 02:53 J -42329871.48 -42329871.38 -42329871.27 0.0500 0.0406

Venus -120604-10-30 11:03 J -42328885.24 -42328885.04 -42328884.83 0.0505 0.0100

Mercury -120601-10-17 12:44 J -42327802.07 -42327801.97 -42327801.88 0.0525 0.0355

Mercury -120600-01-14 19:41 J -42327712.81 -42327712.68 -42327712.56 0.0525 0.0115

Venus -120598-09-03 12:29 J -42326751.16 -42326750.98 -42326750.80 0.0520 0.0190

Earth -120596-07-24 06:15 J -42326061.45 -42326061.24 -42326061.03 0.0506 0.0211

Moon -120596-07-24 07:13 J -42326061.43 -42326061.20 -42326060.98 0.0506 0.0186 \*

Mercury -120595-09-06 16:05 J -42325651.96 -42325651.83 -42325651.69 0.0501 0.0327

Mercury -120595-12-06 00:29 J -42325561.63 -42325561.48 -42325561.32 0.0500 0.0261

Venus -120592-07-05 03:51 J -42324619.54 -42324619.34 -42324619.13 0.0504 0.0104

Mercury -120589-08-05 16:49 J -42323491.85 -42323491.80 -42323491.74 0.0524 0.0466

Mercury -120589-11-03 00:01 J -42323402.63 -42323402.50 -42323402.37 0.0525 0.0006

Mercury -120588-01-31 06:29 J -42323313.28 -42323313.23 -42323313.17 0.0526 0.0469

Venus -120586-05-09 13:13 J -42322485.15 -42322484.95 -42322484.76 0.0520 0.0013  
 Mercury -120583-06-25 12:29 J -42321342.02 -42321341.98 -42321341.93 0.0501 0.0483  
 Mercury -120583-09-23 20:39 J -42321251.82 -42321251.64 -42321251.46 0.0500 0.0101  
 Mars -120582-11-06 07:41 J -42320843.31 -42320843.18 -42320843.04 0.0499 0.0424  
 Venus -120580-03-09 19:56 J -42320353.84 -42320353.67 -42320353.50 0.0504 0.0304  
 Venus -120580-11-02 11:17 J -42320116.14 -42320116.03 -42320115.92 0.0508 0.0429  
 Mercury -120577-08-22 04:20 J -42319092.44 -42319092.32 -42319092.19 0.0525 0.0106  
 Mercury -120577-11-19 11:03 J -42319003.13 -42319003.04 -42319002.94 0.0526 0.0361  
 Venus -120574-01-12 14:25 J -42318219.08 -42318218.90 -42318218.72 0.0521 0.0214  
 Venus -120574-09-05 23:03 J -42317982.57 -42317982.54 -42317982.51 0.0517 0.0509  
 Mercury -120571-07-12 18:15 J -42316941.92 -42316941.74 -42316941.56 0.0500 0.0044  
 Venus -120569-11-12 13:41 J -42316087.95 -42316087.93 -42316087.91 0.0503 0.0499  
 Venus -120568-07-08 04:20 J -42315850.51 -42315850.32 -42315850.13 0.0507 0.0228  
 Mercury -120565-06-10 08:10 J -42314782.27 -42314782.16 -42314782.04 0.0525 0.0223  
 Mercury -120565-09-07 15:08 J -42314692.99 -42314692.87 -42314692.76 0.0525 0.0244  
 Mars -120564-10-03 06:15 J -42314302.52 -42314302.24 -42314301.95 0.0526 0.0115  
 Venus -120563-09-17 14:10 J -42313953.02 -42313952.91 -42313952.79 0.0522 0.0419  
 Venus -120562-05-11 23:32 J -42313716.68 -42313716.52 -42313716.37 0.0518 0.0312  
 Mercury -120559-04-30 16:20 J -42312631.99 -42312631.82 -42312631.65 0.0501 0.0184  
 Mercury -120559-07-30 01:13 J -42312541.56 -42312541.45 -42312541.35 0.0500 0.0408  
 Venus -120556-03-12 21:08 J -42311584.83 -42311584.62 -42311584.40 0.0505 0.0026  
 Moon -120554-01-27 04:05 J -42310899.50 -42310899.33 -42310899.15 0.0518 0.0334  
 Earth -120554-01-27 07:41 J -42310899.35 -42310899.18 -42310899.00 0.0518 0.0326 \*  
 Mercury -120553-03-29 12:01 J -42310472.10 -42310472.00 -42310471.90 0.0524 0.0341  
 Mercury -120553-06-26 18:58 J -42310382.83 -42310382.71 -42310382.58 0.0525 0.0128  
 Venus -120550-01-15 00:44 J -42309450.66 -42309450.47 -42309450.28 0.0520 0.0111  
 Mercury -120547-02-16 14:39 J -42308322.03 -42308321.89 -42308321.75 0.0501 0.0321  
 Mercury -120547-05-17 23:03 J -42308231.69 -42308231.54 -42308231.38 0.0500 0.0268  
 Mars -120546-08-10 20:10 J -42307781.92 -42307781.66 -42307781.40 0.0499 0.0051  
 Venus -120545-11-15 13:27 J -42307319.13 -42307318.94 -42307318.74 0.0504 0.0178

Earth -120542-01-31 23:32 J -42306511.74 -42306511.52 -42306511.30 0.0519 0.0130  
 Moon -120542-02-01 02:53 J -42306511.60 -42306511.38 -42306511.16 0.0519 0.0102 \*  
 Mercury -120541-01-16 15:37 J -42306161.91 -42306161.85 -42306161.79 0.0524 0.0461  
 Mercury -120541-04-14 22:49 J -42306072.68 -42306072.55 -42306072.42 0.0525 0.0011  
 Mercury -120541-07-13 05:17 J -42305983.33 -42305983.28 -42305983.22 0.0526 0.0474  
 Venus -120539-09-20 02:10 J -42305184.60 -42305184.41 -42305184.21 0.0521 0.0090  
 Mercury -120536-12-05 12:44 J -42304012.04 -42304011.97 -42304011.90 0.0501 0.0460  
 Mercury -120535-03-05 20:53 J -42303921.81 -42303921.63 -42303921.46 0.0500 0.0125  
 Venus -120533-07-21 06:44 J -42303053.36 -42303053.22 -42303053.08 0.0503 0.0377  
 Venus -120532-03-15 21:08 J -42302815.77 -42302815.62 -42302815.47 0.0507 0.0353  
 Mercury -120529-02-02 03:08 J -42301762.49 -42301762.37 -42301762.24 0.0525 0.0101  
 Mercury -120529-05-01 09:51 J -42301673.18 -42301673.09 -42301673.00 0.0526 0.0366  
 Mars -120528-07-11 18:01 J -42301236.91 -42301236.75 -42301236.59 0.0526 0.0438  
 Venus -120527-05-26 03:22 J -42300918.52 -42300918.36 -42300918.20 0.0522 0.0290  
 Venus -120526-01-17 12:15 J -42300682.09 -42300681.99 -42300681.89 0.0518 0.0438  
 Earth -120525-07-18 17:17 J -42300133.96 -42300133.78 -42300133.59 0.0507 0.0307  
 Moon -120525-07-18 20:25 J -42300133.81 -42300133.65 -42300133.47 0.0507 0.0338 \*  
 Mercury -120524-12-22 17:03 J -42299611.97 -42299611.79 -42299611.61 0.0500 0.0035  
 Venus -120521-11-18 12:58 J -42298550.16 -42298549.96 -42298549.76 0.0506 0.0151  
 Mercury -120518-11-21 07:41 J -42297452.30 -42297452.18 -42297452.06 0.0525 0.0209  
 Mercury -120517-02-18 14:25 J -42297363.01 -42297362.90 -42297362.79 0.0526 0.0259  
 Venus -120515-01-29 04:34 J -42296652.36 -42296652.31 -42296652.23 0.0523 0.0492  
 Venus -120515-09-22 14:10 J -42296416.09 -42296415.91 -42296415.74 0.0519 0.0241  
 Moon -120513-07-23 10:49 J -42295746.28 -42295746.05 -42295745.81 0.0506 0.0148  
 Earth -120513-07-23 10:49 J -42295746.27 -42295746.05 -42295745.82 0.0506 0.0135 \*  
 Mercury -120512-10-10 14:53 J -42295302.05 -42295301.88 -42295301.71 0.0501 0.0178  
 Mercury -120511-01-08 23:32 J -42295211.62 -42295211.52 -42295211.42 0.0500 0.0414  
 Mars -120510-05-14 22:34 J -42294720.76 -42294720.56 -42294720.35 0.0500 0.0311  
 Venus -120509-07-24 06:15 J -42294284.45 -42294284.24 -42294284.02 0.0505 0.0052  
 Mercury -120506-09-09 11:32 J -42293142.12 -42293142.02 -42293141.92 0.0524 0.0326

Mercury -120506-12-07 18:29 J -42293052.86 -42293052.73 -42293052.61 0.0525 0.0142

Venus -120503-05-28 14:25 J -42292150.10 -42292149.90 -42292149.71 0.0520 0.0038

Mercury -120500-07-29 12:58 J -42290992.10 -42290991.96 -42290991.82 0.0501 0.0317

Mercury -120500-10-27 21:22 J -42290901.76 -42290901.61 -42290901.45 0.0500 0.0272

Venus -120497-03-28 23:46 J -42290018.69 -42290018.51 -42290018.32 0.0504 0.0252

Venus -120497-11-21 15:08 J -42289780.93 -42289780.87 -42289780.81 0.0508 0.0484

Mercury -120494-06-28 15:22 J -42288831.93 -42288831.86 -42288831.79 0.0524 0.0444

Mercury -120494-09-25 22:20 J -42288742.70 -42288742.57 -42288742.44 0.0525 0.0027

Mercury -120494-12-24 04:49 J -42288653.34 -42288653.30 -42288653.25 0.0526 0.0489

Venus -120491-01-31 15:22 J -42287884.05 -42287883.86 -42287883.67 0.0521 0.0167

Mercury -120488-05-17 11:17 J -42286682.10 -42286682.03 -42286681.95 0.0501 0.0452

Mercury -120488-08-15 19:27 J -42286591.86 -42286591.69 -42286591.51 0.0500 0.0134

Venus -120486-12-02 16:49 J -42285752.89 -42285752.80 -42285752.71 0.0503 0.0450

Venus -120485-07-27 06:58 J -42285515.38 -42285515.21 -42285515.03 0.0506 0.0281

Mercury -120482-07-15 02:10 J -42284432.54 -42284432.41 -42284432.28 0.0525 0.0092

Mercury -120482-10-12 08:53 J -42284343.22 -42284343.13 -42284343.04 0.0526 0.0373

Venus -120480-10-06 16:34 J -42283617.95 -42283617.81 -42283617.67 0.0523 0.0369

Venus -120479-05-31 02:10 J -42283381.55 -42283381.41 -42283381.27 0.0519 0.0366

Mercury -120476-06-03 17:32 J -42282281.95 -42282281.77 -42282281.59 0.0500 0.0011

Venus -120473-04-01 00:01 J -42281249.71 -42281249.50 -42281249.29 0.0505 0.0078

Moon -120471-01-26 15:08 J -42280584.00 -42280583.87 -42280583.72 0.0518 0.0398

Earth -120471-01-26 18:01 J -42280583.89 -42280583.75 -42280583.58 0.0518 0.0382 \*

Mercury -120470-05-03 06:29 J -42280122.35 -42280122.23 -42280122.11 0.0525 0.0203

Mercury -120470-07-31 13:27 J -42280033.05 -42280032.94 -42280032.83 0.0526 0.0266

Venus -120467-02-03 03:37 J -42279115.53 -42279115.35 -42279115.16 0.0519 0.0169

Mercury -120464-03-22 13:56 J -42277972.09 -42277971.92 -42277971.75 0.0500 0.0166

Mercury -120464-06-20 22:34 J -42277881.65 -42277881.56 -42277881.47 0.0500 0.0425

Venus -120462-12-05 15:22 J -42276984.07 -42276983.86 -42276983.66 0.0505 0.0128

Earth -120459-01-31 14:10 J -42276196.14 -42276195.91 -42276195.68 0.0519 0.0088

Moon -120459-01-31 17:46 J -42276195.98 -42276195.76 -42276195.53 0.0519 0.0121 \*

Mercury -120458-02-19 11:03 J -42275812.15 -42275812.04 -42275811.94 0.0525 0.0312

Mercury -120458-05-19 18:01 J -42275722.88 -42275722.75 -42275722.63 0.0525 0.0158

Venus -120456-10-09 05:46 J -42274849.46 -42274849.26 -42274849.07 0.0520 0.0035

Mercury -120452-01-08 11:46 J -42273662.15 -42273662.01 -42273661.87 0.0501 0.0307

Mercury -120452-04-08 20:10 J -42273571.81 -42273571.66 -42273571.51 0.0500 0.0281

Venus -120450-08-10 08:53 J -42272718.28 -42272718.13 -42272717.96 0.0504 0.0328

Venus -120449-04-04 00:29 J -42272480.60 -42272480.48 -42272480.35 0.0508 0.0411

Mercury -120447-12-08 14:53 J -42271501.95 -42271501.88 -42271501.81 0.0524 0.0428

Mercury -120446-03-07 21:51 J -42271412.71 -42271412.59 -42271412.46 0.0525 0.0046

Mercury -120446-06-05 04:34 J -42271323.35 -42271323.31 -42271323.28 0.0526 0.0505

Mars -120445-03-22 05:17 J -42271032.44 -42271032.28 -42271032.13 0.0526 0.0443

Venus -120444-06-14 05:46 J -42270583.43 -42270583.26 -42270583.09 0.0521 0.0241

Venus -120443-02-05 14:10 J -42270346.96 -42270346.91 -42270346.84 0.0517 0.0489

Earth -120442-07-19 03:51 J -42269818.50 -42269818.34 -42269818.17 0.0507 0.0360

Moon -120442-07-19 07:41 J -42269818.36 -42269818.18 -42269818.00 0.0507 0.0328 \*

Mercury -120441-10-27 10:05 J -42269352.16 -42269352.08 -42269352.00 0.0501 0.0445

Mercury -120440-01-25 18:01 J -42269261.92 -42269261.75 -42269261.57 0.0500 0.0141

Venus -120438-12-08 17:32 J -42268214.95 -42268214.77 -42268214.57 0.0506 0.0209

Mercury -120435-12-25 01:56 J -42267102.55 -42267102.42 -42267102.29 0.0525 0.0074

Mercury -120434-03-24 08:39 J -42267013.23 -42267013.14 -42267013.06 0.0525 0.0390

Venus -120432-02-17 06:15 J -42266317.33 -42266317.24 -42266317.13 0.0522 0.0446

Venus -120432-10-11 15:37 J -42266081.00 -42266080.85 -42266080.68 0.0519 0.0292

Moon -120430-07-23 20:53 J -42265430.87 -42265430.63 -42265430.39 0.0507 0.0096

Earth -120430-07-23 22:49 J -42265430.78 -42265430.55 -42265430.32 0.0507 0.0089 \*

Mercury -120429-11-13 16:20 J -42264952.00 -42264951.82 -42264951.64 0.0501 0.0002

Mars -120427-01-31 04:05 J -42264508.55 -42264508.33 -42264508.11 0.0499 0.0266

Venus -120426-08-13 10:20 J -42263949.29 -42263949.07 -42263948.86 0.0505 0.0011

Mercury -120423-10-13 05:46 J -42262792.38 -42262792.26 -42262792.14 0.0525 0.0193

Mercury -120422-01-10 12:29 J -42262703.09 -42262702.98 -42262702.87 0.0525 0.0274

Venus -120420-06-16 17:32 J -42261814.97 -42261814.77 -42261814.58 0.0520 0.0091

Mercury -120417-09-01 14:25 J -42260642.08 -42260641.90 -42260641.73 0.0501 0.0139

Mercury -120417-11-30 23:03 J -42260551.61 -42260551.54 -42260551.46 0.0500 0.0453

Venus -120414-04-18 03:22 J -42259683.56 -42259683.36 -42259683.17 0.0504 0.0200

Mercury -120411-08-01 10:05 J -42258482.19 -42258482.08 -42258481.98 0.0525 0.0304

Mercury -120411-10-29 17:03 J -42258392.92 -42258392.79 -42258392.67 0.0525 0.0167

Mars -120410-12-29 18:58 J -42257966.99 -42257966.71 -42257966.42 0.0526 0.0115

Venus -120408-02-19 19:27 J -42257548.88 -42257548.69 -42257548.49 0.0521 0.0109

Mercury -120405-06-20 10:49 J -42256332.19 -42256332.05 -42256331.90 0.0501 0.0295

Mercury -120405-09-18 19:13 J -42256241.84 -42256241.70 -42256241.55 0.0500 0.0294

Venus -120403-12-21 18:01 J -42255417.87 -42255417.75 -42255417.62 0.0503 0.0405

Venus -120402-08-16 09:22 J -42255180.26 -42255180.11 -42255179.95 0.0507 0.0335

Mercury -120399-05-20 14:10 J -42254171.98 -42254171.91 -42254171.82 0.0525 0.0415

Mercury -120399-08-17 21:22 J -42254082.73 -42254082.61 -42254082.48 0.0525 0.0060

Mercury -120399-11-15 04:05 J -42253993.35 -42253993.33 -42253993.32 0.0526 0.0521

Venus -120397-10-25 21:22 J -42253282.77 -42253282.61 -42253282.45 0.0522 0.0312

Venus -120396-06-19 06:01 J -42253046.36 -42253046.25 -42253046.14 0.0518 0.0422

Mercury -120393-04-08 08:53 J -42252022.21 -42252022.13 -42252022.04 0.0501 0.0435

Mercury -120393-07-07 17:03 J -42251931.97 -42251931.79 -42251931.62 0.0500 0.0150

Mars -120392-11-04 06:01 J -42251447.50 -42251447.25 -42251446.99 0.0500 0.0094

Venus -120390-04-21 02:53 J -42250914.58 -42250914.38 -42250914.17 0.0506 0.0132

Moon -120388-01-26 05:32 J -42250268.40 -42250268.27 -42250268.13 0.0518 0.0409

Earth -120388-01-26 07:56 J -42250268.29 -42250268.17 -42250268.04 0.0518 0.0428 \*

Mercury -120387-06-06 01:27 J -42249772.57 -42249772.44 -42249772.31 0.0525 0.0058

Mercury -120387-09-03 08:10 J -42249683.24 -42249683.16 -42249683.08 0.0526 0.0407

Venus -120385-06-30 21:08 J -42249016.64 -42249016.62 -42249016.60 0.0523 0.0519

Venus -120384-02-22 06:29 J -42248780.41 -42248780.23 -42248780.06 0.0519 0.0220

Mercury -120381-04-25 14:53 J -42247622.06 -42247621.88 -42247621.69 0.0501 0.0014

Venus -120379-12-24 20:25 J -42246648.86 -42246648.65 -42246648.44 0.0505 0.0072

Earth -120376-01-31 02:25 J -42245880.63 -42245880.40 -42245880.16 0.0519 0.0041

Moon -120376-01-31 06:29 J -42245880.46 -42245880.23 -42245880.00 0.0519 0.0012 \*

Mercury -120375-03-25 05:17 J -42245462.40 -42245462.28 -42245462.15 0.0525 0.0176

Mercury -120375-06-22 12:15 J -42245373.10 -42245372.99 -42245372.89 0.0525 0.0292

Venus -120373-10-28 07:27 J -42244514.38 -42244514.19 -42244513.99 0.0520 0.0017

Mercury -120369-02-12 13:13 J -42243312.12 -42243311.95 -42243311.77 0.0501 0.0129

Mercury -120369-05-12 22:05 J -42243221.65 -42243221.58 -42243221.52 0.0500 0.0463

Venus -120367-08-29 13:27 J -42242383.12 -42242382.94 -42242382.76 0.0504 0.0274

Venus -120366-04-24 04:34 J -42242145.39 -42242145.31 -42242145.23 0.0507 0.0467

Moon -120364-02-04 15:37 J -42241492.93 -42241492.85 -42241492.75 0.0520 0.0481

Earth -120364-02-04 18:58 J -42241492.77 -42241492.71 -42241492.64 0.0520 0.0497 \*

Mercury -120363-01-11 09:08 J -42241152.23 -42241152.12 -42241152.01 0.0525 0.0294

Mercury -120363-04-10 16:05 J -42241062.95 -42241062.83 -42241062.71 0.0525 0.0175

Venus -120361-07-03 08:39 J -42240248.32 -42240248.14 -42240247.95 0.0522 0.0189

Earth -120359-07-18 17:17 J -42239502.92 -42239502.78 -42239502.64 0.0508 0.0400

Moon -120359-07-18 21:08 J -42239502.75 -42239502.62 -42239502.49 0.0508 0.0417 \*

Mercury -120358-12-01 11:17 J -42239002.18 -42239002.03 -42239001.88 0.0501 0.0269

Mercury -120357-02-29 19:41 J -42238911.82 -42238911.68 -42238911.54 0.0500 0.0320

Mars -120356-08-08 21:08 J -42238385.69 -42238385.62 -42238385.54 0.0500 0.0477

Venus -120355-05-04 06:29 J -42238117.29 -42238117.23 -42238117.16 0.0503 0.0474

Venus -120355-12-27 20:53 J -42237879.80 -42237879.63 -42237879.44 0.0506 0.0263

Mercury -120352-10-30 13:13 J -42236842.03 -42236841.95 -42236841.86 0.0525 0.0406

Mercury -120351-01-27 20:25 J -42236752.78 -42236752.65 -42236752.52 0.0525 0.0066

Venus -120349-03-08 10:49 J -42235982.17 -42235982.05 -42235981.92 0.0522 0.0390

Venus -120349-10-30 19:56 J -42235745.81 -42235745.67 -42235745.52 0.0518 0.0350

Moon -120347-07-23 06:44 J -42235115.46 -42235115.22 -42235114.97 0.0506 0.0016

Earth -120347-07-23 09:08 J -42235115.35 -42235115.12 -42235114.88 0.0506 0.0034 \*

Mercury -120346-09-19 08:10 J -42234692.26 -42234692.16 -42234692.07 0.0501 0.0422

Mercury -120346-12-18 16:05 J -42234602.00 -42234601.83 -42234601.66 0.0500 0.0162

Venus -120343-09-01 11:46 J -42233614.22 -42233614.01 -42233613.80 0.0506 0.0054

Mercury -120340-08-18 17:32 J -42232531.78 -42232531.77 -42232531.75 0.0525 0.0518

Mercury -120340-11-16 00:58 J -42232442.59 -42232442.46 -42232442.34 0.0525 0.0049



Mercury -120339-02-13 07:27 J -42232353.26 -42232353.19 -42232353.11 0.0526 0.0422

Venus -120337-07-05 22:05 J -42231479.77 -42231479.58 -42231479.40 0.0519 0.0150

Earth -120335-07-28 02:39 J -42230727.47 -42230727.39 -42230727.31 0.0505 0.0474

Mercury -120334-10-06 13:56 J -42230292.10 -42230291.92 -42230291.74 0.0500 0.0020

Venus -120331-05-07 05:03 J -42229348.49 -42229348.29 -42229348.09 0.0505 0.0151

Mercury -120328-09-04 04:49 J -42228132.42 -42228132.30 -42228132.17 0.0525 0.0161

Mercury -120328-12-02 11:32 J -42228043.12 -42228043.02 -42228042.91 0.0526 0.0308

Venus -120325-03-10 22:05 J -42227213.77 -42227213.58 -42227213.38 0.0520 0.0059

Mercury -120322-07-25 11:46 J -42225982.18 -42225982.01 -42225981.83 0.0501 0.0123

Mercury -120322-10-23 20:25 J -42225891.70 -42225891.65 -42225891.58 0.0500 0.0470

Venus -120319-01-09 22:49 J -42225082.70 -42225082.55 -42225082.40 0.0504 0.0352

Venus -120319-09-04 14:10 J -42224845.03 -42224844.91 -42224844.77 0.0507 0.0392

Mercury -120316-06-23 08:39 J -42223822.25 -42223822.14 -42223822.03 0.0525 0.0278

Mercury -120316-09-20 15:37 J -42223732.97 -42223732.85 -42223732.73 0.0525 0.0192

Venus -120314-11-14 22:49 J -42222947.72 -42222947.55 -42222947.38 0.0522 0.0266

Venus -120313-07-08 07:27 J -42222711.27 -42222711.19 -42222711.11 0.0518 0.0471

Mercury -120310-05-13 10:05 J -42221672.24 -42221672.08 -42221671.93 0.0501 0.0261

Mercury -120310-08-11 18:29 J -42221581.87 -42221581.73 -42221581.59 0.0500 0.0329

Mars -120309-07-23 12:44 J -42221235.02 -42221234.97 -42221234.90 0.0499 0.0487

Venus -120307-05-10 06:44 J -42220579.42 -42220579.22 -42220579.02 0.0506 0.0187

Earth -120305-01-26 17:17 J -42219952.85 -42219952.78 -42219952.71 0.0518 0.0488

Mercury -120304-04-11 12:15 J -42219512.07 -42219511.99 -42219511.90 0.0524 0.0398

Mercury -120304-07-09 19:27 J -42219422.82 -42219422.69 -42219422.56 0.0525 0.0073

Venus -120302-07-20 23:17 J -42218681.61 -42218681.53 -42218681.45 0.0523 0.0471

Venus -120301-03-13 09:08 J -42218445.29 -42218445.12 -42218444.96 0.0519 0.0273

Mercury -120298-03-01 08:10 J -42217362.27 -42217362.16 -42217362.05 0.0501 0.0400

Mercury -120298-05-30 16:20 J -42217271.99 -42217271.82 -42217271.65 0.0500 0.0186

Venus -120295-01-12 23:03 J -42216313.75 -42216313.54 -42216313.32 0.0505 0.0023

Earth -120293-01-31 12:15 J -42215565.22 -42215564.99 -42215564.76 0.0519 0.0022

Moon -120293-01-31 15:51 J -42215565.08 -42215564.84 -42215564.61 0.0519 0.0011 \*

Mercury -120292-01-28 16:34 J -42215201.84 -42215201.81 -42215201.79 0.0524 0.0511

Mercury -120292-04-27 23:46 J -42215112.64 -42215112.51 -42215112.38 0.0525 0.0038

Mercury -120292-07-26 06:29 J -42215023.30 -42215023.23 -42215023.16 0.0526 0.0427

Mars -120291-06-17 18:44 J -42214696.98 -42214696.72 -42214696.45 0.0526 0.0220

Venus -120290-11-17 11:17 J -42214179.22 -42214179.03 -42214178.83 0.0520 0.0074

Mercury -120286-03-18 12:58 J -42212962.15 -42212961.96 -42212961.78 0.0500 0.0032

Venus -120284-09-17 13:27 J -42212048.13 -42212047.94 -42212047.75 0.0504 0.0231

Moon -120281-02-05 03:22 J -42211177.46 -42211177.36 -42211177.26 0.0520 0.0465

Earth -120281-02-05 06:29 J -42211177.34 -42211177.23 -42211177.10 0.0520 0.0444 \*

Mercury -120280-02-14 04:05 J -42210802.46 -42210802.33 -42210802.21 0.0525 0.0151

Mercury -120280-05-14 10:49 J -42210713.15 -42210713.05 -42210712.94 0.0526 0.0319

Venus -120278-07-23 13:13 J -42209913.14 -42209912.95 -42209912.76 0.0521 0.0132

Earth -120276-07-18 02:39 J -42209187.48 -42209187.39 -42209187.28 0.0507 0.0457

Moon -120276-07-18 06:44 J -42209187.32 -42209187.22 -42209187.11 0.0507 0.0449 \*

Mercury -120274-01-04 10:34 J -42208652.24 -42208652.06 -42208651.88 0.0500 0.0114

Mercury -120274-04-04 19:13 J -42208561.75 -42208561.70 -42208561.65 0.0500 0.0477

Mars -120273-04-26 12:15 J -42208174.24 -42208173.99 -42208173.74 0.0500 0.0132

Venus -120272-05-23 06:44 J -42207782.32 -42207782.22 -42207782.11 0.0503 0.0433

Venus -120271-01-15 22:05 J -42207544.74 -42207544.58 -42207544.41 0.0507 0.0312

Mercury -120269-12-03 07:56 J -42206492.28 -42206492.17 -42206492.06 0.0525 0.0266

Mercury -120268-03-02 14:53 J -42206403.00 -42206402.88 -42206402.76 0.0526 0.0204

Venus -120266-03-28 12:58 J -42205647.10 -42205646.96 -42205646.81 0.0522 0.0342

Venus -120266-11-19 21:37 J -42205410.72 -42205410.60 -42205410.47 0.0518 0.0399

Moon -120264-07-22 14:39 J -42204800.13 -42204799.89 -42204799.65 0.0506 0.0009

Earth -120264-07-22 18:29 J -42204799.97 -42204799.73 -42204799.50 0.0506 0.0023 \*

Mercury -120263-10-23 08:25 J -42204342.30 -42204342.15 -42204341.99 0.0501 0.0256

Mercury -120262-01-21 16:49 J -42204251.93 -42204251.80 -42204251.66 0.0500 0.0334

Venus -120260-09-20 15:37 J -42203279.06 -42203278.85 -42203278.64 0.0506 0.0107

Mercury -120257-09-21 11:46 J -42202182.10 -42202182.01 -42202181.92 0.0524 0.0384

Mercury -120257-12-19 18:58 J -42202092.84 -42202092.71 -42202092.59 0.0525 0.0088

Mars -120255-03-26 02:39 J -42201631.61 -42201631.39 -42201631.15 0.0525 0.0327  
 Venus -120254-07-25 22:20 J -42201144.75 -42201144.57 -42201144.38 0.0519 0.0196  
 Earth -120252-07-27 11:46 J -42200412.13 -42200412.01 -42200411.88 0.0506 0.0421  
 Moon -120252-07-27 12:44 J -42200412.10 -42200411.97 -42200411.83 0.0506 0.0406 \*  
 Mercury -120251-08-11 06:44 J -42200032.33 -42200032.22 -42200032.11 0.0501 0.0394  
 Mercury -120251-11-09 14:39 J -42199942.05 -42199941.89 -42199941.72 0.0500 0.0192  
 Venus -120248-05-26 08:10 J -42199013.37 -42199013.16 -42199012.95 0.0505 0.0099  
 Mercury -120245-07-10 15:22 J -42197871.89 -42197871.86 -42197871.83 0.0524 0.0505  
 Mercury -120245-10-07 22:34 J -42197782.69 -42197782.56 -42197782.43 0.0525 0.0033  
 Mercury -120244-01-05 05:17 J -42197693.35 -42197693.28 -42197693.21 0.0526 0.0432  
 Venus -120242-03-30 23:32 J -42196878.72 -42196878.52 -42196878.32 0.0521 0.0010  
 Mercury -120239-08-28 12:29 J -42195632.16 -42195631.98 -42195631.80 0.0500 0.0049  
 Mars -120237-01-29 23:17 J -42195112.75 -42195112.53 -42195112.30 0.0500 0.0250  
 Venus -120236-01-29 00:44 J -42194747.64 -42194747.47 -42194747.30 0.0504 0.0304  
 Venus -120236-09-23 15:51 J -42194509.94 -42194509.84 -42194509.73 0.0507 0.0442  
 Mercury -120233-07-27 02:39 J -42193472.51 -42193472.39 -42193472.26 0.0525 0.0147  
 Mercury -120233-10-24 09:37 J -42193383.20 -42193383.10 -42193383.00 0.0526 0.0322  
 Venus -120231-12-04 01:27 J -42192612.61 -42192612.44 -42192612.26 0.0522 0.0214  
 Mercury -120227-06-16 09:22 J -42191322.29 -42191322.11 -42191321.93 0.0500 0.0105  
 Mercury -120227-09-14 18:01 J -42191231.79 -42191231.75 -42191231.71 0.0499 0.0485  
 Venus -120224-05-29 05:32 J -42190244.46 -42190244.27 -42190244.08 0.0506 0.0230  
 Mercury -120221-05-15 06:44 J -42189162.33 -42189162.22 -42189162.10 0.0525 0.0262  
 Mercury -120221-08-12 13:56 J -42189073.04 -42189072.92 -42189072.81 0.0526 0.0211  
 Venus -120219-08-09 03:08 J -42188346.49 -42188346.37 -42188346.26 0.0522 0.0419  
 Venus -120218-04-02 12:15 J -42188110.14 -42188109.99 -42188109.83 0.0518 0.0327  
 Mercury -120215-04-04 06:58 J -42187012.36 -42187012.21 -42187012.05 0.0500 0.0249  
 Mercury -120215-07-03 15:22 J -42186921.99 -42186921.86 -42186921.73 0.0499 0.0338  
 Venus -120212-01-31 22:20 J -42185978.78 -42185978.57 -42185978.36 0.0505 0.0023  
 Earth -120210-01-30 20:39 J -42185249.87 -42185249.64 -42185249.41 0.0519 0.0086  
 Moon -120210-01-30 23:17 J -42185249.77 -42185249.53 -42185249.30 0.0519 0.0080 \*

Mercury -120209-03-03 10:49 J -42184852.14 -42184852.05 -42184851.96 0.0525 0.0377  
 Mercury -120209-05-31 17:46 J -42184762.88 -42184762.76 -42184762.63 0.0526 0.0097  
 Venus -120207-12-06 12:01 J -42183844.19 -42183844.00 -42183843.81 0.0520 0.0119  
 Mercury -120203-01-21 04:49 J -42182702.41 -42182702.30 -42182702.19 0.0501 0.0391  
 Mercury -120203-04-21 12:44 J -42182612.13 -42182611.97 -42182611.80 0.0500 0.0194  
 Venus -120201-10-06 16:05 J -42181713.03 -42181712.83 -42181712.63 0.0504 0.0182  
 Moon -120198-02-04 11:32 J -42180862.19 -42180862.02 -42180861.85 0.0520 0.0347  
 Earth -120198-02-04 15:22 J -42180862.01 -42180861.86 -42180861.70 0.0520 0.0382 \*  
 Mercury -120198-12-21 14:25 J -42180541.94 -42180541.90 -42180541.86 0.0524 0.0495  
 Mercury -120197-03-19 21:51 J -42180452.72 -42180452.59 -42180452.46 0.0525 0.0025  
 Mercury -120197-06-17 04:20 J -42180363.38 -42180363.32 -42180363.25 0.0526 0.0443  
 Venus -120195-08-11 12:15 J -42179578.18 -42179577.99 -42179577.80 0.0521 0.0091  
 Moon -120193-07-17 11:32 J -42178872.04 -42178872.02 -42178871.99 0.0508 0.0505  
 Mercury -120191-02-07 10:34 J -42178302.24 -42178302.06 -42178301.88 0.0500 0.0051  
 Venus -120189-06-11 08:39 J -42177447.27 -42177447.14 -42177447.00 0.0503 0.0386  
 Venus -120188-02-03 23:32 J -42177209.66 -42177209.52 -42177209.36 0.0507 0.0363  
 Mercury -120185-01-07 01:27 J -42176142.57 -42176142.44 -42176142.32 0.0525 0.0145  
 Mercury -120185-04-05 08:10 J -42176053.26 -42176053.16 -42176053.06 0.0526 0.0323  
 Venus -120183-04-16 12:29 J -42175312.13 -42175311.98 -42175311.81 0.0522 0.0300  
 Venus -120183-12-08 21:37 J -42175075.70 -42175075.60 -42175075.50 0.0518 0.0446  
 Moon -120181-07-21 22:49 J -42174484.78 -42174484.55 -42174484.32 0.0507 0.0114  
 Earth -120181-07-22 02:39 J -42174484.62 -42174484.39 -42174484.16 0.0507 0.0082 \*  
 Mercury -120180-11-26 08:25 J -42173992.33 -42173992.15 -42173991.97 0.0500 0.0093  
 Mercury -120179-02-24 17:03 J -42173901.79 -42173901.79 -42173901.78 0.0500 0.0499  
 Venus -120177-10-09 15:51 J -42172944.04 -42172943.84 -42172943.64 0.0506 0.0153  
 Mercury -120174-10-26 05:17 J -42171832.39 -42171832.28 -42171832.16 0.0525 0.0260  
 Mercury -120173-01-23 12:15 J -42171743.10 -42171742.99 -42171742.87 0.0526 0.0212  
 Venus -120172-12-20 14:10 J -42171045.96 -42171045.91 -42171045.86 0.0523 0.0504  
 Venus -120171-08-14 00:01 J -42170809.68 -42170809.50 -42170809.33 0.0519 0.0246  
 Earth -120169-07-26 19:13 J -42170096.86 -42170096.70 -42170096.53 0.0505 0.0356

Moon -120169-07-26 22:05 J -42170096.74 -42170096.58 -42170096.41 0.0505 0.0353 \*  
 Mercury -120168-09-14 05:17 J -42169682.43 -42169682.28 -42169682.12 0.0500 0.0244  
 Mercury -120168-12-13 13:41 J -42169592.06 -42169591.93 -42169591.80 0.0499 0.0343  
 Venus -120165-06-14 05:17 J -42168678.49 -42168678.28 -42168678.07 0.0505 0.0063  
 Mercury -120162-08-14 09:08 J -42167522.20 -42167522.12 -42167522.02 0.0525 0.0378  
 Mercury -120162-11-11 16:34 J -42167432.94 -42167432.81 -42167432.69 0.0526 0.0098  
 Venus -120159-04-19 01:41 J -42166543.63 -42166543.43 -42166543.23 0.0520 0.0041  
 Mercury -120156-07-03 03:08 J -42165372.48 -42165372.37 -42165372.25 0.0500 0.0387  
 Mercury -120156-10-01 11:03 J -42165282.21 -42165282.04 -42165281.87 0.0499 0.0196  
 Mars -120155-10-17 10:20 J -42164901.23 -42164901.07 -42164900.89 0.0499 0.0372  
 Venus -120153-02-17 22:05 J -42164412.76 -42164412.58 -42164412.40 0.0504 0.0269  
 Venus -120153-10-12 13:41 J -42164174.99 -42164174.93 -42164174.86 0.0508 0.0483  
 Mercury -120150-06-02 12:58 J -42163212.00 -42163211.96 -42163211.91 0.0525 0.0494  
 Mercury -120150-08-30 20:25 J -42163122.78 -42163122.65 -42163122.52 0.0526 0.0020  
 Mercury -120150-11-28 03:08 J -42163033.43 -42163033.37 -42163033.30 0.0526 0.0446  
 Venus -120148-12-23 00:58 J -42162277.65 -42162277.46 -42162277.28 0.0521 0.0172  
 Mercury -120144-07-20 08:25 J -42160972.33 -42160972.15 -42160971.97 0.0500 0.0050  
 Venus -120142-10-23 15:51 J -42160146.91 -42160146.84 -42160146.76 0.0503 0.0470  
 Venus -120141-06-17 06:44 J -42159909.40 -42159909.22 -42159909.04 0.0507 0.0278  
 Mercury -120138-06-19 00:15 J -42158812.61 -42158812.49 -42158812.36 0.0525 0.0138  
 Mercury -120138-09-16 06:58 J -42158723.30 -42158723.21 -42158723.11 0.0526 0.0331  
 Mars -120137-09-11 06:58 J -42158362.50 -42158362.21 -42158361.92 0.0526 0.0043  
 Venus -120136-08-28 00:44 J -42158011.60 -42158011.47 -42158011.34 0.0522 0.0383  
 Venus -120135-04-21 09:51 J -42157775.23 -42157775.09 -42157774.96 0.0518 0.0365  
 Mercury -120132-05-08 06:01 J -42156662.42 -42156662.25 -42156662.07 0.0500 0.0095  
 Mercury -120132-08-06 14:53 J -42156571.90 -42156571.88 -42156571.87 0.0500 0.0497  
 Venus -120129-02-20 22:49 J -42155643.76 -42155643.55 -42155643.34 0.0505 0.0069  
 Moon -120127-01-29 23:46 J -42154934.73 -42154934.51 -42154934.29 0.0519 0.0198  
 Earth -120127-01-29 23:46 J -42154934.72 -42154934.51 -42154934.29 0.0519 0.0172 \*  
 Mercury -120126-04-07 03:37 J -42154502.46 -42154502.35 -42154502.23 0.0525 0.0262

Mercury -120126-07-05 10:49 J -42154413.17 -42154413.05 -42154412.94 0.0526 0.0209

Venus -120124-12-25 10:05 J -42153509.27 -42153509.08 -42153508.89 0.0520 0.0160

Mercury -120120-02-24 03:51 J -42152352.49 -42152352.34 -42152352.18 0.0500 0.0238

Mercury -120120-05-25 12:15 J -42152262.12 -42152261.99 -42152261.86 0.0500 0.0351

Mars -120119-07-21 17:17 J -42151840.04 -42151839.78 -42151839.52 0.0499 0.0004

Venus -120118-10-26 14:53 J -42151378.09 -42151377.88 -42151377.68 0.0504 0.0141

Moon -120115-02-03 14:10 J -42150547.09 -42150546.91 -42150546.73 0.0520 0.0314

Earth -120115-02-03 17:17 J -42150546.97 -42150546.78 -42150546.59 0.0520 0.0290 \*

Mercury -120114-01-24 07:27 J -42150192.27 -42150192.19 -42150192.09 0.0525 0.0379

Mercury -120114-04-23 14:39 J -42150103.01 -42150102.89 -42150102.76 0.0526 0.0095

Venus -120112-08-30 12:01 J -42149243.19 -42149243.00 -42149242.80 0.0521 0.0047

Mercury -120109-12-13 01:13 J -42148042.56 -42148042.45 -42148042.34 0.0500 0.0385

Mercury -120108-03-13 09:08 J -42147952.29 -42147952.12 -42147951.96 0.0499 0.0198

Venus -120106-07-01 04:34 J -42147112.46 -42147112.31 -42147112.16 0.0503 0.0355

Venus -120105-02-23 19:13 J -42146874.82 -42146874.70 -42146874.56 0.0507 0.0397

Mercury -120103-11-12 11:17 J -42145882.07 -42145882.03 -42145881.99 0.0525 0.0499

Mercury -120102-02-09 18:44 J -42145792.85 -42145792.72 -42145792.59 0.0526 0.0027

Mercury -120102-05-10 01:27 J -42145703.51 -42145703.44 -42145703.37 0.0527 0.0444

Mars -120101-06-19 13:41 J -42145297.00 -42145296.93 -42145296.85 0.0526 0.0507

Venus -120100-05-05 13:13 J -42144977.12 -42144976.95 -42144976.78 0.0522 0.0255

Venus -120100-12-27 22:05 J -42144740.64 -42144740.58 -42144740.52 0.0518 0.0492

Moon -120098-07-22 04:34 J -42144169.52 -42144169.31 -42144169.09 0.0506 0.0148

Earth -120098-07-22 07:27 J -42144169.41 -42144169.19 -42144168.96 0.0506 0.0155 \*

Mercury -120097-12-30 06:29 J -42143642.41 -42143642.23 -42143642.05 0.0499 0.0051

Venus -120094-10-29 11:32 J -42142609.21 -42142609.02 -42142608.82 0.0506 0.0188

Mercury -120091-11-28 22:34 J -42141482.69 -42141482.56 -42141482.44 0.0525 0.0140

Mercury -120090-02-26 05:32 J -42141393.37 -42141393.27 -42141393.17 0.0526 0.0329

Venus -120088-01-08 12:01 J -42140711.08 -42140711.00 -42140710.91 0.0523 0.0468

Venus -120088-09-01 21:22 J -42140474.77 -42140474.61 -42140474.44 0.0519 0.0284

Earth -120086-07-26 20:39 J -42139781.84 -42139781.64 -42139781.44 0.0506 0.0271

Moon -120086-07-27 00:29 J -42139781.67 -42139781.48 -42139781.29 0.0506 0.0299 \*  
 Mercury -120085-10-18 03:37 J -42139332.53 -42139332.35 -42139332.17 0.0500 0.0099  
 Mercury -120084-01-16 12:15 J -42139242.02 -42139241.99 -42139241.96 0.0500 0.0492  
 Mars -120083-04-24 14:25 J -42138779.07 -42138778.90 -42138778.71 0.0500 0.0361  
 Venus -120082-07-04 04:49 J -42138343.51 -42138343.30 -42138343.09 0.0505 0.0020  
 Mercury -120079-09-17 02:25 J -42137172.52 -42137172.40 -42137172.29 0.0525 0.0259  
 Mercury -120079-12-15 09:22 J -42137083.23 -42137083.11 -42137082.99 0.0526 0.0212  
 Venus -120076-05-07 21:37 J -42136208.80 -42136208.60 -42136208.41 0.0520 0.0075  
 Mercury -120073-08-06 01:13 J -42135022.61 -42135022.45 -42135022.29 0.0500 0.0243  
 Mercury -120073-11-04 09:37 J -42134932.23 -42134932.10 -42134931.97 0.0500 0.0345  
 Venus -120070-03-08 21:08 J -42134077.80 -42134077.62 -42134077.43 0.0504 0.0228  
 Mercury -120067-07-06 05:46 J -42132862.35 -42132862.26 -42132862.17 0.0525 0.0383  
 Mercury -120067-10-03 12:58 J -42132773.09 -42132772.96 -42132772.84 0.0525 0.0090  
 Venus -120064-01-10 21:08 J -42131942.81 -42131942.62 -42131942.43 0.0521 0.0138  
 Mercury -120061-05-24 23:03 J -42130712.65 -42130712.54 -42130712.43 0.0501 0.0386  
 Mercury -120061-08-23 06:58 J -42130622.38 -42130622.21 -42130622.04 0.0500 0.0198  
 Venus -120059-11-11 13:27 J -42129812.05 -42129811.94 -42129811.84 0.0503 0.0434  
 Venus -120058-07-07 03:37 J -42129574.51 -42129574.35 -42129574.18 0.0506 0.0317  
 Mercury -120055-04-24 09:22 J -42128552.14 -42128552.11 -42128552.07 0.0525 0.0503  
 Mercury -120055-07-22 16:49 J -42128462.93 -42128462.80 -42128462.67 0.0525 0.0029  
 Mercury -120055-10-19 23:32 J -42128373.59 -42128373.52 -42128373.45 0.0526 0.0438  
 Venus -120053-09-15 22:34 J -42127676.71 -42127676.56 -42127676.42 0.0523 0.0347  
 Venus -120052-05-10 07:56 J -42127440.29 -42127440.17 -42127440.05 0.0518 0.0407  
 Mercury -120049-06-11 04:05 J -42126312.51 -42126312.33 -42126312.15 0.0499 0.0048  
 Venus -120046-03-11 17:03 J -42125309.00 -42125308.79 -42125308.58 0.0505 0.0099  
 Moon -120044-01-28 19:13 J -42124619.90 -42124619.70 -42124619.49 0.0519 0.0249  
 Earth -120044-01-28 21:22 J -42124619.80 -42124619.61 -42124619.41 0.0519 0.0280 \*  
 Mercury -120043-05-10 20:25 J -42124152.77 -42124152.65 -42124152.52 0.0526 0.0149  
 Mercury -120043-08-08 03:22 J -42124063.46 -42124063.36 -42124063.26 0.0526 0.0322  
 Venus -120040-01-13 09:08 J -42123174.30 -42123174.12 -42123173.94 0.0520 0.0202

Mercury -120037-03-30 01:27 J -42122002.62 -42122002.44 -42122002.26 0.0500 0.0099  
 Mercury -120037-06-28 09:51 J -42121912.12 -42121912.09 -42121912.06 0.0499 0.0489  
 Venus -120035-11-14 09:22 J -42121043.32 -42121043.11 -42121042.90 0.0504 0.0112  
 Moon -120032-02-02 15:51 J -42120232.05 -42120231.84 -42120231.64 0.0520 0.0196  
 Earth -120032-02-02 16:20 J -42120232.03 -42120231.82 -42120231.60 0.0520 0.0191 \*  
 Mercury -120031-02-27 00:15 J -42119842.60 -42119842.49 -42119842.37 0.0525 0.0266  
 Mercury -120031-05-27 07:27 J -42119753.31 -42119753.19 -42119753.07 0.0526 0.0206  
 Venus -120029-09-18 08:10 J -42118908.35 -42118908.16 -42118907.96 0.0521 0.0014  
 Mercury -120025-01-16 22:20 J -42117692.72 -42117692.57 -42117692.41 0.0500 0.0250  
 Mercury -120025-04-16 06:29 J -42117602.36 -42117602.23 -42117602.09 0.0500 0.0338  
 Venus -120023-07-20 02:25 J -42116777.56 -42116777.40 -42116777.23 0.0503 0.0317  
 Venus -120022-03-14 17:46 J -42116539.86 -42116539.76 -42116539.66 0.0507 0.0439  
 Mercury -120020-12-16 04:05 J -42115532.42 -42115532.33 -42115532.24 0.0525 0.0384  
 Mercury -120019-03-15 11:17 J -42115443.16 -42115443.03 -42115442.90 0.0526 0.0089  
 Mars -120018-02-27 12:15 J -42115094.13 -42115093.99 -42115093.83 0.0526 0.0452  
 Venus -120017-05-24 07:56 J -42114642.35 -42114642.17 -42114642.00 0.0522 0.0226  
 Moon -120015-07-21 03:37 J -42113854.54 -42113854.35 -42113854.15 0.0507 0.0245  
 Earth -120015-07-21 04:49 J -42113854.50 -42113854.30 -42113854.09 0.0507 0.0255 \*  
 Mercury -120014-11-04 19:56 J -42113382.77 -42113382.67 -42113382.56 0.0501 0.0395  
 Mercury -120013-02-03 03:51 J -42113292.50 -42113292.34 -42113292.17 0.0500 0.0190  
 Venus -120011-11-17 09:37 J -42112274.29 -42112274.10 -42112273.91 0.0506 0.0229  
 Mercury -120008-10-04 07:27 J -42111222.22 -42111222.19 -42111222.16 0.0524 0.0509  
 Mercury -120007-01-01 14:39 J -42111133.02 -42111132.89 -42111132.76 0.0525 0.0039  
 Mercury -120007-03-31 21:37 J -42111043.68 -42111043.60 -42111043.53 0.0526 0.0431  
 Venus -120005-01-28 06:44 J -42110376.32 -42110376.22 -42110376.11 0.0523 0.0440  
 Venus -120005-09-20 16:34 J -42110139.97 -42110139.81 -42110139.66 0.0519 0.0317  
 Earth -120003-07-25 20:53 J -42109466.85 -42109466.63 -42109466.41 0.0506 0.0181  
 Moon -120003-07-26 00:29 J -42109466.70 -42109466.48 -42109466.25 0.0506 0.0150 \*  
 Mercury -120002-11-22 01:27 J -42108982.62 -42108982.44 -42108982.26 0.0500 0.0043



# 120TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 120th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mars	-120000-01-10 00:01 J	-42108567.71	-42108567.50	-42108567.27	0.0499	0.0265		
Venus	-119999-07-23 00:58 J	-42108008.67	-42108008.46	-42108008.25	0.0505	0.0016		
Mercury	-119996-10-20 18:29 J	-42106822.85	-42106822.73	-42106822.61	0.0525	0.0155		
Mercury	-119995-01-18 01:27 J	-42106733.55	-42106733.44	-42106733.34	0.0526	0.0314		
Venus	-119993-05-26 18:01 J	-42105873.94	-42105873.75	-42105873.56	0.0520	0.0111		
Mercury	-119990-09-09 22:49 J	-42104672.73	-42104672.55	-42104672.37	0.0500	0.0104		
Mercury	-119990-12-09 07:13 J	-42104582.24	-42104582.20	-42104582.16	0.0499	0.0484		
Venus	-119987-03-27 14:39 J	-42103743.08	-42103742.89	-42103742.69	0.0503	0.0200		
Mercury	-119984-08-08 22:05 J	-42102512.69	-42102512.58	-42102512.47	0.0526	0.0277		
Mercury	-119984-11-06 05:03 J	-42102423.41	-42102423.29	-42102423.17	0.0526	0.0196		
Mars	-119983-12-05 11:46 J	-42102029.29	-42102029.01	-42102028.72	0.0527	0.0088		
Venus	-119981-01-30 18:58 J	-42101607.90	-42101607.71	-42101607.52	0.0522	0.0100		
Mercury	-119978-06-28 20:10 J	-42100362.81	-42100362.66	-42100362.50	0.0500	0.0251		
Mercury	-119978-09-27 04:20 J	-42100272.45	-42100272.32	-42100272.19	0.0499	0.0335		
Venus	-119976-11-30 07:13 J	-42099477.32	-42099477.20	-42099477.08	0.0503	0.0408		
Venus	-119975-07-25 21:22 J	-42099239.76	-42099239.61	-42099239.45	0.0506	0.0346		
Mercury	-119972-05-28 01:56 J	-42098202.51	-42098202.42	-42098202.34	0.0525	0.0394		

Mercury -119972-08-25 09:08 J -42098113.25 -42098113.12 -42098112.99 0.0526 0.0080

Venus -119970-10-05 17:46 J -42097341.92 -42097341.76 -42097341.61 0.0522 0.0315

Venus -119969-05-29 02:39 J -42097105.49 -42097105.39 -42097105.28 0.0518 0.0440

Mercury -119966-04-16 17:03 J -42096052.89 -42096052.79 -42096052.68 0.0500 0.0402

Mercury -119966-07-16 00:58 J -42095962.63 -42095962.46 -42095962.29 0.0500 0.0181

Mars -119965-10-13 19:56 J -42095506.93 -42095506.67 -42095506.42 0.0499 0.0094

Venus -119963-03-30 14:25 J -42094974.10 -42094973.90 -42094973.70 0.0506 0.0138

Moon -119961-01-28 18:58 J -42094304.87 -42094304.71 -42094304.55 0.0518 0.0378

Earth -119961-01-28 22:49 J -42094304.71 -42094304.55 -42094304.39 0.0518 0.0369 \*

Mercury -119960-03-16 05:32 J -42093892.29 -42093892.27 -42093892.24 0.0525 0.0512

Mercury -119960-06-13 12:58 J -42093803.09 -42093802.96 -42093802.83 0.0525 0.0038

Mercury -119960-09-10 19:41 J -42093713.75 -42093713.68 -42093713.60 0.0526 0.0430

Venus -119957-02-02 02:53 J -42092839.56 -42092839.38 -42092839.21 0.0519 0.0231

Mercury -119954-05-03 22:20 J -42091652.76 -42091652.57 -42091652.39 0.0500 0.0034

Venus -119952-12-03 06:29 J -42090708.44 -42090708.23 -42090708.02 0.0504 0.0073

Earth -119949-02-02 14:53 J -42089917.10 -42089916.88 -42089916.65 0.0519 0.0087

Moon -119949-02-02 16:20 J -42089917.04 -42089916.82 -42089916.60 0.0519 0.0064 \*

Mercury -119948-04-01 16:20 J -42089492.94 -42089492.82 -42089492.69 0.0525 0.0163

Mercury -119948-06-29 23:17 J -42089403.63 -42089403.53 -42089403.42 0.0526 0.0307

Venus -119946-10-08 02:25 J -42088573.60 -42088573.40 -42088573.21 0.0521 0.0020

Mercury -119942-02-19 19:41 J -42087342.85 -42087342.68 -42087342.50 0.0500 0.0114

Mercury -119942-05-21 04:20 J -42087252.37 -42087252.32 -42087252.27 0.0500 0.0477

Venus -119940-08-07 22:20 J -42086442.74 -42086442.57 -42086442.39 0.0503 0.0284

Venus -119939-04-02 12:58 J -42086205.03 -42086204.96 -42086204.88 0.0507 0.0474

Mercury -119936-01-18 19:56 J -42085182.77 -42085182.67 -42085182.56 0.0525 0.0284

Mercury -119936-04-18 03:08 J -42085093.49 -42085093.37 -42085093.25 0.0526 0.0188

Venus -119934-06-13 03:08 J -42084307.55 -42084307.37 -42084307.19 0.0522 0.0195

Earth -119932-07-20 06:01 J -42083539.42 -42083539.25 -42083539.07 0.0507 0.0341

Moon -119932-07-20 07:27 J -42083539.33 -42083539.19 -42083539.03 0.0507 0.0374 \*

Mercury -119931-12-08 17:32 J -42083032.93 -42083032.77 -42083032.62 0.0500 0.0257

Mercury -119930-03-09 01:27 J -42082942.57 -42082942.44 -42082942.30 0.0499 0.0329

Mars -119929-07-17 18:29 J -42082445.84 -42082445.73 -42082445.63 0.0499 0.0455

Venus -119928-04-12 12:58 J -42082176.99 -42082176.96 -42082176.92 0.0502 0.0493

Venus -119928-12-06 02:39 J -42081939.57 -42081939.39 -42081939.21 0.0506 0.0257

Mercury -119925-11-06 23:32 J -42080872.60 -42080872.52 -42080872.44 0.0525 0.0407

Mercury -119924-02-04 06:44 J -42080783.35 -42080783.22 -42080783.09 0.0526 0.0068

Venus -119922-02-16 03:37 J -42080041.47 -42080041.35 -42080041.23 0.0523 0.0406

Venus -119922-10-10 13:41 J -42079805.08 -42079804.93 -42079804.79 0.0519 0.0356

Earth -119920-07-24 22:05 J -42079151.81 -42079151.58 -42079151.35 0.0506 0.0096

Moon -119920-07-24 23:46 J -42079151.75 -42079151.51 -42079151.27 0.0506 0.0110 \*

Mercury -119919-09-26 14:53 J -42078722.98 -42078722.88 -42078722.77 0.0500 0.0402

Mercury -119919-12-25 22:49 J -42078632.72 -42078632.55 -42078632.38 0.0499 0.0180

Venus -119916-08-10 18:44 J -42077673.93 -42077673.72 -42077673.51 0.0505 0.0045

Mercury -119913-08-26 03:08 J -42076562.37 -42076562.37 -42076562.36 0.0525 0.0524

Mercury -119913-11-23 10:49 J -42076473.18 -42076473.05 -42076472.92 0.0526 0.0049

Mercury -119912-02-20 17:32 J -42076383.84 -42076383.77 -42076383.69 0.0526 0.0420

Venus -119910-06-15 12:44 J -42075539.16 -42075538.97 -42075538.79 0.0520 0.0143

Mercury -119907-10-13 19:13 J -42074322.88 -42074322.70 -42074322.52 0.0500 0.0024

Venus -119904-04-15 11:32 J -42073408.22 -42073408.02 -42073407.82 0.0504 0.0163

Mercury -119901-09-11 14:39 J -42072163.01 -42072162.89 -42072162.76 0.0525 0.0165

Mercury -119901-12-09 21:37 J -42072073.70 -42072073.60 -42072073.49 0.0526 0.0305

Venus -119898-02-18 12:29 J -42071273.17 -42071272.98 -42071272.78 0.0521 0.0073

Mercury -119895-08-01 16:34 J -42070012.98 -42070012.81 -42070012.63 0.0500 0.0124

Mercury -119895-10-31 00:58 J -42069922.52 -42069922.46 -42069922.39 0.0500 0.0466

Venus -119893-12-19 04:05 J -42069142.47 -42069142.33 -42069142.19 0.0503 0.0371

Venus -119892-08-13 18:29 J -42068904.85 -42068904.73 -42068904.59 0.0507 0.0388

Mercury -119889-06-30 18:01 J -42067852.85 -42067852.75 -42067852.64 0.0525 0.0289

Mercury -119889-09-28 01:13 J -42067763.57 -42067763.45 -42067763.33 0.0526 0.0183

Venus -119887-10-24 11:32 J -42067007.18 -42067007.02 -42067006.85 0.0522 0.0288

Venus -119886-06-17 20:53 J -42066770.71 -42066770.63 -42066770.55 0.0518 0.0470

Mercury -119883-05-20 14:10 J -42065703.06 -42065702.91 -42065702.75 0.0500 0.0269

Mercury -119883-08-18 22:20 J -42065612.71 -42065612.57 -42065612.43 0.0500 0.0319

Venus -119880-04-18 10:05 J -42064639.27 -42064639.08 -42064638.88 0.0505 0.0174

Moon -119878-01-27 15:08 J -42063989.93 -42063989.87 -42063989.80 0.0518 0.0496

Earth -119878-01-27 18:58 J -42063989.79 -42063989.71 -42063989.62 0.0518 0.0482

Mercury -119877-04-18 21:37 J -42063542.68 -42063542.60 -42063542.52 0.0525 0.0411

Mercury -119877-07-17 04:49 J -42063453.43 -42063453.30 -42063453.17 0.0525 0.0063

Venus -119875-06-29 11:46 J -42062741.07 -42062741.01 -42062740.96 0.0524 0.0501

Venus -119874-02-20 22:05 J -42062504.75 -42062504.58 -42062504.41 0.0520 0.0264

Mercury -119871-03-08 12:15 J -42061393.09 -42061392.99 -42061392.89 0.0500 0.0408

Mercury -119871-06-06 19:56 J -42061302.84 -42061302.67 -42061302.50 0.0500 0.0174

Venus -119869-12-22 00:29 J -42060373.69 -42060373.48 -42060373.27 0.0504 0.0043

Earth -119866-02-01 09:37 J -42059602.33 -42059602.10 -42059601.87 0.0519 0.0032

Moon -119866-02-01 13:13 J -42059602.18 -42059601.95 -42059601.72 0.0519 0.0004 \*

Mercury -119865-05-05 08:25 J -42059143.28 -42059143.15 -42059143.02 0.0526 0.0060

Mercury -119865-08-02 15:22 J -42059053.94 -42059053.86 -42059053.78 0.0526 0.0409

Mars -119864-05-22 03:22 J -42058761.57 -42058761.36 -42058761.13 0.0527 0.0346

Venus -119863-10-26 23:03 J -42058238.73 -42058238.54 -42058238.34 0.0521 0.0055

Mercury -119859-03-25 17:17 J -42056992.96 -42056992.78 -42056992.60 0.0500 0.0026

Venus -119857-08-26 16:49 J -42056107.98 -42056107.80 -42056107.61 0.0503 0.0254

Venus -119856-04-21 07:27 J -42055870.20 -42055870.19 -42055870.18 0.0507 0.0506

Moon -119854-02-06 03:08 J -42055214.49 -42055214.37 -42055214.24 0.0520 0.0439

Earth -119854-02-06 04:34 J -42055214.43 -42055214.31 -42055214.19 0.0520 0.0437 \*

Mercury -119853-02-22 12:29 J -42054833.11 -42054832.98 -42054832.86 0.0525 0.0175

Mercury -119853-05-21 19:27 J -42054743.80 -42054743.69 -42054743.59 0.0526 0.0296

Venus -119851-07-01 22:20 J -42053972.76 -42053972.57 -42053972.38 0.0522 0.0161

Earth -119849-07-19 01:56 J -42053224.52 -42053224.42 -42053224.31 0.0507 0.0450

Moon -119849-07-19 05:17 J -42053224.41 -42053224.28 -42053224.16 0.0507 0.0424 \*

Mercury -119847-01-11 13:41 J -42052683.10 -42052682.93 -42052682.75 0.0500 0.0131

Mercury -119847-04-11 22:05 J -42052592.65 -42052592.58 -42052592.51 0.0500 0.0458

Mars -119846-04-05 00:15 J -42052234.73 -42052234.49 -42052234.25 0.0499 0.0175  
 Venus -119845-05-01 09:22 J -42051842.19 -42051842.11 -42051842.02 0.0503 0.0459  
 Venus -119845-12-25 00:01 J -42051604.67 -42051604.50 -42051604.33 0.0506 0.0298  
 Mercury -119842-12-11 16:20 J -42050522.92 -42050522.82 -42050522.71 0.0525 0.0290  
 Mercury -119841-03-09 23:32 J -42050433.64 -42050433.52 -42050433.40 0.0526 0.0182  
 Venus -119839-03-06 22:05 J -42049706.71 -42049706.58 -42049706.44 0.0523 0.0376  
 Venus -119839-10-29 07:41 J -42049470.31 -42049470.18 -42049470.05 0.0519 0.0387  
 Moon -119837-07-23 16:20 J -42048837.06 -42048836.82 -42048836.58 0.0507 0.0006  
 Earth -119837-07-23 17:03 J -42048837.03 -42048836.79 -42048836.56 0.0507 0.0018 \*  
 Mercury -119836-10-30 11:17 J -42048373.18 -42048373.03 -42048372.88 0.0500 0.0277  
 Mercury -119835-01-28 19:13 J -42048282.84 -42048282.70 -42048282.55 0.0500 0.0310  
 Venus -119833-08-29 16:20 J -42047339.03 -42047338.82 -42047338.61 0.0505 0.0087  
 Mercury -119830-09-29 19:56 J -42046212.75 -42046212.67 -42046212.59 0.0524 0.0413  
 Mercury -119830-12-28 03:08 J -42046123.50 -42046123.37 -42046123.24 0.0525 0.0060  
 Mercury -119829-03-26 09:51 J -42046034.10 -42046034.09 -42046034.09 0.0526 0.0524  
 Mars -119828-02-27 03:08 J -42045696.63 -42045696.37 -42045696.10 0.0526 0.0202  
 Venus -119827-07-04 07:13 J -42045204.38 -42045204.20 -42045204.02 0.0520 0.0174  
 Moon -119825-07-28 06:44 J -42044449.36 -42044449.22 -42044449.07 0.0506 0.0390  
 Earth -119825-07-28 08:39 J -42044449.26 -42044449.14 -42044449.00 0.0506 0.0421 \*  
 Mercury -119824-08-18 09:08 J -42044063.21 -42044063.12 -42044063.02 0.0501 0.0419  
 Mercury -119824-11-16 16:49 J -42043972.97 -42043972.80 -42043972.63 0.0500 0.0164  
 Venus -119821-05-04 08:25 J -42043073.36 -42043073.15 -42043072.95 0.0504 0.0127  
 Mercury -119818-10-16 06:44 J -42041813.35 -42041813.22 -42041813.09 0.0525 0.0062  
 Mercury -119817-01-13 13:41 J -42041724.01 -42041723.93 -42041723.85 0.0526 0.0407  
 Venus -119815-03-09 08:10 J -42040938.36 -42040938.16 -42040937.97 0.0521 0.0040  
 Mercury -119812-09-04 14:39 J -42039663.07 -42039662.89 -42039662.71 0.0500 0.0022  
 Mars -119810-01-07 02:25 J -42039173.64 -42039173.40 -42039173.16 0.0499 0.0196  
 Venus -119809-01-07 23:32 J -42038807.67 -42038807.52 -42038807.36 0.0502 0.0338  
 Venus -119809-09-01 13:41 J -42038570.04 -42038569.93 -42038569.81 0.0506 0.0421  
 Mercury -119806-08-04 10:20 J -42037503.19 -42037503.07 -42037502.95 0.0525 0.0183

Mercury -119806-11-01 17:17 J -42037413.89 -42037413.78 -42037413.67 0.0526 0.0288

Venus -119804-11-12 08:39 J -42036672.31 -42036672.14 -42036671.97 0.0523 0.0251

Venus -119803-07-06 18:15 J -42036435.77 -42036435.74 -42036435.71 0.0519 0.0511

Mercury -119800-06-23 12:15 J -42035353.16 -42035352.99 -42035352.81 0.0500 0.0124

Mercury -119800-09-21 20:39 J -42035262.71 -42035262.64 -42035262.58 0.0499 0.0465

Venus -119797-05-07 05:46 J -42034304.45 -42034304.26 -42034304.06 0.0505 0.0210

Mercury -119794-05-23 14:25 J -42033193.01 -42033192.90 -42033192.80 0.0525 0.0298

Mercury -119794-08-20 21:22 J -42033103.73 -42033103.61 -42033103.48 0.0526 0.0176

Venus -119792-07-18 07:56 J -42032406.25 -42032406.17 -42032406.08 0.0523 0.0464

Venus -119791-03-11 18:01 J -42032169.90 -42032169.75 -42032169.59 0.0519 0.0303

Mercury -119788-04-11 08:39 J -42031043.28 -42031043.14 -42031042.99 0.0500 0.0281

Mercury -119788-07-10 16:34 J -42030952.95 -42030952.81 -42030952.66 0.0500 0.0306

Venus -119785-01-10 22:05 J -42030038.79 -42030038.58 -42030038.37 0.0505 0.0006

Earth -119783-01-31 14:25 J -42029287.13 -42029286.90 -42029286.67 0.0519 0.0110

Moon -119783-01-31 18:15 J -42029286.97 -42029286.74 -42029286.52 0.0519 0.0128 \*

Mercury -119782-03-11 18:29 J -42028882.81 -42028882.73 -42028882.65 0.0525 0.0411

Mercury -119782-06-09 01:41 J -42028793.56 -42028793.43 -42028793.30 0.0525 0.0062

Venus -119780-11-14 18:44 J -42027903.91 -42027903.72 -42027903.53 0.0520 0.0090

Mercury -119776-01-28 06:29 J -42026733.32 -42026733.23 -42026733.14 0.0501 0.0425

Mercury -119776-04-28 14:10 J -42026643.09 -42026642.91 -42026642.74 0.0500 0.0158

Venus -119774-09-15 15:08 J -42025773.06 -42025772.87 -42025772.68 0.0504 0.0212

Moon -119771-02-05 05:17 J -42024899.46 -42024899.28 -42024899.10 0.0519 0.0327

Earth -119771-02-05 08:10 J -42024899.33 -42024899.16 -42024898.99 0.0519 0.0352 \*

Mercury -119770-03-28 05:17 J -42024483.41 -42024483.28 -42024483.15 0.0525 0.0060

Mercury -119770-06-25 12:15 J -42024394.07 -42024393.99 -42024393.91 0.0526 0.0408

Venus -119768-07-20 18:01 J -42023637.94 -42023637.75 -42023637.56 0.0522 0.0127

Mercury -119764-02-14 11:46 J -42022333.19 -42022333.01 -42022332.83 0.0500 0.0016

Venus -119762-05-21 07:41 J -42021507.29 -42021507.18 -42021507.06 0.0503 0.0421

Venus -119761-01-13 21:51 J -42021269.74 -42021269.59 -42021269.43 0.0506 0.0341

Mercury -119758-01-14 08:53 J -42020173.25 -42020173.13 -42020173.00 0.0525 0.0181

Mercury -119758-04-13 15:51 J -42020083.94 -42020083.84 -42020083.73 0.0526 0.0291  
 Venus -119756-03-25 18:29 J -42019371.88 -42019371.73 -42019371.58 0.0523 0.0342  
 Venus -119756-11-17 04:05 J -42019135.43 -42019135.33 -42019135.21 0.0519 0.0425  
 Moon -119754-07-23 17:17 J -42018522.01 -42018521.78 -42018521.54 0.0507 0.0126  
 Earth -119754-07-23 20:39 J -42018521.87 -42018521.64 -42018521.41 0.0507 0.0094 \*  
 Mercury -119753-12-03 09:51 J -42018023.26 -42018023.09 -42018022.91 0.0500 0.0127  
 Mercury -119752-03-03 18:15 J -42017932.80 -42017932.74 -42017932.67 0.0500 0.0463  
 Venus -119750-09-18 13:13 J -42017004.15 -42017003.95 -42017003.74 0.0505 0.0126  
 Mercury -119747-11-02 12:29 J -42015863.09 -42015862.98 -42015862.87 0.0525 0.0302  
 Mercury -119746-01-30 19:41 J -42015773.80 -42015773.68 -42015773.56 0.0526 0.0171  
 Venus -119744-07-23 05:32 J -42014869.45 -42014869.27 -42014869.10 0.0520 0.0218  
 Moon -119742-07-28 13:13 J -42014134.10 -42014133.95 -42014133.79 0.0506 0.0369  
 Earth -119742-07-28 13:41 J -42014134.10 -42014133.93 -42014133.76 0.0506 0.0348 \*  
 Mercury -119741-09-21 07:41 J -42013713.33 -42013713.18 -42013713.03 0.0500 0.0269  
 Mercury -119741-12-20 15:37 J -42013622.99 -42013622.85 -42013622.71 0.0500 0.0317  
 Venus -119738-05-24 05:46 J -42012738.47 -42012738.26 -42012738.05 0.0504 0.0087  
 Mercury -119735-08-21 16:34 J -42011552.89 -42011552.81 -42011552.73 0.0525 0.0416  
 Mercury -119735-11-18 23:46 J -42011463.63 -42011463.51 -42011463.38 0.0526 0.0060  
 Mercury -119734-02-16 06:29 J -42011374.23 -42011374.23 -42011374.22 0.0526 0.0524  
 Venus -119732-03-28 05:46 J -42010603.46 -42010603.26 -42010603.06 0.0521 0.0005  
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 Mercury -119729-10-08 11:46 J -42009313.18 -42009313.01 -42009312.83 0.0500 0.0158  
 Mars -119728-09-24 12:58 J -42008962.09 -42008961.96 -42008961.83 0.0499 0.0430  
 Venus -119726-01-26 21:37 J -42008472.77 -42008472.60 -42008472.43 0.0503 0.0297  
 Venus -119726-09-21 12:58 J -42008235.04 -42008234.96 -42008234.88 0.0507 0.0469  
 Mercury -119723-09-07 04:05 J -42007153.46 -42007153.33 -42007153.20 0.0525 0.0054  
 Mercury -119723-12-05 11:03 J -42007064.12 -42007064.04 -42007063.97 0.0526 0.0414  
 Venus -119721-12-01 06:29 J -42006337.41 -42006337.23 -42006337.05 0.0522 0.0209  
 Mercury -119717-07-27 09:22 J -42005003.29 -42005003.11 -42005002.92 0.0500 0.0016  
 Venus -119714-05-27 05:32 J -42003969.45 -42003969.27 -42003969.09 0.0506 0.0258

Mercury -119711-06-26 07:56 J -42002843.30 -42002843.17 -42002843.05 0.0525 0.0174

Mercury -119711-09-23 14:39 J -42002753.99 -42002753.89 -42002753.78 0.0525 0.0297

Mars -119710-08-15 18:15 J -42002428.01 -42002427.74 -42002427.46 0.0526 0.0191

Venus -119709-08-06 05:46 J -42002071.37 -42002071.26 -42002071.15 0.0523 0.0427

Venus -119708-03-30 15:37 J -42001835.00 -42001834.85 -42001834.71 0.0519 0.0343

Mercury -119705-05-15 07:27 J -42000693.37 -42000693.19 -42000693.02 0.0501 0.0131

Mercury -119705-08-13 15:51 J -42000602.91 -42000602.84 -42000602.77 0.0500 0.0460

Venus -119702-01-29 22:05 J -41999703.79 -41999703.58 -41999703.37 0.0505 0.0045

Earth -119700-01-30 18:01 J -41998971.96 -41998971.75 -41998971.53 0.0518 0.0194

Moon -119700-01-30 21:08 J -41998971.83 -41998971.62 -41998971.40 0.0518 0.0201 \*

Mercury -119699-04-14 11:32 J -41998533.13 -41998533.02 -41998532.91 0.0525 0.0294

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Venus -119697-12-03 16:20 J -41997569.00 -41997568.82 -41997568.63 0.0521 0.0132

Mercury -119693-03-03 05:46 J -41996383.41 -41996383.26 -41996383.11 0.0501 0.0268

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Mars -119692-06-28 21:08 J -41995900.88 -41995900.62 -41995900.36 0.0499 0.0048

Venus -119691-10-04 14:10 J -41995438.10 -41995437.91 -41995437.71 0.0503 0.0168

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Earth -119688-02-04 10:05 J -41994584.28 -41994584.08 -41994583.88 0.0519 0.0261 \*

Mercury -119687-01-31 14:53 J -41994222.95 -41994222.88 -41994222.80 0.0525 0.0417

Mercury -119687-04-30 22:20 J -41994133.70 -41994133.57 -41994133.44 0.0525 0.0058

Mercury -119687-07-29 05:03 J -41994044.30 -41994044.29 -41994044.28 0.0526 0.0523

Venus -119685-08-08 17:32 J -41993302.97 -41993302.77 -41993302.58 0.0522 0.0082

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Mercury -119681-03-20 11:17 J -41991983.19 -41991983.03 -41991982.85 0.0500 0.0175

Venus -119679-06-09 07:13 J -41991172.34 -41991172.20 -41991172.06 0.0502 0.0377

Venus -119678-02-01 21:08 J -41990934.75 -41990934.62 -41990934.48 0.0506 0.0387

Mercury -119675-02-17 02:39 J -41989823.52 -41989823.39 -41989823.26 0.0525 0.0054

Mercury -119675-05-17 09:22 J -41989734.18 -41989734.11 -41989734.03 0.0526 0.0415

Mars -119674-05-24 03:22 J -41989362.55 -41989362.36 -41989362.15 0.0526 0.0380



Venus -119673-04-13 18:15 J -41989036.90 -41989036.74 -41989036.58 0.0522 0.0294  
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 Earth -119671-07-22 23:03 J -41988206.76 -41988206.54 -41988206.32 0.0507 0.0180 \*  
 Mercury -119669-01-07 07:41 J -41987673.36 -41987673.18 -41987673.00 0.0500 0.0015  
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 Mercury -119664-12-06 06:58 J -41985513.34 -41985513.21 -41985513.09 0.0525 0.0165  
 Mercury -119663-03-05 13:56 J -41985424.03 -41985423.92 -41985423.82 0.0526 0.0306  
 Venus -119662-12-18 18:58 J -41984770.75 -41984770.71 -41984770.66 0.0523 0.0507  
 Venus -119661-08-11 04:49 J -41984534.46 -41984534.30 -41984534.13 0.0519 0.0265  
 Earth -119659-07-27 14:53 J -41983819.07 -41983818.88 -41983818.67 0.0506 0.0260  
 Moon -119659-07-27 18:58 J -41983818.90 -41983818.71 -41983818.52 0.0506 0.0287 \*  
 Mercury -119658-10-26 05:32 J -41983363.45 -41983363.27 -41983363.10 0.0500 0.0129  
 Mercury -119657-01-24 13:41 J -41983272.99 -41983272.93 -41983272.86 0.0500 0.0462  
 Mars -119656-04-01 20:25 J -41982839.84 -41982839.65 -41982839.44 0.0500 0.0322  
 Venus -119655-06-12 06:15 J -41982403.45 -41982403.24 -41982403.03 0.0505 0.0038  
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 Mercury -119652-12-22 17:46 J -41981113.88 -41981113.76 -41981113.64 0.0525 0.0188  
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 Mercury -119646-08-14 03:37 J -41979053.50 -41979053.35 -41979053.20 0.0501 0.0269  
 Mercury -119646-11-12 11:32 J -41978963.16 -41978963.02 -41978962.88 0.0500 0.0319  
 Venus -119643-02-14 23:32 J -41978137.70 -41978137.52 -41978137.33 0.0503 0.0249  
 Mercury -119640-07-13 14:25 J -41976892.98 -41976892.90 -41976892.82 0.0524 0.0403  
 Mercury -119640-10-10 21:37 J -41976803.73 -41976803.60 -41976803.47 0.0525 0.0070  
 Venus -119638-12-21 05:32 J -41976002.45 -41976002.27 -41976002.08 0.0522 0.0167  
 Mercury -119634-06-02 02:10 J -41974743.52 -41974743.41 -41974743.31 0.0501 0.0404  
 Mercury -119634-08-31 09:51 J -41974653.26 -41974653.09 -41974652.92 0.0500 0.0180  
 Venus -119632-10-20 16:34 J -41973871.89 -41973871.81 -41973871.72 0.0502 0.0456  
 Venus -119631-06-15 06:15 J -41973634.40 -41973634.24 -41973634.06 0.0506 0.0309  
 Mercury -119628-07-30 01:13 J -41972493.58 -41972493.45 -41972493.32 0.0525 0.0052

Mercury -119628-10-27 08:10 J -41972404.24 -41972404.16 -41972404.08 0.0526 0.0418

Venus -119626-08-26 06:15 J -41971736.37 -41971736.24 -41971736.10 0.0523 0.0381

Venus -119625-04-18 16:34 J -41971499.94 -41971499.81 -41971499.68 0.0519 0.0394

Mercury -119622-06-19 07:41 J -41970343.36 -41970343.18 -41970343.00 0.0500 0.0037

Venus -119619-02-17 23:17 J -41969368.74 -41969368.53 -41969368.33 0.0505 0.0095

Moon -119617-01-30 21:22 J -41968656.81 -41968656.61 -41968656.41 0.0518 0.0261

Earth -119617-01-31 01:13 J -41968656.65 -41968656.45 -41968656.25 0.0518 0.0263 \*

Mercury -119616-05-18 05:32 J -41968183.39 -41968183.27 -41968183.14 0.0525 0.0161

Mercury -119616-08-15 12:29 J -41968094.08 -41968093.98 -41968093.87 0.0526 0.0310

Venus -119614-12-23 17:46 J -41967233.95 -41967233.76 -41967233.58 0.0520 0.0185

Mercury -119610-04-07 04:05 J -41966033.50 -41966033.33 -41966033.15 0.0500 0.0121

Mercury -119610-07-06 12:29 J -41965943.04 -41965942.98 -41965942.92 0.0500 0.0469

Venus -119608-10-23 14:39 J -41965103.09 -41965102.89 -41965102.68 0.0504 0.0120

Earth -119605-02-04 22:05 J -41964268.79 -41964268.58 -41964268.37 0.0520 0.0210

Moon -119605-02-05 01:13 J -41964268.65 -41964268.45 -41964268.25 0.0520 0.0242 \*

Mercury -119604-03-06 09:51 J -41963873.20 -41963873.09 -41963872.98 0.0525 0.0272

Mercury -119604-06-03 17:03 J -41963783.91 -41963783.79 -41963783.67 0.0526 0.0201

Venus -119602-08-28 19:27 J -41962967.89 -41962967.69 -41962967.50 0.0521 0.0029

Mercury -119598-01-24 02:10 J -41961723.57 -41961723.41 -41961723.26 0.0500 0.0263

Mercury -119598-04-24 09:51 J -41961633.22 -41961633.09 -41961632.95 0.0500 0.0325

Venus -119596-06-28 08:10 J -41960837.31 -41960837.16 -41960836.99 0.0503 0.0331

Venus -119595-02-20 23:17 J -41960599.62 -41960599.53 -41960599.42 0.0507 0.0443

Mercury -119593-12-23 13:41 J -41959563.01 -41959562.93 -41959562.84 0.0524 0.0389

Mercury -119592-03-22 20:53 J -41959473.75 -41959473.63 -41959473.50 0.0525 0.0086

Venus -119590-05-03 19:13 J -41958701.87 -41958701.70 -41958701.53 0.0522 0.0247

Earth -119588-07-22 06:58 J -41957891.41 -41957891.21 -41957891.00 0.0507 0.0241

Moon -119588-07-22 11:03 J -41957891.25 -41957891.04 -41957890.83 0.0507 0.0212 \*

Mercury -119587-11-12 00:15 J -41957413.59 -41957413.49 -41957413.38 0.0501 0.0401

Mercury -119586-02-10 07:56 J -41957323.34 -41957323.17 -41957323.00 0.0500 0.0183

Venus -119584-10-26 16:34 J -41956334.00 -41956333.81 -41956333.62 0.0506 0.0230

Mercury -119581-10-11 17:32 J -41955252.80 -41955252.77 -41955252.74 0.0524 0.0508

Mercury -119580-01-09 00:58 J -41955163.59 -41955163.46 -41955163.33 0.0525 0.0037

Mercury -119580-04-08 07:41 J -41955074.25 -41955074.18 -41955074.11 0.0526 0.0433

Venus -119578-01-06 19:27 J -41954435.77 -41954435.69 -41954435.60 0.0523 0.0463

Venus -119578-08-31 05:17 J -41954199.43 -41954199.28 -41954199.12 0.0519 0.0313

Moon -119576-07-26 21:22 J -41953503.82 -41953503.61 -41953503.39 0.0507 0.0231

Earth -119576-07-27 01:13 J -41953503.67 -41953503.45 -41953503.24 0.0507 0.0206 \*

Mercury -119575-11-29 06:15 J -41953013.42 -41953013.24 -41953013.06 0.0500 0.0046

Mars -119574-12-20 00:58 J -41952627.68 -41952627.46 -41952627.25 0.0499 0.0281

Venus -119572-07-01 09:08 J -41952068.34 -41952068.12 -41952067.91 0.0504 0.0018

Mercury -119569-10-28 04:34 J -41950853.43 -41950853.31 -41950853.19 0.0525 0.0154

Mercury -119568-01-25 11:32 J -41950764.12 -41950764.02 -41950763.92 0.0526 0.0316

Venus -119566-05-06 06:58 J -41949933.40 -41949933.21 -41949933.02 0.0521 0.0103

Mercury -119563-09-17 04:20 J -41948703.49 -41948703.32 -41948703.14 0.0500 0.0096

Mercury -119563-12-16 12:44 J -41948612.99 -41948612.97 -41948612.95 0.0500 0.0495

Venus -119560-03-06 02:10 J -41947802.60 -41947802.41 -41947802.21 0.0503 0.0197

Mercury -119557-08-16 08:53 J -41946543.25 -41946543.13 -41946543.02 0.0525 0.0266

Mercury -119557-11-13 15:51 J -41946453.95 -41946453.84 -41946453.72 0.0526 0.0208

Mars -119556-11-09 18:58 J -41946093.00 -41946092.71 -41946092.41 0.0526 0.0026

Venus -119554-01-09 08:39 J -41945667.33 -41945667.14 -41945666.95 0.0522 0.0110

Mercury -119551-07-06 00:58 J -41944393.61 -41944393.46 -41944393.30 0.0500 0.0252

Mercury -119551-10-04 08:53 J -41944303.26 -41944303.13 -41944302.99 0.0500 0.0335

Venus -119549-11-08 17:17 J -41943536.89 -41943536.78 -41943536.65 0.0503 0.0411

Venus -119548-07-04 08:10 J -41943299.31 -41943299.16 -41943299.01 0.0507 0.0362

Mercury -119545-06-04 12:58 J -41942233.04 -41942232.96 -41942232.86 0.0525 0.0377

Mercury -119545-09-01 20:25 J -41942143.78 -41942143.65 -41942143.52 0.0526 0.0098

Venus -119543-09-14 10:20 J -41941401.22 -41941401.07 -41941400.92 0.0522 0.0324

Venus -119542-05-08 19:13 J -41941164.79 -41941164.70 -41941164.60 0.0518 0.0450

Mercury -119539-04-23 23:03 J -41940083.64 -41940083.54 -41940083.42 0.0501 0.0392

Mercury -119539-07-23 06:44 J -41939993.39 -41939993.22 -41939993.05 0.0500 0.0192

Mars -119538-09-23 02:25 J -41939566.66 -41939566.40 -41939566.14 0.0500 0.0091  
 Venus -119536-03-09 01:27 J -41939033.64 -41939033.44 -41939033.23 0.0505 0.0149  
 Earth -119534-01-30 14:10 J -41938341.09 -41938340.91 -41938340.72 0.0518 0.0312  
 Moon -119534-01-30 18:01 J -41938340.94 -41938340.75 -41938340.56 0.0518 0.0301 \*  
 Mercury -119533-03-23 16:49 J -41937922.83 -41937922.80 -41937922.75 0.0524 0.0494  
 Mercury -119533-06-21 00:29 J -41937833.61 -41937833.48 -41937833.35 0.0525 0.0022  
 Mercury -119533-09-18 07:13 J -41937744.26 -41937744.20 -41937744.14 0.0526 0.0449  
 Venus -119530-01-11 19:41 J -41936898.85 -41936898.68 -41936898.50 0.0520 0.0237  
 Mercury -119527-05-11 04:49 J -41935683.48 -41935683.30 -41935683.12 0.0500 0.0051  
 Venus -119525-11-11 19:13 J -41934767.91 -41934767.70 -41934767.49 0.0504 0.0064  
 Moon -119522-02-04 07:13 J -41933953.42 -41933953.20 -41933952.98 0.0519 0.0186  
 Earth -119522-02-04 09:37 J -41933953.32 -41933953.10 -41933952.88 0.0519 0.0158 \*  
 Mercury -119521-04-09 04:20 J -41933523.45 -41933523.32 -41933523.20 0.0525 0.0136  
 Mercury -119521-07-07 11:17 J -41933434.13 -41933434.03 -41933433.93 0.0525 0.0334  
 Venus -119519-09-16 20:53 J -41932632.83 -41932632.63 -41932632.44 0.0521 0.0023  
 Mercury -119515-02-27 03:08 J -41931373.54 -41931373.37 -41931373.19 0.0501 0.0087  
 Venus -119513-07-17 12:29 J -41930502.16 -41930501.98 -41930501.80 0.0503 0.0275  
 Venus -119512-03-12 02:53 J -41930264.40 -41930264.38 -41930264.34 0.0507 0.0500  
 Mercury -119509-01-27 07:56 J -41929213.28 -41929213.17 -41929213.06 0.0525 0.0256  
 Mercury -119509-04-25 15:08 J -41929123.99 -41929123.87 -41929123.76 0.0525 0.0217  
 Venus -119507-05-22 21:51 J -41928366.77 -41928366.59 -41928366.41 0.0522 0.0194  
 Moon -119505-07-21 16:20 J -41927576.02 -41927575.82 -41927575.61 0.0508 0.0257  
 Earth -119505-07-21 20:10 J -41927575.85 -41927575.66 -41927575.46 0.0508 0.0283 \*  
 Mercury -119504-12-16 01:27 J -41927063.60 -41927063.44 -41927063.28 0.0501 0.0226  
 Mercury -119503-03-16 09:22 J -41926973.23 -41926973.11 -41926972.98 0.0500 0.0363  
 Mars -119502-06-27 15:37 J -41926504.90 -41926504.85 -41926504.79 0.0500 0.0488  
 Venus -119501-03-22 06:01 J -41926236.30 -41926236.25 -41926236.20 0.0502 0.0484  
 Venus -119501-11-14 19:56 J -41925998.85 -41925998.67 -41925998.50 0.0506 0.0286  
 Mercury -119498-11-15 12:15 J -41924903.09 -41924902.99 -41924902.90 0.0525 0.0368  
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Venus -119495-01-25 23:32 J -41924100.64 -41924100.52 -41924100.39 0.0523 0.0406  
 Venus -119495-09-19 09:08 J -41923864.25 -41923864.12 -41923863.98 0.0519 0.0373  
 Earth -119493-07-26 10:49 J -41923188.27 -41923188.05 -41923187.82 0.0506 0.0149  
 Moon -119493-07-26 13:41 J -41923188.15 -41923187.93 -41923187.72 0.0506 0.0171 \*  
 Mercury -119492-10-03 22:20 J -41922753.68 -41922753.57 -41922753.45 0.0500 0.0379  
 Mercury -119491-01-02 05:46 J -41922663.42 -41922663.26 -41922663.09 0.0500 0.0205  
 Venus -119489-07-20 10:34 J -41921733.27 -41921733.06 -41921732.85 0.0505 0.0067  
 Mercury -119486-09-03 16:20 J -41920592.87 -41920592.82 -41920592.77 0.0525 0.0480  
 Mercury -119486-12-01 23:46 J -41920503.64 -41920503.51 -41920503.38 0.0526 0.0015  
 Mercury -119485-02-29 06:44 J -41920414.28 -41920414.22 -41920414.16 0.0526 0.0465  
 Venus -119483-05-25 11:32 J -41919598.21 -41919598.02 -41919597.84 0.0520 0.0163  
 Mercury -119480-10-21 03:51 J -41918353.52 -41918353.34 -41918353.16 0.0500 0.0062  
 Venus -119477-03-25 04:05 J -41917467.53 -41917467.33 -41917467.12 0.0504 0.0147  
 Mercury -119474-09-20 03:51 J -41916193.47 -41916193.34 -41916193.21 0.0525 0.0119  
 Mercury -119474-12-18 10:49 J -41916104.15 -41916104.05 -41916103.96 0.0526 0.0351  
 Venus -119471-01-28 11:32 J -41915332.21 -41915332.02 -41915331.82 0.0521 0.0057  
 Mercury -119468-08-09 01:56 J -41914043.60 -41914043.42 -41914043.24 0.0500 0.0078  
 Venus -119466-11-28 22:34 J -41913201.71 -41913201.56 -41913201.42 0.0503 0.0357  
 Venus -119465-07-23 13:13 J -41912964.06 -41912963.95 -41912963.83 0.0507 0.0422  
 Mercury -119462-07-09 07:41 J -41911883.30 -41911883.18 -41911883.06 0.0525 0.0236  
 Mercury -119462-10-06 14:53 J -41911794.00 -41911793.88 -41911793.77 0.0525 0.0236  
 Venus -119460-10-03 12:15 J -41911066.16 -41911065.99 -41911065.82 0.0522 0.0274  
 Venus -119459-05-27 21:08 J -41910829.66 -41910829.62 -41910829.57 0.0518 0.0502  
 Mercury -119456-05-28 00:15 J -41909733.65 -41909733.49 -41909733.32 0.0501 0.0216  
 Mercury -119456-08-26 08:10 J -41909643.27 -41909643.16 -41909643.03 0.0500 0.0374  
 Venus -119453-03-28 06:01 J -41908698.44 -41908698.25 -41908698.05 0.0505 0.0207  
 Moon -119451-01-29 21:22 J -41908025.78 -41908025.61 -41908025.43 0.0518 0.0357  
 Earth -119451-01-30 00:29 J -41908025.64 -41908025.48 -41908025.32 0.0518 0.0369 \*  
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 Mercury -119450-07-25 18:29 J -41907483.85 -41907483.73 -41907483.60 0.0525 0.0117

Venus -119448-06-08 12:29 J -41906800.04 -41906799.98 -41906799.91 0.0523 0.0491  
 Venus -119447-01-30 22:49 J -41906563.71 -41906563.55 -41906563.39 0.0520 0.0293  
 Mercury -119444-03-15 22:34 J -41905423.68 -41905423.56 -41905423.43 0.0501 0.0354  
 Mercury -119444-06-14 06:15 J -41905333.40 -41905333.24 -41905333.07 0.0500 0.0232  
 Venus -119442-12-01 23:03 J -41904432.76 -41904432.54 -41904432.33 0.0504 0.0014  
 Earth -119439-02-03 20:25 J -41903637.87 -41903637.65 -41903637.42 0.0519 0.0105  
 Moon -119439-02-03 21:37 J -41903637.82 -41903637.60 -41903637.39 0.0519 0.0131 \*  
 Mercury -119438-02-13 15:22 J -41903262.91 -41903262.86 -41903262.80 0.0525 0.0470  
 Mercury -119438-05-13 22:49 J -41903173.68 -41903173.55 -41903173.42 0.0525 0.0015  
 Mercury -119438-08-11 05:46 J -41903084.31 -41903084.26 -41903084.21 0.0526 0.0473  
 Mars -119437-04-28 20:25 J -41902822.87 -41902822.65 -41902822.41 0.0526 0.0321  
 Venus -119436-10-06 01:13 J -41902297.64 -41902297.45 -41902297.26 0.0521 0.0083  
 Mercury -119432-04-02 03:08 J -41901023.55 -41901023.37 -41901023.20 0.0500 0.0076  
 Venus -119430-08-06 13:27 J -41900167.13 -41900166.94 -41900166.75 0.0504 0.0229  
 Mercury -119426-03-02 03:08 J -41898863.49 -41898863.37 -41898863.24 0.0526 0.0107  
 Mercury -119426-05-30 10:20 J -41898774.17 -41898774.07 -41898773.98 0.0526 0.0365  
 Venus -119424-06-11 03:08 J -41898031.55 -41898031.37 -41898031.18 0.0521 0.0133  
 Earth -119422-07-22 06:44 J -41897260.39 -41897260.22 -41897260.04 0.0507 0.0336  
 Moon -119422-07-22 10:05 J -41897260.26 -41897260.08 -41897259.90 0.0507 0.0307 \*  
 Mercury -119420-01-19 00:58 J -41896713.64 -41896713.46 -41896713.28 0.0500 0.0067  
 Mars -119419-03-15 11:32 J -41896293.27 -41896293.02 -41896292.77 0.0499 0.0137  
 Venus -119418-04-11 07:27 J -41895901.29 -41895901.19 -41895901.09 0.0503 0.0439  
 Venus -119418-12-04 22:05 J -41895663.73 -41895663.58 -41895663.42 0.0506 0.0340  
 Mercury -119415-12-19 07:13 J -41894553.32 -41894553.20 -41894553.08 0.0525 0.0221  
 Mercury -119414-03-18 14:25 J -41894464.02 -41894463.90 -41894463.79 0.0526 0.0251  
 Venus -119412-02-14 02:53 J -41893765.51 -41893765.38 -41893765.23 0.0522 0.0354  
 Venus -119412-10-08 12:01 J -41893529.10 -41893529.00 -41893528.88 0.0519 0.0428  
 Moon -119410-07-26 20:25 J -41892872.88 -41892872.65 -41892872.41 0.0506 0.0119  
 Earth -119410-07-26 22:20 J -41892872.80 -41892872.57 -41892872.34 0.0506 0.0101 \*  
 Mercury -119409-11-06 23:03 J -41892403.70 -41892403.54 -41892403.37 0.0500 0.0207

Mercury -119408-02-05 06:58 J -41892313.32 -41892313.21 -41892313.09 0.0500 0.0382

Venus -119406-08-09 15:51 J -41891398.05 -41891397.84 -41891397.64 0.0505 0.0126

Mercury -119403-10-07 11:03 J -41890243.14 -41890243.04 -41890242.94 0.0525 0.0339

Mercury -119402-01-04 18:15 J -41890153.86 -41890153.74 -41890153.61 0.0525 0.0135

Mars -119401-02-05 09:51 J -41889757.34 -41889757.09 -41889756.83 0.0526 0.0257

Venus -119400-06-13 13:13 J -41889263.13 -41889262.95 -41889262.77 0.0520 0.0213

Mercury -119397-08-25 21:37 J -41888093.73 -41888093.60 -41888093.47 0.0501 0.0344

Mercury -119397-11-24 05:03 J -41888003.44 -41888003.29 -41888003.12 0.0500 0.0242

Venus -119394-04-14 08:53 J -41887132.34 -41887132.13 -41887131.92 0.0504 0.0089

Mercury -119391-07-26 14:39 J -41885932.95 -41885932.89 -41885932.83 0.0524 0.0461

Mercury -119391-10-23 22:05 J -41885843.71 -41885843.58 -41885843.45 0.0525 0.0021

Mercury -119390-01-21 04:49 J -41885754.35 -41885754.30 -41885754.25 0.0526 0.0482

Venus -119388-02-16 14:25 J -41884997.10 -41884996.90 -41884996.71 0.0521 0.0011

Mercury -119385-06-13 19:56 J -41883783.71 -41883783.67 -41883783.62 0.0501 0.0481

Mercury -119385-09-12 03:22 J -41883693.54 -41883693.36 -41883693.19 0.0500 0.0101

Mars -119384-12-18 00:15 J -41883231.71 -41883231.49 -41883231.27 0.0500 0.0261

Venus -119383-12-18 01:56 J -41882866.59 -41882866.42 -41882866.25 0.0503 0.0304

Venus -119382-08-12 16:34 J -41882628.87 -41882628.81 -41882628.74 0.0507 0.0478

Mercury -119379-08-12 02:10 J -41881533.54 -41881533.41 -41881533.28 0.0525 0.0098

Mercury -119379-11-09 09:08 J -41881444.21 -41881444.12 -41881444.03 0.0526 0.0373

Venus -119377-10-22 16:34 J -41880730.99 -41880730.81 -41880730.64 0.0522 0.0216

Mercury -119373-07-01 00:01 J -41879383.67 -41879383.50 -41879383.32 0.0500 0.0056

Venus -119370-04-17 06:44 J -41878363.40 -41878363.22 -41878363.04 0.0506 0.0256

Earth -119368-01-29 11:03 J -41877710.16 -41877710.04 -41877709.90 0.0519 0.0425

Moon -119368-01-29 13:13 J -41877710.09 -41877709.95 -41877709.81 0.0519 0.0408 \*

Mercury -119367-05-31 06:29 J -41877223.35 -41877223.23 -41877223.11 0.0526 0.0211

Mercury -119367-08-28 13:27 J -41877134.05 -41877133.94 -41877133.82 0.0526 0.0264

Venus -119365-06-27 18:01 J -41876464.85 -41876464.75 -41876464.64 0.0523 0.0432

Venus -119364-02-19 03:37 J -41876228.49 -41876228.35 -41876228.20 0.0519 0.0354

Mercury -119361-04-18 22:05 J -41875073.74 -41875073.58 -41875073.41 0.0500 0.0196

Mercury -119361-07-18 05:46 J -41874983.36 -41874983.26 -41874983.14 0.0499 0.0392

Venus -119359-12-21 00:01 J -41874097.71 -41874097.50 -41874097.29 0.0505 0.0040

Earth -119356-02-03 08:10 J -41873322.39 -41873322.16 -41873321.93 0.0519 0.0054

Moon -119356-02-03 08:10 J -41873322.39 -41873322.16 -41873321.92 0.0519 0.0079 \*

Mercury -119355-03-19 10:20 J -41872913.17 -41872913.07 -41872912.97 0.0525 0.0326

Mercury -119355-06-16 17:32 J -41872823.89 -41872823.77 -41872823.64 0.0526 0.0149

Venus -119353-10-25 03:51 J -41871962.53 -41871962.34 -41871962.15 0.0520 0.0136

Mercury -119349-02-05 20:10 J -41870763.79 -41870763.66 -41870763.53 0.0500 0.0336

Mercury -119349-05-06 03:51 J -41870673.50 -41870673.34 -41870673.18 0.0500 0.0248

Venus -119347-08-25 18:01 J -41869831.95 -41869831.75 -41869831.55 0.0504 0.0174

Moon -119344-02-08 02:25 J -41868934.44 -41868934.40 -41868934.36 0.0520 0.0510

Mercury -119343-01-05 14:10 J -41868602.98 -41868602.91 -41868602.84 0.0525 0.0444

Mercury -119343-04-04 21:37 J -41868513.73 -41868513.60 -41868513.47 0.0525 0.0032

Mercury -119343-07-03 04:20 J -41868424.36 -41868424.32 -41868424.28 0.0526 0.0498

Venus -119341-06-30 04:20 J -41867696.51 -41867696.32 -41867696.12 0.0521 0.0085

Moon -119339-07-21 14:25 J -41866945.06 -41866944.90 -41866944.73 0.0507 0.0361

Earth -119339-07-21 17:03 J -41866944.94 -41866944.79 -41866944.64 0.0507 0.0389 \*

Mercury -119338-11-24 18:29 J -41866453.78 -41866453.73 -41866453.67 0.0501 0.0473

Mercury -119337-02-23 01:56 J -41866363.60 -41866363.42 -41866363.24 0.0500 0.0108

Venus -119335-04-30 11:17 J -41865566.15 -41865566.03 -41865565.89 0.0503 0.0386

Venus -119335-12-24 01:56 J -41865328.55 -41865328.42 -41865328.29 0.0506 0.0397

Mercury -119331-01-22 01:13 J -41864203.58 -41864203.45 -41864203.32 0.0525 0.0090

Mercury -119331-04-21 08:10 J -41864114.25 -41864114.16 -41864114.07 0.0526 0.0380

Venus -119329-03-05 04:49 J -41863430.46 -41863430.30 -41863430.14 0.0523 0.0304

Venus -119329-10-27 13:56 J -41863193.98 -41863193.92 -41863193.84 0.0519 0.0481

Earth -119327-07-26 10:05 J -41862557.31 -41862557.08 -41862556.84 0.0507 0.0055

Moon -119327-07-26 10:34 J -41862557.28 -41862557.06 -41862556.84 0.0507 0.0068 \*

Mercury -119326-12-12 00:01 J -41862053.68 -41862053.50 -41862053.32 0.0500 0.0034

Venus -119323-08-28 18:15 J -41861062.93 -41861062.74 -41861062.54 0.0505 0.0179

Mercury -119320-11-10 05:17 J -41859893.40 -41859893.28 -41859893.16 0.0525 0.0204



Mercury -119319-02-07 12:29 J -41859804.09 -41859803.98 -41859803.87 0.0526 0.0269  
 Venus -119318-11-09 06:15 J -41859164.25 -41859164.24 -41859164.21 0.0523 0.0519  
 Venus -119317-07-02 16:34 J -41858927.97 -41858927.81 -41858927.64 0.0520 0.0271  
 Earth -119315-07-31 01:56 J -41858169.46 -41858169.42 -41858169.36 0.0505 0.0492  
 Moon -119315-07-31 03:37 J -41858169.43 -41858169.35 -41858169.24 0.0505 0.0464 \*  
 Mercury -119314-09-29 21:08 J -41857743.79 -41857743.62 -41857743.45 0.0500 0.0185  
 Mercury -119314-12-29 04:49 J -41857653.40 -41857653.30 -41857653.19 0.0499 0.0401  
 Venus -119311-05-03 08:10 J -41856797.37 -41856797.16 -41856796.95 0.0504 0.0046  
 Mercury -119308-08-29 09:08 J -41855583.22 -41855583.12 -41855583.01 0.0526 0.0321  
 Mercury -119308-11-26 16:34 J -41855493.93 -41855493.81 -41855493.68 0.0526 0.0156  
 Venus -119305-03-07 18:44 J -41854661.92 -41854661.72 -41854661.53 0.0521 0.0057  
 Mercury -119302-07-18 18:58 J -41853433.84 -41853433.71 -41853433.57 0.0500 0.0326  
 Mercury -119302-10-17 02:39 J -41853343.55 -41853343.39 -41853343.24 0.0499 0.0257  
 Mars -119301-09-04 18:15 J -41853019.90 -41853019.74 -41853019.56 0.0499 0.0374  
 Venus -119299-01-06 01:13 J -41852531.62 -41852531.45 -41852531.26 0.0503 0.0262  
 Mercury -119296-06-17 13:13 J -41851273.02 -41851272.95 -41851272.88 0.0525 0.0436  
 Mercury -119296-09-14 20:39 J -41851183.77 -41851183.64 -41851183.51 0.0526 0.0041  
 Mercury -119296-12-13 03:22 J -41851094.38 -41851094.36 -41851094.32 0.0526 0.0508  
 Venus -119294-11-11 18:29 J -41850395.92 -41850395.73 -41850395.55 0.0522 0.0167  
 Mercury -119290-05-06 17:03 J -41849123.85 -41849123.79 -41849123.72 0.0501 0.0467  
 Mercury -119290-08-05 00:15 J -41849033.67 -41849033.49 -41849033.31 0.0500 0.0113  
 Venus -119288-09-10 19:41 J -41848265.74 -41848265.68 -41848265.60 0.0503 0.0472  
 Venus -119287-05-06 10:05 J -41848028.24 -41848028.08 -41848027.91 0.0506 0.0312  
 Moon -119285-01-29 20:25 J -41847394.76 -41847394.65 -41847394.54 0.0518 0.0457  
 Earth -119285-01-29 21:22 J -41847394.69 -41847394.61 -41847394.52 0.0518 0.0479 \*  
 Mercury -119284-07-04 00:29 J -41846873.61 -41846873.48 -41846873.35 0.0525 0.0077  
 Mercury -119284-10-01 07:27 J -41846784.27 -41846784.19 -41846784.10 0.0526 0.0393  
 Mars -119283-07-25 03:08 J -41846487.65 -41846487.37 -41846487.08 0.0526 0.0105  
 Venus -119282-07-17 18:01 J -41846129.87 -41846129.75 -41846129.61 0.0523 0.0389  
 Venus -119281-03-10 03:37 J -41845893.47 -41845893.35 -41845893.22 0.0519 0.0399

Mercury -119278-05-23 22:20 J -41844723.75 -41844723.57 -41844723.39 0.0500 0.0029

Venus -119275-01-09 02:39 J -41843762.59 -41843762.39 -41843762.18 0.0505 0.0094

Moon -119273-02-03 14:25 J -41843007.12 -41843006.90 -41843006.67 0.0519 0.0008

Earth -119273-02-03 15:22 J -41843007.09 -41843006.86 -41843006.63 0.0519 0.0018 \*

Mercury -119272-04-22 04:05 J -41842563.45 -41842563.33 -41842563.21 0.0525 0.0199

Mercury -119272-07-20 11:03 J -41842474.14 -41842474.04 -41842473.92 0.0526 0.0273

Venus -119270-11-14 04:20 J -41841627.50 -41841627.32 -41841627.14 0.0520 0.0184

Mercury -119266-03-11 20:25 J -41840413.82 -41840413.65 -41840413.48 0.0500 0.0170

Mercury -119266-06-10 04:20 J -41840323.42 -41840323.32 -41840323.22 0.0500 0.0418

Mars -119265-06-09 03:37 J -41839958.61 -41839958.35 -41839958.09 0.0499 0.0021

Venus -119264-09-13 19:13 J -41839496.90 -41839496.70 -41839496.49 0.0504 0.0126

Earth -119261-02-08 09:51 J -41838619.19 -41838619.09 -41838618.97 0.0520 0.0452

Moon -119261-02-08 12:29 J -41838619.11 -41838618.98 -41838618.85 0.0520 0.0434 \*

Mercury -119260-02-08 07:56 J -41838253.27 -41838253.17 -41838253.06 0.0525 0.0316

Mercury -119260-05-08 15:22 J -41838163.99 -41838163.86 -41838163.74 0.0526 0.0159

Venus -119258-07-20 06:29 J -41837361.43 -41837361.23 -41837361.04 0.0521 0.0033

Earth -119256-07-21 02:53 J -41836629.48 -41836629.38 -41836629.26 0.0507 0.0443

Moon -119256-07-21 04:20 J -41836629.44 -41836629.32 -41836629.19 0.0507 0.0416 \*

Mercury -119255-12-28 17:46 J -41836103.90 -41836103.76 -41836103.62 0.0500 0.0318

Mercury -119254-03-29 00:58 J -41836013.61 -41836013.46 -41836013.30 0.0499 0.0265

Venus -119252-05-19 09:08 J -41835231.27 -41835231.12 -41835230.96 0.0503 0.0349

Venus -119251-01-11 23:46 J -41834993.61 -41834993.51 -41834993.40 0.0507 0.0438

Mercury -119249-11-27 11:46 J -41833943.08 -41833943.01 -41833942.94 0.0525 0.0435

Mercury -119248-02-24 19:13 J -41833853.83 -41833853.70 -41833853.57 0.0526 0.0047

Mercury -119248-05-25 02:10 J -41833764.43 -41833764.41 -41833764.38 0.0527 0.0512

Mars -119247-05-02 15:51 J -41833421.95 -41833421.84 -41833421.71 0.0526 0.0478

Venus -119246-03-25 07:56 J -41833095.34 -41833095.17 -41833095.00 0.0522 0.0251

Earth -119244-07-25 18:58 J -41832241.95 -41832241.71 -41832241.48 0.0506 0.0008

Moon -119244-07-25 19:41 J -41832241.92 -41832241.68 -41832241.43 0.0506 0.0008 \*

Mercury -119243-10-16 15:37 J -41831793.91 -41831793.85 -41831793.77 0.0500 0.0459

Mercury -119242-01-14 22:49 J -41831703.73 -41831703.55 -41831703.37 0.0499 0.0119

Venus -119240-09-16 16:34 J -41830728.00 -41830727.81 -41830727.62 0.0506 0.0220

Mercury -119237-12-13 23:17 J -41829543.66 -41829543.53 -41829543.40 0.0526 0.0072

Mercury -119236-03-13 06:15 J -41829454.32 -41829454.24 -41829454.16 0.0526 0.0398

Venus -119235-11-28 06:58 J -41828829.29 -41828829.21 -41828829.13 0.0523 0.0474

Venus -119234-07-22 16:49 J -41828592.95 -41828592.80 -41828592.64 0.0519 0.0318

Moon -119232-07-30 05:46 J -41827854.40 -41827854.26 -41827854.12 0.0505 0.0397

Earth -119232-07-30 08:25 J -41827854.27 -41827854.15 -41827854.02 0.0505 0.0426 \*

Mercury -119231-11-02 20:25 J -41827393.83 -41827393.65 -41827393.47 0.0500 0.0027

Mars -119229-03-13 02:10 J -41826897.56 -41826897.41 -41826897.24 0.0500 0.0395

Venus -119228-05-22 10:05 J -41826462.29 -41826462.08 -41826461.87 0.0504 0.0006

Mercury -119225-10-02 03:08 J -41825233.49 -41825233.37 -41825233.25 0.0525 0.0191

Mercury -119225-12-30 10:20 J -41825144.18 -41825144.07 -41825143.97 0.0526 0.0282

Venus -119222-03-27 17:17 J -41824326.98 -41824326.78 -41824326.59 0.0520 0.0098

Mercury -119219-08-21 18:15 J -41823083.91 -41823083.74 -41823083.57 0.0500 0.0170

Mercury -119219-11-20 02:10 J -41822993.51 -41822993.41 -41822993.31 0.0500 0.0418

Venus -119216-01-25 02:53 J -41822196.57 -41822196.38 -41822196.19 0.0503 0.0213

Mercury -119213-07-21 06:29 J -41820923.33 -41820923.23 -41820923.13 0.0525 0.0315

Mercury -119213-10-18 13:56 J -41820834.05 -41820833.92 -41820833.80 0.0526 0.0161

Venus -119211-11-30 17:03 J -41820060.98 -41820060.79 -41820060.60 0.0522 0.0125

Mercury -119207-06-09 16:20 J -41818773.96 -41818773.82 -41818773.68 0.0500 0.0311

Mercury -119207-09-07 23:46 J -41818683.66 -41818683.51 -41818683.35 0.0500 0.0274

Venus -119205-09-29 19:41 J -41817930.79 -41817930.68 -41817930.57 0.0502 0.0429

Venus -119204-05-25 09:37 J -41817693.24 -41817693.10 -41817692.94 0.0506 0.0357

Mercury -119201-05-09 10:20 J -41816613.14 -41816613.07 -41816613.00 0.0525 0.0433

Mercury -119201-08-06 17:46 J -41816523.89 -41816523.76 -41816523.63 0.0526 0.0044

Mercury -119201-11-04 00:44 J -41816434.50 -41816434.47 -41816434.45 0.0526 0.0512

Venus -119199-08-05 18:15 J -41815794.88 -41815794.74 -41815794.59 0.0523 0.0344

Venus -119198-03-30 04:05 J -41815558.42 -41815558.33 -41815558.23 0.0519 0.0449

Mercury -119195-03-28 13:56 J -41814463.99 -41814463.92 -41814463.84 0.0500 0.0455

Mercury -119195-06-26 20:53 J -41814373.80 -41814373.63 -41814373.45 0.0499 0.0123

Venus -119192-01-27 23:03 J -41813427.75 -41813427.54 -41813427.34 0.0505 0.0130

Earth -119190-02-02 16:49 J -41812692.03 -41812691.80 -41812691.57 0.0519 0.0108

Moon -119190-02-02 18:15 J -41812691.98 -41812691.74 -41812691.50 0.0519 0.0080 \*

Mercury -119189-05-25 21:37 J -41812213.73 -41812213.60 -41812213.47 0.0526 0.0075

Mercury -119189-08-23 04:34 J -41812124.39 -41812124.31 -41812124.22 0.0527 0.0397

Venus -119187-12-03 05:46 J -41811292.43 -41811292.26 -41811292.08 0.0520 0.0234

Mercury -119183-04-14 18:44 J -41810063.90 -41810063.72 -41810063.54 0.0499 0.0024

Venus -119181-10-02 15:51 J -41809162.05 -41809161.84 -41809161.63 0.0504 0.0090

Moon -119178-02-07 10:34 J -41808304.22 -41808304.06 -41808303.90 0.0520 0.0355

Earth -119178-02-07 12:58 J -41808304.12 -41808303.96 -41808303.79 0.0520 0.0368 \*

Mercury -119177-03-14 01:27 J -41807903.56 -41807903.44 -41807903.32 0.0526 0.0192

Mercury -119177-06-11 08:39 J -41807814.25 -41807814.14 -41807814.03 0.0526 0.0282

Venus -119175-08-08 05:03 J -41807026.48 -41807026.29 -41807026.09 0.0521 0.0013

Moon -119173-07-20 05:46 J -41806314.31 -41806314.26 -41806314.20 0.0507 0.0492

Mercury -119171-01-31 16:05 J -41805754.00 -41805753.83 -41805753.66 0.0500 0.0170

Mercury -119171-05-01 23:46 J -41805663.60 -41805663.51 -41805663.41 0.0499 0.0416

Venus -119169-06-07 09:22 J -41804896.28 -41804896.11 -41804895.94 0.0503 0.0305

Venus -119168-01-31 00:15 J -41804658.54 -41804658.49 -41804658.43 0.0507 0.0486

Mercury -119165-01-01 05:17 J -41803593.39 -41803593.28 -41803593.18 0.0525 0.0310

Mercury -119165-03-30 12:29 J -41803504.10 -41803503.98 -41803503.85 0.0526 0.0165

Mars -119164-01-09 22:34 J -41803218.62 -41803218.56 -41803218.46 0.0526 0.0506

Venus -119163-04-13 05:03 J -41802760.47 -41802760.29 -41802760.12 0.0522 0.0214

Moon -119161-07-24 18:58 J -41801926.93 -41801926.71 -41801926.48 0.0507 0.0081

Earth -119161-07-24 20:39 J -41801926.87 -41801926.64 -41801926.41 0.0507 0.0088 \*

Mercury -119160-11-19 13:56 J -41801444.06 -41801443.92 -41801443.78 0.0500 0.0313

Mercury -119159-02-17 21:22 J -41801353.76 -41801353.61 -41801353.46 0.0500 0.0270

Venus -119157-10-05 16:34 J -41800392.99 -41800392.81 -41800392.63 0.0505 0.0267

Mercury -119154-10-20 08:25 J -41799283.21 -41799283.15 -41799283.07 0.0525 0.0436

Mercury -119153-01-17 16:05 J -41799193.96 -41799193.83 -41799193.70 0.0526 0.0042

Mercury -119153-04-15 22:49 J -41799104.57 -41799104.55 -41799104.52 0.0526 0.0509

Venus -119152-12-17 03:51 J -41798494.45 -41798494.34 -41798494.24 0.0523 0.0440

Venus -119151-08-10 13:56 J -41798258.06 -41798257.92 -41798257.78 0.0520 0.0357

Earth -119149-07-29 12:15 J -41797539.16 -41797538.99 -41797538.82 0.0506 0.0350

Moon -119149-07-29 15:37 J -41797539.03 -41797538.85 -41797538.66 0.0506 0.0319 \*

Mercury -119148-09-07 12:01 J -41797134.07 -41797134.00 -41797133.93 0.0500 0.0454

Mercury -119148-12-06 18:58 J -41797043.88 -41797043.71 -41797043.53 0.0500 0.0126

Mars -119147-11-29 18:44 J -41796685.94 -41796685.72 -41796685.49 0.0499 0.0244

Venus -119145-06-10 08:10 J -41796127.37 -41796127.16 -41796126.95 0.0504 0.0045

Mercury -119142-11-05 19:56 J -41794883.80 -41794883.67 -41794883.54 0.0526 0.0078

Mercury -119141-02-03 02:53 J -41794794.46 -41794794.38 -41794794.30 0.0526 0.0393

Venus -119139-04-15 15:51 J -41793992.03 -41793991.84 -41793991.66 0.0521 0.0141

Mercury -119136-09-24 16:34 J -41792733.99 -41792733.81 -41792733.63 0.0499 0.0025

Venus -119133-02-13 21:51 J -41791861.78 -41791861.59 -41791861.39 0.0503 0.0182

Mercury -119130-08-24 23:17 J -41790573.65 -41790573.53 -41790573.40 0.0526 0.0200

Mercury -119130-11-22 06:44 J -41790484.33 -41790484.22 -41790484.11 0.0527 0.0276

Mars -119129-10-18 02:10 J -41790153.70 -41790153.41 -41790153.12 0.0527 0.0062

Venus -119128-12-19 16:34 J -41789726.00 -41789725.81 -41789725.61 0.0522 0.0081

Mercury -119124-07-13 14:10 J -41788424.08 -41788423.91 -41788423.74 0.0499 0.0168

Mercury -119124-10-11 21:51 J -41788333.69 -41788333.59 -41788333.49 0.0499 0.0416

Venus -119122-10-19 14:53 J -41787596.01 -41787595.88 -41787595.75 0.0502 0.0398

Venus -119121-06-13 04:34 J -41787358.43 -41787358.31 -41787358.17 0.0506 0.0391

Mercury -119118-06-13 03:22 J -41786263.47 -41786263.36 -41786263.26 0.0525 0.0317

Mercury -119118-09-10 10:34 J -41786174.18 -41786174.06 -41786173.93 0.0526 0.0160

Venus -119116-08-24 15:22 J -41785460.01 -41785459.86 -41785459.69 0.0523 0.0307

Venus -119115-04-18 01:13 J -41785223.52 -41785223.45 -41785223.39 0.0519 0.0487

Mercury -119112-05-01 11:32 J -41784114.16 -41784114.02 -41784113.89 0.0500 0.0317

Mercury -119112-07-30 18:44 J -41784023.87 -41784023.72 -41784023.57 0.0499 0.0265

Mars -119111-09-02 15:37 J -41783625.10 -41783624.85 -41783624.59 0.0499 0.0129

Venus -119109-02-16 21:51 J -41783092.79 -41783092.59 -41783092.39 0.0505 0.0173

Moon -119107-02-01 17:17 J -41782376.99 -41782376.78 -41782376.57 0.0519 0.0168  
 Earth -119107-02-01 19:56 J -41782376.88 -41782376.67 -41782376.45 0.0519 0.0190 \*  
 Mercury -119106-04-01 06:58 J -41781953.28 -41781953.21 -41781953.14 0.0525 0.0435  
 Mercury -119106-06-29 14:25 J -41781864.02 -41781863.90 -41781863.77 0.0526 0.0047  
 Mercury -119106-09-26 21:22 J -41781774.64 -41781774.61 -41781774.58 0.0526 0.0510  
 Venus -119104-12-22 00:58 J -41780957.62 -41780957.46 -41780957.29 0.0520 0.0268  
 Mercury -119100-02-17 09:08 J -41779804.18 -41779804.12 -41779804.05 0.0500 0.0461  
 Mercury -119100-05-18 16:20 J -41779714.00 -41779713.82 -41779713.65 0.0500 0.0118  
 Venus -119098-10-22 14:25 J -41778827.11 -41778826.90 -41778826.69 0.0504 0.0047  
 Earth -119095-02-06 13:13 J -41777989.15 -41777988.95 -41777988.75 0.0519 0.0271  
 Moon -119095-02-06 16:49 J -41777989.00 -41777988.80 -41777988.59 0.0519 0.0249 \*  
 Mercury -119094-04-17 18:01 J -41777553.88 -41777553.75 -41777553.63 0.0525 0.0084  
 Mercury -119094-07-16 00:58 J -41777464.55 -41777464.46 -41777464.37 0.0526 0.0388  
 Venus -119092-08-27 00:29 J -41776691.67 -41776691.48 -41776691.28 0.0521 0.0044  
 Mercury -119088-03-06 13:56 J -41775404.10 -41775403.92 -41775403.74 0.0500 0.0028  
 Venus -119086-06-27 06:29 J -41774561.41 -41774561.23 -41774561.05 0.0503 0.0268  
 Mercury -119082-02-03 21:37 J -41773243.72 -41773243.60 -41773243.48 0.0525 0.0204  
 Mercury -119082-05-04 04:49 J -41773154.41 -41773154.30 -41773154.19 0.0526 0.0270  
 Venus -119080-05-02 01:27 J -41772425.63 -41772425.44 -41772425.26 0.0523 0.0178  
 Earth -119078-07-25 00:01 J -41771611.72 -41771611.50 -41771611.28 0.0507 0.0166  
 Moon -119078-07-25 03:22 J -41771611.59 -41771611.36 -41771611.14 0.0507 0.0168 \*  
 Mercury -119077-12-23 11:32 J -41771094.18 -41771094.02 -41771093.85 0.0500 0.0173  
 Mercury -119076-03-23 19:13 J -41771003.80 -41771003.70 -41771003.60 0.0499 0.0413  
 Venus -119074-03-01 20:53 J -41770295.66 -41770295.63 -41770295.58 0.0502 0.0489  
 Venus -119074-10-25 10:05 J -41770058.25 -41770058.08 -41770057.91 0.0505 0.0298  
 Mercury -119071-11-23 00:58 J -41768933.56 -41768933.46 -41768933.36 0.0526 0.0327  
 Mercury -119070-02-20 08:25 J -41768844.27 -41768844.15 -41768844.02 0.0526 0.0150  
 Venus -119068-01-05 01:41 J -41768159.55 -41768159.43 -41768159.31 0.0524 0.0402  
 Venus -119068-08-29 12:01 J -41767923.12 -41767923.00 -41767922.87 0.0520 0.0400  
 Moon -119066-07-29 11:03 J -41767224.24 -41767224.04 -41767223.83 0.0506 0.0237

Earth -119066-07-29 15:08 J -41767224.06 -41767223.87 -41767223.67 0.0506 0.0271 \*  
 Mercury -119065-10-11 09:22 J -41766784.25 -41766784.11 -41766783.97 0.0500 0.0316  
 Mercury -119064-01-09 16:34 J -41766693.96 -41766693.81 -41766693.66 0.0499 0.0264  
 Venus -119062-06-30 02:10 J -41765792.62 -41765792.41 -41765792.20 0.0504 0.0076  
 Mercury -119059-09-11 04:49 J -41764623.37 -41764623.30 -41764623.24 0.0525 0.0445  
 Mercury -119059-12-09 12:15 J -41764534.12 -41764533.99 -41764533.86 0.0526 0.0037  
 Mercury -119058-03-08 19:13 J -41764444.73 -41764444.70 -41764444.66 0.0527 0.0503  
 Venus -119056-05-04 11:17 J -41763657.21 -41763657.03 -41763656.84 0.0521 0.0177  
 Mercury -119053-07-30 06:29 J -41762474.29 -41762474.23 -41762474.17 0.0500 0.0466  
 Mercury -119053-10-28 13:27 J -41762384.12 -41762383.94 -41762383.77 0.0500 0.0111  
 Venus -119050-03-04 19:13 J -41761526.90 -41761526.70 -41761526.49 0.0503 0.0143  
 Mercury -119047-09-27 16:05 J -41760223.95 -41760223.83 -41760223.70 0.0526 0.0087  
 Mercury -119047-12-25 23:17 J -41760134.62 -41760134.53 -41760134.44 0.0526 0.0387  
 Venus -119044-01-07 11:03 J -41759391.24 -41759391.04 -41759390.85 0.0522 0.0049  
 Mercury -119041-08-16 10:49 J -41758074.23 -41758074.05 -41758073.87 0.0500 0.0038  
 Venus -119039-11-07 12:15 J -41757261.14 -41757260.99 -41757260.84 0.0502 0.0360  
 Venus -119038-07-03 02:25 J -41757023.51 -41757023.40 -41757023.30 0.0506 0.0433  
 Mercury -119035-07-16 19:27 J -41755913.80 -41755913.69 -41755913.57 0.0525 0.0210  
 Mercury -119035-10-14 02:53 J -41755824.50 -41755824.38 -41755824.27 0.0526 0.0264  
 Venus -119033-09-12 09:51 J -41755125.26 -41755125.09 -41755124.93 0.0523 0.0278  
 Mercury -119029-06-04 08:39 J -41753764.31 -41753764.14 -41753763.97 0.0500 0.0181  
 Mercury -119029-09-02 16:20 J -41753673.92 -41753673.82 -41753673.71 0.0499 0.0405  
 Venus -119026-03-07 17:46 J -41752757.95 -41752757.76 -41752757.57 0.0505 0.0209  
 Earth -119024-01-31 16:05 J -41752062.02 -41752061.83 -41752061.64 0.0518 0.0303  
 Moon -119024-01-31 19:27 J -41752061.88 -41752061.69 -41752061.49 0.0518 0.0282 \*  
 Mercury -119023-05-04 23:03 J -41751603.64 -41751603.54 -41751603.44 0.0525 0.0332  
 Mercury -119023-08-02 06:29 J -41751514.36 -41751514.23 -41751514.11 0.0526 0.0144  
 Venus -119021-05-18 09:37 J -41750859.15 -41750859.10 -41750859.04 0.0524 0.0502  
 Venus -119020-01-09 20:39 J -41750622.80 -41750622.64 -41750622.48 0.0520 0.0303  
 Mercury -119017-03-23 06:29 J -41749454.36 -41749454.23 -41749454.09 0.0500 0.0323

Mercury -119017-06-21 13:41 J -41749364.08 -41749363.93 -41749363.77 0.0499 0.0259  
 Venus -119015-11-10 07:56 J -41748492.38 -41748492.17 -41748491.96 0.0503 0.0018  
 Moon -119012-02-05 03:22 J -41747674.58 -41747674.36 -41747674.13 0.0519 0.0126  
 Earth -119012-02-05 07:13 J -41747674.42 -41747674.20 -41747673.98 0.0519 0.0151 \*  
 Mercury -119011-02-21 02:10 J -41747293.47 -41747293.41 -41747293.34 0.0525 0.0459  
 Mercury -119011-05-21 09:51 J -41747204.22 -41747204.09 -41747203.96 0.0526 0.0028  
 Mercury -119011-08-18 16:49 J -41747114.84 -41747114.80 -41747114.75 0.0527 0.0492  
 Mars -119010-04-04 18:58 J -41746885.89 -41746885.71 -41746885.50 0.0527 0.0388  
 Venus -119009-09-14 21:22 J -41746356.80 -41746356.61 -41746356.41 0.0522 0.0083  
 Mercury -119005-01-10 04:20 J -41745144.38 -41745144.32 -41745144.25 0.0500 0.0466  
 Mercury -119005-04-09 11:17 J -41745054.21 -41745054.03 -41745053.85 0.0499 0.0111  
 Venus -119003-07-16 00:15 J -41744226.67 -41744226.49 -41744226.30 0.0502 0.0239

# 119TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 119th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-118999-03-09 13:56 J	-41742894.05	-41742893.92	-41742893.79	0.0526	0.0096		
Mercury	-118999-06-06 20:53 J	-41742804.71	-41742804.63	-41742804.54	0.0526	0.0377		
Venus	-118997-05-20 20:25 J	-41742090.83	-41742090.65	-41742090.46	0.0522	0.0144		
Moon	-118995-07-23 16:34 J	-41741297.00	-41741296.81	-41741296.61	0.0507	0.0277		



Earth -118995-07-23 20:39 J -41741296.84 -41741296.64 -41741296.44 0.0507 0.0271 \*  
 Mercury -118993-01-27 07:56 J -41740744.35 -41740744.17 -41740743.99 0.0500 0.0044  
 Mars -118992-02-21 20:10 J -41740352.90 -41740352.66 -41740352.41 0.0499 0.0150  
 Venus -118991-03-20 17:17 J -41739960.86 -41739960.78 -41739960.69 0.0502 0.0454  
 Venus -118991-11-13 06:58 J -41739723.36 -41739723.21 -41739723.05 0.0506 0.0339  
 Mercury -118988-12-26 17:46 J -41738583.88 -41738583.76 -41738583.64 0.0525 0.0213  
 Mercury -118987-03-26 00:58 J -41738494.57 -41738494.46 -41738494.35 0.0526 0.0262  
 Venus -118985-01-24 19:56 J -41737824.81 -41737824.67 -41737824.53 0.0523 0.0371  
 Venus -118985-09-17 05:46 J -41737588.37 -41737588.26 -41737588.15 0.0519 0.0430  
 Earth -118983-07-28 10:05 J -41736909.30 -41736909.08 -41736908.86 0.0506 0.0160  
 Moon -118983-07-28 14:10 J -41736909.14 -41736908.91 -41736908.69 0.0506 0.0128 \*  
 Mercury -118982-11-15 05:32 J -41736434.44 -41736434.27 -41736434.11 0.0500 0.0191  
 Mercury -118981-02-13 13:13 J -41736344.06 -41736343.95 -41736343.84 0.0499 0.0395  
 Venus -118979-07-18 23:17 J -41735457.74 -41735457.53 -41735457.33 0.0504 0.0116  
 Mercury -118976-10-14 21:08 J -41734273.72 -41734273.62 -41734273.52 0.0525 0.0338  
 Mercury -118975-01-12 04:34 J -41734184.44 -41734184.31 -41734184.19 0.0526 0.0139  
 Mars -118974-01-10 17:17 J -41733821.06 -41733820.78 -41733820.51 0.0526 0.0177  
 Venus -118973-05-23 05:03 J -41733322.46 -41733322.29 -41733322.11 0.0521 0.0207  
 Mercury -118970-09-03 03:22 J -41732124.49 -41732124.36 -41732124.23 0.0500 0.0334  
 Mercury -118970-12-02 10:34 J -41732034.21 -41732034.06 -41732033.90 0.0500 0.0248  
 Venus -118967-03-23 15:22 J -41731192.07 -41731191.86 -41731191.65 0.0503 0.0107  
 Mercury -118964-08-03 00:29 J -41729963.54 -41729963.48 -41729963.42 0.0525 0.0462  
 Mercury -118964-10-31 08:10 J -41729874.29 -41729874.16 -41729874.03 0.0526 0.0020  
 Mercury -118963-01-28 15:08 J -41729784.92 -41729784.87 -41729784.83 0.0526 0.0485  
 Venus -118961-01-27 05:46 J -41729056.46 -41729056.26 -41729056.07 0.0522 0.0018  
 Mercury -118958-06-22 01:27 J -41727814.49 -41727814.44 -41727814.38 0.0500 0.0473  
 Mercury -118958-09-20 08:25 J -41727724.33 -41727724.15 -41727723.97 0.0499 0.0104  
 Mars -118957-11-25 19:41 J -41727291.91 -41727291.68 -41727291.45 0.0499 0.0230  
 Venus -118956-11-26 06:29 J -41726926.39 -41726926.23 -41726926.07 0.0502 0.0330  
 Venus -118955-07-21 19:56 J -41726688.75 -41726688.67 -41726688.59 0.0506 0.0464

Mercury -118952-08-19 11:32 J -41725564.15 -41725564.02 -41725563.89 0.0526 0.0108

Mercury -118952-11-16 18:44 J -41725474.81 -41725474.72 -41725474.63 0.0527 0.0365

Venus -118950-10-02 06:01 J -41724790.43 -41724790.25 -41724790.08 0.0523 0.0242

Mercury -118946-07-09 06:01 J -41723414.43 -41723414.25 -41723414.07 0.0499 0.0043

Venus -118943-03-26 11:46 J -41722423.19 -41722423.01 -41722422.82 0.0505 0.0242

Moon -118941-01-31 08:10 J -41721747.31 -41721747.16 -41721747.01 0.0518 0.0399

Earth -118941-01-31 11:46 J -41721747.14 -41721747.01 -41721746.87 0.0518 0.0415 \*

Mercury -118940-06-07 15:22 J -41721253.98 -41721253.86 -41721253.74 0.0526 0.0224

Mercury -118940-09-04 22:49 J -41721164.67 -41721164.55 -41721164.44 0.0526 0.0252

Venus -118938-06-07 04:49 J -41720524.38 -41720524.30 -41720524.21 0.0524 0.0469

Venus -118937-01-29 15:22 J -41720288.00 -41720287.86 -41720287.71 0.0520 0.0339

Mercury -118934-04-27 02:39 J -41719104.55 -41719104.39 -41719104.23 0.0500 0.0199

Mercury -118934-07-26 10:05 J -41719014.19 -41719014.08 -41719013.96 0.0499 0.0387

Venus -118932-11-29 04:20 J -41718157.53 -41718157.32 -41718157.11 0.0504 0.0021

Earth -118929-02-05 08:53 J -41717359.36 -41717359.13 -41717358.90 0.0519 0.0061

Moon -118929-02-05 12:01 J -41717359.23 -41717359.00 -41717358.77 0.0519 0.0033 \*

Mercury -118928-03-26 19:13 J -41716943.79 -41716943.70 -41716943.60 0.0525 0.0341

Mercury -118928-06-24 02:39 J -41716854.51 -41716854.39 -41716854.26 0.0526 0.0138

Venus -118926-10-04 15:51 J -41716022.03 -41716021.84 -41716021.65 0.0521 0.0115

Mercury -118922-02-13 00:15 J -41714794.61 -41714794.49 -41714794.36 0.0500 0.0344

Mercury -118922-05-14 07:27 J -41714704.35 -41714704.19 -41714704.03 0.0500 0.0238

Venus -118920-08-03 21:08 J -41713891.81 -41713891.62 -41713891.43 0.0503 0.0200

Moon -118917-02-10 00:44 J -41712971.52 -41712971.47 -41712971.42 0.0520 0.0506

Mercury -118916-01-12 22:34 J -41712633.61 -41712633.56 -41712633.50 0.0525 0.0465

Mercury -118916-04-12 06:15 J -41712544.37 -41712544.24 -41712544.11 0.0525 0.0014

Mercury -118916-07-10 13:13 J -41712455.00 -41712454.95 -41712454.90 0.0526 0.0481

Venus -118914-06-09 14:39 J -41711756.08 -41711755.89 -41711755.70 0.0522 0.0115

Earth -118912-07-22 18:44 J -41710981.88 -41710981.72 -41710981.56 0.0508 0.0372

Moon -118912-07-22 22:49 J -41710981.70 -41710981.55 -41710981.40 0.0508 0.0378 \*

Mercury -118911-12-01 22:20 J -41710484.61 -41710484.57 -41710484.53 0.0501 0.0485

Mercury -118910-03-02 05:17 J -41710394.46 -41710394.28 -41710394.11 0.0500 0.0093

Venus -118908-04-08 13:56 J -41709626.03 -41709625.92 -41709625.80 0.0502 0.0419

Venus -118908-12-02 03:22 J -41709388.50 -41709388.36 -41709388.22 0.0505 0.0377

Mercury -118904-01-29 09:51 J -41708234.22 -41708234.09 -41708233.96 0.0525 0.0110

Mercury -118904-04-28 16:49 J -41708144.89 -41708144.80 -41708144.70 0.0526 0.0363

Venus -118902-02-12 14:25 J -41707490.04 -41707489.90 -41707489.75 0.0523 0.0342

Venus -118902-10-07 00:58 J -41707253.55 -41707253.46 -41707253.38 0.0520 0.0465

Moon -118900-07-27 07:41 J -41706594.41 -41706594.18 -41706593.94 0.0507 0.0040

Earth -118900-07-27 11:17 J -41706594.26 -41706594.03 -41706593.79 0.0507 0.0074 \*

Mercury -118899-12-19 03:08 J -41706084.54 -41706084.37 -41706084.19 0.0500 0.0050

Venus -118896-08-06 18:01 J -41705122.95 -41705122.75 -41705122.54 0.0504 0.0151

Mercury -118893-11-17 13:13 J -41703924.07 -41703923.95 -41703923.84 0.0526 0.0235

Mercury -118892-02-14 20:25 J -41703834.76 -41703834.65 -41703834.53 0.0526 0.0241

Venus -118890-06-12 01:41 J -41702987.60 -41702987.43 -41702987.25 0.0521 0.0246

Mercury -118887-10-07 00:58 J -41701774.62 -41701774.46 -41701774.29 0.0500 0.0193

Mercury -118886-01-05 08:25 J -41701684.26 -41701684.15 -41701684.04 0.0499 0.0391

Venus -118884-04-11 10:34 J -41700857.27 -41700857.06 -41700856.85 0.0503 0.0073

Mercury -118881-09-05 17:03 J -41699613.89 -41699613.79 -41699613.69 0.0525 0.0351

Mercury -118881-12-04 00:29 J -41699524.60 -41699524.48 -41699524.35 0.0526 0.0127

Venus -118878-02-15 01:27 J -41698721.63 -41698721.44 -41698721.24 0.0522 0.0023

Mercury -118875-07-25 21:37 J -41697464.72 -41697464.60 -41697464.47 0.0500 0.0349

Mercury -118875-10-24 04:49 J -41697374.46 -41697374.30 -41697374.14 0.0500 0.0232

Mars -118874-08-14 02:53 J -41697080.51 -41697080.38 -41697080.25 0.0499 0.0428

Venus -118873-12-15 02:39 J -41696591.56 -41696591.39 -41696591.21 0.0503 0.0293

Mercury -118869-06-24 21:08 J -41695303.68 -41695303.62 -41695303.57 0.0525 0.0466

Mercury -118869-09-22 04:34 J -41695214.44 -41695214.31 -41695214.18 0.0526 0.0022

Mercury -118869-12-20 11:46 J -41695125.06 -41695125.01 -41695124.97 0.0526 0.0482

Venus -118867-10-21 01:41 J -41694455.61 -41694455.43 -41694455.25 0.0522 0.0206

Mercury -118863-05-13 19:41 J -41693154.71 -41693154.68 -41693154.66 0.0500 0.0492

Mercury -118863-08-12 02:10 J -41693064.58 -41693064.41 -41693064.23 0.0500 0.0086

Venus -118860-04-14 09:37 J -41692088.27 -41692088.10 -41692087.92 0.0505 0.0286  
 Earth -118858-01-30 14:10 J -41691431.96 -41691431.91 -41691431.86 0.0518 0.0504  
 Moon -118858-01-30 17:32 J -41691431.83 -41691431.77 -41691431.70 0.0518 0.0495  
 Mercury -118857-07-11 08:10 J -41690904.29 -41690904.16 -41690904.03 0.0525 0.0110  
 Mercury -118857-10-08 15:22 J -41690814.95 -41690814.86 -41690814.77 0.0526 0.0362  
 Mars -118856-06-27 18:44 J -41690552.97 -41690552.72 -41690552.46 0.0526 0.0258  
 Venus -118855-06-26 00:01 J -41690189.60 -41690189.50 -41690189.38 0.0523 0.0438  
 Venus -118854-02-17 10:34 J -41689953.19 -41689953.06 -41689952.92 0.0520 0.0374  
 Mercury -118851-05-31 00:15 J -41688754.67 -41688754.49 -41688754.31 0.0500 0.0059  
 Venus -118849-12-18 01:56 J -41687822.63 -41687822.42 -41687822.21 0.0504 0.0062  
 Moon -118846-02-04 05:46 J -41687044.50 -41687044.26 -41687044.03 0.0518 0.0073  
 Earth -118846-02-04 08:10 J -41687044.39 -41687044.16 -41687043.93 0.0518 0.0041 \*  
 Mercury -118845-04-29 11:46 J -41686594.13 -41686594.01 -41686593.89 0.0525 0.0232  
 Mercury -118845-07-27 18:58 J -41686504.82 -41686504.71 -41686504.59 0.0526 0.0243  
 Venus -118843-10-23 11:17 J -41685687.21 -41685687.03 -41685686.84 0.0521 0.0151  
 Mercury -118839-03-18 22:20 J -41684444.73 -41684444.57 -41684444.40 0.0500 0.0198  
 Mercury -118839-06-17 05:46 J -41684354.37 -41684354.26 -41684354.14 0.0499 0.0388  
 Mars -118838-05-18 07:13 J -41684019.46 -41684019.20 -41684018.94 0.0499 0.0038  
 Venus -118837-08-22 17:46 J -41683556.96 -41683556.76 -41683556.56 0.0503 0.0161  
 Earth -118834-02-09 00:01 J -41682656.64 -41682656.50 -41682656.37 0.0519 0.0415  
 Moon -118834-02-09 00:44 J -41682656.61 -41682656.47 -41682656.33 0.0519 0.0405 \*  
 Mercury -118833-02-16 15:08 J -41682283.97 -41682283.87 -41682283.78 0.0525 0.0357  
 Mercury -118833-05-15 22:34 J -41682194.69 -41682194.56 -41682194.43 0.0526 0.0120  
 Venus -118831-06-28 11:46 J -41681421.20 -41681421.01 -41681420.82 0.0523 0.0075  
 Moon -118829-07-21 18:58 J -41680666.80 -41680666.71 -41680666.61 0.0508 0.0458  
 Earth -118829-07-21 22:49 J -41680666.65 -41680666.55 -41680666.44 0.0508 0.0448 \*  
 Mercury -118827-01-04 20:25 J -41680134.78 -41680134.65 -41680134.52 0.0500 0.0340  
 Mercury -118827-04-05 03:37 J -41680044.51 -41680044.35 -41680044.19 0.0499 0.0242  
 Venus -118825-04-27 10:34 J -41679291.19 -41679291.06 -41679290.91 0.0502 0.0382  
 Venus -118825-12-21 00:01 J -41679053.62 -41679053.50 -41679053.38 0.0505 0.0416

Mercury -118822-12-05 18:58 J -41677973.76 -41677973.71 -41677973.66 0.0525 0.0473

Mercury -118821-03-04 02:39 J -41677884.52 -41677884.39 -41677884.26 0.0526 0.0007

Mercury -118821-06-01 09:37 J -41677795.15 -41677795.10 -41677795.04 0.0526 0.0477

Mars -118820-04-04 23:03 J -41677487.76 -41677487.54 -41677487.30 0.0526 0.0326

Venus -118819-03-03 11:46 J -41677155.17 -41677155.01 -41677154.85 0.0523 0.0300

Venus -118819-10-25 21:37 J -41676918.63 -41676918.60 -41676918.56 0.0519 0.0508

Earth -118817-07-26 10:20 J -41676279.30 -41676279.07 -41676278.84 0.0507 0.0027

Moon -118817-07-26 12:58 J -41676279.19 -41676278.96 -41676278.73 0.0507 0.0055 \*

Mercury -118816-10-23 17:03 J -41675824.81 -41675824.79 -41675824.76 0.0500 0.0494

Mercury -118815-01-22 00:01 J -41675734.68 -41675734.50 -41675734.33 0.0500 0.0083

Venus -118813-08-25 15:37 J -41674788.04 -41674787.85 -41674787.65 0.0505 0.0195

Mercury -118810-12-22 06:58 J -41673574.34 -41673574.21 -41673574.09 0.0526 0.0108

Mercury -118809-03-20 13:56 J -41673485.01 -41673484.92 -41673484.82 0.0526 0.0366

Venus -118807-06-30 22:49 J -41672652.71 -41672652.55 -41672652.39 0.0520 0.0287

Moon -118805-07-31 00:15 J -41671891.62 -41671891.49 -41671891.34 0.0506 0.0415

Earth -118805-07-31 00:58 J -41671891.59 -41671891.46 -41671891.32 0.0506 0.0408 \*

Mercury -118804-11-09 21:37 J -41671424.78 -41671424.60 -41671424.42 0.0500 0.0063

Mars -118802-02-19 03:37 J -41670958.53 -41670958.35 -41670958.15 0.0499 0.0340

Venus -118801-04-30 08:53 J -41670522.34 -41670522.13 -41670521.92 0.0504 0.0028

Mercury -118798-10-10 10:34 J -41669264.18 -41669264.06 -41669263.95 0.0525 0.0229

Mercury -118797-01-07 17:46 J -41669174.87 -41669174.76 -41669174.65 0.0526 0.0246

Venus -118795-03-05 22:20 J -41668386.77 -41668386.57 -41668386.38 0.0521 0.0059

Mercury -118792-08-28 19:41 J -41667114.84 -41667114.68 -41667114.52 0.0500 0.0205

Mercury -118792-11-27 03:08 J -41667024.48 -41667024.37 -41667024.25 0.0500 0.0382

Venus -118789-01-04 01:56 J -41666256.60 -41666256.42 -41666256.24 0.0503 0.0250

Mercury -118786-07-29 13:56 J -41664954.01 -41664953.92 -41664953.82 0.0525 0.0350

Mercury -118786-10-26 21:22 J -41664864.73 -41664864.61 -41664864.48 0.0526 0.0128

Venus -118784-11-08 22:20 J -41664120.75 -41664120.57 -41664120.38 0.0523 0.0170

Mercury -118780-06-16 18:15 J -41662804.87 -41662804.74 -41662804.61 0.0500 0.0341

Mercury -118780-09-15 01:13 J -41662714.60 -41662714.45 -41662714.29 0.0500 0.0242

Venus -118778-09-08 19:13 J -41661990.78 -41661990.70 -41661990.63 0.0501 0.0467  
 Venus -118777-05-03 07:41 J -41661753.33 -41661753.18 -41661753.01 0.0505 0.0331  
 Mercury -118774-05-17 17:17 J -41660643.83 -41660643.78 -41660643.73 0.0525 0.0475  
 Mercury -118774-08-15 00:58 J -41660554.59 -41660554.46 -41660554.33 0.0526 0.0006  
 Mercury -118774-11-12 07:56 J -41660465.22 -41660465.17 -41660465.11 0.0526 0.0474  
 Venus -118772-07-14 22:20 J -41659854.70 -41659854.57 -41659854.44 0.0524 0.0396  
 Venus -118771-03-08 09:22 J -41659618.22 -41659618.11 -41659618.00 0.0520 0.0420  
 Mercury -118768-04-04 16:20 J -41658494.86 -41658494.82 -41658494.77 0.0500 0.0480  
 Mercury -118768-07-03 23:03 J -41658404.71 -41658404.54 -41658404.36 0.0500 0.0098  
 Venus -118765-01-07 00:15 J -41657487.69 -41657487.49 -41657487.28 0.0504 0.0106  
 Earth -118763-02-03 10:34 J -41656729.29 -41656729.06 -41656728.84 0.0518 0.0128  
 Moon -118763-02-03 11:32 J -41656729.23 -41656729.02 -41656728.80 0.0518 0.0161 \*  
 Mercury -118762-06-03 05:03 J -41656244.42 -41656244.29 -41656244.16 0.0526 0.0110  
 Mercury -118762-08-31 12:15 J -41656155.08 -41656154.99 -41656154.90 0.0526 0.0364  
 Venus -118760-11-11 10:05 J -41655352.26 -41655352.08 -41655351.90 0.0521 0.0198  
 Mercury -118756-04-21 19:41 J -41654094.86 -41654094.68 -41654094.50 0.0500 0.0061  
 Venus -118754-09-11 16:05 J -41653222.04 -41653221.83 -41653221.63 0.0503 0.0119  
 Earth -118751-02-08 07:56 J -41652341.34 -41652341.17 -41652340.99 0.0520 0.0349  
 Moon -118751-02-08 08:25 J -41652341.32 -41652341.15 -41652340.96 0.0520 0.0343 \*  
 Mercury -118750-03-22 09:22 J -41651934.23 -41651934.11 -41651933.99 0.0525 0.0222  
 Mercury -118750-06-19 16:34 J -41651844.92 -41651844.81 -41651844.69 0.0526 0.0254  
 Venus -118748-07-17 11:17 J -41651086.23 -41651086.03 -41651085.84 0.0522 0.0027  
 Mercury -118744-02-07 17:32 J -41649784.93 -41649784.77 -41649784.60 0.0500 0.0204  
 Mercury -118744-05-09 00:58 J -41649694.57 -41649694.46 -41649694.34 0.0500 0.0381  
 Venus -118742-05-17 09:37 J -41648956.25 -41648956.10 -41648955.94 0.0503 0.0339  
 Venus -118741-01-09 23:46 J -41648718.58 -41648718.51 -41648718.43 0.0506 0.0468  
 Mercury -118738-01-08 12:58 J -41647624.06 -41647623.96 -41647623.86 0.0525 0.0342  
 Mercury -118738-04-07 20:25 J -41647534.77 -41647534.65 -41647534.52 0.0526 0.0135  
 Venus -118736-03-22 10:34 J -41646820.23 -41646820.06 -41646819.89 0.0523 0.0258  
 Moon -118734-07-26 13:41 J -41645964.16 -41645963.93 -41645963.69 0.0507 0.0128

Earth -118734-07-26 14:53 J -41645964.11 -41645963.88 -41645963.65 0.0507 0.0103 \*  
 Mercury -118733-11-26 15:51 J -41645474.97 -41645474.84 -41645474.71 0.0501 0.0344  
 Mercury -118732-02-24 23:03 J -41645384.70 -41645384.54 -41645384.38 0.0500 0.0239  
 Venus -118730-09-14 16:49 J -41644452.98 -41644452.80 -41644452.61 0.0505 0.0245  
 Mercury -118727-10-27 16:34 J -41643313.87 -41643313.81 -41643313.75 0.0525 0.0463  
 Mercury -118726-01-25 00:15 J -41643224.62 -41643224.49 -41643224.36 0.0525 0.0017  
 Mercury -118726-04-24 07:13 J -41643135.25 -41643135.20 -41643135.15 0.0526 0.0484  
 Venus -118725-11-25 10:20 J -41642554.14 -41642554.07 -41642554.00 0.0524 0.0487  
 Venus -118724-07-19 20:53 J -41642317.77 -41642317.63 -41642317.47 0.0520 0.0332  
 Moon -118722-07-31 06:29 J -41641576.38 -41641576.23 -41641576.06 0.0506 0.0360  
 Earth -118722-07-31 07:41 J -41641576.35 -41641576.18 -41641576.00 0.0506 0.0343 \*  
 Mercury -118721-09-14 14:39 J -41641164.94 -41641164.89 -41641164.84 0.0501 0.0478  
 Mercury -118721-12-13 21:22 J -41641074.79 -41641074.61 -41641074.44 0.0500 0.0100  
 Mars -118720-11-07 02:53 J -41640746.58 -41640746.38 -41640746.16 0.0499 0.0294  
 Venus -118718-05-20 09:22 J -41640187.33 -41640187.11 -41640186.90 0.0503 0.0023  
 Mercury -118715-11-13 03:37 J -41638914.47 -41638914.35 -41638914.22 0.0525 0.0108  
 Mercury -118714-02-10 10:49 J -41638825.14 -41638825.05 -41638824.95 0.0526 0.0366  
 Venus -118712-03-24 22:05 J -41638051.77 -41638051.58 -41638051.39 0.0522 0.0108  
 Mercury -118709-10-01 19:27 J -41636764.87 -41636764.69 -41636764.51 0.0500 0.0043  
 Venus -118706-01-23 02:10 J -41635921.60 -41635921.41 -41635921.21 0.0503 0.0202  
 Mercury -118703-09-01 07:41 J -41634604.29 -41634604.18 -41634604.06 0.0525 0.0222  
 Mercury -118703-11-29 15:08 J -41634514.98 -41634514.87 -41634514.75 0.0526 0.0255  
 Mars -118702-09-21 23:46 J -41634218.80 -41634218.51 -41634218.22 0.0527 0.0071  
 Venus -118701-11-27 23:03 J -41633785.73 -41633785.54 -41633785.34 0.0522 0.0117  
 Mercury -118697-07-20 16:05 J -41632454.99 -41632454.83 -41632454.67 0.0500 0.0198  
 Mercury -118697-10-18 23:32 J -41632364.64 -41632364.52 -41632364.41 0.0499 0.0387  
 Venus -118695-09-27 17:46 J -41631655.86 -41631655.76 -41631655.64 0.0502 0.0426  
 Venus -118694-05-23 07:27 J -41631418.32 -41631418.19 -41631418.04 0.0506 0.0381  
 Mercury -118691-06-20 12:01 J -41630294.10 -41630294.00 -41630293.90 0.0525 0.0333  
 Mercury -118691-09-17 19:41 J -41630204.81 -41630204.68 -41630204.56 0.0526 0.0146

Venus -118689-08-03 00:15 J -41629519.63 -41629519.49 -41629519.34 0.0523 0.0343  
 Venus -118688-03-27 10:20 J -41629283.15 -41629283.07 -41629282.99 0.0519 0.0472  
 Mercury -118685-05-08 14:10 J -41628145.04 -41628144.91 -41628144.78 0.0500 0.0339  
 Mercury -118685-08-06 21:08 J -41628054.77 -41628054.62 -41628054.46 0.0500 0.0243  
 Mars -118684-08-11 02:39 J -41627685.64 -41627685.39 -41627685.13 0.0499 0.0087  
 Venus -118682-01-26 00:44 J -41627152.66 -41627152.47 -41627152.26 0.0505 0.0158  
 Earth -118680-02-02 20:39 J -41626413.85 -41626413.64 -41626413.42 0.0518 0.0186  
 Moon -118680-02-02 21:08 J -41626413.84 -41626413.62 -41626413.40 0.0518 0.0218 \*  
 Mercury -118679-04-08 15:51 J -41625983.91 -41625983.84 -41625983.78 0.0525 0.0451  
 Mercury -118679-07-06 23:32 J -41625894.65 -41625894.52 -41625894.39 0.0525 0.0029  
 Mercury -118679-10-04 06:29 J -41625805.27 -41625805.23 -41625805.19 0.0526 0.0496  
 Venus -118677-11-30 10:20 J -41625017.24 -41625017.07 -41625016.89 0.0520 0.0247  
 Mercury -118673-02-25 12:29 J -41623835.02 -41623834.98 -41623834.92 0.0501 0.0477  
 Mercury -118673-05-25 19:27 J -41623744.87 -41623744.69 -41623744.52 0.0500 0.0102  
 Venus -118671-09-30 18:44 J -41622886.93 -41622886.72 -41622886.51 0.0504 0.0066  
 Moon -118668-02-07 14:10 J -41622026.09 -41622025.91 -41622025.72 0.0519 0.0286  
 Earth -118668-02-07 16:05 J -41622026.01 -41622025.83 -41622025.63 0.0519 0.0284 \*  
 Mercury -118667-04-25 03:08 J -41621584.49 -41621584.37 -41621584.24 0.0525 0.0093  
 Mercury -118667-07-23 10:20 J -41621495.16 -41621495.07 -41621494.98 0.0526 0.0380  
 Mars -118666-06-30 11:03 J -41621153.09 -41621153.04 -41621152.99 0.0526 0.0518  
 Venus -118665-08-05 11:03 J -41620751.24 -41620751.04 -41620750.85 0.0522 0.0022  
 Mercury -118661-03-13 17:46 J -41619434.94 -41619434.76 -41619434.58 0.0500 0.0037  
 Venus -118659-06-05 12:01 J -41618621.17 -41618621.00 -41618620.82 0.0502 0.0286  
 Mercury -118655-02-11 06:44 J -41617274.34 -41617274.22 -41617274.10 0.0525 0.0214  
 Mercury -118655-05-11 13:56 J -41617185.03 -41617184.92 -41617184.80 0.0526 0.0262  
 Venus -118653-04-10 11:32 J -41616485.20 -41616485.02 -41616484.84 0.0523 0.0208  
 Moon -118651-07-26 00:44 J -41615648.68 -41615648.47 -41615648.26 0.0507 0.0174  
 Earth -118651-07-26 01:41 J -41615648.66 -41615648.43 -41615648.21 0.0507 0.0155 \*  
 Mercury -118650-12-31 16:05 J -41615125.00 -41615124.83 -41615124.66 0.0500 0.0176  
 Mercury -118649-03-30 23:32 J -41615034.62 -41615034.52 -41615034.42 0.0500 0.0411



Mars -118648-05-15 13:27 J -41614623.97 -41614623.94 -41614623.90 0.0499 0.0494  
 Venus -118647-10-03 18:29 J -41614117.89 -41614117.73 -41614117.55 0.0505 0.0299  
 Mercury -118644-11-30 10:49 J -41612964.15 -41612964.05 -41612963.95 0.0525 0.0327  
 Mercury -118643-02-27 18:15 J -41612874.86 -41612874.74 -41612874.61 0.0526 0.0151  
 Venus -118642-12-15 12:29 J -41612219.08 -41612218.98 -41612218.86 0.0524 0.0433  
 Venus -118641-08-07 23:03 J -41611982.66 -41611982.54 -41611982.40 0.0520 0.0389  
 Earth -118639-07-30 14:53 J -41611261.07 -41611260.88 -41611260.68 0.0506 0.0274  
 Moon -118639-07-30 17:46 J -41611260.95 -41611260.76 -41611260.56 0.0506 0.0298 \*  
 Mercury -118638-10-19 12:58 J -41610815.09 -41610814.96 -41610814.82 0.0500 0.0330  
 Mercury -118637-01-17 19:56 J -41610724.82 -41610724.67 -41610724.51 0.0500 0.0252  
 Venus -118635-06-08 09:22 J -41609852.32 -41609852.11 -41609851.90 0.0504 0.0070  
 Mercury -118632-09-18 15:08 J -41608653.94 -41608653.87 -41608653.80 0.0525 0.0440  
 Mercury -118632-12-16 22:49 J -41608564.68 -41608564.55 -41608564.42 0.0526 0.0041  
 Mercury -118631-03-16 05:46 J -41608475.29 -41608475.26 -41608475.23 0.0526 0.0510  
 Venus -118629-04-13 01:13 J -41607716.63 -41607716.45 -41607716.26 0.0521 0.0167  
 Mercury -118626-08-07 11:17 J -41606505.08 -41606505.03 -41606504.96 0.0500 0.0468  
 Mercury -118626-11-05 18:01 J -41606414.92 -41606414.75 -41606414.57 0.0500 0.0109  
 Venus -118623-02-11 03:08 J -41605586.57 -41605586.37 -41605586.16 0.0503 0.0154  
 Mercury -118620-10-05 02:39 J -41604254.52 -41604254.39 -41604254.26 0.0525 0.0077  
 Mercury -118619-01-02 09:51 J -41604165.18 -41604165.09 -41604165.01 0.0526 0.0395  
 Venus -118618-12-18 01:13 J -41603450.65 -41603450.45 -41603450.26 0.0522 0.0065  
 Mercury -118614-08-24 16:20 J -41602105.00 -41602104.82 -41602104.64 0.0500 0.0032  
 Venus -118612-10-16 21:37 J -41601320.73 -41601320.60 -41601320.45 0.0502 0.0373  
 Venus -118611-06-11 11:46 J -41601083.11 -41601083.01 -41601082.91 0.0506 0.0439  
 Mercury -118608-07-24 06:29 J -41599944.35 -41599944.23 -41599944.11 0.0525 0.0196  
 Mercury -118608-10-21 13:41 J -41599855.04 -41599854.93 -41599854.82 0.0526 0.0279  
 Venus -118606-08-23 01:13 J -41599184.61 -41599184.45 -41599184.28 0.0523 0.0295  
 Mercury -118602-06-12 14:53 J -41597795.05 -41597794.88 -41597794.71 0.0500 0.0167  
 Mercury -118602-09-10 22:20 J -41597704.67 -41597704.57 -41597704.47 0.0500 0.0420  
 Venus -118599-02-14 04:34 J -41596817.50 -41596817.31 -41596817.12 0.0504 0.0215

Moon -118597-02-03 02:53 J -41596098.57 -41596098.38 -41596098.19 0.0518 0.0282  
 Earth -118597-02-03 05:03 J -41596098.50 -41596098.29 -41596098.09 0.0518 0.0251 \*  
 Mercury -118596-05-12 09:51 J -41595634.19 -41595634.09 -41595633.98 0.0525 0.0318  
 Mercury -118596-08-09 17:32 J -41595544.90 -41595544.77 -41595544.65 0.0526 0.0160  
 Venus -118594-04-28 00:58 J -41594918.46 -41594918.46 -41594918.44 0.0524 0.0523  
 Venus -118594-12-20 12:29 J -41594682.14 -41594681.98 -41594681.82 0.0521 0.0303  
 Mercury -118590-03-31 13:13 J -41593485.09 -41593484.95 -41593484.80 0.0500 0.0305  
 Mercury -118590-06-29 20:25 J -41593394.80 -41593394.65 -41593394.50 0.0500 0.0278  
 Venus -118588-10-19 21:37 J -41592551.81 -41592551.60 -41592551.39 0.0503 0.0011  
 Earth -118585-02-08 01:41 J -41591710.63 -41591710.43 -41591710.22 0.0519 0.0224  
 Moon -118585-02-08 05:17 J -41591710.49 -41591710.28 -41591710.07 0.0519 0.0241 \*  
 Mercury -118584-02-28 13:56 J -41591323.99 -41591323.92 -41591323.84 0.0525 0.0432  
 Mercury -118584-05-28 21:37 J -41591234.73 -41591234.60 -41591234.47 0.0526 0.0049  
 Mercury -118584-08-26 04:34 J -41591145.32 -41591145.31 -41591145.28 0.0526 0.0517  
 Mars -118583-03-10 19:27 J -41590948.84 -41590948.69 -41590948.53 0.0527 0.0442  
 Venus -118582-08-25 14:25 J -41590416.09 -41590415.90 -41590415.70 0.0521 0.0080  
 Mercury -118578-01-17 10:34 J -41589175.13 -41589175.06 -41589174.99 0.0500 0.0456  
 Mercury -118578-04-17 17:03 J -41589084.96 -41589084.79 -41589084.61 0.0500 0.0121  
 Venus -118576-06-24 12:29 J -41588286.17 -41588285.98 -41588285.80 0.0503 0.0240  
 Mercury -118572-03-17 01:56 J -41586924.55 -41586924.42 -41586924.29 0.0526 0.0065  
 Mercury -118572-06-14 09:08 J -41586835.20 -41586835.12 -41586835.04 0.0526 0.0409  
 Venus -118570-04-30 16:20 J -41586150.01 -41586149.82 -41586149.63 0.0522 0.0146  
 Earth -118568-07-25 11:03 J -41585333.25 -41585333.04 -41585332.82 0.0507 0.0213  
 Moon -118568-07-25 14:25 J -41585333.11 -41585332.90 -41585332.68 0.0507 0.0216 \*  
 Mercury -118566-02-03 15:08 J -41584775.05 -41584774.87 -41584774.69 0.0500 0.0023  
 Mars -118565-02-01 09:08 J -41584412.37 -41584412.12 -41584411.87 0.0499 0.0155  
 Venus -118564-02-27 06:44 J -41584020.30 -41584020.22 -41584020.13 0.0502 0.0459  
 Venus -118564-10-22 20:39 J -41583782.79 -41583782.64 -41583782.49 0.0506 0.0353  
 Mercury -118560-01-03 06:00 J -41582614.38 -41582614.25 -41582614.13 0.0525 0.0180  
 Mercury -118560-04-02 13:12 J -41582525.05 -41582524.95 -41582524.84 0.0526 0.0295

Venus -118558-01-03 15:51 J -41581883.97 -41581883.84 -41581883.70 0.0523 0.0378

Venus -118558-08-28 01:56 J -41581647.52 -41581647.42 -41581647.32 0.0519 0.0443

Moon -118556-07-29 21:51 J -41580945.78 -41580945.59 -41580945.38 0.0506 0.0254

Earth -118556-07-30 01:56 J -41580945.63 -41580945.42 -41580945.21 0.0506 0.0224 \*

Mercury -118555-11-22 13:27 J -41580465.11 -41580464.94 -41580464.77 0.0500 0.0160

Mercury -118554-02-20 20:53 J -41580374.72 -41580374.63 -41580374.53 0.0500 0.0427

Venus -118552-06-27 14:10 J -41579517.11 -41579516.91 -41579516.70 0.0504 0.0130

Mercury -118549-10-22 09:36 J -41578304.20 -41578304.10 -41578303.99 0.0525 0.0299

Mercury -118548-01-19 17:17 J -41578214.91 -41578214.78 -41578214.66 0.0526 0.0179

Mars -118548-12-17 10:20 J -41577883.35 -41577883.07 -41577882.79 0.0526 0.0160

Venus -118546-05-03 02:53 J -41577381.56 -41577381.38 -41577381.20 0.0521 0.0219

Mercury -118543-09-10 12:00 J -41576155.14 -41576155.00 -41576154.85 0.0500 0.0296

Mercury -118543-12-09 19:12 J -41576064.84 -41576064.70 -41576064.55 0.0500 0.0289

Venus -118540-03-02 07:56 J -41575251.38 -41575251.17 -41575250.96 0.0503 0.0094

Mercury -118537-08-10 13:12 J -41573994.03 -41573993.95 -41573993.87 0.0525 0.0421

Mercury -118537-11-07 20:53 J -41573904.76 -41573904.63 -41573904.50 0.0526 0.0058

Venus -118534-01-06 03:36 J -41573115.55 -41573115.35 -41573115.16 0.0522 0.0010

Mercury -118531-06-29 10:34 J -41571845.14 -41571845.06 -41571844.96 0.0501 0.0432

Mercury -118531-09-27 17:32 J -41571754.94 -41571754.77 -41571754.60 0.0500 0.0148

Mars -118530-11-05 22:34 J -41571350.78 -41571350.56 -41571350.34 0.0499 0.0259

Venus -118529-11-05 01:27 J -41570985.60 -41570985.44 -41570985.28 0.0502 0.0317

Venus -118528-06-30 14:53 J -41570747.90 -41570747.88 -41570747.83 0.0506 0.0498

Mercury -118525-08-27 00:58 J -41569594.59 -41569594.46 -41569594.33 0.0526 0.0056

Mercury -118525-11-24 08:10 J -41569505.23 -41569505.16 -41569505.08 0.0526 0.0418

Venus -118523-09-11 05:32 J -41568849.45 -41568849.27 -41568849.10 0.0523 0.0235

Mercury -118519-07-16 14:24 J -41567445.08 -41567444.90 -41567444.72 0.0500 0.0007

Venus -118516-03-05 05:17 J -41566482.45 -41566482.28 -41566482.09 0.0505 0.0266

Earth -118514-02-02 16:34 J -41565783.00 -41565782.81 -41565782.62 0.0519 0.0303

Moon -118514-02-02 20:10 J -41565782.84 -41565782.66 -41565782.47 0.0519 0.0321 \*

Mercury -118513-06-15 05:17 J -41565284.40 -41565284.28 -41565284.16 0.0526 0.0167

Mercury -118513-09-12 12:44 J -41565195.08 -41565194.97 -41565194.87 0.0526 0.0309

Venus -118511-05-17 06:58 J -41564583.30 -41564583.21 -41564583.12 0.0524 0.0461

Venus -118510-01-08 17:32 J -41564346.91 -41564346.77 -41564346.63 0.0520 0.0366

Mercury -118507-05-04 12:29 J -41563135.14 -41563134.98 -41563134.80 0.0500 0.0148

Mercury -118507-08-02 19:56 J -41563044.75 -41563044.67 -41563044.58 0.0499 0.0438

Venus -118505-11-07 23:03 J -41562216.75 -41562216.54 -41562216.32 0.0504 0.0042

Moon -118502-02-07 11:17 J -41561395.24 -41561395.03 -41561394.81 0.0520 0.0205

Earth -118502-02-07 14:53 J -41561395.10 -41561394.88 -41561394.66 0.0520 0.0179 \*

Mercury -118501-04-03 09:08 J -41560974.23 -41560974.12 -41560974.01 0.0525 0.0284

Mercury -118501-07-01 16:48 J -41560884.92 -41560884.80 -41560884.68 0.0526 0.0195

Venus -118499-09-13 17:46 J -41560080.94 -41560080.76 -41560080.57 0.0521 0.0138

Mercury -118495-02-20 10:48 J -41558825.19 -41558825.05 -41558824.90 0.0500 0.0287

Mercury -118495-05-21 18:00 J -41558734.89 -41558734.75 -41558734.60 0.0500 0.0297

Venus -118493-07-13 17:32 J -41557950.97 -41557950.77 -41557950.57 0.0503 0.0182

Mercury -118489-01-21 12:58 J -41556664.04 -41556663.96 -41556663.88 0.0525 0.0402

Mercury -118489-04-19 20:39 J -41556574.77 -41556574.64 -41556574.51 0.0526 0.0077

Venus -118487-05-19 18:15 J -41555814.93 -41555814.74 -41555814.55 0.0522 0.0094

Moon -118485-07-24 18:29 J -41555017.93 -41555017.73 -41555017.53 0.0507 0.0257

Earth -118485-07-24 22:34 J -41555017.76 -41555017.56 -41555017.36 0.0507 0.0260 \*

Mercury -118484-12-09 09:36 J -41554515.19 -41554515.10 -41554515.00 0.0501 0.0421

Mercury -118483-03-09 16:20 J -41554424.99 -41554424.82 -41554424.65 0.0500 0.0158

Venus -118481-03-18 11:46 J -41553685.13 -41553685.01 -41553684.88 0.0502 0.0401

Venus -118481-11-11 01:12 J -41553447.57 -41553447.45 -41553447.33 0.0505 0.0414

Mercury -118477-02-07 00:15 J -41552264.62 -41552264.49 -41552264.36 0.0525 0.0044

Mercury -118477-05-06 07:12 J -41552175.27 -41552175.20 -41552175.12 0.0526 0.0428

Venus -118475-01-22 18:15 J -41551548.89 -41551548.74 -41551548.59 0.0523 0.0325

Venus -118475-09-16 04:34 J -41551312.36 -41551312.31 -41551312.26 0.0520 0.0500

Earth -118473-07-29 15:08 J -41550630.09 -41550629.87 -41550629.65 0.0506 0.0183

Moon -118473-07-29 18:44 J -41550629.92 -41550629.72 -41550629.50 0.0506 0.0217 \*

Mercury -118472-12-26 14:39 J -41550115.07 -41550114.89 -41550114.71 0.0500 0.0018

Venus -118469-07-16 18:00 J -41549181.95 -41549181.75 -41549181.56 0.0504 0.0187  
 Mercury -118466-11-26 04:20 J -41547954.44 -41547954.32 -41547954.20 0.0526 0.0158  
 Mercury -118465-02-23 11:32 J -41547865.12 -41547865.02 -41547864.91 0.0526 0.0318  
 Venus -118463-05-22 06:58 J -41547046.37 -41547046.21 -41547046.04 0.0521 0.0281  
 Mercury -118460-10-14 11:46 J -41545805.18 -41545805.01 -41545804.83 0.0500 0.0134  
 Mercury -118459-01-12 19:12 J -41545714.78 -41545714.70 -41545714.63 0.0499 0.0451  
 Venus -118457-03-21 08:10 J -41544916.37 -41544916.16 -41544915.95 0.0504 0.0048  
 Mercury -118454-09-14 08:24 J -41543644.26 -41543644.15 -41543644.04 0.0526 0.0273  
 Mercury -118454-12-12 15:51 J -41543554.95 -41543554.84 -41543554.72 0.0526 0.0207  
 Venus -118451-01-25 09:08 J -41542780.31 -41542780.12 -41542779.92 0.0522 0.0055  
 Mercury -118448-08-02 10:05 J -41541495.23 -41541495.08 -41541494.93 0.0500 0.0273  
 Mercury -118448-10-31 17:03 J -41541404.93 -41541404.79 -41541404.65 0.0499 0.0308  
 Mars -118447-07-24 19:27 J -41541138.85 -41541138.69 -41541138.53 0.0499 0.0394  
 Venus -118446-11-25 02:10 J -41540650.59 -41540650.41 -41540650.23 0.0503 0.0272  
 Mercury -118442-07-03 12:15 J -41539334.08 -41539333.99 -41539333.90 0.0525 0.0389  
 Mercury -118442-09-30 19:56 J -41539244.80 -41539244.67 -41539244.54 0.0526 0.0092  
 Venus -118440-09-30 08:53 J -41538514.31 -41538514.13 -41538513.94 0.0522 0.0179  
 Mercury -118436-05-21 08:24 J -41537185.25 -41537185.15 -41537185.05 0.0500 0.0412  
 Mercury -118436-08-19 15:08 J -41537095.04 -41537094.87 -41537094.70 0.0500 0.0166  
 Venus -118434-07-30 21:08 J -41536384.66 -41536384.62 -41536384.58 0.0502 0.0489  
 Venus -118433-03-24 10:20 J -41536147.23 -41536147.07 -41536146.91 0.0505 0.0326  
 Moon -118431-02-02 01:27 J -41535467.61 -41535467.44 -41535467.27 0.0518 0.0359  
 Earth -118431-02-02 05:03 J -41535467.46 -41535467.29 -41535467.11 0.0518 0.0348 \*  
 Mercury -118430-04-21 15:51 J -41535023.86 -41535023.84 -41535023.80 0.0525 0.0508  
 Mercury -118430-07-19 23:46 J -41534934.64 -41534934.51 -41534934.38 0.0526 0.0031  
 Mercury -118430-10-17 06:58 J -41534845.27 -41534845.21 -41534845.14 0.0526 0.0445  
 Mars -118429-06-05 11:32 J -41534613.28 -41534613.02 -41534612.74 0.0526 0.0203  
 Venus -118428-06-05 08:39 J -41534248.26 -41534248.14 -41534248.02 0.0523 0.0412  
 Venus -118427-01-27 18:58 J -41534011.82 -41534011.71 -41534011.59 0.0520 0.0418  
 Mercury -118424-06-07 13:27 J -41532785.12 -41532784.94 -41532784.76 0.0500 0.0028

Venus -118422-11-28 03:36 J -41531881.55 -41531881.35 -41531881.14 0.0504 0.0101  
 Earth -118419-02-07 00:00 J -41531079.72 -41531079.50 -41531079.27 0.0519 0.0119  
 Moon -118419-02-07 02:24 J -41531079.62 -41531079.40 -41531079.18 0.0519 0.0151 \*  
 Mercury -118418-05-08 03:22 J -41530624.48 -41530624.36 -41530624.23 0.0525 0.0149  
 Mercury -118418-08-05 10:48 J -41530535.15 -41530535.05 -41530534.95 0.0526 0.0326  
 Venus -118416-10-02 19:41 J -41529745.86 -41529745.68 -41529745.49 0.0521 0.0192  
 Mercury -118412-03-26 11:46 J -41528475.19 -41528475.01 -41528474.84 0.0500 0.0113  
 Mercury -118412-06-24 18:58 J -41528384.76 -41528384.71 -41528384.65 0.0499 0.0475  
 Mars -118411-04-28 06:58 J -41528077.47 -41528077.21 -41528076.95 0.0499 0.0018  
 Venus -118410-08-02 20:39 J -41527615.84 -41527615.64 -41527615.43 0.0503 0.0128  
 Mercury -118406-02-24 07:27 J -41526314.31 -41526314.19 -41526314.08 0.0525 0.0265  
 Mercury -118406-05-24 14:53 J -41526225.00 -41526224.88 -41526224.76 0.0526 0.0213  
 Venus -118404-06-07 21:51 J -41525479.79 -41525479.59 -41525479.39 0.0522 0.0035  
 Earth -118402-07-25 10:48 J -41524702.23 -41524702.05 -41524701.86 0.0507 0.0306  
 Moon -118402-07-25 14:39 J -41524702.08 -41524701.89 -41524701.70 0.0507 0.0294 \*  
 Mercury -118400-01-12 09:08 J -41524165.27 -41524165.12 -41524164.96 0.0500 0.0261  
 Mercury -118400-04-12 16:05 J -41524074.97 -41524074.83 -41524074.69 0.0499 0.0320  
 Venus -118398-04-07 11:17 J -41523350.18 -41523350.03 -41523349.88 0.0502 0.0359  
 Venus -118398-12-01 00:58 J -41523112.54 -41523112.46 -41523112.38 0.0506 0.0461  
 Mercury -118395-12-13 11:17 J -41522004.12 -41522004.03 -41522003.94 0.0526 0.0382  
 Mercury -118394-03-12 18:58 J -41521914.84 -41521914.71 -41521914.58 0.0526 0.0100  
 Mars -118393-03-14 03:36 J -41521547.52 -41521547.35 -41521547.16 0.0527 0.0409  
 Venus -118392-02-10 23:32 J -41521213.69 -41521213.52 -41521213.36 0.0523 0.0265  
 Moon -118390-07-29 23:46 J -41520314.74 -41520314.51 -41520314.28 0.0506 0.0162  
 Earth -118390-07-30 02:39 J -41520314.62 -41520314.39 -41520314.17 0.0506 0.0134 \*  
 Mercury -118389-10-31 07:27 J -41519855.29 -41519855.19 -41519855.08 0.0500 0.0399  
 Mercury -118388-01-29 13:56 J -41519765.08 -41519764.92 -41519764.75 0.0499 0.0177  
 Venus -118386-08-05 18:00 J -41518846.94 -41518846.75 -41518846.56 0.0505 0.0234  
 Mercury -118383-10-01 15:08 J -41517693.91 -41517693.87 -41517693.83 0.0525 0.0498  
 Mercury -118383-12-29 23:03 J -41517604.67 -41517604.54 -41517604.41 0.0526 0.0017

Mercury -118382-03-29 06:15 J -41517515.30 -41517515.24 -41517515.18 0.0527 0.0456

Venus -118381-10-16 22:34 J -41516947.61 -41516947.56 -41516947.50 0.0524 0.0499

Venus -118380-06-10 09:22 J -41516711.25 -41516711.11 -41516710.96 0.0520 0.0335

Mercury -118377-11-17 12:00 J -41515455.18 -41515455.00 -41515454.82 0.0500 0.0034

Mars -118375-01-30 07:41 J -41515016.32 -41515016.18 -41515016.02 0.0499 0.0409

Venus -118374-04-10 12:15 J -41514581.20 -41514580.99 -41514580.78 0.0504 0.0010

Mercury -118371-10-18 02:53 J -41513294.51 -41513294.38 -41513294.26 0.0526 0.0135

Mercury -118370-01-15 10:05 J -41513205.18 -41513205.08 -41513204.98 0.0526 0.0341

Venus -118368-02-13 09:51 J -41512445.28 -41512445.09 -41512444.90 0.0521 0.0105

Mercury -118365-09-05 10:20 J -41511145.25 -41511145.07 -41511144.90 0.0500 0.0106

Mercury -118365-12-04 17:32 J -41511054.81 -41511054.77 -41511054.72 0.0499 0.0481

Venus -118363-12-14 05:46 J -41510315.45 -41510315.26 -41510315.07 0.0503 0.0216

Mercury -118359-08-06 06:15 J -41508984.35 -41508984.24 -41508984.12 0.0525 0.0258

Mercury -118359-11-03 13:41 J -41508895.04 -41508894.93 -41508894.81 0.0526 0.0220

Venus -118357-10-19 09:36 J -41508179.29 -41508179.10 -41508178.91 0.0523 0.0129

Mercury -118353-06-24 08:39 J -41506835.30 -41506835.14 -41506834.99 0.0500 0.0245

Mercury -118353-09-22 15:36 J -41506744.98 -41506744.85 -41506744.72 0.0499 0.0338

Venus -118351-08-18 23:17 J -41506049.63 -41506049.53 -41506049.43 0.0502 0.0440

Venus -118350-04-13 12:15 J -41505812.12 -41505811.99 -41505811.85 0.0505 0.0380

Earth -118348-02-01 11:32 J -41505152.15 -41505152.02 -41505151.88 0.0518 0.0418

Moon -118348-02-01 14:24 J -41505152.03 -41505151.90 -41505151.77 0.0518 0.0417 \*

Mercury -118347-05-25 10:05 J -41504674.17 -41504674.08 -41504673.99 0.0525 0.0376

Mercury -118347-08-22 17:46 J -41504584.89 -41504584.76 -41504584.63 0.0526 0.0105

Venus -118345-06-24 11:03 J -41503913.18 -41503913.04 -41503912.90 0.0524 0.0360

Venus -118344-02-15 21:36 J -41503676.68 -41503676.60 -41503676.52 0.0520 0.0474

Mercury -118341-04-12 06:15 J -41502525.34 -41502525.24 -41502525.13 0.0500 0.0390

Mercury -118341-07-11 12:44 J -41502435.13 -41502434.97 -41502434.80 0.0499 0.0187

Venus -118339-12-17 01:56 J -41501546.62 -41501546.42 -41501546.21 0.0504 0.0143

Moon -118336-02-06 04:34 J -41500764.55 -41500764.31 -41500764.07 0.0520 0.0077

Earth -118336-02-06 05:46 J -41500764.50 -41500764.26 -41500764.03 0.0520 0.0046 \*

Mercury -118335-03-13 13:41 J -41500363.97 -41500363.93 -41500363.89 0.0526 0.0496  
 Mercury -118335-06-10 21:36 J -41500274.73 -41500274.60 -41500274.47 0.0526 0.0020  
 Mercury -118335-09-08 04:48 J -41500185.35 -41500185.30 -41500185.23 0.0527 0.0462  
 Venus -118333-10-21 23:32 J -41499410.69 -41499410.52 -41499410.35 0.0521 0.0250  
 Mercury -118329-04-29 10:48 J -41498125.23 -41498125.05 -41498124.87 0.0499 0.0044  
 Venus -118327-08-21 19:12 J -41497280.90 -41497280.70 -41497280.49 0.0503 0.0086  
 Mercury -118323-03-30 01:41 J -41495964.56 -41495964.43 -41495964.30 0.0526 0.0128  
 Mercury -118323-06-27 09:08 J -41495875.22 -41495875.12 -41495875.03 0.0527 0.0348  
 Venus -118321-06-26 23:17 J -41495144.73 -41495144.53 -41495144.34 0.0522 0.0020  
 Moon -118319-07-24 15:36 J -41494387.01 -41494386.85 -41494386.67 0.0507 0.0352  
 Earth -118319-07-24 18:44 J -41494386.87 -41494386.72 -41494386.55 0.0507 0.0366 \*  
 Mercury -118317-02-16 08:39 J -41493815.32 -41493815.14 -41493814.97 0.0500 0.0101  
 Mercury -118317-05-16 15:51 J -41493724.88 -41493724.84 -41493724.80 0.0499 0.0485  
 Venus -118315-04-26 13:41 J -41493015.10 -41493014.93 -41493014.76 0.0502 0.0309  
 Mercury -118311-01-16 05:17 J -41491654.39 -41491654.28 -41491654.16 0.0526 0.0248  
 Mercury -118311-04-15 12:58 J -41491565.08 -41491564.96 -41491564.84 0.0526 0.0231  
 Venus -118309-03-01 22:48 J -41490878.72 -41490878.55 -41490878.37 0.0523 0.0220  
 Earth -118307-07-29 08:53 J -41489999.36 -41489999.13 -41489998.90 0.0506 0.0068  
 Moon -118307-07-29 10:05 J -41489999.30 -41489999.08 -41489998.86 0.0506 0.0093 \*  
 Mercury -118306-12-05 06:44 J -41489505.37 -41489505.22 -41489505.06 0.0500 0.0242  
 Mercury -118305-03-04 13:41 J -41489415.06 -41489414.93 -41489414.80 0.0499 0.0341  
 Venus -118303-08-24 20:24 J -41488511.82 -41488511.65 -41488511.48 0.0505 0.0289  
 Mercury -118300-11-04 08:39 J -41487344.23 -41487344.14 -41487344.04 0.0525 0.0372  
 Mercury -118299-02-01 16:34 J -41487254.94 -41487254.81 -41487254.69 0.0526 0.0109  
 Venus -118298-11-05 21:36 J -41486612.69 -41486612.60 -41486612.50 0.0524 0.0457  
 Venus -118297-06-29 08:39 J -41486376.27 -41486376.14 -41486376.00 0.0520 0.0382  
 Moon -118295-08-03 01:12 J -41485611.51 -41485611.45 -41485611.39 0.0505 0.0488  
 Earth -118295-08-03 00:15 J -41485611.49 -41485611.49 -41485611.49 0.0505 0.0505 \*  
 Mercury -118294-09-23 05:03 J -41485195.40 -41485195.29 -41485195.17 0.0500 0.0381  
 Mercury -118294-12-22 11:46 J -41485105.18 -41485105.01 -41485104.85 0.0499 0.0198



Mars -118293-10-18 06:44 J -41484804.44 -41484804.22 -41484803.98 0.0499 0.0240  
 Venus -118291-04-29 12:44 J -41484246.18 -41484245.97 -41484245.76 0.0504 0.0058  
 Mercury -118288-08-23 12:29 J -41483034.03 -41483033.98 -41483033.94 0.0525 0.0492  
 Mercury -118288-11-20 20:24 J -41482944.78 -41482944.65 -41482944.52 0.0526 0.0015  
 Mercury -118287-02-18 03:36 J -41482855.41 -41482855.35 -41482855.29 0.0527 0.0463  
 Venus -118285-03-04 10:34 J -41482110.24 -41482110.06 -41482109.87 0.0521 0.0156  
 Mercury -118282-10-10 09:08 J -41480795.30 -41480795.12 -41480794.94 0.0499 0.0049  
 Venus -118279-01-02 02:53 J -41479980.58 -41479980.38 -41479980.19 0.0503 0.0179  
 Mercury -118276-09-09 00:00 J -41478634.63 -41478634.50 -41478634.37 0.0526 0.0130  
 Mercury -118276-12-07 07:27 J -41478545.29 -41478545.19 -41478545.09 0.0527 0.0348  
 Mars -118275-08-31 05:17 J -41478278.57 -41478278.28 -41478277.99 0.0527 0.0003  
 Venus -118274-11-08 11:46 J -41477844.20 -41477844.01 -41477843.81 0.0523 0.0077  
 Mercury -118270-07-29 07:12 J -41476485.38 -41476485.20 -41476485.03 0.0499 0.0094  
 Mercury -118270-10-27 14:10 J -41476394.94 -41476394.91 -41476394.87 0.0499 0.0490  
 Venus -118268-09-06 20:24 J -41475714.77 -41475714.65 -41475714.52 0.0502 0.0404  
 Venus -118267-05-02 09:36 J -41475477.22 -41475477.10 -41475476.98 0.0505 0.0420  
 Moon -118265-02-01 12:29 J -41474837.04 -41474836.98 -41474836.91 0.0518 0.0498  
 Earth -118265-02-01 14:24 J -41474836.95 -41474836.90 -41474836.84 0.0518 0.0501 \*  
 Mercury -118264-06-28 03:51 J -41474324.45 -41474324.34 -41474324.22 0.0526 0.0247  
 Mercury -118264-09-25 11:32 J -41474235.14 -41474235.02 -41474234.91 0.0527 0.0233  
 Venus -118262-07-14 10:48 J -41473578.20 -41473578.05 -41473577.89 0.0523 0.0313  
 Mercury -118258-05-17 04:48 J -41472175.46 -41472175.30 -41472175.14 0.0500 0.0240  
 Mercury -118258-08-15 11:32 J -41472085.14 -41472085.02 -41472084.88 0.0499 0.0342  
 Mars -118257-07-22 06:00 J -41471743.50 -41471743.25 -41471743.00 0.0499 0.0150  
 Venus -118255-01-05 02:53 J -41471211.57 -41471211.38 -41471211.18 0.0504 0.0193  
 Earth -118253-02-06 12:15 J -41470449.22 -41470448.99 -41470448.75 0.0519 0.0023  
 Moon -118253-02-06 12:29 J -41470449.21 -41470448.98 -41470448.76 0.0519 0.0010 \*  
 Mercury -118252-04-16 07:27 J -41470014.28 -41470014.19 -41470014.09 0.0525 0.0367  
 Mercury -118252-07-14 15:22 J -41469924.99 -41469924.86 -41469924.74 0.0526 0.0115  
 Venus -118250-11-10 21:22 J -41469075.77 -41469075.61 -41469075.45 0.0520 0.0292

Mercury -118246-03-05 02:53 J -41467865.49 -41467865.38 -41467865.26 0.0500 0.0381  
 Mercury -118246-06-03 09:22 J -41467775.27 -41467775.11 -41467774.94 0.0499 0.0197  
 Venus -118244-09-09 20:10 J -41466945.87 -41466945.66 -41466945.45 0.0503 0.0036  
 Earth -118241-02-11 06:44 J -41466061.34 -41466061.22 -41466061.10 0.0520 0.0443  
 Moon -118241-02-11 08:10 J -41466061.28 -41466061.16 -41466061.04 0.0520 0.0445 \*  
 Mercury -118240-02-02 10:48 J -41465704.09 -41465704.05 -41465704.01 0.0525 0.0492  
 Mercury -118240-05-02 18:44 J -41465614.85 -41465614.72 -41465614.59 0.0526 0.0010  
 Mercury -118240-07-31 01:56 J -41465525.48 -41465525.42 -41465525.36 0.0526 0.0462  
 Venus -118238-07-16 20:39 J -41464809.83 -41464809.64 -41464809.44 0.0522 0.0057  
 Earth -118236-07-24 00:00 J -41464071.61 -41464071.50 -41464071.38 0.0508 0.0439  
 Moon -118236-07-24 02:10 J -41464071.53 -41464071.41 -41464071.28 0.0508 0.0424 \*  
 Mercury -118234-03-22 07:27 J -41463465.37 -41463465.19 -41463465.01 0.0500 0.0053  
 Venus -118232-05-15 12:44 J -41462680.14 -41462679.97 -41462679.79 0.0502 0.0266  
 Mercury -118228-02-18 22:20 J -41461304.69 -41461304.57 -41461304.44 0.0526 0.0131  
 Mercury -118228-05-19 05:46 J -41461215.35 -41461215.26 -41461215.16 0.0527 0.0346  
 Venus -118226-03-21 21:36 J -41460543.78 -41460543.60 -41460543.41 0.0523 0.0177  
 Moon -118224-07-28 15:36 J -41459684.09 -41459683.85 -41459683.60 0.0506 0.0027  
 Earth -118224-07-28 15:51 J -41459684.07 -41459683.84 -41459683.60 0.0506 0.0005 \*  
 Mercury -118222-01-08 05:03 J -41459155.46 -41459155.29 -41459155.11 0.0499 0.0093  
 Mercury -118222-04-08 12:15 J -41459065.02 -41459064.99 -41459064.96 0.0499 0.0491  
 Venus -118220-01-18 03:36 J -41458414.37 -41458414.35 -41458414.32 0.0501 0.0495  
 Venus -118220-09-12 15:51 J -41458177.00 -41458176.84 -41458176.68 0.0505 0.0324  
 Mercury -118217-12-08 01:56 J -41456994.54 -41456994.42 -41456994.31 0.0526 0.0253  
 Mercury -118216-03-07 09:36 J -41456905.22 -41456905.10 -41456904.99 0.0527 0.0228  
 Venus -118215-11-24 21:51 J -41456277.71 -41456277.59 -41456277.47 0.0524 0.0411  
 Venus -118214-07-19 09:08 J -41456041.22 -41456041.12 -41456041.01 0.0520 0.0432  
 Moon -118212-08-02 04:48 J -41455296.41 -41455296.30 -41455296.17 0.0505 0.0425  
 Earth -118212-08-02 06:29 J -41455296.34 -41455296.23 -41455296.11 0.0505 0.0439 \*  
 Mercury -118211-10-27 03:08 J -41454845.53 -41454845.37 -41454845.21 0.0499 0.0235  
 Mercury -118210-01-25 09:51 J -41454755.22 -41454755.09 -41454754.96 0.0499 0.0344

Venus -118208-05-18 08:24 J -41453911.36 -41453911.15 -41453910.94 0.0504 0.0093  
 Mercury -118205-09-26 05:46 J -41452684.36 -41452684.26 -41452684.17 0.0526 0.0371  
 Mercury -118205-12-24 13:27 J -41452595.07 -41452594.94 -41452594.81 0.0527 0.0111  
 Venus -118202-03-24 08:39 J -41451775.32 -41451775.14 -41451774.96 0.0521 0.0199  
 Mercury -118199-08-15 00:44 J -41450535.58 -41450535.47 -41450535.36 0.0500 0.0382  
 Mercury -118199-11-13 06:58 J -41450445.37 -41450445.21 -41450445.04 0.0499 0.0195  
 Venus -118196-01-21 01:56 J -41449645.62 -41449645.42 -41449645.21 0.0503 0.0134  
 Mercury -118193-07-15 09:22 J -41448374.16 -41448374.11 -41448374.07 0.0525 0.0490  
 Mercury -118193-10-12 17:17 J -41448284.91 -41448284.78 -41448284.65 0.0526 0.0008  
 Mercury -118192-01-10 00:29 J -41448195.54 -41448195.48 -41448195.42 0.0527 0.0466  
 Venus -118191-11-27 08:10 J -41447509.35 -41447509.16 -41447508.96 0.0522 0.0039  
 Mercury -118187-09-01 04:48 J -41446135.48 -41446135.30 -41446135.12 0.0499 0.0049  
 Venus -118185-09-25 19:41 J -41445379.83 -41445379.68 -41445379.54 0.0502 0.0360  
 Venus -118184-05-21 08:39 J -41445142.21 -41445142.14 -41445142.05 0.0505 0.0467  
 Mercury -118181-07-31 20:39 J -41443974.77 -41443974.64 -41443974.51 0.0526 0.0133  
 Mercury -118181-10-29 04:05 J -41443885.43 -41443885.33 -41443885.24 0.0526 0.0343  
 Venus -118179-08-02 06:44 J -41443243.39 -41443243.22 -41443243.06 0.0523 0.0279  
 Mercury -118175-06-20 02:53 J -41441825.56 -41441825.38 -41441825.21 0.0500 0.0095  
 Mercury -118175-09-18 10:05 J -41441735.11 -41441735.08 -41441735.05 0.0499 0.0490  
 Venus -118172-01-24 00:29 J -41440876.67 -41440876.48 -41440876.29 0.0504 0.0234  
 Moon -118170-02-05 10:48 J -41440134.29 -41440134.05 -41440133.81 0.0519 0.0092  
 Earth -118170-02-05 10:48 J -41440134.28 -41440134.05 -41440133.82 0.0519 0.0125 \*  
 Mercury -118169-05-20 00:15 J -41439664.61 -41439664.49 -41439664.38 0.0526 0.0255  
 Mercury -118169-08-17 07:41 J -41439575.29 -41439575.18 -41439575.06 0.0526 0.0224  
 Venus -118167-04-07 06:44 J -41438977.26 -41438977.22 -41438977.19 0.0525 0.0515  
 Venus -118167-11-29 18:29 J -41438740.88 -41438740.73 -41438740.58 0.0521 0.0333  
 Mercury -118163-04-08 00:44 J -41437515.62 -41437515.47 -41437515.31 0.0499 0.0237  
 Mercury -118163-07-07 07:27 J -41437425.32 -41437425.19 -41437425.06 0.0499 0.0343  
 Venus -118161-09-28 14:39 J -41436611.10 -41436610.89 -41436610.67 0.0503 0.0009  
 Moon -118158-02-10 00:58 J -41435746.62 -41435746.46 -41435746.28 0.0520 0.0340

Earth -118158-02-10 02:39 J -41435746.57 -41435746.39 -41435746.21 0.0520 0.0331 \*  
 Mercury -118157-03-08 03:22 J -41435354.45 -41435354.36 -41435354.27 0.0526 0.0381  
 Mercury -118157-06-05 11:17 J -41435265.16 -41435265.03 -41435264.90 0.0527 0.0102  
 Mars -118156-02-15 09:22 J -41435010.26 -41435010.11 -41435009.94 0.0528 0.0444  
 Venus -118155-08-04 19:12 J -41434474.89 -41434474.70 -41434474.51 0.0522 0.0101  
 Moon -118153-07-23 03:22 J -41433756.41 -41433756.36 -41433756.30 0.0508 0.0495  
 Mercury -118151-01-24 22:48 J -41433205.66 -41433205.55 -41433205.44 0.0499 0.0379  
 Mercury -118151-04-25 05:03 J -41433115.45 -41433115.29 -41433115.12 0.0499 0.0196  
 Venus -118149-06-03 07:27 J -41432345.37 -41432345.19 -41432345.00 0.0502 0.0234  
 Mercury -118146-12-26 06:58 J -41431044.24 -41431044.21 -41431044.17 0.0526 0.0500  
 Mercury -118145-03-24 15:08 J -41430955.00 -41430954.87 -41430954.74 0.0526 0.0016  
 Mercury -118145-06-21 22:20 J -41430865.63 -41430865.57 -41430865.50 0.0527 0.0459  
 Venus -118143-04-09 18:15 J -41430208.92 -41430208.74 -41430208.55 0.0523 0.0137  
 Moon -118141-07-27 14:53 J -41429369.10 -41429368.88 -41429368.65 0.0506 0.0068  
 Earth -118141-07-27 15:22 J -41429369.08 -41429368.86 -41429368.63 0.0506 0.0091 \*  
 Mercury -118139-02-11 02:10 J -41428805.59 -41428805.41 -41428805.23 0.0499 0.0044  
 Mars -118138-01-11 15:22 J -41428471.11 -41428470.86 -41428470.61 0.0499 0.0130  
 Venus -118137-02-07 00:58 J -41428079.54 -41428079.46 -41428079.37 0.0501 0.0458  
 Venus -118137-10-01 13:56 J -41427842.07 -41427841.92 -41427841.78 0.0505 0.0368  
 Mercury -118133-01-11 18:58 J -41426644.84 -41426644.71 -41426644.58 0.0526 0.0134  
 Mercury -118133-04-10 02:24 J -41426555.50 -41426555.40 -41426555.30 0.0527 0.0342  
 Venus -118132-12-13 17:17 J -41425942.91 -41425942.78 -41425942.65 0.0524 0.0376  
 Venus -118131-08-07 04:05 J -41425706.41 -41425706.33 -41425706.25 0.0520 0.0466  
 Earth -118129-08-01 04:05 J -41424981.49 -41424981.33 -41424981.15 0.0506 0.0340  
 Moon -118129-08-01 06:29 J -41424981.41 -41424981.23 -41424981.04 0.0506 0.0324 \*  
 Mercury -118128-11-29 23:46 J -41424495.68 -41424495.51 -41424495.33 0.0500 0.0103  
 Mercury -118127-02-28 06:58 J -41424405.25 -41424405.21 -41424405.16 0.0499 0.0482  
 Venus -118125-06-06 06:15 J -41423576.44 -41423576.24 -41423576.03 0.0504 0.0137  
 Mercury -118122-10-30 22:20 J -41422334.69 -41422334.57 -41422334.46 0.0526 0.0261  
 Mercury -118121-01-28 05:46 J -41422245.38 -41422245.26 -41422245.14 0.0526 0.0219

Mars -118121-11-23 07:12 J -41421945.48 -41421945.20 -41421944.91 0.0527 0.0141  
 Venus -118119-04-12 03:22 J -41421440.54 -41421440.36 -41421440.19 0.0521 0.0232  
 Mercury -118116-09-17 21:51 J -41420185.74 -41420185.59 -41420185.43 0.0500 0.0245  
 Mercury -118116-12-17 04:34 J -41420095.44 -41420095.31 -41420095.17 0.0499 0.0336  
 Venus -118113-02-09 22:34 J -41419310.77 -41419310.56 -41419310.35 0.0503 0.0096  
 Mercury -118110-08-19 01:41 J -41418024.52 -41418024.43 -41418024.35 0.0525 0.0385  
 Mercury -118110-11-16 09:22 J -41417935.24 -41417935.11 -41417934.98 0.0526 0.0097  
 Venus -118108-12-16 03:36 J -41417174.54 -41417174.35 -41417174.15 0.0523 0.0005  
 Mercury -118104-07-06 19:56 J -41415875.77 -41415875.67 -41415875.55 0.0500 0.0385  
 Mercury -118104-10-05 02:24 J -41415785.57 -41415785.40 -41415785.23 0.0499 0.0191  
 Mars -118103-10-15 14:53 J -41415410.09 -41415409.88 -41415409.65 0.0498 0.0263  
 Venus -118102-10-15 13:41 J -41415045.08 -41415044.93 -41415044.76 0.0501 0.0329  
 Venus -118101-06-09 02:10 J -41414807.43 -41414807.41 -41414807.37 0.0505 0.0499  
 Mercury -118098-06-07 04:34 J -41413714.33 -41413714.31 -41413714.28 0.0526 0.0513  
 Mercury -118098-09-04 12:44 J -41413625.10 -41413624.97 -41413624.84 0.0527 0.0028  
 Mercury -118098-12-02 20:10 J -41413535.73 -41413535.66 -41413535.60 0.0527 0.0448  
 Venus -118096-08-21 03:22 J -41412908.53 -41412908.36 -41412908.18 0.0524 0.0241  
 Mercury -118092-07-24 00:00 J -41411475.68 -41411475.50 -41411475.32 0.0499 0.0045  
 Venus -118089-02-12 18:15 J -41410541.91 -41410541.74 -41410541.56 0.0504 0.0267  
 Moon -118087-02-04 05:17 J -41409819.48 -41409819.28 -41409819.07 0.0519 0.0208  
 Earth -118087-02-04 06:00 J -41409819.45 -41409819.25 -41409819.04 0.0519 0.0239 \*  
 Mercury -118086-06-23 16:34 J -41409314.94 -41409314.81 -41409314.68 0.0526 0.0145  
 Mercury -118086-09-21 00:00 J -41409225.60 -41409225.50 -41409225.40 0.0527 0.0332  
 Venus -118084-04-26 02:10 J -41408642.48 -41408642.41 -41408642.33 0.0524 0.0479  
 Venus -118084-12-18 13:56 J -41408406.06 -41408405.92 -41408405.79 0.0521 0.0371  
 Mercury -118080-05-11 21:08 J -41407165.80 -41407165.62 -41407165.45 0.0499 0.0110  
 Mercury -118080-08-10 04:05 J -41407075.38 -41407075.33 -41407075.28 0.0499 0.0474  
 Venus -118078-10-18 11:17 J -41406276.24 -41406276.03 -41406275.82 0.0503 0.0036  
 Earth -118075-02-09 03:51 J -41405431.54 -41405431.34 -41405431.13 0.0520 0.0241  
 Moon -118075-02-09 06:15 J -41405431.44 -41405431.24 -41405431.02 0.0520 0.0245 \*

Mercury -118074-04-11 20:24 J -41405004.76 -41405004.65 -41405004.54 0.0526 0.0264

Mercury -118074-07-10 04:05 J -41404915.45 -41404915.33 -41404915.21 0.0526 0.0216

Venus -118072-08-23 13:41 J -41404140.12 -41404139.93 -41404139.74 0.0522 0.0135

Mercury -118068-02-27 18:44 J -41402855.87 -41402855.72 -41402855.56 0.0500 0.0255

Mercury -118068-05-29 01:27 J -41402765.57 -41402765.44 -41402765.30 0.0499 0.0326

Venus -118066-06-23 04:20 J -41402010.52 -41402010.32 -41402010.13 0.0502 0.0194

Mercury -118062-01-28 23:32 J -41400694.60 -41400694.52 -41400694.43 0.0525 0.0390

Mercury -118062-04-28 07:27 J -41400605.32 -41400605.19 -41400605.06 0.0526 0.0092

Venus -118060-04-28 12:15 J -41399874.19 -41399873.99 -41399873.80 0.0523 0.0107

Earth -118058-07-27 13:56 J -41399054.14 -41399053.92 -41399053.71 0.0507 0.0190

Moon -118058-07-27 15:22 J -41399054.09 -41399053.86 -41399053.63 0.0507 0.0166 \*

Mercury -118057-12-16 16:48 J -41398545.90 -41398545.80 -41398545.69 0.0500 0.0396

Mercury -118056-03-16 23:17 J -41398455.70 -41398455.53 -41398455.36 0.0499 0.0180

Venus -118054-02-25 21:22 J -41397744.72 -41397744.61 -41397744.50 0.0501 0.0423

Venus -118054-10-21 09:51 J -41397507.22 -41397507.09 -41397506.97 0.0505 0.0406

Mercury -118051-11-17 02:53 J -41396384.40 -41396384.38 -41396384.36 0.0525 0.0515

Mercury -118050-02-14 11:03 J -41396295.18 -41396295.04 -41396294.91 0.0526 0.0036

Mercury -118050-05-14 18:15 J -41396205.81 -41396205.74 -41396205.67 0.0527 0.0442

Venus -118048-01-01 11:32 J -41395608.16 -41395608.02 -41395607.87 0.0524 0.0347

Venus -118048-08-25 22:48 J -41395371.60 -41395371.55 -41395371.50 0.0520 0.0501

Moon -118046-08-01 02:39 J -41394666.59 -41394666.39 -41394666.18 0.0506 0.0237

Earth -118046-08-01 05:32 J -41394666.47 -41394666.27 -41394666.07 0.0506 0.0252 \*

Mercury -118044-01-02 21:08 J -41394145.79 -41394145.62 -41394145.44 0.0499 0.0040

Venus -118042-06-26 00:15 J -41393241.69 -41393241.49 -41393241.29 0.0503 0.0169

Mercury -118039-12-03 14:10 J -41391985.04 -41391984.91 -41391984.79 0.0526 0.0158

Mercury -118038-03-02 21:36 J -41391895.70 -41391895.60 -41391895.49 0.0527 0.0320

Venus -118036-04-30 23:32 J -41391105.69 -41391105.52 -41391105.35 0.0522 0.0271

Mercury -118033-10-21 18:58 J -41389835.88 -41389835.71 -41389835.53 0.0499 0.0108

Mercury -118032-01-20 01:56 J -41389745.47 -41389745.42 -41389745.36 0.0499 0.0475

Venus -118030-02-28 16:48 J -41388976.01 -41388975.80 -41388975.59 0.0502 0.0064

Mercury -118027-09-21 18:00 J -41387674.86 -41387674.75 -41387674.64 0.0526 0.0277  
 Mercury -118027-12-20 01:41 J -41387585.55 -41387585.43 -41387585.31 0.0527 0.0205  
 Venus -118024-01-03 22:48 J -41386839.75 -41386839.55 -41386839.36 0.0522 0.0034  
 Mercury -118021-08-09 15:51 J -41385525.99 -41385525.84 -41385525.68 0.0500 0.0262  
 Mercury -118021-11-07 22:34 J -41385435.70 -41385435.56 -41385435.42 0.0499 0.0318  
 Mars -118020-07-02 19:41 J -41385198.82 -41385198.68 -41385198.54 0.0498 0.0422  
 Venus -118019-11-03 09:36 J -41384710.27 -41384710.10 -41384709.93 0.0502 0.0293  
 Mercury -118015-07-10 21:51 J -41383364.68 -41383364.59 -41383364.51 0.0526 0.0394  
 Mercury -118015-10-08 05:32 J -41383275.39 -41383275.27 -41383275.14 0.0526 0.0090  
 Venus -118013-09-08 22:20 J -41382573.75 -41382573.57 -41382573.39 0.0523 0.0207  
 Mercury -118009-05-28 13:56 J -41381216.02 -41381215.92 -41381215.82 0.0500 0.0405  
 Mercury -118009-08-26 20:10 J -41381125.83 -41381125.66 -41381125.49 0.0499 0.0170  
 Venus -118006-03-03 15:08 J -41380207.03 -41380206.87 -41380206.70 0.0504 0.0309  
 Earth -118004-02-03 05:46 J -41379504.43 -41379504.26 -41379504.08 0.0518 0.0337  
 Moon -118004-02-03 07:41 J -41379504.38 -41379504.18 -41379503.99 0.0518 0.0303 \*  
 Mercury -118003-04-29 00:58 J -41379054.47 -41379054.46 -41379054.44 0.0525 0.0519  
 Mercury -118003-07-27 09:08 J -41378965.25 -41378965.12 -41378964.99 0.0526 0.0038  
 Mercury -118003-10-24 16:20 J -41378875.89 -41378875.82 -41378875.75 0.0526 0.0438  
 Mars -118002-05-11 04:05 J -41378677.55 -41378677.33 -41378677.09 0.0527 0.0321  
 Venus -118001-05-14 20:10 J -41378307.75 -41378307.66 -41378307.56 0.0524 0.0450

# 118TH MILLENNIUM BCE

This is a list of transits visible from Jupiter in the 118th millennium BCE.

PLANET	MAX-	C	START	MAX	END	SUNRAD	DEPTH	S
	TRANSIT							
	TIME							
Venus	-118000-01-06 07:41 J	-41378071.30	-41378071.18	-41378071.05	0.0521	0.0402		
Mercury	-117997-06-14 18:00 J	-41376815.93	-41376815.75	-41376815.57	0.0500	0.0026		
Venus	-117995-11-06 07:41 J	-41375941.39	-41375941.18	-41375940.97	0.0503	0.0075		
Moon	-117992-02-07 21:22 J	-41375116.83	-41375116.61	-41375116.39	0.0519	0.0131		
Earth	-117992-02-08 00:29 J	-41375116.71	-41375116.48	-41375116.26	0.0519	0.0129	*	
Mercury	-117991-05-15 12:29 J	-41374655.11	-41374654.98	-41374654.86	0.0526	0.0160		
Mercury	-117991-08-12 19:56 J	-41374565.77	-41374565.67	-41374565.57	0.0526	0.0317		
Venus	-117989-09-11 08:10 J	-41373805.35	-41373805.16	-41373804.98	0.0522	0.0167		
Mercury	-117985-04-02 16:20 J	-41372506.00	-41372505.82	-41372505.65	0.0499	0.0115		
Mercury	-117985-07-01 23:03 J	-41372415.59	-41372415.54	-41372415.47	0.0499	0.0469		
Mars	-117984-04-05 21:51 J	-41372137.85	-41372137.59	-41372137.33	0.0498	0.0022		
Venus	-117983-07-11 23:17 J	-41371675.73	-41371675.53	-41371675.33	0.0502	0.0160		
Mercury	-117979-03-03 15:36 J	-41370344.96	-41370344.85	-41370344.74	0.0526	0.0287		
Mercury	-117979-05-31 23:17 J	-41370255.65	-41370255.53	-41370255.41	0.0527	0.0194		
Venus	-117977-05-17 07:56 J	-41369539.36	-41369539.17	-41369538.98	0.0523	0.0070		
Moon	-117975-07-26 13:41 J	-41368739.12	-41368738.93	-41368738.73	0.0508	0.0252		
Earth	-117975-07-26 16:05 J	-41368739.02	-41368738.83	-41368738.63	0.0508	0.0274	*	
Mercury	-117973-01-20 14:10 J	-41368196.06	-41368195.91	-41368195.76	0.0500	0.0258		
Mercury	-117973-04-19 20:39 J	-41368105.77	-41368105.64	-41368105.50	0.0499	0.0322		
Venus	-117971-03-16 16:34 J	-41367409.94	-41367409.81	-41367409.68	0.0501	0.0389		
Venus	-117971-11-09 04:20 J	-41367172.41	-41367172.32	-41367172.22	0.0504	0.0442		
Mercury	-117968-12-20 19:27 J	-41366034.78	-41366034.69	-41366034.61	0.0526	0.0406		
Mercury	-117967-03-20 03:22 J	-41365945.49	-41365945.36	-41365945.23	0.0526	0.0078		
Mars	-117966-02-16 03:36 J	-41365612.59	-41365612.35	-41365612.09	0.0527	0.0276		
Venus	-117965-01-21 07:12 J	-41365273.36	-41365273.20	-41365273.04	0.0524	0.0310		
Earth	-117963-07-31 02:24 J	-41364351.62	-41364351.40	-41364351.18	0.0506	0.0145		



Moon -117963-07-31 05:46 J -41364351.49 -41364351.26 -41364351.03 0.0506 0.0130 \*  
 Mercury -117962-11-08 11:03 J -41363886.13 -41363886.04 -41363885.94 0.0500 0.0411  
 Mercury -117961-02-06 17:17 J -41363795.95 -41363795.78 -41363795.61 0.0499 0.0163  
 Venus -117959-07-14 20:24 J -41362906.84 -41362906.65 -41362906.46 0.0504 0.0210  
 Mercury -117956-10-08 23:17 J -41361724.54 -41361724.53 -41361724.52 0.0525 0.0522  
 Mercury -117955-01-06 07:12 J -41361635.33 -41361635.20 -41361635.06 0.0526 0.0042  
 Mercury -117955-04-05 14:39 J -41361545.96 -41361545.89 -41361545.82 0.0527 0.0437  
 Venus -117953-05-19 18:44 J -41360770.87 -41360770.72 -41360770.56 0.0521 0.0308  
 Mercury -117950-11-25 15:08 J -41359486.05 -41359485.87 -41359485.70 0.0499 0.0021  
 Mars -117948-01-07 16:48 J -41359076.97 -41359076.80 -41359076.62 0.0499 0.0364  
 Venus -117947-03-19 13:41 J -41358641.14 -41358640.93 -41358640.72 0.0503 0.0024  
 Mercury -117944-10-25 10:48 J -41357325.18 -41357325.05 -41357324.93 0.0526 0.0161  
 Mercury -117943-01-22 18:15 J -41357235.84 -41357235.74 -41357235.64 0.0526 0.0316  
 Venus -117941-01-23 17:32 J -41356504.96 -41356504.77 -41356504.57 0.0522 0.0067  
 Mercury -117938-09-13 12:58 J -41355176.13 -41355175.96 -41355175.78 0.0500 0.0126  
 Mercury -117938-12-12 19:56 J -41355085.73 -41355085.67 -41355085.60 0.0499 0.0458  
 Venus -117936-11-22 06:44 J -41354375.40 -41354375.22 -41354375.03 0.0502 0.0255  
 Mercury -117932-08-13 14:10 J -41353015.02 -41353014.91 -41353014.80 0.0525 0.0285  
 Mercury -117932-11-10 21:51 J -41352925.71 -41352925.59 -41352925.47 0.0526 0.0194  
 Venus -117930-09-28 17:17 J -41352238.97 -41352238.78 -41352238.60 0.0523 0.0174  
 Mercury -117926-07-02 11:32 J -41350866.17 -41350866.02 -41350865.87 0.0500 0.0263  
 Mercury -117926-09-30 18:00 J -41350775.88 -41350775.75 -41350775.61 0.0499 0.0317  
 Venus -117924-07-28 00:00 J -41350109.55 -41350109.50 -41350109.44 0.0501 0.0481  
 Venus -117923-03-22 11:03 J -41349872.18 -41349872.04 -41349871.88 0.0504 0.0348  
 Moon -117921-02-02 23:17 J -41349189.66 -41349189.53 -41349189.40 0.0517 0.0422  
 Earth -117921-02-03 01:27 J -41349189.55 -41349189.44 -41349189.32 0.0517 0.0451 \*  
 Mercury -117920-06-01 17:17 J -41348704.86 -41348704.78 -41348704.70 0.0525 0.0413  
 Mercury -117920-08-30 01:12 J -41348615.58 -41348615.45 -41348615.32 0.0526 0.0070  
 Venus -117918-06-03 16:20 J -41347972.94 -41347972.82 -41347972.70 0.0525 0.0415  
 Venus -117917-01-26 04:20 J -41347736.41 -41347736.32 -41347736.21 0.0521 0.0444

Mercury -117914-04-20 09:36 J -41346556.19 -41346556.10 -41346555.99 0.0500 0.0404

Mercury -117914-07-19 15:51 J -41346466.01 -41346465.84 -41346465.67 0.0499 0.0171

Venus -117912-11-25 03:51 J -41345606.55 -41345606.34 -41345606.14 0.0503 0.0114

Earth -117909-02-07 22:05 J -41344801.81 -41344801.58 -41344801.35 0.0519 0.0024

Moon -117909-02-08 01:41 J -41344801.66 -41344801.43 -41344801.19 0.0519 0.0023 \*

Mercury -117908-06-18 05:03 J -41344305.42 -41344305.29 -41344305.15 0.0526 0.0050

Mercury -117908-09-15 12:29 J -41344216.05 -41344215.98 -41344215.90 0.0527 0.0429

Venus -117906-10-01 04:34 J -41343470.48 -41343470.31 -41343470.13 0.0522 0.0210

Mercury -117902-05-07 12:29 J -41342156.16 -41342155.98 -41342155.80 0.0499 0.0014

Venus -117900-07-30 19:41 J -41341340.88 -41341340.68 -41341340.47 0.0503 0.0121

Moon -117897-02-12 16:20 J -41340413.91 -41340413.82 -41340413.71 0.0520 0.0468

Earth -117897-02-12 20:10 J -41340413.71 -41340413.66 -41340413.60 0.0520 0.0503 \*

Mercury -117896-04-06 09:08 J -41339995.24 -41339995.12 -41339994.99 0.0526 0.0162

Mercury -117896-07-04 16:48 J -41339905.90 -41339905.80 -41339905.70 0.0527 0.0317

Venus -117894-06-06 05:03 J -41339204.48 -41339204.29 -41339204.09 0.0523 0.0029

Earth -117892-07-25 14:10 J -41338424.06 -41338423.91 -41338423.76 0.0507 0.0378

Moon -117892-07-25 17:17 J -41338423.95 -41338423.78 -41338423.61 0.0507 0.0352 \*

Mercury -117890-02-23 10:20 J -41337846.24 -41337846.07 -41337845.89 0.0500 0.0132

Mercury -117890-05-24 17:17 J -41337755.85 -41337755.78 -41337755.70 0.0499 0.0452

Venus -117888-04-04 13:27 J -41337075.08 -41337074.94 -41337074.78 0.0502 0.0351

Venus -117888-11-28 02:24 J -41336837.45 -41336837.40 -41336837.35 0.0505 0.0489

Mercury -117884-01-23 12:44 J -41335685.08 -41335684.97 -41335684.86 0.0525 0.0283

Mercury -117884-04-22 20:24 J -41335595.77 -41335595.65 -41335595.53 0.0526 0.0197

Venus -117882-02-09 03:51 J -41334938.51 -41334938.34 -41334938.18 0.0524 0.0273

Moon -117880-07-29 23:46 J -41334036.74 -41334036.51 -41334036.28 0.0507 0.0040

Earth -117880-07-30 03:22 J -41334036.59 -41334036.36 -41334036.13 0.0507 0.0056 \*

Mercury -117879-12-12 08:39 J -41333536.29 -41333536.14 -41333535.99 0.0500 0.0272

Mercury -117878-03-12 15:08 J -41333446.01 -41333445.87 -41333445.73 0.0499 0.0309

Venus -117876-08-02 18:58 J -41332571.89 -41332571.71 -41332571.52 0.0504 0.0255

Mercury -117873-11-11 16:05 J -41331374.91 -41331374.83 -41331374.75 0.0525 0.0407

Mercury -117872-02-09 00:00 J -41331285.63 -41331285.50 -41331285.37 0.0526 0.0075

Venus -117871-10-15 02:24 J -41330672.42 -41330672.40 -41330672.36 0.0525 0.0516

Venus -117870-06-08 14:53 J -41330436.03 -41330435.88 -41330435.74 0.0521 0.0346

Earth -117868-08-03 18:58 J -41329648.74 -41329648.71 -41329648.66 0.0506 0.0498

Moon -117868-08-03 22:48 J -41329648.63 -41329648.55 -41329648.46 0.0506 0.0471

Mercury -117867-09-30 07:12 J -41329226.29 -41329226.20 -41329226.09 0.0500 0.0407

Mercury -117867-12-29 13:27 J -41329136.11 -41329135.94 -41329135.77 0.0499 0.0169

Mars -117866-09-26 09:22 J -41328865.31 -41328865.11 -41328864.90 0.0498 0.0303

Venus -117864-04-07 11:46 J -41328306.23 -41328306.01 -41328305.80 0.0503 0.0023

Mercury -117861-11-28 03:22 J -41326975.49 -41326975.36 -41326975.23 0.0526 0.0050

Mercury -117860-02-25 10:48 J -41326886.13 -41326886.05 -41326885.98 0.0527 0.0426

Venus -117858-02-11 15:08 J -41326170.06 -41326169.87 -41326169.68 0.0523 0.0110

Mercury -117855-10-17 11:32 J -41324826.20 -41324826.02 -41324825.84 0.0499 0.0026

Venus -117853-12-11 04:48 J -41324040.49 -41324040.30 -41324040.11 0.0502 0.0212

Mercury -117849-09-16 07:12 J -41322665.32 -41322665.20 -41322665.07 0.0526 0.0167

Mercury -117849-12-14 14:53 J -41322575.98 -41322575.88 -41322575.78 0.0527 0.0313

Mars -117848-08-03 13:41 J -41322344.20 -41322343.93 -41322343.65 0.0527 0.0166

Venus -117847-10-17 15:22 J -41321904.04 -41321903.86 -41321903.66 0.0523 0.0128

Mercury -117843-08-05 08:24 J -41320516.33 -41320516.15 -41320515.98 0.0500 0.0131

Mercury -117843-11-03 15:08 J -41320425.94 -41320425.87 -41320425.79 0.0499 0.0452

Venus -117841-08-15 20:39 J -41319774.73 -41319774.64 -41319774.54 0.0501 0.0445

Venus -117840-04-10 08:53 J -41319537.25 -41319537.13 -41319536.99 0.0505 0.0394

Moon -117838-02-02 10:20 J -41318874.14 -41318874.07 -41318874.00 0.0518 0.0494

Mercury -117837-07-05 11:32 J -41318355.14 -41318355.02 -41318354.91 0.0526 0.0280

Mercury -117837-10-02 19:12 J -41318265.82 -41318265.70 -41318265.58 0.0526 0.0202

Venus -117835-06-22 15:51 J -41317637.98 -41317637.84 -41317637.70 0.0524 0.0367

Venus -117834-02-14 03:08 J -41317401.43 -41317401.37 -41317401.31 0.0520 0.0490

Mercury -117831-05-24 06:29 J -41316206.38 -41316206.23 -41316206.08 0.0500 0.0273

Mercury -117831-08-22 12:58 J -41316116.10 -41316115.96 -41316115.82 0.0499 0.0307

Mars -117830-06-30 06:58 J -41315804.46 -41315804.21 -41315803.95 0.0499 0.0088

Venus -117829-12-14 02:24 J -41315271.60 -41315271.40 -41315271.20 0.0504 0.0160  
 Moon -117826-02-07 00:44 J -41314486.70 -41314486.47 -41314486.23 0.0519 0.0056  
 Earth -117826-02-07 04:34 J -41314486.54 -41314486.31 -41314486.07 0.0519 0.0051 \*  
 Mercury -117825-04-23 15:08 J -41314044.96 -41314044.87 -41314044.79 0.0525 0.0401  
 Mercury -117825-07-21 22:48 J -41313955.67 -41313955.55 -41313955.42 0.0526 0.0084  
 Venus -117823-10-20 02:39 J -41313135.56 -41313135.39 -41313135.22 0.0521 0.0253  
 Mercury -117819-03-12 04:48 J -41311896.39 -41311896.30 -41311896.20 0.0500 0.0411  
 Mercury -117819-06-10 11:03 J -41311806.21 -41311806.04 -41311805.87 0.0500 0.0164  
 Venus -117817-08-18 19:56 J -41311005.88 -41311005.67 -41311005.46 0.0503 0.0073  
 Earth -117814-02-12 00:15 J -41310098.62 -41310098.49 -41310098.35 0.0519 0.0423  
 Moon -117814-02-12 03:36 J -41310098.49 -41310098.35 -41310098.19 0.0519 0.0391 \*  
 Mercury -117813-02-10 18:29 J -41309734.74 -41309734.73 -41309734.73 0.0525 0.0523  
 Mercury -117813-05-10 02:39 J -41309645.53 -41309645.39 -41309645.26 0.0526 0.0042  
 Mercury -117813-08-07 09:51 J -41309556.16 -41309556.09 -41309556.02 0.0526 0.0435  
 Mars -117812-05-11 20:39 J -41309278.79 -41309278.64 -41309278.47 0.0527 0.0438  
 Venus -117811-06-25 02:39 J -41308869.58 -41308869.39 -41308869.19 0.0523 0.0013  
 Moon -117809-07-24 16:05 J -41308108.95 -41308108.83 -41308108.71 0.0508 0.0427  
 Earth -117809-07-24 19:27 J -41308108.79 -41308108.69 -41308108.58 0.0508 0.0451 \*  
 Mercury -117807-03-29 09:36 J -41307496.28 -41307496.10 -41307495.92 0.0500 0.0028  
 Venus -117805-04-23 13:41 J -41306740.10 -41306739.93 -41306739.76 0.0501 0.0302  
 Mercury -117801-02-27 05:46 J -41305335.38 -41305335.26 -41305335.13 0.0526 0.0165  
 Mercury -117801-05-26 13:27 J -41305246.04 -41305245.94 -41305245.84 0.0526 0.0314  
 Venus -117799-02-28 02:24 J -41304603.58 -41304603.40 -41304603.22 0.0524 0.0228  
 Earth -117797-07-29 11:03 J -41303721.27 -41303721.04 -41303720.81 0.0507 0.0009  
 Moon -117797-07-29 14:53 J -41303721.11 -41303720.88 -41303720.65 0.0507 0.0026 \*  
 Mercury -117795-01-15 07:41 J -41303186.35 -41303186.18 -41303186.00 0.0500 0.0115  
 Mercury -117795-04-15 14:39 J -41303095.95 -41303095.89 -41303095.83 0.0499 0.0469  
 Venus -117793-08-21 18:44 J -41302236.89 -41302236.72 -41302236.55 0.0504 0.0304  
 Mercury -117790-12-16 09:51 J -41301025.20 -41301025.09 -41301024.98 0.0526 0.0280  
 Mercury -117789-03-14 17:32 J -41300935.89 -41300935.77 -41300935.65 0.0526 0.0201

Venus -117788-11-03 02:39 J -41300337.47 -41300337.39 -41300337.30 0.0524 0.0466  
 Venus -117787-06-27 14:39 J -41300101.01 -41300100.89 -41300100.76 0.0521 0.0399  
 Moon -117785-08-02 19:41 J -41299333.83 -41299333.68 -41299333.53 0.0506 0.0387  
 Earth -117785-08-02 22:48 J -41299333.67 -41299333.55 -41299333.41 0.0506 0.0416 \*  
 Mercury -117784-11-03 04:48 J -41298876.45 -41298876.30 -41298876.15 0.0500 0.0269  
 Mercury -117783-02-01 11:03 J -41298786.17 -41298786.04 -41298785.89 0.0499 0.0311  
 Venus -117781-04-26 10:05 J -41297971.29 -41297971.08 -41297970.87 0.0503 0.0066  
 Mercury -117778-10-04 13:56 J -41296715.01 -41296714.92 -41296714.83 0.0526 0.0394  
 Mercury -117777-01-01 21:51 J -41296625.72 -41296625.59 -41296625.46 0.0526 0.0090  
 Venus -117775-03-02 16:20 J -41295835.01 -41295834.82 -41295834.64 0.0522 0.0165  
 Mercury -117772-08-22 03:08 J -41294566.47 -41294566.37 -41294566.27 0.0500 0.0408  
 Mercury -117772-11-20 09:08 J -41294476.29 -41294476.12 -41294475.95 0.0499 0.0167  
 Venus -117770-12-31 03:51 J -41293705.54 -41293705.34 -41293705.14 0.0503 0.0167  
 Mercury -117766-07-23 17:32 J -41292404.79 -41292404.77 -41292404.74 0.0525 0.0513  
 Mercury -117766-10-21 01:41 J -41292315.56 -41292315.43 -41292315.30 0.0526 0.0029  
 Mercury -117765-01-18 09:08 J -41292226.19 -41292226.12 -41292226.06 0.0526 0.0446  
 Venus -117764-11-05 15:36 J -41291569.04 -41291568.85 -41291568.66 0.0523 0.0079  
 Mercury -117760-09-08 07:27 J -41290166.37 -41290166.19 -41290166.01 0.0500 0.0026  
 Venus -117758-09-04 22:34 J -41289439.68 -41289439.56 -41289439.43 0.0502 0.0395  
 Venus -117757-04-29 11:03 J -41289202.13 -41289202.04 -41289201.94 0.0505 0.0449  
 Mercury -117754-08-09 05:17 J -41288005.40 -41288005.28 -41288005.15 0.0526 0.0149  
 Mercury -117754-11-06 12:44 J -41287916.07 -41287915.97 -41287915.86 0.0526 0.0328  
 Venus -117752-07-11 15:08 J -41287303.02 -41287302.87 -41287302.72 0.0524 0.0323  
 Mercury -117748-06-27 06:00 J -41285856.42 -41285856.25 -41285856.07 0.0500 0.0110  
 Mercury -117748-09-25 12:58 J -41285766.01 -41285765.96 -41285765.90 0.0499 0.0475  
 Venus -117745-01-03 04:05 J -41284936.52 -41284936.33 -41284936.14 0.0504 0.0215  
 Earth -117743-02-06 09:22 J -41284171.33 -41284171.11 -41284170.88 0.0518 0.0128  
 Moon -117743-02-06 13:12 J -41284171.18 -41284170.95 -41284170.73 0.0518 0.0136 \*  
 Mercury -117742-05-28 08:39 J -41283695.25 -41283695.14 -41283695.03 0.0525 0.0274  
 Mercury -117742-08-25 16:20 J -41283605.94 -41283605.82 -41283605.70 0.0526 0.0207

Venus -117740-11-08 02:53 J -41282800.53 -41282800.38 -41282800.22 0.0522 0.0306  
 Mercury -117736-04-15 04:34 J -41281546.46 -41281546.31 -41281546.15 0.0500 0.0248  
 Mercury -117736-07-14 11:03 J -41281456.17 -41281456.04 -41281455.90 0.0499 0.0332  
 Venus -117734-09-07 21:22 J -41280670.82 -41280670.61 -41280670.40 0.0503 0.0021  
 Moon -117731-02-11 03:36 J -41279783.53 -41279783.35 -41279783.16 0.0519 0.0315  
 Earth -117731-02-11 06:44 J -41279783.39 -41279783.22 -41279783.05 0.0519 0.0350 \*  
 Mercury -117730-03-16 12:29 J -41279385.06 -41279384.98 -41279384.89 0.0525 0.0390  
 Mercury -117730-06-13 20:39 J -41279295.77 -41279295.64 -41279295.52 0.0526 0.0095  
 Venus -117728-07-14 04:20 J -41278534.51 -41278534.32 -41278534.12 0.0522 0.0070  
 Moon -117726-07-25 06:58 J -41277793.26 -41277793.21 -41277793.15 0.0508 0.0493  
 Mercury -117724-02-01 01:56 J -41277236.53 -41277236.42 -41277236.32 0.0500 0.0399  
 Mercury -117724-05-02 07:56 J -41277146.34 -41277146.17 -41277146.01 0.0499 0.0175  
 Venus -117722-05-13 12:44 J -41276405.15 -41276404.97 -41276404.79 0.0502 0.0259  
 Mercury -117718-01-02 16:34 J -41275074.84 -41275074.81 -41275074.77 0.0525 0.0504  
 Mercury -117718-04-02 00:44 J -41274985.60 -41274985.47 -41274985.34 0.0526 0.0023  
 Mercury -117718-06-30 08:10 J -41274896.22 -41274896.16 -41274896.10 0.0527 0.0457  
 Venus -117716-03-19 05:46 J -41274268.44 -41274268.26 -41274268.07 0.0523 0.0169  
 Moon -117714-07-29 14:24 J -41273406.13 -41273405.90 -41273405.67 0.0507 0.0098  
 Earth -117714-07-29 18:15 J -41273405.97 -41273405.74 -41273405.51 0.0507 0.0078 \*  
 Mercury -117712-02-18 06:00 J -41272836.43 -41272836.25 -41272836.07 0.0499 0.0034  
 Mars -117712-12-20 06:29 J -41272531.47 -41272531.23 -41272530.98 0.0499 0.0175  
 Venus -117710-01-16 07:12 J -41272139.25 -41272139.20 -41272139.15 0.0501 0.0487  
 Venus -117710-09-10 19:27 J -41271901.84 -41271901.69 -41271901.54 0.0505 0.0357  
 Mercury -117706-01-19 04:34 J -41270675.43 -41270675.31 -41270675.18 0.0526 0.0137  
 Mercury -117706-04-18 12:15 J -41270586.09 -41270585.99 -41270585.89 0.0526 0.0342  
 Venus -117705-11-22 04:48 J -41270002.42 -41270002.30 -41270002.18 0.0524 0.0413  
 Venus -117704-07-16 16:20 J -41269765.92 -41269765.82 -41269765.73 0.0520 0.0452  
 Earth -117702-08-03 07:41 J -41269018.34 -41269018.18 -41269018.01 0.0506 0.0358  
 Moon -117702-08-03 10:20 J -41269018.24 -41269018.07 -41269017.90 0.0506 0.0336 \*  
 Mercury -117701-12-07 04:20 J -41268526.49 -41268526.32 -41268526.14 0.0500 0.0106

Mercury -117700-03-07 11:17 J -41268436.08 -41268436.03 -41268435.98 0.0499 0.0479

Venus -117698-05-16 13:27 J -41267636.14 -41267635.94 -41267635.73 0.0504 0.0123

Mercury -117695-11-07 08:24 J -41266365.27 -41266365.15 -41266365.04 0.0525 0.0257

Mercury -117694-02-04 16:05 J -41266275.95 -41266275.83 -41266275.71 0.0526 0.0224

Mars -117694-10-29 11:32 J -41266009.31 -41266009.02 -41266008.73 0.0527 0.0048

Venus -117692-03-21 16:48 J -41265499.98 -41265499.80 -41265499.62 0.0522 0.0215

Mercury -117689-09-25 03:08 J -41264216.52 -41264216.37 -41264216.21 0.0500 0.0241

Mercury -117689-12-24 09:36 J -41264126.22 -41264126.10 -41264125.96 0.0499 0.0341

Venus -117686-01-19 07:12 J -41263370.40 -41263370.20 -41263369.99 0.0502 0.0109

Mercury -117683-08-26 11:32 J -41262055.10 -41262055.02 -41262054.92 0.0525 0.0381

Mercury -117683-11-23 19:41 J -41261965.81 -41261965.68 -41261965.56 0.0526 0.0103

Venus -117681-11-24 16:48 J -41261233.99 -41261233.80 -41261233.60 0.0523 0.0028

Mercury -117677-07-14 01:56 J -41259906.53 -41259906.42 -41259906.30 0.0500 0.0377

Mercury -117677-10-12 07:56 J -41259816.33 -41259816.17 -41259816.00 0.0499 0.0200

Mars -117676-09-23 20:10 J -41259469.88 -41259469.66 -41259469.43 0.0499 0.0252

Venus -117675-09-24 01:12 J -41259104.60 -41259104.45 -41259104.29 0.0501 0.0342

Mercury -117671-06-14 15:36 J -41257744.89 -41257744.85 -41257744.81 0.0525 0.0497

Mercury -117671-09-11 23:46 J -41257655.64 -41257655.51 -41257655.38 0.0526 0.0015

Mercury -117671-12-10 06:58 J -41257566.26 -41257566.21 -41257566.15 0.0527 0.0464

Venus -117669-07-30 18:00 J -41256967.91 -41256967.75 -41256967.58 0.0524 0.0264

Mercury -117665-07-31 05:03 J -41255506.47 -41255506.29 -41255506.11 0.0499 0.0045

Venus -117662-01-22 04:05 J -41254601.51 -41254601.33 -41254601.15 0.0504 0.0265

Moon -117660-02-05 16:48 J -41253856.02 -41253855.80 -41253855.58 0.0519 0.0193

Earth -117660-02-05 20:10 J -41253855.88 -41253855.66 -41253855.44 0.0519 0.0182 \*

Mercury -117659-07-01 03:51 J -41253345.47 -41253345.34 -41253345.21 0.0526 0.0125

Mercury -117659-09-28 11:32 J -41253256.12 -41253256.02 -41253255.93 0.0527 0.0354

Venus -117657-04-04 19:12 J -41252701.75 -41252701.70 -41252701.64 0.0524 0.0503

Venus -117657-11-27 07:27 J -41252465.33 -41252465.19 -41252465.05 0.0521 0.0368

Mercury -117653-05-19 03:22 J -41251196.53 -41251196.36 -41251196.18 0.0499 0.0095

Mercury -117653-08-17 10:05 J -41251106.11 -41251106.08 -41251106.04 0.0499 0.0488

Venus -117651-09-26 22:20 J -41250335.78 -41250335.57 -41250335.36 0.0503 0.0030  
 Earth -117648-02-10 19:12 J -41249467.89 -41249467.70 -41249467.52 0.0520 0.0303  
 Moon -117648-02-10 20:53 J -41249467.81 -41249467.63 -41249467.43 0.0520 0.0273 \*  
 Mercury -117647-04-19 07:41 J -41249035.29 -41249035.18 -41249035.06 0.0526 0.0241  
 Mercury -117647-07-17 15:22 J -41248945.97 -41248945.86 -41248945.74 0.0526 0.0241  
 Venus -117645-08-02 07:12 J -41248199.39 -41248199.20 -41248199.01 0.0522 0.0128  
 Mercury -117641-03-07 01:56 J -41246886.58 -41246886.42 -41246886.26 0.0500 0.0233  
 Mercury -117641-06-05 08:24 J -41246796.28 -41246796.15 -41246796.02 0.0499 0.0347  
 Venus -117639-06-01 16:48 J -41246069.99 -41246069.80 -41246069.60 0.0502 0.0202  
 Mercury -117635-02-05 11:17 J -41244725.12 -41244725.03 -41244724.93 0.0525 0.0362  
 Mercury -117635-05-05 19:27 J -41244635.82 -41244635.69 -41244635.57 0.0526 0.0123  
 Venus -117633-04-07 07:27 J -41243933.38 -41243933.19 -41243933.00 0.0523 0.0116  
 Earth -117631-07-29 05:03 J -41243090.52 -41243090.29 -41243090.06 0.0507 0.0128  
 Moon -117631-07-29 07:56 J -41243090.38 -41243090.17 -41243089.95 0.0507 0.0151 \*  
 Mercury -117630-12-25 00:44 J -41242576.59 -41242576.47 -41242576.35 0.0500 0.0367  
 Mercury -117629-03-24 06:58 J -41242486.38 -41242486.21 -41242486.05 0.0500 0.0210  
 Venus -117627-02-04 11:46 J -41241804.12 -41241804.01 -41241803.90 0.0501 0.0429  
 Venus -117627-09-29 23:46 J -41241566.62 -41241566.51 -41241566.39 0.0505 0.0419  
 Mercury -117624-11-24 14:39 J -41240414.93 -41240414.89 -41240414.84 0.0525 0.0486  
 Mercury -117623-02-21 22:48 J -41240325.68 -41240325.55 -41240325.42 0.0526 0.0014  
 Mercury -117623-05-22 06:15 J -41240236.29 -41240236.24 -41240236.19 0.0526 0.0473  
 Venus -117622-12-12 06:44 J -41239667.36 -41239667.22 -41239667.08 0.0524 0.0360  
 Venus -117621-08-04 18:15 J -41239430.77 -41239430.74 -41239430.70 0.0521 0.0510  
 Moon -117619-08-02 19:27 J -41238702.88 -41238702.69 -41238702.49 0.0506 0.0293  
 Earth -117619-08-02 21:08 J -41238702.80 -41238702.62 -41238702.44 0.0506 0.0315 \*  
 Mercury -117617-01-11 05:17 J -41238176.46 -41238176.28 -41238176.10 0.0500 0.0070  
 Venus -117615-06-04 16:48 J -41237300.99 -41237300.80 -41237300.60 0.0503 0.0182  
 Mercury -117612-12-11 02:53 J -41236015.51 -41236015.38 -41236015.25 0.0526 0.0115  
 Mercury -117611-03-10 10:34 J -41235926.16 -41235926.06 -41235925.97 0.0527 0.0363  
 Venus -117609-04-09 20:39 J -41235164.80 -41235164.64 -41235164.47 0.0521 0.0278



Mercury -117606-10-30 02:39 J -41233866.57 -41233866.39 -41233866.22 0.0499 0.0082

Venus -117603-02-07 07:41 J -41233035.39 -41233035.18 -41233034.97 0.0503 0.0062

Mercury -117600-09-29 06:58 J -41231705.33 -41231705.21 -41231705.09 0.0526 0.0230

Mercury -117600-12-27 14:53 J -41231616.00 -41231615.88 -41231615.77 0.0527 0.0253

Venus -117598-12-14 22:34 J -41230898.76 -41230898.56 -41230898.37 0.0522 0.0042

Mercury -117594-08-18 00:58 J -41229556.61 -41229556.46 -41229556.30 0.0499 0.0220

Mercury -117594-11-16 07:27 J -41229466.31 -41229466.19 -41229466.07 0.0499 0.0359

Mars -117593-06-11 14:53 J -41229258.01 -41229257.88 -41229257.74 0.0498 0.0425

Venus -117592-10-13 02:10 J -41228769.58 -41228769.41 -41228769.24 0.0502 0.0294

Mercury -117588-07-18 10:48 J -41227395.14 -41227395.05 -41227394.95 0.0526 0.0346

Mercury -117588-10-15 18:58 J -41227305.84 -41227305.71 -41227305.59 0.0526 0.0139

Venus -117586-08-19 22:05 J -41226632.76 -41226632.58 -41226632.40 0.0523 0.0204

Mercury -117582-06-05 23:32 J -41225246.64 -41225246.52 -41225246.39 0.0500 0.0357

Mercury -117582-09-04 05:32 J -41225156.43 -41225156.27 -41225156.10 0.0499 0.0219

Venus -117579-02-10 09:08 J -41224266.27 -41224266.12 -41224265.95 0.0504 0.0328

Earth -117577-02-06 08:53 J -41223540.34 -41223540.13 -41223539.92 0.0518 0.0225

Moon -117577-02-06 11:17 J -41223540.22 -41223540.03 -41223539.82 0.0518 0.0239 \*

Mercury -117576-05-06 14:24 J -41223084.95 -41223084.90 -41223084.84 0.0525 0.0466

Mercury -117576-08-03 22:34 J -41222995.69 -41222995.56 -41222995.42 0.0526 0.0025

Mercury -117576-11-01 06:00 J -41222906.29 -41222906.25 -41222906.21 0.0527 0.0493

Mars -117575-04-17 15:08 J -41222739.10 -41222738.87 -41222738.64 0.0527 0.0324

Venus -117574-04-24 21:22 J -41222366.70 -41222366.61 -41222366.51 0.0524 0.0450

Venus -117574-12-17 09:08 J -41222130.23 -41222130.12 -41222130.00 0.0521 0.0424

Mercury -117570-03-24 22:34 J -41220936.59 -41220936.56 -41220936.53 0.0500 0.0490

Mercury -117570-06-23 04:05 J -41220846.50 -41220846.33 -41220846.15 0.0500 0.0082

Venus -117568-10-16 03:08 J -41220000.57 -41220000.37 -41220000.16 0.0503 0.0093

Moon -117565-02-11 04:05 J -41219152.55 -41219152.33 -41219152.11 0.0519 0.0215

Earth -117565-02-11 05:03 J -41219152.49 -41219152.29 -41219152.08 0.0519 0.0246 \*

Mercury -117564-05-23 02:10 J -41218685.54 -41218685.41 -41218685.28 0.0526 0.0103

Mercury -117564-08-20 09:36 J -41218596.19 -41218596.10 -41218596.01 0.0526 0.0374

Venus -117562-08-22 09:36 J -41217864.28 -41217864.10 -41217863.92 0.0522 0.0185  
 Mercury -117558-04-11 02:39 J -41216536.56 -41216536.39 -41216536.21 0.0500 0.0059  
 Mars -117557-03-16 05:03 J -41216196.56 -41216196.29 -41216196.03 0.0499 0.0009  
 Venus -117556-06-20 20:53 J -41215734.84 -41215734.63 -41215734.43 0.0502 0.0143  
 Mercury -117552-03-11 06:15 J -41214375.36 -41214375.24 -41214375.12 0.0526 0.0220  
 Mercury -117552-06-08 13:56 J -41214286.03 -41214285.92 -41214285.81 0.0527 0.0262  
 Venus -117550-04-27 11:32 J -41213598.22 -41213598.02 -41213597.83 0.0523 0.0053  
 Moon -117548-07-28 16:05 J -41212775.05 -41212774.83 -41212774.61 0.0507 0.0198  
 Earth -117548-07-28 18:15 J -41212774.96 -41212774.74 -41212774.53 0.0507 0.0171 \*  
 Mercury -117546-01-28 00:15 J -41212226.65 -41212226.49 -41212226.33 0.0499 0.0206  
 Mercury -117546-04-28 06:29 J -41212136.34 -41212136.23 -41212136.10 0.0499 0.0374  
 Venus -117544-02-23 11:46 J -41211469.13 -41211469.01 -41211468.86 0.0501 0.0385  
 Venus -117544-10-19 00:15 J -41211231.56 -41211231.49 -41211231.41 0.0505 0.0469  
 Mercury -117541-12-28 10:05 J -41210065.18 -41210065.08 -41210064.98 0.0526 0.0336  
 Mercury -117540-03-27 18:00 J -41209975.87 -41209975.75 -41209975.62 0.0527 0.0149  
 Mars -117539-01-24 07:12 J -41209673.43 -41209673.20 -41209672.96 0.0527 0.0308  
 Venus -117539-12-31 12:44 J -41209332.13 -41209331.97 -41209331.81 0.0524 0.0294  
 Earth -117536-08-02 09:22 J -41208387.31 -41208387.11 -41208386.91 0.0506 0.0269  
 Moon -117536-08-02 09:36 J -41208387.29 -41208387.10 -41208386.90 0.0506 0.0254 \*  
 Mercury -117535-11-15 22:48 J -41207916.67 -41207916.55 -41207916.42 0.0499 0.0343  
 Mercury -117534-02-14 04:48 J -41207826.46 -41207826.30 -41207826.14 0.0499 0.0232  
 Venus -117532-06-23 17:46 J -41206965.94 -41206965.76 -41206965.57 0.0504 0.0233  
 Mercury -117529-10-16 13:56 J -41205754.99 -41205754.92 -41205754.85 0.0526 0.0452  
 Mercury -117528-01-13 22:05 J -41205665.71 -41205665.58 -41205665.45 0.0526 0.0034  
 Mercury -117528-04-13 05:32 J -41205576.30 -41205576.27 -41205576.24 0.0527 0.0508  
 Venus -117526-04-30 00:15 J -41204829.63 -41204829.49 -41204829.34 0.0521 0.0338  
 Mercury -117523-09-03 21:22 J -41203606.65 -41203606.61 -41203606.56 0.0500 0.0480  
 Mercury -117523-12-03 03:08 J -41203516.55 -41203516.37 -41203516.20 0.0499 0.0091  
 Mars -117522-12-19 07:41 J -41203135.32 -41203135.18 -41203135.03 0.0499 0.0411  
 Venus -117520-02-26 12:29 J -41202700.19 -41202699.98 -41202699.77 0.0503 0.0004

Mercury -117517-11-02 01:56 J -41201355.55 -41201355.42 -41201355.29 0.0526 0.0085

Mercury -117516-01-30 09:22 J -41201266.19 -41201266.11 -41201266.02 0.0527 0.0393

Venus -117514-01-03 00:29 J -41200563.68 -41200563.48 -41200563.29 0.0522 0.0097

Mercury -117511-09-21 01:41 J -41199206.61 -41199206.43 -41199206.26 0.0500 0.0047

Venus -117509-11-01 06:58 J -41198434.39 -41198434.21 -41198434.02 0.0502 0.0233

Mercury -117505-08-21 05:17 J -41197045.40 -41197045.28 -41197045.16 0.0526 0.0208

Mercury -117505-11-18 12:58 J -41196956.07 -41196955.96 -41196955.85 0.0526 0.0272

Venus -117503-09-08 00:00 J -41196297.69 -41196297.50 -41196297.31 0.0523 0.0150

Mercury -117499-07-10 00:15 J -41194896.65 -41194896.49 -41194896.33 0.0500 0.0184

Mercury -117499-10-08 06:44 J -41194806.33 -41194806.22 -41194806.11 0.0499 0.0396

Venus -117497-07-07 01:12 J -41194168.52 -41194168.45 -41194168.37 0.0501 0.0465

Venus -117496-03-01 12:44 J -41193931.10 -41193930.97 -41193930.83 0.0504 0.0386

Moon -117494-02-05 16:20 J -41193225.02 -41193224.82 -41193224.62 0.0518 0.0299

Earth -117494-02-05 18:00 J -41193224.94 -41193224.75 -41193224.55 0.0518 0.0285 \*

Mercury -117493-06-09 09:08 J -41192735.22 -41192735.12 -41192735.02 0.0526 0.0326

Mercury -117493-09-06 17:03 J -41192645.91 -41192645.79 -41192645.66 0.0526 0.0158

Venus -117491-05-14 00:58 J -41192031.58 -41192031.46 -41192031.33 0.0524 0.0392

Venus -117490-01-05 12:58 J -41191795.02 -41191794.96 -41191794.89 0.0521 0.0486

Mercury -117487-04-27 22:05 J -41190586.71 -41190586.58 -41190586.45 0.0499 0.0329

Mercury -117487-07-27 03:51 J -41190496.49 -41190496.34 -41190496.18 0.0499 0.0246

Venus -117485-11-04 02:53 J -41189665.58 -41189665.38 -41189665.17 0.0503 0.0141

Moon -117482-02-10 12:58 J -41188837.17 -41188836.96 -41188836.74 0.0520 0.0159

Earth -117482-02-10 13:27 J -41188837.16 -41188836.94 -41188836.72 0.0520 0.0186 \*

Mercury -117481-03-28 12:44 J -41188425.03 -41188424.97 -41188424.89 0.0526 0.0445

Mercury -117481-06-25 21:08 J -41188335.75 -41188335.62 -41188335.49 0.0527 0.0043

Mercury -117481-09-23 04:34 J -41188246.33 -41188246.31 -41188246.29 0.0527 0.0518

Venus -117479-09-10 15:08 J -41187529.04 -41187528.87 -41187528.70 0.0522 0.0251

Mercury -117475-02-13 20:39 J -41186276.70 -41186276.64 -41186276.57 0.0499 0.0465

Mercury -117475-05-15 02:10 J -41186186.58 -41186186.41 -41186186.23 0.0499 0.0104

Venus -117473-07-09 20:53 J -41185399.83 -41185399.63 -41185399.42 0.0502 0.0097

Mercury -117469-04-14 00:58 J -41184025.59 -41184025.46 -41184025.33 0.0526 0.0075  
 Mercury -117469-07-12 08:39 J -41183936.22 -41183936.14 -41183936.06 0.0527 0.0405  
 Venus -117467-05-16 14:53 J -41183263.08 -41183262.88 -41183262.69 0.0523 0.0011  
 Earth -117465-07-28 05:03 J -41182459.49 -41182459.29 -41182459.07 0.0507 0.0219  
 Moon -117465-07-28 05:46 J -41182459.45 -41182459.26 -41182459.06 0.0507 0.0249 \*  
 Mercury -117463-03-03 00:29 J -41181876.66 -41181876.48 -41181876.31 0.0499 0.0039  
 Venus -117461-03-14 16:05 J -41181133.99 -41181133.83 -41181133.67 0.0502 0.0327  
 Mercury -117457-02-01 04:48 J -41179715.42 -41179715.30 -41179715.18 0.0526 0.0192  
 Mercury -117457-04-30 12:29 J -41179626.08 -41179625.98 -41179625.87 0.0527 0.0289  
 Venus -117455-01-19 14:10 J -41178997.08 -41178996.91 -41178996.73 0.0524 0.0242  
 Earth -117453-08-01 18:58 J -41178071.92 -41178071.71 -41178071.50 0.0506 0.0216  
 Moon -117453-08-01 19:56 J -41178071.89 -41178071.67 -41178071.45 0.0506 0.0202 \*  
 Mercury -117452-12-19 22:48 J -41177566.71 -41177566.55 -41177566.38 0.0500 0.0176  
 Mercury -117451-03-20 05:17 J -41177476.38 -41177476.28 -41177476.17 0.0499 0.0405  
 Venus -117449-07-12 22:05 J -41176630.75 -41176630.58 -41176630.41 0.0504 0.0295  
 Mercury -117446-11-20 08:10 J -41175405.26 -41175405.16 -41175405.05 0.0526 0.0317  
 Mercury -117445-02-17 16:05 J -41175315.95 -41175315.83 -41175315.71 0.0526 0.0166  
 Venus -117444-09-24 12:44 J -41174731.03 -41174730.97 -41174730.89 0.0525 0.0491  
 Venus -117443-05-19 01:27 J -41174494.57 -41174494.44 -41174494.31 0.0521 0.0392  
 Mercury -117440-10-07 21:36 J -41173256.74 -41173256.60 -41173256.46 0.0500 0.0312  
 Mercury -117439-01-06 03:36 J -41173166.50 -41173166.35 -41173166.20 0.0499 0.0264  
 Mars -117439-09-06 11:03 J -41172923.26 -41172923.04 -41172922.81 0.0498 0.0251  
 Venus -117437-03-17 15:22 J -41172365.07 -41172364.86 -41172364.65 0.0503 0.0055  
 Mercury -117434-09-08 11:46 J -41171095.08 -41171095.01 -41171094.93 0.0526 0.0436  
 Mercury -117434-12-06 19:56 J -41171005.80 -41171005.67 -41171005.53 0.0526 0.0054  
 Mercury -117433-03-05 03:22 J -41170916.37 -41170916.36 -41170916.35 0.0527 0.0524  
 Venus -117431-01-22 03:08 J -41170228.56 -41170228.37 -41170228.18 0.0522 0.0154  
 Mercury -117428-07-26 19:41 J -41168946.75 -41168946.68 -41168946.61 0.0499 0.0454  
 Mercury -117428-10-25 01:12 J -41168856.63 -41168856.45 -41168856.28 0.0499 0.0116  
 Venus -117426-11-21 06:00 J -41168099.44 -41168099.25 -41168099.05 0.0502 0.0190

Mercury -117422-09-24 23:46 J -41166695.64 -41166695.51 -41166695.38 0.0527 0.0069

Mercury -117422-12-23 07:27 J -41166606.27 -41166606.19 -41166606.11 0.0527 0.0411

Mars -117421-07-12 23:17 J -41166403.81 -41166403.53 -41166403.24 0.0528 0.0087

Venus -117420-09-27 04:20 J -41165962.51 -41165962.32 -41165962.12 0.0523 0.0089

Mercury -117416-08-12 23:32 J -41164546.70 -41164546.52 -41164546.35 0.0499 0.0028

Venus -117414-07-27 00:15 J -41163833.59 -41163833.49 -41163833.37 0.0501 0.0423

Venus -117413-03-20 12:00 J -41163596.11 -41163596.00 -41163595.89 0.0505 0.0433

Earth -117411-02-05 00:44 J -41162909.64 -41162909.47 -41162909.30 0.0519 0.0352

Moon -117411-02-05 00:58 J -41162909.61 -41162909.46 -41162909.30 0.0519 0.0370 \*

Mercury -117410-07-14 03:36 J -41162385.47 -41162385.35 -41162385.22 0.0526 0.0186

Mercury -117410-10-11 11:32 J -41162296.13 -41162296.02 -41162295.91 0.0527 0.0297

Venus -117408-06-02 03:22 J -41161696.50 -41161696.36 -41161696.20 0.0524 0.0336

Mercury -117404-05-31 21:22 J -41160236.77 -41160236.61 -41160236.44 0.0499 0.0169

Mercury -117404-08-30 03:51 J -41160146.44 -41160146.34 -41160146.24 0.0499 0.0411

Mars -117403-06-10 12:58 J -41159862.21 -41159861.96 -41159861.71 0.0498 0.0158

Venus -117402-11-24 06:15 J -41159330.44 -41159330.24 -41159330.05 0.0504 0.0198

Earth -117399-02-09 23:32 J -41158521.74 -41158521.52 -41158521.29 0.0519 0.0132

Moon -117399-02-10 01:27 J -41158521.68 -41158521.44 -41158521.20 0.0519 0.0110 \*

Mercury -117398-05-02 07:27 J -41158075.30 -41158075.19 -41158075.08 0.0526 0.0304

Mercury -117398-07-30 15:22 J -41157985.98 -41157985.86 -41157985.74 0.0527 0.0179

Venus -117396-09-29 15:08 J -41157194.03 -41157193.87 -41157193.71 0.0521 0.0301

Mercury -117392-03-19 19:56 J -41155926.81 -41155926.67 -41155926.53 0.0500 0.0307

Mercury -117392-06-18 01:56 J -41155836.57 -41155836.42 -41155836.27 0.0499 0.0269

Venus -117390-07-30 00:00 J -41155064.71 -41155064.50 -41155064.29 0.0503 0.0039

Mercury -117386-02-18 10:34 J -41153765.13 -41153765.06 -41153764.98 0.0526 0.0430

Mercury -117386-05-18 18:44 J -41153675.85 -41153675.72 -41153675.59 0.0526 0.0058

Mars -117385-04-20 01:27 J -41153338.47 -41153338.44 -41153338.40 0.0527 0.0523

Venus -117384-06-04 14:24 J -41152928.09 -41152927.90 -41152927.70 0.0523 0.0056

Earth -117382-07-28 14:10 J -41152144.10 -41152143.91 -41152143.71 0.0507 0.0277

Moon -117382-07-28 14:53 J -41152144.07 -41152143.88 -41152143.69 0.0507 0.0307 \*

Mercury -117380-01-05 18:44 J -41151616.80 -41151616.72 -41151616.64 0.0500 0.0443  
 Mercury -117380-04-06 00:15 J -41151526.66 -41151526.49 -41151526.32 0.0499 0.0128  
 Venus -117378-04-03 17:46 J -41150798.94 -41150798.76 -41150798.59 0.0502 0.0277  
 Mercury -117374-03-06 22:34 J -41149365.69 -41149365.56 -41149365.43 0.0526 0.0063  
 Mercury -117374-06-04 06:15 J -41149276.32 -41149276.24 -41149276.16 0.0527 0.0415  
 Venus -117372-02-07 15:22 J -41148662.04 -41148661.86 -41148661.68 0.0524 0.0190  
 Moon -117370-08-02 03:36 J -41147756.56 -41147756.35 -41147756.13 0.0506 0.0154  
 Earth -117370-08-02 05:32 J -41147756.49 -41147756.27 -41147756.05 0.0506 0.0165 \*  
 Mercury -117368-01-22 22:05 J -41147216.76 -41147216.58 -41147216.41 0.0499 0.0020  
 Venus -117366-08-01 19:41 J -41146295.83 -41146295.68 -41146295.52 0.0504 0.0336  
 Mercury -117363-12-24 02:10 J -41145055.53 -41145055.41 -41145055.29 0.0527 0.0185  
 Mercury -117362-03-23 10:05 J -41144966.19 -41144966.08 -41144965.98 0.0527 0.0298  
 Venus -117361-10-13 15:36 J -41144395.96 -41144395.85 -41144395.74 0.0525 0.0435  
 Venus -117360-06-07 04:05 J -41144159.42 -41144159.33 -41144159.23 0.0521 0.0451  
 Mercury -117357-11-10 20:10 J -41142906.82 -41142906.66 -41142906.49 0.0499 0.0159  
 Mercury -117356-02-09 02:24 J -41142816.49 -41142816.40 -41142816.30 0.0498 0.0419  
 Venus -117354-04-06 13:12 J -41142030.16 -41142029.95 -41142029.75 0.0503 0.0097  
 Mercury -117351-10-12 06:00 J -41140745.36 -41140745.25 -41140745.15 0.0526 0.0303  
 Mercury -117350-01-09 13:56 J -41140656.04 -41140655.92 -41140655.80 0.0527 0.0183  
 Venus -117348-02-10 03:51 J -41139893.52 -41139893.34 -41139893.16 0.0522 0.0207  
 Mercury -117345-08-29 18:15 J -41138596.88 -41138596.74 -41138596.60 0.0499 0.0302  
 Mercury -117345-11-28 00:15 J -41138506.64 -41138506.49 -41138506.34 0.0499 0.0273  
 Venus -117343-12-10 07:27 J -41137764.39 -41137764.19 -41137763.99 0.0502 0.0138  
 Mercury -117339-07-31 09:36 J -41136435.18 -41136435.10 -41136435.02 0.0526 0.0422  
 Mercury -117339-10-28 17:46 J -41136345.89 -41136345.76 -41136345.63 0.0527 0.0064  
 Venus -117337-10-16 03:22 J -41135627.56 -41135627.36 -41135627.17 0.0523 0.0041  
 Mercury -117333-06-17 16:34 J -41134286.89 -41134286.81 -41134286.72 0.0500 0.0441  
 Mercury -117333-09-15 22:05 J -41134196.75 -41134196.58 -41134196.40 0.0499 0.0130  
 Venus -117331-08-15 01:41 J -41133498.56 -41133498.43 -41133498.28 0.0501 0.0372  
 Venus -117330-04-09 13:27 J -41133260.98 -41133260.94 -41133260.88 0.0505 0.0488

Earth -117328-02-04 05:32 J -41132594.39 -41132594.27 -41132594.13 0.0518 0.0427  
 Moon -117328-02-04 06:15 J -41132594.35 -41132594.24 -41132594.11 0.0518 0.0445 \*  
 Mercury -117327-08-16 21:08 J -41132035.75 -41132035.62 -41132035.49 0.0526 0.0061  
 Mercury -117327-11-14 04:48 J -41131946.38 -41131946.30 -41131946.23 0.0527 0.0417  
 Venus -117325-06-21 01:41 J -41131361.59 -41131361.43 -41131361.27 0.0524 0.0294  
 Mercury -117321-07-04 20:24 J -41129886.83 -41129886.65 -41129886.47 0.0499 0.0012  
 Venus -117319-12-13 06:00 J -41128995.43 -41128995.25 -41128995.06 0.0503 0.0246  
 Moon -117316-02-08 23:03 J -41128206.77 -41128206.54 -41128206.31 0.0519 0.0024  
 Earth -117316-02-09 01:56 J -41128206.66 -41128206.42 -41128206.19 0.0519 0.0045 \*  
 Mercury -117315-06-05 00:44 J -41127725.59 -41127725.47 -41127725.35 0.0526 0.0182  
 Mercury -117315-09-02 08:39 J -41127636.25 -41127636.14 -41127636.04 0.0527 0.0299  
 Venus -117313-10-18 14:39 J -41126859.03 -41126858.89 -41126858.74 0.0522 0.0350  
 Mercury -117309-04-22 18:29 J -41125576.90 -41125576.73 -41125576.56 0.0499 0.0154  
 Mercury -117309-07-22 00:44 J -41125486.56 -41125486.47 -41125486.38 0.0498 0.0423  
 Venus -117307-08-17 20:39 J -41124729.85 -41124729.64 -41124729.43 0.0502 0.0007  
 Earth -117304-02-13 18:44 J -41123818.76 -41123818.72 -41123818.66 0.0521 0.0506  
 Mercury -117303-03-24 04:05 J -41123415.44 -41123415.33 -41123415.23 0.0527 0.0307  
 Mercury -117303-06-21 12:00 J -41123326.12 -41123326.00 -41123325.87 0.0527 0.0180  
 Mars -117303-12-29 20:24 J -41123134.70 -41123134.65 -41123134.60 0.0528 0.0518  
 Venus -117301-06-23 15:22 J -41122593.05 -41122592.86 -41122592.66 0.0523 0.0108  
 Moon -117299-07-27 21:22 J -41121828.76 -41121828.61 -41121828.45 0.0507 0.0367  
 Earth -117299-07-27 23:03 J -41121828.72 -41121828.54 -41121828.37 0.0507 0.0333 \*  
 Mercury -117297-02-09 16:48 J -41121266.94 -41121266.80 -41121266.66 0.0499 0.0295  
 Mercury -117297-05-09 22:34 J -41121176.71 -41121176.56 -41121176.41 0.0498 0.0278  
 Venus -117295-04-22 14:10 J -41120464.09 -41120463.91 -41120463.72 0.0501 0.0240  
 Mercury -117291-01-10 07:41 J -41119105.25 -41119105.18 -41119105.10 0.0526 0.0426  
 Mercury -117291-04-09 16:05 J -41119015.96 -41119015.83 -41119015.70 0.0527 0.0063  
 Venus -117289-02-27 14:24 J -41118327.08 -41118326.90 -41118326.71 0.0524 0.0142  
 Earth -117287-08-01 09:36 J -41117441.33 -41117441.10 -41117440.87 0.0506 0.0089  
 Moon -117287-08-01 12:15 J -41117441.22 -41117440.99 -41117440.75 0.0506 0.0083 \*

Mercury -117286-11-28 14:39 J -41116956.97 -41116956.89 -41116956.81 0.0499 0.0439

Mercury -117285-02-26 19:56 J -41116866.84 -41116866.67 -41116866.49 0.0499 0.0131

Mars -117285-11-30 06:00 J -41116589.51 -41116589.25 -41116589.00 0.0498 0.0117

Venus -117284-12-26 08:24 J -41116198.21 -41116198.15 -41116198.07 0.0501 0.0472

Venus -117283-08-20 19:41 J -41115960.81 -41115960.68 -41115960.54 0.0504 0.0387

Mercury -117279-01-26 19:41 J -41114705.81 -41114705.68 -41114705.55 0.0527 0.0059

Mercury -117279-04-26 03:22 J -41114616.43 -41114616.36 -41114616.28 0.0527 0.0421

Venus -117278-11-02 13:12 J -41114061.08 -41114060.95 -41114060.82 0.0524 0.0394

Venus -117277-06-26 01:12 J -41113824.51 -41113824.45 -41113824.38 0.0521 0.0492

Mercury -117274-12-15 18:00 J -41112556.93 -41112556.75 -41112556.57 0.0499 0.0014

Venus -117271-04-25 12:58 J -41111695.16 -41111694.96 -41111694.76 0.0503 0.0147

Mercury -117268-11-14 23:03 J -41110395.66 -41110395.54 -41110395.42 0.0526 0.0184

Mercury -117267-02-12 06:44 J -41110306.32 -41110306.22 -41110306.11 0.0527 0.0298

Mars -117267-10-06 18:58 J -41110069.99 -41110069.71 -41110069.42 0.0527 0.0087

Venus -117265-03-01 00:15 J -41109558.65 -41109558.49 -41109558.31 0.0522 0.0247

Mercury -117262-10-03 16:20 J -41108246.99 -41108246.82 -41108246.65 0.0499 0.0155

Mercury -117261-01-01 22:34 J -41108156.65 -41108156.56 -41108156.47 0.0499 0.0424

Venus -117260-12-29 06:00 J -41107429.46 -41107429.25 -41107429.05 0.0502 0.0095

Mercury -117256-09-03 02:24 J -41106085.50 -41106085.40 -41106085.29 0.0526 0.0307

Mercury -117256-12-01 10:34 J -41105996.19 -41105996.06 -41105995.94 0.0527 0.0178

Venus -117254-11-05 00:44 J -41105292.67 -41105292.47 -41105292.27 0.0523 0.0000

Mercury -117250-07-22 14:39 J -41103937.03 -41103936.89 -41103936.75 0.0499 0.0295

Mercury -117250-10-20 20:24 J -41103846.80 -41103846.65 -41103846.50 0.0498 0.0278

Mars -117249-09-03 08:10 J -41103528.37 -41103528.16 -41103527.95 0.0498 0.0291

Venus -117248-09-02 21:36 J -41103163.76 -41103163.60 -41103163.44 0.0501 0.0337

Mercury -117244-06-22 05:32 J -41101775.34 -41101775.27 -41101775.20 0.0526 0.0435

Mercury -117244-09-19 13:56 J -41101686.05 -41101685.92 -41101685.79 0.0527 0.0054

Venus -117242-07-11 00:15 J -41101026.66 -41101026.49 -41101026.31 0.0525 0.0249

Mercury -117238-05-10 12:58 J -41099627.04 -41099626.96 -41099626.88 0.0499 0.0434

Mercury -117238-08-08 18:15 J -41099536.91 -41099536.74 -41099536.57 0.0498 0.0133



Venus -117235-01-01 00:58 J -41098660.63 -41098660.46 -41098660.28 0.0503 0.0283  
 Earth -117233-02-08 23:03 J -41097891.77 -41097891.54 -41097891.30 0.0519 0.0059  
 Moon -117233-02-09 02:53 J -41097891.62 -41097891.38 -41097891.15 0.0519 0.0074 \*  
 Mercury -117232-07-08 17:32 J -41097375.90 -41097375.77 -41097375.63 0.0527 0.0067  
 Mercury -117232-10-06 01:12 J -41097286.52 -41097286.45 -41097286.37 0.0527 0.0416  
 Venus -117230-03-15 22:48 J -41096760.60 -41096760.55 -41096760.49 0.0525 0.0500  
 Venus -117230-11-07 12:00 J -41096524.13 -41096524.00 -41096523.87 0.0521 0.0394  
 Mercury -117226-05-27 15:36 J -41095227.03 -41095226.85 -41095226.67 0.0499 0.0017  
 Venus -117224-09-05 18:44 J -41094394.93 -41094394.72 -41094394.51 0.0503 0.0044  
 Moon -117221-02-13 18:00 J -41093503.87 -41093503.75 -41093503.64 0.0520 0.0448  
 Earth -117221-02-13 21:51 J -41093503.72 -41093503.59 -41093503.45 0.0520 0.0424 \*  
 Mercury -117220-04-26 21:22 J -41093065.73 -41093065.61 -41093065.49 0.0526 0.0184  
 Mercury -117220-07-25 05:17 J -41092976.39 -41092976.28 -41092976.18 0.0527 0.0298  
 Venus -117218-07-13 11:32 J -41092258.21 -41092258.02 -41092257.84 0.0522 0.0147  
 Earth -117216-07-26 22:05 J -41091513.70 -41091513.58 -41091513.46 0.0507 0.0430  
 Moon -117216-07-27 00:29 J -41091513.57 -41091513.48 -41091513.37 0.0507 0.0461 \*  
 Mercury -117214-03-15 13:27 J -41090917.10 -41090916.94 -41090916.77 0.0499 0.0162  
 Mercury -117214-06-13 19:41 J -41090826.77 -41090826.68 -41090826.58 0.0499 0.0417  
 Venus -117212-05-11 12:15 J -41090129.18 -41090128.99 -41090128.79 0.0502 0.0196  
 Mercury -117208-02-13 00:29 J -41088755.58 -41088755.48 -41088755.37 0.0526 0.0311  
 Mercury -117208-05-13 08:39 J -41088666.26 -41088666.14 -41088666.02 0.0527 0.0173  
 Venus -117206-03-18 09:36 J -41087992.29 -41087992.10 -41087991.91 0.0524 0.0108  
 Moon -117204-07-31 06:58 J -41087126.43 -41087126.21 -41087125.98 0.0507 0.0011  
 Earth -117204-07-31 10:34 J -41087126.30 -41087126.06 -41087125.83 0.0507 0.0007 \*  
 Mercury -117202-01-01 11:46 J -41086607.15 -41086607.01 -41086606.87 0.0499 0.0302  
 Mercury -117202-04-01 17:32 J -41086516.91 -41086516.77 -41086516.62 0.0499 0.0273  
 Venus -117200-01-14 05:46 J -41085863.36 -41085863.26 -41085863.15 0.0501 0.0433  
 Venus -117200-09-08 16:48 J -41085625.91 -41085625.80 -41085625.69 0.0504 0.0428  
 Mercury -117197-12-02 03:51 J -41084445.41 -41084445.34 -41084445.27 0.0526 0.0437  
 Mercury -117196-03-01 12:00 J -41084356.13 -41084356.00 -41084355.87 0.0527 0.0053

Mercury -117196-05-29 19:27 J -41084266.69 -41084266.69 -41084266.68 0.0527 0.0527

Venus -117195-11-21 08:39 J -41083726.28 -41083726.14 -41083726.00 0.0525 0.0360

Earth -117192-08-05 01:12 J -41082738.56 -41082738.45 -41082738.33 0.0506 0.0439

Moon -117192-08-05 04:48 J -41082738.37 -41082738.30 -41082738.21 0.0506 0.0472 \*

Mercury -117191-10-20 10:20 J -41082297.15 -41082297.07 -41082296.98 0.0499 0.0439

Mercury -117190-01-18 15:36 J -41082207.02 -41082206.85 -41082206.67 0.0498 0.0130

Venus -117188-05-14 07:27 J -41081360.39 -41081360.19 -41081359.99 0.0502 0.0181

Mercury -117185-12-18 15:22 J -41080045.99 -41080045.86 -41080045.73 0.0527 0.0077

Mercury -117184-03-17 23:03 J -41079956.62 -41079956.54 -41079956.46 0.0528 0.0404

Venus -117182-03-20 21:36 J -41079223.76 -41079223.60 -41079223.43 0.0523 0.0291

Mercury -117179-11-06 13:41 J -41077897.11 -41077896.93 -41077896.75 0.0499 0.0015

Venus -117176-01-17 00:15 J -41077094.70 -41077094.49 -41077094.27 0.0502 0.0062

Mercury -117173-10-06 18:58 J -41075735.83 -41075735.71 -41075735.59 0.0527 0.0196

Mercury -117172-01-04 02:53 J -41075646.49 -41075646.38 -41075646.27 0.0527 0.0288

Venus -117171-11-23 20:53 J -41074957.83 -41074957.63 -41074957.44 0.0523 0.0043

Mercury -117167-08-25 10:48 J -41073587.21 -41073587.05 -41073586.88 0.0499 0.0167

Mercury -117167-11-23 16:48 J -41073496.89 -41073496.80 -41073496.69 0.0498 0.0411

Mars -117166-05-22 12:44 J -41073317.11 -41073316.97 -41073316.82 0.0498 0.0412

Venus -117165-09-21 18:00 J -41072828.92 -41072828.75 -41072828.58 0.0501 0.0299

Mercury -117161-07-25 22:34 J -41071425.66 -41071425.56 -41071425.45 0.0526 0.0316

Mercury -117161-10-23 06:44 J -41071336.34 -41071336.22 -41071336.09 0.0527 0.0172

Venus -117159-07-29 19:41 J -41070691.86 -41070691.68 -41070691.50 0.0524 0.0212

Mercury -117155-06-13 08:53 J -41069277.27 -41069277.13 -41069276.99 0.0499 0.0310

Mercury -117155-09-11 14:39 J -41069187.04 -41069186.89 -41069186.74 0.0499 0.0264

Venus -117152-01-19 22:20 J -41068325.73 -41068325.57 -41068325.41 0.0504 0.0326

Moon -117150-02-07 18:58 J -41067576.93 -41067576.71 -41067576.49 0.0518 0.0174

Earth -117150-02-07 22:48 J -41067576.77 -41067576.55 -41067576.32 0.0518 0.0157 \*

Mercury -117149-05-14 01:56 J -41067115.49 -41067115.42 -41067115.35 0.0526 0.0442

Mercury -117149-08-11 10:05 J -41067026.21 -41067026.08 -41067025.95 0.0526 0.0046

Mercury -117149-11-08 17:32 J -41066936.78 -41066936.77 -41066936.75 0.0527 0.0521

Mars -117148-03-23 21:36 J -41066801.79 -41066801.60 -41066801.39 0.0527 0.0382  
 Venus -117147-04-03 17:03 J -41066425.87 -41066425.79 -41066425.70 0.0525 0.0470  
 Venus -117147-11-26 06:00 J -41066189.36 -41066189.25 -41066189.13 0.0521 0.0427  
 Mercury -117143-04-01 07:12 J -41064967.27 -41064967.20 -41064967.12 0.0500 0.0450  
 Mercury -117143-06-30 12:29 J -41064877.15 -41064876.98 -41064876.80 0.0499 0.0120  
 Venus -117141-09-24 15:08 J -41064060.08 -41064059.87 -41064059.66 0.0502 0.0082  
 Earth -117138-02-12 18:00 J -41063188.94 -41063188.75 -41063188.56 0.0519 0.0311  
 Moon -117138-02-12 21:36 J -41063188.77 -41063188.60 -41063188.42 0.0519 0.0340 \*  
 Mercury -117137-05-30 13:27 J -41062716.07 -41062715.94 -41062715.81 0.0526 0.0080  
 Mercury -117137-08-27 21:08 J -41062626.70 -41062626.62 -41062626.53 0.0527 0.0400  
 Venus -117135-08-01 06:00 J -41061923.44 -41061923.25 -41061923.07 0.0523 0.0180  
 Mercury -117131-04-18 10:48 J -41060567.23 -41060567.05 -41060566.87 0.0499 0.0022  
 Mars -117130-02-23 15:08 J -41060256.14 -41060255.87 -41060255.61 0.0498 0.0009  
 Venus -117129-05-30 06:58 J -41059794.41 -41059794.21 -41059794.01 0.0501 0.0161  
 Mercury -117125-03-18 16:34 J -41058405.93 -41058405.81 -41058405.69 0.0527 0.0208  
 Mercury -117125-06-16 00:29 J -41058316.59 -41058316.48 -41058316.37 0.0527 0.0276  
 Venus -117123-04-06 05:32 J -41057657.47 -41057657.27 -41057657.08 0.0524 0.0071  
 Earth -117121-07-30 13:12 J -41056811.18 -41056810.95 -41056810.72 0.0507 0.0083  
 Moon -117121-07-30 16:48 J -41056811.02 -41056810.80 -41056810.57 0.0507 0.0079 \*  
 Mercury -117119-02-04 08:53 J -41056257.29 -41056257.13 -41056256.96 0.0499 0.0164  
 Mercury -117119-05-05 14:53 J -41056166.98 -41056166.88 -41056166.78 0.0498 0.0412  
 Venus -117117-02-03 00:15 J -41055528.61 -41055528.49 -41055528.36 0.0500 0.0400  
 Venus -117117-09-27 10:34 J -41055291.13 -41055291.06 -41055290.97 0.0504 0.0463  
 Mercury -117113-01-05 20:10 J -41054095.76 -41054095.66 -41054095.56 0.0526 0.0328  
 Mercury -117113-04-04 04:20 J -41054006.44 -41054006.32 -41054006.19 0.0527 0.0159  
 Mars -117113-12-29 17:46 J -41053737.02 -41053736.76 -41053736.49 0.0528 0.0229  
 Venus -117112-12-10 03:51 J -41053391.49 -41053391.34 -41053391.18 0.0525 0.0323  
 Moon -117109-08-03 19:27 J -41052423.85 -41052423.69 -41052423.53 0.0506 0.0364  
 Earth -117109-08-03 22:48 J -41052423.72 -41052423.55 -41052423.38 0.0506 0.0334 \*  
 Mercury -117108-11-23 06:00 J -41051947.38 -41051947.25 -41051947.11 0.0499 0.0317

Mercury -117107-02-21 11:46 J -41051857.16 -41051857.01 -41051856.86 0.0499 0.0256

Venus -117105-06-02 03:22 J -41051025.55 -41051025.36 -41051025.17 0.0503 0.0221

Mercury -117102-10-25 00:00 J -41049785.57 -41049785.50 -41049785.44 0.0526 0.0447

Mercury -117101-01-22 08:10 J -41049696.29 -41049696.16 -41049696.02 0.0527 0.0045

Mercury -117101-04-20 15:51 J -41049606.86 -41049606.84 -41049606.82 0.0527 0.0518

Venus -117099-04-08 16:34 J -41048888.96 -41048888.81 -41048888.66 0.0522 0.0326

Mercury -117096-09-11 04:20 J -41047637.39 -41047637.32 -41047637.25 0.0499 0.0458

Mercury -117096-12-10 09:22 J -41047547.28 -41047547.11 -41047546.93 0.0499 0.0110

Mars -117095-11-27 10:34 J -41047195.21 -41047195.06 -41047194.90 0.0498 0.0398

Venus -117093-02-05 20:39 J -41046759.85 -41046759.64 -41046759.43 0.0502 0.0022

Mercury -117090-11-10 11:32 J -41045386.15 -41045386.02 -41045385.89 0.0526 0.0085

Mercury -117089-02-07 19:12 J -41045296.78 -41045296.70 -41045296.61 0.0527 0.0395

Venus -117088-12-12 14:39 J -41044623.08 -41044622.89 -41044622.69 0.0523 0.0072

Mercury -117084-09-28 07:27 J -41043237.36 -41043237.19 -41043237.01 0.0499 0.0036

Venus -117082-10-11 14:10 J -41042494.09 -41042493.91 -41042493.73 0.0501 0.0262

Mercury -117078-08-29 14:53 J -41041076.00 -41041075.88 -41041075.76 0.0526 0.0210

Mercury -117078-11-26 22:48 J -41040986.66 -41040986.55 -41040986.44 0.0527 0.0273

Venus -117076-08-17 13:41 J -41040357.12 -41040356.93 -41040356.75 0.0524 0.0182

Mercury -117072-07-17 06:00 J -41038927.41 -41038927.25 -41038927.08 0.0499 0.0172

Mercury -117072-10-15 12:00 J -41038837.10 -41038837.00 -41038836.89 0.0498 0.0405

Venus -117070-06-16 07:27 J -41038228.20 -41038228.19 -41038228.17 0.0500 0.0498

Venus -117069-02-08 16:48 J -41037990.94 -41037990.80 -41037990.65 0.0503 0.0362

Earth -117067-02-06 15:22 J -41037262.05 -41037261.86 -41037261.66 0.0518 0.0282

Moon -117067-02-06 19:27 J -41037261.88 -41037261.69 -41037261.50 0.0518 0.0295 \*

Mercury -117066-06-17 17:46 J -41036765.86 -41036765.76 -41036765.66 0.0526 0.0340

Mercury -117066-09-15 01:56 J -41036676.54 -41036676.42 -41036676.29 0.0527 0.0147

Venus -117064-04-22 12:00 J -41036091.11 -41036091.00 -41036090.89 0.0526 0.0436

Venus -117064-12-15 01:41 J -41035854.51 -41035854.43 -41035854.34 0.0522 0.0467

Mercury -117060-05-05 04:20 J -41034617.46 -41034617.32 -41034617.18 0.0499 0.0313

Mercury -117060-08-03 09:51 J -41034527.24 -41034527.09 -41034526.94 0.0498 0.0259

Venus -117058-10-14 09:36 J -41033725.30 -41033725.10 -41033724.89 0.0502 0.0118  
 Moon -117055-02-11 09:08 J -41032874.33 -41032874.12 -41032873.90 0.0519 0.0218  
 Earth -117055-02-11 12:44 J -41032874.19 -41032873.97 -41032873.76 0.0519 0.0194 \*  
 Mercury -117054-04-05 21:22 J -41032455.67 -41032455.61 -41032455.55 0.0526 0.0460  
 Mercury -117054-07-04 05:46 J -41032366.39 -41032366.26 -41032366.13 0.0527 0.0031  
 Mercury -117054-10-01 13:27 J -41032276.97 -41032276.94 -41032276.91 0.0527 0.0506  
 Venus -117052-08-20 01:12 J -41031588.63 -41031588.45 -41031588.27 0.0523 0.0220  
 Mercury -117048-02-21 01:41 J -41030307.50 -41030307.43 -41030307.37 0.0499 0.0465  
 Mercury -117048-05-22 06:44 J -41030217.40 -41030217.22 -41030217.05 0.0499 0.0103  
 Venus -117046-06-19 02:10 J -41029459.62 -41029459.41 -41029459.21 0.0502 0.0125  
 Mercury -117042-04-22 09:51 J -41028056.22 -41028056.09 -41028055.96 0.0527 0.0089  
 Mercury -117042-07-20 17:32 J -41027966.86 -41027966.77 -41027966.69 0.0527 0.0393  
 Venus -117040-04-25 00:58 J -41027322.65 -41027322.46 -41027322.26 0.0524 0.0033  
 Moon -117038-07-30 05:46 J -41026496.47 -41026496.26 -41026496.04 0.0507 0.0189  
 Earth -117038-07-30 09:22 J -41026496.32 -41026496.11 -41026495.89 0.0507 0.0194 \*  
 Mercury -117036-03-10 04:34 J -41025907.49 -41025907.31 -41025907.13 0.0499 0.0043  
 Venus -117034-02-21 20:10 J -41025193.80 -41025193.66 -41025193.51 0.0501 0.0364  
 Mercury -117030-02-08 12:58 J -41023746.08 -41023745.96 -41023745.83 0.0526 0.0213  
 Mercury -117030-05-08 20:53 J -41023656.74 -41023656.63 -41023656.51 0.0527 0.0271  
 Venus -117029-12-28 22:34 J -41023056.72 -41023056.56 -41023056.39 0.0524 0.0291  
 Earth -117026-08-03 21:08 J -41022108.82 -41022108.62 -41022108.41 0.0506 0.0235  
 Moon -117026-08-03 23:46 J -41022108.70 -41022108.51 -41022108.32 0.0506 0.0267 \*  
 Mercury -117025-12-27 02:39 J -41021597.55 -41021597.39 -41021597.22 0.0499 0.0185  
 Mercury -117024-03-27 08:53 J -41021507.24 -41021507.13 -41021507.02 0.0499 0.0393  
 Venus -117022-06-22 00:00 J -41020690.68 -41020690.50 -41020690.32 0.0503 0.0262  
 Mercury -117019-11-27 16:20 J -41019435.92 -41019435.82 -41019435.72 0.0526 0.0338  
 Mercury -117018-02-25 00:29 J -41019346.61 -41019346.48 -41019346.35 0.0527 0.0147  
 Venus -117016-04-27 10:48 J -41018554.19 -41018554.05 -41018553.90 0.0522 0.0360  
 Mercury -117013-10-15 01:27 J -41017287.57 -41017287.44 -41017287.30 0.0499 0.0321  
 Mercury -117012-01-13 06:58 J -41017197.36 -41017197.21 -41017197.05 0.0499 0.0253

Mars -117012-08-14 20:39 J -41016983.84 -41016983.64 -41016983.42 0.0498 0.0301  
 Venus -117010-02-24 16:34 J -41016425.02 -41016424.81 -41016424.60 0.0502 0.0019  
 Mercury -117007-09-15 19:12 J -41015125.76 -41015125.70 -41015125.64 0.0526 0.0469  
 Mercury -117007-12-14 03:36 J -41015036.48 -41015036.35 -41015036.22 0.0527 0.0020  
 Mercury -117006-03-13 11:17 J -41014947.07 -41014947.03 -41014946.99 0.0527 0.0497  
 Venus -117005-12-31 10:20 J -41014288.26 -41014288.07 -41014287.88 0.0524 0.0111  
 Mercury -117001-08-02 23:46 J -41012977.57 -41012977.51 -41012977.43 0.0500 0.0460  
 Mercury -117001-11-01 05:03 J -41012887.46 -41012887.29 -41012887.11 0.0499 0.0108

# 117TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 117th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Venus	-116999-10-30 10:05 J	-41012159.27	-41012159.08	-41012158.89	0.0501	0.0224		
Mercury	-116995-10-02 07:27 J	-41010726.32	-41010726.19	-41010726.06	0.0527	0.0098		
Mercury	-116995-12-30 15:08 J	-41010636.95	-41010636.87	-41010636.78	0.0527	0.0383		
Mars	-116994-06-16 18:15 J	-41010468.99	-41010468.74	-41010468.48	0.0528	0.0250		
Venus	-116993-09-05 09:51 J	-41010022.28	-41010022.09	-41010021.90	0.0524	0.0141		
Mercury	-116989-08-20 01:56 J	-41008577.60	-41008577.42	-41008577.24	0.0499	0.0048		
Venus	-116987-07-05 02:24 J	-41007893.46	-41007893.40	-41007893.31	0.0500	0.0466		
Venus	-116986-02-27 12:58 J	-41007656.09	-41007655.96	-41007655.84	0.0504	0.0403		

Moon -116984-02-05 13:41 J -41006947.09 -41006946.93 -41006946.77 0.0518 0.0388  
 Earth -116984-02-05 17:17 J -41006946.93 -41006946.78 -41006946.61 0.0518 0.0372 \*  
 Mercury -116983-07-21 11:17 J -41006416.15 -41006416.03 -41006415.91 0.0526 0.0215  
 Mercury -116983-10-18 19:27 J -41006326.80 -41006326.69 -41006326.58 0.0527 0.0270  
 Venus -116981-05-11 09:22 J -41005756.24 -41005756.11 -41005755.98 0.0525 0.0394  
 Venus -116980-01-02 22:05 J -41005519.62 -41005519.58 -41005519.54 0.0521 0.0508  
 Mercury -116977-06-08 00:00 J -41004267.66 -41004267.50 -41004267.33 0.0499 0.0191  
 Mercury -116977-09-06 06:00 J -41004177.36 -41004177.25 -41004177.14 0.0499 0.0386  
 Mars -116976-05-18 16:48 J -41003923.05 -41003922.80 -41003922.54 0.0498 0.0099  
 Venus -116975-11-02 06:15 J -41003390.44 -41003390.24 -41003390.04 0.0503 0.0160  
 Earth -116972-02-10 15:08 J -41002559.10 -41002558.87 -41002558.64 0.0519 0.0106  
 Moon -116972-02-10 17:32 J -41002558.99 -41002558.77 -41002558.55 0.0519 0.0135 \*  
 Mercury -116971-05-09 14:39 J -41002105.99 -41002105.89 -41002105.78 0.0526 0.0338  
 Mercury -116971-08-06 23:03 J -41002016.67 -41002016.54 -41002016.42 0.0527 0.0149  
 Venus -116969-09-07 20:53 J -41001253.79 -41001253.63 -41001253.45 0.0522 0.0258  
 Mercury -116965-03-26 22:34 J -40999957.69 -40999957.56 -40999957.43 0.0500 0.0331  
 Mercury -116965-06-25 03:51 J -40999867.49 -40999867.34 -40999867.18 0.0499 0.0243  
 Venus -116963-07-08 00:00 J -40999124.71 -40999124.50 -40999124.29 0.0502 0.0083  
 Mercury -116959-02-25 18:00 J -40997795.81 -40997795.75 -40997795.69 0.0526 0.0464  
 Mercury -116959-05-26 02:24 J -40997706.53 -40997706.40 -40997706.27 0.0526 0.0025  
 Mercury -116959-08-23 09:51 J -40997617.12 -40997617.09 -40997617.05 0.0527 0.0501  
 Mars -116958-03-24 18:44 J -40997403.92 -40997403.72 -40997403.50 0.0527 0.0363  
 Venus -116957-05-13 20:24 J -40996987.85 -40996987.65 -40996987.46 0.0524 0.0009  
 Earth -116955-07-29 11:17 J -40996181.22 -40996181.03 -40996180.83 0.0508 0.0281  
 Moon -116955-07-29 14:10 J -40996181.10 -40996180.91 -40996180.71 0.0508 0.0268 \*  
 Mercury -116953-01-13 21:22 J -40995647.67 -40995647.61 -40995647.55 0.0500 0.0464  
 Mercury -116953-04-13 02:24 J -40995557.57 -40995557.40 -40995557.22 0.0499 0.0104  
 Venus -116951-03-12 18:00 J -40994858.91 -40994858.75 -40994858.59 0.0501 0.0322  
 Mercury -116947-03-14 05:32 J -40993396.40 -40993396.27 -40993396.14 0.0526 0.0103  
 Mercury -116947-06-11 13:12 J -40993307.03 -40993306.95 -40993306.86 0.0527 0.0378

Venus -116945-01-17 18:58 J -40992721.88 -40992721.71 -40992721.54 0.0525 0.0252  
 Moon -116943-08-02 23:46 J -40991793.73 -40991793.51 -40991793.28 0.0507 0.0187  
 Earth -116943-08-03 01:27 J -40991793.65 -40991793.44 -40991793.21 0.0507 0.0157 \*  
 Mercury -116941-01-31 00:44 J -40991247.65 -40991247.47 -40991247.29 0.0499 0.0038  
 Venus -116939-07-10 21:08 J -40990355.78 -40990355.62 -40990355.45 0.0503 0.0305  
 Mercury -116936-12-31 09:22 J -40989086.23 -40989086.11 -40989085.99 0.0526 0.0222  
 Mercury -116935-03-30 17:17 J -40988996.89 -40988996.78 -40988996.67 0.0527 0.0263  
 Venus -116934-09-22 18:15 J -40988455.79 -40988455.74 -40988455.68 0.0525 0.0504  
 Venus -116933-05-16 08:10 J -40988219.28 -40988219.16 -40988219.03 0.0522 0.0407  
 Mercury -116930-11-18 21:51 J -40986937.75 -40986937.59 -40986937.43 0.0499 0.0193  
 Mercury -116929-02-17 03:36 J -40986847.46 -40986847.35 -40986847.24 0.0499 0.0384  
 Venus -116927-03-15 12:58 J -40986090.17 -40986089.96 -40986089.75 0.0502 0.0058  
 Mercury -116924-10-19 13:12 J -40984776.05 -40984775.95 -40984775.85 0.0526 0.0337  
 Mercury -116923-01-16 21:22 J -40984686.73 -40984686.61 -40984686.48 0.0527 0.0151  
 Venus -116921-01-20 08:53 J -40983953.32 -40983953.13 -40983952.94 0.0523 0.0159  
 Mercury -116918-09-06 20:10 J -40982627.79 -40982627.66 -40982627.53 0.0499 0.0333  
 Mercury -116918-12-06 01:41 J -40982537.59 -40982537.43 -40982537.28 0.0499 0.0239  
 Venus -116916-11-18 07:12 J -40981824.40 -40981824.20 -40981824.01 0.0502 0.0184  
 Mercury -116912-08-07 16:34 J -40980465.87 -40980465.81 -40980465.74 0.0526 0.0460  
 Mercury -116912-11-05 01:12 J -40980376.58 -40980376.45 -40980376.32 0.0526 0.0032  
 Mercury -116911-02-02 08:39 J -40980287.17 -40980287.14 -40980287.10 0.0527 0.0506  
 Venus -116910-09-25 07:27 J -40979687.38 -40979687.19 -40979686.99 0.0524 0.0099  
 Mercury -116906-06-25 18:44 J -40978317.77 -40978317.72 -40978317.66 0.0500 0.0470  
 Mercury -116906-09-23 23:46 J -40978227.68 -40978227.51 -40978227.33 0.0499 0.0098  
 Venus -116904-07-24 01:56 J -40977558.53 -40977558.42 -40977558.30 0.0501 0.0421  
 Venus -116903-03-18 12:29 J -40977321.07 -40977320.98 -40977320.89 0.0504 0.0452  
 Earth -116901-02-05 20:10 J -40976631.76 -40976631.66 -40976631.55 0.0517 0.0455  
 Moon -116901-02-05 23:17 J -40976631.62 -40976631.53 -40976631.43 0.0517 0.0468 \*  
 Mercury -116900-08-24 04:34 J -40976066.44 -40976066.31 -40976066.18 0.0526 0.0094  
 Mercury -116900-11-21 12:15 J -40975977.07 -40975976.99 -40975976.90 0.0527 0.0387



Venus -116898-05-31 06:00 J -40975421.39 -40975421.25 -40975421.10 0.0525 0.0356  
 Mercury -116894-07-12 22:34 J -40973917.74 -40973917.56 -40973917.38 0.0499 0.0040  
 Venus -116892-11-21 05:32 J -40973055.46 -40973055.27 -40973055.07 0.0502 0.0209  
 Moon -116889-02-10 13:41 J -40972244.18 -40972243.93 -40972243.69 0.0518 0.0035  
 Earth -116889-02-10 15:08 J -40972244.10 -40972243.87 -40972243.63 0.0518 0.0010 \*  
 Mercury -116888-06-12 07:41 J -40971756.30 -40971756.18 -40971756.06 0.0526 0.0221  
 Mercury -116888-09-09 15:36 J -40971666.96 -40971666.85 -40971666.73 0.0527 0.0263  
 Venus -116886-09-27 18:44 J -40970918.87 -40970918.72 -40970918.55 0.0523 0.0304  
 Mercury -116882-04-30 20:53 J -40969607.79 -40969607.63 -40969607.46 0.0499 0.0179  
 Mercury -116882-07-30 02:53 J -40969517.48 -40969517.38 -40969517.27 0.0499 0.0399  
 Venus -116880-07-26 23:03 J -40968789.75 -40968789.54 -40968789.33 0.0502 0.0036  
 Moon -116877-02-15 11:46 J -40967856.07 -40967856.01 -40967855.95 0.0520 0.0497  
 Earth -116877-02-15 12:29 J -40967856.05 -40967855.98 -40967855.89 0.0520 0.0487 \*  
 Mercury -116876-03-31 11:32 J -40967446.12 -40967446.02 -40967445.92 0.0526 0.0340  
 Mercury -116876-06-28 19:41 J -40967356.80 -40967356.68 -40967356.55 0.0527 0.0147  
 Venus -116874-06-02 19:27 J -40966652.88 -40966652.69 -40966652.49 0.0523 0.0055  
 Moon -116872-07-28 12:58 J -40965866.13 -40965865.96 -40965865.78 0.0508 0.0349  
 Earth -116872-07-28 15:08 J -40965866.02 -40965865.87 -40965865.70 0.0508 0.0364 \*  
 Mercury -116870-02-16 18:15 J -40965297.87 -40965297.74 -40965297.61 0.0499 0.0331  
 Mercury -116870-05-17 23:32 J -40965207.67 -40965207.52 -40965207.36 0.0499 0.0242  
 Venus -116868-03-31 14:53 J -40964524.05 -40964523.88 -40964523.70 0.0501 0.0283  
 Mercury -116864-01-17 15:22 J -40963135.92 -40963135.86 -40963135.79 0.0526 0.0456  
 Mercury -116864-04-17 00:00 J -40963046.64 -40963046.50 -40963046.37 0.0527 0.0038  
 Mercury -116864-07-15 07:27 J -40962957.21 -40962957.19 -40962957.16 0.0527 0.0512  
 Venus -116862-02-05 20:10 J -40962386.84 -40962386.66 -40962386.48 0.0524 0.0198  
 Earth -116860-08-02 04:48 J -40961478.53 -40961478.30 -40961478.07 0.0506 0.0072  
 Moon -116860-08-02 05:32 J -40961478.49 -40961478.27 -40961478.05 0.0506 0.0104 \*  
 Mercury -116859-12-05 17:03 J -40960987.85 -40960987.79 -40960987.74 0.0500 0.0468  
 Mercury -116858-03-05 21:51 J -40960897.76 -40960897.59 -40960897.41 0.0499 0.0099  
 Mars -116858-11-08 06:58 J -40960650.45 -40960650.21 -40960649.97 0.0498 0.0189

Venus -116856-07-29 19:55 J -40960020.82 -40960020.67 -40960020.52 0.0504 0.0353  
 Mercury -116852-02-03 03:36 J -40958736.48 -40958736.35 -40958736.22 0.0526 0.0085  
 Mercury -116852-05-03 11:17 J -40958647.11 -40958647.03 -40958646.94 0.0527 0.0395  
 Venus -116851-10-11 18:15 J -40958120.83 -40958120.74 -40958120.64 0.0525 0.0456  
 Venus -116850-06-05 07:27 J -40957884.28 -40957884.19 -40957884.09 0.0521 0.0455  
 Earth -116848-08-06 17:17 J -40957090.78 -40957090.78 -40957090.76 0.0506 0.0505  
 Moon -116848-08-06 18:00 J -40957090.78 -40957090.75 -40957090.71 0.0506 0.0499 \*  
 Mercury -116847-12-22 20:10 J -40956587.83 -40956587.66 -40956587.48 0.0499 0.0043  
 Venus -116844-04-03 14:10 J -40955755.12 -40955754.91 -40955754.70 0.0503 0.0110  
 Mercury -116841-11-22 06:58 J -40954426.33 -40954426.21 -40954426.08 0.0526 0.0209  
 Mercury -116840-02-19 15:07 J -40954336.98 -40954336.87 -40954336.76 0.0527 0.0276  
 Mars -116840-09-09 21:51 J -40954134.88 -40954134.59 -40954134.31 0.0527 0.0068  
 Venus -116838-02-08 07:12 J -40953618.37 -40953618.20 -40953618.01 0.0523 0.0205  
 Mercury -116835-10-10 19:12 J -40952277.87 -40952277.70 -40952277.54 0.0500 0.0176  
 Mercury -116834-01-09 00:58 J -40952187.56 -40952187.46 -40952187.35 0.0499 0.0402  
 Venus -116833-12-07 08:24 J -40951489.35 -40951489.15 -40951488.94 0.0501 0.0131  
 Mercury -116829-09-10 10:19 J -40950116.17 -40950116.07 -40950115.97 0.0526 0.0335  
 Mercury -116829-12-08 18:29 J -40950026.86 -40950026.73 -40950026.61 0.0527 0.0152  
 Venus -116827-10-14 06:43 J -40949352.42 -40949352.22 -40949352.03 0.0524 0.0050  
 Mercury -116823-07-29 17:46 J -40947967.89 -40947967.76 -40947967.62 0.0500 0.0313  
 Mercury -116823-10-27 23:17 J -40947877.68 -40947877.53 -40947877.38 0.0499 0.0260  
 Mars -116822-08-12 19:55 J -40947588.89 -40947588.67 -40947588.44 0.0498 0.0247  
 Venus -116821-08-12 02:39 J -40947223.52 -40947223.39 -40947223.24 0.0500 0.0372  
 Mercury -116817-06-29 13:55 J -40945805.98 -40945805.92 -40945805.85 0.0526 0.0453  
 Mercury -116817-09-26 22:19 J -40945716.70 -40945716.57 -40945716.43 0.0527 0.0039  
 Mercury -116817-12-25 06:00 J -40945627.27 -40945627.25 -40945627.22 0.0527 0.0513  
 Venus -116815-06-19 06:58 J -40945086.37 -40945086.21 -40945086.05 0.0525 0.0302  
 Mercury -116811-05-17 15:22 J -40943657.92 -40943657.86 -40943657.79 0.0499 0.0461  
 Mercury -116811-08-15 20:24 J -40943567.83 -40943567.65 -40943567.48 0.0499 0.0105  
 Venus -116809-12-10 04:05 J -40942720.51 -40942720.33 -40942720.15 0.0503 0.0255

Earth -116806-02-09 23:03 J -40941928.78 -40941928.54 -40941928.31 0.0519 0.0057  
 Moon -116806-02-09 23:03 J -40941928.76 -40941928.54 -40941928.31 0.0519 0.0030 \*  
 Mercury -116805-07-16 02:39 J -40941406.52 -40941406.39 -40941406.26 0.0527 0.0078  
 Mercury -116805-10-13 10:19 J -40941317.15 -40941317.07 -40941316.98 0.0527 0.0404  
 Venus -116803-10-16 21:22 J -40940583.74 -40940583.61 -40940583.46 0.0522 0.0363  
 Mercury -116799-06-03 18:43 J -40939257.89 -40939257.72 -40939257.54 0.0499 0.0036  
 Venus -116797-08-14 22:19 J -40938454.78 -40938454.57 -40938454.35 0.0502 0.0015  
 Earth -116794-02-14 22:34 J -40937540.69 -40937540.56 -40937540.43 0.0520 0.0430  
 Moon -116794-02-15 00:43 J -40937540.59 -40937540.47 -40937540.33 0.0520 0.0434 \*  
 Mercury -116793-05-04 06:15 J -40937096.36 -40937096.24 -40937096.11 0.0526 0.0196  
 Mercury -116793-08-01 14:24 J -40937007.01 -40937006.90 -40937006.79 0.0527 0.0288  
 Venus -116791-06-21 20:53 J -40936317.82 -40936317.63 -40936317.44 0.0523 0.0109  
 Earth -116789-07-27 23:17 J -40935550.65 -40935550.53 -40935550.40 0.0508 0.0425  
 Moon -116789-07-28 00:29 J -40935550.60 -40935550.48 -40935550.34 0.0508 0.0409 \*  
 Mercury -116787-03-22 17:17 J -40934947.94 -40934947.78 -40934947.61 0.0499 0.0173  
 Mercury -116787-06-20 23:03 J -40934857.64 -40934857.54 -40934857.43 0.0499 0.0405  
 Venus -116785-04-19 17:31 J -40934188.95 -40934188.77 -40934188.58 0.0501 0.0229  
 Mercury -116781-02-21 09:51 J -40932786.20 -40932786.09 -40932785.99 0.0526 0.0318  
 Mercury -116781-05-20 18:00 J -40932696.87 -40932696.75 -40932696.62 0.0527 0.0169  
 Venus -116779-02-24 20:10 J -40932051.85 -40932051.66 -40932051.47 0.0524 0.0148  
 Moon -116777-08-01 13:27 J -40931163.18 -40931162.94 -40931162.70 0.0507 0.0043  
 Earth -116777-08-01 13:27 J -40931163.17 -40931162.94 -40931162.71 0.0507 0.0013 \*  
 Mercury -116775-01-08 16:19 J -40930637.96 -40930637.82 -40930637.68 0.0500 0.0307  
 Mercury -116775-04-08 21:51 J -40930547.74 -40930547.59 -40930547.44 0.0499 0.0267  
 Venus -116774-12-24 12:43 J -40929923.04 -40929922.97 -40929922.89 0.0500 0.0465  
 Venus -116773-08-17 22:48 J -40929685.67 -40929685.55 -40929685.43 0.0503 0.0413  
 Mercury -116770-12-10 12:58 J -40928476.03 -40928475.96 -40928475.89 0.0526 0.0444  
 Mercury -116769-03-08 21:22 J -40928386.74 -40928386.61 -40928386.48 0.0526 0.0045  
 Mercury -116769-06-06 05:03 J -40928297.31 -40928297.29 -40928297.27 0.0527 0.0521  
 Venus -116768-10-30 18:43 J -40927785.84 -40927785.72 -40927785.60 0.0525 0.0406

Venus -116767-06-24 08:10 J -40927549.20 -40927549.16 -40927549.12 0.0522 0.0509  
 Moon -116765-08-06 02:39 J -40926775.49 -40926775.39 -40926775.28 0.0506 0.0446  
 Earth -116765-08-06 04:05 J -40926775.42 -40926775.33 -40926775.22 0.0506 0.0454 \*  
 Mercury -116764-10-27 15:22 J -40926327.94 -40926327.86 -40926327.78 0.0500 0.0441  
 Mercury -116763-01-25 20:24 J -40926237.82 -40926237.65 -40926237.48 0.0499 0.0127  
 Venus -116761-04-22 16:19 J -40925420.02 -40925419.82 -40925419.62 0.0502 0.0167  
 Mercury -116758-12-27 01:27 J -40924076.57 -40924076.44 -40924076.31 0.0526 0.0072  
 Mercury -116757-03-25 09:07 J -40923987.20 -40923987.12 -40923987.04 0.0527 0.0409  
 Venus -116755-02-27 09:51 J -40923283.26 -40923283.09 -40923282.92 0.0523 0.0265  
 Mercury -116752-11-13 17:46 J -40921927.94 -40921927.76 -40921927.59 0.0499 0.0027  
 Venus -116750-12-27 07:41 J -40921154.39 -40921154.18 -40921153.98 0.0502 0.0086  
 Mercury -116746-10-15 05:31 J -40919766.40 -40919766.27 -40919766.15 0.0527 0.0187  
 Mercury -116745-01-12 13:27 J -40919677.04 -40919676.94 -40919676.83 0.0527 0.0299  
 Venus -116744-11-02 11:17 J -40919017.23 -40919017.03 -40919016.84 0.0524 0.0018  
 Mercury -116740-09-01 16:19 J -40917617.99 -40917617.82 -40917617.65 0.0499 0.0163  
 Mercury -116740-11-30 21:51 J -40917527.68 -40917527.59 -40917527.48 0.0498 0.0414  
 Mars -116739-04-30 08:24 J -40917377.25 -40917377.15 -40917377.05 0.0498 0.0459  
 Venus -116738-09-01 02:39 J -40916888.55 -40916888.39 -40916888.23 0.0501 0.0326  
 Mercury -116734-08-03 09:07 J -40915456.22 -40915456.12 -40915456.01 0.0526 0.0304  
 Mercury -116734-10-31 17:31 J -40915366.90 -40915366.77 -40915366.65 0.0527 0.0184  
 Venus -116732-07-08 10:05 J -40914751.25 -40914751.08 -40914750.90 0.0524 0.0243  
 Mercury -116728-06-20 14:53 J -40913308.02 -40913307.88 -40913307.74 0.0499 0.0300  
 Mercury -116728-09-18 20:24 J -40913217.80 -40913217.65 -40913217.50 0.0499 0.0273  
 Venus -116726-12-30 08:10 J -40912385.32 -40912385.16 -40912385.00 0.0503 0.0316  
 Earth -116723-02-09 10:19 J -40911613.30 -40911613.07 -40911612.84 0.0519 0.0106  
 Moon -116723-02-09 11:31 J -40911613.26 -40911613.02 -40911612.78 0.0519 0.0075 \*  
 Mercury -116722-05-22 12:43 J -40911146.05 -40911145.97 -40911145.89 0.0526 0.0425  
 Mercury -116722-08-19 21:07 J -40911056.75 -40911056.62 -40911056.49 0.0527 0.0064  
 Mars -116721-02-27 21:36 J -40910864.74 -40910864.60 -40910864.46 0.0527 0.0462  
 Venus -116720-03-13 08:53 J -40910485.18 -40910485.13 -40910485.07 0.0525 0.0501

Venus -116720-11-04 22:34 J -40910248.67 -40910248.56 -40910248.44 0.0522 0.0417  
 Mercury -116716-04-08 14:10 J -40908998.00 -40908997.91 -40908997.83 0.0500 0.0432  
 Mercury -116716-07-07 18:58 J -40908907.88 -40908907.71 -40908907.53 0.0499 0.0138  
 Venus -116714-09-04 02:39 J -40908119.60 -40908119.39 -40908119.18 0.0502 0.0074  
 Moon -116711-02-14 03:51 J -40907225.49 -40907225.34 -40907225.18 0.0519 0.0371  
 Earth -116711-02-14 06:58 J -40907225.37 -40907225.21 -40907225.04 0.0519 0.0367 \*  
 Mercury -116710-06-08 00:29 J -40906746.61 -40906746.48 -40906746.35 0.0526 0.0061  
 Mercury -116710-09-05 08:24 J -40906657.23 -40906657.15 -40906657.08 0.0527 0.0420  
 Venus -116708-07-10 22:19 J -40905982.75 -40905982.57 -40905982.38 0.0523 0.0166  
 Moon -116706-07-28 11:31 J -40905235.13 -40905235.02 -40905234.92 0.0508 0.0452  
 Earth -116706-07-28 11:46 J -40905235.09 -40905235.01 -40905234.92 0.0508 0.0472 \*  
 Mercury -116704-04-25 17:46 J -40904597.94 -40904597.76 -40904597.58 0.0499 0.0002  
 Mars -116703-02-01 23:46 J -40904315.77 -40904315.51 -40904315.24 0.0498 0.0017  
 Venus -116702-05-09 20:53 J -40903853.83 -40903853.63 -40903853.43 0.0501 0.0171  
 Mercury -116698-03-27 04:19 J -40902436.44 -40902436.32 -40902436.19 0.0526 0.0178  
 Mercury -116698-06-24 12:29 J -40902347.09 -40902346.98 -40902346.88 0.0527 0.0307  
 Venus -116696-03-15 23:31 J -40901716.71 -40901716.52 -40901716.32 0.0524 0.0086  
 Moon -116694-08-02 00:29 J -40900847.71 -40900847.48 -40900847.26 0.0507 0.0013  
 Earth -116694-08-02 01:27 J -40900847.67 -40900847.44 -40900847.21 0.0507 0.0036 \*  
 Mercury -116692-02-11 15:22 J -40900288.03 -40900287.86 -40900287.69 0.0499 0.0150  
 Mercury -116692-05-12 21:07 J -40900197.71 -40900197.62 -40900197.53 0.0498 0.0426  
 Venus -116690-01-12 12:29 J -40899588.09 -40899587.98 -40899587.86 0.0501 0.0420  
 Venus -116690-09-06 22:48 J -40899350.63 -40899350.55 -40899350.46 0.0504 0.0464  
 Mercury -116686-01-13 08:24 J -40898126.26 -40898126.15 -40898126.04 0.0527 0.0293  
 Mercury -116686-04-12 16:34 J -40898036.93 -40898036.81 -40898036.69 0.0527 0.0195  
 Mars -116686-12-06 09:51 J -40897799.36 -40897799.09 -40897798.82 0.0528 0.0183  
 Venus -116685-11-19 00:29 J -40897450.63 -40897450.48 -40897450.33 0.0525 0.0339  
 Earth -116682-08-06 15:36 J -40896459.98 -40896459.85 -40896459.70 0.0505 0.0405  
 Moon -116682-08-06 18:43 J -40896459.87 -40896459.72 -40896459.57 0.0505 0.0391 \*  
 Mercury -116681-11-30 14:10 J -40895978.05 -40895977.91 -40895977.77 0.0499 0.0286

Mercury -116680-02-28 19:27 J -40895887.83 -40895887.69 -40895887.54 0.0498 0.0286

Venus -116678-05-12 17:03 J -40895084.98 -40895084.79 -40895084.60 0.0503 0.0219

Mercury -116675-11-01 12:00 J -40893816.08 -40893816.00 -40893815.91 0.0526 0.0411

Mercury -116674-01-29 20:39 J -40893726.77 -40893726.64 -40893726.51 0.0527 0.0079

Venus -116672-03-18 13:27 J -40892948.09 -40892947.94 -40892947.78 0.0522 0.0327

Mercury -116669-09-18 12:58 J -40891668.05 -40891667.96 -40891667.87 0.0499 0.0421

Mercury -116669-12-17 17:46 J -40891577.92 -40891577.76 -40891577.58 0.0499 0.0147

Mars -116668-11-06 03:51 J -40891254.48 -40891254.34 -40891254.18 0.0498 0.0406

Venus -116666-01-15 12:00 J -40890819.21 -40890819.00 -40890818.78 0.0502 0.0026

Mercury -116663-11-18 00:15 J -40889416.62 -40889416.49 -40889416.35 0.0527 0.0043

Mercury -116662-02-15 08:10 J -40889327.23 -40889327.16 -40889327.09 0.0527 0.0440

Venus -116661-11-21 13:12 J -40888682.14 -40888681.95 -40888681.75 0.0523 0.0072

Mercury -116657-10-05 16:48 J -40887267.98 -40887267.80 -40887267.63 0.0499 0.0016

Venus -116655-09-20 07:27 J -40886553.37 -40886553.19 -40886553.01 0.0501 0.0264

Mercury -116651-09-06 03:36 J -40885106.47 -40885106.35 -40885106.22 0.0526 0.0165

Mercury -116651-12-04 11:46 J -40885017.12 -40885017.01 -40885016.91 0.0527 0.0319

Venus -116649-07-27 12:15 J -40884416.18 -40884415.99 -40884415.81 0.0524 0.0187

Mercury -116645-07-24 15:22 J -40882958.03 -40882957.86 -40882957.68 0.0499 0.0127

Mercury -116645-10-22 21:07 J -40882867.68 -40882867.62 -40882867.54 0.0499 0.0452

Venus -116642-01-18 11:46 J -40882050.14 -40882050.01 -40882049.87 0.0503 0.0378

Moon -116640-02-08 17:31 J -40881297.99 -40881297.77 -40881297.55 0.0518 0.0134

Earth -116640-02-08 19:41 J -40881297.90 -40881297.68 -40881297.46 0.0518 0.0163 \*

Mercury -116639-06-25 07:27 J -40880796.30 -40880796.19 -40880796.08 0.0526 0.0283

Mercury -116639-09-22 15:51 J -40880706.96 -40880706.84 -40880706.72 0.0527 0.0205

Venus -116637-04-01 12:43 J -40880150.07 -40880149.97 -40880149.86 0.0525 0.0441

Venus -116637-11-24 02:24 J -40879913.46 -40879913.40 -40879913.32 0.0522 0.0482

Mercury -116633-05-12 13:27 J -40878648.09 -40878647.94 -40878647.79 0.0499 0.0271

Mercury -116633-08-10 18:43 J -40878557.86 -40878557.72 -40878557.58 0.0498 0.0300

Venus -116631-09-23 02:39 J -40877784.59 -40877784.39 -40877784.18 0.0502 0.0124

Earth -116628-02-13 16:19 J -40876910.00 -40876909.82 -40876909.63 0.0520 0.0312

Moon -116628-02-13 20:10 J -40876909.85 -40876909.66 -40876909.47 0.0520 0.0314 \*  
 Mercury -116627-04-13 11:17 J -40876486.12 -40876486.03 -40876485.95 0.0527 0.0401  
 Mercury -116627-07-11 19:41 J -40876396.81 -40876396.68 -40876396.55 0.0527 0.0092  
 Venus -116625-07-30 04:19 J -40875647.49 -40875647.32 -40875647.15 0.0523 0.0236  
 Moon -116623-07-28 01:27 J -40874919.50 -40874919.44 -40874919.39 0.0508 0.0490  
 Mercury -116621-02-29 12:15 J -40874338.09 -40874337.99 -40874337.89 0.0499 0.0406  
 Mercury -116621-05-29 17:17 J -40874247.95 -40874247.78 -40874247.62 0.0498 0.0161  
 Venus -116619-05-28 21:22 J -40873518.81 -40873518.61 -40873518.40 0.0502 0.0122  
 Mercury -116615-01-30 14:53 J -40872175.89 -40872175.88 -40872175.85 0.0526 0.0519  
 Mercury -116615-04-29 23:46 J -40872086.64 -40872086.51 -40872086.38 0.0527 0.0026  
 Mercury -116615-07-28 07:27 J -40871997.25 -40871997.19 -40871997.12 0.0527 0.0455  
 Venus -116613-04-04 03:51 J -40871381.53 -40871381.34 -40871381.14 0.0524 0.0024  
 Earth -116611-08-01 13:55 J -40870532.15 -40870531.92 -40870531.69 0.0507 0.0079  
 Moon -116611-08-01 16:05 J -40870532.07 -40870531.83 -40870531.59 0.0507 0.0053 \*  
 Mercury -116609-03-17 15:36 J -40869938.03 -40869937.85 -40869937.67 0.0499 0.0021  
 Venus -116607-01-31 17:03 J -40869252.93 -40869252.79 -40869252.64 0.0501 0.0360  
 Mercury -116603-02-16 03:22 J -40867776.48 -40867776.36 -40867776.23 0.0526 0.0145  
 Mercury -116603-05-16 11:31 J -40867687.12 -40867687.02 -40867686.92 0.0527 0.0339  
 Venus -116602-12-09 02:53 J -40867115.54 -40867115.38 -40867115.21 0.0525 0.0281  
 Moon -116599-08-06 00:00 J -40866144.67 -40866144.50 -40866144.33 0.0506 0.0340  
 Earth -116599-08-06 03:22 J -40866144.52 -40866144.36 -40866144.19 0.0506 0.0358 \*  
 Mercury -116597-01-04 14:24 J -40865628.07 -40865627.90 -40865627.73 0.0499 0.0115  
 Mercury -116597-04-03 20:10 J -40865537.72 -40865537.66 -40865537.59 0.0499 0.0463  
 Venus -116595-05-31 22:05 J -40864749.75 -40864749.58 -40864749.41 0.0503 0.0284  
 Mercury -116592-12-05 06:43 J -40863466.33 -40863466.22 -40863466.11 0.0526 0.0270  
 Mercury -116591-03-04 14:53 J -40863377.00 -40863376.88 -40863376.76 0.0527 0.0217  
 Venus -116589-04-06 15:36 J -40862612.98 -40862612.85 -40862612.72 0.0522 0.0385  
 Mercury -116586-10-23 13:27 J -40861318.10 -40861317.94 -40861317.79 0.0499 0.0251  
 Mercury -116585-01-21 18:43 J -40861227.85 -40861227.72 -40861227.58 0.0499 0.0323  
 Mars -116585-07-25 07:55 J -40861042.39 -40861042.17 -40861041.95 0.0498 0.0274

Venus -116583-02-03 15:51 J -40860484.05 -40860483.84 -40860483.62 0.0502 0.0038  
 Mercury -116580-09-23 10:19 J -40859156.15 -40859156.07 -40859155.98 0.0526 0.0390  
 Mercury -116580-12-21 18:58 J -40859066.84 -40859066.71 -40859066.58 0.0527 0.0101  
 Venus -116578-12-11 16:48 J -40858346.98 -40858346.80 -40858346.61 0.0523 0.0136  
 Mercury -116574-08-11 11:31 J -40857008.12 -40857008.02 -40857007.91 0.0499 0.0391  
 Mercury -116574-11-09 16:19 J -40856917.98 -40856917.82 -40856917.65 0.0498 0.0175  
 Venus -116572-10-09 07:27 J -40856218.38 -40856218.19 -40856218.00 0.0501 0.0217  
 Mercury -116568-07-12 13:55 J -40854845.95 -40854845.92 -40854845.89 0.0527 0.0510  
 Mercury -116568-10-09 22:48 J -40854756.68 -40854756.55 -40854756.42 0.0527 0.0017  
 Mercury -116567-01-07 06:43 J -40854667.28 -40854667.22 -40854667.16 0.0528 0.0465  
 Mars -116567-05-25 12:00 J -40854529.27 -40854529.00 -40854528.74 0.0528 0.0208  
 Venus -116566-08-16 18:00 J -40854080.94 -40854080.75 -40854080.56 0.0524 0.0118  
 Mercury -116562-08-28 14:53 J -40852608.05 -40852607.88 -40852607.70 0.0498 0.0037  
 Venus -116560-06-14 02:39 J -40851952.47 -40851952.39 -40851952.30 0.0500 0.0457  
 Venus -116559-02-06 12:15 J -40851715.09 -40851714.99 -40851714.88 0.0504 0.0429  
 Earth -116557-02-09 04:48 J -40850982.51 -40850982.30 -40850982.08 0.0519 0.0219  
 Moon -116557-02-09 08:10 J -40850982.39 -40850982.16 -40850981.94 0.0519 0.0184 \*  
 Mercury -116556-07-29 02:39 J -40850446.52 -40850446.39 -40850446.26 0.0527 0.0133  
 Mercury -116556-10-26 10:48 J -40850357.15 -40850357.05 -40850356.96 0.0528 0.0352  
 Venus -116554-04-21 17:03 J -40849814.93 -40849814.79 -40849814.66 0.0525 0.0377  
 Mercury -116550-06-16 13:27 J -40848298.12 -40848297.94 -40848297.77 0.0499 0.0104  
 Mercury -116550-09-14 18:58 J -40848207.76 -40848207.71 -40848207.65 0.0498 0.0474  
 Mars -116549-04-28 12:43 J -40847981.22 -40847980.97 -40847980.72 0.0498 0.0152  
 Venus -116548-10-12 07:12 J -40847449.39 -40847449.20 -40847449.00 0.0503 0.0186  
 Moon -116545-02-14 01:12 J -40846594.65 -40846594.45 -40846594.25 0.0520 0.0271  
 Earth -116545-02-14 05:03 J -40846594.48 -40846594.29 -40846594.09 0.0520 0.0270 \*  
 Mercury -116544-05-17 06:15 J -40846136.35 -40846136.24 -40846136.12 0.0526 0.0253  
 Mercury -116544-08-14 14:39 J -40846047.01 -40846046.89 -40846046.78 0.0527 0.0235  
 Venus -116542-08-19 06:15 J -40845312.40 -40845312.24 -40845312.08 0.0522 0.0293  
 Mercury -116538-04-04 12:15 J -40843988.15 -40843987.99 -40843987.84 0.0499 0.0240



Mercury -116538-07-03 17:31 J -40843897.90 -40843897.77 -40843897.64 0.0499 0.0334  
 Venus -116536-06-17 01:55 J -40843183.63 -40843183.42 -40843183.21 0.0502 0.0059  
 Mercury -116532-03-05 09:36 J -40841826.19 -40841826.10 -40841826.01 0.0526 0.0378  
 Mercury -116532-06-02 18:00 J -40841736.88 -40841736.75 -40841736.62 0.0527 0.0111  
 Mars -116531-03-02 14:24 J -40841464.06 -40841463.90 -40841463.72 0.0527 0.0424  
 Venus -116530-04-24 05:17 J -40841046.47 -40841046.28 -40841046.08 0.0524 0.0035  
 Moon -116528-07-31 23:03 J -40840216.76 -40840216.54 -40840216.32 0.0507 0.0104  
 Earth -116528-08-01 01:55 J -40840216.65 -40840216.42 -40840216.20 0.0507 0.0125 \*  
 Mercury -116526-01-21 11:03 J -40839678.15 -40839678.04 -40839677.92 0.0499 0.0374  
 Mercury -116526-04-21 16:05 J -40839587.99 -40839587.83 -40839587.67 0.0499 0.0194  
 Venus -116524-02-19 20:24 J -40838917.81 -40838917.65 -40838917.47 0.0501 0.0304  
 Mercury -116521-12-22 13:12 J -40837515.99 -40837515.95 -40837515.91 0.0526 0.0499  
 Mercury -116520-03-21 21:51 J -40837426.72 -40837426.59 -40837426.46 0.0527 0.0007  
 Mercury -116520-06-19 05:31 J -40837337.32 -40837337.27 -40837337.21 0.0527 0.0474  
 Venus -116519-12-28 05:46 J -40836780.44 -40836780.26 -40836780.08 0.0525 0.0223  
 Earth -116516-08-05 16:19 J -40835828.99 -40835828.82 -40835828.63 0.0506 0.0317  
 Moon -116516-08-05 20:10 J -40835828.84 -40835828.66 -40835828.46 0.0506 0.0296 \*  
 Mercury -116514-02-07 13:55 J -40835278.09 -40835277.92 -40835277.74 0.0498 0.0050  
 Venus -116512-06-19 21:22 J -40834414.77 -40834414.61 -40834414.45 0.0503 0.0332  
 Mercury -116508-01-08 01:27 J -40833116.57 -40833116.44 -40833116.31 0.0527 0.0127  
 Mercury -116508-04-07 09:36 J -40833027.20 -40833027.10 -40833027.01 0.0528 0.0358  
 Venus -116507-09-02 05:46 J -40832514.33 -40832514.26 -40832514.18 0.0526 0.0479  
 Venus -116506-04-26 20:24 J -40832277.74 -40832277.65 -40832277.55 0.0522 0.0453  
 Mercury -116503-11-26 12:29 J -40830968.15 -40830967.98 -40830967.80 0.0498 0.0091  
 Mercury -116502-02-24 18:15 J -40830877.77 -40830877.74 -40830877.70 0.0498 0.0486  
 Venus -116500-02-22 15:36 J -40830149.06 -40830148.85 -40830148.64 0.0502 0.0084  
 Mercury -116497-10-27 05:17 J -40828806.40 -40828806.28 -40828806.16 0.0527 0.0244  
 Mercury -116496-01-24 13:27 J -40828717.05 -40828716.94 -40828716.82 0.0528 0.0245  
 Venus -116495-12-30 19:55 J -40828011.85 -40828011.67 -40828011.49 0.0523 0.0198  
 Mercury -116491-09-14 11:03 J -40826658.20 -40826658.04 -40826657.89 0.0499 0.0230

Mercury -116491-12-13 16:19 J -40826567.95 -40826567.82 -40826567.69 0.0498 0.0343  
 Venus -116489-10-28 10:48 J -40825883.25 -40825883.05 -40825882.85 0.0501 0.0158  
 Mercury -116485-08-15 08:53 J -40824496.22 -40824496.13 -40824496.03 0.0526 0.0364  
 Mercury -116485-11-12 17:17 J -40824406.90 -40824406.78 -40824406.65 0.0527 0.0127  
 Venus -116483-09-04 19:12 J -40823745.89 -40823745.70 -40823745.50 0.0524 0.0063  
 Mercury -116479-07-03 09:36 J -40822348.21 -40822348.10 -40822347.98 0.0499 0.0366  
 Mercury -116479-10-01 14:39 J -40822258.05 -40822257.89 -40822257.73 0.0499 0.0202  
 Venus -116477-07-03 06:00 J -40821617.37 -40821617.25 -40821617.12 0.0500 0.0400  
 Venus -116476-02-25 15:51 J -40821379.87 -40821379.84 -40821379.79 0.0504 0.0492  
 Moon -116474-02-08 09:36 J -40820667.30 -40820667.10 -40820666.89 0.0518 0.0248  
 Earth -116474-02-08 13:12 J -40820667.14 -40820666.95 -40820666.75 0.0518 0.0280 \*  
 Mercury -116473-06-03 12:00 J -40820186.04 -40820186.00 -40820185.95 0.0526 0.0491  
 Mercury -116473-08-31 20:39 J -40820096.77 -40820096.64 -40820096.50 0.0527 0.0018  
 Mercury -116473-11-29 04:34 J -40820007.36 -40820007.31 -40820007.26 0.0527 0.0481  
 Venus -116471-05-10 17:17 J -40819479.93 -40819479.78 -40819479.63 0.0525 0.0327  
 Mercury -116467-07-20 13:12 J -40817948.13 -40817947.95 -40817947.77 0.0499 0.0063  
 Venus -116465-10-31 09:22 J -40817114.29 -40817114.11 -40817113.92 0.0503 0.0242  
 Earth -116462-02-13 11:03 J -40816279.26 -40816279.04 -40816278.82 0.0519 0.0199  
 Moon -116462-02-13 15:07 J -40816279.09 -40816278.87 -40816278.65 0.0519 0.0202 \*  
 Mercury -116461-06-20 00:29 J -40815786.61 -40815786.48 -40815786.35 0.0527 0.0120  
 Mercury -116461-09-17 08:24 J -40815697.24 -40815697.15 -40815697.05 0.0527 0.0365  
 Venus -116459-09-07 07:55 J -40814977.32 -40814977.17 -40814977.03 0.0523 0.0350  
 Mercury -116455-05-08 11:17 J -40813638.20 -40813638.03 -40813637.85 0.0498 0.0080  
 Mercury -116455-08-06 17:03 J -40813547.80 -40813547.79 -40813547.78 0.0498 0.0496  
 Venus -116453-07-06 00:29 J -40812848.69 -40812848.48 -40812848.27 0.0501 0.0015  
 Mercury -116449-04-08 03:51 J -40811476.46 -40811476.34 -40811476.22 0.0527 0.0243  
 Mercury -116449-07-06 12:00 J -40811387.11 -40811387.00 -40811386.88 0.0528 0.0247  
 Venus -116447-05-13 08:39 J -40810711.33 -40810711.14 -40810710.94 0.0524 0.0098  
 Earth -116445-07-31 14:10 J -40809901.13 -40809900.91 -40809900.69 0.0507 0.0167  
 Moon -116445-07-31 17:46 J -40809900.98 -40809900.76 -40809900.53 0.0507 0.0148 \*

Mercury -116443-02-24 10:05 J -40809328.24 -40809328.08 -40809327.92 0.0498 0.0217  
 Mercury -116443-05-25 15:07 J -40809237.99 -40809237.87 -40809237.74 0.0498 0.0354  
 Venus -116441-03-10 19:12 J -40808582.88 -40808582.70 -40808582.52 0.0500 0.0259  
 Mercury -116437-01-26 07:27 J -40807166.28 -40807166.19 -40807166.09 0.0527 0.0361  
 Mercury -116437-04-24 16:05 J -40807076.96 -40807076.83 -40807076.70 0.0528 0.0130  
 Venus -116435-01-16 07:27 J -40806445.37 -40806445.19 -40806445.00 0.0525 0.0165  
 Moon -116433-08-04 21:07 J -40805513.83 -40805513.62 -40805513.41 0.0506 0.0234  
 Earth -116433-08-05 00:58 J -40805513.66 -40805513.46 -40805513.26 0.0506 0.0258 \*  
 Mercury -116432-12-13 08:24 J -40805018.27 -40805018.15 -40805018.03 0.0499 0.0358  
 Mercury -116431-03-13 12:58 J -40804928.11 -40804927.96 -40804927.79 0.0498 0.0210  
 Mars -116431-10-19 13:12 J -40804708.20 -40804707.95 -40804707.69 0.0498 0.0115  
 Venus -116430-11-14 14:39 J -40804316.90 -40804316.89 -40804316.87 0.0500 0.0498  
 Venus -116429-07-08 23:31 J -40804079.65 -40804079.52 -40804079.38 0.0503 0.0390  
 Mercury -116426-11-14 11:03 J -40802856.09 -40802856.04 -40802855.99 0.0526 0.0482  
 Mercury -116425-02-11 19:55 J -40802766.81 -40802766.67 -40802766.54 0.0527 0.0019  
 Mercury -116425-05-11 03:36 J -40802677.39 -40802677.35 -40802677.30 0.0528 0.0492  
 Venus -116424-09-21 06:00 J -40802179.36 -40802179.25 -40802179.14 0.0525 0.0428  
 Venus -116423-05-15 19:55 J -40801942.71 -40801942.67 -40801942.62 0.0522 0.0504  
 Mercury -116420-10-01 06:58 J -40800708.23 -40800708.21 -40800708.19 0.0499 0.0495  
 Mercury -116420-12-30 11:31 J -40800618.20 -40800618.02 -40800617.85 0.0499 0.0068  
 Venus -116417-03-13 17:46 J -40799813.96 -40799813.76 -40799813.55 0.0502 0.0142  
 Mercury -116414-11-30 23:03 J -40798456.67 -40798456.54 -40798456.41 0.0527 0.0115  
 Mercury -116413-02-28 07:12 J -40798367.29 -40798367.20 -40798367.11 0.0527 0.0369  
 Mars -116413-08-19 01:55 J -40798194.71 -40798194.42 -40798194.13 0.0528 0.0006  
 Venus -116411-01-18 18:43 J -40797676.89 -40797676.72 -40797676.54 0.0523 0.0246  
 Mercury -116408-10-18 10:05 J -40796308.26 -40796308.08 -40796307.91 0.0499 0.0073  
 Venus -116406-11-17 11:46 J -40795548.21 -40795548.01 -40795547.80 0.0501 0.0107  
 Mercury -116402-09-19 02:39 J -40794146.51 -40794146.39 -40794146.27 0.0527 0.0238  
 Mercury -116402-12-17 10:48 J -40794057.16 -40794057.05 -40794056.93 0.0527 0.0250  
 Venus -116400-09-23 18:58 J -40793410.90 -40793410.71 -40793410.51 0.0524 0.0015

Mercury -116396-08-06 08:24 J -40791998.31 -40791998.15 -40791997.99 0.0498 0.0211

Mercury -116396-11-04 13:27 J -40791908.06 -40791907.94 -40791907.81 0.0498 0.0360

Mars -116395-07-23 18:58 J -40791646.91 -40791646.71 -40791646.50 0.0497 0.0311

Venus -116394-07-23 04:05 J -40791282.48 -40791282.33 -40791282.19 0.0500 0.0357

Earth -116391-02-07 12:29 J -40790352.14 -40790351.98 -40790351.81 0.0518 0.0375

Moon -116391-02-07 16:34 J -40790351.99 -40790351.81 -40790351.63 0.0518 0.0338 \*

Mercury -116390-07-08 05:46 J -40789836.36 -40789836.26 -40789836.17 0.0527 0.0365

Mercury -116390-10-05 14:24 J -40789747.03 -40789746.90 -40789746.78 0.0528 0.0129

Venus -116388-05-29 18:29 J -40789144.90 -40789144.73 -40789144.56 0.0526 0.0273

Mercury -116384-05-25 06:58 J -40787688.33 -40787688.21 -40787688.08 0.0498 0.0349

Mercury -116384-08-23 11:46 J -40787598.17 -40787598.01 -40787597.85 0.0498 0.0217

Venus -116382-11-20 06:43 J -40786779.40 -40786779.22 -40786779.05 0.0502 0.0285

Moon -116379-02-12 08:10 J -40785964.39 -40785964.16 -40785963.93 0.0520 0.0116

Earth -116379-02-12 12:15 J -40785964.22 -40785963.99 -40785963.76 0.0520 0.0112 \*

Mercury -116378-04-26 09:22 J -40785526.16 -40785526.11 -40785526.06 0.0527 0.0484

Mercury -116378-07-24 18:15 J -40785436.88 -40785436.74 -40785436.61 0.0528 0.0019

Mercury -116378-10-22 01:55 J -40785347.46 -40785347.42 -40785347.37 0.0528 0.0493

Venus -116376-09-26 07:55 J -40784642.29 -40784642.17 -40784642.05 0.0522 0.0404

Mercury -116372-03-13 05:17 J -40783378.31 -40783378.28 -40783378.25 0.0499 0.0490

Mercury -116372-06-11 09:36 J -40783288.28 -40783288.10 -40783287.92 0.0498 0.0071

Venus -116370-07-26 00:58 J -40782513.67 -40782513.46 -40782513.25 0.0502 0.0038

Mercury -116366-05-12 21:51 J -40781126.72 -40781126.59 -40781126.46 0.0527 0.0109

Mercury -116366-08-10 06:00 J -40781037.34 -40781037.25 -40781037.16 0.0528 0.0375

Venus -116364-06-01 06:58 J -40780376.39 -40780376.21 -40780376.02 0.0523 0.0145

Moon -116362-07-31 13:55 J -40779586.12 -40779585.92 -40779585.71 0.0507 0.0228

Earth -116362-07-31 17:46 J -40779585.96 -40779585.76 -40779585.55 0.0507 0.0246 \*

Mercury -116360-03-30 07:55 J -40778978.35 -40778978.17 -40778978.00 0.0499 0.0071

Venus -116358-03-30 19:41 J -40778247.87 -40778247.68 -40778247.49 0.0501 0.0208

Mercury -116354-03-01 00:58 J -40776816.58 -40776816.46 -40776816.34 0.0527 0.0236

Mercury -116354-05-29 09:22 J -40776727.23 -40776727.11 -40776727.00 0.0527 0.0251

Venus -116352-02-04 04:48 J -40776110.49 -40776110.30 -40776110.11 0.0525 0.0123  
 Earth -116350-08-05 05:31 J -40775198.48 -40775198.27 -40775198.05 0.0506 0.0184  
 Moon -116350-08-05 09:22 J -40775198.33 -40775198.11 -40775197.89 0.0506 0.0162 \*  
 Mercury -116348-01-16 06:29 J -40774668.39 -40774668.23 -40774668.07 0.0499 0.0210  
 Mercury -116348-04-16 11:31 J -40774578.14 -40774578.02 -40774577.89 0.0498 0.0362  
 Venus -116347-12-03 14:10 J -40773981.99 -40773981.91 -40773981.82 0.0500 0.0453  
 Venus -116346-07-28 23:03 J -40773744.64 -40773744.54 -40773744.44 0.0503 0.0438  
 Mercury -116343-12-18 04:19 J -40772506.42 -40772506.32 -40772506.22 0.0527 0.0361  
 Mercury -116342-03-17 12:43 J -40772417.09 -40772416.97 -40772416.84 0.0527 0.0131  
 Venus -116341-10-10 03:36 J -40771844.47 -40771844.35 -40771844.21 0.0526 0.0387  
 Mercury -116337-11-04 05:03 J -40770358.41 -40770358.29 -40770358.16 0.0499 0.0346  
 Mercury -116336-02-02 09:51 J -40770268.25 -40770268.09 -40770267.93 0.0498 0.0219  
 Venus -116334-04-02 14:10 J -40769479.11 -40769478.91 -40769478.71 0.0502 0.0182  
 Mercury -116331-10-06 07:12 J -40768196.25 -40768196.20 -40768196.16 0.0527 0.0492  
 Mercury -116330-01-03 16:05 J -40768106.96 -40768106.83 -40768106.70 0.0528 0.0005  
 Mercury -116330-04-03 00:00 J -40768017.55 -40768017.50 -40768017.45 0.0528 0.0486  
 Venus -116328-02-06 18:29 J -40767341.89 -40767341.73 -40767341.57 0.0524 0.0298  
 Mercury -116325-08-23 03:51 J -40766048.38 -40766048.34 -40766048.30 0.0499 0.0483  
 Mercury -116325-11-21 07:55 J -40765958.34 -40765958.17 -40765957.99 0.0498 0.0078  
 Venus -116323-12-06 07:55 J -40765213.38 -40765213.17 -40765212.96 0.0501 0.0068  
 Mercury -116319-10-22 19:41 J -40763796.81 -40763796.68 -40763796.55 0.0527 0.0116  
 Mercury -116318-01-20 03:51 J -40763707.43 -40763707.34 -40763707.24 0.0528 0.0371  
 Venus -116317-10-12 17:17 J -40763075.97 -40763075.78 -40763075.58 0.0524 0.0038  
 Mercury -116313-09-09 05:46 J -40761648.44 -40761648.26 -40761648.09 0.0498 0.0072  
 Mars -116312-04-10 01:55 J -40761435.57 -40761435.42 -40761435.27 0.0497 0.0406  
 Venus -116311-08-11 02:24 J -40760947.56 -40760947.40 -40760947.23 0.0500 0.0313  
 Moon -116308-02-06 12:29 J -40760037.11 -40760036.98 -40760036.84 0.0518 0.0420  
 Earth -116308-02-06 16:34 J -40760036.92 -40760036.81 -40760036.70 0.0518 0.0452 \*  
 Mercury -116307-08-10 23:31 J -40759486.64 -40759486.52 -40759486.41 0.0527 0.0236  
 Mercury -116307-11-08 07:41 J -40759397.29 -40759397.18 -40759397.06 0.0528 0.0253

Venus -116305-06-17 15:51 J -40758810.02 -40758809.84 -40758809.66 0.0525 0.0229

Mercury -116301-06-28 03:51 J -40757338.49 -40757338.34 -40757338.18 0.0499 0.0214

Mercury -116301-09-26 09:07 J -40757248.24 -40757248.12 -40757248.00 0.0498 0.0358

Venus -116299-12-09 05:31 J -40756444.42 -40756444.27 -40756444.11 0.0503 0.0335

Earth -116296-02-11 13:55 J -40755649.15 -40755648.92 -40755648.68 0.0519 0.0024

Moon -116296-02-11 17:46 J -40755648.99 -40755648.76 -40755648.53 0.0519 0.0030 \*

Mercury -116295-05-30 02:24 J -40755176.49 -40755176.40 -40755176.30 0.0526 0.0364

Mercury -116295-08-27 11:03 J -40755087.17 -40755087.04 -40755086.91 0.0527 0.0127

Mars -116294-02-04 19:41 J -40754925.83 -40754925.68 -40754925.53 0.0528 0.0450

Venus -116293-02-21 12:29 J -40754544.03 -40754543.98 -40754543.91 0.0526 0.0500

Venus -116293-10-15 03:36 J -40754307.45 -40754307.35 -40754307.25 0.0522 0.0442

Mercury -116289-04-16 02:24 J -40753028.52 -40753028.40 -40753028.27 0.0499 0.0352

Mercury -116289-07-15 07:12 J -40752938.36 -40752938.20 -40752938.04 0.0498 0.0215

Venus -116287-08-13 23:03 J -40752178.75 -40752178.54 -40752178.33 0.0502 0.0082

Moon -116284-02-16 07:41 J -40751261.28 -40751261.18 -40751261.07 0.0520 0.0464

Earth -116284-02-16 10:19 J -40751261.13 -40751261.07 -40751261.00 0.0520 0.0496 \*

Mercury -116283-03-18 05:31 J -40750866.31 -40750866.27 -40750866.22 0.0526 0.0491

Mercury -116283-06-15 14:24 J -40750777.03 -40750776.90 -40750776.77 0.0527 0.0009

Mercury -116283-09-12 22:19 J -40750687.62 -40750687.57 -40750687.52 0.0528 0.0484

Venus -116281-06-20 03:22 J -40750041.55 -40750041.36 -40750041.18 0.0524 0.0184

Earth -116279-07-30 22:05 J -40749270.75 -40749270.58 -40749270.40 0.0508 0.0322

Moon -116279-07-31 01:55 J -40749270.60 -40749270.42 -40749270.23 0.0508 0.0302 \*

Mercury -116277-02-03 01:12 J -40748718.48 -40748718.45 -40748718.40 0.0499 0.0486

Mercury -116277-05-03 05:31 J -40748628.44 -40748628.27 -40748628.09 0.0498 0.0076

Mars -116276-01-12 06:43 J -40748374.49 -40748374.22 -40748373.96 0.0497 0.0024

Venus -116275-04-18 15:22 J -40747913.05 -40747912.86 -40747912.66 0.0500 0.0170

Mercury -116271-04-03 17:31 J -40746466.90 -40746466.77 -40746466.64 0.0527 0.0127

Mercury -116271-07-02 01:41 J -40746377.52 -40746377.43 -40746377.34 0.0528 0.0360

Venus -116269-02-24 02:24 J -40745775.60 -40745775.40 -40745775.21 0.0525 0.0078

Moon -116267-08-04 07:41 J -40744883.41 -40744883.18 -40744882.95 0.0507 0.0092

Earth -116267-08-04 11:17 J -40744883.25 -40744883.03 -40744882.80 0.0507 0.0113 \*  
 Mercury -116265-02-20 03:51 J -40744318.51 -40744318.34 -40744318.16 0.0498 0.0068  
 Venus -116264-12-22 09:36 J -40743647.21 -40743647.10 -40743646.98 0.0499 0.0417  
 Venus -116263-08-16 17:46 J -40743409.82 -40743409.76 -40743409.69 0.0503 0.0476  
 Mercury -116259-01-20 21:07 J -40742156.74 -40742156.62 -40742156.51 0.0527 0.0247  
 Mercury -116259-04-20 05:31 J -40742067.39 -40742067.27 -40742067.15 0.0528 0.0243  
 Mars -116259-11-12 13:55 J -40741861.19 -40741860.92 -40741860.64 0.0528 0.0176  
 Venus -116258-10-30 00:29 J -40741509.62 -40741509.48 -40741509.33 0.0526 0.0344  
 Moon -116255-08-08 23:03 J -40740495.55 -40740495.54 -40740495.52 0.0505 0.0504  
 Mercury -116254-12-09 01:27 J -40740008.60 -40740008.44 -40740008.28 0.0498 0.0216  
 Mercury -116253-03-08 06:29 J -40739918.35 -40739918.23 -40739918.10 0.0498 0.0354  
 Venus -116251-04-21 11:17 J -40739144.22 -40739144.03 -40739143.84 0.0502 0.0226  
 Mercury -116248-11-09 00:43 J -40737846.57 -40737846.47 -40737846.38 0.0527 0.0367  
 Mercury -116247-02-06 09:22 J -40737757.24 -40737757.11 -40737756.98 0.0527 0.0126  
 Venus -116245-02-26 14:10 J -40737007.05 -40737006.91 -40737006.75 0.0523 0.0338  
 Mercury -116242-09-26 23:46 J -40735698.63 -40735698.51 -40735698.39 0.0499 0.0358  
 Mercury -116242-12-26 04:19 J -40735608.48 -40735608.32 -40735608.15 0.0498 0.0209  
 Mars -116241-10-16 05:31 J -40735313.39 -40735313.27 -40735313.15 0.0498 0.0436  
 Venus -116240-12-25 05:17 J -40734878.49 -40734878.28 -40734878.07 0.0501 0.0025  
 Mercury -116236-08-28 03:36 J -40733536.39 -40733536.35 -40733536.30 0.0526 0.0495  
 Mercury -116236-11-25 12:29 J -40733447.11 -40733446.98 -40733446.85 0.0527 0.0009  
 Mercury -116235-02-22 20:24 J -40733357.70 -40733357.65 -40733357.60 0.0528 0.0480  
 Venus -116234-11-01 12:00 J -40732741.19 -40732741.00 -40732740.81 0.0524 0.0071  
 Mercury -116230-07-15 22:19 J -40731388.58 -40731388.57 -40731388.55 0.0499 0.0496  
 Mercury -116230-10-14 02:39 J -40731298.57 -40731298.39 -40731298.21 0.0498 0.0065  
 Venus -116228-08-29 23:31 J -40730612.70 -40730612.52 -40730612.35 0.0500 0.0273  
 Mercury -116224-09-13 15:51 J -40729136.97 -40729136.84 -40729136.71 0.0527 0.0128  
 Mercury -116224-12-12 00:00 J -40729047.60 -40729047.50 -40729047.41 0.0528 0.0358  
 Venus -116222-07-07 10:34 J -40728475.25 -40728475.06 -40728474.88 0.0525 0.0197  
 Mercury -116218-08-02 01:12 J -40726988.62 -40726988.45 -40726988.27 0.0498 0.0073

Venus -116216-12-28 00:15 J -40726109.63 -40726109.49 -40726109.34 0.0502 0.0371  
 Moon -116213-02-11 02:53 J -40725334.61 -40725334.38 -40725334.15 0.0518 0.0093  
 Earth -116213-02-11 06:29 J -40725334.46 -40725334.23 -40725334.00 0.0518 0.0101 \*  
 Mercury -116212-07-02 18:43 J -40724826.84 -40724826.72 -40724826.61 0.0527 0.0259  
 Mercury -116212-09-30 03:07 J -40724737.49 -40724737.37 -40724737.25 0.0528 0.0231  
 Venus -116210-03-12 08:10 J -40724209.25 -40724209.16 -40724209.07 0.0527 0.0464  
 Venus -116210-11-04 00:00 J -40723972.57 -40723972.50 -40723972.43 0.0523 0.0485  
 Mercury -116206-05-20 23:31 J -40722678.67 -40722678.52 -40722678.36 0.0498 0.0214  
 Mercury -116206-08-19 04:34 J -40722588.43 -40722588.31 -40722588.19 0.0498 0.0356  
 Venus -116204-09-01 17:46 J -40721843.97 -40721843.76 -40721843.56 0.0501 0.0119  
 Earth -116201-02-16 04:19 J -40720946.47 -40720946.32 -40720946.15 0.0520 0.0379  
 Moon -116201-02-16 06:15 J -40720946.40 -40720946.24 -40720946.07 0.0520 0.0351 \*  
 Mercury -116200-04-20 22:05 J -40720516.67 -40720516.58 -40720516.49 0.0527 0.0380  
 Mercury -116200-07-19 06:43 J -40720427.34 -40720427.22 -40720427.09 0.0528 0.0114  
 Venus -116198-07-09 22:48 J -40719706.72 -40719706.55 -40719706.37 0.0524 0.0226  
 Moon -116196-07-29 17:17 J -40718955.91 -40718955.78 -40718955.63 0.0508 0.0401  
 Earth -116196-07-29 21:22 J -40718955.74 -40718955.61 -40718955.48 0.0508 0.0422 \*  
 Mercury -116194-03-08 21:07 J -40718368.74 -40718368.62 -40718368.50 0.0499 0.0363  
 Mercury -116194-06-07 01:41 J -40718278.59 -40718278.43 -40718278.27 0.0498 0.0202  
 Venus -116192-05-07 11:03 J -40717578.24 -40717578.04 -40717577.84 0.0501 0.0133  
 Mercury -116188-02-07 01:41 J -40716206.47 -40716206.43 -40716206.39 0.0526 0.0501  
 Mercury -116188-05-07 10:34 J -40716117.19 -40716117.06 -40716116.92 0.0527 0.0012  
 Mercury -116188-08-04 18:29 J -40716027.78 -40716027.73 -40716027.67 0.0528 0.0477  
 Venus -116186-03-14 21:51 J -40715440.78 -40715440.59 -40715440.39 0.0525 0.0041  
 Earth -116184-08-03 08:10 J -40714568.39 -40714568.16 -40714567.92 0.0507 0.0009  
 Moon -116184-08-03 11:31 J -40714568.25 -40714568.02 -40714567.79 0.0507 0.0012 \*  
 Mercury -116182-03-25 23:46 J -40713968.69 -40713968.51 -40713968.34 0.0498 0.0058  
 Venus -116180-01-10 05:31 J -40713312.41 -40713312.27 -40713312.13 0.0500 0.0380  
 Mercury -116176-02-23 13:55 J -40711807.05 -40711806.92 -40711806.80 0.0527 0.0133  
 Mercury -116176-05-23 22:05 J -40711717.68 -40711717.58 -40711717.49 0.0527 0.0353



Venus -116175-11-17 18:43 J -40711174.87 -40711174.72 -40711174.56 0.0525 0.0312  
 Moon -116172-08-07 16:34 J -40710180.94 -40710180.81 -40710180.65 0.0506 0.0401  
 Earth -116172-08-07 19:12 J -40710180.82 -40710180.70 -40710180.58 0.0506 0.0431 \*  
 Mercury -116170-01-11 21:51 J -40709658.76 -40709658.59 -40709658.41 0.0499 0.0086  
 Mercury -116170-04-12 03:22 J -40709568.39 -40709568.36 -40709568.33 0.0498 0.0490  
 Venus -116168-05-10 07:41 J -40708809.36 -40708809.18 -40708809.00 0.0502 0.0267  
 Mercury -116165-12-12 17:03 J -40707496.91 -40707496.79 -40707496.68 0.0527 0.0260  
 Mercury -116164-03-12 01:27 J -40707407.56 -40707407.44 -40707407.32 0.0527 0.0229  
 Venus -116162-03-17 08:24 J -40706672.29 -40706672.15 -40706672.01 0.0523 0.0371  
 Mercury -116159-10-30 20:39 J -40705348.79 -40705348.64 -40705348.48 0.0499 0.0222  
 Mercury -116158-01-29 01:41 J -40705258.55 -40705258.43 -40705258.30 0.0498 0.0349  
 Mars -116158-07-04 10:34 J -40705102.28 -40705102.06 -40705101.85 0.0497 0.0288  
 Venus -116156-01-13 00:15 J -40704543.70 -40704543.49 -40704543.27 0.0501 0.0017  
 Mercury -116153-09-30 19:41 J -40703186.77 -40703186.68 -40703186.59 0.0527 0.0393  
 Mercury -116153-12-29 04:19 J -40703097.44 -40703097.32 -40703097.19 0.0528 0.0102  
 Venus -116151-11-20 07:12 J -40702406.40 -40702406.20 -40702406.01 0.0525 0.0109  
 Mercury -116147-08-18 19:12 J -40701038.82 -40701038.70 -40701038.58 0.0499 0.0360  
 Mercury -116147-11-16 23:46 J -40700948.67 -40700948.51 -40700948.35 0.0498 0.0204  
 Venus -116145-09-17 18:29 J -40700277.92 -40700277.73 -40700277.55 0.0500 0.0237  
 Mercury -116141-07-19 23:03 J -40698876.56 -40698876.54 -40698876.51 0.0526 0.0515  
 Mercury -116141-10-17 08:10 J -40698787.29 -40698787.16 -40698787.03 0.0527 0.0022  
 Mercury -116140-01-14 16:05 J -40698697.89 -40698697.83 -40698697.77 0.0528 0.0464  
 Mars -116140-04-29 13:41 J -40698593.15 -40698592.93 -40698592.69 0.0528 0.0322  
 Venus -116139-07-26 05:46 J -40698140.45 -40698140.26 -40698140.07 0.0525 0.0157  
 Mercury -116135-09-04 20:53 J -40696638.81 -40696638.63 -40696638.45 0.0498 0.0050  
 Venus -116133-05-23 11:46 J -40696012.05 -40696012.01 -40696011.96 0.0499 0.0486  
 Venus -116132-01-15 19:41 J -40695774.80 -40695774.68 -40695774.56 0.0503 0.0411  
 Earth -116130-02-10 06:29 J -40695019.44 -40695019.23 -40695019.00 0.0518 0.0198  
 Moon -116130-02-10 09:51 J -40695019.30 -40695019.09 -40695018.88 0.0518 0.0189 \*  
 Mercury -116129-08-05 12:00 J -40694477.13 -40694477.00 -40694476.88 0.0527 0.0138

Mercury -116129-11-02 20:10 J -40694387.76 -40694387.66 -40694387.56 0.0528 0.0349

Venus -116127-03-31 04:19 J -40693874.43 -40693874.32 -40693874.20 0.0526 0.0424

Mercury -116123-06-23 18:58 J -40692328.88 -40692328.71 -40692328.53 0.0498 0.0094

Mercury -116123-09-22 00:15 J -40692238.53 -40692238.49 -40692238.44 0.0498 0.0480

Mars -116122-04-07 07:12 J -40692041.45 -40692041.20 -40692040.94 0.0498 0.0123

Venus -116121-09-20 13:27 J -40691509.14 -40691508.94 -40691508.74 0.0502 0.0159

Moon -116118-02-15 03:22 J -40690631.57 -40690631.36 -40690631.15 0.0519 0.0251

Earth -116118-02-15 04:48 J -40690631.50 -40690631.30 -40690631.11 0.0519 0.0283 \*

Mercury -116117-05-24 15:07 J -40690166.98 -40690166.87 -40690166.75 0.0527 0.0263

Mercury -116117-08-21 23:31 J -40690077.64 -40690077.52 -40690077.40 0.0527 0.0226

Venus -116115-07-28 17:17 J -40689371.95 -40689371.78 -40689371.61 0.0523 0.0260

Moon -116113-07-28 23:17 J -40688640.57 -40688640.53 -40688640.49 0.0508 0.0500

Mercury -116111-04-11 17:17 J -40688018.93 -40688018.78 -40688018.62 0.0499 0.0235

Mercury -116111-07-10 22:19 J -40687928.70 -40687928.57 -40687928.44 0.0498 0.0336

Venus -116109-05-26 07:27 J -40687243.39 -40687243.19 -40687242.98 0.0501 0.0094

Mercury -116105-03-12 18:15 J -40685856.83 -40685856.74 -40685856.65 0.0526 0.0391

Mercury -116105-06-10 02:53 J -40685767.51 -40685767.38 -40685767.25 0.0527 0.0101

Mars -116104-02-04 07:41 J -40685528.42 -40685528.18 -40685527.94 0.0528 0.0299

Venus -116103-04-02 15:51 J -40685106.03 -40685105.84 -40685105.64 0.0525 0.0014

Moon -116101-08-02 05:46 J -40684253.49 -40684253.26 -40684253.03 0.0508 0.0102

Earth -116101-08-02 08:53 J -40684253.36 -40684253.13 -40684252.90 0.0508 0.0088 \*

Mercury -116099-01-28 16:19 J -40683708.93 -40683708.82 -40683708.70 0.0499 0.0369

Mercury -116099-04-28 20:53 J -40683618.79 -40683618.63 -40683618.47 0.0498 0.0197

Venus -116097-01-30 01:41 J -40682977.58 -40682977.43 -40682977.28 0.0499 0.0340

Mercury -116094-12-30 20:53 J -40681546.64 -40681546.63 -40681546.62 0.0526 0.0525

Mercury -116093-03-29 05:46 J -40681457.39 -40681457.26 -40681457.13 0.0527 0.0030

Mercury -116093-06-26 13:55 J -40681367.99 -40681367.92 -40681367.86 0.0528 0.0454

Venus -116092-12-06 13:27 J -40680840.10 -40680839.94 -40680839.77 0.0526 0.0277

Earth -116089-08-06 21:51 J -40679865.76 -40679865.59 -40679865.42 0.0506 0.0347

Moon -116089-08-06 23:03 J -40679865.70 -40679865.54 -40679865.36 0.0506 0.0322 \*

Mercury -116087-02-14 19:12 J -40679308.88 -40679308.70 -40679308.52 0.0498 0.0054

Venus -116085-05-29 02:53 J -40678474.54 -40678474.38 -40678474.21 0.0502 0.0306

Mercury -116081-01-16 09:22 J -40677147.23 -40677147.11 -40677146.98 0.0527 0.0150

Mercury -116081-04-14 17:46 J -40677057.86 -40677057.76 -40677057.66 0.0528 0.0338

Venus -116079-04-05 04:05 J -40676337.45 -40676337.33 -40676337.21 0.0523 0.0414

Mercury -116076-12-03 16:19 J -40674998.99 -40674998.82 -40674998.65 0.0498 0.0100

Mercury -116075-03-03 21:36 J -40674908.65 -40674908.60 -40674908.55 0.0498 0.0474

Venus -116073-02-01 19:12 J -40674208.91 -40674208.70 -40674208.48 0.0501 0.0051

Mercury -116070-11-04 13:12 J -40672837.06 -40672836.95 -40672836.83 0.0527 0.0267

Mercury -116069-02-01 21:51 J -40672747.71 -40672747.59 -40672747.47 0.0528 0.0223

Venus -116068-12-09 03:51 J -40672071.53 -40672071.34 -40672071.15 0.0524 0.0152

Mercury -116064-09-21 14:39 J -40670689.04 -40670688.89 -40670688.73 0.0499 0.0241

Mercury -116064-12-20 19:27 J -40670598.82 -40670598.69 -40670598.55 0.0498 0.0328

Venus -116062-10-07 13:55 J -40669943.11 -40669942.92 -40669942.73 0.0500 0.0201

Mercury -116058-08-23 16:34 J -40668526.90 -40668526.81 -40668526.72 0.0526 0.0392

Mercury -116058-11-21 01:12 J -40668437.58 -40668437.45 -40668437.32 0.0527 0.0100

Venus -116056-08-14 01:27 J -40667805.63 -40667805.44 -40667805.25 0.0525 0.0120

Mercury -116052-07-10 13:12 J -40666379.06 -40666378.95 -40666378.83 0.0499 0.0380

Mercury -116052-10-08 17:46 J -40666288.92 -40666288.76 -40666288.60 0.0498 0.0186

Venus -116050-06-12 08:53 J -40665677.22 -40665677.13 -40665677.03 0.0500 0.0447

Venus -116049-02-04 17:03 J -40665439.87 -40665439.79 -40665439.70 0.0503 0.0455

Moon -116047-02-09 02:39 J -40664704.59 -40664704.39 -40664704.19 0.0518 0.0288

Earth -116047-02-09 05:17 J -40664704.46 -40664704.28 -40664704.08 0.0518 0.0297 \*

Mercury -116046-06-11 19:27 J -40664216.70 -40664216.69 -40664216.67 0.0526 0.0520

Mercury -116046-09-09 04:34 J -40664127.44 -40664127.31 -40664127.18 0.0527 0.0026

Mercury -116046-12-07 12:29 J -40664038.04 -40664037.98 -40664037.91 0.0528 0.0457

Venus -116044-04-18 23:17 J -40663539.66 -40663539.53 -40663539.40 0.0526 0.0391

Mercury -116040-07-27 16:34 J -40661978.99 -40661978.81 -40661978.64 0.0499 0.0049

Venus -116038-10-10 10:34 J -40661174.25 -40661174.06 -40661173.87 0.0501 0.0202

Earth -116035-02-14 00:00 J -40660316.72 -40660316.50 -40660316.27 0.0519 0.0168

Moon -116035-02-14 00:58 J -40660316.67 -40660316.46 -40660316.24 0.0519 0.0137 \*  
 Mercury -116034-06-28 07:27 J -40659817.32 -40659817.19 -40659817.06 0.0527 0.0156  
 Mercury -116034-09-25 15:51 J -40659727.94 -40659727.84 -40659727.74 0.0528 0.0332  
 Venus -116032-08-16 12:58 J -40659037.12 -40659036.96 -40659036.80 0.0524 0.0301  
 Mercury -116028-05-15 14:53 J -40657669.05 -40657668.88 -40657668.70 0.0499 0.0093  
 Mercury -116028-08-13 20:10 J -40657578.70 -40657578.66 -40657578.61 0.0498 0.0482  
 Venus -116026-06-15 04:19 J -40656908.53 -40656908.32 -40656908.11 0.0500 0.0051  
 Mercury -116022-04-16 11:03 J -40655507.15 -40655507.04 -40655506.93 0.0527 0.0276  
 Mercury -116022-07-14 19:41 J -40655417.80 -40655417.68 -40655417.56 0.0528 0.0215  
 Venus -116020-04-21 12:43 J -40654771.16 -40654770.97 -40654770.77 0.0525 0.0037  
 Earth -116018-08-02 09:07 J -40653938.33 -40653938.12 -40653937.90 0.0507 0.0185  
 Moon -116018-08-02 11:31 J -40653938.22 -40653938.02 -40653937.81 0.0507 0.0198 \*  
 Mercury -116016-03-03 12:15 J -40653359.14 -40653358.99 -40653358.83 0.0499 0.0244  
 Mercury -116016-06-01 17:03 J -40653268.92 -40653268.79 -40653268.65 0.0498 0.0325  
 Venus -116014-02-17 20:53 J -40652642.80 -40652642.63 -40652642.46 0.0500 0.0307  
 Mercury -116010-02-02 14:53 J -40651196.97 -40651196.88 -40651196.79 0.0527 0.0394  
 Mercury -116010-05-02 23:31 J -40651107.65 -40651107.52 -40651107.39 0.0527 0.0100  
 Venus -116009-12-25 12:15 J -40650505.17 -40650504.99 -40650504.81 0.0525 0.0229  
 Moon -116006-08-06 20:39 J -40649550.85 -40649550.64 -40649550.42 0.0506 0.0221  
 Earth -116006-08-06 21:22 J -40649550.80 -40649550.61 -40649550.40 0.0506 0.0249 \*  
 Mercury -116005-12-20 10:48 J -40649049.15 -40649049.05 -40649048.93 0.0499 0.0383  
 Mercury -116004-03-20 15:22 J -40648959.03 -40648958.86 -40648958.70 0.0498 0.0181  
 Mars -116004-09-26 11:46 J -40648769.26 -40648769.01 -40648768.77 0.0498 0.0190  
 Venus -116002-06-17 23:31 J -40648139.67 -40648139.52 -40648139.36 0.0502 0.0349

# 116TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 116th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-115999-11-21 18:00 J	-40646886.76	-40646886.75	-40646886.72	0.0526	0.0518		
Mercury	-115998-02-19 03:07 J	-40646797.50	-40646797.37	-40646797.24	0.0527	0.0022		
Mercury	-115998-05-19 11:03 J	-40646708.10	-40646708.04	-40646707.97	0.0528	0.0461		
Venus	-115997-08-30 09:22 J	-40646239.16	-40646239.11	-40646239.05	0.0526	0.0502		
Venus	-115996-04-24 00:58 J	-40646002.55	-40646002.46	-40646002.36	0.0523	0.0456		
Mercury	-115992-01-06 13:41 J	-40644649.11	-40644648.93	-40644648.76	0.0499	0.0040		
Venus	-115990-02-20 18:00 J	-40643873.96	-40643873.75	-40643873.54	0.0501	0.0096		
Mercury	-115987-12-08 06:29 J	-40642487.36	-40642487.23	-40642487.11	0.0527	0.0148		
Mercury	-115986-03-07 14:39 J	-40642397.99	-40642397.89	-40642397.79	0.0527	0.0339		
Mars	-115986-07-23 23:31 J	-40642259.79	-40642259.52	-40642259.25	0.0528	0.0171		
Venus	-115985-12-27 23:46 J	-40641736.69	-40641736.51	-40641736.32	0.0524	0.0192		
Mercury	-115981-10-25 12:29 J	-40640339.15	-40640338.98	-40640338.80	0.0499	0.0096		
Mercury	-115980-01-23 17:46 J	-40640248.80	-40640248.76	-40640248.71	0.0498	0.0479		
Venus	-115979-10-26 12:43 J	-40639608.17	-40639607.97	-40639607.77	0.0500	0.0153		
Mercury	-115975-09-26 09:22 J	-40638177.22	-40638177.11	-40638177.00	0.0526	0.0278		
Mercury	-115975-12-24 17:46 J	-40638087.88	-40638087.76	-40638087.64	0.0527	0.0213		
Venus	-115973-09-01 22:05 J	-40637470.77	-40637470.58	-40637470.39	0.0525	0.0078		
Mercury	-115969-08-13 11:17 J	-40636029.18	-40636029.03	-40636028.88	0.0499	0.0233		
Mercury	-115969-11-11 16:05 J	-40635938.96	-40635938.83	-40635938.70	0.0498	0.0337		
Mars	-115968-06-30 23:03 J	-40635707.76	-40635707.54	-40635707.31	0.0497	0.0255		
Venus	-115967-07-01 07:27 J	-40635342.31	-40635342.19	-40635342.06	0.0499	0.0402		

Venus -115966-02-23 15:07 J -40635104.87 -40635104.87 -40635104.86 0.0502 0.0502  
 Earth -115964-02-08 04:48 J -40634389.44 -40634389.30 -40634389.14 0.0517 0.0395  
 Moon -115964-02-08 06:58 J -40634389.36 -40634389.21 -40634389.06 0.0517 0.0388 \*  
 Mercury -115963-07-15 12:58 J -40633867.05 -40633866.96 -40633866.88 0.0526 0.0399  
 Mercury -115963-10-12 21:36 J -40633777.73 -40633777.60 -40633777.47 0.0527 0.0096  
 Venus -115961-05-07 21:22 J -40633204.76 -40633204.61 -40633204.46 0.0526 0.0344  
 Mercury -115957-06-01 08:53 J -40631719.24 -40631719.13 -40631719.02 0.0499 0.0382  
 Mercury -115957-08-30 13:12 J -40631629.12 -40631628.95 -40631628.79 0.0498 0.0181  
 Venus -115955-10-29 06:58 J -40630839.40 -40630839.21 -40630839.03 0.0502 0.0243  
 Moon -115952-02-13 04:05 J -40630001.57 -40630001.33 -40630001.09 0.0519 0.0055  
 Earth -115952-02-13 04:05 J -40630001.56 -40630001.33 -40630001.09 0.0519 0.0088 \*  
 Mercury -115951-05-03 16:34 J -40629556.83 -40629556.81 -40629556.78 0.0526 0.0517  
 Mercury -115951-08-01 01:41 J -40629467.56 -40629467.43 -40629467.30 0.0527 0.0020  
 Mercury -115951-10-29 09:51 J -40629378.15 -40629378.09 -40629378.03 0.0528 0.0464  
 Mars -115950-05-01 03:51 J -40629194.45 -40629194.34 -40629194.21 0.0528 0.0480  
 Venus -115949-09-04 13:12 J -40628702.09 -40628701.95 -40628701.81 0.0523 0.0354  
 Mercury -115945-06-18 11:31 J -40627319.19 -40627319.02 -40627318.84 0.0498 0.0041  
 Venus -115943-07-04 01:27 J -40626573.65 -40626573.44 -40626573.23 0.0501 0.0010  
 Mercury -115939-05-20 05:17 J -40625157.41 -40625157.28 -40625157.15 0.0527 0.0141  
 Mercury -115939-08-17 13:27 J -40625068.03 -40625067.94 -40625067.84 0.0527 0.0346  
 Venus -115937-05-10 11:46 J -40624436.20 -40624436.01 -40624435.82 0.0524 0.0086  
 Moon -115935-08-01 11:46 J -40623623.20 -40623623.01 -40623622.80 0.0508 0.0274  
 Earth -115935-08-01 13:41 J -40623623.13 -40623622.93 -40623622.73 0.0508 0.0261 \*  
 Mercury -115933-04-06 10:05 J -40623009.25 -40623009.08 -40623008.90 0.0499 0.0099  
 Mercury -115933-07-05 15:22 J -40622918.91 -40622918.86 -40622918.81 0.0498 0.0476  
 Venus -115931-03-08 20:53 J -40622307.81 -40622307.63 -40622307.45 0.0500 0.0259  
 Mercury -115927-03-08 08:39 J -40620847.26 -40620847.14 -40620847.03 0.0526 0.0265  
 Mercury -115927-06-05 17:03 J -40620757.91 -40620757.79 -40620757.67 0.0527 0.0224  
 Venus -115925-01-14 10:05 J -40620170.27 -40620170.08 -40620169.90 0.0525 0.0185  
 Moon -115923-08-06 02:10 J -40619235.62 -40619235.41 -40619235.19 0.0507 0.0151

Earth -115923-08-06 02:39 J -40619235.61 -40619235.39 -40619235.17 0.0507 0.0175 \*  
 Mercury -115921-01-24 09:07 J -40618699.27 -40618699.12 -40618698.96 0.0499 0.0233  
 Mercury -115921-04-23 13:55 J -40618609.04 -40618608.92 -40618608.78 0.0498 0.0338  
 Venus -115919-07-07 00:00 J -40617804.62 -40617804.50 -40617804.37 0.0502 0.0403  
 Mercury -115916-12-25 11:31 J -40616537.11 -40616537.02 -40616536.93 0.0526 0.0395  
 Mercury -115915-03-24 20:24 J -40616447.78 -40616447.65 -40616447.52 0.0527 0.0099  
 Venus -115914-09-19 07:27 J -40615904.28 -40615904.19 -40615904.09 0.0526 0.0458  
 Venus -115913-05-12 23:17 J -40615667.57 -40615667.53 -40615667.48 0.0523 0.0505  
 Mercury -115910-11-12 08:10 J -40614389.27 -40614389.16 -40614389.04 0.0499 0.0368  
 Mercury -115909-02-10 12:29 J -40614299.14 -40614298.98 -40614298.81 0.0498 0.0198  
 Venus -115907-03-11 18:00 J -40613538.95 -40613538.75 -40613538.55 0.0501 0.0148  
 Mercury -115904-10-13 15:07 J -40612226.89 -40612226.87 -40612226.85 0.0526 0.0516  
 Mercury -115903-01-11 00:00 J -40612137.63 -40612137.50 -40612137.36 0.0527 0.0024  
 Mercury -115903-04-10 08:10 J -40612048.22 -40612048.16 -40612048.10 0.0528 0.0463  
 Venus -115901-01-16 23:46 J -40611401.68 -40611401.51 -40611401.33 0.0524 0.0246  
 Mercury -115898-11-29 09:51 J -40609989.26 -40609989.09 -40609988.91 0.0498 0.0046  
 Venus -115896-11-14 10:05 J -40609273.29 -40609273.08 -40609272.88 0.0501 0.0113  
 Mercury -115892-10-30 04:05 J -40607827.46 -40607827.33 -40607827.20 0.0527 0.0136  
 Mercury -115891-01-27 12:29 J -40607738.08 -40607737.98 -40607737.89 0.0528 0.0352  
 Venus -115890-09-22 00:29 J -40607135.68 -40607135.48 -40607135.28 0.0525 0.0018  
 Mercury -115886-09-17 08:39 J -40605679.32 -40605679.14 -40605678.97 0.0498 0.0094  
 Mercury -115886-12-16 13:41 J -40605588.97 -40605588.93 -40605588.88 0.0498 0.0479  
 Mars -115885-03-18 01:27 J -40605496.48 -40605496.44 -40605496.38 0.0498 0.0488  
 Venus -115884-07-20 05:17 J -40605007.42 -40605007.28 -40605007.13 0.0500 0.0362  
 Moon -115881-02-08 11:03 J -40604074.15 -40604074.04 -40604073.92 0.0518 0.0455  
 Earth -115881-02-08 12:15 J -40604074.09 -40604073.99 -40604073.88 0.0518 0.0460 \*  
 Mercury -115880-08-18 07:41 J -40603517.30 -40603517.18 -40603517.06 0.0527 0.0255  
 Mercury -115880-11-15 16:05 J -40603427.94 -40603427.83 -40603427.71 0.0527 0.0236  
 Venus -115878-05-27 22:34 J -40602869.72 -40602869.56 -40602869.39 0.0525 0.0290  
 Mercury -115874-07-06 07:12 J -40601369.35 -40601369.20 -40601369.04 0.0499 0.0231

Mercury -115874-10-04 12:00 J -40601279.13 -40601279.00 -40601278.87 0.0498 0.0339

Venus -115872-11-17 08:39 J -40600504.30 -40600504.14 -40600503.96 0.0502 0.0300

Moon -115869-02-13 11:17 J -40599686.26 -40599686.03 -40599685.81 0.0519 0.0010

Earth -115869-02-13 11:46 J -40599686.24 -40599686.01 -40599685.77 0.0519 0.0026 \*

Mercury -115868-06-06 11:03 J -40599207.13 -40599207.04 -40599206.95 0.0526 0.0379

Mercury -115868-09-03 19:41 J -40599117.80 -40599117.68 -40599117.55 0.0527 0.0115

Venus -115866-09-24 12:29 J -40598367.10 -40598366.98 -40598366.85 0.0523 0.0404

Mercury -115862-04-24 06:29 J -40597059.35 -40597059.23 -40597059.11 0.0499 0.0363

Mercury -115862-07-23 10:48 J -40596969.21 -40596969.05 -40596968.88 0.0499 0.0203

Venus -115860-07-23 03:51 J -40596238.56 -40596238.34 -40596238.13 0.0501 0.0050

Earth -115857-02-18 08:39 J -40595298.21 -40595298.14 -40595298.07 0.0519 0.0496

Moon -115857-02-18 10:34 J -40595298.13 -40595298.06 -40595297.96 0.0519 0.0486 \*

Mercury -115856-03-25 13:55 J -40594896.95 -40594896.92 -40594896.89 0.0526 0.0508

Mercury -115856-06-22 23:03 J -40594807.67 -40594807.54 -40594807.41 0.0527 0.0015

Mercury -115856-09-20 06:58 J -40594718.26 -40594718.21 -40594718.15 0.0528 0.0470

Venus -115854-05-30 11:17 J -40594101.22 -40594101.03 -40594100.84 0.0524 0.0138

Earth -115852-07-31 23:17 J -40593307.71 -40593307.53 -40593307.35 0.0508 0.0320

Moon -115852-07-31 23:31 J -40593307.68 -40593307.52 -40593307.35 0.0508 0.0337 \*

Mercury -115850-02-10 05:46 J -40592749.28 -40592749.26 -40592749.25 0.0499 0.0496

Mercury -115850-05-11 09:36 J -40592659.28 -40592659.10 -40592658.92 0.0499 0.0064

Mars -115850-12-21 17:31 J -40592435.03 -40592434.77 -40592434.51 0.0498 0.0032

Venus -115848-03-27 22:34 J -40591972.75 -40591972.56 -40591972.36 0.0500 0.0204

Mercury -115844-04-11 02:39 J -40590497.51 -40590497.39 -40590497.26 0.0527 0.0133

Mercury -115844-07-09 11:03 J -40590408.13 -40590408.04 -40590407.94 0.0528 0.0355

Venus -115842-02-02 11:31 J -40589835.21 -40589835.02 -40589834.83 0.0525 0.0128

Earth -115840-08-05 11:17 J -40588920.25 -40588920.03 -40588919.80 0.0507 0.0114

Moon -115840-08-05 12:58 J -40588920.19 -40588919.96 -40588919.72 0.0507 0.0091 \*

Mercury -115838-02-27 07:12 J -40588349.37 -40588349.20 -40588349.02 0.0498 0.0085

Mercury -115838-05-28 12:15 J -40588259.02 -40588258.99 -40588258.95 0.0498 0.0488

Venus -115837-11-30 15:07 J -40587706.95 -40587706.87 -40587706.79 0.0499 0.0461



Venus -115836-07-25 22:34 J -40587469.65 -40587469.56 -40587469.46 0.0503 0.0450  
 Mercury -115832-01-28 06:29 J -40586187.34 -40586187.23 -40586187.11 0.0527 0.0249  
 Mercury -115832-04-27 15:07 J -40586097.98 -40586097.87 -40586097.75 0.0528 0.0244  
 Mars -115832-10-17 19:12 J -40585924.99 -40585924.70 -40585924.42 0.0528 0.0052  
 Venus -115831-10-08 11:46 J -40585569.14 -40585569.01 -40585568.88 0.0526 0.0394  
 Mercury -115827-12-16 06:00 J -40584039.40 -40584039.25 -40584039.09 0.0498 0.0222  
 Mercury -115826-03-16 10:48 J -40583949.18 -40583949.05 -40583948.92 0.0498 0.0347  
 Venus -115824-03-30 17:17 J -40583203.97 -40583203.78 -40583203.58 0.0502 0.0197  
 Mercury -115821-11-16 10:19 J -40581877.17 -40581877.07 -40581876.98 0.0527 0.0367  
 Mercury -115820-02-13 18:58 J -40581787.83 -40581787.71 -40581787.58 0.0527 0.0128  
 Venus -115818-02-05 02:10 J -40581066.56 -40581066.41 -40581066.24 0.0523 0.0307  
 Mercury -115815-10-04 05:03 J -40579729.41 -40579729.29 -40579729.17 0.0499 0.0357  
 Mercury -115814-01-02 09:22 J -40579639.27 -40579639.11 -40579638.95 0.0498 0.0208  
 Mars -115814-09-24 22:48 J -40579373.70 -40579373.55 -40579373.39 0.0498 0.0400  
 Venus -115813-12-03 13:12 J -40578938.16 -40578937.95 -40578937.74 0.0501 0.0055  
 Mercury -115809-09-04 13:41 J -40577566.98 -40577566.93 -40577566.88 0.0526 0.0490  
 Mercury -115809-12-02 22:34 J -40577477.69 -40577477.56 -40577477.42 0.0527 0.0020  
 Mercury -115808-03-02 06:43 J -40577388.27 -40577388.22 -40577388.17 0.0528 0.0488  
 Venus -115807-10-11 01:27 J -40576800.64 -40576800.44 -40576800.24 0.0524 0.0037  
 Mercury -115803-07-23 04:19 J -40575419.35 -40575419.32 -40575419.28 0.0499 0.0488  
 Mercury -115803-10-21 08:10 J -40575329.33 -40575329.16 -40575328.98 0.0499 0.0073  
 Venus -115801-08-08 08:53 J -40574672.29 -40574672.13 -40574671.95 0.0500 0.0302  
 Mercury -115797-09-21 01:55 J -40573167.55 -40573167.42 -40573167.29 0.0527 0.0121  
 Mercury -115797-12-19 10:05 J -40573078.17 -40573078.08 -40573077.98 0.0527 0.0366  
 Venus -115795-06-15 23:17 J -40572534.70 -40572534.53 -40572534.35 0.0526 0.0236  
 Mercury -115791-08-09 07:12 J -40571019.38 -40571019.20 -40571019.03 0.0499 0.0064  
 Venus -115789-12-06 11:31 J -40570169.16 -40570169.02 -40570168.87 0.0502 0.0360  
 Earth -115786-02-12 19:12 J -40569370.94 -40569370.70 -40569370.47 0.0518 0.0042  
 Moon -115786-02-12 20:39 J -40569370.88 -40569370.64 -40569370.40 0.0518 0.0073 \*  
 Mercury -115785-07-10 05:31 J -40568857.39 -40568857.27 -40568857.15 0.0527 0.0240

Mercury -115785-10-07 14:10 J -40568768.03 -40568767.91 -40568767.80 0.0528 0.0250

Venus -115783-02-18 22:48 J -40568268.59 -40568268.55 -40568268.49 0.0526 0.0505

Venus -115783-10-13 15:07 J -40568031.95 -40568031.87 -40568031.78 0.0523 0.0467

Mercury -115779-05-28 05:03 J -40566709.44 -40566709.29 -40566709.13 0.0498 0.0210

Mercury -115779-08-26 09:51 J -40566619.21 -40566619.09 -40566618.97 0.0498 0.0359

Venus -115777-08-11 03:07 J -40565903.58 -40565903.37 -40565903.16 0.0501 0.0096

Moon -115774-02-17 14:10 J -40564983.03 -40564982.91 -40564982.78 0.0520 0.0428

Earth -115774-02-17 17:03 J -40564982.91 -40564982.79 -40564982.66 0.0520 0.0437 \*

Mercury -115773-04-28 09:22 J -40564547.21 -40564547.11 -40564547.01 0.0527 0.0358

Mercury -115773-07-26 18:15 J -40564457.87 -40564457.74 -40564457.62 0.0528 0.0137

Venus -115771-06-18 16:34 J -40563765.99 -40563765.81 -40563765.63 0.0524 0.0207

Earth -115769-07-31 11:31 J -40562992.18 -40562992.02 -40562991.86 0.0508 0.0364

Moon -115769-07-31 12:29 J -40562992.14 -40562991.98 -40562991.83 0.0508 0.0384 \*

Mercury -115767-03-16 04:05 J -40562399.45 -40562399.33 -40562399.20 0.0499 0.0344

Mercury -115767-06-14 08:24 J -40562309.31 -40562309.15 -40562308.99 0.0498 0.0220

Venus -115765-04-15 22:34 J -40561637.76 -40561637.56 -40561637.36 0.0500 0.0156

Mercury -115761-02-15 12:58 J -40560237.01 -40560236.96 -40560236.90 0.0527 0.0477

Mercury -115761-05-14 22:05 J -40560147.71 -40560147.58 -40560147.45 0.0527 0.0021

Mercury -115761-08-12 06:00 J -40560058.28 -40560058.25 -40560058.21 0.0528 0.0503

Venus -115759-02-21 15:36 J -40559500.05 -40559499.85 -40559499.66 0.0525 0.0063

Moon -115757-08-04 20:39 J -40558604.87 -40558604.64 -40558604.42 0.0507 0.0044

Earth -115757-08-04 23:03 J -40558604.77 -40558604.54 -40558604.31 0.0507 0.0066 \*

Mercury -115755-01-02 03:07 J -40558089.41 -40558089.37 -40558089.32 0.0499 0.0477

Mercury -115755-04-02 06:58 J -40557999.38 -40557999.21 -40557999.03 0.0498 0.0082

Venus -115754-12-20 18:43 J -40557371.83 -40557371.72 -40557371.59 0.0500 0.0403

Mercury -115749-03-03 01:41 J -40555837.56 -40555837.43 -40555837.30 0.0527 0.0101

Mercury -115749-05-31 09:51 J -40555748.17 -40555748.09 -40555748.00 0.0528 0.0386

Venus -115748-10-27 13:55 J -40555234.07 -40555233.92 -40555233.77 0.0526 0.0336

Earth -115745-08-09 11:31 J -40554217.04 -40554217.02 -40554216.97 0.0506 0.0500

Mercury -115743-01-19 06:00 J -40553689.42 -40553689.25 -40553689.07 0.0499 0.0053

Venus -115741-04-18 22:05 J -40552868.76 -40552868.58 -40552868.40 0.0502 0.0262  
 Mercury -115738-12-21 04:48 J -40551527.42 -40551527.30 -40551527.18 0.0527 0.0227  
 Mercury -115737-03-19 13:27 J -40551438.06 -40551437.94 -40551437.83 0.0527 0.0263  
 Venus -115735-02-24 03:51 J -40550731.47 -40550731.34 -40550731.19 0.0524 0.0365  
 Mercury -115732-11-07 05:03 J -40549379.45 -40549379.29 -40549379.13 0.0499 0.0188  
 Mercury -115731-02-05 09:51 J -40549289.20 -40549289.09 -40549288.98 0.0498 0.0382  
 Mars -115731-06-12 20:53 J -40549161.84 -40549161.63 -40549161.43 0.0498 0.0305  
 Venus -115730-12-23 16:34 J -40548603.02 -40548602.81 -40548602.60 0.0501 0.0010  
 Mercury -115726-10-09 08:24 J -40547217.25 -40547217.15 -40547217.05 0.0527 0.0347  
 Mercury -115725-01-06 17:17 J -40547127.91 -40547127.78 -40547127.66 0.0527 0.0146  
 Venus -115724-10-30 04:48 J -40546465.49 -40546465.30 -40546465.11 0.0525 0.0101  
 Mercury -115720-08-26 03:22 J -40545069.49 -40545069.36 -40545069.23 0.0498 0.0329  
 Mercury -115720-11-24 07:27 J -40544979.34 -40544979.19 -40544979.03 0.0498 0.0234  
 Venus -115718-08-28 08:53 J -40544337.31 -40544337.13 -40544336.95 0.0500 0.0254  
 Mercury -115714-07-28 12:00 J -40542907.06 -40542907.00 -40542906.94 0.0527 0.0468  
 Mercury -115714-10-25 21:07 J -40542817.75 -40542817.62 -40542817.49 0.0528 0.0030  
 Mercury -115713-01-23 05:17 J -40542728.31 -40542728.28 -40542728.25 0.0528 0.0514  
 Mars -115713-04-05 23:31 J -40542654.73 -40542654.52 -40542654.30 0.0529 0.0351  
 Venus -115712-07-05 05:17 J -40542199.47 -40542199.28 -40542199.09 0.0526 0.0165  
 Mercury -115708-06-14 02:24 J -40540759.45 -40540759.40 -40540759.33 0.0499 0.0462  
 Mercury -115708-09-12 06:15 J -40540669.41 -40540669.24 -40540669.06 0.0498 0.0096  
 Venus -115706-12-26 12:00 J -40539834.12 -40539834.00 -40539833.88 0.0502 0.0412  
 Moon -115703-02-12 02:53 J -40539055.60 -40539055.38 -40539055.15 0.0519 0.0127  
 Earth -115703-02-12 05:03 J -40539055.52 -40539055.29 -40539055.05 0.0519 0.0094 \*  
 Mercury -115702-08-14 00:58 J -40538507.59 -40538507.46 -40538507.33 0.0527 0.0087  
 Mercury -115702-11-11 09:22 J -40538418.20 -40538418.11 -40538418.03 0.0528 0.0400  
 Venus -115700-03-10 03:36 J -40537933.45 -40537933.35 -40537933.23 0.0526 0.0438  
 Mercury -115696-07-01 05:03 J -40536359.47 -40536359.29 -40536359.12 0.0498 0.0042  
 Mars -115695-03-17 04:19 J -40536100.57 -40536100.32 -40536100.06 0.0497 0.0137  
 Venus -115694-08-31 07:41 J -40535568.38 -40535568.18 -40535567.98 0.0502 0.0161

Earth -115691-02-17 06:00 J -40534667.40 -40534667.25 -40534667.10 0.0520 0.0396  
 Moon -115691-02-17 09:36 J -40534667.25 -40534667.10 -40534666.94 0.0520 0.0395 \*  
 Mercury -115690-06-02 04:34 J -40534197.43 -40534197.31 -40534197.19 0.0527 0.0207  
 Mercury -115690-08-30 13:12 J -40534108.06 -40534107.95 -40534107.84 0.0528 0.0283  
 Venus -115688-07-07 18:58 J -40533430.88 -40533430.71 -40533430.55 0.0524 0.0268  
 Moon -115686-07-31 20:39 J -40532676.74 -40532676.64 -40532676.52 0.0508 0.0439  
 Earth -115686-07-31 22:48 J -40532676.68 -40532676.55 -40532676.41 0.0508 0.0412 \*  
 Mercury -115684-04-19 04:05 J -40532049.50 -40532049.33 -40532049.17 0.0499 0.0176  
 Mercury -115684-07-18 08:39 J -40531959.24 -40531959.14 -40531959.03 0.0498 0.0394  
 Venus -115682-05-06 03:22 J -40531302.57 -40531302.36 -40531302.15 0.0501 0.0091  
 Mercury -115678-03-21 07:41 J -40529887.28 -40529887.18 -40529887.08 0.0527 0.0334  
 Mercury -115678-06-18 16:34 J -40529797.94 -40529797.81 -40529797.69 0.0527 0.0159  
 Mars -115677-01-12 23:03 J -40529589.77 -40529589.54 -40529589.30 0.0528 0.0296  
 Venus -115676-03-12 17:17 J -40529164.98 -40529164.78 -40529164.58 0.0525 0.0005  
 Earth -115674-08-05 11:46 J -40528289.24 -40528289.01 -40528288.77 0.0507 0.0025  
 Moon -115674-08-05 15:22 J -40528289.10 -40528288.86 -40528288.63 0.0507 0.0007 \*  
 Mercury -115672-02-05 03:07 J -40527739.50 -40527739.37 -40527739.23 0.0499 0.0310  
 Mercury -115672-05-06 07:27 J -40527649.34 -40527649.19 -40527649.04 0.0498 0.0256  
 Venus -115670-01-08 22:34 J -40527036.71 -40527036.56 -40527036.40 0.0500 0.0343  
 Mercury -115666-01-07 11:17 J -40525577.10 -40525577.03 -40525576.97 0.0527 0.0455  
 Mercury -115666-04-06 20:10 J -40525487.79 -40525487.66 -40525487.52 0.0527 0.0045  
 Mercury -115666-07-05 04:19 J -40525398.33 -40525398.32 -40525398.30 0.0528 0.0523  
 Venus -115665-11-15 17:03 J -40524898.95 -40524898.79 -40524898.62 0.0526 0.0274  
 Moon -115662-08-09 21:36 J -40523901.66 -40523901.60 -40523901.52 0.0506 0.0478  
 Earth -115662-08-10 01:41 J -40523901.52 -40523901.43 -40523901.34 0.0506 0.0460 \*  
 Mercury -115661-11-24 01:41 J -40523429.50 -40523429.43 -40523429.35 0.0499 0.0447  
 Mercury -115660-02-22 05:31 J -40523339.44 -40523339.27 -40523339.10 0.0498 0.0111  
 Venus -115658-05-08 21:51 J -40522533.75 -40522533.59 -40522533.42 0.0502 0.0313  
 Mercury -115654-01-24 00:00 J -40521177.63 -40521177.50 -40521177.37 0.0528 0.0078  
 Mercury -115654-04-23 08:24 J -40521088.23 -40521088.15 -40521088.07 0.0528 0.0410

Venus -115652-03-15 09:51 J -40520396.20 -40520396.09 -40520395.99 0.0523 0.0437  
 Mercury -115649-12-11 04:19 J -40519029.49 -40519029.32 -40519029.14 0.0498 0.0027  
 Venus -115646-01-11 16:48 J -40518268.01 -40518267.80 -40518267.59 0.0501 0.0058  
 Mercury -115643-11-12 03:51 J -40516867.47 -40516867.34 -40516867.22 0.0527 0.0196  
 Mercury -115642-02-09 12:15 J -40516778.09 -40516777.99 -40516777.88 0.0528 0.0296  
 Venus -115641-11-18 09:07 J -40516130.31 -40516130.12 -40516129.93 0.0524 0.0170  
 Mercury -115637-09-29 03:07 J -40514719.54 -40514719.37 -40514719.21 0.0498 0.0164  
 Mercury -115637-12-28 07:41 J -40514629.28 -40514629.18 -40514629.08 0.0498 0.0405  
 Venus -115635-09-16 12:58 J -40514002.15 -40514001.96 -40514001.76 0.0500 0.0193  
 Mercury -115631-08-31 07:27 J -40512557.30 -40512557.19 -40512557.09 0.0527 0.0316  
 Mercury -115631-11-28 16:05 J -40512467.95 -40512467.83 -40512467.70 0.0528 0.0178  
 Venus -115629-07-24 07:41 J -40511864.37 -40511864.18 -40511863.98 0.0525 0.0104  
 Mercury -115625-07-18 02:10 J -40510409.55 -40510409.41 -40510409.27 0.0499 0.0298  
 Mercury -115625-10-16 06:29 J -40510319.38 -40510319.23 -40510319.08 0.0498 0.0267  
 Venus -115623-05-22 09:22 J -40509736.21 -40509736.11 -40509736.01 0.0499 0.0440  
 Venus -115622-01-14 16:48 J -40509498.86 -40509498.80 -40509498.74 0.0503 0.0479  
 Earth -115620-02-11 15:07 J -40508740.09 -40508739.87 -40508739.64 0.0518 0.0147  
 Moon -115620-02-11 18:15 J -40508739.96 -40508739.74 -40508739.51 0.0518 0.0177 \*  
 Mercury -115619-06-19 10:19 J -40508247.13 -40508247.07 -40508246.99 0.0527 0.0444  
 Mercury -115619-09-16 19:27 J -40508157.82 -40508157.69 -40508157.56 0.0527 0.0053  
 Venus -115617-03-29 05:17 J -40507598.41 -40507598.28 -40507598.14 0.0526 0.0382  
 Mercury -115613-05-06 01:27 J -40506099.53 -40506099.44 -40506099.36 0.0499 0.0430  
 Mercury -115613-08-04 05:03 J -40506009.46 -40506009.29 -40506009.11 0.0498 0.0131  
 Venus -115611-09-19 11:03 J -40505233.22 -40505233.04 -40505232.85 0.0501 0.0222  
 Moon -115608-02-16 10:19 J -40504352.24 -40504352.07 -40504351.89 0.0519 0.0334  
 Earth -115608-02-16 14:10 J -40504352.08 -40504351.91 -40504351.73 0.0519 0.0335 \*  
 Mercury -115607-07-05 23:03 J -40503847.67 -40503847.54 -40503847.41 0.0527 0.0068  
 Mercury -115607-10-03 07:27 J -40503758.27 -40503758.19 -40503758.11 0.0528 0.0419  
 Venus -115605-07-26 21:51 J -40503095.74 -40503095.59 -40503095.44 0.0524 0.0331  
 Earth -115603-07-31 12:43 J -40502361.07 -40502360.97 -40502360.86 0.0508 0.0450

Moon -115603-07-31 15:51 J -40502360.91 -40502360.84 -40502360.75 0.0508 0.0477 \*  
 Mercury -115601-05-23 03:36 J -40501699.53 -40501699.35 -40501699.18 0.0498 0.0017  
 Venus -115599-05-25 03:07 J -40500967.58 -40500967.37 -40500967.16 0.0500 0.0043  
 Mercury -115595-04-24 02:39 J -40499537.52 -40499537.39 -40499537.27 0.0528 0.0190  
 Mercury -115595-07-22 11:17 J -40499448.14 -40499448.03 -40499447.93 0.0529 0.0303  
 Venus -115593-03-31 22:19 J -40498829.76 -40498829.57 -40498829.37 0.0525 0.0067  
 Moon -115591-08-04 22:48 J -40497973.78 -40497973.55 -40497973.32 0.0507 0.0033  
 Earth -115591-08-05 02:39 J -40497973.62 -40497973.39 -40497973.16 0.0507 0.0011 \*  
 Mercury -115589-03-11 02:24 J -40497389.57 -40497389.40 -40497389.23 0.0498 0.0148  
 Mercury -115589-06-09 06:58 J -40497299.30 -40497299.21 -40497299.12 0.0497 0.0420  
 Venus -115587-01-27 22:34 J -40496701.73 -40496701.56 -40496701.39 0.0499 0.0294  
 Mercury -115583-02-10 06:15 J -40495227.35 -40495227.24 -40495227.13 0.0527 0.0308  
 Mercury -115583-05-10 15:07 J -40495137.99 -40495137.87 -40495137.75 0.0528 0.0187  
 Venus -115582-12-05 20:53 J -40494563.80 -40494563.63 -40494563.44 0.0526 0.0208  
 Earth -115579-08-09 13:12 J -40493586.08 -40493585.95 -40493585.82 0.0506 0.0414  
 Moon -115579-08-09 17:03 J -40493585.90 -40493585.79 -40493585.67 0.0506 0.0436 \*  
 Mercury -115578-12-29 00:58 J -40493079.60 -40493079.46 -40493079.31 0.0498 0.0286  
 Mercury -115577-03-28 05:17 J -40492989.43 -40492989.28 -40492989.13 0.0498 0.0278  
 Mars -115577-09-06 08:39 J -40492827.39 -40492827.14 -40492826.88 0.0497 0.0129  
 Venus -115575-05-28 01:41 J -40492198.57 -40492198.43 -40492198.29 0.0502 0.0376  
 Mercury -115572-11-29 09:51 J -40490917.17 -40490917.09 -40490917.01 0.0527 0.0428  
 Mercury -115571-02-26 18:58 J -40490827.84 -40490827.71 -40490827.58 0.0528 0.0069  
 Venus -115570-08-10 18:58 J -40490297.79 -40490297.71 -40490297.64 0.0526 0.0484  
 Venus -115569-04-03 11:17 J -40490061.09 -40490061.03 -40490060.97 0.0523 0.0495  
 Mercury -115566-10-17 00:15 J -40488769.59 -40488769.49 -40488769.40 0.0499 0.0420  
 Mercury -115565-01-15 03:51 J -40488679.51 -40488679.34 -40488679.17 0.0498 0.0139  
 Venus -115563-01-30 20:39 J -40487932.84 -40487932.64 -40487932.43 0.0501 0.0122  
 Mercury -115560-12-15 22:05 J -40486517.71 -40486517.58 -40486517.45 0.0527 0.0058  
 Mercury -115559-03-15 06:29 J -40486428.30 -40486428.23 -40486428.16 0.0528 0.0429  
 Mars -115559-07-02 01:12 J -40486319.73 -40486319.45 -40486319.17 0.0528 0.0110

Venus -115558-12-08 09:36 J -40485795.27 -40485795.10 -40485794.92 0.0524 0.0225  
 Mercury -115554-11-03 02:39 J -40484369.56 -40484369.39 -40484369.21 0.0498 0.0011  
 Venus -115552-10-05 15:51 J -40483667.04 -40483666.84 -40483666.64 0.0500 0.0134  
 Mercury -115548-10-04 01:41 J -40482207.56 -40482207.43 -40482207.31 0.0527 0.0179  
 Mercury -115547-01-01 10:19 J -40482118.18 -40482118.07 -40482117.97 0.0528 0.0311  
 Venus -115546-08-13 09:22 J -40481529.30 -40481529.11 -40481528.91 0.0525 0.0047  
 Mercury -115542-08-22 01:12 J -40480059.61 -40480059.45 -40480059.28 0.0498 0.0137  
 Mercury -115542-11-20 05:46 J -40479969.34 -40479969.26 -40479969.17 0.0497 0.0431  
 Mars -115541-06-10 18:15 J -40479765.94 -40479765.74 -40479765.54 0.0497 0.0316  
 Venus -115540-06-10 08:39 J -40479401.26 -40479401.14 -40479401.01 0.0499 0.0392  
 Moon -115537-02-11 14:24 J -40478425.10 -40478424.90 -40478424.70 0.0518 0.0260  
 Earth -115537-02-11 17:46 J -40478424.97 -40478424.76 -40478424.54 0.0518 0.0227 \*  
 Mercury -115536-07-23 04:48 J -40477897.41 -40477897.30 -40477897.19 0.0528 0.0305  
 Mercury -115536-10-20 13:41 J -40477808.05 -40477807.93 -40477807.80 0.0529 0.0191  
 Venus -115534-04-18 08:53 J -40477263.29 -40477263.13 -40477262.98 0.0527 0.0318  
 Mercury -115530-06-10 00:15 J -40475749.63 -40475749.49 -40475749.34 0.0498 0.0272  
 Mercury -115530-09-08 04:19 J -40475659.46 -40475659.32 -40475659.17 0.0497 0.0291  
 Venus -115528-10-08 10:05 J -40474898.26 -40474898.08 -40474897.90 0.0501 0.0271  
 Earth -115525-02-16 18:43 J -40474036.92 -40474036.72 -40474036.51 0.0520 0.0263  
 Moon -115525-02-16 22:19 J -40474036.76 -40474036.57 -40474036.37 0.0520 0.0271 \*  
 Mercury -115524-05-11 08:24 J -40473587.22 -40473587.15 -40473587.07 0.0527 0.0425  
 Mercury -115524-08-08 17:31 J -40473497.90 -40473497.77 -40473497.64 0.0528 0.0075  
 Venus -115522-08-16 00:00 J -40472760.62 -40472760.50 -40472760.36 0.0524 0.0395  
 Earth -115520-07-30 22:48 J -40472045.57 -40472045.55 -40472045.51 0.0508 0.0504  
 Mercury -115518-03-28 22:48 J -40471439.64 -40471439.55 -40471439.45 0.0498 0.0410  
 Mercury -115518-06-27 02:39 J -40471349.56 -40471349.39 -40471349.22 0.0498 0.0148  
 Venus -115516-06-13 05:17 J -40470632.49 -40470632.28 -40470632.07 0.0501 0.0018  
 Mercury -115512-05-27 21:22 J -40469187.75 -40469187.61 -40469187.48 0.0528 0.0047  
 Mercury -115512-08-25 05:31 J -40469098.33 -40469098.27 -40469098.19 0.0528 0.0441  
 Venus -115510-04-20 23:03 J -40468494.73 -40468494.54 -40468494.35 0.0525 0.0123

Earth -115508-08-04 10:05 J -40467658.31 -40467658.08 -40467657.85 0.0507 0.0075  
 Moon -115508-08-04 13:55 J -40467658.14 -40467657.92 -40467657.69 0.0507 0.0093 \*  
 Mercury -115506-04-15 01:12 J -40467039.63 -40467039.45 -40467039.27 0.0498 0.0009  
 Venus -115504-02-16 00:58 J -40466366.64 -40466366.46 -40466366.27 0.0500 0.0236  
 Mercury -115500-03-16 00:29 J -40464877.61 -40464877.48 -40464877.36 0.0527 0.0173  
 Mercury -115500-06-13 08:53 J -40464788.23 -40464788.13 -40464788.02 0.0528 0.0318  
 Venus -115499-12-24 20:24 J -40464228.84 -40464228.65 -40464228.46 0.0526 0.0157  
 Moon -115496-08-08 18:15 J -40463270.90 -40463270.74 -40463270.59 0.0506 0.0373  
 Earth -115496-08-08 21:36 J -40463270.75 -40463270.60 -40463270.43 0.0506 0.0356 \*  
 Mercury -115494-02-01 00:00 J -40462729.67 -40462729.50 -40462729.33 0.0498 0.0128  
 Mercury -115494-05-02 04:34 J -40462639.39 -40462639.31 -40462639.23 0.0498 0.0441  
 Venus -115493-10-21 20:39 J -40462100.68 -40462100.64 -40462100.59 0.0499 0.0487  
 Venus -115492-06-16 02:53 J -40461863.48 -40461863.38 -40461863.27 0.0502 0.0433  
 Mercury -115488-01-02 03:51 J -40460567.45 -40460567.34 -40460567.23 0.0527 0.0297  
 Mercury -115488-04-01 12:29 J -40460478.10 -40460477.98 -40460477.85 0.0528 0.0198  
 Venus -115487-08-29 18:43 J -40459962.82 -40459962.72 -40459962.60 0.0527 0.0434  
 Mercury -115483-11-19 22:48 J -40458419.69 -40458419.55 -40458419.40 0.0498 0.0264  
 Mercury -115482-02-18 02:53 J -40458329.52 -40458329.38 -40458329.24 0.0497 0.0299  
 Venus -115480-02-18 18:43 J -40457597.91 -40457597.72 -40457597.52 0.0501 0.0168  
 Mercury -115477-10-21 06:43 J -40456257.30 -40456257.22 -40456257.14 0.0528 0.0427  
 Mercury -115476-01-18 15:51 J -40456167.97 -40456167.84 -40456167.71 0.0528 0.0073  
 Venus -115475-12-27 11:46 J -40455460.18 -40455460.01 -40455459.85 0.0525 0.0287  
 Mercury -115471-09-07 21:51 J -40454109.69 -40454109.59 -40454109.49 0.0498 0.0398  
 Mercury -115471-12-07 01:27 J -40454019.61 -40454019.44 -40454019.27 0.0497 0.0159  
 Venus -115469-10-24 13:41 J -40453332.13 -40453331.93 -40453331.72 0.0500 0.0090  
 Mercury -115465-11-06 19:41 J -40451857.81 -40451857.68 -40451857.55 0.0528 0.0046  
 Mercury -115464-02-04 04:05 J -40451768.40 -40451768.33 -40451768.26 0.0529 0.0442  
 Venus -115463-09-01 10:19 J -40451194.26 -40451194.07 -40451193.87 0.0525 0.0014  
 Mercury -115459-09-24 23:31 J -40449709.69 -40449709.52 -40449709.34 0.0498 0.0015  
 Mars -115458-02-27 02:53 J -40449554.52 -40449554.38 -40449554.23 0.0497 0.0413



Venus -115457-06-29 09:22 J -40449066.26 -40449066.11 -40449065.96 0.0499 0.0340  
 Earth -115454-02-11 00:58 J -40448109.65 -40448109.46 -40448109.26 0.0518 0.0291  
 Moon -115454-02-11 04:48 J -40448109.48 -40448109.30 -40448109.11 0.0518 0.0320 \*  
 Mercury -115453-08-25 23:17 J -40447547.66 -40447547.53 -40447547.41 0.0528 0.0166  
 Mercury -115453-11-23 07:55 J -40447458.27 -40447458.17 -40447458.07 0.0528 0.0325  
 Venus -115451-05-07 08:24 J -40446928.32 -40446928.15 -40446927.98 0.0526 0.0265  
 Mercury -115447-07-13 22:05 J -40445399.75 -40445399.58 -40445399.41 0.0498 0.0125  
 Mercury -115447-10-12 02:39 J -40445309.46 -40445309.39 -40445309.31 0.0498 0.0444  
 Venus -115445-10-27 11:03 J -40444563.19 -40444563.04 -40444562.88 0.0502 0.0328  
 Moon -115442-02-15 20:39 J -40443721.86 -40443721.64 -40443721.42 0.0519 0.0195  
 Earth -115442-02-16 00:00 J -40443721.72 -40443721.50 -40443721.28 0.0519 0.0190 \*  
 Mercury -115441-06-14 02:24 J -40443237.51 -40443237.40 -40443237.29 0.0527 0.0294  
 Mercury -115441-09-11 11:03 J -40443148.16 -40443148.04 -40443147.91 0.0528 0.0201  
 Venus -115439-09-03 22:05 J -40442425.69 -40442425.58 -40442425.48 0.0524 0.0441  
 Mercury -115435-05-01 20:53 J -40441089.77 -40441089.63 -40441089.48 0.0498 0.0262  
 Mercury -115435-07-31 01:12 J -40440999.59 -40440999.45 -40440999.31 0.0498 0.0303  
 Venus -115433-07-02 05:17 J -40440297.48 -40440297.28 -40440297.07 0.0500 0.0069  
 Mercury -115429-04-02 05:31 J -40438927.35 -40438927.27 -40438927.19 0.0527 0.0421  
 Mercury -115429-06-30 14:39 J -40438838.02 -40438837.89 -40438837.76 0.0528 0.0077  
 Venus -115427-05-09 21:22 J -40438159.79 -40438159.61 -40438159.42 0.0525 0.0171  
 Moon -115425-08-03 14:24 J -40437343.12 -40437342.90 -40437342.68 0.0507 0.0155  
 Earth -115425-08-03 18:15 J -40437342.96 -40437342.74 -40437342.52 0.0507 0.0135 \*  
 Mercury -115423-02-17 19:55 J -40436779.77 -40436779.67 -40436779.56 0.0498 0.0395  
 Mercury -115423-05-18 23:31 J -40436689.68 -40436689.52 -40436689.35 0.0497 0.0163  
 Mars -115423-12-01 12:00 J -40436493.26 -40436493.00 -40436492.73 0.0497 0.0036  
 Venus -115421-03-06 22:34 J -40436031.76 -40436031.56 -40436031.37 0.0499 0.0192  
 Mercury -115417-04-18 17:31 J -40434527.90 -40434527.77 -40434527.63 0.0528 0.0054  
 Mercury -115417-07-17 02:10 J -40434438.48 -40434438.41 -40434438.34 0.0529 0.0437  
 Venus -115415-01-12 20:10 J -40433893.86 -40433893.66 -40433893.47 0.0526 0.0104  
 Earth -115413-08-08 06:58 J -40432955.39 -40432955.21 -40432955.02 0.0506 0.0299

Moon -115413-08-08 09:51 J -40432955.26 -40432955.09 -40432954.92 0.0506 0.0324 \*  
 Mercury -115411-03-06 22:19 J -40432379.75 -40432379.57 -40432379.40 0.0497 0.0027  
 Venus -115410-11-10 18:00 J -40431765.84 -40431765.75 -40431765.66 0.0498 0.0444  
 Venus -115409-07-04 23:31 J -40431528.58 -40431528.52 -40431528.45 0.0502 0.0476  
 Mercury -115405-02-05 21:07 J -40430217.74 -40430217.62 -40430217.49 0.0528 0.0173  
 Mercury -115405-05-05 06:00 J -40430128.36 -40430128.25 -40430128.15 0.0529 0.0321  
 Mars -115405-09-25 06:15 J -40429985.52 -40429985.24 -40429984.95 0.0529 0.0098  
 Venus -115404-09-17 18:00 J -40429627.88 -40429627.75 -40429627.61 0.0527 0.0382  
 Mercury -115400-12-23 20:10 J -40428069.83 -40428069.66 -40428069.49 0.0498 0.0122  
 Mercury -115399-03-24 00:29 J -40427979.55 -40427979.48 -40427979.40 0.0497 0.0445  
 Venus -115397-03-09 18:00 J -40427262.94 -40427262.75 -40427262.56 0.0501 0.0219  
 Mercury -115394-11-25 00:43 J -40425907.58 -40425907.47 -40425907.36 0.0527 0.0293  
 Mercury -115393-02-22 09:36 J -40425818.22 -40425818.10 -40425817.97 0.0528 0.0203  
 Venus -115391-01-15 09:36 J -40425125.25 -40425125.10 -40425124.95 0.0524 0.0335  
 Mercury -115388-10-11 18:43 J -40423759.87 -40423759.72 -40423759.57 0.0498 0.0262  
 Mercury -115387-01-09 22:48 J -40423669.69 -40423669.55 -40423669.41 0.0498 0.0301  
 Mars -115387-09-04 16:34 J -40423431.89 -40423431.81 -40423431.72 0.0497 0.0467  
 Venus -115386-11-13 12:58 J -40422997.17 -40422996.96 -40422996.75 0.0500 0.0039  
 Mercury -115382-09-13 03:51 J -40421597.42 -40421597.34 -40421597.26 0.0527 0.0421  
 Mercury -115382-12-11 12:58 J -40421508.09 -40421507.96 -40421507.83 0.0528 0.0076  
 Venus -115380-09-20 06:43 J -40420859.41 -40420859.22 -40420859.02 0.0525 0.0055  
 Mercury -115376-07-30 17:31 J -40419449.87 -40419449.77 -40419449.66 0.0499 0.0399  
 Mercury -115376-10-28 21:07 J -40419359.78 -40419359.62 -40419359.45 0.0498 0.0161  
 Venus -115374-07-19 07:55 J -40418731.33 -40418731.17 -40418731.00 0.0499 0.0295  
 Moon -115371-02-09 20:39 J -40417794.77 -40417794.64 -40417794.50 0.0517 0.0418  
 Earth -115371-02-10 00:29 J -40417794.63 -40417794.48 -40417794.32 0.0517 0.0386 \*  
 Mercury -115370-09-29 16:05 J -40417197.96 -40417197.83 -40417197.69 0.0528 0.0052  
 Mercury -115370-12-28 00:29 J -40417108.55 -40417108.48 -40417108.40 0.0528 0.0438  
 Venus -115368-05-26 04:48 J -40416593.47 -40416593.30 -40416593.12 0.0526 0.0225  
 Mercury -115364-08-16 19:55 J -40415049.84 -40415049.67 -40415049.49 0.0498 0.0023

Venus -115362-11-16 07:12 J -40414228.34 -40414228.20 -40414228.06 0.0501 0.0369  
 Earth -115359-02-14 18:15 J -40413406.97 -40413406.74 -40413406.50 0.0519 0.0074  
 Moon -115359-02-14 21:22 J -40413406.84 -40413406.61 -40413406.39 0.0519 0.0082 \*  
 Mercury -115358-07-18 18:58 J -40412887.83 -40412887.71 -40412887.58 0.0528 0.0181  
 Mercury -115358-10-16 03:36 J -40412798.45 -40412798.35 -40412798.24 0.0529 0.0312  
 Venus -115356-01-29 01:55 J -40412327.47 -40412327.42 -40412327.36 0.0528 0.0506  
 Venus -115356-09-22 20:10 J -40412090.72 -40412090.66 -40412090.59 0.0524 0.0491  
 Mercury -115352-06-04 18:29 J -40410739.90 -40410739.73 -40410739.56 0.0498 0.0117  
 Mercury -115352-09-02 22:48 J -40410649.62 -40410649.55 -40410649.47 0.0497 0.0450  
 Venus -115350-07-22 01:12 J -40409962.65 -40409962.45 -40409962.24 0.0500 0.0109  
 Mercury -115346-05-06 22:19 J -40408577.67 -40408577.57 -40408577.46 0.0528 0.0304  
 Mercury -115346-08-04 07:27 J -40408488.31 -40408488.19 -40408488.07 0.0528 0.0193  
 Venus -115344-05-28 18:43 J -40407824.89 -40407824.72 -40407824.54 0.0525 0.0220  
 Earth -115342-08-03 20:24 J -40407027.86 -40407027.65 -40407027.45 0.0508 0.0223  
 Moon -115342-08-03 23:46 J -40407027.71 -40407027.51 -40407027.31 0.0508 0.0238 \*  
 Mercury -115340-03-23 16:34 J -40406429.96 -40406429.81 -40406429.67 0.0498 0.0263  
 Mercury -115340-06-21 20:24 J -40406339.79 -40406339.65 -40406339.51 0.0497 0.0299  
 Venus -115338-03-26 19:41 J -40405696.87 -40405696.68 -40405696.47 0.0500 0.0150  
 Mercury -115334-02-23 01:55 J -40404267.50 -40404267.42 -40404267.34 0.0527 0.0424  
 Mercury -115334-05-23 11:03 J -40404178.17 -40404178.04 -40404177.90 0.0528 0.0077  
 Venus -115332-01-31 17:03 J -40403558.98 -40403558.79 -40403558.59 0.0526 0.0060  
 Moon -115330-08-08 04:19 J -40402640.53 -40402640.32 -40402640.10 0.0506 0.0225  
 Earth -115330-08-08 06:43 J -40402640.43 -40402640.22 -40402640.01 0.0506 0.0202 \*  
 Mercury -115328-01-09 15:07 J -40402119.97 -40402119.87 -40402119.77 0.0498 0.0402  
 Mercury -115328-04-09 18:43 J -40402029.89 -40402029.72 -40402029.56 0.0498 0.0156  
 Venus -115327-11-29 15:22 J -40401430.98 -40401430.86 -40401430.74 0.0499 0.0403  
 Mercury -115322-03-11 14:24 J -40399868.04 -40399867.90 -40399867.77 0.0528 0.0054  
 Mercury -115322-06-08 22:48 J -40399778.62 -40399778.55 -40399778.48 0.0528 0.0435  
 Venus -115321-10-06 13:27 J -40399293.09 -40399292.94 -40399292.79 0.0527 0.0345  
 Mercury -115316-01-26 17:03 J -40397719.96 -40397719.79 -40397719.61 0.0498 0.0015

Venus -115314-03-29 15:22 J -40396928.03 -40396927.86 -40396927.67 0.0501 0.0263  
 Mercury -115311-12-28 17:31 J -40395557.90 -40395557.77 -40395557.65 0.0527 0.0181  
 Mercury -115310-03-28 02:10 J -40395468.52 -40395468.41 -40395468.31 0.0528 0.0311  
 Venus -115308-02-03 04:34 J -40394790.44 -40394790.31 -40394790.17 0.0524 0.0373  
 Mercury -115305-11-14 16:05 J -40393410.00 -40393409.83 -40393409.66 0.0498 0.0122  
 Mercury -115304-02-12 20:24 J -40393319.73 -40393319.65 -40393319.57 0.0497 0.0446  
 Mars -115304-05-22 18:29 J -40393220.94 -40393220.73 -40393220.50 0.0497 0.0276  
 Venus -115303-12-02 08:53 J -40392662.34 -40392662.13 -40392661.92 0.0499 0.0006  
 Mercury -115299-10-16 20:10 J -40391247.77 -40391247.66 -40391247.56 0.0528 0.0315  
 Mercury -115298-01-14 05:03 J -40391158.41 -40391158.29 -40391158.17 0.0528 0.0182  
 Venus -115297-10-09 02:53 J -40390524.57 -40390524.38 -40390524.18 0.0526 0.0097  
 Mercury -115293-09-02 14:39 J -40389100.03 -40389099.89 -40389099.74 0.0498 0.0260  
 Mercury -115293-12-01 18:29 J -40389009.86 -40389009.73 -40389009.58 0.0497 0.0303  
 Venus -115291-08-07 03:36 J -40388396.53 -40388396.35 -40388396.17 0.0499 0.0257  
 Earth -115288-02-08 18:00 J -40387479.79 -40387479.75 -40387479.70 0.0517 0.0504  
 Mercury -115287-08-04 23:17 J -40386937.60 -40386937.53 -40386937.45 0.0527 0.0438  
 Mercury -115287-11-02 08:39 J -40386848.27 -40386848.14 -40386848.01 0.0528 0.0062  
 Mars -115286-03-13 15:51 J -40386717.02 -40386716.84 -40386716.65 0.0529 0.0397  
 Venus -115285-06-14 00:58 J -40386258.65 -40386258.46 -40386258.28 0.0527 0.0182  
 Mercury -115281-06-21 12:29 J -40384790.07 -40384789.98 -40384789.88 0.0498 0.0407  
 Mercury -115281-09-19 16:05 J -40384700.00 -40384699.83 -40384699.66 0.0498 0.0150  
 Venus -115279-12-05 03:22 J -40383893.48 -40383893.36 -40383893.24 0.0501 0.0412  
 Moon -115276-02-13 16:19 J -40383092.06 -40383091.82 -40383091.58 0.0519 0.0016  
 Earth -115276-02-13 18:58 J -40383091.95 -40383091.71 -40383091.47 0.0519 0.0019 \*  
 Mercury -115275-08-21 12:29 J -40382538.12 -40382537.98 -40382537.85 0.0528 0.0059  
 Mercury -115275-11-18 20:53 J -40382448.70 -40382448.63 -40382448.56 0.0529 0.0431  
 Venus -115273-02-17 22:34 J -40381992.65 -40381992.56 -40381992.46 0.0527 0.0464  
 Mercury -115269-07-08 14:24 J -40380390.08 -40380389.90 -40380389.73 0.0498 0.0015  
 Mars -115268-02-23 18:43 J -40380159.97 -40380159.72 -40380159.47 0.0497 0.0151  
 Venus -115267-08-09 21:36 J -40379627.80 -40379627.60 -40379627.39 0.0501 0.0151

Earth -115264-02-18 17:31 J -40378703.87 -40378703.77 -40378703.66 0.0520 0.0462  
 Moon -115264-02-18 18:29 J -40378703.79 -40378703.73 -40378703.66 0.0520 0.0496 \*  
 Mercury -115263-06-09 15:36 J -40378227.98 -40378227.85 -40378227.73 0.0527 0.0186  
 Mercury -115263-09-07 00:15 J -40378138.60 -40378138.49 -40378138.39 0.0528 0.0307  
 Venus -115261-06-16 13:12 J -40377490.12 -40377489.95 -40377489.77 0.0525 0.0255  
 Moon -115259-08-02 16:19 J -40376712.99 -40376712.82 -40376712.64 0.0508 0.0339  
 Earth -115259-08-02 19:12 J -40376712.87 -40376712.70 -40376712.51 0.0508 0.0323 \*  
 Mercury -115257-04-26 12:43 J -40376080.13 -40376079.97 -40376079.80 0.0498 0.0134  
 Mercury -115257-07-25 17:03 J -40375989.87 -40375989.79 -40375989.70 0.0498 0.0435  
 Venus -115255-04-14 16:34 J -40375362.02 -40375361.81 -40375361.61 0.0500 0.0108  
 Mercury -115251-03-28 18:29 J -40373917.84 -40373917.73 -40373917.62 0.0527 0.0314  
 Mercury -115251-06-26 03:22 J -40373828.48 -40373828.36 -40373828.23 0.0528 0.0182  
 Mars -115251-12-19 04:34 J -40373652.56 -40373652.31 -40373652.05 0.0529 0.0232  
 Venus -115249-02-20 11:17 J -40373224.23 -40373224.03 -40373223.84 0.0526 0.0027  
 Earth -115247-08-07 07:55 J -40372325.40 -40372325.17 -40372324.95 0.0507 0.0113  
 Moon -115247-08-07 09:07 J -40372325.33 -40372325.12 -40372324.91 0.0507 0.0140 \*  
 Mercury -115245-02-13 11:46 J -40371770.15 -40371770.01 -40371769.86 0.0498 0.0267  
 Mercury -115245-05-13 15:51 J -40371679.98 -40371679.84 -40371679.70 0.0497 0.0296  
 Venus -115244-12-18 11:03 J -40371096.18 -40371096.04 -40371095.89 0.0498 0.0364  
 Mercury -115239-01-14 20:53 J -40369607.69 -40369607.63 -40369607.56 0.0527 0.0450  
 Mercury -115239-04-14 06:15 J -40369518.37 -40369518.24 -40369518.11 0.0528 0.0050  
 Venus -115238-10-26 07:55 J -40368958.33 -40368958.17 -40368958.01 0.0527 0.0310  
 Mercury -115234-12-02 10:48 J -40367460.15 -40367460.05 -40367459.95 0.0498 0.0404  
 Mercury -115233-03-01 14:10 J -40367370.08 -40367369.91 -40367369.74 0.0497 0.0153  
 Venus -115231-04-17 10:19 J -40366593.23 -40366593.07 -40366592.89 0.0500 0.0302  
 Mercury -115227-01-31 09:51 J -40365208.22 -40365208.09 -40365207.96 0.0528 0.0072  
 Mercury -115227-04-30 18:15 J -40365118.81 -40365118.74 -40365118.66 0.0529 0.0419  
 Venus -115225-02-23 00:15 J -40364455.61 -40364455.49 -40364455.37 0.0525 0.0415  
 Mercury -115222-12-19 11:31 J -40363060.19 -40363060.02 -40363059.84 0.0498 0.0006  
 Venus -115220-12-21 03:51 J -40362327.56 -40362327.34 -40362327.13 0.0500 0.0039

Mercury -115216-11-19 13:27 J -40360898.06 -40360897.94 -40360897.81 0.0528 0.0191

Mercury -115215-02-16 22:19 J -40360808.68 -40360808.57 -40360808.47 0.0528 0.0302

Venus -115214-10-28 23:03 J -40360189.73 -40360189.54 -40360189.35 0.0525 0.0139

Mercury -115210-10-07 09:51 J -40358750.25 -40358750.09 -40358749.92 0.0498 0.0142

Mercury -115209-01-05 14:10 J -40358660.00 -40358659.91 -40358659.82 0.0497 0.0425

Venus -115208-08-25 22:48 J -40358061.74 -40358061.55 -40358061.36 0.0499 0.0221

Mercury -115204-09-07 16:34 J -40356587.92 -40356587.81 -40356587.70 0.0527 0.0318

Mercury -115204-12-06 01:27 J -40356498.56 -40356498.44 -40356498.31 0.0528 0.0179

Venus -115202-07-03 19:41 J -40355923.87 -40355923.68 -40355923.49 0.0526 0.0147

Mercury -115198-07-26 08:39 J -40354440.28 -40354440.14 -40354440.00 0.0498 0.0280

Mercury -115198-10-24 12:29 J -40354350.13 -40354349.98 -40354349.84 0.0498 0.0282

Venus -115196-04-30 18:29 J -40353795.79 -40353795.73 -40353795.67 0.0499 0.0474

Venus -115196-12-23 23:46 J -40353558.59 -40353558.51 -40353558.42 0.0501 0.0454

Earth -115193-02-13 15:36 J -40352777.08 -40352776.85 -40352776.62 0.0518 0.0126

Moon -115193-02-13 17:46 J -40352776.98 -40352776.76 -40352776.54 0.0518 0.0123 \*

Mercury -115192-06-26 19:27 J -40352277.76 -40352277.69 -40352277.62 0.0527 0.0448

Mercury -115192-09-24 04:48 J -40352188.43 -40352188.30 -40352188.17 0.0528 0.0052

Venus -115190-03-08 16:19 J -40351657.92 -40351657.82 -40351657.70 0.0527 0.0434

Mercury -115186-05-14 07:55 J -40350130.27 -40350130.17 -40350130.08 0.0499 0.0412

Mercury -115186-08-12 11:17 J -40350040.20 -40350040.03 -40350039.86 0.0498 0.0145

Venus -115184-08-28 17:31 J -40349292.96 -40349292.77 -40349292.57 0.0500 0.0193

Moon -115181-02-18 09:36 J -40348389.27 -40348389.10 -40348388.92 0.0519 0.0366

Earth -115181-02-18 10:19 J -40348389.25 -40348389.07 -40348388.89 0.0519 0.0336 \*

Mercury -115180-07-13 07:27 J -40347878.32 -40347878.19 -40347878.06 0.0528 0.0082

Mercury -115180-10-10 16:05 J -40347788.91 -40347788.83 -40347788.75 0.0528 0.0408

Venus -115178-07-06 07:55 J -40347155.33 -40347155.17 -40347155.01 0.0525 0.0293

Earth -115176-08-01 21:36 J -40346397.72 -40346397.60 -40346397.45 0.0509 0.0410

Moon -115176-08-02 00:00 J -40346397.62 -40346397.50 -40346397.38 0.0509 0.0422 \*

Mercury -115174-05-31 09:51 J -40345730.27 -40345730.09 -40345729.92 0.0498 0.0007

Venus -115172-05-03 12:00 J -40345027.21 -40345027.00 -40345026.79 0.0499 0.0070

Mercury -115168-05-01 10:48 J -40343568.17 -40343568.05 -40343567.92 0.0528 0.0206  
 Mercury -115168-07-29 19:41 J -40343478.79 -40343478.68 -40343478.57 0.0528 0.0290  
 Venus -115166-03-11 06:43 J -40342889.42 -40342889.22 -40342889.03 0.0526 0.0017  
 Moon -115164-08-06 06:29 J -40342010.47 -40342010.23 -40342009.99 0.0507 0.0037  
 Earth -115164-08-06 06:58 J -40342010.44 -40342010.21 -40342009.98 0.0507 0.0011 \*  
 Mercury -115162-03-19 07:12 J -40341420.36 -40341420.20 -40341420.03 0.0498 0.0148  
 Mercury -115162-06-17 11:31 J -40341330.11 -40341330.02 -40341329.93 0.0497 0.0419  
 Venus -115160-01-06 05:17 J -40340761.43 -40340761.28 -40340761.12 0.0499 0.0332  
 Mercury -115156-02-17 14:39 J -40339258.00 -40339257.89 -40339257.79 0.0527 0.0324  
 Mercury -115156-05-17 23:46 J -40339168.64 -40339168.51 -40339168.39 0.0528 0.0174  
 Venus -115155-11-14 05:03 J -40338623.46 -40338623.29 -40338623.12 0.0527 0.0267  
 Moon -115152-08-10 16:48 J -40337622.89 -40337622.80 -40337622.70 0.0506 0.0459  
 Earth -115152-08-10 17:46 J -40337622.87 -40337622.76 -40337622.64 0.0506 0.0438 \*  
 Mercury -115150-01-05 05:46 J -40337110.39 -40337110.26 -40337110.11 0.0498 0.0287  
 Mercury -115150-04-05 09:36 J -40337020.24 -40337020.10 -40337019.95 0.0498 0.0275  
 Mars -115150-08-15 17:31 J -40336888.02 -40336887.77 -40336887.52 0.0497 0.0180  
 Venus -115148-05-06 06:00 J -40336258.40 -40336258.25 -40336258.10 0.0501 0.0341  
 Mercury -115145-12-06 17:46 J -40334947.83 -40334947.76 -40334947.69 0.0527 0.0450  
 Mercury -115144-03-06 02:53 J -40334858.51 -40334858.38 -40334858.24 0.0528 0.0052  
 Venus -115142-03-13 19:26 J -40334120.79 -40334120.69 -40334120.59 0.0524 0.0452  
 Mercury -115139-10-24 04:34 J -40332800.39 -40332800.31 -40332800.21 0.0499 0.0424  
 Mercury -115138-01-22 07:55 J -40332710.33 -40332710.17 -40332709.99 0.0498 0.0134  
 Venus -115136-01-09 00:43 J -40331992.68 -40331992.47 -40331992.26 0.0500 0.0080  
 Mercury -115133-12-23 06:14 J -40330548.38 -40330548.24 -40330548.11 0.0527 0.0079  
 Mercury -115132-03-22 14:38 J -40330458.97 -40330458.89 -40330458.81 0.0528 0.0411  
 Mars -115132-06-05 16:19 J -40330384.06 -40330383.82 -40330383.57 0.0529 0.0265  
 Venus -115131-11-16 17:31 J -40329854.96 -40329854.77 -40329854.59 0.0525 0.0173  
 Mercury -115127-11-10 06:58 J -40328400.38 -40328400.21 -40328400.03 0.0498 0.0004  
 Venus -115125-09-13 19:55 J -40327726.87 -40327726.67 -40327726.47 0.0499 0.0177  
 Mercury -115121-10-11 08:53 J -40326238.25 -40326238.13 -40326238.01 0.0527 0.0212

Mercury -115120-01-08 17:46 J -40326148.87 -40326148.76 -40326148.65 0.0528 0.0282

Venus -115119-07-22 14:24 J -40325589.09 -40325588.90 -40325588.71 0.0527 0.0111

Mercury -115115-08-29 05:46 J -40324090.43 -40324090.26 -40324090.09 0.0498 0.0141

Mercury -115115-11-27 09:50 J -40324000.18 -40324000.09 -40324000.00 0.0497 0.0425

Mars -115114-05-20 04:19 J -40323826.54 -40323826.32 -40323826.10 0.0497 0.0274

Venus -115113-05-19 15:07 J -40323460.97 -40323460.87 -40323460.77 0.0498 0.0434

Venus -115112-01-11 19:55 J -40323223.69 -40323223.67 -40323223.64 0.0501 0.0496

Moon -115110-02-12 09:22 J -40322462.32 -40322462.11 -40322461.89 0.0517 0.0240

Earth -115110-02-12 11:17 J -40322462.24 -40322462.03 -40322461.82 0.0517 0.0239 \*

Mercury -115109-07-30 12:14 J -40321928.09 -40321927.99 -40321927.89 0.0527 0.0335

Mercury -115109-10-27 21:22 J -40321838.74 -40321838.61 -40321838.49 0.0528 0.0163

Venus -115107-03-27 12:43 J -40321323.10 -40321322.97 -40321322.84 0.0527 0.0393

Mercury -115103-06-17 03:22 J -40319780.50 -40319780.36 -40319780.22 0.0498 0.0291

Mercury -115103-09-15 06:58 J -40319690.35 -40319690.21 -40319690.06 0.0497 0.0271

Venus -115101-09-16 12:29 J -40318958.16 -40318957.98 -40318957.79 0.0501 0.0229

Moon -115098-02-17 10:48 J -40318074.24 -40318074.05 -40318073.86 0.0519 0.0275

Earth -115098-02-17 11:02 J -40318074.24 -40318074.04 -40318073.83 0.0519 0.0244 \*

Mercury -115097-05-18 15:50 J -40317617.91 -40317617.84 -40317617.77 0.0527 0.0454

Mercury -115097-08-16 01:12 J -40317528.58 -40317528.45 -40317528.32 0.0528 0.0046

Mars -115096-03-13 10:34 J -40317319.24 -40317319.06 -40317318.85 0.0529 0.0386

Venus -115095-07-25 06:00 J -40316820.40 -40316820.25 -40316820.10 0.0525 0.0340

Earth -115093-07-31 22:05 J -40316082.59 -40316082.58 -40316082.55 0.0509 0.0506

Mercury -115091-04-05 02:10 J -40315470.49 -40315470.41 -40315470.32 0.0498 0.0428

Mercury -115091-07-04 05:31 J -40315380.44 -40315380.27 -40315380.10 0.0498 0.0128

Venus -115089-05-22 07:26 J -40314692.40 -40314692.19 -40314691.97 0.0500 0.0034

Mercury -115085-06-04 04:34 J -40313218.44 -40313218.31 -40313218.18 0.0528 0.0077

Mercury -115085-09-01 13:12 J -40313129.03 -40313128.95 -40313128.87 0.0528 0.0412

Venus -115083-03-30 03:36 J -40312554.55 -40312554.35 -40312554.15 0.0526 0.0058

Moon -115081-08-05 07:41 J -40311695.40 -40311695.18 -40311694.96 0.0508 0.0054

Earth -115081-08-05 07:55 J -40311695.39 -40311695.17 -40311694.94 0.0508 0.0082 \*



Mercury -115079-04-22 04:05 J -40311070.51 -40311070.33 -40311070.15 0.0498 0.0012

Venus -115077-01-26 03:07 J -40310426.53 -40310426.37 -40310426.19 0.0499 0.0289

Mercury -115073-03-23 07:41 J -40308908.30 -40308908.18 -40308908.05 0.0527 0.0204

Mercury -115073-06-20 16:34 J -40308818.92 -40308818.81 -40308818.70 0.0528 0.0289

Venus -115072-12-03 00:43 J -40308288.64 -40308288.47 -40308288.29 0.0527 0.0229

Earth -115069-08-09 19:55 J -40307307.83 -40307307.67 -40307307.50 0.0507 0.0353

Moon -115069-08-09 21:36 J -40307307.76 -40307307.60 -40307307.43 0.0507 0.0372 \*

Mercury -115067-02-08 03:07 J -40306760.53 -40306760.37 -40306760.20 0.0498 0.0146

Mercury -115067-05-09 07:26 J -40306670.28 -40306670.19 -40306670.10 0.0498 0.0421

Venus -115065-05-25 04:05 J -40305923.46 -40305923.33 -40305923.19 0.0501 0.0390

Mercury -115061-01-10 10:19 J -40304598.17 -40304598.07 -40304597.96 0.0527 0.0338

Mercury -115061-04-08 19:26 J -40304508.81 -40304508.69 -40304508.56 0.0528 0.0160

Venus -115060-08-07 20:53 J -40304022.67 -40304022.63 -40304022.60 0.0528 0.0517

Venus -115059-04-01 15:22 J -40303785.91 -40303785.86 -40303785.79 0.0524 0.0496

Mercury -115056-11-27 02:10 J -40302450.55 -40302450.41 -40302450.27 0.0498 0.0282

Mercury -115055-02-25 06:00 J -40302360.40 -40302360.25 -40302360.11 0.0498 0.0280

Venus -115053-01-28 22:19 J -40301657.77 -40301657.57 -40301657.36 0.0500 0.0127

Mercury -115050-10-29 13:41 J -40300287.99 -40300287.93 -40300287.86 0.0527 0.0461

Mercury -115049-01-26 23:02 J -40300198.67 -40300198.54 -40300198.40 0.0528 0.0044

Mercury -115049-04-25 07:26 J -40300109.19 -40300109.19 -40300109.17 0.0529 0.0526

Venus -115048-12-05 14:53 J -40299520.05 -40299519.88 -40299519.70 0.0525 0.0221

Mercury -115044-09-15 00:00 J -40298140.58 -40298140.50 -40298140.41 0.0498 0.0428

Mercury -115044-12-14 03:22 J -40298050.53 -40298050.36 -40298050.19 0.0498 0.0127

Venus -115042-10-03 15:22 J -40297392.06 -40297391.86 -40297391.66 0.0499 0.0142

Mercury -115038-11-15 02:53 J -40295888.51 -40295888.38 -40295888.24 0.0528 0.0080

Mercury -115037-02-12 11:31 J -40295799.09 -40295799.02 -40295798.93 0.0529 0.0414

Venus -115036-08-10 14:24 J -40295254.09 -40295253.90 -40295253.70 0.0526 0.0058

Mercury -115032-10-02 01:55 J -40293740.59 -40293740.42 -40293740.24 0.0498 0.0013

Venus -115030-06-08 11:02 J -40293126.16 -40293126.04 -40293125.91 0.0499 0.0399

Earth -115027-02-11 15:07 J -40292147.05 -40292146.87 -40292146.68 0.0518 0.0317

Moon	-115027-02-11 16:05 J	-40292147.01	-40292146.83	-40292146.65	0.0518	0.0318	*
Mercury	-115026-09-03 06:29 J	-40291578.35	-40291578.23	-40291578.11	0.0527	0.0200	
Mercury	-115026-12-01 15:22 J	-40291488.97	-40291488.86	-40291488.75	0.0528	0.0294	
Venus	-115024-04-15 11:31 J	-40290988.16	-40290988.02	-40290987.86	0.0527	0.0344	
Mercury	-115020-07-21 00:43 J	-40289430.64	-40289430.47	-40289430.30	0.0498	0.0150	
Mercury	-115020-10-19 04:48 J	-40289340.39	-40289340.30	-40289340.20	0.0498	0.0416	
Venus	-115018-10-06 12:00 J	-40288623.17	-40288623.00	-40288622.82	0.0501	0.0280	
Earth	-115015-02-16 14:38 J	-40287759.11	-40287758.89	-40287758.67	0.0519	0.0164	
Moon	-115015-02-16 16:05 J	-40287759.05	-40287758.83	-40287758.60	0.0519	0.0194	*
Mercury	-115014-06-22 09:36 J	-40287268.20	-40287268.10	-40287267.99	0.0527	0.0326	
Mercury	-115014-09-19 18:43 J	-40287178.85	-40287178.72	-40287178.60	0.0528	0.0171	
Venus	-115012-08-13 03:07 J	-40286485.50	-40286485.37	-40286485.24	0.0524	0.0385	
Mercury	-115008-05-09 00:00 J	-40285120.64	-40285120.50	-40285120.36	0.0499	0.0283	
Mercury	-115008-08-07 03:36 J	-40285030.49	-40285030.35	-40285030.20	0.0498	0.0279	
Venus	-115006-06-11 07:26 J	-40284357.40	-40284357.19	-40284356.98	0.0500	0.0020	
Mercury	-115002-04-10 12:14 J	-40282958.05	-40282957.99	-40282957.92	0.0527	0.0458	
Mercury	-115002-07-08 21:36 J	-40282868.73	-40282868.60	-40282868.46	0.0528	0.0044	
Mercury	-115002-10-06 06:00 J	-40282779.25	-40282779.25	-40282779.24	0.0528	0.0527	

# 115TH MILLENNIUM BCE

This is a list of transits visible from Jupiter in the 115th millennium BCE.

PLANET	MAX-	C	START	MAX	END	SUNRAD	DEPTH	S
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TRANSIT

TIME

Venus -115000-04-18 00:58 J -40282219.66 -40282219.46 -40282219.27 0.0526 0.0103

Earth -114998-08-05 14:24 J -40281380.12 -40281379.90 -40281379.68 0.0508 0.0153

Moon -114998-08-05 15:36 J -40281380.08 -40281379.85 -40281379.62 0.0508 0.0123 \*

Mercury -114996-02-24 23:17 J -40280810.63 -40280810.53 -40280810.44 0.0499 0.0416

Mercury -114996-05-26 02:24 J -40280720.57 -40280720.40 -40280720.23 0.0498 0.0140

Mars -114996-11-08 12:14 J -40280554.26 -40280553.99 -40280553.73 0.0497 0.0039

Venus -114994-02-14 02:53 J -40280091.57 -40280091.38 -40280091.20 0.0499 0.0240

Mercury -114990-04-27 01:12 J -40278558.58 -40278558.45 -40278558.32 0.0528 0.0080

Mercury -114990-07-25 09:50 J -40278469.17 -40278469.09 -40278469.01 0.0528 0.0411

Venus -114989-12-21 23:46 J -40277953.69 -40277953.51 -40277953.32 0.0527 0.0178

Moon -114986-08-09 23:02 J -40276992.71 -40276992.54 -40276992.35 0.0507 0.0297

Earth -114986-08-10 01:26 J -40276992.63 -40276992.44 -40276992.25 0.0507 0.0276 \*

Mercury -114984-03-14 00:14 J -40276410.67 -40276410.49 -40276410.32 0.0498 0.0016

Venus -114982-06-14 00:43 J -40275588.57 -40275588.47 -40275588.36 0.0501 0.0432

Mercury -114978-02-13 05:02 J -40274248.41 -40274248.29 -40274248.17 0.0528 0.0197

Mercury -114978-05-13 13:55 J -40274159.03 -40274158.92 -40274158.81 0.0529 0.0298

Mars -114978-08-30 18:00 J -40274050.03 -40274049.75 -40274049.47 0.0529 0.0078

Venus -114977-08-26 22:48 J -40273687.64 -40273687.55 -40273687.45 0.0527 0.0459

Mercury -114973-12-30 23:02 J -40272100.71 -40272100.54 -40272100.37 0.0498 0.0146

Mercury -114972-03-31 02:53 J -40272010.47 -40272010.38 -40272010.28 0.0497 0.0419

Venus -114970-02-16 19:55 J -40271322.87 -40271322.67 -40271322.47 0.0500 0.0170

Mercury -114967-12-02 08:24 J -40269938.25 -40269938.15 -40269938.04 0.0527 0.0319

Mercury -114966-03-01 17:46 J -40269848.89 -40269848.76 -40269848.64 0.0528 0.0180

Venus -114965-12-24 15:36 J -40269185.02 -40269184.85 -40269184.69 0.0525 0.0277

Mercury -114961-10-18 21:50 J -40267790.73 -40267790.59 -40267790.44 0.0498 0.0283

Mercury -114960-01-17 01:41 J -40267700.58 -40267700.43 -40267700.29 0.0498 0.0279

Mars -114960-08-12 18:00 J -40267492.89 -40267492.75 -40267492.59 0.0497 0.0403

Venus -114959-10-22 16:05 J -40267057.04 -40267056.83 -40267056.62 0.0500 0.0089

Mercury -114955-09-20 11:46 J -40265628.08 -40265628.01 -40265627.94 0.0527 0.0443

Mercury -114955-12-18 21:07 J -40265538.75 -40265538.62 -40265538.49 0.0528 0.0057

Venus -114953-08-29 13:26 J -40264919.13 -40264918.94 -40264918.74 0.0526 0.0009

Mercury -114949-08-06 21:22 J -40263480.70 -40263480.61 -40263480.51 0.0499 0.0413

Mercury -114949-11-05 00:43 J -40263390.64 -40263390.47 -40263390.31 0.0498 0.0144

Venus -114947-06-27 12:29 J -40262791.12 -40262790.98 -40262790.82 0.0499 0.0344

Earth -114944-02-10 18:58 J -40261831.86 -40261831.71 -40261831.56 0.0517 0.0396

Moon -114944-02-10 18:58 J -40261831.86 -40261831.71 -40261831.55 0.0517 0.0393 \*

Mercury -114943-10-07 00:00 J -40261228.63 -40261228.50 -40261228.36 0.0527 0.0075

Mercury -114942-01-04 08:38 J -40261139.21 -40261139.14 -40261139.06 0.0528 0.0417

Venus -114941-05-04 10:19 J -40260653.23 -40260653.07 -40260652.90 0.0527 0.0295

Mercury -114937-08-23 23:31 J -40259080.69 -40259080.52 -40259080.34 0.0498 0.0010

Venus -114935-10-25 12:58 J -40258288.12 -40258287.96 -40258287.80 0.0501 0.0335

Moon -114932-02-15 16:05 J -40257444.05 -40257443.83 -40257443.60 0.0518 0.0114

Earth -114932-02-15 18:29 J -40257443.96 -40257443.73 -40257443.49 0.0518 0.0085 \*

Mercury -114931-07-26 03:36 J -40256918.47 -40256918.35 -40256918.22 0.0527 0.0194

Mercury -114931-10-23 12:29 J -40256829.08 -40256828.98 -40256828.87 0.0528 0.0300

Venus -114929-09-01 03:50 J -40256150.44 -40256150.34 -40256150.24 0.0525 0.0442

Mercury -114925-06-11 21:36 J -40254770.77 -40254770.60 -40254770.43 0.0498 0.0139

Mercury -114925-09-10 01:41 J -40254680.52 -40254680.43 -40254680.34 0.0497 0.0426

Venus -114923-06-30 05:02 J -40254022.50 -40254022.29 -40254022.08 0.0500 0.0064

Mercury -114919-05-14 07:12 J -40252608.30 -40252608.20 -40252608.09 0.0528 0.0313

Mercury -114919-08-11 16:34 J -40252518.94 -40252518.81 -40252518.69 0.0528 0.0186

Venus -114917-05-07 04:19 J -40251884.50 -40251884.32 -40251884.13 0.0526 0.0169

Moon -114915-08-04 21:50 J -40251064.80 -40251064.59 -40251064.38 0.0508 0.0181

Earth -114915-08-04 23:46 J -40251064.72 -40251064.51 -40251064.30 0.0508 0.0210 \*

Mercury -114913-03-30 20:38 J -40250460.78 -40250460.64 -40250460.49 0.0498 0.0274

Mercury -114913-06-29 00:14 J -40250370.63 -40250370.49 -40250370.34 0.0497 0.0287

Venus -114911-03-05 01:12 J -40249756.64 -40249756.45 -40249756.26 0.0499 0.0196

Mercury -114907-03-02 10:48 J -40248298.12 -40248298.05 -40248297.97 0.0527 0.0433

Mercury -114907-05-30 20:10 J -40248208.79 -40248208.66 -40248208.52 0.0528 0.0070

Venus -114905-01-11 02:24 J -40247618.59 -40247618.40 -40247618.21 0.0526 0.0115

Earth -114903-08-09 10:19 J -40246677.28 -40246677.07 -40246676.86 0.0507 0.0218

Moon -114903-08-09 13:26 J -40246677.15 -40246676.94 -40246676.73 0.0507 0.0236 \*

Mercury -114901-01-17 19:41 J -40246150.77 -40246150.68 -40246150.57 0.0499 0.0408

Mercury -114901-04-16 23:02 J -40246060.71 -40246060.54 -40246060.37 0.0498 0.0149

Venus -114900-11-07 22:19 J -40245490.66 -40245490.57 -40245490.48 0.0499 0.0449

Venus -114899-07-03 03:22 J -40245253.39 -40245253.36 -40245253.32 0.0502 0.0493

Mercury -114895-03-18 23:46 J -40243898.64 -40243898.51 -40243898.38 0.0528 0.0055

Mercury -114895-06-16 08:24 J -40243809.22 -40243809.15 -40243809.08 0.0528 0.0435

Venus -114894-09-15 23:46 J -40243352.63 -40243352.51 -40243352.38 0.0527 0.0403

Mercury -114889-02-03 22:05 J -40241750.75 -40241750.58 -40241750.40 0.0498 0.0015

Venus -114887-03-07 23:02 J -40240987.72 -40240987.54 -40240987.35 0.0500 0.0232

Mercury -114883-01-05 02:38 J -40239588.51 -40239588.39 -40239588.26 0.0527 0.0184

Mercury -114883-04-04 11:31 J -40239499.12 -40239499.02 -40239498.91 0.0528 0.0310

Venus -114881-01-13 15:36 J -40238850.00 -40238849.85 -40238849.70 0.0525 0.0332

Mercury -114878-11-22 21:22 J -40237440.78 -40237440.61 -40237440.44 0.0498 0.0121

Mercury -114877-02-21 01:12 J -40237350.52 -40237350.45 -40237350.37 0.0498 0.0447

Mars -114877-04-30 06:43 J -40237281.42 -40237281.22 -40237281.03 0.0497 0.0335

Venus -114876-11-10 18:29 J -40236721.94 -40236721.73 -40236721.52 0.0500 0.0030

Mercury -114872-10-24 06:14 J -40235278.35 -40235278.24 -40235278.13 0.0527 0.0305

Mercury -114871-01-21 15:22 J -40235188.98 -40235188.86 -40235188.74 0.0528 0.0192

Venus -114870-09-18 15:36 J -40234584.05 -40234583.85 -40234583.66 0.0526 0.0055

Mercury -114866-09-10 19:41 J -40233130.83 -40233130.68 -40233130.54 0.0498 0.0262

Mercury -114866-12-09 23:02 J -40233040.68 -40233040.54 -40233040.39 0.0497 0.0298

Venus -114864-07-16 11:31 J -40232456.19 -40232456.02 -40232455.85 0.0499 0.0298

Moon -114861-02-10 23:46 J -40231516.61 -40231516.51 -40231516.41 0.0517 0.0461

Earth -114861-02-11 00:43 J -40231516.57 -40231516.47 -40231516.36 0.0517 0.0464 \*

Mercury -114860-08-12 09:50 J -40230968.17 -40230968.09 -40230968.02 0.0528 0.0426

Mercury -114860-11-09 19:12 J -40230878.83 -40230878.70 -40230878.57 0.0528 0.0076

Mars -114859-02-16 20:24 J -40230779.73 -40230779.65 -40230779.55 0.0529 0.0500  
 Venus -114858-05-24 15:22 J -40230318.04 -40230317.86 -40230317.68 0.0527 0.0225  
 Mercury -114854-06-29 18:58 J -40228820.81 -40228820.71 -40228820.60 0.0498 0.0394  
 Mercury -114854-09-27 22:05 J -40228730.75 -40228730.58 -40228730.42 0.0497 0.0160  
 Venus -114852-11-13 12:29 J -40227953.11 -40227952.98 -40227952.84 0.0501 0.0386  
 Earth -114849-02-16 03:07 J -40227128.60 -40227128.37 -40227128.13 0.0519 0.0030  
 Moon -114849-02-16 06:29 J -40227128.47 -40227128.23 -40227127.99 0.0519 0.0061 \*  
 Mercury -114848-08-28 23:02 J -40226568.68 -40226568.54 -40226568.41 0.0528 0.0043  
 Mercury -114848-11-26 07:41 J -40226479.25 -40226479.18 -40226479.11 0.0529 0.0448  
 Venus -114846-01-27 12:43 J -40226052.00 -40226051.97 -40226051.91 0.0527 0.0512  
 Venus -114846-09-21 07:26 J -40225815.23 -40225815.19 -40225815.15 0.0524 0.0509  
 Mercury -114842-07-16 20:53 J -40224420.81 -40224420.63 -40224420.46 0.0498 0.0023  
 Mars -114841-02-02 16:34 J -40224220.06 -40224219.81 -40224219.55 0.0497 0.0122  
 Venus -114840-07-19 08:38 J -40223687.34 -40223687.14 -40223686.93 0.0500 0.0127  
 Moon -114837-02-21 00:29 J -40222740.51 -40222740.48 -40222740.43 0.0520 0.0510  
 Mercury -114836-06-17 02:24 J -40222258.52 -40222258.40 -40222258.27 0.0528 0.0164  
 Mercury -114836-09-14 11:17 J -40222169.13 -40222169.03 -40222168.93 0.0528 0.0330  
 Venus -114834-05-27 06:00 J -40221549.42 -40221549.25 -40221549.07 0.0525 0.0230  
 Earth -114832-08-04 09:50 J -40220749.28 -40220749.09 -40220748.89 0.0508 0.0263  
 Moon -114832-08-04 12:43 J -40220749.18 -40220748.97 -40220748.76 0.0508 0.0230 \*  
 Mercury -114830-05-04 20:10 J -40220110.83 -40220110.66 -40220110.49 0.0498 0.0110  
 Mercury -114830-08-03 00:00 J -40220020.56 -40220020.50 -40220020.42 0.0498 0.0457  
 Venus -114828-03-24 05:17 J -40219421.48 -40219421.28 -40219421.07 0.0499 0.0132  
 Mercury -114824-04-05 05:31 J -40217948.38 -40217948.27 -40217948.16 0.0527 0.0292  
 Mercury -114824-07-03 14:38 J -40217859.01 -40217858.89 -40217858.77 0.0528 0.0205  
 Mars -114824-11-24 13:55 J -40217715.19 -40217714.92 -40217714.64 0.0529 0.0153  
 Venus -114822-01-30 03:36 J -40217283.55 -40217283.35 -40217283.16 0.0526 0.0058  
 Moon -114820-08-08 18:43 J -40216361.93 -40216361.72 -40216361.50 0.0507 0.0185  
 Earth -114820-08-08 22:19 J -40216361.79 -40216361.57 -40216361.35 0.0507 0.0171 \*  
 Mercury -114818-02-20 19:26 J -40215800.84 -40215800.69 -40215800.54 0.0498 0.0243

Mercury -114818-05-21 23:02 J -40215710.67 -40215710.54 -40215710.40 0.0498 0.0319

Venus -114817-11-27 01:41 J -40215155.56 -40215155.43 -40215155.30 0.0499 0.0390

Mercury -114812-01-22 08:53 J -40213638.21 -40213638.13 -40213638.05 0.0527 0.0414

Mercury -114812-04-21 18:14 J -40213548.87 -40213548.74 -40213548.61 0.0528 0.0086

Venus -114811-10-05 02:38 J -40213017.54 -40213017.39 -40213017.24 0.0527 0.0341

Mercury -114807-12-09 18:00 J -40211490.85 -40211490.75 -40211490.64 0.0498 0.0381

Mercury -114806-03-09 21:07 J -40211400.78 -40211400.62 -40211400.45 0.0497 0.0174

Venus -114804-03-26 22:48 J -40210652.73 -40210652.55 -40210652.38 0.0500 0.0283

Mercury -114800-02-07 22:05 J -40209238.72 -40209238.58 -40209238.45 0.0528 0.0036

Mercury -114800-05-08 06:43 J -40209149.28 -40209149.22 -40209149.16 0.0529 0.0458

Venus -114798-02-01 21:22 J -40208514.74 -40208514.61 -40208514.49 0.0525 0.0406

Mercury -114795-12-26 20:10 J -40207090.83 -40207090.66 -40207090.48 0.0497 0.0039

Venus -114793-11-29 18:43 J -40206386.93 -40206386.72 -40206386.51 0.0500 0.0023

Mercury -114789-11-27 01:41 J -40204928.56 -40204928.43 -40204928.30 0.0528 0.0151

Mercury -114788-02-24 10:34 J -40204839.15 -40204839.06 -40204838.96 0.0529 0.0344

Venus -114787-10-07 20:10 J -40204248.85 -40204248.66 -40204248.47 0.0526 0.0126

Mercury -114783-10-14 19:12 J -40202780.87 -40202780.70 -40202780.53 0.0498 0.0098

Mercury -114782-01-12 23:02 J -40202690.59 -40202690.54 -40202690.48 0.0497 0.0468

Venus -114781-08-04 15:22 J -40202121.04 -40202120.86 -40202120.67 0.0499 0.0236

Earth -114778-02-10 13:12 J -40201200.99 -40201200.95 -40201200.89 0.0517 0.0505

Moon -114778-02-10 15:50 J -40201200.91 -40201200.84 -40201200.76 0.0517 0.0489 \*

Mercury -114777-09-15 05:17 J -40200618.40 -40200618.28 -40200618.17 0.0528 0.0272

Mercury -114777-12-13 14:24 J -40200529.02 -40200528.90 -40200528.78 0.0528 0.0225

Venus -114775-06-12 18:00 J -40199982.93 -40199982.75 -40199982.56 0.0527 0.0162

Mercury -114771-08-02 18:29 J -40198470.89 -40198470.73 -40198470.58 0.0498 0.0231

Mercury -114771-10-31 21:50 J -40198380.71 -40198380.59 -40198380.45 0.0498 0.0332

Venus -114769-04-09 12:43 J -40197855.00 -40197854.97 -40197854.92 0.0498 0.0490

Venus -114769-12-02 17:17 J -40197617.86 -40197617.78 -40197617.69 0.0501 0.0455

Moon -114766-02-15 09:36 J -40196813.33 -40196813.10 -40196812.87 0.0518 0.0007

Earth -114766-02-15 13:26 J -40196813.18 -40196812.94 -40196812.70 0.0518 0.0022 \*

Mercury -114765-07-04 08:10 J -40196308.24 -40196308.16 -40196308.07 0.0527 0.0401

Mercury -114765-10-01 17:31 J -40196218.90 -40196218.77 -40196218.64 0.0528 0.0100

Venus -114763-02-15 14:38 J -40195716.99 -40195716.89 -40195716.79 0.0527 0.0453

Mercury -114759-05-21 17:46 J -40194160.87 -40194160.76 -40194160.64 0.0498 0.0362

Mercury -114759-08-19 20:53 J -40194070.79 -40194070.63 -40194070.46 0.0498 0.0196

Venus -114757-08-07 12:29 J -40193352.17 -40193351.98 -40193351.78 0.0500 0.0190

Earth -114754-02-20 13:12 J -40192425.05 -40192424.95 -40192424.84 0.0519 0.0461

Moon -114754-02-20 17:17 J -40192424.89 -40192424.78 -40192424.67 0.0519 0.0452 \*

Mercury -114753-04-22 11:31 J -40191998.03 -40191998.02 -40191998.01 0.0527 0.0524

Mercury -114753-07-20 21:07 J -40191908.75 -40191908.62 -40191908.48 0.0528 0.0025

Mercury -114753-10-18 05:46 J -40191819.31 -40191819.26 -40191819.20 0.0529 0.0469

Venus -114751-06-15 09:07 J -40191214.28 -40191214.12 -40191213.95 0.0525 0.0295

Moon -114749-08-03 20:53 J -40190433.82 -40190433.63 -40190433.44 0.0508 0.0270

Earth -114749-08-04 00:14 J -40190433.68 -40190433.49 -40190433.31 0.0508 0.0299 \*

Mercury -114747-03-09 16:48 J -40189850.81 -40189850.80 -40189850.78 0.0498 0.0495

Mercury -114747-06-07 19:26 J -40189760.87 -40189760.69 -40189760.52 0.0497 0.0053

Venus -114745-04-12 05:31 J -40189086.48 -40189086.27 -40189086.06 0.0499 0.0080

Mercury -114741-05-09 00:43 J -40187598.60 -40187598.47 -40187598.34 0.0528 0.0142

Mercury -114741-08-06 09:36 J -40187509.19 -40187509.10 -40187509.00 0.0529 0.0353

Venus -114739-02-18 09:22 J -40186948.31 -40186948.11 -40186947.91 0.0527 0.0017

Earth -114737-08-08 13:26 J -40186046.16 -40186045.94 -40186045.72 0.0507 0.0140

Moon -114737-08-08 17:17 J -40186046.00 -40186045.78 -40186045.56 0.0507 0.0148 \*

Mercury -114735-03-26 18:29 J -40185450.90 -40185450.73 -40185450.55 0.0497 0.0082

Mercury -114735-06-24 22:34 J -40185360.60 -40185360.56 -40185360.52 0.0497 0.0483

Venus -114734-12-17 01:55 J -40184820.57 -40184820.42 -40184820.26 0.0498 0.0339

Mercury -114729-02-26 04:19 J -40183288.43 -40183288.32 -40183288.20 0.0528 0.0260

Mercury -114729-05-25 13:26 J -40183199.05 -40183198.94 -40183198.82 0.0529 0.0239

Venus -114728-10-24 07:26 J -40182682.35 -40182682.19 -40182682.02 0.0527 0.0269

Mercury -114723-01-12 17:31 J -40181140.92 -40181140.77 -40181140.61 0.0498 0.0217

Mercury -114723-04-12 20:53 J -40181050.75 -40181050.63 -40181050.50 0.0497 0.0344



Mars -114723-07-25 20:24 J -40180946.90 -40180946.65 -40180946.39 0.0497 0.0151  
 Venus -114721-04-15 03:07 J -40180317.52 -40180317.37 -40180317.22 0.0501 0.0350  
 Mercury -114718-12-15 07:41 J -40178978.26 -40178978.18 -40178978.08 0.0528 0.0383  
 Mercury -114717-03-13 17:17 J -40178888.91 -40178888.78 -40178888.65 0.0528 0.0119  
 Venus -114715-02-20 23:46 J -40178179.59 -40178179.51 -40178179.42 0.0524 0.0471  
 Mercury -114712-10-31 16:48 J -40176830.92 -40176830.80 -40176830.68 0.0498 0.0349  
 Mercury -114711-01-29 19:55 J -40176740.83 -40176740.67 -40176740.51 0.0498 0.0207  
 Venus -114710-12-19 23:17 J -40176051.74 -40176051.53 -40176051.32 0.0500 0.0089  
 Mercury -114706-10-03 10:48 J -40174668.08 -40174668.05 -40174668.02 0.0527 0.0510  
 Mercury -114706-12-31 20:24 J -40174578.78 -40174578.65 -40174578.51 0.0528 0.0013  
 Mercury -114705-03-30 05:02 J -40174489.34 -40174489.29 -40174489.24 0.0529 0.0481  
 Mars -114705-05-14 02:24 J -40174444.64 -40174444.40 -40174444.14 0.0529 0.0248  
 Venus -114704-10-26 21:36 J -40173913.78 -40173913.60 -40173913.41 0.0526 0.0186  
 Mercury -114700-08-19 16:19 J -40172520.86 -40172520.82 -40172520.77 0.0499 0.0479  
 Mercury -114700-11-17 18:58 J -40172430.88 -40172430.71 -40172430.53 0.0498 0.0073  
 Venus -114698-08-24 19:12 J -40171785.89 -40171785.70 -40171785.50 0.0499 0.0174  
 Mercury -114694-10-20 00:00 J -40170268.63 -40170268.50 -40170268.37 0.0528 0.0130  
 Mercury -114693-01-17 08:53 J -40170179.23 -40170179.13 -40170179.04 0.0529 0.0364  
 Venus -114692-07-01 20:53 J -40169647.83 -40169647.63 -40169647.44 0.0527 0.0099  
 Mercury -114688-09-05 17:46 J -40168120.93 -40168120.76 -40168120.59 0.0497 0.0066  
 Mars -114687-04-29 10:05 J -40167885.28 -40167885.08 -40167884.87 0.0496 0.0313  
 Venus -114686-04-29 13:12 J -40167520.04 -40167519.95 -40167519.85 0.0498 0.0438  
 Earth -114683-02-14 18:14 J -40166497.97 -40166497.74 -40166497.51 0.0518 0.0093  
 Moon -114683-02-14 22:19 J -40166497.80 -40166497.57 -40166497.33 0.0518 0.0062 \*  
 Mercury -114682-08-08 03:07 J -40165958.48 -40165958.37 -40165958.25 0.0528 0.0254  
 Mercury -114682-11-05 12:29 J -40165869.10 -40165868.98 -40165868.87 0.0529 0.0245  
 Venus -114680-03-06 19:41 J -40165381.81 -40165381.68 -40165381.54 0.0528 0.0383  
 Mercury -114676-06-24 17:02 J -40163810.95 -40163810.79 -40163810.63 0.0497 0.0199  
 Mercury -114676-09-22 20:24 J -40163720.77 -40163720.65 -40163720.53 0.0497 0.0360  
 Venus -114674-08-27 12:43 J -40163017.15 -40163016.97 -40163016.79 0.0500 0.0244

Moon -114671-02-19 16:48 J -40162109.95 -40162109.80 -40162109.64 0.0520 0.0391  
 Earth -114671-02-19 20:24 J -40162109.79 -40162109.65 -40162109.49 0.0520 0.0403 \*  
 Mercury -114670-05-27 06:43 J -40161648.31 -40161648.22 -40161648.12 0.0528 0.0373  
 Mercury -114670-08-24 16:19 J -40161558.95 -40161558.82 -40161558.69 0.0529 0.0129  
 Mars -114669-02-20 05:17 J -40161379.43 -40161379.28 -40161379.11 0.0530 0.0436  
 Venus -114668-07-04 13:26 J -40160879.08 -40160878.94 -40160878.80 0.0525 0.0367  
 Earth -114666-08-04 12:58 J -40160118.13 -40160117.96 -40160117.79 0.0508 0.0342  
 Moon -114666-08-04 16:34 J -40160117.99 -40160117.81 -40160117.62 0.0508 0.0309 \*  
 Mercury -114664-04-12 16:05 J -40159500.96 -40159500.83 -40159500.71 0.0498 0.0335  
 Mercury -114664-07-11 18:58 J -40159410.87 -40159410.71 -40159410.55 0.0497 0.0220  
 Venus -114662-05-02 09:07 J -40158751.33 -40158751.12 -40158750.91 0.0499 0.0017  
 Mercury -114658-03-15 10:05 J -40157338.12 -40157338.08 -40157338.03 0.0527 0.0495  
 Mercury -114658-06-12 19:55 J -40157248.80 -40157248.67 -40157248.54 0.0528 0.0010  
 Mercury -114658-09-10 04:34 J -40157159.35 -40157159.31 -40157159.27 0.0529 0.0498  
 Venus -114656-03-09 11:46 J -40156613.20 -40156613.01 -40156612.81 0.0526 0.0083  
 Moon -114654-08-08 20:38 J -40155730.87 -40155730.64 -40155730.41 0.0507 0.0090  
 Earth -114654-08-09 00:00 J -40155730.72 -40155730.50 -40155730.27 0.0507 0.0088 \*  
 Mercury -114652-01-29 15:07 J -40155190.92 -40155190.87 -40155190.80 0.0498 0.0468  
 Mercury -114652-04-29 18:00 J -40155100.93 -40155100.75 -40155100.58 0.0498 0.0084  
 Venus -114650-01-05 05:46 J -40154485.43 -40154485.26 -40154485.08 0.0499 0.0276  
 Mercury -114646-03-31 23:02 J -40152938.67 -40152938.54 -40152938.41 0.0528 0.0118  
 Mercury -114646-06-29 07:55 J -40152849.26 -40152849.17 -40152849.08 0.0529 0.0375  
 Venus -114645-11-12 08:38 J -40152347.32 -40152347.14 -40152346.96 0.0527 0.0212  
 Moon -114642-08-13 13:26 J -40151342.98 -40151342.94 -40151342.87 0.0506 0.0490  
 Mercury -114640-02-15 17:02 J -40150790.96 -40150790.79 -40150790.62 0.0498 0.0052  
 Venus -114638-05-05 06:14 J -40149982.35 -40149982.24 -40149982.12 0.0501 0.0413  
 Mercury -114634-01-18 02:24 J -40148628.52 -40148628.40 -40148628.28 0.0528 0.0242  
 Mercury -114634-04-17 11:31 J -40148539.13 -40148539.02 -40148538.90 0.0529 0.0256  
 Venus -114633-07-18 06:29 J -40148081.29 -40148081.23 -40148081.17 0.0528 0.0501  
 Mercury -114629-12-04 16:05 J -40146480.99 -40146480.83 -40146480.67 0.0497 0.0187

Mercury -114628-03-04 19:26 J -40146390.80 -40146390.69 -40146390.57 0.0497 0.0373

Venus -114626-01-07 22:48 J -40145716.75 -40145716.55 -40145716.34 0.0499 0.0141

Mercury -114623-11-06 05:17 J -40144318.37 -40144318.28 -40144318.18 0.0528 0.0370

Mercury -114622-02-03 14:53 J -40144229.01 -40144228.88 -40144228.75 0.0529 0.0133

Venus -114621-11-15 01:41 J -40143578.60 -40143578.43 -40143578.25 0.0526 0.0257

Mercury -114617-09-22 15:22 J -40142170.99 -40142170.86 -40142170.73 0.0497 0.0319

Mercury -114617-12-21 18:14 J -40142080.89 -40142080.74 -40142080.58 0.0497 0.0236

Venus -114615-09-12 18:58 J -40141450.91 -40141450.71 -40141450.50 0.0499 0.0122

Mercury -114611-08-25 08:53 J -40140008.18 -40140008.13 -40140008.08 0.0528 0.0490

Mercury -114611-11-22 18:43 J -40139918.85 -40139918.72 -40139918.59 0.0529 0.0016

Mercury -114610-02-20 03:22 J -40139829.39 -40139829.36 -40139829.32 0.0529 0.0506

Venus -114609-07-21 00:14 J -40139312.69 -40139312.49 -40139312.30 0.0527 0.0031

Mercury -114605-07-11 14:10 J -40137860.97 -40137860.91 -40137860.84 0.0498 0.0455

Mercury -114605-10-09 16:48 J -40137770.97 -40137770.80 -40137770.63 0.0497 0.0095

Mars -114604-01-14 18:14 J -40137673.86 -40137673.74 -40137673.60 0.0497 0.0431

Venus -114603-05-18 15:36 J -40137184.98 -40137184.85 -40137184.71 0.0498 0.0380

Moon -114600-02-14 00:43 J -40136182.70 -40136182.47 -40136182.23 0.0518 0.0113

Earth -114600-02-14 04:48 J -40136182.52 -40136182.30 -40136182.07 0.0518 0.0142 \*

Mercury -114599-09-10 22:19 J -40135608.70 -40135608.57 -40135608.44 0.0528 0.0105

Mercury -114599-12-09 07:12 J -40135519.29 -40135519.20 -40135519.11 0.0529 0.0389

Venus -114597-03-25 21:36 J -40135046.75 -40135046.60 -40135046.44 0.0527 0.0321

Mercury -114593-07-28 15:36 J -40133461.02 -40133460.85 -40133460.67 0.0498 0.0045

Venus -114591-09-15 15:36 J -40132682.01 -40132681.85 -40132681.67 0.0500 0.0309

Earth -114588-02-19 04:48 J -40131794.47 -40131794.30 -40131794.11 0.0519 0.0344

Moon -114588-02-19 07:55 J -40131794.34 -40131794.17 -40131793.99 0.0519 0.0332 \*

Mercury -114587-06-30 01:12 J -40131298.56 -40131298.45 -40131298.32 0.0528 0.0234

Mercury -114587-09-27 10:34 J -40131209.18 -40131209.06 -40131208.95 0.0529 0.0264

Venus -114585-07-23 13:26 J -40130544.06 -40130543.94 -40130543.83 0.0525 0.0422

Moon -114583-08-03 18:29 J -40129802.88 -40129802.73 -40129802.56 0.0509 0.0370

Earth -114583-08-03 22:19 J -40129802.71 -40129802.57 -40129802.43 0.0509 0.0399 \*

Mercury -114581-05-16 14:53 J -40129151.04 -40129150.88 -40129150.72 0.0498 0.0177  
 Mercury -114581-08-14 18:14 J -40129060.84 -40129060.74 -40129060.62 0.0497 0.0384  
 Venus -114579-05-21 11:17 J -40128416.24 -40128416.03 -40128415.82 0.0499 0.0043  
 Mercury -114575-04-18 04:34 J -40126988.41 -40126988.31 -40126988.21 0.0528 0.0359  
 Mercury -114575-07-16 13:55 J -40126899.05 -40126898.92 -40126898.79 0.0529 0.0142  
 Venus -114573-03-28 12:29 J -40126278.17 -40126277.98 -40126277.79 0.0526 0.0139  
 Earth -114571-08-08 11:46 J -40125415.24 -40125415.01 -40125414.78 0.0507 0.0043  
 Moon -114571-08-08 14:10 J -40125415.13 -40125414.91 -40125414.68 0.0507 0.0040 \*  
 Mercury -114569-03-04 13:55 J -40124841.05 -40124840.92 -40124840.78 0.0498 0.0310  
 Mercury -114569-06-02 17:02 J -40124750.94 -40124750.79 -40124750.64 0.0497 0.0245  
 Mars -114569-10-19 09:22 J -40124612.38 -40124612.11 -40124611.85 0.0496 0.0038  
 Venus -114567-01-24 05:02 J -40124150.48 -40124150.29 -40124150.10 0.0498 0.0225  
 Mercury -114563-02-04 07:12 J -40122678.24 -40122678.20 -40122678.15 0.0528 0.0491  
 Mercury -114563-05-04 17:02 J -40122588.92 -40122588.79 -40122588.66 0.0529 0.0015  
 Mercury -114563-08-02 01:41 J -40122499.46 -40122499.43 -40122499.39 0.0530 0.0507  
 Venus -114562-12-02 10:48 J -40122012.24 -40122012.05 -40122011.86 0.0528 0.0148  
 Moon -114559-08-12 23:02 J -40121027.66 -40121027.54 -40121027.43 0.0506 0.0443  
 Earth -114559-08-13 00:14 J -40121027.56 -40121027.49 -40121027.41 0.0506 0.0477 \*  
 Mercury -114558-12-22 13:26 J -40120531.02 -40120530.94 -40120530.86 0.0498 0.0441  
 Mercury -114557-03-21 15:50 J -40120441.01 -40120440.84 -40120440.67 0.0497 0.0108  
 Venus -114556-09-29 01:41 J -40119884.47 -40119884.43 -40119884.38 0.0497 0.0483  
 Venus -114555-05-24 04:34 J -40119647.38 -40119647.31 -40119647.22 0.0500 0.0463  
 Mercury -114551-02-20 20:38 J -40118278.77 -40118278.64 -40118278.51 0.0529 0.0105  
 Mercury -114551-05-21 05:46 J -40118189.35 -40118189.26 -40118189.17 0.0529 0.0391  
 Mars -114551-08-08 23:17 J -40118109.82 -40118109.53 -40118109.25 0.0530 0.0006  
 Venus -114550-08-07 08:10 J -40117746.27 -40117746.16 -40117746.05 0.0528 0.0438  
 Mercury -114545-01-08 14:24 J -40116131.08 -40116130.90 -40116130.73 0.0497 0.0035  
 Venus -114543-01-27 00:14 J -40115381.69 -40115381.49 -40115381.30 0.0500 0.0199  
 Mercury -114540-12-10 00:14 J -40113968.61 -40113968.49 -40113968.37 0.0528 0.0225  
 Mercury -114539-03-09 09:22 J -40113879.22 -40113879.11 -40113878.99 0.0529 0.0273

Venus -114538-12-05 02:10 J -40113243.57 -40113243.41 -40113243.25 0.0526 0.0314  
 Mercury -114534-10-27 13:12 J -40111821.11 -40111820.95 -40111820.79 0.0498 0.0171  
 Mercury -114533-01-25 16:34 J -40111730.91 -40111730.81 -40111730.70 0.0497 0.0389  
 Mars -114533-07-23 20:10 J -40111550.69 -40111550.66 -40111550.63 0.0496 0.0492  
 Venus -114532-10-01 20:24 J -40111115.86 -40111115.65 -40111115.44 0.0499 0.0065  
 Mercury -114528-09-28 03:07 J -40109658.46 -40109658.37 -40109658.27 0.0528 0.0354  
 Mercury -114528-12-26 12:43 J -40109569.10 -40109568.97 -40109568.85 0.0528 0.0147  
 Venus -114526-08-09 22:48 J -40108977.75 -40108977.55 -40108977.35 0.0527 0.0021  
 Mercury -114522-08-15 12:14 J -40107511.12 -40107510.99 -40107510.85 0.0498 0.0306  
 Mercury -114522-11-13 15:22 J -40107421.01 -40107420.86 -40107420.71 0.0497 0.0250  
 Venus -114520-06-06 16:19 J -40106849.97 -40106849.82 -40106849.66 0.0498 0.0327  
 Earth -114517-02-14 07:41 J -40105867.39 -40105867.18 -40105866.96 0.0518 0.0222  
 Moon -114517-02-14 11:31 J -40105867.24 -40105867.02 -40105866.81 0.0518 0.0192 \*  
 Mercury -114516-07-17 06:14 J -40105348.29 -40105348.24 -40105348.19 0.0527 0.0482  
 Mercury -114516-10-14 15:50 J -40105258.97 -40105258.84 -40105258.70 0.0528 0.0028  
 Mercury -114515-01-12 00:29 J -40105169.50 -40105169.48 -40105169.44 0.0529 0.0513  
 Venus -114514-04-14 20:24 J -40104711.81 -40104711.65 -40104711.48 0.0528 0.0272  
 Mercury -114510-06-03 11:46 J -40103201.09 -40103201.01 -40103200.93 0.0498 0.0435  
 Mercury -114510-09-01 14:10 J -40103111.08 -40103110.91 -40103110.74 0.0497 0.0114  
 Venus -114508-10-04 13:41 J -40102347.08 -40102346.93 -40102346.78 0.0500 0.0356  
 Moon -114505-02-19 00:14 J -40101479.71 -40101479.49 -40101479.27 0.0519 0.0230  
 Earth -114505-02-19 02:38 J -40101479.59 -40101479.39 -40101479.18 0.0519 0.0242 \*  
 Mercury -114504-08-02 18:43 J -40100948.85 -40100948.72 -40100948.59 0.0529 0.0109  
 Mercury -114504-10-31 03:50 J -40100859.43 -40100859.34 -40100859.25 0.0530 0.0387  
 Venus -114502-08-12 13:55 J -40100208.99 -40100208.92 -40100208.84 0.0526 0.0482  
 Earth -114500-08-03 09:07 J -40099487.22 -40099487.12 -40099487.01 0.0509 0.0450  
 Moon -114500-08-03 12:00 J -40099487.11 -40099487.00 -40099486.86 0.0509 0.0421 \*  
 Mercury -114498-06-20 13:12 J -40098801.12 -40098800.95 -40098800.78 0.0497 0.0023  
 Venus -114496-06-09 08:53 J -40098081.34 -40098081.13 -40098080.92 0.0499 0.0089  
 Mercury -114492-05-21 22:19 J -40096638.69 -40096638.57 -40096638.45 0.0528 0.0230

Mercury -114492-08-19 07:26 J -40096549.30 -40096549.19 -40096549.07 0.0529 0.0271

Venus -114490-04-17 12:29 J -40095943.17 -40095942.98 -40095942.80 0.0526 0.0198

Moon -114488-08-07 16:19 J -40095100.06 -40095099.82 -40095099.59 0.0507 0.0034

Earth -114488-08-07 18:14 J -40095099.97 -40095099.74 -40095099.51 0.0507 0.0028 \*

Mercury -114486-04-08 11:31 J -40094491.18 -40094491.02 -40094490.86 0.0497 0.0166

Mercury -114486-07-07 14:53 J -40094400.99 -40094400.88 -40094400.77 0.0497 0.0393

Venus -114484-02-12 04:34 J -40093815.51 -40093815.31 -40093815.12 0.0498 0.0174

Mercury -114480-03-10 01:41 J -40092328.53 -40092328.43 -40092328.33 0.0528 0.0351

Mercury -114480-06-07 11:17 J -40092239.16 -40092239.03 -40092238.90 0.0529 0.0151

Venus -114479-12-21 09:50 J -40091677.28 -40091677.09 -40091676.89 0.0527 0.0095

Earth -114476-08-12 04:05 J -40090712.46 -40090712.33 -40090712.18 0.0506 0.0398

Moon -114476-08-12 05:02 J -40090712.44 -40090712.29 -40090712.13 0.0506 0.0367 \*

Mercury -114474-01-25 10:19 J -40090181.20 -40090181.07 -40090180.93 0.0498 0.0304

Mercury -114474-04-25 13:12 J -40090091.10 -40090090.95 -40090090.79 0.0497 0.0252

Venus -114473-10-18 00:58 J -40089549.55 -40089549.46 -40089549.35 0.0498 0.0435

Mercury -114469-12-27 04:34 J -40088018.36 -40088018.31 -40088018.25 0.0527 0.0481

Mercury -114468-03-26 14:24 J -40087929.03 -40087928.90 -40087928.77 0.0528 0.0024

Mercury -114468-06-23 23:02 J -40087839.57 -40087839.54 -40087839.51 0.0529 0.0513

Venus -114467-08-26 05:31 J -40087411.40 -40087411.27 -40087411.14 0.0528 0.0394

Mercury -114463-11-13 09:36 J -40085871.18 -40085871.10 -40085871.02 0.0498 0.0438

Mercury -114462-02-11 12:00 J -40085781.17 -40085781.00 -40085780.83 0.0497 0.0112

Venus -114460-02-14 23:31 J -40085046.70 -40085046.52 -40085046.34 0.0500 0.0250

Mercury -114456-01-12 17:31 J -40083618.90 -40083618.77 -40083618.64 0.0528 0.0104

Mercury -114456-04-12 02:24 J -40083529.48 -40083529.40 -40083529.31 0.0529 0.0391

Venus -114455-12-23 23:17 J -40082908.67 -40082908.53 -40082908.39 0.0526 0.0361

Mercury -114451-11-30 11:02 J -40081471.21 -40081471.04 -40081470.86 0.0497 0.0024

Mars -114450-04-10 20:38 J -40081339.86 -40081339.64 -40081339.41 0.0496 0.0265

Venus -114449-10-20 17:31 J -40080780.98 -40080780.77 -40080780.56 0.0498 0.0021

Mercury -114445-10-31 20:10 J -40079308.78 -40079308.66 -40079308.54 0.0528 0.0238

Mercury -114444-01-29 05:31 J -40079219.39 -40079219.27 -40079219.16 0.0529 0.0263

Venus -114443-08-28 20:53 J -40078642.82 -40078642.63 -40078642.43 0.0527 0.0072

Mercury -114439-09-18 10:05 J -40077161.24 -40077161.08 -40077160.92 0.0497 0.0159

Mercury -114439-12-17 13:26 J -40077071.04 -40077070.94 -40077070.84 0.0496 0.0400

Venus -114437-06-25 13:26 J -40076515.11 -40076514.94 -40076514.77 0.0497 0.0283

Moon -114434-02-13 00:00 J -40075552.69 -40075552.50 -40075552.30 0.0517 0.0298

Earth -114434-02-13 03:50 J -40075552.52 -40075552.34 -40075552.16 0.0517 0.0330 \*

Mercury -114433-08-19 23:17 J -40074998.62 -40074998.53 -40074998.43 0.0528 0.0361

Mercury -114433-11-17 09:07 J -40074909.25 -40074909.12 -40074909.00 0.0529 0.0143

Mars -114432-01-25 01:12 J -40074840.56 -40074840.45 -40074840.32 0.0530 0.0480

Venus -114431-05-03 18:29 J -40074376.91 -40074376.73 -40074376.55 0.0528 0.0220

Mercury -114427-07-07 08:24 J -40072851.29 -40072851.15 -40072851.01 0.0498 0.0302

Mercury -114427-10-05 11:17 J -40072761.18 -40072761.03 -40072760.88 0.0497 0.0252

Venus -114425-10-23 11:31 J -40072012.14 -40072012.02 -40072011.89 0.0500 0.0405

Earth -114422-02-18 05:46 J -40071164.48 -40071164.26 -40071164.03 0.0519 0.0161

Moon -114422-02-18 07:55 J -40071164.39 -40071164.17 -40071163.96 0.0519 0.0153 \*

Mercury -114421-06-08 02:53 J -40070688.43 -40070688.38 -40070688.33 0.0528 0.0483

Mercury -114421-09-05 12:43 J -40070599.11 -40070598.97 -40070598.84 0.0529 0.0025

Mercury -114421-12-03 21:22 J -40070509.63 -40070509.61 -40070509.58 0.0529 0.0514

Venus -114419-01-06 15:07 J -40070110.90 -40070110.87 -40070110.82 0.0528 0.0516

Mercury -114415-04-25 07:12 J -40068541.27 -40068541.20 -40068541.12 0.0498 0.0439

Mercury -114415-07-24 09:36 J -40068451.27 -40068451.10 -40068450.93 0.0497 0.0110

Mars -114414-01-13 02:24 J -40068278.65 -40068278.40 -40068278.15 0.0496 0.0182

Venus -114413-06-28 06:58 J -40067746.42 -40067746.21 -40067746.01 0.0499 0.0138

Mercury -114409-06-24 15:36 J -40066288.98 -40066288.85 -40066288.71 0.0528 0.0107

Mercury -114409-09-22 00:43 J -40066199.56 -40066199.47 -40066199.38 0.0529 0.0389

Venus -114407-05-06 08:10 J -40065608.33 -40065608.16 -40065607.98 0.0526 0.0239

Earth -114405-08-06 19:55 J -40064784.90 -40064784.67 -40064784.45 0.0508 0.0117

Moon -114405-08-06 21:36 J -40064784.82 -40064784.60 -40064784.38 0.0508 0.0117 \*

Mercury -114403-05-12 08:24 J -40064141.32 -40064141.15 -40064140.98 0.0497 0.0029

Venus -114401-03-03 02:38 J -40063480.60 -40063480.39 -40063480.19 0.0498 0.0129

Mercury -114397-04-12 18:43 J -40061978.84 -40061978.72 -40061978.60 0.0528 0.0235  
 Mercury -114397-07-11 03:50 J -40061889.45 -40061889.34 -40061889.22 0.0529 0.0265  
 Mars -114397-11-01 10:19 J -40061776.34 -40061776.07 -40061775.80 0.0529 0.0160  
 Venus -114395-01-09 05:31 J -40061342.47 -40061342.27 -40061342.08 0.0527 0.0056  
 Moon -114393-08-11 07:26 J -40060397.38 -40060397.19 -40060396.99 0.0507 0.0287  
 Earth -114393-08-11 08:10 J -40060397.34 -40060397.16 -40060396.98 0.0507 0.0319 \*  
 Mercury -114391-02-28 07:41 J -40059831.34 -40059831.18 -40059831.02 0.0497 0.0162  
 Mercury -114391-05-29 11:02 J -40059741.15 -40059741.04 -40059740.94 0.0497 0.0397  
 Venus -114390-11-06 21:50 J -40059214.71 -40059214.59 -40059214.45 0.0497 0.0391  
 Mercury -114385-01-30 21:07 J -40057668.72 -40057668.62 -40057668.53 0.0528 0.0371  
 Mercury -114385-04-29 06:43 J -40057579.35 -40057579.22 -40057579.09 0.0529 0.0132  
 Venus -114384-09-14 01:26 J -40057076.58 -40057076.44 -40057076.29 0.0529 0.0353  
 Mercury -114380-12-17 06:43 J -40055521.36 -40055521.22 -40055521.08 0.0498 0.0298  
 Mercury -114379-03-17 09:22 J -40055431.25 -40055431.11 -40055430.95 0.0497 0.0257  
 Venus -114377-03-05 19:12 J -40054711.87 -40054711.70 -40054711.52 0.0499 0.0292  
 Mercury -114374-11-19 00:14 J -40053358.53 -40053358.49 -40053358.44 0.0528 0.0496  
 Mercury -114373-02-16 10:05 J -40053269.21 -40053269.08 -40053268.94 0.0529 0.0021  
 Mercury -114373-05-15 18:58 J -40053179.74 -40053179.71 -40053179.67 0.0530 0.0503  
 Venus -114371-01-11 19:55 J -40052573.80 -40052573.67 -40052573.55 0.0526 0.0408  
 Mercury -114368-10-05 04:48 J -40051211.37 -40051211.30 -40051211.22 0.0498 0.0442  
 Mercury -114367-01-03 07:12 J -40051121.37 -40051121.20 -40051121.03 0.0497 0.0107  
 Venus -114366-11-09 13:55 J -40050446.13 -40050445.92 -40050445.71 0.0499 0.0024  
 Mercury -114362-12-05 13:41 J -40048959.06 -40048958.93 -40048958.79 0.0528 0.0111  
 Mercury -114361-03-03 22:48 J -40048869.64 -40048869.55 -40048869.46 0.0529 0.0386  
 Venus -114360-09-16 17:46 J -40048307.95 -40048307.76 -40048307.56 0.0527 0.0119  
 Mercury -114356-10-22 05:46 J -40046811.43 -40046811.26 -40046811.08 0.0497 0.0035  
 Venus -114354-07-15 09:36 J -40046180.28 -40046180.10 -40046179.91 0.0498 0.0243  
 Earth -114351-02-12 04:05 J -40045237.45 -40045237.33 -40045237.18 0.0517 0.0421  
 Moon -114351-02-12 07:41 J -40045237.33 -40045237.18 -40045237.02 0.0517 0.0388 \*  
 Mercury -114350-09-23 16:48 J -40044648.92 -40044648.80 -40044648.68 0.0528 0.0238



Mercury -114350-12-22 02:10 J -40044559.53 -40044559.41 -40044559.30 0.0529 0.0261  
 Venus -114348-05-22 13:41 J -40044042.11 -40044041.93 -40044041.74 0.0527 0.0182  
 Mercury -114344-08-10 04:34 J -40042501.47 -40042501.31 -40042501.15 0.0498 0.0173  
 Mercury -114344-11-08 07:41 J -40042411.28 -40042411.18 -40042411.06 0.0497 0.0387  
 Venus -114342-11-12 08:38 J -40041677.23 -40041677.14 -40041677.05 0.0500 0.0449  
 Moon -114339-02-17 00:58 J -40040849.71 -40040849.46 -40040849.22 0.0518 0.0051  
 Earth -114339-02-17 02:53 J -40040849.62 -40040849.38 -40040849.15 0.0518 0.0056 \*  
 Mercury -114338-07-12 19:26 J -40040338.78 -40040338.69 -40040338.59 0.0528 0.0370  
 Mercury -114338-10-10 05:02 J -40040249.41 -40040249.29 -40040249.16 0.0529 0.0135  
 Venus -114336-01-25 09:36 J -40039776.17 -40039776.10 -40039776.02 0.0528 0.0483  
 Mercury -114332-05-29 03:50 J -40038191.47 -40038191.34 -40038191.20 0.0498 0.0305  
 Mercury -114332-08-27 06:43 J -40038101.37 -40038101.22 -40038101.07 0.0497 0.0250  
 Venus -114330-07-18 02:53 J -40037411.58 -40037411.38 -40037411.18 0.0499 0.0180  
 Moon -114327-02-21 20:53 J -40036461.70 -40036461.63 -40036461.55 0.0519 0.0489  
 Earth -114327-02-21 21:22 J -40036461.63 -40036461.61 -40036461.59 0.0519 0.0517 \*  
 Mercury -114326-04-30 21:50 J -40036028.62 -40036028.59 -40036028.56 0.0528 0.0507  
 Mercury -114326-07-29 07:41 J -40035939.31 -40035939.18 -40035939.04 0.0529 0.0016  
 Mercury -114326-10-26 16:34 J -40035849.85 -40035849.81 -40035849.76 0.0529 0.0491  
 Venus -114324-05-25 03:07 J -40035273.53 -40035273.37 -40035273.20 0.0527 0.0280  
 Moon -114322-08-06 21:50 J -40034469.81 -40034469.59 -40034469.37 0.0509 0.0195  
 Earth -114322-08-06 23:31 J -40034469.73 -40034469.52 -40034469.31 0.0509 0.0199 \*  
 Mercury -114320-03-17 03:07 J -40033881.45 -40033881.37 -40033881.29 0.0498 0.0438  
 Mercury -114320-06-15 05:31 J -40033791.44 -40033791.27 -40033791.10 0.0497 0.0110  
 Venus -114318-03-22 22:19 J -40033145.78 -40033145.57 -40033145.37 0.0498 0.0089  
 Mercury -114314-05-17 11:02 J -40031629.17 -40031629.04 -40031628.91 0.0529 0.0125  
 Mercury -114314-08-14 20:24 J -40031539.75 -40031539.65 -40031539.56 0.0529 0.0373  
 Venus -114312-01-28 00:58 J -40031007.66 -40031007.46 -40031007.26 0.0528 0.0013  
 Earth -114310-08-11 07:55 J -40030082.37 -40030082.17 -40030081.96 0.0507 0.0220  
 Moon -114310-08-11 08:24 J -40030082.35 -40030082.15 -40030081.94 0.0507 0.0192 \*  
 Mercury -114308-04-03 03:07 J -40029481.54 -40029481.37 -40029481.19 0.0497 0.0041

Venus -114307-11-25 16:48 J -40028879.94 -40028879.80 -40028879.65 0.0498 0.0357  
 Mercury -114302-03-05 14:38 J -40027319.01 -40027318.89 -40027318.77 0.0528 0.0245  
 Mercury -114302-06-03 00:00 J -40027229.61 -40027229.50 -40027229.38 0.0529 0.0255  
 Venus -114301-10-02 22:19 J -40026741.72 -40026741.57 -40026741.40 0.0528 0.0309  
 Mercury -114296-01-20 01:55 J -40025171.58 -40025171.42 -40025171.26 0.0497 0.0180  
 Mercury -114296-04-20 05:02 J -40025081.40 -40025081.29 -40025081.18 0.0497 0.0379  
 Mars -114296-07-03 23:02 J -40025006.79 -40025006.54 -40025006.29 0.0496 0.0157  
 Venus -114294-03-25 14:53 J -40024377.03 -40024376.88 -40024376.72 0.0500 0.0332  
 Mercury -114291-12-22 17:46 J -40023008.86 -40023008.76 -40023008.67 0.0528 0.0374  
 Mercury -114290-03-22 03:22 J -40022919.49 -40022919.36 -40022919.23 0.0529 0.0130  
 Venus -114288-01-30 14:38 J -40022239.00 -40022238.89 -40022238.79 0.0526 0.0445  
 Mercury -114285-11-08 00:43 J -40020861.60 -40020861.47 -40020861.34 0.0498 0.0317  
 Mercury -114284-02-06 03:36 J -40020771.51 -40020771.35 -40020771.20 0.0497 0.0238  
 Venus -114283-11-28 10:19 J -40020111.28 -40020111.07 -40020110.86 0.0499 0.0064  
 Mercury -114279-10-10 20:24 J -40018698.69 -40018698.65 -40018698.61 0.0527 0.0505  
 Mercury -114278-01-08 06:14 J -40018609.37 -40018609.24 -40018609.10 0.0528 0.0009  
 Mercury -114278-04-07 15:07 J -40018519.91 -40018519.87 -40018519.82 0.0529 0.0492  
 Mars -114278-04-20 01:41 J -40018507.64 -40018507.43 -40018507.22 0.0529 0.0346  
 Venus -114277-10-05 11:46 J -40017973.19 -40017973.01 -40017972.82 0.0527 0.0152  
 Mercury -114273-08-27 00:14 J -40016551.56 -40016551.49 -40016551.41 0.0498 0.0447  
 Mercury -114273-11-25 02:38 J -40016461.56 -40016461.39 -40016461.22 0.0497 0.0102  
 Venus -114271-08-03 06:00 J -40015845.44 -40015845.25 -40015845.05 0.0498 0.0201  
 Moon -114268-02-10 17:17 J -40014922.80 -40014922.78 -40014922.75 0.0516 0.0513  
 Mercury -114267-10-27 08:53 J -40014299.26 -40014299.13 -40014299.00 0.0528 0.0136  
 Mercury -114266-01-24 18:00 J -40014209.85 -40014209.75 -40014209.66 0.0529 0.0361  
 Venus -114265-06-10 07:41 J -40013707.37 -40013707.18 -40013706.99 0.0528 0.0148  
 Mercury -114261-09-13 01:26 J -40012151.62 -40012151.44 -40012151.27 0.0497 0.0038  
 Mars -114260-04-07 11:17 J -40011945.24 -40011945.03 -40011944.82 0.0496 0.0309  
 Venus -114259-04-08 02:10 J -40011579.48 -40011579.41 -40011579.33 0.0497 0.0465  
 Venus -114259-12-01 03:50 J -40011342.37 -40011342.34 -40011342.29 0.0500 0.0490

Earth -114256-02-15 19:55 J -40010534.91 -40010534.67 -40010534.44 0.0517 0.0067  
 Moon -114256-02-15 21:22 J -40010534.83 -40010534.61 -40010534.38 0.0517 0.0068 \*  
 Mercury -114255-08-15 12:00 J -40009989.11 -40009989.00 -40009988.88 0.0528 0.0260  
 Mercury -114255-11-12 21:36 J -40009899.72 -40009899.60 -40009899.49 0.0529 0.0241  
 Venus -114253-02-14 04:34 J -40009441.41 -40009441.31 -40009441.20 0.0529 0.0445  
 Mercury -114249-07-01 23:17 J -40007841.69 -40007841.53 -40007841.37 0.0497 0.0186  
 Mercury -114249-09-30 02:10 J -40007751.52 -40007751.41 -40007751.29 0.0497 0.0373  
 Venus -114247-08-05 21:22 J -40007076.80 -40007076.61 -40007076.42 0.0499 0.0215  
 Earth -114244-02-20 20:38 J -40006146.77 -40006146.64 -40006146.50 0.0519 0.0420  
 Moon -114244-02-20 21:22 J -40006146.77 -40006146.61 -40006146.44 0.0519 0.0388 \*  
 Mercury -114243-06-03 15:36 J -40005678.94 -40005678.85 -40005678.76 0.0528 0.0381  
 Mercury -114243-09-01 01:12 J -40005589.58 -40005589.45 -40005589.32 0.0529 0.0123  
 Mars -114242-01-25 10:48 J -40005443.28 -40005443.05 -40005442.81 0.0530 0.0304  
 Venus -114241-06-13 00:00 J -40004938.65 -40004938.50 -40004938.34 0.0526 0.0324  
 Earth -114239-08-05 22:19 J -40004154.76 -40004154.57 -40004154.39 0.0509 0.0303  
 Moon -114239-08-05 23:46 J -40004154.69 -40004154.51 -40004154.33 0.0509 0.0294 \*  
 Mercury -114237-04-19 22:05 J -40003531.71 -40003531.58 -40003531.45 0.0498 0.0323  
 Mercury -114237-07-19 00:43 J -40003441.63 -40003441.47 -40003441.31 0.0497 0.0230  
 Venus -114235-04-10 17:02 J -40002811.00 -40002810.79 -40002810.58 0.0498 0.0053  
 Mercury -114231-03-22 18:29 J -40001368.76 -40001368.73 -40001368.70 0.0527 0.0509  
 Mercury -114231-06-20 04:34 J -40001279.45 -40001279.31 -40001279.18 0.0528 0.0018  
 Mercury -114231-09-17 13:12 J -40001189.99 -40001189.95 -40001189.90 0.0529 0.0489  
 Venus -114229-02-16 20:24 J -40000672.84 -40000672.65 -40000672.45 0.0527 0.0027  
 Moon -114227-08-10 06:58 J -39999767.45 -39999767.21 -39999766.98 0.0508 0.0095  
 Earth -114227-08-10 06:58 J -39999767.43 -39999767.21 -39999766.98 0.0508 0.0122 \*  
 Mercury -114225-02-06 21:07 J -39999221.68 -39999221.62 -39999221.56 0.0498 0.0459  
 Mercury -114225-05-06 23:17 J -39999131.70 -39999131.53 -39999131.36 0.0497 0.0089  
 Venus -114224-12-14 13:26 J -39998545.10 -39998544.94 -39998544.78 0.0498 0.0318  
 Mercury -114219-04-08 07:26 J -39996969.32 -39996969.19 -39996969.06 0.0528 0.0131  
 Mercury -114219-07-06 16:34 J -39996879.90 -39996879.81 -39996879.72 0.0529 0.0364

Venus -114218-10-22 16:34 J -39996406.97 -39996406.81 -39996406.64 0.0528 0.0276  
 Mercury -114213-02-23 22:34 J -39994821.74 -39994821.56 -39994821.39 0.0498 0.0045  
 Venus -114211-04-13 11:31 J -39994042.15 -39994042.02 -39994041.88 0.0499 0.0377  
 Mercury -114207-01-25 09:50 J -39992659.20 -39992659.09 -39992658.97 0.0528 0.0268  
 Mercury -114207-04-24 19:12 J -39992569.81 -39992569.70 -39992569.58 0.0529 0.0234  
 Venus -114205-02-19 09:07 J -39991904.20 -39991904.12 -39991904.05 0.0526 0.0483  
 Mercury -114202-12-12 21:36 J -39990511.76 -39990511.60 -39990511.44 0.0498 0.0182  
 Mercury -114201-03-12 00:29 J -39990421.59 -39990421.48 -39990421.36 0.0497 0.0377  
 Venus -114200-12-17 06:29 J -39989776.43 -39989776.23 -39989776.02 0.0498 0.0106  
 Mercury -114196-11-13 12:58 J -39988349.04 -39988348.96 -39988348.87 0.0528 0.0394  
 Mercury -114195-02-10 22:48 J -39988259.68 -39988259.55 -39988259.42 0.0529 0.0111  
 Venus -114194-10-25 07:26 J -39987638.37 -39987638.19 -39987638.01 0.0527 0.0194  
 Mercury -114190-09-30 19:26 J -39986201.81 -39986201.69 -39986201.56 0.0498 0.0328  
 Mercury -114190-12-29 22:05 J -39986111.73 -39986111.58 -39986111.42 0.0497 0.0224  
 Venus -114188-08-22 00:14 J -39985510.68 -39985510.49 -39985510.29 0.0498 0.0169  
 Mercury -114184-09-01 16:19 J -39984038.84 -39984038.82 -39984038.79 0.0528 0.0516  
 Mercury -114184-11-30 02:24 J -39983949.53 -39983949.40 -39983949.26 0.0529 0.0019  
 Mercury -114183-02-27 11:31 J -39983860.07 -39983860.02 -39983859.97 0.0529 0.0485  
 Venus -114182-06-30 05:46 J -39983372.45 -39983372.26 -39983372.06 0.0528 0.0100  
 Mercury -114178-07-19 18:29 J -39981891.78 -39981891.73 -39981891.66 0.0498 0.0463  
 Mercury -114178-10-17 20:38 J -39981801.81 -39981801.64 -39981801.46 0.0497 0.0085  
 Venus -114176-04-26 20:38 J -39981244.73 -39981244.64 -39981244.53 0.0497 0.0434  
 Earth -114173-02-15 20:38 J -39980219.86 -39980219.64 -39980219.41 0.0518 0.0157  
 Moon -114173-02-15 21:07 J -39980219.85 -39980219.62 -39980219.38 0.0518 0.0168 \*  
 Mercury -114172-09-18 05:46 J -39979639.39 -39979639.26 -39979639.13 0.0528 0.0132  
 Mercury -114172-12-16 14:53 J -39979549.97 -39979549.88 -39979549.78 0.0529 0.0364  
 Venus -114170-03-05 01:41 J -39979106.55 -39979106.43 -39979106.30 0.0528 0.0402  
 Mercury -114166-08-05 19:26 J -39977491.86 -39977491.69 -39977491.51 0.0498 0.0056  
 Venus -114164-08-24 18:58 J -39976741.89 -39976741.71 -39976741.53 0.0499 0.0261  
 Moon -114161-02-20 17:31 J -39975831.95 -39975831.77 -39975831.58 0.0519 0.0295

Earth -114161-02-20 20:24 J -39975831.84 -39975831.65 -39975831.47 0.0519 0.0325 \*  
 Mercury -114160-07-07 08:38 J -39975329.25 -39975329.14 -39975329.02 0.0528 0.0261  
 Mercury -114160-10-04 18:00 J -39975239.86 -39975239.75 -39975239.63 0.0529 0.0240  
 Venus -114158-07-02 19:12 J -39974603.84 -39974603.70 -39974603.56 0.0526 0.0362  
 Earth -114156-08-04 23:17 J -39973839.67 -39973839.53 -39973839.39 0.0509 0.0394  
 Moon -114156-08-05 00:00 J -39973839.64 -39973839.50 -39973839.35 0.0509 0.0397 \*  
 Mercury -114154-05-24 18:58 J -39973181.87 -39973181.71 -39973181.55 0.0498 0.0188  
 Mercury -114154-08-22 21:50 J -39973091.70 -39973091.59 -39973091.47 0.0497 0.0371  
 Venus -114152-04-29 14:53 J -39972476.09 -39972475.88 -39972475.67 0.0498 0.0011  
 Mercury -114148-04-25 11:02 J -39971019.12 -39971019.04 -39971018.95 0.0527 0.0398  
 Mercury -114148-07-23 20:53 J -39970929.76 -39970929.63 -39970929.50 0.0528 0.0107  
 Venus -114146-03-07 15:36 J -39970338.05 -39970337.85 -39970337.66 0.0527 0.0064  
 Moon -114144-08-09 07:55 J -39969452.39 -39969452.17 -39969451.94 0.0508 0.0008  
 Earth -114144-08-09 10:34 J -39969452.29 -39969452.06 -39969451.83 0.0508 0.0038 \*  
 Mercury -114142-03-12 18:00 J -39968871.88 -39968871.75 -39968871.62 0.0498 0.0322  
 Mercury -114142-06-10 20:38 J -39968781.79 -39968781.64 -39968781.48 0.0497 0.0232  
 Mars -114142-09-27 08:38 J -39968673.41 -39968673.14 -39968672.87 0.0496 0.0029  
 Venus -114140-01-02 10:48 J -39968210.22 -39968210.05 -39968209.87 0.0498 0.0274  
 Mercury -114136-02-11 14:10 J -39966708.92 -39966708.91 -39966708.89 0.0527 0.0524  
 Mercury -114136-05-12 00:14 J -39966619.62 -39966619.49 -39966619.35 0.0528 0.0021  
 Mercury -114136-08-09 09:07 J -39966530.17 -39966530.12 -39966530.06 0.0529 0.0477  
 Venus -114135-11-10 13:12 J -39966072.12 -39966071.95 -39966071.77 0.0528 0.0233  
 Earth -114132-08-13 20:10 J -39965064.75 -39965064.66 -39965064.56 0.0507 0.0460  
 Moon -114132-08-13 23:46 J -39965064.58 -39965064.51 -39965064.42 0.0507 0.0472 \*  
 Mercury -114131-12-29 16:19 J -39964561.87 -39964561.82 -39964561.76 0.0498 0.0465  
 Mercury -114130-03-29 18:29 J -39964471.90 -39964471.73 -39964471.56 0.0497 0.0082  
 Venus -114128-05-02 06:43 J -39963707.34 -39963707.22 -39963707.11 0.0500 0.0414  
 Mercury -114124-02-28 03:50 J -39962309.46 -39962309.34 -39962309.20 0.0528 0.0137  
 Mercury -114124-05-28 13:12 J -39962220.04 -39962219.95 -39962219.85 0.0529 0.0362  
 Mars -114124-07-13 10:48 J -39962174.31 -39962174.05 -39962173.79 0.0530 0.0193

Venus -114123-07-16 11:02 J -39961806.04 -39961806.04 -39961806.03 0.0529 0.0528  
 Mercury -114118-01-15 17:17 J -39960161.95 -39960161.78 -39960161.61 0.0497 0.0057  
 Venus -114116-01-05 02:10 J -39959441.61 -39959441.41 -39959441.21 0.0499 0.0144  
 Mercury -114113-12-17 07:12 J -39957999.31 -39957999.20 -39957999.08 0.0528 0.0259  
 Mercury -114112-03-16 16:48 J -39957909.92 -39957909.80 -39957909.69 0.0529 0.0242  
 Venus -114111-11-13 05:46 J -39957303.43 -39957303.26 -39957303.09 0.0526 0.0243  
 Mercury -114107-11-03 16:19 J -39955851.98 -39955851.82 -39955851.66 0.0498 0.0193  
 Mercury -114106-02-01 19:12 J -39955761.82 -39955761.70 -39955761.58 0.0497 0.0365  
 Mars -114106-07-01 14:24 J -39955612.03 -39955611.90 -39955611.75 0.0496 0.0422  
 Venus -114105-09-09 22:48 J -39955175.75 -39955175.55 -39955175.34 0.0498 0.0122  
 Mercury -114101-10-05 10:05 J -39953689.16 -39953689.08 -39953688.98 0.0528 0.0388  
 Mercury -114100-01-02 19:55 J -39953599.80 -39953599.67 -39953599.54 0.0528 0.0117  
 Venus -114099-07-19 02:38 J -39953037.59 -39953037.39 -39953037.20 0.0527 0.0057  
 Mercury -114095-08-22 15:50 J -39951541.97 -39951541.84 -39951541.71 0.0498 0.0325  
 Mercury -114095-11-20 18:14 J -39951451.89 -39951451.74 -39951451.58 0.0497 0.0229  
 Venus -114093-05-15 19:55 J -39950909.80 -39950909.67 -39950909.53 0.0497 0.0384  
 Moon -114090-02-14 16:19 J -39949905.01 -39949904.82 -39949904.62 0.0517 0.0286  
 Earth -114090-02-14 19:55 J -39949904.87 -39949904.67 -39949904.46 0.0517 0.0253 \*  
 Mercury -114089-07-24 12:43 J -39949378.98 -39949378.97 -39949378.96 0.0527 0.0522  
 Mercury -114089-10-21 22:48 J -39949289.69 -39949289.55 -39949289.42 0.0528 0.0019  
 Mercury -114088-01-19 07:41 J -39949200.23 -39949200.18 -39949200.13 0.0529 0.0477  
 Mars -114088-04-19 14:38 J -39949110.04 -39949109.89 -39949109.74 0.0529 0.0449  
 Venus -114087-03-23 21:50 J -39948771.73 -39948771.59 -39948771.44 0.0528 0.0362  
 Mercury -114083-06-10 15:07 J -39947231.93 -39947231.87 -39947231.80 0.0498 0.0456  
 Mercury -114083-09-08 17:17 J -39947141.95 -39947141.78 -39947141.61 0.0497 0.0092  
 Venus -114081-09-12 17:31 J -39946406.93 -39946406.77 -39946406.60 0.0499 0.0310  
 Earth -114078-02-19 19:41 J -39945516.89 -39945516.68 -39945516.47 0.0518 0.0227  
 Moon -114078-02-19 23:31 J -39945516.73 -39945516.52 -39945516.30 0.0518 0.0216 \*  
 Mercury -114077-08-10 02:10 J -39944979.54 -39944979.41 -39944979.28 0.0528 0.0139  
 Mercury -114077-11-07 11:17 J -39944890.12 -39944890.03 -39944889.93 0.0529 0.0358

Venus -114075-07-21 17:17 J -39944268.90 -39944268.78 -39944268.66 0.0526 0.0413  
 Moon -114073-08-04 00:29 J -39943524.51 -39943524.48 -39943524.43 0.0509 0.0500  
 Earth -114073-08-04 04:19 J -39943524.40 -39943524.32 -39943524.24 0.0509 0.0471  
 Mercury -114071-06-27 15:22 J -39942832.03 -39942831.86 -39942831.69 0.0497 0.0056  
 Venus -114069-05-18 10:34 J -39942141.27 -39942141.06 -39942140.85 0.0499 0.0033  
 Mercury -114065-05-29 05:46 J -39940669.38 -39940669.26 -39940669.15 0.0528 0.0259  
 Mercury -114065-08-26 15:07 J -39940579.98 -39940579.87 -39940579.75 0.0529 0.0243  
 Venus -114063-03-26 16:48 J -39940002.99 -39940002.80 -39940002.61 0.0527 0.0124  
 Earth -114061-08-08 16:05 J -39939137.06 -39939136.83 -39939136.60 0.0508 0.0037  
 Moon -114061-08-08 19:26 J -39939136.91 -39939136.69 -39939136.47 0.0508 0.0048 \*  
 Mercury -114059-04-15 14:24 J -39938522.06 -39938521.90 -39938521.74 0.0497 0.0191  
 Mercury -114059-07-14 17:17 J -39938431.89 -39938431.78 -39938431.66 0.0497 0.0366  
 Venus -114057-01-22 07:12 J -39937875.39 -39937875.20 -39937875.02 0.0498 0.0236  
 Mercury -114053-03-17 08:53 J -39936359.22 -39936359.13 -39936359.03 0.0528 0.0382  
 Mercury -114053-06-14 18:43 J -39936269.85 -39936269.72 -39936269.59 0.0529 0.0123  
 Venus -114052-11-29 13:41 J -39935737.11 -39935736.93 -39935736.74 0.0528 0.0176  
 Moon -114049-08-12 23:02 J -39934749.66 -39934749.54 -39934749.39 0.0507 0.0414  
 Earth -114049-08-13 01:41 J -39934749.57 -39934749.43 -39934749.28 0.0507 0.0388 \*  
 Mercury -114047-02-01 13:41 J -39934212.06 -39934211.93 -39934211.80 0.0498 0.0325  
 Mercury -114047-05-02 16:05 J -39934121.98 -39934121.83 -39934121.67 0.0497 0.0227  
 Venus -114046-09-27 04:48 J -39933609.31 -39933609.30 -39933609.29 0.0497 0.0496  
 Venus -114045-05-21 06:43 J -39933372.29 -39933372.22 -39933372.14 0.0500 0.0469  
 Mercury -114041-01-04 12:00 J -39932049.03 -39932049.00 -39932048.97 0.0527 0.0509  
 Mercury -114041-04-02 22:05 J -39931959.72 -39931959.58 -39931959.45 0.0528 0.0008  
 Mercury -114041-07-01 06:58 J -39931870.26 -39931870.21 -39931870.16 0.0529 0.0490  
 Venus -114040-08-04 09:50 J -39931471.17 -39931471.09 -39931471.01 0.0528 0.0478  
 Mercury -114036-11-20 13:12 J -39929902.01 -39929901.95 -39929901.88 0.0498 0.0454  
 Mercury -114035-02-18 15:22 J -39929812.03 -39929811.86 -39929811.69 0.0497 0.0093  
 Venus -114033-01-25 02:53 J -39929106.57 -39929106.38 -39929106.19 0.0499 0.0201  
 Mercury -114029-01-21 00:58 J -39927649.59 -39927649.46 -39927649.33 0.0528 0.0134

Mercury -114029-04-19 10:05 J -39927560.18 -39927560.08 -39927559.99 0.0529 0.0363

Venus -114028-12-02 03:36 J -39926968.51 -39926968.35 -39926968.19 0.0527 0.0292

Mercury -114024-12-07 14:24 J -39925502.07 -39925501.90 -39925501.72 0.0498 0.0044

Mars -114023-03-18 13:55 J -39925401.11 -39925400.92 -39925400.73 0.0497 0.0355

Venus -114022-09-29 23:02 J -39924840.75 -39924840.54 -39924840.33 0.0498 0.0069

Mercury -114018-11-09 04:05 J -39923339.44 -39923339.33 -39923339.21 0.0528 0.0257

Mercury -114017-02-06 13:41 J -39923250.05 -39923249.93 -39923249.81 0.0529 0.0244

Venus -114016-08-07 02:10 J -39922702.61 -39922702.41 -39922702.21 0.0528 0.0003

Mercury -114012-09-25 12:43 J -39921192.12 -39921191.97 -39921191.80 0.0497 0.0186

Mercury -114012-12-24 15:36 J -39921101.96 -39921101.85 -39921101.73 0.0497 0.0371

Venus -114010-06-04 16:48 J -39920574.95 -39920574.80 -39920574.65 0.0497 0.0344

Earth -114007-02-13 22:48 J -39919589.72 -39919589.55 -39919589.36 0.0517 0.0332

Moon -114007-02-14 02:24 J -39919589.55 -39919589.40 -39919589.22 0.0517 0.0363 \*

Mercury -114006-08-28 07:26 J -39919029.28 -39919029.19 -39919029.09 0.0528 0.0380

Mercury -114006-11-25 17:31 J -39918939.90 -39918939.77 -39918939.64 0.0529 0.0128

Venus -114004-04-12 00:58 J -39918436.62 -39918436.46 -39918436.30 0.0528 0.0296

# 114TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 114th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
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Mercury -114000-07-14 12:14 J -39916882.12 -39916881.99 -39916881.86 0.0498 0.0317

Mercury -114000-10-12 14:38 J -39916792.04 -39916791.89 -39916791.74 0.0497 0.0234

Venus -113998-10-02 15:22 J -39916072.00 -39916071.86 -39916071.71 0.0500 0.0356

Moon -113995-02-19 00:00 J -39915201.73 -39915201.50 -39915201.27 0.0519 0.0172

Earth -113995-02-19 01:41 J -39915201.65 -39915201.43 -39915201.20 0.0519 0.0161 \*

Mercury -113994-06-16 10:48 J -39914719.08 -39914719.05 -39914719.00 0.0528 0.0501

Mercury -113994-09-13 21:07 J -39914629.76 -39914629.62 -39914629.49 0.0529 0.0015

Mercury -113994-12-12 06:00 J -39914540.29 -39914540.25 -39914540.21 0.0529 0.0500

Venus -113992-08-09 18:58 J -39913933.78 -39913933.71 -39913933.62 0.0526 0.0476

Mercury -113988-05-02 11:31 J -39912572.09 -39912572.02 -39912571.95 0.0498 0.0450

Mercury -113988-07-31 13:26 J -39912482.11 -39912481.94 -39912481.76 0.0497 0.0098

Mars -113988-12-21 01:12 J -39912339.70 -39912339.45 -39912339.18 0.0496 0.0114

Venus -113986-06-07 12:00 J -39911806.21 -39911806.00 -39911805.79 0.0499 0.0089

Mercury -113982-07-03 00:14 J -39910319.62 -39910319.49 -39910319.35 0.0528 0.0118

Mercury -113982-09-30 09:36 J -39910230.19 -39910230.10 -39910230.01 0.0529 0.0380

Venus -113980-04-14 16:48 J -39909667.98 -39909667.80 -39909667.61 0.0527 0.0181

Moon -113978-08-08 23:17 J -39908821.76 -39908821.53 -39908821.29 0.0508 0.0089

Earth -113978-08-08 23:31 J -39908821.74 -39908821.52 -39908821.29 0.0508 0.0103 \*

Mercury -113976-05-19 12:58 J -39908172.14 -39908171.96 -39908171.79 0.0498 0.0037

Venus -113974-02-10 09:07 J -39907540.31 -39907540.12 -39907539.92 0.0498 0.0177

Mercury -113970-04-21 03:07 J -39906009.49 -39906009.37 -39906009.25 0.0528 0.0248

Mercury -113970-07-19 12:43 J -39905920.09 -39905919.97 -39905919.86 0.0529 0.0253

Mars -113970-10-07 15:07 J -39905840.15 -39905839.87 -39905839.59 0.0529 0.0007

Venus -113969-12-18 12:58 J -39905402.15 -39905401.96 -39905401.77 0.0528 0.0123

Moon -113966-08-13 09:50 J -39904434.25 -39904434.09 -39904433.94 0.0507 0.0361

Earth -113966-08-13 11:02 J -39904434.21 -39904434.04 -39904433.86 0.0507 0.0330 \*

Mercury -113964-03-07 12:14 J -39903862.15 -39903861.99 -39903861.83 0.0498 0.0169

Mercury -113964-06-05 15:07 J -39903771.97 -39903771.87 -39903771.76 0.0497 0.0389

Venus -113963-10-16 06:14 J -39903274.32 -39903274.24 -39903274.13 0.0497 0.0442

Mercury -113958-02-07 06:29 J -39901699.33 -39901699.23 -39901699.14 0.0528 0.0372

Mercury -113958-05-07 16:05 J -39901609.95 -39901609.83 -39901609.70 0.0529 0.0133

Venus -113957-08-23 10:34 J -39901136.17 -39901136.06 -39901135.93 0.0529 0.0423

Mercury -113953-12-24 11:02 J -39899552.18 -39899552.04 -39899551.91 0.0498 0.0308

Mercury -113952-03-24 13:12 J -39899462.10 -39899461.95 -39899461.79 0.0497 0.0244

Venus -113950-02-13 00:58 J -39898771.64 -39898771.46 -39898771.27 0.0499 0.0248

Mercury -113947-11-26 09:36 J -39897389.14 -39897389.10 -39897389.05 0.0528 0.0496

Mercury -113946-02-23 19:55 J -39897299.81 -39897299.67 -39897299.54 0.0529 0.0019

Mercury -113946-05-24 04:48 J -39897210.33 -39897210.30 -39897210.26 0.0530 0.0507

Venus -113945-12-21 07:41 J -39896633.31 -39896633.18 -39896633.03 0.0527 0.0364

Mercury -113941-10-12 10:34 J -39895242.13 -39895242.06 -39895241.98 0.0498 0.0437

Mercury -113940-01-10 12:29 J -39895152.15 -39895151.98 -39895151.81 0.0497 0.0108

Venus -113939-10-18 21:50 J -39894505.80 -39894505.59 -39894505.38 0.0498 0.0022

Mercury -113935-12-12 23:31 J -39892989.65 -39892989.52 -39892989.39 0.0529 0.0106

Mercury -113934-03-12 08:38 J -39892900.22 -39892900.14 -39892900.05 0.0529 0.0392

Venus -113933-08-26 05:46 J -39892367.46 -39892367.26 -39892367.07 0.0527 0.0068

Mercury -113929-10-29 11:31 J -39890842.19 -39890842.02 -39890841.84 0.0497 0.0028

Venus -113927-06-23 19:12 J -39890239.87 -39890239.70 -39890239.52 0.0498 0.0285

Moon -113924-02-13 09:07 J -39889274.28 -39889274.12 -39889273.96 0.0517 0.0389

Earth -113924-02-13 09:07 J -39889274.27 -39889274.12 -39889273.96 0.0517 0.0381 \*

Mercury -113923-10-01 02:53 J -39888679.51 -39888679.38 -39888679.26 0.0528 0.0230

Mercury -113923-12-29 12:14 J -39888590.10 -39888589.99 -39888589.87 0.0529 0.0271

Venus -113921-05-01 02:53 J -39888101.56 -39888101.38 -39888101.21 0.0528 0.0234

Mercury -113917-08-17 11:02 J -39886532.20 -39886532.04 -39886531.88 0.0498 0.0160

Mercury -113917-11-15 13:55 J -39886442.02 -39886441.92 -39886441.81 0.0497 0.0398

Venus -113915-10-21 18:58 J -39885736.82 -39885736.71 -39885736.60 0.0500 0.0422

Moon -113912-02-18 06:58 J -39884886.43 -39884886.21 -39884885.99 0.0518 0.0131

Earth -113912-02-18 09:36 J -39884886.33 -39884886.10 -39884885.86 0.0518 0.0101 \*

Mercury -113911-07-20 05:31 J -39884369.36 -39884369.27 -39884369.17 0.0528 0.0360

Mercury -113911-10-17 15:22 J -39884279.99 -39884279.86 -39884279.73 0.0529 0.0144

Mercury -113905-06-05 10:34 J -39882222.20 -39882222.06 -39882221.92 0.0498 0.0290

Mercury -113905-09-03 12:58 J -39882132.10 -39882131.96 -39882131.81 0.0497 0.0263

Venus -113903-06-26 14:53 J -39881471.08 -39881470.88 -39881470.68 0.0499 0.0151

Mercury -113899-05-08 08:53 J -39880059.18 -39880059.13 -39880059.08 0.0528 0.0485

Mercury -113899-08-05 18:58 J -39879969.85 -39879969.71 -39879969.58 0.0529 0.0026

Mercury -113899-11-03 03:50 J -39879880.36 -39879880.34 -39879880.31 0.0529 0.0515

Venus -113897-05-03 18:58 J -39879332.88 -39879332.71 -39879332.53 0.0527 0.0244

Moon -113895-08-08 09:07 J -39878506.34 -39878506.12 -39878505.90 0.0508 0.0117

Earth -113895-08-08 12:00 J -39878506.22 -39878506.00 -39878505.78 0.0508 0.0146 \*

Mercury -113893-03-24 09:36 J -39877912.18 -39877912.10 -39877912.01 0.0498 0.0425

Mercury -113893-06-22 11:31 J -39877822.19 -39877822.02 -39877821.85 0.0497 0.0120

Venus -113891-03-01 08:38 J -39877205.34 -39877205.14 -39877204.94 0.0498 0.0127

Mercury -113887-05-24 22:19 J -39875659.70 -39875659.57 -39875659.44 0.0529 0.0098

Mercury -113887-08-22 07:41 J -39875570.27 -39875570.18 -39875570.10 0.0530 0.0400

Venus -113885-01-07 18:14 J -39875066.94 -39875066.74 -39875066.55 0.0528 0.0049

Earth -113883-08-13 00:58 J -39874118.65 -39874118.46 -39874118.27 0.0507 0.0292

Moon -113883-08-13 04:34 J -39874118.49 -39874118.31 -39874118.12 0.0507 0.0303 \*

Mercury -113881-04-10 10:48 J -39873512.22 -39873512.05 -39873511.87 0.0497 0.0015

Venus -113880-11-04 06:14 J -39872939.37 -39872939.24 -39872939.11 0.0497 0.0391

Mercury -113875-03-13 01:55 J -39871349.54 -39871349.42 -39871349.30 0.0529 0.0217

Mercury -113875-06-10 11:31 J -39871260.13 -39871260.02 -39871259.91 0.0529 0.0284

Venus -113874-09-12 15:36 J -39870801.00 -39870800.85 -39870800.70 0.0528 0.0349

Mercury -113869-01-28 10:05 J -39869202.25 -39869202.08 -39869201.92 0.0497 0.0148

Mercury -113869-04-27 12:43 J -39869112.06 -39869111.97 -39869111.87 0.0497 0.0409

Mars -113869-06-11 22:05 J -39869066.82 -39869066.58 -39869066.32 0.0496 0.0178

Venus -113867-03-04 04:34 J -39868436.47 -39868436.31 -39868436.14 0.0499 0.0314

Mercury -113864-12-30 05:17 J -39867039.38 -39867039.28 -39867039.18 0.0528 0.0340

Mercury -113863-03-29 15:07 J -39866950.00 -39866949.87 -39866949.75 0.0529 0.0164

Venus -113861-01-10 10:05 J -39866298.19 -39866298.08 -39866297.96 0.0526 0.0429

Mercury -113858-11-16 09:36 J -39864892.24 -39864892.10 -39864891.96 0.0498 0.0279

Mercury -113857-02-14 12:00 J -39864802.15 -39864802.00 -39864801.86 0.0497 0.0274

Venus -113856-11-07 01:55 J -39864170.63 -39864170.42 -39864170.21 0.0499 0.0046  
 Mercury -113852-10-18 08:10 J -39862729.22 -39862729.16 -39862729.10 0.0527 0.0470  
 Mercury -113851-01-15 18:14 J -39862639.88 -39862639.74 -39862639.61 0.0528 0.0039  
 Mars -113851-03-27 06:58 J -39862569.39 -39862569.21 -39862569.03 0.0529 0.0401  
 Mercury -113851-04-15 03:07 J -39862550.37 -39862550.37 -39862550.37 0.0529 0.0528  
 Venus -113850-09-15 06:58 J -39862032.40 -39862032.21 -39862032.01 0.0527 0.0129  
 Mercury -113846-09-04 09:07 J -39860582.21 -39860582.12 -39860582.02 0.0498 0.0408  
 Mercury -113846-12-03 11:17 J -39860492.20 -39860492.03 -39860491.87 0.0497 0.0140  
 Venus -113844-07-12 22:48 J -39859904.74 -39859904.55 -39859904.36 0.0498 0.0223  
 Moon -113841-02-13 13:41 J -39858959.06 -39858958.93 -39858958.80 0.0516 0.0421  
 Earth -113841-02-13 17:17 J -39858958.90 -39858958.78 -39858958.66 0.0516 0.0440 \*  
 Mercury -113840-11-03 21:36 J -39858329.73 -39858329.60 -39858329.47 0.0528 0.0086  
 Mercury -113839-02-01 06:43 J -39858240.30 -39858240.22 -39858240.13 0.0529 0.0411  
 Venus -113838-05-21 05:17 J -39857766.47 -39857766.28 -39857766.09 0.0528 0.0170  
 Mercury -113834-09-21 10:05 J -39856182.26 -39856182.08 -39856181.91 0.0497 0.0010  
 Mars -113833-03-16 15:50 J -39856005.05 -39856004.84 -39856004.63 0.0496 0.0304  
 Venus -113832-03-17 17:46 J -39855638.78 -39855638.76 -39855638.73 0.0497 0.0493  
 Venus -113832-11-09 18:29 J -39855401.78 -39855401.73 -39855401.66 0.0500 0.0476  
 Earth -113829-02-18 14:38 J -39854571.12 -39854570.89 -39854570.65 0.0518 0.0033  
 Moon -113829-02-18 18:29 J -39854570.96 -39854570.73 -39854570.49 0.0518 0.0057 \*  
 Mercury -113828-08-23 00:43 J -39854019.59 -39854019.47 -39854019.34 0.0529 0.0210  
 Mercury -113828-11-20 10:19 J -39853930.17 -39853930.07 -39853929.96 0.0530 0.0293  
 Venus -113826-01-24 03:07 J -39853500.45 -39853500.37 -39853500.27 0.0529 0.0469  
 Mercury -113822-07-10 09:22 J -39851872.27 -39851872.11 -39851871.94 0.0497 0.0131  
 Mercury -113822-10-08 12:14 J -39851782.08 -39851781.99 -39851781.90 0.0496 0.0425  
 Venus -113820-07-15 14:53 J -39851136.07 -39851135.88 -39851135.68 0.0499 0.0205  
 Moon -113817-02-23 15:07 J -39850182.92 -39850182.87 -39850182.81 0.0520 0.0504  
 Mercury -113816-06-11 04:19 J -39849709.42 -39849709.32 -39849709.21 0.0529 0.0329  
 Mercury -113816-09-08 14:10 J -39849620.03 -39849619.91 -39849619.78 0.0529 0.0177  
 Mars -113815-01-02 03:50 J -39849504.57 -39849504.34 -39849504.10 0.0530 0.0288

Venus -113814-05-23 23:46 J -39848997.66 -39848997.51 -39848997.35 0.0527 0.0320  
 Earth -113812-08-08 01:26 J -39848190.65 -39848190.44 -39848190.23 0.0508 0.0186  
 Moon -113812-08-08 04:34 J -39848190.52 -39848190.31 -39848190.09 0.0508 0.0161 \*  
 Mercury -113810-04-28 08:38 J -39847562.28 -39847562.14 -39847561.99 0.0497 0.0264  
 Mercury -113810-07-27 11:02 J -39847472.18 -39847472.04 -39847471.90 0.0497 0.0287  
 Venus -113808-03-20 12:14 J -39846870.19 -39846869.99 -39846869.78 0.0498 0.0063  
 Mercury -113804-03-30 07:41 J -39845399.25 -39845399.18 -39845399.11 0.0528 0.0452  
 Mercury -113804-06-27 17:46 J -39845309.89 -39845309.76 -39845309.63 0.0529 0.0056  
 Venus -113802-01-26 21:22 J -39844731.81 -39844731.61 -39844731.42 0.0528 0.0022  
 Moon -113800-08-12 10:48 J -39843803.27 -39843803.05 -39843802.84 0.0507 0.0224  
 Earth -113800-08-12 12:14 J -39843803.19 -39843802.99 -39843802.79 0.0507 0.0243 \*  
 Mercury -113798-02-14 08:10 J -39843252.26 -39843252.16 -39843252.05 0.0498 0.0395  
 Mercury -113798-05-15 10:05 J -39843162.24 -39843162.08 -39843161.91 0.0497 0.0153  
 Venus -113797-11-23 10:05 J -39842604.23 -39842604.08 -39842603.92 0.0498 0.0327  
 Mercury -113792-04-15 20:53 J -39840999.76 -39840999.63 -39840999.50 0.0528 0.0072  
 Mercury -113792-07-14 06:00 J -39840910.32 -39840910.25 -39840910.17 0.0529 0.0425  
 Venus -113791-10-01 17:17 J -39840465.95 -39840465.78 -39840465.62 0.0528 0.0288  
 Mercury -113786-03-03 09:36 J -39838852.27 -39838852.10 -39838851.93 0.0497 0.0019  
 Venus -113784-03-23 08:24 J -39838101.28 -39838101.15 -39838101.01 0.0499 0.0379  
 Mercury -113780-02-02 00:14 J -39836689.62 -39836689.49 -39836689.37 0.0528 0.0196  
 Mercury -113780-05-02 09:36 J -39836600.20 -39836600.10 -39836599.99 0.0529 0.0305  
 Venus -113778-01-29 12:43 J -39835963.03 -39835962.97 -39835962.90 0.0526 0.0495  
 Mercury -113775-12-20 08:38 J -39834542.31 -39834542.14 -39834541.97 0.0497 0.0116  
 Mercury -113774-03-20 11:17 J -39834452.10 -39834452.03 -39834451.94 0.0496 0.0440  
 Venus -113773-11-26 02:10 J -39833835.62 -39833835.41 -39833835.21 0.0498 0.0101  
 Mercury -113769-11-21 03:07 J -39832379.47 -39832379.37 -39832379.26 0.0529 0.0323  
 Mercury -113768-02-18 12:58 J -39832290.08 -39832289.96 -39832289.83 0.0530 0.0184  
 Venus -113767-10-04 12:14 J -39831697.17 -39831696.99 -39831696.81 0.0528 0.0205  
 Mercury -113763-10-08 08:10 J -39830232.30 -39830232.16 -39830232.01 0.0497 0.0246  
 Mercury -113762-01-06 10:34 J -39830142.20 -39830142.06 -39830141.92 0.0496 0.0305

Venus -113761-07-31 23:17 J -39829569.73 -39829569.53 -39829569.33 0.0497 0.0168  
 Earth -113758-02-12 23:02 J -39828643.58 -39828643.54 -39828643.49 0.0517 0.0505  
 Moon -113758-02-13 02:10 J -39828643.50 -39828643.41 -39828643.32 0.0517 0.0471 \*  
 Mercury -113757-09-09 06:43 J -39828069.29 -39828069.22 -39828069.15 0.0528 0.0443  
 Mercury -113757-12-07 16:48 J -39827979.93 -39827979.80 -39827979.67 0.0529 0.0066  
 Venus -113755-06-09 09:50 J -39827431.28 -39827431.09 -39827430.89 0.0528 0.0095  
 Mercury -113751-07-27 07:26 J -39825922.30 -39825922.19 -39825922.08 0.0497 0.0380  
 Mercury -113751-10-25 09:22 J -39825832.27 -39825832.11 -39825831.95 0.0497 0.0166  
 Mars -113751-12-02 18:58 J -39825793.80 -39825793.71 -39825793.61 0.0496 0.0463  
 Venus -113749-04-05 21:07 J -39825303.72 -39825303.62 -39825303.51 0.0497 0.0431  
 Moon -113746-02-18 01:55 J -39824255.67 -39824255.42 -39824255.18 0.0518 0.0011  
 Earth -113746-02-18 02:53 J -39824255.61 -39824255.38 -39824255.14 0.0518 0.0014 \*  
 Mercury -113745-09-25 20:24 J -39823669.79 -39823669.65 -39823669.52 0.0529 0.0056  
 Mercury -113745-12-24 05:31 J -39823580.34 -39823580.27 -39823580.19 0.0530 0.0442  
 Venus -113743-02-12 06:43 J -39823165.35 -39823165.22 -39823165.09 0.0529 0.0399  
 Mercury -113739-08-13 08:38 J -39821522.32 -39821522.14 -39821521.97 0.0497 0.0033  
 Venus -113737-08-03 18:58 J -39820800.88 -39820800.71 -39820800.53 0.0499 0.0274  
 Moon -113734-02-23 02:38 J -39819867.50 -39819867.39 -39819867.27 0.0519 0.0449  
 Earth -113734-02-23 04:05 J -39819867.41 -39819867.33 -39819867.23 0.0519 0.0479 \*  
 Mercury -113733-07-14 23:17 J -39819359.65 -39819359.53 -39819359.40 0.0528 0.0183  
 Mercury -113733-10-12 08:53 J -39819270.24 -39819270.13 -39819270.02 0.0529 0.0317  
 Venus -113731-06-12 00:43 J -39818662.60 -39818662.47 -39818662.33 0.0527 0.0382  
 Earth -113729-08-07 12:43 J -39817875.17 -39817874.97 -39817874.77 0.0509 0.0235  
 Moon -113729-08-07 13:26 J -39817875.15 -39817874.94 -39817874.73 0.0509 0.0239 \*  
 Mercury -113727-06-01 07:55 J -39817212.34 -39817212.17 -39817212.00 0.0497 0.0101  
 Mercury -113727-08-30 10:48 J -39817122.11 -39817122.05 -39817121.98 0.0497 0.0456  
 Venus -113725-04-08 15:50 J -39816535.05 -39816534.84 -39816534.63 0.0498 0.0008  
 Mercury -113721-05-03 02:24 J -39815049.50 -39815049.40 -39815049.29 0.0528 0.0309  
 Mercury -113721-07-31 12:14 J -39814960.11 -39814959.99 -39814959.86 0.0529 0.0196  
 Venus -113719-02-14 23:17 J -39814396.72 -39814396.53 -39814396.33 0.0528 0.0084

Moon -113717-08-11 23:17 J -39813487.74 -39813487.53 -39813487.32 0.0507 0.0174  
 Earth -113717-08-12 01:41 J -39813487.63 -39813487.43 -39813487.21 0.0507 0.0207 \*  
 Mercury -113715-03-20 07:12 J -39812902.35 -39812902.20 -39812902.04 0.0497 0.0233  
 Mercury -113715-06-18 09:36 J -39812812.23 -39812812.10 -39812811.97 0.0496 0.0318  
 Mars -113715-09-06 16:19 J -39812732.08 -39812731.82 -39812731.55 0.0496 0.0029  
 Venus -113714-12-13 10:48 J -39812269.23 -39812269.05 -39812268.88 0.0497 0.0271  
 Mercury -113709-02-20 05:17 J -39810739.35 -39810739.28 -39810739.21 0.0529 0.0440  
 Mercury -113709-05-19 15:22 J -39810649.99 -39810649.86 -39810649.72 0.0530 0.0073  
 Venus -113708-10-20 21:07 J -39810130.80 -39810130.62 -39810130.44 0.0529 0.0216  
 Mercury -113703-01-06 06:58 J -39808592.32 -39808592.21 -39808592.09 0.0497 0.0362  
 Mercury -113703-04-06 08:53 J -39808502.29 -39808502.13 -39808501.97 0.0496 0.0183  
 Venus -113701-04-11 08:24 J -39807766.25 -39807766.15 -39807766.05 0.0499 0.0434  
 Mercury -113697-03-07 19:12 J -39806339.84 -39806339.70 -39806339.57 0.0529 0.0050  
 Mercury -113697-06-05 04:19 J -39806250.38 -39806250.32 -39806250.25 0.0530 0.0450  
 Mars -113697-06-21 12:58 J -39806234.23 -39806233.96 -39806233.69 0.0530 0.0135  
 Venus -113696-06-25 17:46 J -39805864.78 -39805864.76 -39805864.71 0.0529 0.0520  
 Mercury -113692-10-25 06:14 J -39804282.25 -39804282.24 -39804282.23 0.0498 0.0495  
 Mercury -113691-01-23 07:41 J -39804192.36 -39804192.18 -39804192.01 0.0497 0.0046  
 Venus -113690-12-16 05:02 J -39803500.49 -39803500.29 -39803500.09 0.0498 0.0165  
 Mercury -113686-12-25 22:34 J -39802029.69 -39802029.56 -39802029.43 0.0529 0.0170  
 Mercury -113685-03-24 08:10 J -39801940.26 -39801940.16 -39801940.06 0.0530 0.0332  
 Venus -113684-10-23 14:24 J -39801362.06 -39801361.90 -39801361.73 0.0527 0.0272  
 Mercury -113680-11-11 06:43 J -39799882.39 -39799882.22 -39799882.05 0.0497 0.0091  
 Mercury -113679-02-09 09:36 J -39799792.16 -39799792.10 -39799792.04 0.0496 0.0466  
 Venus -113678-08-21 02:24 J -39799234.61 -39799234.40 -39799234.20 0.0498 0.0105  
 Mercury -113674-10-14 01:26 J -39797719.55 -39797719.44 -39797719.32 0.0528 0.0299  
 Mercury -113673-01-11 11:17 J -39797630.15 -39797630.03 -39797629.90 0.0529 0.0206  
 Venus -113672-06-28 10:34 J -39797096.26 -39797096.06 -39797095.87 0.0528 0.0037  
 Mercury -113668-08-30 06:14 J -39795572.39 -39795572.24 -39795572.09 0.0497 0.0223  
 Mercury -113668-11-28 08:38 J -39795482.27 -39795482.14 -39795482.01 0.0497 0.0330

Venus -113666-04-25 23:31 J -39794968.65 -39794968.52 -39794968.37 0.0497 0.0372

Moon -113663-02-17 06:14 J -39793940.46 -39793940.24 -39793940.01 0.0517 0.0101

Earth -113663-02-17 09:07 J -39793940.36 -39793940.12 -39793939.89 0.0517 0.0075 \*

Mercury -113662-08-02 04:34 J -39793409.39 -39793409.31 -39793409.23 0.0528 0.0426

Mercury -113662-10-30 14:38 J -39793320.02 -39793319.89 -39793319.76 0.0529 0.0082

Mars -113661-03-29 00:43 J -39793169.48 -39793169.47 -39793169.46 0.0530 0.0529

Venus -113660-03-03 07:41 J -39792830.33 -39792830.18 -39792830.03 0.0529 0.0341

Mercury -113656-06-18 05:46 J -39791262.38 -39791262.26 -39791262.14 0.0497 0.0352

Mercury -113656-09-16 07:41 J -39791172.34 -39791172.18 -39791172.02 0.0496 0.0194

Venus -113654-08-23 18:43 J -39790465.88 -39790465.72 -39790465.56 0.0498 0.0328

Earth -113651-02-22 04:48 J -39789552.45 -39789552.30 -39789552.14 0.0519 0.0392

Moon -113651-02-22 08:38 J -39789552.29 -39789552.14 -39789551.97 0.0519 0.0381 \*

Mercury -113650-08-18 17:31 J -39789009.90 -39789009.77 -39789009.63 0.0529 0.0047

Mercury -113650-11-16 02:53 J -39788920.44 -39788920.38 -39788920.31 0.0530 0.0451

Venus -113648-07-01 03:36 J -39788327.44 -39788327.35 -39788327.25 0.0527 0.0451

Moon -113646-08-07 23:17 J -39787559.71 -39787559.53 -39787559.35 0.0509 0.0302

Earth -113646-08-08 03:07 J -39787559.56 -39787559.37 -39787559.18 0.0509 0.0271 \*

Mercury -113644-04-06 05:31 J -39786952.31 -39786952.27 -39786952.23 0.0497 0.0480

Mercury -113644-07-05 06:58 J -39786862.39 -39786862.21 -39786862.04 0.0496 0.0061

Venus -113642-04-28 15:22 J -39786200.07 -39786199.86 -39786199.65 0.0498 0.0056

Mercury -113638-06-06 21:07 J -39784699.75 -39784699.62 -39784699.49 0.0529 0.0168

Mercury -113638-09-04 06:43 J -39784610.32 -39784610.22 -39784610.12 0.0530 0.0335

Venus -113636-03-06 01:41 J -39784061.62 -39784061.43 -39784061.24 0.0528 0.0154

Earth -113634-08-12 12:14 J -39783172.21 -39783171.99 -39783171.77 0.0507 0.0152

Moon -113634-08-12 16:05 J -39783172.05 -39783171.83 -39783171.61 0.0507 0.0134 \*

Mercury -113632-04-23 05:31 J -39782552.44 -39782552.27 -39782552.09 0.0497 0.0081

Mercury -113632-07-22 08:24 J -39782462.20 -39782462.15 -39782462.11 0.0496 0.0476

Venus -113630-01-01 12:14 J -39781934.18 -39781933.99 -39781933.80 0.0497 0.0214

Mercury -113626-03-26 00:29 J -39780389.59 -39780389.48 -39780389.37 0.0529 0.0290

Mercury -113626-06-23 10:19 J -39780300.19 -39780300.07 -39780299.95 0.0530 0.0216



Venus -113625-11-08 22:48 J -39779795.74 -39779795.55 -39779795.36 0.0529 0.0153  
 Mercury -113620-02-09 04:48 J -39778242.45 -39778242.30 -39778242.14 0.0497 0.0214  
 Mercury -113620-05-10 06:58 J -39778152.33 -39778152.21 -39778152.08 0.0496 0.0338  
 Venus -113619-09-06 09:50 J -39777668.13 -39777668.09 -39777668.03 0.0497 0.0479  
 Venus -113618-05-01 10:19 J -39777431.08 -39777431.07 -39777431.05 0.0499 0.0498  
 Mercury -113614-01-12 03:22 J -39776079.44 -39776079.36 -39776079.28 0.0528 0.0419  
 Mercury -113614-04-11 13:26 J -39775990.07 -39775989.94 -39775989.81 0.0529 0.0089  
 Venus -113613-07-14 17:31 J -39775529.86 -39775529.77 -39775529.67 0.0529 0.0466  
 Mercury -113609-11-28 04:19 J -39773932.44 -39773932.32 -39773932.20 0.0498 0.0347  
 Mercury -113608-02-26 06:00 J -39773842.40 -39773842.25 -39773842.09 0.0497 0.0201  
 Venus -113606-01-04 06:14 J -39773165.42 -39773165.24 -39773165.05 0.0498 0.0224  
 Mercury -113602-01-28 16:34 J -39771679.94 -39771679.81 -39771679.67 0.0529 0.0038  
 Mercury -113602-04-28 01:55 J -39771590.48 -39771590.42 -39771590.36 0.0530 0.0459  
 Venus -113601-11-11 13:55 J -39771027.07 -39771026.92 -39771026.77 0.0527 0.0327  
 Mercury -113597-09-16 03:50 J -39769622.38 -39769622.34 -39769622.28 0.0497 0.0474  
 Mercury -113597-12-15 05:17 J -39769532.45 -39769532.28 -39769532.10 0.0496 0.0068  
 Mars -113596-02-26 08:10 J -39769459.39 -39769459.16 -39769458.93 0.0496 0.0268  
 Venus -113595-09-09 01:26 J -39768899.65 -39768899.44 -39768899.23 0.0497 0.0052  
 Mercury -113591-11-16 19:12 J -39767369.83 -39767369.70 -39767369.57 0.0529 0.0170  
 Mercury -113590-02-14 04:48 J -39767280.40 -39767280.30 -39767280.19 0.0530 0.0333  
 Venus -113589-07-17 11:02 J -39766761.24 -39766761.04 -39766760.84 0.0529 0.0026  
 Mercury -113585-10-03 04:34 J -39765222.48 -39765222.31 -39765222.13 0.0497 0.0068  
 Mercury -113584-01-01 07:12 J -39765132.22 -39765132.20 -39765132.17 0.0496 0.0488  
 Venus -113583-05-14 22:34 J -39764633.72 -39764633.56 -39764633.40 0.0496 0.0321  
 Earth -113580-02-16 08:24 J -39763625.37 -39763625.15 -39763624.92 0.0517 0.0168  
 Moon -113580-02-16 12:00 J -39763625.21 -39763625.00 -39763624.78 0.0517 0.0197 \*  
 Mercury -113579-09-04 22:34 J -39763059.67 -39763059.56 -39763059.45 0.0529 0.0293  
 Mercury -113579-12-03 08:24 J -39762970.27 -39762970.15 -39762970.02 0.0530 0.0215  
 Venus -113577-03-22 07:55 J -39762495.33 -39762495.17 -39762494.99 0.0529 0.0281  
 Mercury -113573-07-22 03:22 J -39760912.52 -39760912.36 -39760912.20 0.0497 0.0207

Mercury -113573-10-20 05:31 J -39760822.39 -39760822.27 -39760822.14 0.0496 0.0344

Venus -113571-09-11 18:58 J -39760130.84 -39760130.71 -39760130.58 0.0499 0.0385

Moon -113568-02-21 09:07 J -39759237.30 -39759237.12 -39759236.93 0.0519 0.0332

Earth -113568-02-21 11:46 J -39759237.19 -39759237.01 -39759236.83 0.0519 0.0326 \*

Mercury -113567-06-24 01:55 J -39758749.50 -39758749.42 -39758749.34 0.0528 0.0416

Mercury -113567-09-21 12:00 J -39758660.13 -39758660.00 -39758659.86 0.0529 0.0096

Venus -113565-07-20 03:36 J -39757992.40 -39757992.35 -39757992.30 0.0527 0.0509

Earth -113563-08-07 08:38 J -39757244.31 -39757244.14 -39757243.97 0.0509 0.0346

Moon -113563-08-07 12:00 J -39757244.14 -39757244.00 -39757243.85 0.0509 0.0379 \*

Mercury -113561-05-10 02:24 J -39756602.52 -39756602.40 -39756602.27 0.0497 0.0342

Mercury -113561-08-08 04:19 J -39756512.48 -39756512.32 -39756512.16 0.0496 0.0204

Mars -113561-11-30 21:07 J -39756397.86 -39756397.62 -39756397.37 0.0496 0.0203

Venus -113559-05-17 15:22 J -39755865.07 -39755864.86 -39755864.66 0.0498 0.0111

Mercury -113555-07-10 15:07 J -39754350.00 -39754349.87 -39754349.73 0.0529 0.0034

Mercury -113555-10-08 00:29 J -39754260.54 -39754260.48 -39754260.42 0.0530 0.0462

Venus -113553-03-24 23:46 J -39753726.69 -39753726.51 -39753726.33 0.0528 0.0203

Moon -113551-08-11 15:07 J -39752857.11 -39752856.87 -39752856.64 0.0508 0.0068

Earth -113551-08-11 17:46 J -39752856.99 -39752856.76 -39752856.53 0.0508 0.0078 \*

Mercury -113549-02-27 01:55 J -39752292.47 -39752292.42 -39752292.37 0.0498 0.0474

Mercury -113549-05-27 03:22 J -39752202.53 -39752202.36 -39752202.19 0.0497 0.0068

Venus -113547-01-20 12:00 J -39751599.20 -39751599.00 -39751598.80 0.0497 0.0160

Mercury -113543-04-28 18:00 J -39750039.87 -39750039.75 -39750039.62 0.0529 0.0164

Mercury -113543-07-27 03:36 J -39749950.45 -39749950.35 -39749950.24 0.0530 0.0339

Mars -113543-09-15 15:36 J -39749900.13 -39749899.85 -39749899.57 0.0530 0.0065

Venus -113542-11-28 20:24 J -39749460.85 -39749460.65 -39749460.46 0.0529 0.0105

Mercury -113537-03-15 02:38 J -39747892.56 -39747892.39 -39747892.21 0.0497 0.0066

Mercury -113537-06-13 05:17 J -39747802.29 -39747802.28 -39747802.25 0.0496 0.0491

Venus -113536-09-25 08:38 J -39747333.25 -39747333.14 -39747333.04 0.0496 0.0428

Mercury -113531-02-14 20:24 J -39745729.76 -39745729.65 -39745729.53 0.0529 0.0300

Mercury -113531-05-15 06:29 J -39745640.35 -39745640.23 -39745640.11 0.0530 0.0208

Venus -113530-08-03 15:36 J -39745194.97 -39745194.85 -39745194.72 0.0530 0.0415  
 Mercury -113525-01-02 02:10 J -39743582.57 -39743582.41 -39743582.26 0.0497 0.0198  
 Mercury -113525-04-01 04:05 J -39743492.44 -39743492.33 -39743492.20 0.0496 0.0353  
 Venus -113523-01-23 03:36 J -39742830.52 -39742830.35 -39742830.17 0.0498 0.0272  
 Mercury -113520-12-03 23:46 J -39741419.59 -39741419.51 -39741419.43 0.0529 0.0424  
 Mercury -113519-03-03 10:05 J -39741330.22 -39741330.08 -39741329.95 0.0530 0.0088  
 Venus -113518-12-01 12:43 J -39740692.10 -39740691.97 -39740691.84 0.0528 0.0384  
 Mercury -113514-10-21 00:43 J -39739272.59 -39739272.47 -39739272.34 0.0497 0.0338  
 Mercury -113513-01-19 02:24 J -39739182.56 -39739182.40 -39739182.24 0.0496 0.0207  
 Venus -113512-09-27 23:46 J -39738564.72 -39738564.51 -39738564.30 0.0497 0.0004  
 Mercury -113508-12-20 13:26 J -39737020.07 -39737019.94 -39737019.80 0.0529 0.0035  
 Mercury -113507-03-19 22:48 J -39736930.61 -39736930.55 -39736930.48 0.0530 0.0464  
 Venus -113506-08-06 09:50 J -39736426.28 -39736426.09 -39736425.89 0.0528 0.0080  
 Mercury -113502-08-09 00:00 J -39734962.55 -39734962.50 -39734962.45 0.0497 0.0472  
 Mercury -113502-11-07 01:12 J -39734872.62 -39734872.45 -39734872.28 0.0497 0.0068  
 Venus -113500-06-02 20:38 J -39734298.82 -39734298.64 -39734298.47 0.0497 0.0274  
 Moon -113497-02-16 08:10 J -39733310.36 -39733310.16 -39733309.95 0.0517 0.0279  
 Earth -113497-02-16 12:00 J -39733310.21 -39733310.00 -39733309.79 0.0517 0.0246 \*  
 Mercury -113496-10-08 16:34 J -39732709.94 -39732709.81 -39732709.69 0.0529 0.0164  
 Mercury -113495-01-06 02:10 J -39732620.51 -39732620.41 -39732620.31 0.0530 0.0339  
 Venus -113494-04-11 05:02 J -39732160.46 -39732160.29 -39732160.11 0.0529 0.0235  
 Mercury -113490-08-26 00:14 J -39730562.66 -39730562.49 -39730562.32 0.0497 0.0069  
 Mercury -113490-11-24 02:53 J -39730472.41 -39730472.38 -39730472.35 0.0496 0.0487  
 Venus -113488-09-30 17:31 J -39729795.87 -39729795.77 -39729795.67 0.0499 0.0435  
 Earth -113485-02-21 11:17 J -39728922.24 -39728922.03 -39728921.82 0.0518 0.0232  
 Moon -113485-02-21 13:55 J -39728922.13 -39728921.92 -39728921.72 0.0518 0.0234 \*  
 Mercury -113484-07-27 19:12 J -39728399.81 -39728399.70 -39728399.59 0.0528 0.0294  
 Mercury -113484-10-25 05:02 J -39728310.41 -39728310.29 -39728310.16 0.0529 0.0213  
 Moon -113480-08-06 09:36 J -39726929.20 -39726929.10 -39726929.00 0.0510 0.0456  
 Earth -113480-08-06 13:12 J -39726929.07 -39726928.95 -39726928.82 0.0510 0.0424 \*

Mercury -113478-06-13 23:46 J -39726252.66 -39726252.51 -39726252.35 0.0497 0.0200

Mercury -113478-09-12 01:55 J -39726162.54 -39726162.42 -39726162.30 0.0496 0.0351

Venus -113476-06-05 12:29 J -39725530.17 -39725529.98 -39725529.78 0.0497 0.0159

Mercury -113472-05-15 21:22 J -39724089.68 -39724089.61 -39724089.53 0.0528 0.0433

Mercury -113472-08-13 07:41 J -39724000.31 -39724000.18 -39724000.05 0.0530 0.0078

Venus -113470-04-13 20:24 J -39723391.82 -39723391.65 -39723391.48 0.0528 0.0251

Earth -113468-08-11 00:29 J -39722541.71 -39722541.48 -39722541.25 0.0509 0.0009

Moon -113468-08-11 02:53 J -39722541.60 -39722541.38 -39722541.15 0.0509 0.0007 \*

Mercury -113466-04-01 23:17 J -39721942.66 -39721942.53 -39721942.41 0.0497 0.0332

Mercury -113466-07-01 00:58 J -39721852.62 -39721852.46 -39721852.31 0.0496 0.0213

Venus -113464-02-08 08:53 J -39721264.33 -39721264.13 -39721263.92 0.0497 0.0115

Mercury -113460-06-01 11:02 J -39719690.17 -39719690.04 -39719689.91 0.0529 0.0046

Mercury -113460-08-29 20:24 J -39719600.71 -39719600.65 -39719600.58 0.0530 0.0454

Venus -113459-12-17 17:17 J -39719125.97 -39719125.78 -39719125.58 0.0529 0.0056

Moon -113456-08-15 07:41 J -39718154.28 -39718154.18 -39718154.07 0.0507 0.0450

Earth -113456-08-15 08:38 J -39718154.25 -39718154.14 -39718154.01 0.0507 0.0427 \*

Mercury -113454-01-18 21:50 J -39717632.64 -39717632.59 -39717632.54 0.0497 0.0473

Mercury -113454-04-18 23:02 J -39717542.71 -39717542.54 -39717542.37 0.0496 0.0067

Venus -113453-10-14 05:02 J -39716998.42 -39716998.29 -39716998.16 0.0496 0.0388

Mercury -113448-03-20 14:24 J -39715380.02 -39715379.90 -39715379.77 0.0529 0.0168

Mercury -113448-06-18 00:14 J -39715290.59 -39715290.49 -39715290.39 0.0530 0.0335

Venus -113447-08-22 13:55 J -39714860.06 -39714859.92 -39714859.78 0.0529 0.0366

Mercury -113442-02-04 21:50 J -39713232.76 -39713232.59 -39713232.42 0.0497 0.0072

Mercury -113442-05-06 00:29 J -39713142.52 -39713142.48 -39713142.44 0.0496 0.0482

Mars -113442-05-22 20:38 J -39713125.90 -39713125.64 -39713125.38 0.0496 0.0133

Venus -113440-02-11 00:43 J -39712495.63 -39712495.47 -39712495.31 0.0498 0.0317

Mercury -113436-01-06 17:17 J -39711069.89 -39711069.78 -39711069.66 0.0528 0.0297

Mercury -113436-04-06 03:22 J -39710980.48 -39710980.36 -39710980.24 0.0529 0.0209

Venus -113435-12-20 08:24 J -39710357.26 -39710357.15 -39710357.03 0.0527 0.0426

Mercury -113431-11-23 20:53 J -39708922.78 -39708922.63 -39708922.47 0.0497 0.0209

Mercury -113430-02-21 23:02 J -39708832.66 -39708832.54 -39708832.41 0.0496 0.0342

Venus -113429-10-16 21:07 J -39708229.83 -39708229.62 -39708229.41 0.0497 0.0042

Mercury -113425-10-25 19:55 J -39706759.74 -39706759.67 -39706759.59 0.0528 0.0429

Mercury -113424-01-23 06:14 J -39706670.37 -39706670.24 -39706670.10 0.0529 0.0081

Mars -113424-03-03 19:41 J -39706630.83 -39706630.68 -39706630.51 0.0530 0.0430

Venus -113423-08-25 04:48 J -39706091.49 -39706091.30 -39706091.11 0.0528 0.0118

Mercury -113419-09-11 20:38 J -39704612.77 -39704612.64 -39704612.52 0.0497 0.0338

Mercury -113419-12-10 22:19 J -39704522.73 -39704522.57 -39704522.41 0.0496 0.0208

Venus -113417-06-21 17:31 J -39703963.95 -39703963.77 -39703963.58 0.0496 0.0229

Earth -113414-02-15 04:19 J -39702995.48 -39702995.32 -39702995.15 0.0516 0.0368

Moon -113414-02-15 08:10 J -39702995.30 -39702995.16 -39702995.01 0.0516 0.0398 \*

Mercury -113413-11-11 08:38 J -39702360.27 -39702360.14 -39702360.00 0.0529 0.0057

Mercury -113412-02-08 18:14 J -39702270.81 -39702270.74 -39702270.67 0.0530 0.0443

Venus -113411-04-29 23:46 J -39701825.69 -39701825.51 -39701825.32 0.0530 0.0196

Mercury -113407-06-30 19:55 J -39700302.71 -39700302.67 -39700302.61 0.0498 0.0470

Mercury -113407-09-28 21:22 J -39700212.79 -39700212.61 -39700212.44 0.0497 0.0071

Mars -113406-02-24 12:43 J -39700064.15 -39700063.97 -39700063.77 0.0495 0.0350

Venus -113405-10-19 13:12 J -39699461.00 -39699460.95 -39699460.88 0.0498 0.0478

Moon -113402-02-20 01:12 J -39698607.68 -39698607.45 -39698607.21 0.0517 0.0099

Earth -113402-02-20 04:34 J -39698607.55 -39698607.31 -39698607.08 0.0517 0.0111 \*

Mercury -113401-08-30 11:46 J -39698050.13 -39698050.01 -39698049.88 0.0529 0.0182

Mercury -113401-11-27 21:36 J -39697960.70 -39697960.60 -39697960.49 0.0530 0.0322

Venus -113399-01-02 19:55 J -39697559.73 -39697559.67 -39697559.62 0.0530 0.0508

Mercury -113395-07-17 19:26 J -39695902.86 -39695902.69 -39695902.52 0.0497 0.0076

Mercury -113395-10-15 21:50 J -39695812.63 -39695812.59 -39695812.54 0.0496 0.0478

Venus -113393-06-24 07:55 J -39695195.36 -39695195.17 -39695194.98 0.0498 0.0198

Mercury -113389-06-18 15:07 J -39693739.97 -39693739.87 -39693739.75 0.0529 0.0305

Mercury -113389-09-16 01:12 J -39693650.57 -39693650.45 -39693650.32 0.0530 0.0204

Mars -113389-12-08 22:05 J -39693566.84 -39693566.58 -39693566.33 0.0530 0.0223

Venus -113387-05-02 17:31 J -39693056.93 -39693056.77 -39693056.61 0.0528 0.0299

Moon -113385-08-09 21:22 J -39692226.83 -39692226.61 -39692226.38 0.0509 0.0112  
 Earth -113385-08-10 00:00 J -39692226.72 -39692226.50 -39692226.27 0.0509 0.0092 \*  
 Mercury -113383-05-05 18:29 J -39691592.89 -39691592.73 -39691592.58 0.0497 0.0214  
 Mercury -113383-08-03 20:24 J -39691502.78 -39691502.65 -39691502.52 0.0496 0.0336  
 Venus -113381-02-28 04:19 J -39690929.53 -39690929.32 -39690929.11 0.0497 0.0078  
 Mercury -113377-04-06 18:00 J -39689429.82 -39689429.75 -39689429.67 0.0528 0.0433  
 Mercury -113377-07-05 04:19 J -39689340.45 -39689340.32 -39689340.18 0.0529 0.0078  
 Venus -113375-01-05 12:58 J -39688791.16 -39688790.96 -39688790.77 0.0529 0.0019  
 Earth -113373-08-14 08:10 J -39687839.33 -39687839.16 -39687838.98 0.0508 0.0330  
 Moon -113373-08-14 09:22 J -39687839.27 -39687839.11 -39687838.95 0.0508 0.0353 \*  
 Mercury -113371-02-21 17:31 J -39687282.89 -39687282.77 -39687282.65 0.0497 0.0349  
 Mercury -113371-05-22 18:58 J -39687192.86 -39687192.71 -39687192.54 0.0497 0.0197  
 Venus -113370-11-03 01:26 J -39686663.58 -39686663.44 -39686663.29 0.0497 0.0348  
 Mercury -113365-04-23 07:12 J -39685030.33 -39685030.20 -39685030.06 0.0529 0.0054  
 Mercury -113365-07-21 16:48 J -39684940.87 -39684940.80 -39684940.73 0.0530 0.0445  
 Venus -113364-09-10 08:10 J -39684525.31 -39684525.16 -39684525.01 0.0529 0.0331  
 Mercury -113360-12-10 17:17 J -39682972.82 -39682972.78 -39682972.73 0.0498 0.0477  
 Mercury -113359-03-10 18:29 J -39682882.90 -39682882.73 -39682882.56 0.0497 0.0063  
 Venus -113357-03-01 21:07 J -39682160.76 -39682160.62 -39682160.47 0.0498 0.0362  
 Mercury -113353-02-10 09:36 J -39680720.23 -39680720.10 -39680719.98 0.0529 0.0192  
 Mercury -113353-05-09 19:12 J -39680630.80 -39680630.70 -39680630.59 0.0530 0.0312  
 Venus -113351-01-08 02:38 J -39680022.48 -39680022.39 -39680022.30 0.0528 0.0465  
 Mercury -113348-12-27 17:31 J -39678572.94 -39678572.77 -39678572.60 0.0497 0.0074  
 Mercury -113347-03-27 19:55 J -39678482.70 -39678482.67 -39678482.62 0.0496 0.0481  
 Venus -113346-11-05 17:02 J -39677895.00 -39677894.79 -39677894.58 0.0497 0.0084  
 Mercury -113342-11-29 12:29 J -39676410.08 -39676409.98 -39676409.87 0.0529 0.0319  
 Mercury -113341-02-26 22:34 J -39676320.68 -39676320.56 -39676320.43 0.0530 0.0190  
 Venus -113340-09-13 00:00 J -39675756.69 -39675756.50 -39675756.31 0.0529 0.0160  
 Mercury -113336-10-15 15:50 J -39674262.99 -39674262.84 -39674262.69 0.0497 0.0219  
 Mercury -113335-01-13 17:46 J -39674172.89 -39674172.76 -39674172.63 0.0496 0.0330

Venus -113334-07-11 11:46 J -39673629.20 -39673629.01 -39673628.81 0.0497 0.0196  
 Moon -113331-02-13 22:34 J -39672680.61 -39672680.56 -39672680.49 0.0516 0.0498  
 Earth -113331-02-14 02:24 J -39672680.48 -39672680.40 -39672680.29 0.0516 0.0468  
 Mercury -113330-09-17 15:50 J -39672099.91 -39672099.84 -39672099.77 0.0528 0.0442  
 Mercury -113330-12-16 02:10 J -39672010.54 -39672010.41 -39672010.27 0.0529 0.0072  
 Venus -113328-05-18 21:07 J -39671490.81 -39671490.62 -39671490.43 0.0529 0.0149  
 Mercury -113324-08-03 14:53 J -39669952.99 -39669952.88 -39669952.76 0.0497 0.0355  
 Mercury -113324-11-01 16:34 J -39669862.98 -39669862.81 -39669862.65 0.0496 0.0190  
 Venus -113322-03-16 09:07 J -39669363.18 -39669363.12 -39669363.05 0.0496 0.0467  
 Earth -113319-02-19 04:05 J -39668292.57 -39668292.33 -39668292.09 0.0517 0.0018  
 Moon -113319-02-19 07:12 J -39668292.43 -39668292.20 -39668291.96 0.0517 0.0007 \*  
 Mercury -113318-10-04 05:17 J -39667700.41 -39667700.28 -39667700.14 0.0529 0.0058  
 Mercury -113317-01-01 14:53 J -39667610.95 -39667610.88 -39667610.81 0.0530 0.0441  
 Venus -113316-01-21 15:50 J -39667224.93 -39667224.84 -39667224.75 0.0530 0.0466  
 Mercury -113312-05-22 14:10 J -39665642.94 -39665642.91 -39665642.88 0.0498 0.0488  
 Mercury -113312-08-20 15:22 J -39665553.04 -39665552.86 -39665552.69 0.0497 0.0052  
 Venus -113310-07-14 04:34 J -39664860.50 -39664860.31 -39664860.13 0.0498 0.0241  
 Moon -113307-02-24 01:26 J -39663904.44 -39663904.44 -39663904.43 0.0519 0.0518  
 Earth -113307-02-24 03:36 J -39663904.41 -39663904.35 -39663904.28 0.0519 0.0497  
 Mercury -113306-07-23 08:10 J -39663390.29 -39663390.16 -39663390.03 0.0529 0.0188  
 Mercury -113306-10-20 18:00 J -39663300.86 -39663300.75 -39663300.65 0.0529 0.0315  
 Venus -113304-05-21 11:31 J -39662722.17 -39662722.02 -39662721.86 0.0528 0.0335  
 Earth -113302-08-10 00:00 J -39661911.71 -39661911.50 -39661911.29 0.0510 0.0188  
 Moon -113302-08-10 02:24 J -39661911.60 -39661911.40 -39661911.19 0.0510 0.0209 \*  
 Mercury -113300-06-08 14:38 J -39661243.06 -39661242.89 -39661242.72 0.0497 0.0082  
 Mercury -113300-09-06 17:02 J -39661152.83 -39661152.79 -39661152.73 0.0496 0.0474  
 Venus -113298-03-19 01:12 J -39660594.66 -39660594.45 -39660594.24 0.0497 0.0033  
 Mercury -113294-05-11 10:19 J -39659080.17 -39659080.07 -39659079.96 0.0528 0.0327  
 Mercury -113294-08-08 20:24 J -39658990.77 -39658990.65 -39658990.52 0.0529 0.0181  
 Venus -113292-01-24 06:29 J -39658456.42 -39658456.23 -39658456.03 0.0529 0.0023

Moon -113290-08-14 09:36 J -39657524.30 -39657524.10 -39657523.89 0.0508 0.0259  
 Earth -113290-08-14 10:34 J -39657524.26 -39657524.06 -39657523.85 0.0508 0.0241 \*  
 Mercury -113288-03-27 13:55 J -39656933.07 -39656932.92 -39656932.76 0.0497 0.0216  
 Mercury -113288-06-25 15:50 J -39656842.96 -39656842.84 -39656842.71 0.0496 0.0334  
 Mars -113288-08-15 04:48 J -39656792.57 -39656792.30 -39656792.03 0.0496 0.0004  
 Venus -113287-11-21 22:05 J -39656328.75 -39656328.58 -39656328.42 0.0496 0.0307  
 Mercury -113282-02-27 13:12 J -39654770.01 -39654769.95 -39654769.88 0.0528 0.0456  
 Mercury -113282-05-27 23:46 J -39654680.64 -39654680.51 -39654680.38 0.0529 0.0056  
 Venus -113281-09-29 03:07 J -39654190.53 -39654190.37 -39654190.20 0.0530 0.0293  
 Mercury -113276-01-13 12:29 J -39652623.10 -39652622.98 -39652622.87 0.0497 0.0360  
 Mercury -113276-04-13 13:55 J -39652533.08 -39652532.92 -39652532.76 0.0496 0.0184  
 Venus -113274-03-21 15:22 J -39651825.98 -39651825.86 -39651825.73 0.0498 0.0397  
 Mercury -113270-03-16 03:22 J -39650370.50 -39650370.36 -39650370.23 0.0529 0.0065  
 Mars -113270-05-27 22:19 J -39650297.80 -39650297.57 -39650297.34 0.0530 0.0292  
 Mercury -113270-06-13 12:58 J -39650281.04 -39650280.96 -39650280.89 0.0530 0.0436  
 Venus -113268-01-27 00:14 J -39649687.53 -39649687.49 -39649687.45 0.0527 0.0514  
 Mercury -113265-11-01 11:46 J -39648313.03 -39648313.01 -39648312.99 0.0498 0.0492  
 Mercury -113264-01-30 12:43 J -39648223.14 -39648222.97 -39648222.80 0.0497 0.0045  
 Venus -113263-11-24 11:46 J -39647560.22 -39647560.01 -39647559.81 0.0498 0.0120  
 Mercury -113258-01-02 06:29 J -39646060.36 -39646060.23 -39646060.11 0.0529 0.0190  
 Mercury -113258-04-01 16:19 J -39645970.93 -39645970.82 -39645970.72 0.0530 0.0314  
 Venus -113257-10-01 20:38 J -39645421.82 -39645421.64 -39645421.46 0.0528 0.0204  
 Mercury -113253-11-18 11:46 J -39643913.18 -39643913.01 -39643912.84 0.0497 0.0092  
 Mercury -113252-02-16 13:55 J -39643822.97 -39643822.92 -39643822.85 0.0496 0.0463  
 Mars -113252-05-19 11:46 J -39643731.11 -39643731.01 -39643730.91 0.0496 0.0457  
 Venus -113251-07-30 08:38 J -39643294.33 -39643294.14 -39643293.94 0.0497 0.0155  
 Mercury -113247-10-21 09:07 J -39641750.22 -39641750.12 -39641750.01 0.0528 0.0321  
 Mercury -113246-01-18 19:12 J -39641660.82 -39641660.70 -39641660.57 0.0529 0.0186  
 Venus -113245-06-06 16:05 J -39641156.02 -39641155.83 -39641155.63 0.0529 0.0112  
 Mercury -113241-09-06 11:17 J -39639603.18 -39639603.03 -39639602.88 0.0497 0.0223



Mercury -113241-12-05 13:12 J -39639513.08 -39639512.95 -39639512.82 0.0497 0.0327

Venus -113239-04-04 06:43 J -39639028.32 -39639028.22 -39639028.11 0.0496 0.0422

Moon -113236-02-17 20:10 J -39637977.90 -39637977.66 -39637977.42 0.0516 0.0119

Earth -113236-02-17 23:31 J -39637977.76 -39637977.52 -39637977.29 0.0516 0.0093 \*

Mercury -113235-08-09 11:17 J -39637440.09 -39637440.03 -39637439.96 0.0528 0.0460

Mercury -113235-11-06 21:50 J -39637350.73 -39637350.59 -39637350.46 0.0529 0.0052

Mars -113234-03-03 15:22 J -39637234.07 -39637233.86 -39637233.65 0.0530 0.0343

Venus -113233-02-10 10:05 J -39636890.19 -39636890.08 -39636889.96 0.0530 0.0433

Mercury -113229-06-25 10:48 J -39635293.17 -39635293.05 -39635292.93 0.0498 0.0355

Mercury -113229-09-23 12:14 J -39635203.15 -39635202.99 -39635202.83 0.0497 0.0189

Venus -113227-08-02 01:41 J -39634525.61 -39634525.43 -39634525.26 0.0498 0.0286

Earth -113224-02-22 23:02 J -39633589.70 -39633589.54 -39633589.38 0.0518 0.0384

Moon -113224-02-23 00:43 J -39633589.61 -39633589.47 -39633589.33 0.0518 0.0406 \*

Mercury -113223-08-26 00:58 J -39633040.59 -39633040.46 -39633040.33 0.0529 0.0074

Mercury -113223-11-23 10:34 J -39632951.14 -39632951.06 -39632950.98 0.0530 0.0426

Venus -113221-06-09 07:41 J -39632387.32 -39632387.18 -39632387.04 0.0528 0.0378

Moon -113219-08-09 00:00 J -39631596.69 -39631596.50 -39631596.31 0.0510 0.0301

Earth -113219-08-09 01:55 J -39631596.60 -39631596.42 -39631596.22 0.0510 0.0278 \*

Mercury -113217-04-13 09:22 J -39630983.12 -39630983.11 -39630983.09 0.0498 0.0496

Mercury -113217-07-12 10:19 J -39630893.24 -39630893.07 -39630892.90 0.0497 0.0042

Venus -113215-04-06 19:41 J -39630259.89 -39630259.68 -39630259.47 0.0497 0.0003

Mercury -113211-06-14 04:19 J -39628730.44 -39628730.32 -39628730.19 0.0529 0.0196

Mercury -113211-09-11 14:24 J -39628641.01 -39628640.90 -39628640.80 0.0530 0.0310

Venus -113209-02-13 05:46 J -39628121.45 -39628121.26 -39628121.06 0.0529 0.0074

Earth -113207-08-13 12:43 J -39627209.19 -39627208.97 -39627208.75 0.0508 0.0153

Moon -113207-08-13 12:58 J -39627209.16 -39627208.96 -39627208.75 0.0508 0.0173 \*

Mercury -113205-04-30 09:22 J -39626583.27 -39626583.11 -39626582.94 0.0497 0.0095

Mercury -113205-07-29 11:31 J -39626493.07 -39626493.02 -39626492.95 0.0496 0.0459

Venus -113204-12-10 16:48 J -39625993.97 -39625993.80 -39625993.62 0.0497 0.0273

Mercury -113199-04-02 07:26 J -39624420.29 -39624420.19 -39624420.08 0.0528 0.0321

Mercury -113199-06-30 17:46 J -39624330.89 -39624330.76 -39624330.64 0.0529 0.0188  
 Venus -113198-10-19 01:41 J -39623855.61 -39623855.43 -39623855.25 0.0529 0.0242  
 Mercury -113193-02-17 08:38 J -39622273.29 -39622273.14 -39622272.99 0.0497 0.0230  
 Mercury -113193-05-17 10:34 J -39622183.20 -39622183.06 -39622182.93 0.0496 0.0320  
 Venus -113191-04-09 13:26 J -39621491.03 -39621490.94 -39621490.84 0.0499 0.0446  
 Mercury -113187-01-19 10:19 J -39620110.14 -39620110.07 -39620110.00 0.0528 0.0450  
 Mercury -113187-04-18 20:53 J -39620020.77 -39620020.63 -39620020.50 0.0529 0.0063  
 Mercury -113182-12-06 08:24 J -39617963.27 -39617963.15 -39617963.04 0.0498 0.0359  
 Mercury -113181-03-05 09:50 J -39617873.25 -39617873.09 -39617872.93 0.0497 0.0186  
 Venus -113180-12-13 10:19 J -39617225.26 -39617225.07 -39617224.87 0.0498 0.0171  
 Mercury -113175-02-04 23:17 J -39615710.66 -39615710.53 -39615710.39 0.0529 0.0074  
 Mercury -113175-05-05 08:53 J -39615621.21 -39615621.13 -39615621.05 0.0530 0.0425  
 Venus -113174-10-21 16:05 J -39615087.00 -39615086.83 -39615086.65 0.0528 0.0246  
 Mercury -113170-09-24 07:55 J -39613653.19 -39613653.17 -39613653.14 0.0498 0.0489  
 Mercury -113170-12-23 08:53 J -39613563.30 -39613563.13 -39613562.95 0.0497 0.0051  
 Mars -113169-02-03 21:22 J -39613520.79 -39613520.61 -39613520.42 0.0497 0.0361  
 Venus -113168-08-18 07:12 J -39612959.41 -39612959.20 -39612959.00 0.0497 0.0106  
 Mercury -113164-11-24 02:24 J -39611400.52 -39611400.40 -39611400.27 0.0529 0.0200  
 Mercury -113163-02-21 12:14 J -39611311.09 -39611310.99 -39611310.88 0.0530 0.0304  
 Venus -113162-06-26 13:26 J -39610821.14 -39610820.94 -39610820.75 0.0529 0.0065  
 Mercury -113158-10-11 07:26 J -39609253.36 -39609253.19 -39609253.02 0.0497 0.0095  
 Mercury -113157-01-09 09:36 J -39609163.16 -39609163.10 -39609163.04 0.0496 0.0458  
 Venus -113156-04-23 01:55 J -39608693.54 -39608693.42 -39608693.29 0.0496 0.0388  
 Earth -113153-02-17 23:02 J -39607662.76 -39607662.54 -39607662.31 0.0517 0.0185  
 Moon -113153-02-18 01:55 J -39607662.63 -39607662.42 -39607662.21 0.0517 0.0208 \*  
 Mercury -113152-09-12 05:46 J -39607090.37 -39607090.26 -39607090.15 0.0529 0.0323  
 Mercury -113152-12-10 16:05 J -39607000.96 -39607000.83 -39607000.71 0.0530 0.0186  
 Venus -113150-03-01 11:02 J -39606555.18 -39606555.04 -39606554.90 0.0530 0.0374  
 Mercury -113146-07-30 06:43 J -39604943.37 -39604943.22 -39604943.07 0.0497 0.0228  
 Mercury -113146-10-28 08:24 J -39604853.28 -39604853.15 -39604853.01 0.0496 0.0321

Venus -113144-08-20 21:36 J -39604190.76 -39604190.60 -39604190.44 0.0498 0.0326  
 Moon -113141-02-23 01:12 J -39603274.64 -39603274.45 -39603274.26 0.0518 0.0326  
 Earth -113141-02-23 01:55 J -39603274.61 -39603274.42 -39603274.23 0.0518 0.0307 \*  
 Mercury -113140-07-01 08:53 J -39602780.20 -39602780.13 -39602780.06 0.0528 0.0447  
 Mercury -113140-09-28 19:26 J -39602690.82 -39602690.69 -39602690.56 0.0529 0.0065  
 Venus -113138-06-29 07:26 J -39602052.30 -39602052.19 -39602052.08 0.0527 0.0435  
 Earth -113136-08-08 06:43 J -39601281.38 -39601281.22 -39601281.05 0.0510 0.0354  
 Moon -113136-08-08 07:41 J -39601281.33 -39601281.18 -39601281.03 0.0510 0.0373 \*  
 Mercury -113134-05-18 06:00 J -39600633.36 -39600633.25 -39600633.13 0.0498 0.0361  
 Mercury -113134-08-16 07:26 J -39600543.35 -39600543.19 -39600543.03 0.0497 0.0183  
 Mars -113134-11-08 10:19 J -39600459.33 -39600459.07 -39600458.80 0.0496 0.0119  
 Venus -113132-04-25 18:58 J -39599924.92 -39599924.71 -39599924.50 0.0497 0.0052  
 Mercury -113128-07-17 22:34 J -39598380.70 -39598380.56 -39598380.43 0.0529 0.0062  
 Mercury -113128-10-15 08:10 J -39598291.24 -39598291.16 -39598291.09 0.0530 0.0437  
 Venus -113126-03-04 03:50 J -39597786.53 -39597786.34 -39597786.15 0.0528 0.0124  
 Earth -113124-08-12 17:02 J -39596894.02 -39596893.79 -39596893.56 0.0509 0.0075  
 Moon -113124-08-12 17:46 J -39596893.99 -39596893.76 -39596893.53 0.0509 0.0097 \*  
 Mercury -113122-03-06 05:46 J -39596323.28 -39596323.26 -39596323.22 0.0498 0.0489  
 Mercury -113122-06-04 06:58 J -39596233.39 -39596233.21 -39596233.04 0.0497 0.0051  
 Venus -113121-12-29 16:48 J -39595658.99 -39595658.80 -39595658.61 0.0497 0.0220  
 Mercury -113116-05-06 01:12 J -39594070.58 -39594070.45 -39594070.33 0.0528 0.0196  
 Mercury -113116-08-03 11:02 J -39593981.15 -39593981.04 -39593980.94 0.0529 0.0308  
 Mars -113116-08-20 10:34 J -39593964.33 -39593964.06 -39593963.79 0.0529 0.0130  
 Venus -113115-11-06 22:34 J -39593520.74 -39593520.56 -39593520.38 0.0529 0.0197  
 Earth -113112-08-17 03:22 J -39592506.38 -39592506.36 -39592506.32 0.0508 0.0504  
 Mercury -113110-03-23 06:14 J -39591923.41 -39591923.24 -39591923.07 0.0497 0.0084  
 Mercury -113110-06-21 08:38 J -39591833.19 -39591833.14 -39591833.09 0.0496 0.0471  
 Venus -113109-09-03 14:38 J -39591392.91 -39591392.89 -39591392.86 0.0496 0.0491  
 Mercury -113104-02-22 04:05 J -39589760.43 -39589760.33 -39589760.22 0.0528 0.0323  
 Mercury -113104-05-22 14:24 J -39589671.03 -39589670.90 -39589670.78 0.0529 0.0186

Venus -113103-07-12 18:43 J -39589254.76 -39589254.72 -39589254.66 0.0530 0.0512  
 Mercury -113098-01-09 05:02 J -39587613.44 -39587613.29 -39587613.14 0.0497 0.0224  
 Mercury -113098-04-09 06:43 J -39587523.35 -39587523.22 -39587523.09 0.0496 0.0324  
 Venus -113096-01-01 06:43 J -39586890.41 -39586890.22 -39586890.03 0.0498 0.0212  
 Mercury -113093-12-11 07:26 J -39585450.26 -39585450.19 -39585450.12 0.0529 0.0447  
 Mercury -113092-03-10 18:00 J -39585360.89 -39585360.75 -39585360.62 0.0530 0.0068  
 Venus -113091-11-09 18:29 J -39584751.89 -39584751.73 -39584751.57 0.0528 0.0312  
 Mercury -113087-10-28 04:34 J -39583303.42 -39583303.31 -39583303.19 0.0497 0.0354  
 Mercury -113086-01-26 06:00 J -39583213.41 -39583213.25 -39583213.09 0.0496 0.0189  
 Venus -113085-09-06 04:05 J -39582624.54 -39582624.33 -39582624.12 0.0497 0.0064  
 Mercury -113081-12-27 21:22 J -39581050.74 -39581050.61 -39581050.48 0.0529 0.0055  
 Mercury -113080-03-27 06:58 J -39580961.28 -39580961.21 -39580961.14 0.0530 0.0445  
 Venus -113079-07-15 15:07 J -39580486.07 -39580485.87 -39580485.67 0.0529 0.0003  
 Mercury -113075-08-16 04:05 J -39578993.36 -39578993.33 -39578993.29 0.0498 0.0485  
 Mercury -113075-11-14 05:02 J -39578903.46 -39578903.29 -39578903.12 0.0497 0.0053  
 Venus -113073-05-12 02:10 J -39578358.56 -39578358.41 -39578358.25 0.0496 0.0335  
 Moon -113070-02-17 04:05 J -39577347.53 -39577347.33 -39577347.11 0.0516 0.0269  
 Earth -113070-02-17 06:00 J -39577347.45 -39577347.25 -39577347.04 0.0516 0.0247 \*  
 Mercury -113069-10-16 00:29 J -39576740.61 -39576740.48 -39576740.35 0.0529 0.0181  
 Mercury -113068-01-13 10:19 J -39576651.17 -39576651.07 -39576650.96 0.0530 0.0323  
 Venus -113067-03-20 11:02 J -39576220.20 -39576220.04 -39576219.88 0.0529 0.0318  
 Mercury -113063-09-02 04:34 J -39574593.48 -39574593.31 -39574593.14 0.0497 0.0079  
 Mercury -113063-12-01 06:58 J -39574503.26 -39574503.21 -39574503.17 0.0496 0.0475  
 Venus -113061-09-08 23:17 J -39573855.66 -39573855.53 -39573855.40 0.0498 0.0388  
 Moon -113058-02-22 05:46 J -39572959.45 -39572959.26 -39572959.06 0.0517 0.0257  
 Earth -113058-02-22 06:29 J -39572959.44 -39572959.23 -39572959.02 0.0517 0.0233 \*  
 Mercury -113057-08-04 03:07 J -39572430.48 -39572430.37 -39572430.26 0.0528 0.0314  
 Mercury -113057-11-01 13:12 J -39572341.07 -39572340.95 -39572340.82 0.0529 0.0194  
 Venus -113055-07-18 05:46 J -39571717.33 -39571717.26 -39571717.18 0.0527 0.0487  
 Earth -113053-08-07 14:38 J -39570966.01 -39570965.89 -39570965.76 0.0511 0.0419

Moon -113053-08-07 15:07 J -39570965.99 -39570965.87 -39570965.75 0.0511 0.0433 \*  
 Mercury -113051-06-21 04:05 J -39570283.48 -39570283.33 -39570283.17 0.0497 0.0211  
 Mercury -113051-09-19 06:00 J -39570193.38 -39570193.25 -39570193.12 0.0497 0.0339  
 Venus -113049-05-14 19:55 J -39569589.88 -39569589.67 -39569589.47 0.0497 0.0109  
 Mercury -113045-05-23 06:00 J -39568120.32 -39568120.25 -39568120.17 0.0528 0.0441  
 Mercury -113045-08-20 16:34 J -39568030.94 -39568030.81 -39568030.68 0.0529 0.0071  
 Venus -113043-03-23 04:05 J -39567451.52 -39567451.33 -39567451.15 0.0529 0.0182  
 Moon -113041-08-12 00:43 J -39566578.69 -39566578.47 -39566578.25 0.0509 0.0042  
 Earth -113041-08-12 02:24 J -39566578.62 -39566578.40 -39566578.17 0.0509 0.0020 \*  
 Mercury -113039-04-09 03:07 J -39565973.48 -39565973.37 -39565973.24 0.0497 0.0347  
 Mercury -113039-07-08 04:34 J -39565883.47 -39565883.31 -39565883.15 0.0496 0.0196  
 Venus -113037-01-18 14:24 J -39565324.09 -39565323.90 -39565323.70 0.0496 0.0175  
 Mercury -113033-06-08 19:55 J -39563720.80 -39563720.67 -39563720.53 0.0530 0.0053  
 Mercury -113033-09-06 05:46 J -39563631.33 -39563631.26 -39563631.19 0.0530 0.0450  
 Venus -113032-11-26 02:10 J -39563185.60 -39563185.41 -39563185.22 0.0530 0.0127  
 Earth -113029-08-16 14:24 J -39562190.99 -39562190.90 -39562190.79 0.0507 0.0454  
 Moon -113029-08-16 17:17 J -39562190.85 -39562190.78 -39562190.70 0.0507 0.0479 \*  
 Mercury -113027-01-26 03:07 J -39561663.42 -39561663.37 -39561663.32 0.0497 0.0473  
 Mercury -113027-04-26 03:50 J -39561573.51 -39561573.34 -39561573.17 0.0496 0.0063  
 Venus -113026-09-23 12:43 J -39561058.05 -39561057.97 -39561057.87 0.0496 0.0446  
 Mercury -113021-03-27 23:31 J -39559410.65 -39559410.52 -39559410.39 0.0529 0.0172  
 Mercury -113021-06-25 09:22 J -39559321.21 -39559321.11 -39559321.01 0.0530 0.0333  
 Venus -113020-07-31 22:19 J -39558919.67 -39558919.57 -39558919.46 0.0530 0.0441  
 Mercury -113015-02-12 03:07 J -39557263.54 -39557263.37 -39557263.20 0.0497 0.0072  
 Mars -113015-04-29 20:10 J -39557186.90 -39557186.66 -39557186.41 0.0496 0.0199  
 Mercury -113015-05-13 05:17 J -39557173.32 -39557173.28 -39557173.24 0.0496 0.0481  
 Venus -113013-01-21 08:38 J -39556555.32 -39556555.14 -39556554.97 0.0498 0.0273  
 Mercury -113009-01-15 02:38 J -39555100.50 -39555100.39 -39555100.28 0.0529 0.0297  
 Mercury -113009-04-13 12:43 J -39555011.09 -39555010.97 -39555010.84 0.0530 0.0212  
 Venus -113008-11-28 19:26 J -39554416.82 -39554416.69 -39554416.55 0.0528 0.0374

Mercury -113004-12-01 02:53 J -39552953.54 -39552953.38 -39552953.23 0.0497 0.0202

Mercury -113003-03-01 04:34 J -39552863.43 -39552863.31 -39552863.18 0.0496 0.0347

Venus -113002-09-26 06:43 J -39552289.43 -39552289.22 -39552289.01 0.0497 0.0003

# 113TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 113th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-112998-11-03 05:17 J	-39550790.36	-39550790.28	-39550790.20	0.0528	0.0429		
Mercury	-112997-01-31 15:50 J	-39550700.98	-39550700.84	-39550700.71	0.0529	0.0084		
Venus	-112996-08-03 15:07 J	-39550151.07	-39550150.87	-39550150.68	0.0529	0.0057		
Mercury	-112992-09-19 02:38 J	-39548643.52	-39548643.39	-39548643.26	0.0498	0.0331		
Mercury	-112992-12-18 03:50 J	-39548553.49	-39548553.34	-39548553.18	0.0497	0.0213		
Venus	-112990-06-01 04:19 J	-39548023.49	-39548023.32	-39548023.14	0.0496	0.0276		
Earth	-112987-02-16 11:46 J	-39547032.20	-39547032.01	-39547031.82	0.0516	0.0313		
Moon	-112987-02-16 12:29 J	-39547032.16	-39547031.98	-39547031.81	0.0516	0.0331	*	
Mercury	-112986-11-19 18:58 J	-39546390.84	-39546390.71	-39546390.57	0.0529	0.0042		
Mercury	-112985-02-17 04:34 J	-39546301.37	-39546301.31	-39546301.24	0.0530	0.0458		
Venus	-112984-04-08 12:14 J	-39545885.16	-39545884.99	-39545884.82	0.0530	0.0257		
Mercury	-112980-07-08 01:55 J	-39544333.47	-39544333.42	-39544333.35	0.0497	0.0463		
Mercury	-112980-10-06 02:38 J	-39544243.56	-39544243.39	-39544243.21	0.0496	0.0075		

Mars -112979-02-01 17:31 J -39544124.99 -39544124.77 -39544124.56 0.0495 0.0299  
 Venus -112978-09-28 21:50 J -39543520.68 -39543520.59 -39543520.49 0.0498 0.0438  
 Earth -112975-02-21 10:05 J -39542644.31 -39542644.08 -39542643.85 0.0518 0.0159  
 Moon -112975-02-21 12:00 J -39542644.23 -39542644.00 -39542643.77 0.0518 0.0186 \*  
 Mercury -112974-09-07 22:05 J -39542080.70 -39542080.58 -39542080.45 0.0529 0.0167  
 Mercury -112974-12-06 08:10 J -39541991.26 -39541991.16 -39541991.06 0.0530 0.0340  
 Moon -112970-08-08 03:22 J -39540650.44 -39540650.36 -39540650.27 0.0510 0.0468  
 Earth -112970-08-08 05:02 J -39540650.39 -39540650.29 -39540650.19 0.0510 0.0455 \*  
 Mercury -112968-07-25 02:24 J -39539933.57 -39539933.40 -39539933.23 0.0496 0.0057  
 Mercury -112968-10-23 04:19 J -39539843.32 -39539843.32 -39539843.30 0.0496 0.0495  
 Venus -112966-06-03 18:58 J -39539254.90 -39539254.71 -39539254.51 0.0497 0.0161  
 Mercury -112962-06-27 01:41 J -39537770.54 -39537770.43 -39537770.32 0.0529 0.0286  
 Mercury -112962-09-24 12:00 J -39537681.12 -39537681.00 -39537680.88 0.0530 0.0223  
 Mars -112962-11-15 14:10 J -39537629.17 -39537628.91 -39537628.63 0.0530 0.0133  
 Venus -112960-04-11 08:24 J -39537116.32 -39537116.15 -39537115.98 0.0528 0.0258  
 Earth -112958-08-12 14:38 J -39536263.12 -39536262.89 -39536262.66 0.0509 0.0029  
 Moon -112958-08-12 17:17 J -39536263.01 -39536262.78 -39536262.54 0.0509 0.0002 \*  
 Mercury -112956-05-13 01:41 J -39535623.58 -39535623.43 -39535623.27 0.0497 0.0191  
 Mercury -112956-08-11 03:22 J -39535533.48 -39535533.36 -39535533.24 0.0496 0.0358  
 Venus -112954-02-06 17:02 J -39534988.99 -39534988.79 -39534988.58 0.0497 0.0112  
 Mercury -112950-04-15 04:48 J -39533460.38 -39533460.30 -39533460.22 0.0528 0.0411  
 Mercury -112950-07-13 15:22 J -39533370.99 -39533370.86 -39533370.73 0.0529 0.0101  
 Venus -112949-12-15 04:48 J -39532850.50 -39532850.30 -39532850.10 0.0529 0.0058  
 Moon -112946-08-16 21:22 J -39531875.73 -39531875.61 -39531875.48 0.0508 0.0424  
 Earth -112946-08-17 00:43 J -39531875.60 -39531875.47 -39531875.33 0.0508 0.0401 \*  
 Mercury -112944-03-01 01:26 J -39531313.56 -39531313.44 -39531313.31 0.0497 0.0320  
 Mercury -112944-05-30 02:38 J -39531223.54 -39531223.39 -39531223.23 0.0496 0.0225  
 Venus -112943-10-12 16:05 J -39530722.96 -39530722.83 -39530722.70 0.0496 0.0382  
 Mercury -112938-05-01 18:14 J -39529060.87 -39529060.74 -39529060.60 0.0529 0.0028  
 Mercury -112938-07-30 03:50 J -39528971.40 -39528971.34 -39528971.28 0.0530 0.0471

Venus -112937-08-19 23:17 J -39528584.66 -39528584.53 -39528584.38 0.0530 0.0382  
 Mercury -112933-12-18 01:26 J -39527003.51 -39527003.44 -39527003.37 0.0498 0.0447  
 Mercury -112932-03-18 02:24 J -39526913.57 -39526913.40 -39526913.23 0.0497 0.0092  
 Venus -112930-02-09 11:31 J -39526220.16 -39526220.02 -39526219.86 0.0498 0.0339  
 Mercury -112926-02-17 21:22 J -39524750.74 -39524750.61 -39524750.48 0.0529 0.0154  
 Mercury -112926-05-18 07:26 J -39524661.29 -39524661.19 -39524661.09 0.0530 0.0351  
 Venus -112925-12-17 21:36 J -39524081.70 -39524081.60 -39524081.49 0.0528 0.0440  
 Mercury -112920-01-04 01:26 J -39522603.61 -39522603.44 -39522603.27 0.0496 0.0044  
 Venus -112919-10-15 06:29 J -39521954.44 -39521954.23 -39521954.02 0.0497 0.0053  
 Mercury -112915-12-07 00:29 J -39520440.60 -39520440.48 -39520440.37 0.0529 0.0280  
 Mercury -112914-03-06 10:48 J -39520351.17 -39520351.05 -39520350.93 0.0530 0.0230  
 Venus -112913-08-22 19:55 J -39519815.85 -39519815.67 -39519815.47 0.0529 0.0137  
 Mercury -112909-10-23 01:12 J -39518293.61 -39518293.45 -39518293.29 0.0497 0.0173  
 Mercury -112908-01-21 02:53 J -39518203.49 -39518203.38 -39518203.27 0.0496 0.0374  
 Venus -112907-06-20 04:34 J -39517688.50 -39517688.31 -39517688.12 0.0496 0.0221  
 Earth -112904-02-15 17:46 J -39516716.92 -39516716.76 -39516716.60 0.0516 0.0377  
 Moon -112904-02-15 18:14 J -39516716.89 -39516716.74 -39516716.57 0.0516 0.0389 \*  
 Mercury -112903-09-25 03:50 J -39516130.43 -39516130.34 -39516130.25 0.0529 0.0401  
 Mercury -112903-12-23 14:24 J -39516041.03 -39516040.90 -39516040.77 0.0530 0.0112  
 Venus -112901-04-27 17:02 J -39515549.97 -39515549.79 -39515549.60 0.0530 0.0179  
 Mercury -112897-08-11 00:43 J -39513983.60 -39513983.47 -39513983.34 0.0497 0.0305  
 Mercury -112897-11-09 01:55 J -39513893.57 -39513893.42 -39513893.27 0.0496 0.0237  
 Venus -112895-02-23 03:07 J -39513422.39 -39513422.37 -39513422.33 0.0496 0.0490  
 Moon -112892-02-20 19:12 J -39512328.92 -39512328.70 -39512328.48 0.0518 0.0147  
 Earth -112892-02-20 22:05 J -39512328.81 -39512328.58 -39512328.35 0.0518 0.0118 \*  
 Mercury -112891-07-14 06:58 J -39511820.22 -39511820.21 -39511820.20 0.0528 0.0525  
 Mercury -112891-10-11 17:46 J -39511730.89 -39511730.76 -39511730.62 0.0529 0.0017  
 Mercury -112890-01-09 03:22 J -39511641.40 -39511641.36 -39511641.31 0.0530 0.0490  
 Venus -112889-01-01 12:58 J -39511284.03 -39511283.96 -39511283.90 0.0530 0.0497  
 Earth -112887-08-07 16:05 J -39510334.85 -39510334.83 -39510334.80 0.0510 0.0506



Mercury -112885-05-30 00:29 J -39509673.56 -39509673.48 -39509673.40 0.0497 0.0434

Mercury -112885-08-28 01:26 J -39509583.61 -39509583.44 -39509583.28 0.0497 0.0105

Venus -112883-06-22 22:48 J -39508919.73 -39508919.55 -39508919.36 0.0498 0.0231

Mercury -112879-07-30 20:38 J -39507420.77 -39507420.64 -39507420.50 0.0529 0.0140

Mercury -112879-10-28 06:43 J -39507331.32 -39507331.22 -39507331.13 0.0530 0.0365

Venus -112877-04-30 09:36 J -39506781.25 -39506781.10 -39506780.94 0.0528 0.0321

Moon -112875-08-11 23:02 J -39505947.77 -39505947.54 -39505947.32 0.0509 0.0051

Earth -112875-08-12 02:10 J -39505947.64 -39505947.41 -39505947.18 0.0509 0.0076 \*

Mercury -112873-06-16 00:58 J -39505273.63 -39505273.46 -39505273.29 0.0497 0.0028

Venus -112871-02-25 20:38 J -39504653.85 -39504653.64 -39504653.43 0.0497 0.0047

Mercury -112867-05-18 23:46 J -39503110.62 -39503110.51 -39503110.39 0.0529 0.0265

Mercury -112867-08-16 10:05 J -39503021.20 -39503021.08 -39503020.96 0.0530 0.0243

Venus -112865-01-04 06:58 J -39502515.40 -39502515.21 -39502515.01 0.0529 0.0011

Earth -112863-08-16 14:38 J -39501560.05 -39501559.89 -39501559.73 0.0508 0.0364

Moon -112863-08-16 18:14 J -39501559.88 -39501559.74 -39501559.58 0.0508 0.0383 \*

Mercury -112861-04-04 00:14 J -39500963.65 -39500963.49 -39500963.32 0.0497 0.0160

Mercury -112861-07-03 01:55 J -39500873.52 -39500873.42 -39500873.31 0.0496 0.0388

Mars -112861-07-24 14:24 J -39500852.17 -39500851.90 -39500851.63 0.0496 0.0012

Venus -112860-10-31 16:34 J -39500387.96 -39500387.81 -39500387.65 0.0496 0.0326

Mercury -112855-03-07 02:38 J -39498800.48 -39498800.39 -39498800.30 0.0529 0.0395

Mercury -112855-06-04 13:12 J -39498711.08 -39498710.95 -39498710.82 0.0530 0.0119

Venus -112854-09-09 04:05 J -39498249.49 -39498249.33 -39498249.17 0.0530 0.0306

Mercury -112849-01-22 00:14 J -39496653.63 -39496653.49 -39496653.35 0.0497 0.0287

Mercury -112849-04-21 01:26 J -39496563.59 -39496563.44 -39496563.29 0.0496 0.0255

Venus -112847-02-28 12:00 J -39495885.13 -39495885.00 -39495884.87 0.0498 0.0396

Mercury -112844-12-24 06:00 J -39494490.28 -39494490.25 -39494490.23 0.0529 0.0517

Mercury -112843-03-23 16:48 J -39494400.93 -39494400.80 -39494400.66 0.0530 0.0002

Mars -112843-05-05 08:53 J -39494358.36 -39494358.13 -39494357.90 0.0530 0.0285

Mercury -112843-06-21 02:24 J -39494311.43 -39494311.40 -39494311.35 0.0531 0.0501

Venus -112841-01-07 02:10 J -39493746.43 -39493746.41 -39493746.37 0.0528 0.0520

Mercury -112838-11-09 23:46 J -39492343.60 -39492343.51 -39492343.42 0.0497 0.0418

Mercury -112837-02-08 00:29 J -39492253.65 -39492253.48 -39492253.31 0.0496 0.0119

Venus -112836-11-03 09:36 J -39491619.30 -39491619.10 -39491618.89 0.0497 0.0121

Mercury -112831-01-09 20:10 J -39490090.79 -39490090.66 -39490090.53 0.0529 0.0122

Mercury -112831-04-09 06:14 J -39490001.33 -39490001.24 -39490001.15 0.0530 0.0382

Venus -112830-09-11 23:31 J -39489480.71 -39489480.52 -39489480.34 0.0529 0.0208

Mercury -112826-11-27 00:00 J -39487943.67 -39487943.50 -39487943.33 0.0497 0.0014

Venus -112824-07-09 07:55 J -39487353.36 -39487353.17 -39487352.97 0.0496 0.0155

Moon -112821-02-16 02:38 J -39486401.51 -39486401.39 -39486401.26 0.0516 0.0432

Earth -112821-02-16 04:34 J -39486401.44 -39486401.31 -39486401.17 0.0516 0.0423 \*

Mercury -112820-10-28 23:02 J -39485780.66 -39485780.54 -39485780.42 0.0529 0.0251

Mercury -112819-01-26 09:22 J -39485691.23 -39485691.11 -39485691.00 0.0530 0.0257

Venus -112818-05-17 18:29 J -39485214.92 -39485214.73 -39485214.53 0.0529 0.0116

Mercury -112814-09-14 23:31 J -39483633.68 -39483633.52 -39483633.35 0.0497 0.0146

Mercury -112814-12-14 01:12 J -39483543.54 -39483543.45 -39483543.34 0.0496 0.0404

Venus -112812-03-14 06:29 J -39483087.33 -39483087.23 -39483087.12 0.0496 0.0427

Earth -112809-02-21 05:46 J -39482013.50 -39482013.26 -39482013.03 0.0517 0.0059

Moon -112809-02-21 09:22 J -39482013.34 -39482013.11 -39482012.87 0.0517 0.0094 \*

Mercury -112808-08-17 01:55 J -39481470.51 -39481470.42 -39481470.32 0.0529 0.0380

Mercury -112808-11-14 12:29 J -39481381.11 -39481380.98 -39481380.85 0.0530 0.0133

Mars -112807-02-09 14:38 J -39481294.08 -39481293.89 -39481293.70 0.0530 0.0385

Venus -112806-01-20 14:38 J -39480949.00 -39480948.89 -39480948.78 0.0530 0.0434

Mercury -112802-07-03 23:17 J -39479323.67 -39479323.53 -39479323.39 0.0497 0.0274

Mercury -112802-10-02 00:29 J -39479233.62 -39479233.48 -39479233.33 0.0496 0.0269

Venus -112800-07-11 23:17 J -39478584.70 -39478584.53 -39478584.36 0.0497 0.0288

Mercury -112796-06-05 04:34 J -39477160.34 -39477160.31 -39477160.28 0.0529 0.0513

Mercury -112796-09-02 15:22 J -39477070.99 -39477070.86 -39477070.72 0.0530 0.0015

Mercury -112796-12-01 01:12 J -39476981.49 -39476981.45 -39476981.41 0.0531 0.0506

Venus -112794-05-20 13:41 J -39476446.05 -39476445.93 -39476445.80 0.0529 0.0399

Earth -112792-08-11 18:14 J -39475631.96 -39475631.74 -39475631.51 0.0509 0.0105

Moon -112792-08-11 22:05 J -39475631.81 -39475631.58 -39475631.36 0.0509 0.0075 \*  
 Mercury -112790-04-21 23:17 J -39475013.62 -39475013.53 -39475013.43 0.0497 0.0400  
 Mercury -112790-07-21 00:00 J -39474923.66 -39474923.50 -39474923.33 0.0496 0.0137  
 Venus -112788-03-16 21:07 J -39474318.83 -39474318.62 -39474318.41 0.0496 0.0013  
 Mercury -112784-06-21 18:58 J -39472760.84 -39472760.71 -39472760.58 0.0530 0.0116  
 Mercury -112784-09-19 05:02 J -39472671.38 -39472671.29 -39472671.20 0.0531 0.0390  
 Venus -112782-01-23 11:02 J -39472180.23 -39472180.04 -39472179.84 0.0529 0.0086  
 Moon -112780-08-16 00:14 J -39471244.66 -39471244.49 -39471244.31 0.0508 0.0333  
 Earth -112780-08-16 03:50 J -39471244.52 -39471244.34 -39471244.16 0.0508 0.0320 \*  
 Mercury -112778-05-08 23:02 J -39470613.71 -39470613.54 -39470613.36 0.0496 0.0012  
 Venus -112777-11-19 19:12 J -39470052.88 -39470052.70 -39470052.52 0.0496 0.0263  
 Mercury -112772-04-09 22:19 J -39468450.69 -39468450.57 -39468450.45 0.0529 0.0238  
 Mercury -112772-07-08 08:38 J -39468361.26 -39468361.14 -39468361.03 0.0530 0.0271  
 Venus -112771-09-28 07:26 J -39467914.37 -39467914.19 -39467914.01 0.0530 0.0234  
 Mercury -112766-02-24 22:34 J -39466303.72 -39466303.56 -39466303.39 0.0497 0.0133  
 Mercury -112766-05-26 00:14 J -39466213.58 -39466213.49 -39466213.40 0.0496 0.0415  
 Venus -112764-03-19 15:07 J -39465549.93 -39465549.87 -39465549.79 0.0498 0.0464  
 Mercury -112760-01-27 01:12 J -39464140.55 -39464140.45 -39464140.36 0.0529 0.0368  
 Mercury -112760-04-26 11:46 J -39464051.14 -39464051.01 -39464050.89 0.0530 0.0145  
 Mercury -112755-12-13 22:19 J -39461993.71 -39461993.57 -39461993.43 0.0497 0.0263  
 Mercury -112754-03-13 23:31 J -39461903.66 -39461903.52 -39461903.38 0.0496 0.0281  
 Venus -112753-11-22 12:29 J -39461284.17 -39461283.98 -39461283.78 0.0497 0.0185  
 Mercury -112749-11-15 03:50 J -39459830.38 -39459830.34 -39459830.29 0.0528 0.0498  
 Mercury -112748-02-12 14:53 J -39459741.02 -39459740.88 -39459740.75 0.0530 0.0025  
 Mercury -112748-05-13 00:29 J -39459651.51 -39459651.48 -39459651.46 0.0530 0.0517  
 Venus -112747-10-01 00:29 J -39459145.65 -39459145.48 -39459145.31 0.0529 0.0271  
 Mercury -112743-10-01 22:05 J -39457683.68 -39457683.58 -39457683.47 0.0497 0.0389  
 Mercury -112743-12-30 22:48 J -39457593.71 -39457593.55 -39457593.38 0.0496 0.0149  
 Mars -112742-01-14 06:58 J -39457579.43 -39457579.21 -39457578.99 0.0496 0.0284  
 Venus -112741-07-28 08:24 J -39457018.35 -39457018.15 -39457017.94 0.0496 0.0097

Earth -112738-02-15 05:17 J -39456086.31 -39456086.28 -39456086.25 0.0515 0.0509  
 Moon -112738-02-15 07:55 J -39456086.19 -39456086.17 -39456086.14 0.0515 0.0513  
 Mercury -112737-12-01 17:31 J -39455430.91 -39455430.77 -39455430.64 0.0530 0.0115  
 Mercury -112736-03-01 03:22 J -39455341.44 -39455341.36 -39455341.27 0.0531 0.0393  
 Venus -112735-06-05 21:07 J -39454879.82 -39454879.62 -39454879.42 0.0530 0.0045  
 Mercury -112731-10-18 22:34 J -39453283.73 -39453283.56 -39453283.39 0.0496 0.0017  
 Venus -112729-04-02 06:58 J -39452752.34 -39452752.21 -39452752.07 0.0495 0.0370  
 Moon -112726-02-20 04:05 J -39451698.57 -39451698.33 -39451698.10 0.0517 0.0011  
 Earth -112726-02-20 07:55 J -39451698.40 -39451698.17 -39451697.93 0.0517 0.0023 \*  
 Mercury -112725-09-19 20:53 J -39451120.76 -39451120.63 -39451120.51 0.0530 0.0236  
 Mercury -112725-12-18 07:12 J -39451031.32 -39451031.20 -39451031.09 0.0531 0.0275  
 Venus -112723-02-08 17:17 J -39450613.91 -39450613.78 -39450613.63 0.0531 0.0364  
 Mercury -112719-08-06 21:36 J -39448973.77 -39448973.60 -39448973.43 0.0496 0.0120  
 Mercury -112719-11-04 23:02 J -39448883.62 -39448883.54 -39448883.45 0.0496 0.0427  
 Venus -112717-07-31 01:12 J -39448249.59 -39448249.45 -39448249.30 0.0497 0.0352  
 Earth -112714-02-25 12:00 J -39447310.09 -39447310.00 -39447309.90 0.0519 0.0475  
 Moon -112714-02-25 16:05 J -39447309.90 -39447309.83 -39447309.75 0.0519 0.0489 \*  
 Mercury -112713-07-09 00:00 J -39446810.60 -39446810.50 -39446810.40 0.0529 0.0359  
 Mercury -112713-10-06 10:34 J -39446721.18 -39446721.06 -39446720.93 0.0530 0.0155  
 Venus -112711-06-08 15:50 J -39446110.93 -39446110.84 -39446110.75 0.0528 0.0466  
 Moon -112709-08-10 23:31 J -39445316.74 -39445316.52 -39445316.30 0.0509 0.0138  
 Earth -112709-08-11 03:07 J -39445316.58 -39445316.37 -39445316.15 0.0509 0.0166 \*  
 Mercury -112707-05-25 21:07 J -39444663.77 -39444663.62 -39444663.48 0.0497 0.0253  
 Mercury -112707-08-23 22:19 J -39444573.71 -39444573.57 -39444573.43 0.0496 0.0290  
 Mars -112707-10-19 03:50 J -39444517.58 -39444517.34 -39444517.09 0.0495 0.0212  
 Venus -112705-04-04 23:02 J -39443983.75 -39443983.54 -39443983.33 0.0497 0.0073  
 Mercury -112701-04-27 02:53 J -39442500.43 -39442500.38 -39442500.33 0.0528 0.0489  
 Mercury -112701-07-25 13:41 J -39442411.07 -39442410.93 -39442410.80 0.0530 0.0027  
 Mercury -112701-10-22 23:17 J -39442321.54 -39442321.53 -39442321.51 0.0530 0.0526  
 Venus -112699-02-11 11:02 J -39441845.23 -39441845.04 -39441844.85 0.0529 0.0145

Earth -112697-08-15 12:00 J -39440929.19 -39440929.00 -39440928.80 0.0508 0.0259  
 Moon -112697-08-15 14:53 J -39440929.06 -39440928.88 -39440928.68 0.0508 0.0271 \*  
 Mercury -112695-03-13 20:53 J -39440353.74 -39440353.63 -39440353.53 0.0497 0.0383  
 Mercury -112695-06-11 21:36 J -39440263.77 -39440263.60 -39440263.44 0.0496 0.0156  
 Venus -112694-12-09 20:53 J -39439717.82 -39439717.63 -39439717.44 0.0496 0.0204  
 Mercury -112689-05-13 16:34 J -39438100.94 -39438100.81 -39438100.67 0.0529 0.0102  
 Mars -112689-07-29 23:17 J -39438023.81 -39438023.53 -39438023.25 0.0530 0.0056  
 Mercury -112689-08-11 02:38 J -39438011.48 -39438011.39 -39438011.31 0.0530 0.0402  
 Venus -112688-10-17 07:12 J -39437579.39 -39437579.20 -39437579.01 0.0530 0.0177  
 Mercury -112683-03-30 21:07 J -39435953.79 -39435953.62 -39435953.45 0.0496 0.0025  
 Venus -112682-08-14 18:29 J -39435451.78 -39435451.73 -39435451.68 0.0495 0.0476  
 Mercury -112677-03-01 18:58 J -39433790.83 -39433790.71 -39433790.59 0.0530 0.0237  
 Mercury -112677-05-30 05:17 J -39433701.39 -39433701.28 -39433701.16 0.0531 0.0274  
 Venus -112676-06-22 01:41 J -39433313.49 -39433313.43 -39433313.36 0.0531 0.0501  
 Mercury -112671-01-16 20:38 J -39431643.80 -39431643.64 -39431643.47 0.0496 0.0107  
 Mercury -112671-04-16 22:19 J -39431553.65 -39431553.57 -39431553.49 0.0495 0.0440  
 Venus -112670-12-12 11:46 J -39430949.19 -39430949.01 -39430948.83 0.0496 0.0240  
 Mercury -112666-12-19 22:19 J -39429480.67 -39429480.57 -39429480.47 0.0529 0.0361  
 Mercury -112665-03-18 08:53 J -39429391.26 -39429391.13 -39429391.00 0.0530 0.0153  
 Venus -112664-10-20 01:41 J -39428810.58 -39428810.43 -39428810.28 0.0529 0.0339  
 Mercury -112660-11-04 19:55 J -39427333.82 -39427333.67 -39427333.53 0.0497 0.0244  
 Mercury -112659-02-02 20:53 J -39427243.77 -39427243.63 -39427243.49 0.0496 0.0298  
 Venus -112658-08-17 08:53 J -39426683.34 -39426683.13 -39426682.92 0.0496 0.0040  
 Mercury -112654-10-08 01:26 J -39425170.49 -39425170.44 -39425170.39 0.0529 0.0485  
 Mercury -112653-01-05 12:29 J -39425081.12 -39425080.98 -39425080.85 0.0530 0.0036  
 Venus -112652-06-24 22:05 J -39424544.77 -39424544.58 -39424544.38 0.0530 0.0021  
 Mercury -112648-08-23 19:12 J -39423023.80 -39423023.70 -39423023.58 0.0497 0.0376  
 Mercury -112648-11-21 19:55 J -39422933.83 -39422933.67 -39422933.51 0.0496 0.0161  
 Venus -112646-04-22 07:12 J -39422417.36 -39422417.20 -39422417.04 0.0496 0.0316  
 Earth -112643-02-19 14:24 J -39421383.13 -39421382.90 -39421382.66 0.0517 0.0086

Moon -112643-02-19 18:43 J -39421382.96 -39421382.72 -39421382.48 0.0517 0.0050 \*  
 Mercury -112642-10-24 15:22 J -39420771.00 -39420770.86 -39420770.73 0.0529 0.0097  
 Mercury -112641-01-22 01:12 J -39420681.53 -39420681.45 -39420681.36 0.0530 0.0408  
 Venus -112640-02-27 16:34 J -39420278.97 -39420278.81 -39420278.65 0.0530 0.0309  
 Mercury -112636-09-09 19:12 J -39418623.87 -39418623.70 -39418623.53 0.0496 0.0027  
 Venus -112634-08-20 01:41 J -39417914.54 -39417914.43 -39417914.31 0.0497 0.0410  
 Moon -112631-02-24 11:02 J -39416995.18 -39416995.04 -39416994.89 0.0518 0.0408  
 Earth -112631-02-24 14:53 J -39416995.03 -39416994.88 -39416994.72 0.0518 0.0395 \*  
 Mercury -112630-08-12 18:00 J -39416460.87 -39416460.75 -39416460.62 0.0529 0.0227  
 Mercury -112630-11-10 04:19 J -39416371.43 -39416371.32 -39416371.20 0.0530 0.0282  
 Venus -112628-06-27 13:55 J -39415775.95 -39415775.92 -39415775.88 0.0528 0.0518  
 Earth -112626-08-11 10:48 J -39415001.24 -39415001.05 -39415000.84 0.0510 0.0231  
 Moon -112626-08-11 14:10 J -39415001.11 -39415000.91 -39415000.70 0.0510 0.0199 \*  
 Mercury -112624-06-28 18:58 J -39414313.88 -39414313.71 -39414313.54 0.0496 0.0102  
 Mercury -112624-09-26 20:38 J -39414223.72 -39414223.64 -39414223.57 0.0495 0.0445  
 Venus -112622-04-24 21:50 J -39413648.79 -39413648.59 -39413648.38 0.0496 0.0128  
 Mercury -112618-05-31 20:10 J -39412150.75 -39412150.66 -39412150.56 0.0529 0.0366  
 Mercury -112618-08-29 06:58 J -39412061.34 -39412061.21 -39412061.08 0.0530 0.0148  
 Venus -112616-03-02 09:50 J -39411510.27 -39411510.09 -39411509.90 0.0530 0.0203  
 Moon -112614-08-15 20:24 J -39410613.87 -39410613.65 -39410613.44 0.0509 0.0212  
 Earth -112614-08-15 22:34 J -39410613.76 -39410613.56 -39410613.35 0.0509 0.0205 \*  
 Mercury -112612-04-16 18:43 J -39410003.87 -39410003.72 -39410003.57 0.0496 0.0233  
 Mercury -112612-07-15 19:41 J -39409913.81 -39409913.68 -39409913.54 0.0495 0.0309  
 Venus -112611-12-28 19:26 J -39409382.88 -39409382.69 -39409382.49 0.0495 0.0152  
 Mercury -112606-03-19 23:17 J -39407840.58 -39407840.53 -39407840.48 0.0529 0.0492  
 Mercury -112606-06-17 10:19 J -39407751.21 -39407751.07 -39407750.94 0.0530 0.0028  
 Mercury -112606-09-14 20:10 J -39407661.67 -39407661.66 -39407661.65 0.0531 0.0527  
 Venus -112605-11-05 06:14 J -39407244.43 -39407244.24 -39407244.04 0.0531 0.0118  
 Mercury -112600-02-02 17:31 J -39405693.87 -39405693.77 -39405693.65 0.0497 0.0371  
 Mercury -112600-05-03 18:14 J -39405603.90 -39405603.74 -39405603.58 0.0496 0.0166

Venus -112599-09-02 16:48 J -39405116.89 -39405116.80 -39405116.69 0.0495 0.0429

Mercury -112594-04-05 13:41 J -39403441.06 -39403440.93 -39403440.80 0.0530 0.0096

Mercury -112594-07-03 23:46 J -39403351.59 -39403351.51 -39403351.43 0.0531 0.0409

Venus -112593-07-11 01:55 J -39402978.53 -39402978.42 -39402978.31 0.0531 0.0442

Mercury -112588-02-19 17:17 J -39401293.95 -39401293.78 -39401293.61 0.0496 0.0030

Mars -112588-04-09 07:12 J -39401245.46 -39401245.20 -39401244.93 0.0496 0.0117

Venus -112587-12-31 10:34 J -39400614.23 -39400614.06 -39400613.89 0.0497 0.0292

Mercury -112582-01-22 16:34 J -39399130.94 -39399130.81 -39399130.69 0.0529 0.0226

Mercury -112582-04-22 02:53 J -39399041.50 -39399041.38 -39399041.27 0.0530 0.0283

Venus -112581-11-07 23:02 J -39398475.67 -39398475.54 -39398475.40 0.0529 0.0388

Mercury -112577-12-08 16:34 J -39396983.97 -39396983.81 -39396983.64 0.0497 0.0106

Mercury -112576-03-08 18:14 J -39396893.82 -39396893.74 -39396893.67 0.0496 0.0442

Venus -112575-09-05 07:55 J -39396348.38 -39396348.17 -39396347.96 0.0496 0.0015

Mercury -112571-11-10 18:58 J -39394820.80 -39394820.71 -39394820.60 0.0529 0.0359

Mars -112570-01-16 20:24 J -39394753.67 -39394753.65 -39394753.62 0.0530 0.0527

Mercury -112570-02-08 05:46 J -39394731.39 -39394731.26 -39394731.13 0.0530 0.0155

Venus -112569-07-13 18:43 J -39394209.91 -39394209.72 -39394209.52 0.0530 0.0066

Mercury -112565-09-26 16:34 J -39392673.96 -39392673.81 -39392673.66 0.0497 0.0233

Mercury -112565-12-25 17:31 J -39392583.90 -39392583.77 -39392583.63 0.0496 0.0309

Venus -112563-05-11 05:31 J -39392082.45 -39392082.27 -39392082.10 0.0495 0.0265

Moon -112560-02-18 05:02 J -39391068.51 -39391068.29 -39391068.06 0.0516 0.0168

Earth -112560-02-18 09:07 J -39391068.33 -39391068.12 -39391067.89 0.0516 0.0199 \*

Mercury -112559-08-29 21:07 J -39390510.66 -39390510.62 -39390510.58 0.0529 0.0500

Mercury -112559-11-27 08:10 J -39390421.30 -39390421.16 -39390421.03 0.0530 0.0024

Mercury -112558-02-24 17:46 J -39390331.78 -39390331.76 -39390331.73 0.0531 0.0520

Venus -112557-03-18 12:58 J -39389944.13 -39389943.96 -39389943.79 0.0531 0.0263

Mercury -112553-07-15 16:19 J -39388363.93 -39388363.82 -39388363.71 0.0497 0.0363

Mercury -112553-10-13 16:48 J -39388273.96 -39388273.80 -39388273.64 0.0496 0.0173

Mars -112552-01-12 05:31 J -39388183.44 -39388183.27 -39388183.10 0.0495 0.0387

Venus -112551-09-07 23:02 J -39387579.61 -39387579.54 -39387579.46 0.0497 0.0458

Earth -112548-02-23 10:05 J -39386680.27 -39386680.08 -39386679.88 0.0517 0.0284  
 Moon -112548-02-23 13:26 J -39386680.12 -39386679.94 -39386679.74 0.0517 0.0300 \*  
 Mercury -112547-09-15 11:17 J -39386111.16 -39386111.03 -39386110.90 0.0530 0.0107  
 Mercury -112547-12-13 21:22 J -39386021.70 -39386021.61 -39386021.52 0.0531 0.0399  
 Moon -112543-08-10 12:58 J -39384686.15 -39384685.96 -39384685.77 0.0510 0.0281  
 Earth -112543-08-10 15:36 J -39384686.02 -39384685.85 -39384685.66 0.0510 0.0311 \*  
 Mercury -112541-08-01 15:22 J -39383964.03 -39383963.86 -39383963.69 0.0496 0.0030  
 Venus -112539-05-13 18:58 J -39383313.90 -39383313.71 -39383313.51 0.0496 0.0173  
 Mercury -112535-07-04 14:38 J -39381801.02 -39381800.89 -39381800.77 0.0529 0.0230  
 Mercury -112535-10-02 00:58 J -39381711.57 -39381711.46 -39381711.35 0.0531 0.0280  
 Mars -112535-10-23 16:48 J -39381690.06 -39381689.80 -39381689.53 0.0531 0.0130  
 Venus -112533-03-21 08:38 J -39381175.32 -39381175.14 -39381174.97 0.0529 0.0257  
 Earth -112531-08-15 00:58 J -39380298.68 -39380298.46 -39380298.24 0.0509 0.0116  
 Moon -112531-08-15 02:24 J -39380298.61 -39380298.40 -39380298.18 0.0509 0.0124 \*  
 Mercury -112529-05-20 14:24 J -39379654.06 -39379653.90 -39379653.73 0.0496 0.0107  
 Mercury -112529-08-18 15:50 J -39379563.91 -39379563.84 -39379563.76 0.0495 0.0440  
 Venus -112527-01-16 16:19 J -39379048.02 -39379047.82 -39379047.61 0.0496 0.0108  
 Mercury -112523-04-22 17:17 J -39377490.88 -39377490.78 -39377490.68 0.0529 0.0360  
 Mercury -112523-07-21 04:05 J -39377401.46 -39377401.33 -39377401.21 0.0530 0.0154  
 Venus -112522-11-25 02:53 J -39376909.57 -39376909.38 -39376909.18 0.0530 0.0073  
 Moon -112519-08-19 08:10 J -39375911.17 -39375911.16 -39375911.14 0.0508 0.0507  
 Mercury -112517-03-08 13:55 J -39375344.07 -39375343.92 -39375343.78 0.0497 0.0241  
 Mercury -112517-06-06 14:53 J -39375254.02 -39375253.88 -39375253.74 0.0496 0.0301  
 Venus -112516-09-21 14:38 J -39374782.02 -39374781.89 -39374781.76 0.0495 0.0384  
 Mercury -112511-02-08 19:55 J -39373180.72 -39373180.67 -39373180.63 0.0528 0.0494  
 Mercury -112511-05-09 06:43 J -39373091.35 -39373091.22 -39373091.08 0.0530 0.0026  
 Mercury -112511-08-06 16:34 J -39373001.83 -39373001.81 -39373001.79 0.0531 0.0523  
 Venus -112510-07-30 21:22 J -39372643.74 -39372643.61 -39372643.48 0.0531 0.0402  
 Mercury -112506-12-26 13:41 J -39371034.04 -39371033.93 -39371033.81 0.0497 0.0368  
 Mercury -112505-03-25 14:10 J -39370944.06 -39370943.91 -39370943.74 0.0496 0.0170



Venus -112503-01-19 07:41 J -39370279.33 -39370279.18 -39370279.02 0.0496 0.0341  
 Mercury -112499-02-25 08:53 J -39368781.26 -39368781.13 -39368780.99 0.0530 0.0117  
 Mercury -112499-05-25 19:12 J -39368691.79 -39368691.70 -39368691.62 0.0531 0.0390  
 Venus -112498-11-27 18:29 J -39368140.84 -39368140.73 -39368140.62 0.0530 0.0432  
 Mercury -112494-10-14 13:41 J -39366723.94 -39366723.93 -39366723.93 0.0497 0.0496  
 Mercury -112493-01-12 13:41 J -39366634.10 -39366633.93 -39366633.76 0.0496 0.0034  
 Venus -112492-09-24 04:48 J -39366013.51 -39366013.30 -39366013.09 0.0496 0.0058  
 Mercury -112488-12-14 12:00 J -39364471.12 -39364471.00 -39364470.88 0.0529 0.0244  
 Mercury -112487-03-13 22:19 J -39364381.68 -39364381.57 -39364381.45 0.0531 0.0268  
 Venus -112486-08-02 14:53 J -39363875.08 -39363874.88 -39363874.69 0.0530 0.0112  
 Mercury -112482-10-31 12:14 J -39362324.16 -39362323.99 -39362323.83 0.0496 0.0109  
 Mercury -112481-01-29 13:26 J -39362234.01 -39362233.94 -39362233.86 0.0495 0.0437  
 Venus -112480-05-30 00:58 J -39361747.65 -39361747.46 -39361747.28 0.0495 0.0227  
 Earth -112477-02-18 08:38 J -39360753.33 -39360753.14 -39360752.94 0.0516 0.0292  
 Moon -112477-02-18 12:43 J -39360753.17 -39360752.97 -39360752.76 0.0516 0.0259 \*  
 Mercury -112476-10-02 15:07 J -39360160.97 -39360160.87 -39360160.77 0.0529 0.0368  
 Mercury -112476-12-31 01:55 J -39360071.55 -39360071.42 -39360071.29 0.0530 0.0147  
 Venus -112474-04-07 11:02 J -39359609.22 -39359609.04 -39359608.86 0.0531 0.0212  
 Mercury -112470-08-19 11:31 J -39358014.17 -39358014.02 -39358013.88 0.0497 0.0245  
 Mars -112470-09-28 18:14 J -39357973.79 -39357973.74 -39357973.68 0.0496 0.0484  
 Mercury -112470-11-17 12:14 J -39357924.12 -39357923.99 -39357923.85 0.0496 0.0297  
 Moon -112465-02-23 07:41 J -39356365.40 -39356365.18 -39356364.95 0.0517 0.0208  
 Earth -112465-02-23 10:34 J -39356365.27 -39356365.06 -39356364.83 0.0517 0.0195 \*  
 Mercury -112464-07-21 17:46 J -39355850.80 -39355850.76 -39355850.71 0.0528 0.0498  
 Mercury -112464-10-19 04:48 J -39355761.43 -39355761.30 -39355761.16 0.0530 0.0023  
 Mercury -112463-01-16 14:38 J -39355671.91 -39355671.89 -39355671.86 0.0531 0.0520  
 Earth -112460-08-09 15:36 J -39354370.98 -39354370.85 -39354370.71 0.0511 0.0408  
 Moon -112460-08-09 17:46 J -39354370.90 -39354370.76 -39354370.61 0.0511 0.0377 \*  
 Mercury -112458-06-07 10:48 J -39353704.16 -39353704.05 -39353703.94 0.0497 0.0378  
 Mercury -112458-09-05 11:17 J -39353614.19 -39353614.03 -39353613.87 0.0496 0.0159

Venus -112456-06-01 15:50 J -39352979.02 -39352978.84 -39352978.65 0.0496 0.0218

Mercury -112452-08-07 07:41 J -39351451.32 -39351451.18 -39351451.05 0.0529 0.0114

Mercury -112452-11-04 17:46 J -39351361.85 -39351361.76 -39351361.67 0.0530 0.0393

Venus -112450-04-10 03:07 J -39350840.54 -39350840.37 -39350840.21 0.0529 0.0295

Moon -112448-08-14 00:58 J -39349983.70 -39349983.46 -39349983.23 0.0510 0.0032

Earth -112448-08-14 01:55 J -39349983.65 -39349983.42 -39349983.19 0.0510 0.0023 \*

Mercury -112446-06-24 10:48 J -39349304.22 -39349304.05 -39349303.87 0.0496 0.0030

Venus -112444-02-04 13:26 J -39348713.15 -39348712.94 -39348712.73 0.0495 0.0062

Mercury -112440-05-26 09:36 J -39347141.22 -39347141.10 -39347140.98 0.0529 0.0253

Mercury -112440-08-23 20:10 J -39347051.78 -39347051.66 -39347051.55 0.0530 0.0258

Venus -112439-12-13 20:53 J -39346574.83 -39346574.63 -39346574.43 0.0531 0.0036

Moon -112436-08-18 11:46 J -39345596.12 -39345596.01 -39345595.89 0.0509 0.0426

Earth -112436-08-18 12:00 J -39345596.10 -39345596.00 -39345595.90 0.0509 0.0452 \*

Mercury -112434-04-12 10:19 J -39344994.24 -39344994.07 -39344993.90 0.0497 0.0107

Mars -112434-07-03 19:26 J -39344911.97 -39344911.69 -39344911.42 0.0496 0.0028

Mercury -112434-07-11 11:46 J -39344904.09 -39344904.01 -39344903.93 0.0496 0.0440

Venus -112433-10-10 11:17 J -39344447.18 -39344447.03 -39344446.88 0.0495 0.0341

Mercury -112428-03-14 12:29 J -39342831.07 -39342830.98 -39342830.89 0.0529 0.0382

Mercury -112428-06-11 23:17 J -39342741.66 -39342741.53 -39342741.40 0.0530 0.0133

Venus -112427-08-18 16:19 J -39342308.97 -39342308.82 -39342308.68 0.0531 0.0364

Mercury -112422-01-29 08:53 J -39340684.27 -39340684.13 -39340683.98 0.0497 0.0249

Mercury -112422-04-29 09:50 J -39340594.23 -39340594.09 -39340593.95 0.0496 0.0292

Venus -112420-02-07 02:10 J -39339944.54 -39339944.41 -39339944.27 0.0497 0.0378

Mercury -112417-12-31 15:36 J -39338520.89 -39338520.85 -39338520.82 0.0529 0.0507

Mercury -112416-03-31 02:38 J -39338431.52 -39338431.39 -39338431.25 0.0530 0.0014

Mars -112416-04-11 00:00 J -39338420.69 -39338420.50 -39338420.31 0.0530 0.0386

Mercury -112416-06-28 12:29 J -39338342.00 -39338341.98 -39338341.94 0.0531 0.0514

Venus -112415-12-16 15:50 J -39337805.92 -39337805.84 -39337805.76 0.0529 0.0481

Mercury -112411-11-17 08:24 J -39336374.25 -39336374.15 -39336374.04 0.0497 0.0382

Mercury -112410-02-15 08:38 J -39336284.30 -39336284.14 -39336283.97 0.0496 0.0154

Venus -112409-10-12 23:31 J -39335678.73 -39335678.52 -39335678.31 0.0496 0.0094

Mercury -112404-01-17 05:46 J -39334121.40 -39334121.26 -39334121.13 0.0529 0.0118

Mercury -112404-04-16 15:50 J -39334031.93 -39334031.84 -39334031.75 0.0530 0.0390

Venus -112403-08-21 10:48 J -39333540.23 -39333540.05 -39333539.86 0.0530 0.0156

Mercury -112399-12-04 07:55 J -39331974.35 -39331974.17 -39331974.00 0.0496 0.0019

Venus -112397-06-17 21:07 J -39331412.81 -39331412.62 -39331412.42 0.0496 0.0186

Moon -112394-02-17 02:53 J -39330438.55 -39330438.38 -39330438.21 0.0515 0.0361

Earth -112394-02-17 06:29 J -39330438.37 -39330438.23 -39330438.06 0.0515 0.0389 \*

Mercury -112393-11-05 08:10 J -39329811.28 -39329811.16 -39329811.03 0.0529 0.0250

Mercury -112392-02-02 18:43 J -39329721.84 -39329721.72 -39329721.60 0.0530 0.0261

Venus -112391-04-26 05:31 J -39329274.46 -39329274.27 -39329274.08 0.0530 0.0175

Mercury -112387-09-22 07:26 J -39327664.35 -39327664.19 -39327664.02 0.0497 0.0115

Mercury -112387-12-21 08:53 J -39327574.21 -39327574.13 -39327574.05 0.0496 0.0432

Venus -112385-02-21 19:55 J -39327146.74 -39327146.67 -39327146.59 0.0495 0.0461

Earth -112382-02-22 03:50 J -39326050.57 -39326050.34 -39326050.10 0.0516 0.0076

Moon -112382-02-22 06:00 J -39326050.47 -39326050.25 -39326050.02 0.0516 0.0089 \*

Mercury -112381-08-24 10:19 J -39325501.16 -39325501.07 -39325500.98 0.0529 0.0390

Mercury -112381-11-21 21:07 J -39325411.75 -39325411.62 -39325411.49 0.0530 0.0125

Mars -112380-01-15 07:26 J -39325357.44 -39325357.19 -39325356.94 0.0530 0.0244

Venus -112380-12-29 21:50 J -39325008.63 -39325008.59 -39325008.54 0.0531 0.0513

Moon -112377-08-08 16:05 J -39324055.92 -39324055.83 -39324055.74 0.0512 0.0468

Earth -112377-08-08 17:31 J -39324055.81 -39324055.77 -39324055.72 0.0512 0.0501 \*

Mercury -112375-07-11 07:12 J -39323354.35 -39323354.20 -39323354.06 0.0497 0.0247

Mercury -112375-10-09 07:55 J -39323264.31 -39323264.17 -39323264.03 0.0496 0.0294

Venus -112373-06-20 12:14 J -39322644.17 -39322643.99 -39322643.81 0.0496 0.0262

Mercury -112369-06-12 12:58 J -39321190.98 -39321190.96 -39321190.94 0.0528 0.0521

Mercury -112369-09-10 00:00 J -39321101.63 -39321101.50 -39321101.36 0.0530 0.0016

Mercury -112369-12-08 10:05 J -39321012.12 -39321012.08 -39321012.04 0.0531 0.0500

Venus -112367-04-28 22:05 J -39320505.74 -39320505.58 -39320505.43 0.0530 0.0336

Earth -112365-08-13 02:38 J -39319668.61 -39319668.39 -39319668.16 0.0510 0.0074

Moon -112365-08-13 03:07 J -39319668.59 -39319668.37 -39319668.15 0.0510 0.0064 \*  
 Mercury -112363-04-29 05:46 J -39319044.36 -39319044.26 -39319044.15 0.0497 0.0388  
 Mercury -112363-07-28 06:14 J -39318954.41 -39318954.24 -39318954.08 0.0496 0.0148  
 Venus -112361-02-24 07:26 J -39318378.40 -39318378.19 -39318377.98 0.0496 0.0030  
 Mercury -112357-06-29 03:22 J -39316791.49 -39316791.36 -39316791.22 0.0530 0.0126  
 Mercury -112357-09-26 13:41 J -39316702.02 -39316701.93 -39316701.84 0.0531 0.0382  
 Venus -112355-01-01 18:43 J -39316239.91 -39316239.72 -39316239.52 0.0530 0.0017  
 Earth -112353-08-17 12:43 J -39315281.13 -39315280.97 -39315280.81 0.0508 0.0357  
 Moon -112353-08-17 13:41 J -39315281.11 -39315280.93 -39315280.75 0.0508 0.0329 \*  
 Mercury -112351-05-16 05:17 J -39314644.45 -39314644.28 -39314644.11 0.0496 0.0012  
 Venus -112350-10-30 05:17 J -39314112.44 -39314112.28 -39314112.12 0.0495 0.0310  
 Mercury -112345-04-17 06:29 J -39312481.35 -39312481.23 -39312481.11 0.0529 0.0252  
 Mercury -112345-07-15 16:48 J -39312391.91 -39312391.80 -39312391.68 0.0530 0.0259  
 Venus -112344-09-06 13:26 J -39311974.10 -39311973.94 -39311973.79 0.0531 0.0317  
 Mercury -112339-03-04 04:34 J -39310334.48 -39310334.31 -39310334.15 0.0497 0.0125  
 Mercury -112339-06-02 05:46 J -39310244.35 -39310244.26 -39310244.17 0.0496 0.0421  
 Venus -112337-02-26 23:02 J -39309609.65 -39309609.54 -39309609.43 0.0497 0.0422  
 Mercury -112333-02-04 08:53 J -39308171.22 -39308171.13 -39308171.03 0.0529 0.0385  
 Mercury -112333-05-03 19:41 J -39308081.81 -39308081.68 -39308081.55 0.0530 0.0131  
 Venus -112331-01-04 10:34 J -39307471.09 -39307471.06 -39307471.03 0.0529 0.0520  
 Mercury -112328-12-21 04:19 J -39306024.46 -39306024.32 -39306024.17 0.0497 0.0255  
 Mercury -112327-03-21 05:02 J -39305934.42 -39305934.29 -39305934.14 0.0496 0.0287  
 Venus -112326-11-01 20:38 J -39305343.84 -39305343.64 -39305343.43 0.0496 0.0141  
 Mercury -112322-11-23 10:48 J -39303861.05 -39303861.05 -39303861.03 0.0528 0.0526  
 Mercury -112321-02-20 22:05 J -39303771.72 -39303771.58 -39303771.44 0.0529 0.0008  
 Mercury -112321-05-20 07:55 J -39303682.21 -39303682.17 -39303682.12 0.0530 0.0494  
 Venus -112320-09-09 04:48 J -39303205.49 -39303205.30 -39303205.12 0.0530 0.0191  
 Mercury -112316-10-09 04:05 J -39301714.43 -39301714.33 -39301714.22 0.0497 0.0385  
 Mars -112316-12-22 01:26 J -39301640.63 -39301640.44 -39301640.25 0.0496 0.0355  
 Mercury -112315-01-07 04:19 J -39301624.48 -39301624.32 -39301624.15 0.0496 0.0152

Venus -112314-07-07 18:14 J -39301077.94 -39301077.74 -39301077.54 0.0495 0.0143  
 Earth -112311-02-16 01:12 J -39300123.49 -39300123.45 -39300123.38 0.0514 0.0500  
 Moon -112311-02-16 04:48 J -39300123.39 -39300123.30 -39300123.20 0.0514 0.0472 \*  
 Mercury -112310-12-10 00:58 J -39299461.59 -39299461.46 -39299461.32 0.0529 0.0136  
 Mercury -112309-03-08 11:17 J -39299372.12 -39299372.03 -39299371.93 0.0530 0.0371  
 Venus -112308-05-15 00:43 J -39298939.66 -39298939.47 -39298939.28 0.0531 0.0135  
 Mercury -112304-10-26 02:53 J -39297314.55 -39297314.38 -39297314.21 0.0496 0.0007  
 Venus -112302-03-12 13:55 J -39296812.01 -39296811.92 -39296811.81 0.0495 0.0430  
 Moon -112299-02-21 00:00 J -39295735.74 -39295735.50 -39295735.25 0.0516 0.0015  
 Earth -112299-02-21 01:41 J -39295735.67 -39295735.43 -39295735.20 0.0516 0.0026 \*  
 Mercury -112298-09-28 04:19 J -39295151.44 -39295151.32 -39295151.20 0.0529 0.0259  
 Mercury -112298-12-26 14:53 J -39295062.00 -39295061.88 -39295061.76 0.0530 0.0253  
 Venus -112296-01-17 20:53 J -39294673.72 -39294673.63 -39294673.53 0.0531 0.0461  
 Mercury -112292-08-14 02:10 J -39293004.57 -39293004.41 -39293004.24 0.0496 0.0128  
 Mercury -112292-11-12 03:22 J -39292914.45 -39292914.36 -39292914.27 0.0496 0.0417  
 Venus -112290-07-10 06:43 J -39292309.38 -39292309.22 -39292309.05 0.0496 0.0298  
 Moon -112287-02-26 03:07 J -39291347.49 -39291347.37 -39291347.25 0.0518 0.0436  
 Earth -112287-02-26 03:50 J -39291347.43 -39291347.34 -39291347.23 0.0518 0.0466 \*  
 Mercury -112286-07-17 07:12 J -39290841.29 -39290841.20 -39290841.11 0.0529 0.0386  
 Mercury -112286-10-14 18:00 J -39290751.88 -39290751.75 -39290751.61 0.0530 0.0130  
 Venus -112284-05-17 19:41 J -39290170.81 -39290170.68 -39290170.54 0.0529 0.0388  
 Earth -112282-08-13 04:34 J -39289353.53 -39289353.31 -39289353.09 0.0510 0.0161  
 Moon -112282-08-13 04:48 J -39289353.52 -39289353.30 -39289353.07 0.0510 0.0152 \*  
 Mercury -112280-06-02 01:41 J -39288694.57 -39288694.43 -39288694.29 0.0497 0.0261  
 Mercury -112280-08-31 02:24 J -39288604.54 -39288604.40 -39288604.26 0.0496 0.0279  
 Mars -112280-09-25 16:48 J -39288579.06 -39288578.80 -39288578.53 0.0496 0.0139  
 Venus -112278-03-15 04:34 J -39288043.51 -39288043.31 -39288043.10 0.0496 0.0019  
 Mercury -112274-05-05 09:50 J -39286531.11 -39286531.09 -39286531.07 0.0528 0.0518  
 Mercury -112274-08-02 21:07 J -39286441.76 -39286441.62 -39286441.49 0.0529 0.0018  
 Mercury -112274-10-31 06:58 J -39286352.25 -39286352.21 -39286352.17 0.0530 0.0502

Venus -112272-01-20 14:53 J -39285905.08 -39285904.88 -39285904.68 0.0530 0.0058  
 Moon -112270-08-17 12:14 J -39284966.18 -39284965.99 -39284965.79 0.0509 0.0240  
 Earth -112270-08-17 14:10 J -39284966.10 -39284965.91 -39284965.72 0.0509 0.0267 \*  
 Mercury -112268-03-21 01:41 J -39284384.54 -39284384.43 -39284384.33 0.0497 0.0390  
 Mercury -112268-06-19 01:55 J -39284294.59 -39284294.42 -39284294.26 0.0496 0.0146  
 Venus -112267-11-18 03:22 J -39283777.53 -39283777.36 -39283777.18 0.0495 0.0262  
 Mercury -112262-05-21 23:17 J -39282131.66 -39282131.53 -39282131.40 0.0529 0.0137  
 Mars -112262-07-04 23:31 J -39282087.76 -39282087.52 -39282087.28 0.0530 0.0253  
 Mercury -112262-08-19 09:36 J -39282042.20 -39282042.10 -39282042.01 0.0530 0.0370  
 Venus -112261-09-25 08:10 J -39281639.33 -39281639.16 -39281638.99 0.0531 0.0280  
 Mercury -112256-04-07 01:26 J -39279984.61 -39279984.44 -39279984.27 0.0497 0.0017  
 Venus -112254-03-17 20:53 J -39279274.69 -39279274.63 -39279274.56 0.0497 0.0470  
 Mercury -112250-03-10 02:10 J -39277821.53 -39277821.41 -39277821.29 0.0529 0.0266  
 Mercury -112250-06-07 12:43 J -39277732.09 -39277731.97 -39277731.85 0.0530 0.0246  
 Mercury -112244-01-24 00:00 J -39275674.66 -39275674.50 -39275674.33 0.0496 0.0129  
 Mercury -112244-04-24 00:58 J -39275584.54 -39275584.46 -39275584.36 0.0496 0.0416  
 Venus -112243-11-20 15:36 J -39275009.05 -39275008.85 -39275008.66 0.0496 0.0177  
 Mercury -112239-12-27 05:17 J -39273511.37 -39273511.28 -39273511.19 0.0529 0.0391  
 Mercury -112238-03-26 16:19 J -39273421.95 -39273421.82 -39273421.69 0.0530 0.0126  
 Venus -112237-09-28 05:02 J -39272870.47 -39272870.29 -39272870.12 0.0530 0.0251  
 Mercury -112233-11-11 23:46 J -39271364.65 -39271364.51 -39271364.37 0.0497 0.0260  
 Mercury -112232-02-10 00:14 J -39271274.63 -39271274.49 -39271274.34 0.0496 0.0279  
 Venus -112231-07-26 13:26 J -39270743.14 -39270742.94 -39270742.73 0.0495 0.0106  
 Mercury -112227-10-15 08:10 J -39269201.18 -39269201.16 -39269201.13 0.0529 0.0517  
 Mercury -112226-01-12 19:26 J -39269111.82 -39269111.69 -39269111.55 0.0530 0.0007  
 Mars -112226-04-11 05:46 J -39269023.41 -39269023.26 -39269023.09 0.0531 0.0437  
 Mercury -112226-04-12 05:31 J -39269022.31 -39269022.27 -39269022.23 0.0531 0.0505  
 Venus -112225-06-03 00:29 J -39268604.67 -39268604.48 -39268604.28 0.0530 0.0077  
 Mercury -112221-08-30 23:17 J -39267054.63 -39267054.53 -39267054.43 0.0497 0.0392  
 Mercury -112221-11-28 23:31 J -39266964.69 -39266964.52 -39266964.36 0.0496 0.0143

Venus -112219-03-31 12:14 J -39266477.12 -39266476.99 -39266476.85 0.0495 0.0383  
 Earth -112216-02-20 04:19 J -39265420.55 -39265420.32 -39265420.08 0.0516 0.0101  
 Moon -112216-02-20 04:34 J -39265420.53 -39265420.31 -39265420.08 0.0516 0.0093 \*  
 Mercury -112215-10-31 22:19 J -39264801.70 -39264801.57 -39264801.43 0.0529 0.0126  
 Mercury -112214-01-29 08:38 J -39264712.23 -39264712.14 -39264712.05 0.0530 0.0381  
 Venus -112213-02-06 18:58 J -39264338.84 -39264338.71 -39264338.59 0.0531 0.0411  
 Mercury -112209-09-16 23:02 J -39262654.71 -39262654.54 -39262654.37 0.0497 0.0014  
 Venus -112207-07-29 06:14 J -39261974.38 -39261974.24 -39261974.09 0.0497 0.0352  
 Earth -112204-02-25 04:19 J -39261032.48 -39261032.32 -39261032.16 0.0517 0.0375  
 Moon -112204-02-25 06:00 J -39261032.43 -39261032.25 -39261032.06 0.0517 0.0343 \*  
 Mercury -112203-08-20 00:43 J -39260491.59 -39260491.47 -39260491.35 0.0529 0.0262  
 Mercury -112203-11-17 11:17 J -39260402.15 -39260402.03 -39260401.91 0.0530 0.0249  
 Venus -112201-06-05 16:05 J -39259835.94 -39259835.83 -39259835.72 0.0529 0.0432  
 Moon -112199-08-12 07:41 J -39259038.37 -39259038.18 -39259037.98 0.0511 0.0234  
 Earth -112199-08-12 08:53 J -39259038.32 -39259038.13 -39259037.92 0.0511 0.0241 \*  
 Mercury -112197-07-05 22:48 J -39258344.72 -39258344.55 -39258344.39 0.0497 0.0121  
 Mercury -112197-10-04 00:00 J -39258254.59 -39258254.50 -39258254.42 0.0496 0.0425  
 Venus -112195-04-03 03:50 J -39257708.55 -39257708.34 -39257708.13 0.0496 0.0068  
 Mercury -112191-06-08 03:36 J -39256181.44 -39256181.35 -39256181.26 0.0529 0.0392  
 Mercury -112191-09-05 14:24 J -39256092.03 -39256091.90 -39256091.77 0.0530 0.0124  
 Venus -112189-02-09 12:43 J -39255570.16 -39255569.97 -39255569.78 0.0530 0.0108  
 Earth -112187-08-16 19:41 J -39254650.89 -39254650.68 -39254650.46 0.0509 0.0195  
 Moon -112187-08-16 22:34 J -39254650.78 -39254650.56 -39254650.34 0.0509 0.0166 \*  
 Mercury -112185-04-23 21:50 J -39254034.73 -39254034.59 -39254034.45 0.0497 0.0258  
 Mercury -112185-07-22 22:19 J -39253944.71 -39253944.57 -39253944.43 0.0496 0.0281  
 Venus -112184-12-06 23:17 J -39253442.71 -39253442.53 -39253442.34 0.0495 0.0223  
 Mercury -112179-03-27 06:29 J -39251871.25 -39251871.23 -39251871.21 0.0529 0.0518  
 Mercury -112179-06-24 17:46 J -39251781.90 -39251781.76 -39251781.62 0.0530 0.0003  
 Mercury -112179-09-22 03:50 J -39251692.38 -39251692.34 -39251692.30 0.0531 0.0505  
 Venus -112178-10-15 09:50 J -39251304.27 -39251304.09 -39251303.91 0.0531 0.0215

Mercury -112173-02-10 21:36 J -39249724.70 -39249724.60 -39249724.49 0.0497 0.0386

Mercury -112173-05-10 21:50 J -39249634.75 -39249634.59 -39249634.43 0.0496 0.0148

Mercury -112167-04-12 21:07 J -39247471.75 -39247471.62 -39247471.49 0.0530 0.0121

Mercury -112167-07-11 07:26 J -39247382.28 -39247382.19 -39247382.10 0.0531 0.0387

Mercury -112161-02-27 21:07 J -39245324.79 -39245324.62 -39245324.45 0.0496 0.0015

Mars -112161-03-16 12:29 J -39245307.22 -39245306.98 -39245306.73 0.0496 0.0212

Venus -112160-12-09 15:22 J -39244674.04 -39244673.86 -39244673.67 0.0496 0.0232

Mercury -112155-01-30 00:00 J -39243161.62 -39243161.50 -39243161.38 0.0529 0.0249

Mercury -112155-04-29 10:34 J -39243072.17 -39243072.06 -39243071.94 0.0530 0.0263

Venus -112154-10-18 04:19 J -39242535.48 -39242535.32 -39242535.16 0.0529 0.0308

Mercury -112150-12-16 20:53 J -39241014.79 -39241014.63 -39241014.46 0.0497 0.0118

Mercury -112149-03-15 22:05 J -39240924.67 -39240924.58 -39240924.49 0.0496 0.0428

Venus -112148-08-14 14:10 J -39240408.12 -39240407.91 -39240407.70 0.0496 0.0048

Mercury -112144-11-18 02:24 J -39238851.49 -39238851.40 -39238851.31 0.0528 0.0384

Mercury -112143-02-15 13:12 J -39238762.08 -39238761.95 -39238761.81 0.0530 0.0132

Venus -112142-06-22 22:19 J -39238269.77 -39238269.57 -39238269.37 0.0530 0.0027

Mercury -112138-10-04 20:53 J -39236704.78 -39236704.63 -39236704.49 0.0497 0.0247

Mercury -112137-01-02 21:22 J -39236614.74 -39236614.61 -39236614.47 0.0496 0.0294

Venus -112136-04-19 12:43 J -39236142.12 -39236141.97 -39236141.81 0.0495 0.0329

Earth -112133-02-20 06:43 J -39235105.44 -39235105.22 -39235105.00 0.0515 0.0180

Moon -112133-02-20 07:26 J -39235105.42 -39235105.19 -39235104.95 0.0515 0.0175 \*

Mercury -112132-09-06 05:02 J -39234541.31 -39234541.29 -39234541.26 0.0528 0.0514

Mercury -112132-12-04 16:19 J -39234451.95 -39234451.82 -39234451.68 0.0530 0.0015

Mercury -112131-03-04 02:24 J -39234362.43 -39234362.40 -39234362.36 0.0531 0.0507

Venus -112130-02-25 18:00 J -39234003.89 -39234003.75 -39234003.60 0.0531 0.0357

Mercury -112126-07-23 20:10 J -39232394.76 -39232394.66 -39232394.55 0.0497 0.0380

Mercury -112126-10-21 20:10 J -39232304.82 -39232304.66 -39232304.49 0.0496 0.0154

Mars -112126-12-20 12:43 J -39232245.18 -39232244.97 -39232244.75 0.0495 0.0301

Venus -112124-08-17 03:22 J -39231639.48 -39231639.36 -39231639.23 0.0496 0.0398

Moon -112121-02-25 02:53 J -39230717.57 -39230717.38 -39230717.17 0.0517 0.0262



Earth -112121-02-25 05:31 J -39230717.46 -39230717.27 -39230717.07 0.0517 0.0293 \*  
 Mercury -112120-09-22 19:26 J -39230141.82 -39230141.69 -39230141.55 0.0530 0.0120  
 Mercury -112120-12-21 06:00 J -39230052.34 -39230052.25 -39230052.16 0.0531 0.0390  
 Venus -112118-06-25 18:58 J -39229500.77 -39229500.71 -39229500.65 0.0529 0.0503  
 Earth -112116-08-11 20:10 J -39228722.84 -39228722.66 -39228722.47 0.0511 0.0289  
 Moon -112116-08-11 22:34 J -39228722.75 -39228722.56 -39228722.36 0.0511 0.0287 \*  
 Mercury -112114-08-09 19:55 J -39227994.84 -39227994.67 -39227994.50 0.0496 0.0024  
 Venus -112112-04-22 01:26 J -39227373.64 -39227373.44 -39227373.23 0.0496 0.0115  
 Mercury -112108-07-11 22:48 J -39225831.67 -39225831.55 -39225831.43 0.0529 0.0241  
 Mars -112108-09-28 13:26 J -39225753.21 -39225752.94 -39225752.66 0.0530 0.0022  
 Mercury -112108-10-09 09:36 J -39225742.22 -39225742.10 -39225741.99 0.0531 0.0272  
 Venus -112106-02-28 15:36 J -39225235.03 -39225234.85 -39225234.66 0.0530 0.0181  
 Moon -112104-08-16 01:55 J -39224335.63 -39224335.42 -39224335.19 0.0509 0.0107  
 Earth -112104-08-16 05:31 J -39224335.49 -39224335.27 -39224335.05 0.0509 0.0138 \*  
 Mercury -112102-05-28 19:26 J -39223684.85 -39223684.69 -39223684.52 0.0496 0.0111  
 Mercury -112102-08-26 20:24 J -39223594.73 -39223594.65 -39223594.56 0.0496 0.0434  
 Venus -112101-12-26 00:14 J -39223107.69 -39223107.49 -39223107.29 0.0495 0.0165  
 Mercury -112096-04-30 01:41 J -39221521.52 -39221521.43 -39221521.33 0.0529 0.0369  
 Mercury -112096-07-28 12:43 J -39221432.10 -39221431.97 -39221431.84 0.0530 0.0148  
 Venus -112095-11-03 11:02 J -39220969.23 -39220969.04 -39220968.85 0.0531 0.0151  
 Mercury -112090-03-16 19:12 J -39219374.84 -39219374.70 -39219374.55 0.0497 0.0240  
 Mercury -112090-06-14 19:55 J -39219284.80 -39219284.67 -39219284.53 0.0496 0.0301  
 Venus -112089-08-30 23:46 J -39218841.59 -39218841.51 -39218841.41 0.0495 0.0441  
 Mercury -112084-02-16 04:05 J -39217211.36 -39217211.33 -39217211.28 0.0528 0.0503  
 Mercury -112084-05-16 15:22 J -39217121.99 -39217121.86 -39217121.72 0.0529 0.0024  
 Mercury -112084-08-14 01:26 J -39217032.46 -39217032.44 -39217032.41 0.0530 0.0518  
 Venus -112083-07-09 04:05 J -39216703.40 -39216703.33 -39216703.25 0.0531 0.0490  
 Mercury -112078-01-02 19:12 J -39215064.80 -39215064.70 -39215064.58 0.0497 0.0368  
 Mercury -112078-04-02 19:26 J -39214974.85 -39214974.69 -39214974.52 0.0496 0.0169  
 Venus -112077-12-28 17:02 J -39214338.96 -39214338.79 -39214338.62 0.0496 0.0293

Mercury -112072-03-04 18:29 J -39212811.86 -39212811.73 -39212811.60 0.0529 0.0110

Mercury -112072-06-02 04:48 J -39212722.39 -39212722.30 -39212722.21 0.0530 0.0396

Venus -112071-11-06 04:48 J -39212200.44 -39212200.30 -39212200.16 0.0530 0.0370

Mercury -112067-10-21 19:12 J -39210754.71 -39210754.70 -39210754.69 0.0497 0.0495

Mercury -112066-01-19 18:43 J -39210664.89 -39210664.72 -39210664.55 0.0496 0.0032

Venus -112065-09-02 12:43 J -39210073.18 -39210072.97 -39210072.76 0.0495 0.0004

Mercury -112061-12-21 21:22 J -39208501.73 -39208501.61 -39208501.48 0.0530 0.0238

Mercury -112060-03-21 08:10 J -39208412.27 -39208412.16 -39208412.05 0.0531 0.0276

Venus -112059-07-12 02:10 J -39207934.61 -39207934.41 -39207934.21 0.0531 0.0049

Mercury -112055-11-07 18:43 J -39206354.89 -39206354.72 -39206354.56 0.0496 0.0097

Mercury -112054-02-05 19:26 J -39206264.76 -39206264.69 -39206264.61 0.0495 0.0447

Venus -112053-05-08 11:31 J -39205807.18 -39205807.02 -39205806.84 0.0495 0.0278

Moon -112050-02-19 09:50 J -39204790.29 -39204790.09 -39204789.89 0.0516 0.0243

Earth -112050-02-19 11:17 J -39204790.24 -39204790.03 -39204789.82 0.0516 0.0248 \*

Mercury -112049-10-10 00:43 J -39204191.57 -39204191.47 -39204191.37 0.0529 0.0359

Mercury -112048-01-07 11:46 J -39204102.14 -39204102.01 -39204101.88 0.0531 0.0157

Venus -112047-03-16 22:19 J -39203668.74 -39203668.57 -39203668.40 0.0531 0.0279

Mercury -112043-08-26 18:14 J -39202044.89 -39202044.74 -39202044.59 0.0497 0.0228

Mercury -112043-11-24 18:43 J -39201954.85 -39201954.72 -39201954.58 0.0496 0.0311

Venus -112041-09-05 05:46 J -39201304.33 -39201304.26 -39201304.18 0.0497 0.0464

Earth -112038-02-24 15:36 J -39200402.06 -39200401.85 -39200401.64 0.0517 0.0245

Moon -112038-02-24 18:58 J -39200401.93 -39200401.71 -39200401.49 0.0517 0.0213 \*

Mercury -112037-07-29 03:36 J -39199881.40 -39199881.35 -39199881.29 0.0529 0.0486

Mercury -112037-10-26 14:53 J -39199792.01 -39199791.88 -39199791.74 0.0530 0.0038

Moon -112033-08-11 02:53 J -39198407.54 -39198407.38 -39198407.21 0.0511 0.0349

Earth -112033-08-11 06:00 J -39198407.41 -39198407.25 -39198407.08 0.0511 0.0345 \*

Mercury -112031-06-14 18:14 J -39197734.85 -39197734.74 -39197734.62 0.0497 0.0356

Mercury -112031-09-12 18:14 J -39197644.89 -39197644.74 -39197644.57 0.0496 0.0179

Venus -112029-05-11 04:19 J -39197038.51 -39197038.32 -39197038.12 0.0496 0.0182

Mercury -112025-08-14 17:46 J -39195481.89 -39195481.76 -39195481.63 0.0529 0.0097

Mercury -112025-11-12 04:05 J -39195392.41 -39195392.33 -39195392.25 0.0530 0.0410

Venus -112023-03-19 16:05 J -39194900.00 -39194899.83 -39194899.65 0.0530 0.0243

Earth -112021-08-15 15:36 J -39194020.08 -39194019.85 -39194019.63 0.0510 0.0085

Moon -112021-08-15 19:26 J -39194019.92 -39194019.69 -39194019.47 0.0510 0.0054 \*

Mercury -112019-04-02 18:29 J -39193424.77 -39193424.73 -39193424.69 0.0498 0.0481

Mercury -112019-07-01 18:00 J -39193334.92 -39193334.75 -39193334.58 0.0496 0.0049

Venus -112017-01-15 02:53 J -39192772.59 -39192772.38 -39192772.18 0.0495 0.0101

Mercury -112013-06-02 20:38 J -39191171.76 -39191171.64 -39191171.51 0.0529 0.0224

Mercury -112013-08-31 07:26 J -39191082.31 -39191082.19 -39191082.08 0.0530 0.0287

Venus -112012-11-22 12:29 J -39190634.18 -39190633.98 -39190633.79 0.0531 0.0087

Mercury -112007-04-19 17:31 J -39189024.93 -39189024.77 -39189024.60 0.0496 0.0085

Mars -112007-06-11 00:29 J -39188972.75 -39188972.48 -39188972.20 0.0496 0.0011

Mercury -112007-07-18 18:29 J -39188934.79 -39188934.73 -39188934.66 0.0495 0.0459

Venus -112006-09-19 23:46 J -39188506.63 -39188506.51 -39188506.37 0.0495 0.0386

Mercury -112001-03-21 23:17 J -39186861.63 -39186861.53 -39186861.42 0.0530 0.0355

Mercury -112001-06-19 10:34 J -39186772.19 -39186772.06 -39186771.94 0.0531 0.0164

# 112TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 112th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
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Venus -112000-07-28 08:24 J -39186368.27 -39186368.15 -39186368.02 0.0532 0.0414

Mercury -111995-02-05 17:46 J -39184714.91 -39184714.76 -39184714.61 0.0496 0.0211

Mercury -111995-05-06 18:00 J -39184624.87 -39184624.75 -39184624.61 0.0495 0.0327

Venus -111993-01-17 16:48 J -39184003.95 -39184003.80 -39184003.65 0.0496 0.0350

Mercury -111989-01-09 02:38 J -39182551.45 -39182551.39 -39182551.33 0.0529 0.0477

Mars -111989-03-18 12:14 J -39182482.14 -39182481.99 -39182481.84 0.0530 0.0445

Mercury -111989-04-07 13:55 J -39182462.05 -39182461.92 -39182461.78 0.0530 0.0045

Venus -111988-11-25 09:22 J -39181865.20 -39181865.11 -39181865.00 0.0530 0.0452

Mercury -111984-11-24 17:17 J -39180404.89 -39180404.78 -39180404.65 0.0497 0.0342

Mercury -111983-02-22 17:31 J -39180314.93 -39180314.77 -39180314.61 0.0496 0.0192

Venus -111982-09-22 15:36 J -39179738.06 -39179737.85 -39179737.64 0.0496 0.0069

Mercury -111977-01-25 17:17 J -39178151.92 -39178151.78 -39178151.65 0.0530 0.0079

Mercury -111977-04-24 03:36 J -39178062.43 -39178062.35 -39178062.27 0.0531 0.0428

Venus -111976-07-31 05:31 J -39177599.46 -39177599.27 -39177599.07 0.0530 0.0124

Mercury -111972-09-12 17:31 J -39176094.82 -39176094.77 -39176094.71 0.0497 0.0468

Mercury -111972-12-11 17:02 J -39176004.96 -39176004.79 -39176004.62 0.0496 0.0062

Venus -111970-05-28 14:53 J -39175472.07 -39175471.88 -39175471.69 0.0495 0.0212

Earth -111967-02-18 21:50 J -39174474.79 -39174474.59 -39174474.39 0.0515 0.0294

Moon -111967-02-19 00:14 J -39174474.69 -39174474.49 -39174474.28 0.0515 0.0288 \*

Mercury -111966-11-13 19:55 J -39173841.79 -39173841.67 -39173841.54 0.0529 0.0210

Mercury -111965-02-11 06:43 J -39173752.33 -39173752.22 -39173752.11 0.0530 0.0302

Venus -111964-04-04 23:46 J -39173333.69 -39173333.51 -39173333.33 0.0531 0.0215

Mercury -111960-09-29 17:02 J -39171694.96 -39171694.79 -39171694.62 0.0497 0.0069

Mercury -111960-12-28 18:00 J -39171604.79 -39171604.75 -39171604.70 0.0496 0.0476

Venus -111958-01-31 14:10 J -39171205.93 -39171205.91 -39171205.88 0.0495 0.0488

Moon -111955-02-23 19:55 J -39170086.89 -39170086.67 -39170086.44 0.0516 0.0155

Earth -111955-02-23 23:31 J -39170086.74 -39170086.52 -39170086.30 0.0516 0.0187 \*

Mercury -111954-09-01 22:48 J -39169531.65 -39169531.55 -39169531.44 0.0529 0.0338

Mercury -111954-11-30 09:50 J -39169442.22 -39169442.09 -39169441.96 0.0530 0.0177

Mars -111954-12-24 09:50 J -39169418.33 -39169418.09 -39169417.83 0.0530 0.0224

Earth -111950-08-11 19:12 J -39168091.84 -39168091.70 -39168091.54 0.0512 0.0385  
 Moon -111950-08-11 23:02 J -39168091.69 -39168091.54 -39168091.40 0.0511 0.0392 \*  
 Mercury -111948-07-18 16:48 J -39167384.96 -39167384.80 -39167384.65 0.0496 0.0198  
 Mercury -111948-10-16 17:17 J -39167294.90 -39167294.78 -39167294.66 0.0495 0.0341  
 Venus -111946-05-31 04:34 J -39166703.49 -39166703.31 -39166703.12 0.0496 0.0241  
 Mercury -111942-06-21 01:12 J -39165221.50 -39165221.45 -39165221.38 0.0529 0.0472  
 Mercury -111942-09-18 12:43 J -39165132.11 -39165131.97 -39165131.83 0.0531 0.0050  
 Venus -111940-04-07 20:38 J -39164564.79 -39164564.64 -39164564.48 0.0531 0.0324  
 Moon -111938-08-16 04:34 J -39163704.54 -39163704.31 -39163704.08 0.0510 0.0023  
 Earth -111938-08-16 08:10 J -39163704.38 -39163704.16 -39163703.93 0.0510 0.0058 \*  
 Mercury -111936-05-06 17:02 J -39163074.92 -39163074.79 -39163074.66 0.0496 0.0323  
 Mercury -111936-08-04 17:02 J -39162984.95 -39162984.79 -39162984.64 0.0495 0.0210  
 Venus -111934-02-03 03:22 J -39162437.57 -39162437.36 -39162437.15 0.0495 0.0042  
 Mercury -111930-07-07 16:05 J -39160821.96 -39160821.83 -39160821.69 0.0530 0.0072  
 Mercury -111930-10-05 02:38 J -39160732.46 -39160732.39 -39160732.32 0.0531 0.0438  
 Venus -111929-12-11 17:17 J -39160298.98 -39160298.78 -39160298.58 0.0531 0.0004  
 Earth -111926-08-20 17:17 J -39159316.84 -39159316.78 -39159316.70 0.0508 0.0482  
 Moon -111926-08-20 20:38 J -39159316.70 -39159316.64 -39159316.56 0.0508 0.0480 \*  
 Mercury -111924-02-22 16:48 J -39158764.86 -39158764.80 -39158764.73 0.0497 0.0452  
 Mercury -111924-05-23 16:19 J -39158674.99 -39158674.82 -39158674.65 0.0496 0.0076  
 Venus -111923-10-09 02:38 J -39158171.54 -39158171.39 -39158171.23 0.0495 0.0321  
 Mercury -111918-04-25 19:26 J -39156511.82 -39156511.69 -39156511.56 0.0530 0.0193  
 Mercury -111918-07-24 06:00 J -39156422.35 -39156422.25 -39156422.14 0.0531 0.0319  
 Venus -111917-08-16 12:29 J -39156033.13 -39156032.98 -39156032.82 0.0531 0.0338  
 Mercury -111912-03-11 16:05 J -39154365.00 -39154364.83 -39154364.66 0.0496 0.0055  
 Mercury -111912-06-09 17:02 J -39154274.81 -39154274.79 -39154274.76 0.0495 0.0489  
 Venus -111910-02-05 20:24 J -39153668.76 -39153668.65 -39153668.54 0.0496 0.0420  
 Mercury -111906-02-11 22:05 J -39152201.69 -39152201.58 -39152201.47 0.0529 0.0324  
 Mercury -111906-05-12 09:07 J -39152112.25 -39152112.12 -39152112.00 0.0530 0.0191  
 Venus -111905-12-14 10:48 J -39151530.08 -39151530.05 -39151530.00 0.0529 0.0518

Mercury -111901-12-28 16:05 J -39150054.99 -39150054.83 -39150054.68 0.0497 0.0184  
 Mercury -111900-03-28 16:34 J -39149964.93 -39149964.81 -39149964.69 0.0496 0.0356  
 Venus -111899-10-11 18:43 J -39149402.92 -39149402.72 -39149402.52 0.0496 0.0136  
 Mercury -111895-12-01 00:43 J -39147891.53 -39147891.47 -39147891.39 0.0529 0.0454  
 Mercury -111894-02-28 12:14 J -39147802.13 -39147801.99 -39147801.86 0.0530 0.0066  
 Venus -111893-08-19 07:26 J -39147264.37 -39147264.19 -39147264.01 0.0530 0.0191  
 Mercury -111889-10-16 16:05 J -39145744.96 -39145744.83 -39145744.70 0.0496 0.0309  
 Mars -111889-11-30 13:55 J -39145700.13 -39145699.92 -39145699.71 0.0496 0.0313  
 Mercury -111888-01-14 16:05 J -39145654.98 -39145654.83 -39145654.68 0.0495 0.0224  
 Venus -111887-06-16 15:36 J -39145137.04 -39145136.85 -39145136.64 0.0495 0.0151  
 Moon -111884-02-17 21:22 J -39144159.77 -39144159.61 -39144159.45 0.0515 0.0367  
 Earth -111884-02-18 00:00 J -39144159.66 -39144159.50 -39144159.33 0.0515 0.0373 \*  
 Mercury -111883-12-17 14:53 J -39143492.02 -39143491.88 -39143491.75 0.0530 0.0066  
 Mercury -111882-03-17 01:12 J -39143402.52 -39143402.45 -39143402.37 0.0532 0.0444  
 Venus -111881-04-24 03:22 J -39142998.55 -39142998.36 -39142998.17 0.0532 0.0138  
 Mercury -111877-08-04 16:34 J -39141434.89 -39141434.81 -39141434.73 0.0497 0.0433  
 Mercury -111877-11-02 16:05 J -39141345.00 -39141344.83 -39141344.67 0.0495 0.0095  
 Venus -111875-02-19 15:22 J -39140870.96 -39140870.86 -39140870.76 0.0494 0.0428  
 Earth -111872-02-23 03:36 J -39139771.58 -39139771.35 -39139771.11 0.0517 0.0117  
 Moon -111872-02-23 07:26 J -39139771.43 -39139771.19 -39139770.95 0.0517 0.0086 \*  
 Mercury -111871-10-05 18:14 J -39139181.87 -39139181.74 -39139181.61 0.0530 0.0187  
 Mercury -111870-01-03 05:02 J -39139092.40 -39139092.29 -39139092.19 0.0531 0.0327  
 Venus -111870-12-28 22:48 J -39138732.63 -39138732.55 -39138732.45 0.0532 0.0470  
 Moon -111867-08-11 05:46 J -39137776.37 -39137776.26 -39137776.14 0.0511 0.0438  
 Earth -111867-08-11 09:36 J -39137776.22 -39137776.10 -39137775.97 0.0511 0.0425 \*  
 Mercury -111865-08-21 15:22 J -39137035.03 -39137034.86 -39137034.69 0.0496 0.0040  
 Venus -111863-06-19 07:26 J -39136368.35 -39136368.19 -39136368.03 0.0496 0.0308  
 Mercury -111859-07-24 21:22 J -39134871.72 -39134871.61 -39134871.50 0.0530 0.0310  
 Mercury -111859-10-22 08:24 J -39134782.27 -39134782.15 -39134782.03 0.0531 0.0206  
 Venus -111857-04-27 00:00 J -39134229.62 -39134229.50 -39134229.36 0.0530 0.0399

Earth -111855-08-15 19:12 J -39133388.93 -39133388.70 -39133388.47 0.0510 0.0005  
 Moon -111855-08-15 22:34 J -39133388.78 -39133388.56 -39133388.34 0.0510 0.0027 \*  
 Mercury -111853-06-09 15:07 J -39132725.03 -39132724.87 -39132724.71 0.0496 0.0170  
 Mars -111853-09-04 19:41 J -39132637.93 -39132637.68 -39132637.43 0.0495 0.0209  
 Mercury -111853-09-07 15:36 J -39132634.96 -39132634.85 -39132634.73 0.0495 0.0369  
 Venus -111851-02-22 06:14 J -39132102.45 -39132102.24 -39132102.03 0.0495 0.0025  
 Mercury -111847-05-13 00:00 J -39130561.57 -39130561.50 -39130561.42 0.0529 0.0441  
 Mercury -111847-08-10 11:17 J -39130472.16 -39130472.03 -39130471.89 0.0530 0.0079  
 Venus -111846-12-31 18:43 J -39129963.92 -39129963.72 -39129963.53 0.0531 0.0064  
 Moon -111843-08-20 01:26 J -39129001.57 -39129001.44 -39129001.31 0.0509 0.0423  
 Earth -111843-08-20 04:19 J -39129001.44 -39129001.32 -39129001.20 0.0509 0.0430 \*  
 Mercury -111841-03-28 15:07 J -39128415.00 -39128414.87 -39128414.74 0.0497 0.0298  
 Mercury -111841-06-26 15:07 J -39128325.02 -39128324.87 -39128324.72 0.0496 0.0236  
 Venus -111840-10-28 05:17 J -39127836.45 -39127836.28 -39127836.09 0.0495 0.0257  
 Mercury -111835-05-29 14:10 J -39126162.04 -39126161.91 -39126161.77 0.0530 0.0053  
 Mars -111835-06-13 09:50 J -39126147.35 -39126147.09 -39126146.84 0.0530 0.0197  
 Mercury -111835-08-27 00:43 J -39126072.54 -39126072.47 -39126072.41 0.0531 0.0457  
 Venus -111834-09-05 13:41 J -39125698.10 -39125697.93 -39125697.76 0.0531 0.0274  
 Mercury -111829-01-15 15:22 J -39124104.94 -39124104.86 -39124104.77 0.0497 0.0422  
 Mercury -111829-04-14 14:53 J -39124015.05 -39124014.88 -39124014.71 0.0496 0.0107  
 Venus -111827-02-24 20:38 J -39123333.67 -39123333.64 -39123333.58 0.0496 0.0482  
 Mercury -111823-03-17 16:34 J -39121851.93 -39121851.81 -39121851.68 0.0530 0.0185  
 Mercury -111823-06-15 03:22 J -39121762.46 -39121762.36 -39121762.25 0.0531 0.0330  
 Mercury -111817-02-01 14:53 J -39119705.05 -39119704.88 -39119704.71 0.0496 0.0022  
 Venus -111816-10-30 19:12 J -39119067.89 -39119067.70 -39119067.50 0.0495 0.0197  
 Mercury -111811-01-03 19:55 J -39117541.78 -39117541.67 -39117541.56 0.0530 0.0308  
 Mercury -111811-04-03 06:58 J -39117452.33 -39117452.21 -39117452.09 0.0531 0.0210  
 Venus -111810-09-08 10:48 J -39116929.22 -39116929.05 -39116928.88 0.0531 0.0269  
 Mercury -111806-11-20 14:10 J -39115395.06 -39115394.91 -39115394.74 0.0496 0.0157  
 Mercury -111805-02-18 14:38 J -39115304.99 -39115304.89 -39115304.78 0.0495 0.0382

Venus -111804-07-05 17:46 J -39114801.97 -39114801.76 -39114801.56 0.0495 0.0088  
 Earth -111801-02-18 09:36 J -39113844.22 -39113844.10 -39113843.95 0.0515 0.0424  
 Moon -111801-02-18 13:12 J -39113844.08 -39113843.95 -39113843.80 0.0515 0.0417 \*  
 Mercury -111800-10-22 23:02 J -39113231.62 -39113231.54 -39113231.46 0.0529 0.0431  
 Mercury -111799-01-20 10:19 J -39113142.20 -39113142.07 -39113141.93 0.0531 0.0090  
 Mars -111799-03-20 11:46 J -39113083.09 -39113083.01 -39113082.90 0.0531 0.0495  
 Venus -111798-05-14 06:29 J -39112663.43 -39112663.23 -39112663.03 0.0531 0.0064  
 Mercury -111794-09-08 14:10 J -39111085.05 -39111084.91 -39111084.78 0.0496 0.0287  
 Mercury -111794-12-07 14:10 J -39110995.06 -39110994.91 -39110994.76 0.0495 0.0247  
 Venus -111792-03-10 17:02 J -39110535.92 -39110535.79 -39110535.65 0.0495 0.0368  
 Moon -111789-02-23 09:22 J -39109456.35 -39109456.11 -39109455.87 0.0516 0.0033  
 Earth -111789-02-23 13:12 J -39109456.19 -39109455.95 -39109455.71 0.0516 0.0065 \*  
 Mercury -111788-11-08 13:12 J -39108832.08 -39108831.95 -39108831.81 0.0530 0.0041  
 Mercury -111787-02-05 23:46 J -39108742.57 -39108742.51 -39108742.45 0.0531 0.0467  
 Venus -111786-01-17 00:00 J -39108397.63 -39108397.50 -39108397.37 0.0532 0.0407  
 Earth -111784-08-10 18:14 J -39107460.80 -39107460.74 -39107460.67 0.0512 0.0486  
 Moon -111784-08-10 21:36 J -39107460.63 -39107460.60 -39107460.55 0.0512 0.0501  
 Mercury -111782-06-27 14:10 J -39106775.00 -39106774.91 -39106774.82 0.0497 0.0414  
 Mercury -111782-09-25 13:41 J -39106685.10 -39106684.93 -39106684.77 0.0496 0.0115  
 Venus -111780-07-08 09:36 J -39106033.23 -39106033.10 -39106032.96 0.0496 0.0373  
 Mercury -111776-08-27 16:05 J -39104521.96 -39104521.83 -39104521.70 0.0530 0.0169  
 Mercury -111776-11-25 02:38 J -39104432.49 -39104432.39 -39104432.28 0.0531 0.0343  
 Venus -111774-05-17 00:29 J -39103894.58 -39103894.48 -39103894.39 0.0530 0.0461  
 Moon -111772-08-15 03:07 J -39103073.60 -39103073.37 -39103073.14 0.0511 0.0080  
 Earth -111772-08-15 06:14 J -39103073.47 -39103073.24 -39103073.02 0.0511 0.0046 \*  
 Mercury -111770-07-14 13:41 J -39102375.10 -39102374.93 -39102374.76 0.0496 0.0017  
 Venus -111768-03-13 06:43 J -39101767.42 -39101767.22 -39101767.01 0.0495 0.0086  
 Mercury -111764-06-15 18:14 J -39100211.85 -39100211.74 -39100211.63 0.0530 0.0307  
 Mercury -111764-09-13 05:17 J -39100122.40 -39100122.28 -39100122.15 0.0531 0.0210  
 Venus -111762-01-19 19:41 J -39099628.88 -39099628.68 -39099628.49 0.0532 0.0131



Earth -111760-08-19 18:00 J -39098685.89 -39098685.75 -39098685.60 0.0509 0.0390  
 Moon -111760-08-19 19:41 J -39098685.82 -39098685.68 -39098685.54 0.0509 0.0391 \*  
 Mercury -111758-05-02 13:41 J -39098065.10 -39098064.93 -39098064.77 0.0496 0.0141  
 Mercury -111758-07-31 13:55 J -39097975.02 -39097974.92 -39097974.82 0.0495 0.0397  
 Venus -111757-11-16 05:46 J -39097501.45 -39097501.26 -39097501.06 0.0494 0.0198  
 Mercury -111752-04-03 21:07 J -39095901.69 -39095901.62 -39095901.54 0.0530 0.0434  
 Mercury -111752-07-02 08:38 J -39095812.27 -39095812.14 -39095812.00 0.0531 0.0089  
 Venus -111751-09-24 15:22 J -39095363.04 -39095362.86 -39095362.67 0.0532 0.0204  
 Mercury -111746-02-18 12:58 J -39093755.10 -39093754.96 -39093754.82 0.0496 0.0276  
 Mercury -111746-05-19 12:58 J -39093665.11 -39093664.96 -39093664.82 0.0495 0.0258  
 Venus -111745-07-22 04:34 J -39093235.35 -39093235.31 -39093235.26 0.0494 0.0479  
 Mercury -111740-04-20 12:00 J -39091502.14 -39091502.00 -39091501.86 0.0530 0.0034  
 Mercury -111740-07-18 22:34 J -39091412.62 -39091412.56 -39091412.51 0.0531 0.0475  
 Mercury -111735-12-07 12:43 J -39089445.06 -39089444.97 -39089444.87 0.0497 0.0405  
 Mars -111734-02-25 02:10 J -39089365.68 -39089365.41 -39089365.14 0.0496 0.0114  
 Mercury -111734-03-07 12:14 J -39089355.15 -39089354.99 -39089354.82 0.0496 0.0123  
 Venus -111733-11-18 19:55 J -39088732.84 -39088732.67 -39088732.48 0.0496 0.0258  
 Mercury -111728-02-06 14:53 J -39087192.01 -39087191.88 -39087191.75 0.0530 0.0163  
 Mercury -111728-05-07 01:26 J -39087102.54 -39087102.44 -39087102.34 0.0531 0.0349  
 Venus -111727-09-27 10:19 J -39086594.22 -39086594.07 -39086593.91 0.0530 0.0328  
 Mercury -111723-12-24 11:45 J -39085045.18 -39085045.01 -39085044.84 0.0496 0.0016  
 Venus -111721-07-24 18:43 J -39084466.93 -39084466.72 -39084466.51 0.0495 0.0029  
 Moon -111718-02-17 10:33 J -39083529.13 -39083529.06 -39083528.99 0.0514 0.0489  
 Earth -111718-02-17 13:55 J -39083528.97 -39083528.92 -39083528.84 0.0514 0.0494  
 Mercury -111717-11-25 17:31 J -39082881.89 -39082881.77 -39082881.66 0.0529 0.0295  
 Mercury -111716-02-23 04:33 J -39082792.44 -39082792.31 -39082792.19 0.0531 0.0222  
 Venus -111715-06-02 05:17 J -39082328.47 -39082328.28 -39082328.08 0.0531 0.0014  
 Mercury -111711-10-12 12:00 J -39080735.16 -39080735.00 -39080734.84 0.0496 0.0136  
 Mercury -111710-01-10 12:14 J -39080645.08 -39080644.99 -39080644.89 0.0495 0.0403  
 Venus -111709-03-29 17:17 J -39080200.94 -39080200.78 -39080200.62 0.0494 0.0310

Earth -111706-02-22 10:33 J -39079141.30 -39079141.06 -39079140.82 0.0515 0.0036  
 Moon -111706-02-22 14:09 J -39079141.14 -39079140.91 -39079140.67 0.0515 0.0065 \*  
 Mercury -111705-09-13 19:12 J -39078571.77 -39078571.70 -39078571.62 0.0529 0.0436  
 Mercury -111705-12-12 06:43 J -39078482.35 -39078482.22 -39078482.08 0.0531 0.0086  
 Venus -111703-02-04 22:33 J -39078062.70 -39078062.56 -39078062.41 0.0532 0.0351  
 Mercury -111699-07-31 12:00 J -39076425.14 -39076425.00 -39076424.86 0.0496 0.0263  
 Mercury -111699-10-29 12:00 J -39076335.15 -39076335.00 -39076334.86 0.0495 0.0270  
 Mars -111699-11-30 08:09 J -39076303.30 -39076303.16 -39076303.01 0.0495 0.0417  
 Venus -111697-07-27 08:38 J -39075698.24 -39075698.14 -39075698.03 0.0495 0.0428  
 Moon -111694-02-27 10:05 J -39074753.20 -39074753.08 -39074752.96 0.0517 0.0445  
 Earth -111694-02-27 12:29 J -39074753.09 -39074752.98 -39074752.86 0.0517 0.0448 \*  
 Mercury -111693-09-30 09:50 J -39074172.22 -39074172.09 -39074171.95 0.0531 0.0043  
 Mercury -111693-12-28 20:24 J -39074082.71 -39074082.65 -39074082.59 0.0532 0.0471  
 Venus -111691-06-05 00:14 J -39073559.50 -39073559.49 -39073559.46 0.0531 0.0526  
 Earth -111689-08-14 14:38 J -39072758.11 -39072757.89 -39072757.67 0.0511 0.0111  
 Moon -111689-08-14 16:48 J -39072758.01 -39072757.80 -39072757.59 0.0511 0.0142 \*  
 Mercury -111687-05-19 11:17 J -39072115.12 -39072115.03 -39072114.93 0.0497 0.0398  
 Mercury -111687-08-17 10:48 J -39072025.21 -39072025.05 -39072024.88 0.0495 0.0130  
 Venus -111685-04-01 06:14 J -39071432.44 -39071432.24 -39071432.04 0.0495 0.0139  
 Mercury -111681-07-19 13:12 J -39069862.08 -39069861.95 -39069861.82 0.0530 0.0162  
 Mars -111681-09-06 16:48 J -39069813.08 -39069812.80 -39069812.53 0.0531 0.0022  
 Mercury -111681-10-17 00:00 J -39069772.60 -39069772.50 -39069772.40 0.0531 0.0351  
 Venus -111679-02-07 20:24 J -39069293.84 -39069293.65 -39069293.47 0.0531 0.0195  
 Moon -111677-08-18 23:02 J -39068370.72 -39068370.54 -39068370.35 0.0509 0.0316  
 Earth -111677-08-18 23:45 J -39068370.68 -39068370.51 -39068370.33 0.0509 0.0316 \*  
 Mercury -111675-06-05 10:19 J -39067715.24 -39067715.07 -39067714.90 0.0496 0.0010  
 Venus -111674-12-06 04:48 J -39067166.50 -39067166.30 -39067166.10 0.0495 0.0146  
 Mercury -111669-05-07 15:50 J -39065551.95 -39065551.84 -39065551.72 0.0529 0.0292  
 Mercury -111669-08-05 02:53 J -39065462.50 -39065462.38 -39065462.25 0.0531 0.0226  
 Venus -111668-10-13 14:09 J -39065028.10 -39065027.91 -39065027.72 0.0531 0.0148

Mercury -111663-03-24 09:50 J -39063405.25 -39063405.09 -39063404.93 0.0496 0.0137

Mercury -111663-06-22 10:05 J -39063315.17 -39063315.08 -39063314.97 0.0495 0.0402

Venus -111662-08-11 03:50 J -39062900.43 -39062900.34 -39062900.23 0.0494 0.0428

Mercury -111657-02-24 18:29 J -39061241.81 -39061241.73 -39061241.65 0.0529 0.0426

Mercury -111657-05-24 05:45 J -39061152.39 -39061152.26 -39061152.13 0.0530 0.0095

Venus -111656-06-18 07:26 J -39060762.25 -39060762.19 -39060762.11 0.0532 0.0493

Mercury -111651-01-10 10:05 J -39059095.22 -39059095.08 -39059094.94 0.0496 0.0263

Mercury -111651-04-10 09:50 J -39059005.23 -39059005.09 -39059004.94 0.0495 0.0272

Venus -111650-12-08 18:57 J -39058397.87 -39058397.71 -39058397.55 0.0495 0.0312

Mercury -111645-03-12 07:55 J -39056842.31 -39056842.17 -39056842.04 0.0530 0.0045

Mercury -111645-06-09 18:29 J -39056752.79 -39056752.73 -39056752.67 0.0532 0.0464

Venus -111644-10-16 07:41 J -39056259.32 -39056259.18 -39056259.05 0.0531 0.0382

Mercury -111640-10-29 10:05 J -39054785.18 -39054785.08 -39054784.98 0.0497 0.0389

Mercury -111639-01-27 09:36 J -39054695.27 -39054695.10 -39054694.94 0.0495 0.0139

Venus -111638-08-13 17:02 J -39054132.00 -39054131.79 -39054131.58 0.0494 0.0026

Mercury -111634-12-30 10:48 J -39052532.18 -39052532.05 -39052531.92 0.0530 0.0172

Mercury -111633-03-28 21:50 J -39052442.70 -39052442.59 -39052442.49 0.0531 0.0343

Venus -111632-06-21 03:07 J -39051993.56 -39051993.37 -39051993.17 0.0532 0.0048

Mercury -111628-11-15 08:24 J -39050385.32 -39050385.15 -39050384.98 0.0496 0.0003

Venus -111626-04-18 14:53 J -39049866.06 -39049865.88 -39049865.71 0.0494 0.0264

Moon -111623-02-21 09:50 J -39048826.32 -39048826.09 -39048825.85 0.0515 0.0148

Earth -111623-02-21 13:12 J -39048826.18 -39048825.95 -39048825.71 0.0515 0.0115 \*

Mercury -111622-10-18 13:55 J -39048222.03 -39048221.92 -39048221.80 0.0530 0.0296

Mercury -111621-01-16 01:12 J -39048132.57 -39048132.45 -39048132.33 0.0531 0.0222

Venus -111620-02-23 22:33 J -39047727.73 -39047727.56 -39047727.40 0.0532 0.0292

Mars -111616-08-15 17:02 J -39046093.86 -39046093.79 -39046093.71 0.0496 0.0476

Mercury -111616-09-03 07:55 J -39046075.33 -39046075.17 -39046075.01 0.0496 0.0136

Mercury -111616-12-02 08:09 J -39045985.26 -39045985.16 -39045985.06 0.0495 0.0402

Venus -111614-08-16 06:14 J -39045363.28 -39045363.24 -39045363.18 0.0496 0.0478

Earth -111611-02-26 15:36 J -39044438.01 -39044437.85 -39044437.68 0.0517 0.0371

Moon -111611-02-26 17:17 J -39044437.93 -39044437.78 -39044437.62 0.0517 0.0373 \*  
 Mercury -111610-08-06 16:33 J -39043911.89 -39043911.81 -39043911.72 0.0529 0.0426  
 Mercury -111610-11-04 04:05 J -39043822.46 -39043822.33 -39043822.20 0.0530 0.0095  
 Moon -111606-08-14 15:50 J -39042443.05 -39042442.84 -39042442.63 0.0511 0.0228  
 Earth -111606-08-14 17:17 J -39042442.99 -39042442.78 -39042442.57 0.0511 0.0198 \*  
 Mercury -111604-06-22 07:26 J -39041765.33 -39041765.19 -39041765.05 0.0497 0.0268  
 Mercury -111604-09-20 07:12 J -39041675.34 -39041675.20 -39041675.05 0.0495 0.0267  
 Venus -111602-04-21 04:33 J -39041097.50 -39041097.31 -39041097.12 0.0495 0.0190  
 Mercury -111598-08-23 06:43 J -39039512.35 -39039512.22 -39039512.08 0.0530 0.0038  
 Mercury -111598-11-20 17:17 J -39039422.84 -39039422.78 -39039422.72 0.0531 0.0470  
 Venus -111596-02-26 16:19 J -39038958.99 -39038958.82 -39038958.64 0.0531 0.0240  
 Moon -111594-08-19 03:07 J -39038055.56 -39038055.37 -39038055.17 0.0510 0.0240  
 Earth -111594-08-19 03:36 J -39038055.55 -39038055.35 -39038055.15 0.0510 0.0234 \*  
 Mercury -111592-04-10 07:41 J -39037455.28 -39037455.18 -39037455.08 0.0497 0.0393  
 Mercury -111592-07-09 07:12 J -39037365.36 -39037365.20 -39037365.04 0.0496 0.0136  
 Venus -111591-12-25 02:53 J -39036831.58 -39036831.38 -39036831.17 0.0494 0.0096  
 Mercury -111586-06-11 08:38 J -39035202.27 -39035202.14 -39035202.01 0.0530 0.0179  
 Mercury -111586-09-08 19:26 J -39035112.79 -39035112.69 -39035112.58 0.0531 0.0335  
 Venus -111585-11-01 09:07 J -39034693.31 -39034693.12 -39034692.92 0.0532 0.0108  
 Mercury -111580-04-27 06:57 J -39033055.38 -39033055.21 -39033055.04 0.0496 0.0014  
 Mars -111580-05-21 00:29 J -39033031.75 -39033031.48 -39033031.21 0.0496 0.0059  
 Venus -111579-08-30 01:55 J -39032565.55 -39032565.42 -39032565.29 0.0494 0.0379  
 Mercury -111574-03-30 11:31 J -39030892.13 -39030892.02 -39030891.91 0.0530 0.0308  
 Mercury -111574-06-27 22:33 J -39030802.68 -39030802.56 -39030802.43 0.0531 0.0211  
 Venus -111573-07-07 03:36 J -39030427.45 -39030427.35 -39030427.24 0.0533 0.0449  
 Mercury -111568-02-13 05:45 J -39028745.42 -39028745.26 -39028745.10 0.0496 0.0137  
 Mercury -111568-05-14 06:00 J -39028655.35 -39028655.25 -39028655.15 0.0495 0.0401  
 Venus -111567-12-27 15:07 J -39028063.02 -39028062.87 -39028062.73 0.0495 0.0354  
 Mercury -111562-01-16 14:24 J -39026581.97 -39026581.90 -39026581.82 0.0529 0.0434  
 Mars -111562-02-24 13:41 J -39026543.04 -39026542.93 -39026542.81 0.0530 0.0479

Mercury -111562-04-16 01:55 J -39026492.55 -39026492.42 -39026492.28 0.0531 0.0090

Venus -111561-11-04 06:00 J -39025924.36 -39025924.25 -39025924.14 0.0531 0.0436

Mercury -111557-12-02 05:17 J -39024435.42 -39024435.28 -39024435.14 0.0496 0.0270

Mercury -111556-03-02 05:02 J -39024345.43 -39024345.29 -39024345.14 0.0495 0.0263

Venus -111555-09-01 13:12 J -39023797.16 -39023796.95 -39023796.74 0.0495 0.0066

Mercury -111550-02-02 04:48 J -39022182.43 -39022182.30 -39022182.16 0.0530 0.0042

Mercury -111550-05-02 15:21 J -39022092.92 -39022092.86 -39022092.80 0.0531 0.0468

Venus -111549-07-10 00:00 J -39021658.69 -39021658.50 -39021658.30 0.0531 0.0095

Mercury -111545-09-20 05:02 J -39020125.39 -39020125.29 -39020125.19 0.0497 0.0401

Mercury -111545-12-19 04:19 J -39020035.48 -39020035.32 -39020035.15 0.0496 0.0127

Venus -111543-05-07 11:45 J -39019531.19 -39019531.01 -39019530.82 0.0494 0.0221

Earth -111540-02-20 12:00 J -39018511.22 -39018511.00 -39018510.78 0.0515 0.0208

Moon -111540-02-20 14:53 J -39018511.09 -39018510.88 -39018510.68 0.0515 0.0240 \*

Mercury -111539-11-21 07:26 J -39017872.32 -39017872.19 -39017872.06 0.0530 0.0173

Mercury -111538-02-18 18:14 J -39017782.84 -39017782.74 -39017782.64 0.0531 0.0339

Venus -111537-03-14 17:31 J -39017392.94 -39017392.77 -39017392.59 0.0532 0.0252

Mercury -111533-10-07 04:19 J -39015725.49 -39015725.32 -39015725.15 0.0496 0.0012

Moon -111528-02-25 07:41 J -39014123.40 -39014123.18 -39014122.96 0.0516 0.0247

Earth -111528-02-25 08:53 J -39014123.33 -39014123.13 -39014122.91 0.0516 0.0253 \*

Mercury -111527-09-09 09:07 J -39013562.23 -39013562.12 -39013562.01 0.0529 0.0317

Mars -111527-11-30 13:55 J -39013480.18 -39013479.92 -39013479.66 0.0531 0.0150

Mercury -111527-12-07 20:24 J -39013472.77 -39013472.65 -39013472.52 0.0531 0.0201

Earth -111523-08-13 20:24 J -39012127.83 -39012127.65 -39012127.46 0.0512 0.0285

Moon -111523-08-13 20:53 J -39012127.79 -39012127.63 -39012127.45 0.0512 0.0314 \*

Mercury -111521-07-26 03:50 J -39011415.50 -39011415.34 -39011415.17 0.0496 0.0135

Mercury -111521-10-24 04:19 J -39011325.42 -39011325.32 -39011325.23 0.0495 0.0405

Venus -111519-05-10 01:26 J -39010762.62 -39010762.44 -39010762.26 0.0495 0.0236

Mercury -111515-06-28 11:45 J -39009252.08 -39009252.01 -39009251.94 0.0529 0.0448

Mercury -111515-09-25 23:17 J -39009162.66 -39009162.53 -39009162.39 0.0531 0.0077

Venus -111513-03-17 11:45 J -39008624.18 -39008624.01 -39008623.84 0.0531 0.0283

Earth -111511-08-18 05:31 J -39007740.49 -39007740.27 -39007740.05 0.0510 0.0143  
 Moon -111511-08-18 06:57 J -39007740.44 -39007740.21 -39007739.99 0.0510 0.0152 \*  
 Mercury -111509-05-14 02:53 J -39007105.52 -39007105.38 -39007105.24 0.0496 0.0273  
 Mercury -111509-08-12 02:38 J -39007015.53 -39007015.39 -39007015.24 0.0495 0.0259  
 Venus -111507-01-12 21:50 J -39006496.80 -39006496.59 -39006496.38 0.0494 0.0059  
 Mercury -111503-07-15 02:38 J -39004852.53 -39004852.39 -39004852.25 0.0530 0.0049  
 Mercury -111503-10-12 13:12 J -39004763.01 -39004762.95 -39004762.88 0.0531 0.0461  
 Venus -111502-11-21 07:26 J -39004358.39 -39004358.19 -39004357.99 0.0532 0.0054  
 Mercury -111497-03-02 02:38 J -39002795.48 -39002795.39 -39002795.29 0.0497 0.0404  
 Mercury -111497-05-31 01:55 J -39002705.58 -39002705.42 -39002705.25 0.0496 0.0123  
 Venus -111496-09-17 20:38 J -39002230.79 -39002230.64 -39002230.49 0.0494 0.0345  
 Mercury -111491-05-03 05:31 J -39000542.40 -39000542.27 -39000542.14 0.0530 0.0178  
 Mercury -111491-07-31 16:19 J -39000452.92 -39000452.82 -39000452.72 0.0531 0.0336  
 Venus -111490-07-27 00:43 J -39000092.60 -39000092.47 -39000092.34 0.0532 0.0401  
 Mercury -111485-03-19 01:12 J -38998395.62 -38998395.45 -38998395.28 0.0496 0.0013  
 Venus -111483-01-15 11:45 J -38997728.13 -38997728.01 -38997727.89 0.0495 0.0400  
 Mercury -111479-02-19 07:55 J -38996232.28 -38996232.17 -38996232.06 0.0529 0.0312  
 Mercury -111479-05-19 18:57 J -38996142.83 -38996142.71 -38996142.58 0.0531 0.0207  
 Venus -111478-11-24 00:29 J -38995589.56 -38995589.48 -38995589.39 0.0531 0.0476  
 Mercury -111473-01-06 01:12 J -38994085.61 -38994085.45 -38994085.29 0.0496 0.0142  
 Mercury -111473-04-05 01:26 J -38993995.54 -38993995.44 -38993995.34 0.0495 0.0397  
 Venus -111472-09-20 10:19 J -38993462.27 -38993462.07 -38993461.87 0.0495 0.0113  
 Mercury -111468-12-08 09:36 J -38991922.17 -38991922.10 -38991922.03 0.0529 0.0455  
 Mercury -111467-03-07 21:07 J -38991832.75 -38991832.62 -38991832.48 0.0530 0.0067  
 Venus -111466-07-29 17:17 J -38991323.97 -38991323.78 -38991323.58 0.0532 0.0130  
 Mercury -111462-10-25 00:57 J -38989775.59 -38989775.46 -38989775.32 0.0497 0.0272  
 Mars -111462-11-09 01:41 J -38989760.62 -38989760.43 -38989760.22 0.0497 0.0337  
 Mercury -111461-01-23 00:43 J -38989685.61 -38989685.47 -38989685.32 0.0496 0.0262  
 Venus -111460-05-26 08:38 J -38989196.33 -38989196.14 -38989195.95 0.0494 0.0176  
 Moon -111457-02-20 02:53 J -38988196.55 -38988196.38 -38988196.20 0.0514 0.0356

Earth -111457-02-20 05:31 J -38988196.46 -38988196.27 -38988196.09 0.0514 0.0324 \*  
 Mercury -111456-12-25 00:00 J -38987522.64 -38987522.50 -38987522.36 0.0530 0.0063  
 Mercury -111455-03-24 10:33 J -38987433.13 -38987433.06 -38987432.99 0.0531 0.0447  
 Venus -111454-04-03 12:14 J -38987058.17 -38987057.99 -38987057.81 0.0532 0.0214  
 Mercury -111450-08-13 00:14 J -38985465.58 -38985465.49 -38985465.40 0.0497 0.0409  
 Mercury -111450-11-10 23:17 J -38985375.69 -38985375.53 -38985375.36 0.0496 0.0118  
 Venus -111448-01-29 05:31 J -38984930.33 -38984930.27 -38984930.21 0.0494 0.0468  
 Earth -111445-02-25 06:14 J -38983808.47 -38983808.24 -38983808.01 0.0516 0.0152  
 Moon -111445-02-25 06:57 J -38983808.43 -38983808.21 -38983807.99 0.0516 0.0148 \*  
 Mercury -111444-10-13 03:07 J -38983212.50 -38983212.37 -38983212.24 0.0530 0.0187  
 Mercury -111443-01-10 14:09 J -38983123.02 -38983122.91 -38983122.81 0.0531 0.0328  
 Earth -111440-08-12 22:05 J -38981812.73 -38981812.58 -38981812.42 0.0512 0.0375  
 Moon -111440-08-12 22:33 J -38981812.70 -38981812.56 -38981812.41 0.0512 0.0400 \*  
 Mercury -111438-08-29 22:48 J -38981065.72 -38981065.55 -38981065.38 0.0496 0.0018  
 Venus -111436-05-28 19:26 J -38980427.85 -38980427.69 -38980427.51 0.0495 0.0272  
 Mercury -111432-08-01 06:00 J -38978902.36 -38978902.25 -38978902.14 0.0529 0.0316  
 Mercury -111432-10-29 17:17 J -38978812.91 -38978812.78 -38978812.66 0.0531 0.0203  
 Venus -111430-04-06 08:24 J -38978289.30 -38978289.15 -38978288.99 0.0531 0.0332  
 Moon -111428-08-17 03:36 J -38977425.56 -38977425.35 -38977425.13 0.0511 0.0058  
 Earth -111428-08-17 05:45 J -38977425.48 -38977425.26 -38977425.03 0.0511 0.0048 \*  
 Mercury -111426-06-17 22:19 J -38976755.73 -38976755.57 -38976755.41 0.0496 0.0151  
 Mars -111426-08-13 21:50 J -38976698.85 -38976698.59 -38976698.33 0.0496 0.0173  
 Mercury -111426-09-15 22:19 J -38976665.67 -38976665.57 -38976665.46 0.0495 0.0386  
 Venus -111424-01-31 18:00 J -38976161.96 -38976161.75 -38976161.54 0.0495 0.0017  
 Mercury -111420-05-20 08:24 J -38974592.22 -38974592.15 -38974592.08 0.0529 0.0450  
 Mercury -111420-08-17 19:55 J -38974502.81 -38974502.67 -38974502.54 0.0530 0.0072  
 Venus -111419-12-10 02:24 J -38974023.60 -38974023.40 -38974023.20 0.0532 0.0014  
 Earth -111416-08-21 14:38 J -38973037.96 -38973037.89 -38973037.80 0.0510 0.0474  
 Moon -111416-08-21 18:14 J -38973037.76 -38973037.74 -38973037.71 0.0510 0.0506  
 Mercury -111414-04-05 22:19 J -38972445.71 -38972445.57 -38972445.43 0.0497 0.0279

Mercury -111414-07-04 22:05 J -38972355.73 -38972355.58 -38972355.44 0.0496 0.0254

Venus -111413-10-06 17:45 J -38971895.93 -38971895.76 -38971895.60 0.0494 0.0300

Mars -111408-05-19 09:07 J -38970210.31 -38970210.12 -38970209.91 0.0529 0.0358

Mercury -111408-06-05 21:50 J -38970192.72 -38970192.59 -38970192.45 0.0530 0.0071

Mercury -111408-09-03 08:38 J -38970103.21 -38970103.14 -38970103.07 0.0531 0.0441

Venus -111407-08-14 17:45 J -38969757.89 -38969757.76 -38969757.61 0.0532 0.0370

Mercury -111402-01-22 22:19 J -38968135.66 -38968135.57 -38968135.48 0.0497 0.0408

Mercury -111402-04-22 21:36 J -38968045.77 -38968045.60 -38968045.44 0.0496 0.0120

Venus -111400-02-03 08:09 J -38967393.24 -38967393.16 -38967393.06 0.0495 0.0445

Mercury -111396-03-25 00:43 J -38965882.60 -38965882.47 -38965882.34 0.0530 0.0199

Mercury -111396-06-22 11:45 J -38965793.12 -38965793.01 -38965792.91 0.0531 0.0316

Venus -111395-12-12 19:26 J -38965254.73 -38965254.69 -38965254.64 0.0531 0.0517

Mercury -111390-02-08 20:24 J -38963735.82 -38963735.65 -38963735.48 0.0496 0.0022

Venus -111389-10-09 04:05 J -38963127.53 -38963127.33 -38963127.13 0.0495 0.0146

Mercury -111384-01-11 03:36 J -38961572.46 -38961572.35 -38961572.24 0.0530 0.0325

Mercury -111384-04-10 14:53 J -38961483.00 -38961482.88 -38961482.75 0.0531 0.0196

Venus -111383-08-17 16:05 J -38960989.02 -38960988.83 -38960988.65 0.0532 0.0184

Mercury -111379-11-27 19:55 J -38959425.82 -38959425.67 -38959425.51 0.0496 0.0154

Mercury -111378-02-25 20:09 J -38959335.77 -38959335.66 -38959335.56 0.0495 0.0383

Venus -111377-06-14 02:38 J -38958861.59 -38958861.39 -38958861.19 0.0494 0.0143

Earth -111374-02-19 03:50 J -38957881.47 -38957881.34 -38957881.19 0.0514 0.0416

Moon -111374-02-19 05:45 J -38957881.36 -38957881.26 -38957881.14 0.0514 0.0449 \*

Mercury -111373-10-30 06:29 J -38957262.30 -38957262.23 -38957262.16 0.0529 0.0453

Mercury -111372-01-27 18:00 J -38957172.88 -38957172.75 -38957172.61 0.0530 0.0072

Mars -111372-02-23 05:02 J -38957146.51 -38957146.29 -38957146.07 0.0531 0.0323

Venus -111371-04-22 10:19 J -38956723.26 -38956723.07 -38956722.88 0.0532 0.0160

Mercury -111367-09-15 19:26 J -38955115.82 -38955115.69 -38955115.55 0.0497 0.0287

Mercury -111367-12-14 19:12 J -38955025.85 -38955025.70 -38955025.55 0.0496 0.0246

Venus -111365-02-18 01:55 J -38954595.52 -38954595.42 -38954595.31 0.0494 0.0427

Moon -111362-02-24 06:00 J -38953493.50 -38953493.25 -38953493.00 0.0515 0.0057



Earth -111362-02-24 06:00 J -38953493.49 -38953493.25 -38953493.01 0.0515 0.0063 \*  
 Mercury -111361-11-15 20:53 J -38952862.77 -38952862.63 -38952862.50 0.0530 0.0063  
 Mercury -111360-02-13 07:26 J -38952773.26 -38952773.19 -38952773.12 0.0531 0.0448  
 Venus -111360-12-26 03:07 J -38952457.42 -38952457.37 -38952457.31 0.0532 0.0510  
 Moon -111357-08-11 21:21 J -38951497.65 -38951497.61 -38951497.55 0.0513 0.0497  
 Earth -111357-08-11 22:48 J -38951497.63 -38951497.55 -38951497.46 0.0513 0.0470 \*  
 Mercury -111355-07-04 19:41 J -38950805.77 -38950805.68 -38950805.59 0.0497 0.0413  
 Mercury -111355-10-02 18:57 J -38950715.88 -38950715.71 -38950715.55 0.0496 0.0114  
 Venus -111353-06-16 17:17 J -38950092.93 -38950092.78 -38950092.62 0.0495 0.0321  
 Mercury -111349-09-03 22:48 J -38948552.67 -38948552.55 -38948552.42 0.0529 0.0201  
 Mercury -111349-12-02 09:50 J -38948463.20 -38948463.09 -38948462.98 0.0531 0.0313  
 Venus -111347-04-25 02:53 J -38947954.52 -38947954.38 -38947954.24 0.0531 0.0369  
 Earth -111345-08-16 07:55 J -38947110.40 -38947110.17 -38947109.95 0.0512 0.0043  
 Moon -111345-08-16 10:48 J -38947110.28 -38947110.05 -38947109.82 0.0512 0.0028 \*  
 Mercury -111343-07-21 18:43 J -38946405.89 -38946405.72 -38946405.55 0.0496 0.0021  
 Venus -111341-02-20 15:36 J -38945827.06 -38945826.85 -38945826.64 0.0494 0.0031  
 Mercury -111337-06-23 01:26 J -38944242.54 -38944242.44 -38944242.33 0.0529 0.0332  
 Mercury -111337-09-20 12:43 J -38944153.09 -38944152.97 -38944152.84 0.0530 0.0187  
 Venus -111336-12-28 21:50 J -38943688.78 -38943688.59 -38943688.39 0.0532 0.0031  
 Moon -111333-08-20 14:09 J -38942723.04 -38942722.91 -38942722.79 0.0510 0.0421  
 Earth -111333-08-20 17:45 J -38942722.90 -38942722.76 -38942722.61 0.0510 0.0389 \*  
 Mercury -111331-05-09 17:45 J -38942095.92 -38942095.76 -38942095.60 0.0496 0.0156  
 Mercury -111331-08-07 17:31 J -38942005.87 -38942005.77 -38942005.65 0.0495 0.0380  
 Venus -111330-10-26 12:00 J -38941561.17 -38941561.00 -38941560.82 0.0494 0.0266  
 Mercury -111325-04-11 04:19 J -38939932.39 -38939932.32 -38939932.25 0.0529 0.0460  
 Mercury -111325-07-09 16:05 J -38939842.97 -38939842.83 -38939842.70 0.0531 0.0064  
 Venus -111324-09-02 17:31 J -38939422.92 -38939422.77 -38939422.60 0.0532 0.0312  
 Mercury -111319-02-25 17:31 J -38937785.90 -38937785.77 -38937785.63 0.0496 0.0286  
 Mercury -111319-05-26 17:02 J -38937695.93 -38937695.79 -38937695.64 0.0495 0.0245  
 Venus -111317-02-23 03:07 J -38937058.41 -38937058.37 -38937058.32 0.0495 0.0483

Mercury -111313-04-27 19:12 J -38935532.84 -38935532.70 -38935532.57 0.0530 0.0063  
 Mercury -111313-07-26 05:45 J -38935443.33 -38935443.26 -38935443.19 0.0531 0.0449  
 Mercury -111308-12-14 17:17 J -38933475.86 -38933475.78 -38933475.68 0.0497 0.0416  
 Mars -111307-02-01 03:36 J -38933427.60 -38933427.35 -38933427.10 0.0496 0.0211  
 Mercury -111307-03-14 16:33 J -38933385.98 -38933385.81 -38933385.65 0.0496 0.0110  
 Venus -111306-10-29 01:55 J -38932792.61 -38932792.42 -38932792.23 0.0495 0.0195  
 Mercury -111301-02-14 21:50 J -38931222.72 -38931222.59 -38931222.46 0.0530 0.0191  
 Mercury -111301-05-14 08:53 J -38931133.24 -38931133.13 -38931133.03 0.0531 0.0323  
 Venus -111300-09-05 13:12 J -38930654.12 -38930653.95 -38930653.77 0.0531 0.0234  
 Mercury -111296-12-31 16:19 J -38929075.99 -38929075.82 -38929075.65 0.0496 0.0020  
 Venus -111294-07-04 01:12 J -38928526.65 -38928526.45 -38928526.24 0.0494 0.0093  
 Earth -111291-02-18 04:05 J -38927566.38 -38927566.33 -38927566.29 0.0513 0.0502  
 Mercury -111290-12-04 00:00 J -38926912.61 -38926912.50 -38926912.39 0.0529 0.0330  
 Mercury -111289-03-02 11:17 J -38926823.16 -38926823.03 -38926822.90 0.0530 0.0188  
 Venus -111288-05-11 06:00 J -38926388.45 -38926388.25 -38926388.06 0.0532 0.0119  
 Mercury -111284-10-19 16:19 J -38924765.98 -38924765.82 -38924765.66 0.0497 0.0151  
 Mercury -111283-01-17 16:19 J -38924675.93 -38924675.82 -38924675.72 0.0496 0.0387  
 Venus -111282-03-09 00:43 J -38924260.60 -38924260.47 -38924260.34 0.0494 0.0378  
 Moon -111279-02-23 03:50 J -38923178.57 -38923178.34 -38923178.11 0.0514 0.0038  
 Earth -111279-02-23 04:19 J -38923178.56 -38923178.32 -38923178.08 0.0514 0.0032 \*  
 Mercury -111278-09-22 02:24 J -38922602.46 -38922602.40 -38922602.33 0.0529 0.0462  
 Mercury -111278-12-20 14:09 J -38922513.04 -38922512.91 -38922512.77 0.0530 0.0061  
 Venus -111276-01-14 00:00 J -38922122.59 -38922122.50 -38922122.40 0.0532 0.0465  
 Mercury -111272-08-07 15:36 J -38920455.99 -38920455.85 -38920455.71 0.0496 0.0285  
 Mercury -111272-11-05 15:07 J -38920366.02 -38920365.87 -38920365.72 0.0495 0.0246  
 Mars -111272-11-06 07:12 J -38920365.41 -38920365.20 -38920364.99 0.0495 0.0318  
 Venus -111270-07-06 12:43 J -38919758.11 -38919757.97 -38919757.83 0.0495 0.0361  
 Earth -111267-02-28 03:21 J -38918790.48 -38918790.36 -38918790.23 0.0517 0.0441  
 Moon -111267-02-28 06:00 J -38918790.34 -38918790.25 -38918790.15 0.0517 0.0471 \*  
 Mercury -111266-10-08 17:17 J -38918202.92 -38918202.78 -38918202.65 0.0530 0.0064

Mercury -111265-01-06 04:05 J -38918113.40 -38918113.33 -38918113.26 0.0532 0.0447

Venus -111264-05-14 03:36 J -38917619.45 -38917619.35 -38917619.23 0.0531 0.0435

Moon -111262-08-16 11:45 J -38916795.23 -38916795.01 -38916794.79 0.0512 0.0094

Earth -111262-08-16 15:07 J -38916795.09 -38916794.87 -38916794.64 0.0512 0.0108 \*

Mercury -111260-05-26 15:50 J -38916145.93 -38916145.84 -38916145.75 0.0497 0.0411

Mercury -111260-08-24 14:38 J -38916056.05 -38916055.89 -38916055.72 0.0496 0.0115

Venus -111258-03-11 11:31 J -38915492.23 -38915492.02 -38915491.81 0.0494 0.0071

Mercury -111254-07-27 20:24 J -38913892.78 -38913892.65 -38913892.52 0.0530 0.0189

Mars -111254-08-13 09:36 J -38913876.36 -38913876.10 -38913875.84 0.0530 0.0160

Mercury -111254-10-25 07:26 J -38913803.30 -38913803.19 -38913803.09 0.0531 0.0327

Venus -111252-01-16 23:02 J -38913353.74 -38913353.54 -38913353.35 0.0532 0.0096

Earth -111250-08-20 23:45 J -38912407.69 -38912407.51 -38912407.33 0.0510 0.0317

Moon -111250-08-21 03:36 J -38912407.51 -38912407.35 -38912407.18 0.0510 0.0351 \*

Mercury -111248-06-12 14:24 J -38911746.07 -38911745.90 -38911745.74 0.0496 0.0023

Venus -111247-11-14 10:48 J -38911226.23 -38911226.05 -38911225.86 0.0494 0.0215

Mercury -111242-05-15 23:02 J -38909582.65 -38909582.54 -38909582.43 0.0529 0.0318

Mercury -111242-08-13 10:19 J -38909493.19 -38909493.07 -38909492.94 0.0531 0.0202

Venus -111241-09-21 16:48 J -38909087.97 -38909087.80 -38909087.62 0.0532 0.0254

Mercury -111236-03-31 14:09 J -38907436.06 -38907435.91 -38907435.74 0.0497 0.0150

Mercury -111236-06-29 14:09 J -38907346.01 -38907345.91 -38907345.80 0.0495 0.0388

Mercury -111230-03-04 01:12 J -38905272.52 -38905272.45 -38905272.38 0.0529 0.0455

Mercury -111230-06-01 12:57 J -38905183.10 -38905182.96 -38905182.83 0.0530 0.0067

Mercury -111224-01-17 14:24 J -38903126.04 -38903125.90 -38903125.76 0.0497 0.0277

Mercury -111224-04-17 13:55 J -38903036.07 -38903035.92 -38903035.78 0.0496 0.0255

Venus -111223-11-17 01:41 J -38902457.61 -38902457.43 -38902457.25 0.0495 0.0250

Mercury -111218-03-20 15:50 J -38900872.98 -38900872.84 -38900872.71 0.0530 0.0063

Mars -111218-05-19 20:24 J -38900812.74 -38900812.65 -38900812.55 0.0531 0.0497

Mercury -111218-06-18 02:24 J -38900783.47 -38900783.40 -38900783.33 0.0531 0.0448

Venus -111217-09-24 11:31 J -38900319.18 -38900319.02 -38900318.85 0.0531 0.0288

Mercury -111213-11-05 13:55 J -38898816.01 -38898815.92 -38898815.82 0.0497 0.0407

Mercury -111212-02-03 12:57 J -38898726.12 -38898725.96 -38898725.79 0.0496 0.0118

Venus -111211-07-22 22:05 J -38898191.79 -38898191.58 -38898191.37 0.0494 0.0047

Mercury -111206-01-06 18:43 J -38896562.85 -38896562.72 -38896562.60 0.0530 0.0190

Mercury -111206-04-06 05:45 J -38896473.37 -38896473.26 -38896473.15 0.0531 0.0327

Venus -111205-05-30 07:55 J -38896053.37 -38896053.17 -38896052.97 0.0532 0.0049

Mercury -111201-11-22 12:57 J -38894416.13 -38894415.96 -38894415.79 0.0496 0.0012

Venus -111199-03-27 21:50 J -38893925.74 -38893925.59 -38893925.44 0.0494 0.0333

Earth -111196-02-22 06:14 J -38892863.47 -38892863.24 -38892863.00 0.0515 0.0108

Moon -111196-02-22 07:41 J -38892863.42 -38892863.18 -38892862.93 0.0515 0.0112 \*

Mercury -111195-10-25 21:36 J -38892252.71 -38892252.60 -38892252.48 0.0530 0.0313

Mercury -111194-01-23 09:07 J -38892163.24 -38892163.12 -38892162.99 0.0531 0.0207

Venus -111193-02-03 02:38 J -38891787.52 -38891787.39 -38891787.26 0.0532 0.0393

Mercury -111189-09-10 12:43 J -38890106.13 -38890105.97 -38890105.81 0.0496 0.0143

Mercury -111189-12-09 12:29 J -38890016.08 -38890015.98 -38890015.87 0.0495 0.0393

Venus -111187-07-25 12:57 J -38889423.07 -38889422.96 -38889422.85 0.0495 0.0420

Moon -111184-02-27 06:57 J -38888475.35 -38888475.21 -38888475.07 0.0516 0.0410

Earth -111184-02-27 10:05 J -38888475.23 -38888475.08 -38888474.91 0.0516 0.0381 \*

Mercury -111183-08-14 00:29 J -38887942.55 -38887942.48 -38887942.41 0.0529 0.0441

Mercury -111183-11-11 12:14 J -38887853.13 -38887852.99 -38887852.86 0.0530 0.0082

Venus -111181-06-02 04:05 J -38887284.39 -38887284.33 -38887284.26 0.0531 0.0499

Earth -111179-08-15 22:05 J -38886479.79 -38886479.58 -38886479.37 0.0512 0.0175

Moon -111179-08-16 01:55 J -38886479.64 -38886479.42 -38886479.20 0.0512 0.0158 \*

Mercury -111177-06-29 12:43 J -38885796.11 -38885795.97 -38885795.83 0.0497 0.0271

Mercury -111177-09-27 12:14 J -38885706.13 -38885705.99 -38885705.84 0.0496 0.0261

Venus -111175-03-30 12:29 J -38885157.18 -38885156.98 -38885156.78 0.0495 0.0132

Mercury -111171-08-30 14:38 J -38883543.02 -38883542.89 -38883542.75 0.0530 0.0054

Mercury -111171-11-28 01:26 J -38883453.50 -38883453.44 -38883453.37 0.0531 0.0457

Venus -111169-02-05 21:36 J -38883018.79 -38883018.60 -38883018.41 0.0531 0.0151

Moon -111167-08-20 03:21 J -38882092.55 -38882092.36 -38882092.17 0.0511 0.0284

Earth -111167-08-20 07:12 J -38882092.40 -38882092.20 -38882092.00 0.0511 0.0252 \*

Mercury -111165-04-17 12:57 J -38881486.05 -38881485.96 -38881485.86 0.0497 0.0397

Mercury -111165-07-16 12:00 J -38881396.16 -38881396.00 -38881395.83 0.0496 0.0130

Venus -111164-12-03 11:45 J -38880891.21 -38880891.01 -38880890.81 0.0494 0.0156

Mercury -111159-06-18 17:31 J -38879232.90 -38879232.77 -38879232.64 0.0530 0.0181

Mercury -111159-09-16 04:33 J -38879143.41 -38879143.31 -38879143.20 0.0531 0.0333

Venus -111158-10-11 16:33 J -38878753.00 -38878752.81 -38878752.63 0.0532 0.0195

Mars -111153-04-27 05:31 J -38877093.55 -38877093.27 -38877092.99 0.0496 0.0024

Mercury -111153-05-04 11:31 J -38877086.19 -38877086.02 -38877085.85 0.0496 0.0006

Venus -111152-08-08 09:21 J -38876625.19 -38876625.11 -38876625.01 0.0494 0.0447

Mercury -111147-04-06 20:09 J -38874922.77 -38874922.66 -38874922.55 0.0530 0.0311

Mercury -111147-07-05 07:41 J -38874833.31 -38874833.18 -38874833.06 0.0531 0.0210

Mercury -111141-02-21 11:45 J -38872776.17 -38872776.01 -38872775.85 0.0496 0.0130

Mercury -111141-05-21 11:31 J -38872686.11 -38872686.02 -38872685.92 0.0495 0.0404

Venus -111140-12-05 23:45 J -38872122.67 -38872122.51 -38872122.34 0.0495 0.0303

Mercury -111135-01-23 23:17 J -38870612.61 -38870612.53 -38870612.45 0.0530 0.0435

Mercury -111135-04-23 11:02 J -38870523.17 -38870523.04 -38870522.90 0.0531 0.0089

Venus -111134-10-14 15:21 J -38869984.00 -38869983.86 -38869983.72 0.0531 0.0368

Mercury -111130-12-10 11:31 J -38868466.16 -38868466.02 -38868465.87 0.0496 0.0260

Mercury -111129-03-09 11:02 J -38868376.18 -38868376.04 -38868375.90 0.0495 0.0270

Venus -111128-08-10 23:17 J -38867856.74 -38867856.53 -38867856.32 0.0494 0.0015

Mercury -111123-02-09 14:09 J -38866213.05 -38866212.91 -38866212.77 0.0530 0.0036

Mercury -111123-05-10 00:57 J -38866123.52 -38866123.46 -38866123.40 0.0531 0.0474

Venus -111122-06-19 10:05 J -38865718.28 -38865718.08 -38865717.88 0.0532 0.0023

Mercury -111118-09-28 11:45 J -38864156.11 -38864156.01 -38864155.90 0.0497 0.0386

Mercury -111118-12-27 10:48 J -38864066.21 -38864066.05 -38864065.89 0.0496 0.0139

Venus -111116-04-15 23:31 J -38863590.69 -38863590.52 -38863590.34 0.0494 0.0271

Moon -111113-02-22 12:00 J -38862548.21 -38862548.00 -38862547.77 0.0514 0.0166

Earth -111113-02-22 14:24 J -38862548.12 -38862547.90 -38862547.67 0.0514 0.0163 \*

Mercury -111112-11-28 16:48 J -38861902.94 -38861902.80 -38861902.67 0.0530 0.0169

Mercury -111111-02-26 03:50 J -38861813.45 -38861813.34 -38861813.24 0.0531 0.0346

Venus -111110-02-22 02:53 J -38861452.53 -38861452.38 -38861452.23 0.0532 0.0332  
 Mercury -111106-10-15 10:48 J -38859756.22 -38859756.05 -38859755.88 0.0496 0.0013  
 Venus -111104-08-13 15:07 J -38859087.91 -38859087.87 -38859087.83 0.0495 0.0485  
 Earth -111101-02-27 15:50 J -38858160.03 -38858159.84 -38858159.65 0.0516 0.0315  
 Moon -111101-02-27 19:41 J -38858159.85 -38858159.68 -38858159.50 0.0516 0.0348 \*  
 Mercury -111100-09-16 19:26 J -38857592.81 -38857592.69 -38857592.58 0.0529 0.0298  
 Mars -111100-11-06 20:09 J -38857541.93 -38857541.66 -38857541.39 0.0530 0.0061  
 Mercury -111100-12-15 06:43 J -38857503.34 -38857503.22 -38857503.09 0.0531 0.0221  
 Moon -111096-08-15 05:31 J -38856164.48 -38856164.27 -38856164.06 0.0512 0.0210  
 Earth -111096-08-15 09:21 J -38856164.31 -38856164.11 -38856163.90 0.0512 0.0224 \*  
 Mercury -111094-08-03 10:33 J -38855446.22 -38855446.06 -38855445.90 0.0496 0.0119  
 Mercury -111094-11-01 10:19 J -38855356.16 -38855356.07 -38855355.98 0.0495 0.0415  
 Venus -111092-04-18 11:45 J -38854822.20 -38854822.01 -38854821.82 0.0494 0.0188  
 Mercury -111088-07-05 21:50 J -38853282.67 -38853282.59 -38853282.51 0.0530 0.0431  
 Mercury -111088-10-03 09:36 J -38853193.23 -38853193.10 -38853192.96 0.0531 0.0094  
 Venus -111086-02-25 01:26 J -38852683.62 -38852683.44 -38852683.26 0.0532 0.0230  
 Earth -111084-08-19 21:50 J -38851776.79 -38851776.59 -38851776.38 0.0511 0.0218  
 Moon -111084-08-20 01:26 J -38851776.64 -38851776.44 -38851776.25 0.0511 0.0250 \*  
 Mercury -111082-05-22 11:02 J -38851136.19 -38851136.04 -38851135.90 0.0496 0.0244  
 Mercury -111082-08-20 10:19 J -38851046.21 -38851046.07 -38851045.93 0.0495 0.0285  
 Venus -111081-12-22 11:31 J -38850556.23 -38850556.02 -38850555.82 0.0494 0.0100  
 Mercury -111076-07-22 12:57 J -38848883.10 -38848882.96 -38848882.82 0.0531 0.0028  
 Mercury -111076-10-19 23:45 J -38848793.56 -38848793.51 -38848793.45 0.0532 0.0484  
 Venus -111075-10-30 20:53 J -38848417.82 -38848417.63 -38848417.43 0.0532 0.0113  
 Mercury -111070-03-10 11:02 J -38846826.15 -38846826.04 -38846825.93 0.0497 0.0373  
 Mercury -111070-06-08 09:50 J -38846736.25 -38846736.09 -38846735.93 0.0495 0.0152  
 Venus -111069-08-27 11:31 J -38846290.15 -38846290.02 -38846289.89 0.0494 0.0384  
 Mercury -111064-05-10 16:05 J -38844572.96 -38844572.83 -38844572.70 0.0530 0.0152  
 Mercury -111064-08-08 03:07 J -38844483.46 -38844483.37 -38844483.27 0.0531 0.0363  
 Venus -111063-07-05 15:07 J -38844151.97 -38844151.87 -38844151.77 0.0533 0.0462

Mercury -111058-03-27 09:50 J -38842426.26 -38842426.09 -38842425.92 0.0496 0.0025

Venus -111057-12-25 02:38 J -38841787.52 -38841787.39 -38841787.24 0.0495 0.0371

Mercury -111052-02-26 18:29 J -38840262.84 -38840262.73 -38840262.61 0.0529 0.0285

Mercury -111052-05-27 06:00 J -38840173.37 -38840173.25 -38840173.13 0.0531 0.0235

Venus -111051-11-02 16:19 J -38839648.93 -38839648.82 -38839648.71 0.0531 0.0433

Mercury -111046-01-13 09:50 J -38838116.26 -38838116.09 -38838115.93 0.0496 0.0106

Mercury -111046-04-13 09:36 J -38838026.18 -38838026.10 -38838026.01 0.0495 0.0431

Venus -111045-08-30 02:09 J -38837521.62 -38837521.41 -38837521.21 0.0494 0.0081

Mercury -111041-12-15 21:07 J -38835952.70 -38835952.62 -38835952.53 0.0529 0.0415

Mercury -111040-03-15 08:53 J -38835863.26 -38835863.13 -38835862.99 0.0531 0.0110

Venus -111039-07-08 11:31 J -38835383.22 -38835383.02 -38835382.82 0.0532 0.0090

Mars -111035-10-17 10:05 J -38833821.27 -38833821.08 -38833820.88 0.0496 0.0351

Mercury -111035-11-01 09:50 J -38833806.23 -38833806.09 -38833805.94 0.0496 0.0232

Mercury -111034-01-30 09:21 J -38833716.25 -38833716.11 -38833715.98 0.0495 0.0298

Venus -111033-05-05 00:14 J -38833255.68 -38833255.49 -38833255.30 0.0493 0.0211

Earth -111030-02-21 16:05 J -38832233.04 -38832232.83 -38832232.62 0.0514 0.0242

Moon -111030-02-21 19:12 J -38832232.91 -38832232.70 -38832232.48 0.0514 0.0239 \*

Mercury -111028-01-01 11:45 J -38831553.15 -38831553.01 -38831552.88 0.0531 0.0028

Mercury -111028-03-31 22:33 J -38831463.61 -38831463.56 -38831463.51 0.0532 0.0489

Venus -111027-03-13 06:29 J -38831117.40 -38831117.23 -38831117.05 0.0533 0.0254

Mercury -111023-08-20 10:33 J -38829496.18 -38829496.06 -38829495.95 0.0496 0.0354

Mercury -111023-11-18 09:21 J -38829406.27 -38829406.11 -38829405.95 0.0495 0.0170

Venus -111021-01-09 00:43 J -38828989.47 -38828989.47 -38828989.47 0.0493 0.0493

Moon -111018-02-26 16:05 J -38827845.02 -38827844.83 -38827844.62 0.0516 0.0278

Earth -111018-02-26 20:09 J -38827844.86 -38827844.66 -38827844.44 0.0516 0.0246 \*

Mercury -111017-10-20 14:53 J -38827243.01 -38827242.88 -38827242.75 0.0531 0.0144

Mercury -111016-01-18 02:09 J -38827153.51 -38827153.41 -38827153.32 0.0532 0.0372

Earth -111013-08-14 23:31 J -38825848.71 -38825848.52 -38825848.33 0.0512 0.0264

Moon -111013-08-15 03:07 J -38825848.56 -38825848.37 -38825848.17 0.0512 0.0245 \*

Mercury -111011-06-08 10:33 J -38825186.09 -38825186.06 -38825186.02 0.0497 0.0482

Mercury -111011-09-06 08:53 J -38825096.29 -38825096.13 -38825095.96 0.0495 0.0040

Venus -111009-05-07 14:24 J -38824487.07 -38824486.90 -38824486.72 0.0494 0.0256

Mercury -111005-08-08 18:00 J -38822932.87 -38822932.75 -38822932.63 0.0530 0.0269

Mercury -111005-11-06 05:31 J -38822843.39 -38822843.27 -38822843.15 0.0531 0.0251

Venus -111003-03-16 05:17 J -38822348.44 -38822348.28 -38822348.12 0.0532 0.0309

Moon -111001-08-19 06:29 J -38821461.45 -38821461.23 -38821461.02 0.0511 0.0194

Earth -111001-08-19 09:21 J -38821461.33 -38821461.11 -38821460.90 0.0511 0.0167 \*

# 111TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 111th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-110999-06-25 08:53 J	-38820786.29	-38820786.13	-38820785.96	0.0496	0.0093		
Mars	-110999-07-22 23:45 J	-38820758.76	-38820758.51	-38820758.26	0.0496	0.0197		
Mercury	-110999-09-23 08:38 J	-38820696.21	-38820696.14	-38820696.06	0.0495	0.0444		
Venus	-110997-01-11 14:09 J	-38820221.11	-38820220.91	-38820220.70	0.0494	0.0034		
Mercury	-110993-05-27 20:38 J	-38818622.73	-38818622.64	-38818622.55	0.0529	0.0400		
Mercury	-110993-08-25 08:24 J	-38818533.29	-38818533.15	-38818533.02	0.0531	0.0123		
Venus	-110992-11-18 22:33 J	-38818082.75	-38818082.56	-38818082.36	0.0532	0.0045		
Mercury	-110987-04-13 09:07 J	-38816476.27	-38816476.12	-38816475.97	0.0496	0.0219		
Mercury	-110987-07-12 08:24 J	-38816386.28	-38816386.15	-38816386.01	0.0495	0.0313		



Venus -110986-09-16 14:24 J -38815955.05 -38815954.90 -38815954.74 0.0494 0.0318  
 Mars -110981-04-27 05:02 J -38814270.49 -38814270.29 -38814270.09 0.0530 0.0354  
 Mercury -110981-06-13 11:02 J -38814223.17 -38814223.04 -38814222.90 0.0530 0.0018  
 Mercury -110981-09-10 21:50 J -38814133.62 -38814133.59 -38814133.54 0.0532 0.0504  
 Venus -110980-07-24 16:33 J -38813816.94 -38813816.81 -38813816.67 0.0533 0.0395  
 Mercury -110975-01-30 09:21 J -38812166.22 -38812166.11 -38812165.98 0.0496 0.0343  
 Mercury -110975-04-30 08:24 J -38812076.31 -38812076.15 -38812075.99 0.0495 0.0183  
 Venus -110973-01-14 03:21 J -38811452.45 -38811452.36 -38811452.25 0.0494 0.0434  
 Mercury -110969-04-01 13:26 J -38809913.07 -38809912.94 -38809912.80 0.0531 0.0140  
 Mercury -110969-06-30 00:43 J -38809823.56 -38809823.47 -38809823.37 0.0532 0.0377  
 Venus -110968-11-21 19:41 J -38809313.72 -38809313.68 -38809313.62 0.0532 0.0514  
 Mercury -110964-11-18 10:19 J -38807856.13 -38807856.07 -38807856.02 0.0497 0.0463  
 Mercury -110963-02-16 08:38 J -38807766.31 -38807766.14 -38807765.97 0.0495 0.0057  
 Venus -110962-09-19 03:07 J -38807186.57 -38807186.37 -38807186.17 0.0494 0.0144  
 Mercury -110957-01-19 16:48 J -38805602.92 -38805602.80 -38805602.68 0.0530 0.0264  
 Mercury -110957-04-18 04:05 J -38805513.44 -38805513.33 -38805513.21 0.0532 0.0259  
 Venus -110956-07-27 15:50 J -38805048.03 -38805047.84 -38805047.65 0.0532 0.0174  
 Mercury -110952-12-05 08:09 J -38803456.32 -38803456.16 -38803455.99 0.0496 0.0077  
 Mercury -110951-03-05 07:55 J -38803366.23 -38803366.17 -38803366.10 0.0495 0.0459  
 Venus -110950-05-25 02:24 J -38802920.59 -38802920.40 -38802920.20 0.0494 0.0146  
 Moon -110947-02-20 23:31 J -38801917.71 -38801917.52 -38801917.32 0.0514 0.0283  
 Earth -110947-02-21 03:21 J -38801917.56 -38801917.36 -38801917.16 0.0514 0.0286 \*  
 Mercury -110946-11-07 19:41 J -38801292.77 -38801292.68 -38801292.58 0.0530 0.0388  
 Mars -110945-02-01 23:45 J -38801206.71 -38801206.51 -38801206.29 0.0531 0.0336  
 Mercury -110945-02-05 07:41 J -38801203.32 -38801203.18 -38801203.05 0.0531 0.0138  
 Venus -110944-04-01 10:33 J -38800782.24 -38800782.06 -38800781.87 0.0533 0.0175  
 Mercury -110940-09-23 08:24 J -38799146.30 -38799146.15 -38799146.00 0.0496 0.0205  
 Mercury -110940-12-22 07:41 J -38799056.31 -38799056.18 -38799056.05 0.0495 0.0326  
 Venus -110938-01-28 02:53 J -38798654.48 -38798654.38 -38798654.28 0.0494 0.0430  
 Earth -110935-02-26 06:57 J -38797529.43 -38797529.21 -38797528.98 0.0515 0.0201

Moon -110935-02-26 11:02 J -38797529.25 -38797529.04 -38797528.83 0.0515 0.0236 \*  
 Mercury -110934-08-26 22:19 J -38796982.60 -38796982.57 -38796982.55 0.0529 0.0519  
 Mercury -110934-11-24 10:19 J -38796893.21 -38796893.07 -38796892.93 0.0530 0.0009  
 Mercury -110933-02-21 21:07 J -38796803.65 -38796803.62 -38796803.59 0.0532 0.0517  
 Venus -110933-12-05 03:07 J -38796516.38 -38796516.37 -38796516.35 0.0533 0.0531  
 Moon -110930-08-15 06:29 J -38795533.41 -38795533.23 -38795533.04 0.0513 0.0302  
 Earth -110930-08-15 09:50 J -38795533.26 -38795533.09 -38795532.91 0.0513 0.0318 \*  
 Mercury -110928-07-12 08:24 J -38794836.27 -38794836.15 -38794836.02 0.0497 0.0331  
 Mercury -110928-10-10 07:26 J -38794746.35 -38794746.19 -38794746.03 0.0495 0.0195  
 Venus -110926-05-27 17:17 J -38794151.94 -38794151.78 -38794151.62 0.0495 0.0325  
 Mercury -110922-09-12 13:12 J -38792583.09 -38792582.95 -38792582.82 0.0530 0.0124  
 Mercury -110922-12-11 00:14 J -38792493.58 -38792493.49 -38792493.40 0.0531 0.0392  
 Venus -110920-04-04 06:29 J -38792013.37 -38792013.23 -38792013.09 0.0532 0.0377  
 Earth -110918-08-19 21:50 J -38791145.81 -38791145.59 -38791145.37 0.0511 0.0123  
 Moon -110918-08-19 23:17 J -38791145.73 -38791145.53 -38791145.31 0.0511 0.0148 \*  
 Mercury -110916-04-30 09:07 J -38790526.18 -38790526.12 -38790526.05 0.0497 0.0452  
 Mercury -110916-07-29 07:26 J -38790436.35 -38790436.19 -38790436.02 0.0495 0.0069  
 Venus -110914-01-30 15:21 J -38789886.07 -38789885.86 -38789885.65 0.0493 0.0032  
 Mercury -110910-07-01 15:07 J -38788272.99 -38788272.87 -38788272.75 0.0530 0.0260  
 Mercury -110910-09-29 02:38 J -38788183.50 -38788183.39 -38788183.27 0.0532 0.0262  
 Venus -110909-12-08 00:57 J -38787747.66 -38787747.46 -38787747.27 0.0533 0.0032  
 Mercury -110904-05-17 07:55 J -38786126.34 -38786126.17 -38786126.01 0.0495 0.0059  
 Mercury -110904-08-15 07:26 J -38786036.23 -38786036.19 -38786036.14 0.0494 0.0476  
 Venus -110903-10-05 15:36 J -38785620.02 -38785619.85 -38785619.67 0.0493 0.0255  
 Mercury -110898-04-19 18:14 J -38783962.84 -38783962.74 -38783962.65 0.0530 0.0385  
 Mercury -110898-07-18 06:00 J -38783873.38 -38783873.25 -38783873.11 0.0531 0.0141  
 Venus -110897-08-12 19:41 J -38783481.83 -38783481.68 -38783481.51 0.0533 0.0318  
 Mercury -110892-03-05 07:26 J -38781816.34 -38781816.19 -38781816.03 0.0496 0.0191  
 Mercury -110892-06-03 06:43 J -38781726.34 -38781726.22 -38781726.09 0.0495 0.0340  
 Mercury -110886-02-05 21:07 J -38779652.65 -38779652.62 -38779652.58 0.0529 0.0510

Mercury -110886-05-06 09:21 J -38779563.25 -38779563.11 -38779562.97 0.0531 0.0019  
 Mercury -110886-08-03 20:09 J -38779473.67 -38779473.66 -38779473.64 0.0532 0.0529  
 Mercury -110881-12-22 07:41 J -38777506.31 -38777506.18 -38777506.05 0.0496 0.0318  
 Mars -110880-01-11 05:17 J -38777486.54 -38777486.28 -38777486.01 0.0496 0.0129  
 Mercury -110880-03-22 06:29 J -38777416.38 -38777416.23 -38777416.08 0.0495 0.0207  
 Venus -110879-10-08 05:02 J -38776851.48 -38776851.29 -38776851.10 0.0494 0.0209  
 Mercury -110874-02-22 12:14 J -38775253.13 -38775252.99 -38775252.86 0.0530 0.0112  
 Mercury -110874-05-22 23:17 J -38775163.62 -38775163.53 -38775163.44 0.0531 0.0403  
 Venus -110873-08-15 16:48 J -38774712.97 -38774712.80 -38774712.62 0.0532 0.0242  
 Mercury -110869-10-10 07:55 J -38773196.24 -38773196.17 -38773196.10 0.0497 0.0444  
 Mercury -110868-01-08 06:14 J -38773106.40 -38773106.24 -38773106.07 0.0496 0.0077  
 Venus -110867-06-13 04:33 J -38772585.51 -38772585.31 -38772585.10 0.0494 0.0080  
 Earth -110864-02-20 10:05 J -38771602.25 -38771602.08 -38771601.90 0.0513 0.0346  
 Moon -110864-02-20 14:09 J -38771602.09 -38771601.91 -38771601.72 0.0513 0.0334 \*  
 Mercury -110863-12-11 14:38 J -38770943.01 -38770942.89 -38770942.76 0.0530 0.0243  
 Mercury -110862-03-11 02:09 J -38770853.52 -38770853.41 -38770853.29 0.0531 0.0276  
 Venus -110861-04-20 11:17 J -38770447.23 -38770447.03 -38770446.84 0.0533 0.0111  
 Mercury -110857-10-27 06:29 J -38768796.39 -38768796.23 -38768796.06 0.0496 0.0050  
 Mercury -110856-01-25 06:14 J -38768706.26 -38768706.24 -38768706.21 0.0494 0.0486  
 Venus -110855-02-16 04:05 J -38768319.46 -38768319.33 -38768319.19 0.0493 0.0367  
 Moon -110852-02-25 03:07 J -38767214.60 -38767214.37 -38767214.13 0.0515 0.0143  
 Earth -110852-02-25 06:57 J -38767214.44 -38767214.21 -38767213.97 0.0515 0.0111 \*  
 Mercury -110851-09-29 16:33 J -38766632.90 -38766632.81 -38766632.71 0.0530 0.0384  
 Mercury -110851-12-28 04:33 J -38766543.44 -38766543.31 -38766543.18 0.0531 0.0142  
 Venus -110850-12-25 03:36 J -38766181.44 -38766181.35 -38766181.25 0.0534 0.0467  
 Earth -110847-08-15 00:00 J -38765217.66 -38765217.50 -38765217.34 0.0513 0.0359  
 Moon -110847-08-15 02:09 J -38765217.57 -38765217.41 -38765217.24 0.0513 0.0339 \*  
 Mercury -110845-08-15 06:57 J -38764486.37 -38764486.21 -38764486.06 0.0496 0.0174  
 Mars -110845-10-16 19:55 J -38764423.80 -38764423.67 -38764423.53 0.0495 0.0429  
 Mercury -110845-11-13 06:14 J -38764396.36 -38764396.24 -38764396.12 0.0495 0.0356

Venus -110843-06-15 17:45 J -38763816.89 -38763816.76 -38763816.63 0.0494 0.0386  
 Mercury -110839-07-18 19:26 J -38762322.72 -38762322.69 -38762322.66 0.0530 0.0511  
 Mercury -110839-10-16 07:41 J -38762233.32 -38762233.18 -38762233.04 0.0531 0.0018  
 Mercury -110838-01-13 18:43 J -38762143.73 -38762143.72 -38762143.71 0.0532 0.0529  
 Venus -110837-04-23 08:24 J -38761678.25 -38761678.15 -38761678.04 0.0532 0.0452  
 Moon -110835-08-19 09:21 J -38760830.34 -38760830.11 -38760829.88 0.0512 0.0092  
 Earth -110835-08-19 09:36 J -38760830.32 -38760830.10 -38760829.87 0.0512 0.0073 \*  
 Mercury -110833-06-03 06:29 J -38760176.35 -38760176.23 -38760176.09 0.0496 0.0307  
 Mercury -110833-09-01 05:31 J -38760086.42 -38760086.27 -38760086.12 0.0495 0.0219  
 Venus -110831-02-18 16:19 J -38759551.02 -38759550.82 -38759550.61 0.0494 0.0094  
 Mars -110827-07-22 20:53 J -38757935.89 -38757935.63 -38757935.36 0.0530 0.0114  
 Mercury -110827-08-04 10:48 J -38757923.18 -38757923.05 -38757922.91 0.0531 0.0106  
 Mercury -110827-11-01 22:05 J -38757833.66 -38757833.58 -38757833.49 0.0532 0.0411  
 Venus -110826-12-28 03:36 J -38757412.54 -38757412.35 -38757412.15 0.0533 0.0106  
 Moon -110823-08-23 17:45 J -38756442.83 -38756442.76 -38756442.69 0.0510 0.0481  
 Earth -110823-08-23 18:57 J -38756442.75 -38756442.71 -38756442.67 0.0510 0.0499 \*  
 Mercury -110821-03-22 06:43 J -38755866.29 -38755866.22 -38755866.14 0.0497 0.0433  
 Mercury -110821-06-20 05:02 J -38755776.45 -38755776.29 -38755776.12 0.0495 0.0088  
 Venus -110820-10-24 16:19 J -38755285.01 -38755284.82 -38755284.63 0.0493 0.0197  
 Mercury -110815-05-23 13:26 J -38753613.06 -38753612.94 -38753612.81 0.0530 0.0236  
 Mercury -110815-08-21 00:57 J -38753523.57 -38753523.46 -38753523.34 0.0531 0.0284  
 Venus -110814-09-01 20:38 J -38753146.82 -38753146.64 -38753146.47 0.0533 0.0252  
 Mercury -110809-04-08 05:02 J -38751466.46 -38751466.29 -38751466.13 0.0496 0.0044  
 Mercury -110809-07-07 04:48 J -38751376.31 -38751376.30 -38751376.29 0.0495 0.0492  
 Venus -110808-06-29 16:33 J -38751018.85 -38751018.81 -38751018.77 0.0493 0.0482  
 Mercury -110803-03-11 16:05 J -38749302.93 -38749302.83 -38749302.74 0.0530 0.0369  
 Mercury -110803-06-09 03:50 J -38749213.47 -38749213.34 -38749213.21 0.0531 0.0155  
 Mercury -110797-01-26 05:17 J -38747156.43 -38747156.28 -38747156.12 0.0496 0.0168  
 Mercury -110797-04-25 04:33 J -38747066.42 -38747066.31 -38747066.19 0.0495 0.0363  
 Venus -110796-10-27 05:17 J -38746516.45 -38746516.28 -38746516.10 0.0494 0.0271

Mercury -110792-12-28 17:31 J -38744992.80 -38744992.77 -38744992.73 0.0529 0.0513  
 Mercury -110791-03-28 06:00 J -38744903.39 -38744903.25 -38744903.12 0.0531 0.0024  
 Mercury -110791-06-25 16:48 J -38744813.81 -38744813.80 -38744813.78 0.0532 0.0528  
 Venus -110790-09-04 16:19 J -38744377.98 -38744377.82 -38744377.66 0.0533 0.0304  
 Mercury -110786-11-14 05:45 J -38742846.39 -38742846.26 -38742846.13 0.0496 0.0293  
 Mercury -110785-02-12 04:33 J -38742756.46 -38742756.31 -38742756.16 0.0495 0.0233  
 Venus -110784-07-02 04:48 J -38742250.51 -38742250.30 -38742250.09 0.0493 0.0021  
 Moon -110781-02-20 05:17 J -38741287.41 -38741287.28 -38741287.15 0.0513 0.0432  
 Earth -110781-02-20 09:21 J -38741287.23 -38741287.11 -38741286.99 0.0513 0.0438 \*  
 Mercury -110779-01-14 08:53 J -38740593.26 -38740593.13 -38740592.99 0.0531 0.0109  
 Mercury -110779-04-13 20:09 J -38740503.74 -38740503.66 -38740503.57 0.0532 0.0407  
 Venus -110778-05-10 11:17 J -38740112.23 -38740112.03 -38740111.83 0.0533 0.0045  
 Mercury -110774-09-02 05:31 J -38738536.35 -38738536.27 -38738536.19 0.0496 0.0424  
 Mercury -110774-12-01 03:50 J -38738446.51 -38738446.34 -38738446.17 0.0495 0.0095  
 Venus -110772-03-07 03:50 J -38737984.50 -38737984.34 -38737984.18 0.0493 0.0313  
 Earth -110769-02-25 12:57 J -38736899.20 -38736898.96 -38736898.72 0.0515 0.0046  
 Moon -110769-02-25 16:19 J -38736899.06 -38736898.82 -38736898.59 0.0515 0.0081 \*  
 Mercury -110768-11-02 12:00 J -38736283.12 -38736283.00 -38736282.88 0.0530 0.0233  
 Mercury -110767-01-30 23:31 J -38736193.63 -38736193.52 -38736193.40 0.0532 0.0287  
 Venus -110766-01-13 05:31 J -38735846.40 -38735846.27 -38735846.13 0.0533 0.0398  
 Moon -110764-08-14 06:00 J -38734902.38 -38734902.25 -38734902.10 0.0513 0.0406  
 Earth -110764-08-14 07:12 J -38734902.31 -38734902.20 -38734902.07 0.0513 0.0429 \*  
 Mars -110762-07-02 23:31 J -38734214.57 -38734214.52 -38734214.46 0.0497 0.0487  
 Mercury -110762-09-19 03:36 J -38734136.52 -38734136.35 -38734136.18 0.0496 0.0037  
 Venus -110760-07-04 17:17 J -38733481.87 -38733481.78 -38733481.69 0.0494 0.0443  
 Mercury -110756-08-21 14:38 J -38731972.99 -38731972.89 -38731972.79 0.0530 0.0364  
 Mercury -110756-11-19 02:24 J -38731883.53 -38731883.40 -38731883.27 0.0531 0.0160  
 Venus -110754-05-13 07:41 J -38731343.23 -38731343.18 -38731343.12 0.0532 0.0512  
 Moon -110752-08-18 14:38 J -38730515.11 -38730514.89 -38730514.67 0.0512 0.0016  
 Earth -110752-08-18 15:21 J -38730515.09 -38730514.86 -38730514.64 0.0512 0.0010 \*

Mercury -110750-07-08 03:21 J -38729826.51 -38729826.36 -38729826.20 0.0496 0.0168  
 Mercury -110750-10-06 02:38 J -38729736.50 -38729736.39 -38729736.27 0.0495 0.0363  
 Venus -110748-03-09 16:19 J -38729216.01 -38729215.82 -38729215.62 0.0494 0.0151  
 Mercury -110744-06-09 16:48 J -38727662.84 -38727662.80 -38727662.75 0.0529 0.0499  
 Mercury -110744-09-07 05:02 J -38727573.43 -38727573.29 -38727573.15 0.0531 0.0028  
 Venus -110742-01-16 01:41 J -38727077.62 -38727077.43 -38727077.24 0.0533 0.0160  
 Earth -110740-08-23 01:41 J -38726127.54 -38726127.43 -38726127.30 0.0511 0.0432  
 Moon -110740-08-23 03:50 J -38726127.47 -38726127.34 -38726127.20 0.0511 0.0410 \*  
 Mercury -110738-04-26 03:50 J -38725516.47 -38725516.34 -38725516.20 0.0496 0.0291  
 Mercury -110738-07-25 02:38 J -38725426.54 -38725426.39 -38725426.24 0.0495 0.0235  
 Venus -110737-11-12 16:05 J -38724950.03 -38724949.83 -38724949.63 0.0493 0.0138  
 Mercury -110732-06-26 06:57 J -38723263.35 -38723263.21 -38723263.08 0.0531 0.0114  
 Mercury -110732-09-23 18:14 J -38723173.83 -38723173.74 -38723173.66 0.0532 0.0403  
 Venus -110731-09-20 17:45 J -38722811.95 -38722811.76 -38722811.58 0.0534 0.0202  
 Mercury -110726-02-12 04:19 J -38721206.41 -38721206.32 -38721206.23 0.0497 0.0415  
 Mars -110726-04-07 14:53 J -38721152.15 -38721151.88 -38721151.60 0.0496 0.0076  
 Mercury -110726-05-13 02:38 J -38721116.55 -38721116.39 -38721116.22 0.0495 0.0105  
 Venus -110725-07-18 16:05 J -38720683.93 -38720683.83 -38720683.72 0.0493 0.0427  
 Mercury -110720-04-14 09:36 J -38718953.22 -38718953.10 -38718952.97 0.0530 0.0243  
 Mercury -110720-07-12 21:21 J -38718863.73 -38718863.61 -38718863.50 0.0532 0.0279  
 Mercury -110714-03-01 01:55 J -38716806.59 -38716806.42 -38716806.25 0.0495 0.0032  
 Venus -110713-11-15 03:21 J -38716181.51 -38716181.36 -38716181.20 0.0494 0.0322  
 Mercury -110708-01-31 12:43 J -38714643.07 -38714642.97 -38714642.87 0.0530 0.0367  
 Mercury -110708-05-01 00:43 J -38714553.60 -38714553.47 -38714553.34 0.0531 0.0158  
 Venus -110707-09-23 16:33 J -38714042.95 -38714042.81 -38714042.67 0.0532 0.0368  
 Mercury -110703-12-18 01:41 J -38712496.59 -38712496.43 -38712496.27 0.0496 0.0164  
 Mercury -110702-03-18 00:57 J -38712406.57 -38712406.46 -38712406.35 0.0495 0.0366  
 Venus -110701-07-21 02:24 J -38711915.60 -38711915.40 -38711915.19 0.0493 0.0030  
 Earth -110698-02-19 12:57 J -38710971.98 -38710971.96 -38710971.93 0.0512 0.0509  
 Moon -110698-02-19 17:02 J -38710971.84 -38710971.79 -38710971.74 0.0512 0.0500

Mercury -110697-11-19 15:07 J -38710332.91 -38710332.87 -38710332.82 0.0529 0.0499  
 Mercury -110696-02-17 03:21 J -38710243.49 -38710243.36 -38710243.22 0.0531 0.0031  
 Venus -110695-05-29 09:50 J -38709777.29 -38709777.09 -38709776.89 0.0533 0.0012  
 Mercury -110691-10-06 01:26 J -38708186.57 -38708186.44 -38708186.30 0.0496 0.0295  
 Mercury -110690-01-04 00:14 J -38708096.64 -38708096.49 -38708096.34 0.0495 0.0232  
 Venus -110689-03-26 02:24 J -38707649.58 -38707649.40 -38707649.23 0.0493 0.0262  
 Moon -110686-02-24 11:17 J -38706584.27 -38706584.03 -38706583.78 0.0514 0.0009  
 Earth -110686-02-24 14:24 J -38706584.14 -38706583.90 -38706583.66 0.0514 0.0037 \*  
 Mercury -110685-12-06 06:00 J -38705933.39 -38705933.25 -38705933.12 0.0530 0.0105  
 Mercury -110684-03-05 17:02 J -38705843.87 -38705843.79 -38705843.70 0.0532 0.0411  
 Venus -110683-02-01 02:24 J -38705511.55 -38705511.40 -38705511.25 0.0533 0.0349  
 Moon -110681-08-13 11:17 J -38704587.09 -38704587.03 -38704586.96 0.0514 0.0488  
 Earth -110681-08-13 11:02 J -38704587.05 -38704587.04 -38704587.01 0.0514 0.0512 \*  
 Mercury -110679-07-25 02:09 J -38703876.50 -38703876.41 -38703876.32 0.0497 0.0417  
 Mercury -110679-10-23 00:29 J -38703786.65 -38703786.48 -38703786.32 0.0495 0.0104  
 Earth -110674-03-01 11:17 J -38702196.17 -38702196.03 -38702195.90 0.0515 0.0421  
 Moon -110674-03-01 12:00 J -38702196.12 -38702196.00 -38702195.86 0.0515 0.0422 \*  
 Mercury -110673-09-24 07:26 J -38701623.31 -38701623.19 -38701623.06 0.0530 0.0249  
 Mars -110673-10-15 04:48 J -38701602.57 -38701602.30 -38701602.03 0.0530 0.0044  
 Mercury -110673-12-22 19:12 J -38701533.82 -38701533.70 -38701533.58 0.0531 0.0272  
 Earth -110669-08-17 21:36 J -38700199.83 -38700199.60 -38700199.38 0.0513 0.0077  
 Moon -110669-08-17 23:17 J -38700199.77 -38700199.53 -38700199.30 0.0513 0.0059 \*  
 Mercury -110667-08-11 00:29 J -38699476.65 -38699476.48 -38699476.31 0.0496 0.0026  
 Venus -110665-03-28 14:38 J -38698881.08 -38698880.89 -38698880.70 0.0493 0.0203  
 Mercury -110661-07-13 10:05 J -38697313.17 -38697313.08 -38697312.98 0.0530 0.0380  
 Mercury -110661-10-10 22:05 J -38697223.71 -38697223.58 -38697223.45 0.0531 0.0147  
 Venus -110659-02-03 22:19 J -38696742.75 -38696742.57 -38696742.39 0.0533 0.0210  
 Moon -110657-08-22 04:05 J -38695812.49 -38695812.33 -38695812.16 0.0511 0.0331  
 Earth -110657-08-22 06:43 J -38695812.38 -38695812.22 -38695812.06 0.0511 0.0351 \*  
 Mercury -110655-05-29 23:45 J -38695166.67 -38695166.51 -38695166.35 0.0496 0.0163

Mercury -110655-08-27 22:48 J -38695076.66 -38695076.55 -38695076.43 0.0495 0.0366

Venus -110654-12-02 12:29 J -38694615.18 -38694614.98 -38694614.77 0.0493 0.0096

Mercury -110649-05-01 12:57 J -38693002.99 -38693002.96 -38693002.92 0.0529 0.0506

Mercury -110649-07-30 01:26 J -38692913.58 -38692913.44 -38692913.31 0.0531 0.0025

Venus -110648-10-09 17:02 J -38692476.98 -38692476.79 -38692476.59 0.0533 0.0143

Mercury -110643-03-17 23:31 J -38690856.65 -38690856.52 -38690856.38 0.0496 0.0294

Mercury -110643-06-15 22:19 J -38690766.72 -38690766.57 -38690766.42 0.0495 0.0231

Venus -110642-08-07 12:14 J -38690349.12 -38690348.99 -38690348.86 0.0493 0.0387

Mercury -110637-05-18 04:05 J -38688603.47 -38688603.33 -38688603.19 0.0530 0.0106

Mercury -110637-08-15 15:21 J -38688513.94 -38688513.86 -38688513.77 0.0532 0.0409

Venus -110636-06-14 09:21 J -38688211.17 -38688211.11 -38688211.04 0.0533 0.0503

Mercury -110631-01-03 23:31 J -38686546.60 -38686546.52 -38686546.43 0.0497 0.0423

Mercury -110631-04-03 21:50 J -38686456.76 -38686456.59 -38686456.43 0.0495 0.0097

Venus -110630-12-05 00:57 J -38685846.59 -38685846.46 -38685846.32 0.0494 0.0371

Mercury -110625-03-06 06:29 J -38684293.36 -38684293.23 -38684293.11 0.0530 0.0241

Mercury -110625-06-03 18:00 J -38684203.86 -38684203.75 -38684203.63 0.0531 0.0279

Venus -110624-10-12 12:00 J -38683708.11 -38683708.00 -38683707.87 0.0532 0.0414

Mercury -110619-01-20 21:50 J -38682146.75 -38682146.59 -38682146.42 0.0496 0.0033

Venus -110618-08-10 00:29 J -38681580.69 -38681580.48 -38681580.27 0.0493 0.0079

Mercury -110614-12-24 07:55 J -38679983.26 -38679983.17 -38679983.07 0.0529 0.0387

Mercury -110613-03-22 19:55 J -38679893.80 -38679893.67 -38679893.54 0.0531 0.0139

Venus -110612-06-17 03:50 J -38679442.54 -38679442.34 -38679442.14 0.0533 0.0050

Mars -110608-09-25 15:36 J -38677881.06 -38677880.85 -38677880.64 0.0497 0.0322

Mercury -110608-11-08 22:05 J -38677836.74 -38677836.58 -38677836.43 0.0496 0.0160

Mercury -110607-02-06 21:07 J -38677746.73 -38677746.62 -38677746.51 0.0495 0.0370

Venus -110606-04-15 00:00 J -38677314.68 -38677314.50 -38677314.31 0.0493 0.0214

Earth -110603-02-23 08:09 J -38676269.39 -38676269.16 -38676268.93 0.0513 0.0149

Moon -110603-02-23 10:33 J -38676269.28 -38676269.06 -38676268.83 0.0513 0.0117 \*

Mercury -110602-10-12 10:19 J -38675673.09 -38675673.07 -38675673.05 0.0529 0.0520

Mercury -110601-01-09 22:48 J -38675583.69 -38675583.55 -38675583.41 0.0531 0.0012



Mercury -110601-04-08 09:50 J -38675494.11 -38675494.09 -38675494.07 0.0532 0.0521  
 Venus -110600-02-19 21:36 J -38675176.76 -38675176.60 -38675176.44 0.0534 0.0308  
 Mercury -110596-08-27 21:21 J -38673526.74 -38673526.61 -38673526.48 0.0496 0.0296  
 Mercury -110596-11-25 19:55 J -38673436.82 -38673436.67 -38673436.52 0.0495 0.0228  
 Moon -110591-02-28 09:50 J -38671881.28 -38671881.09 -38671880.89 0.0515 0.0324  
 Earth -110591-02-28 09:50 J -38671881.27 -38671881.09 -38671880.91 0.0515 0.0328 \*  
 Mercury -110590-10-29 01:41 J -38671273.56 -38671273.43 -38671273.29 0.0531 0.0117  
 Mercury -110589-01-26 13:12 J -38671184.04 -38671183.95 -38671183.86 0.0532 0.0402  
 Moon -110586-08-17 21:36 J -38669884.80 -38669884.60 -38669884.38 0.0513 0.0147  
 Earth -110586-08-18 00:00 J -38669884.72 -38669884.50 -38669884.29 0.0513 0.0165 \*  
 Mercury -110584-06-15 21:21 J -38669216.69 -38669216.61 -38669216.52 0.0497 0.0425  
 Mercury -110584-09-13 19:26 J -38669126.85 -38669126.69 -38669126.52 0.0495 0.0095  
 Venus -110582-04-17 09:50 J -38668546.27 -38668546.09 -38668545.90 0.0494 0.0242  
 Mercury -110578-08-17 04:33 J -38666963.44 -38666963.31 -38666963.19 0.0530 0.0245  
 Mercury -110578-11-14 16:05 J -38666873.94 -38666873.83 -38666873.71 0.0531 0.0276  
 Venus -110576-02-22 19:41 J -38666407.86 -38666407.68 -38666407.51 0.0533 0.0262  
 Earth -110574-08-22 07:12 J -38665497.39 -38665497.20 -38665497.00 0.0511 0.0258  
 Moon -110574-08-22 10:19 J -38665497.27 -38665497.07 -38665496.86 0.0511 0.0237 \*  
 Mars -110572-06-30 17:17 J -38664819.02 -38664818.78 -38664818.52 0.0496 0.0209  
 Mercury -110572-07-02 19:12 J -38664816.87 -38664816.70 -38664816.54 0.0496 0.0042  
 Mercury -110572-09-30 18:43 J -38664726.73 -38664726.72 -38664726.72 0.0495 0.0494  
 Venus -110571-12-21 09:07 J -38664280.32 -38664280.12 -38664279.91 0.0493 0.0052  
 Mercury -110566-06-05 06:43 J -38662653.32 -38662653.22 -38662653.12 0.0529 0.0380  
 Mercury -110566-09-02 18:43 J -38662563.85 -38662563.72 -38662563.59 0.0531 0.0144  
 Venus -110565-10-28 12:29 J -38662142.18 -38662141.98 -38662141.79 0.0533 0.0100  
 Mercury -110560-04-20 19:12 J -38660506.85 -38660506.70 -38660506.54 0.0496 0.0168  
 Mercury -110560-07-19 18:29 J -38660416.85 -38660416.73 -38660416.62 0.0495 0.0363  
 Venus -110559-08-26 09:36 J -38660014.25 -38660014.10 -38660013.95 0.0493 0.0340  
 Mercury -110554-03-24 08:09 J -38658343.17 -38658343.16 -38658343.15 0.0529 0.0526  
 Mars -110554-04-04 08:53 J -38658332.26 -38658332.13 -38658332.00 0.0529 0.0459

Mercury -110554-06-21 20:38 J -38658253.78 -38658253.64 -38658253.51 0.0530 0.0014

Mercury -110554-09-19 07:26 J -38658164.21 -38658164.19 -38658164.15 0.0532 0.0514

Venus -110553-07-03 02:38 J -38657876.48 -38657876.39 -38657876.30 0.0533 0.0472

Mercury -110548-02-06 19:26 J -38656196.82 -38656196.69 -38656196.56 0.0497 0.0295

Mercury -110548-05-07 18:00 J -38656106.89 -38656106.75 -38656106.60 0.0495 0.0231

Venus -110547-12-23 21:50 J -38655511.69 -38655511.59 -38655511.47 0.0494 0.0418

Mercury -110542-04-09 23:17 J -38653943.67 -38653943.53 -38653943.40 0.0530 0.0130

Mercury -110542-07-08 10:33 J -38653854.15 -38653854.06 -38653853.97 0.0532 0.0388

Venus -110541-10-31 06:57 J -38653373.31 -38653373.21 -38653373.11 0.0533 0.0454

Mercury -110537-11-25 18:57 J -38651886.79 -38651886.71 -38651886.63 0.0497 0.0429

Mercury -110536-02-23 17:02 J -38651796.95 -38651796.79 -38651796.62 0.0495 0.0090

Venus -110535-08-28 18:57 J -38651245.91 -38651245.71 -38651245.51 0.0493 0.0114

Mercury -110530-01-27 02:09 J -38649633.53 -38649633.41 -38649633.29 0.0530 0.0255

Mercury -110530-04-26 13:55 J -38649544.04 -38649543.92 -38649543.81 0.0532 0.0267

Venus -110529-07-06 02:09 J -38649107.61 -38649107.41 -38649107.22 0.0533 0.0104

Mercury -110525-12-12 16:48 J -38647486.97 -38647486.80 -38647486.63 0.0496 0.0043

Mercury -110524-03-12 16:19 J -38647396.84 -38647396.82 -38647396.80 0.0494 0.0490

Venus -110523-05-03 18:14 J -38646979.93 -38646979.74 -38646979.54 0.0493 0.0181

Moon -110520-02-22 05:02 J -38645954.52 -38645954.29 -38645954.06 0.0513 0.0210

Earth -110520-02-22 06:43 J -38645954.43 -38645954.22 -38645954.00 0.0513 0.0240 \*

Mercury -110519-11-15 04:33 J -38645323.40 -38645323.31 -38645323.21 0.0529 0.0385

Mars -110518-01-08 19:26 J -38645268.93 -38645268.69 -38645268.44 0.0530 0.0215

Mercury -110518-02-12 16:48 J -38645233.93 -38645233.80 -38645233.67 0.0531 0.0141

Venus -110517-03-10 19:12 J -38644841.87 -38644841.70 -38644841.52 0.0533 0.0256

Mercury -110513-09-30 16:33 J -38643176.97 -38643176.81 -38643176.66 0.0496 0.0176

Mercury -110513-12-29 15:36 J -38643086.97 -38643086.85 -38643086.74 0.0495 0.0353

Venus -110511-01-06 18:14 J -38642713.80 -38642713.74 -38642713.68 0.0493 0.0470

Moon -110508-02-27 07:26 J -38641566.39 -38641566.19 -38641565.98 0.0514 0.0231

Earth -110508-02-27 08:24 J -38641566.36 -38641566.15 -38641565.93 0.0514 0.0236 \*

Mercury -110507-09-03 06:43 J -38641013.23 -38641013.22 -38641013.19 0.0529 0.0521

Mercury -110507-12-01 19:12 J -38640923.83 -38640923.70 -38640923.56 0.0530 0.0018

Mercury -110506-03-01 06:14 J -38640834.26 -38640834.24 -38640834.21 0.0532 0.0520

Earth -110503-08-16 23:31 J -38639569.71 -38639569.52 -38639569.32 0.0514 0.0264

Moon -110503-08-17 02:24 J -38639569.60 -38639569.40 -38639569.19 0.0514 0.0242 \*

Mercury -110501-07-19 16:48 J -38638866.93 -38638866.80 -38638866.67 0.0497 0.0302

Mercury -110501-10-17 15:21 J -38638777.01 -38638776.86 -38638776.71 0.0495 0.0223

Venus -110499-05-06 07:12 J -38638211.37 -38638211.20 -38638211.03 0.0494 0.0290

Mercury -110495-09-19 21:07 J -38636613.75 -38636613.62 -38636613.49 0.0530 0.0134

Mercury -110495-12-18 08:24 J -38636524.24 -38636524.15 -38636524.05 0.0531 0.0383

Venus -110493-03-13 12:43 J -38636073.13 -38636072.97 -38636072.80 0.0533 0.0296

Moon -110491-08-21 05:17 J -38635182.49 -38635182.28 -38635182.07 0.0513 0.0146

Earth -110491-08-21 08:38 J -38635182.36 -38635182.14 -38635181.93 0.0513 0.0165 \*

Mercury -110489-05-07 17:02 J -38634556.87 -38634556.79 -38634556.71 0.0497 0.0429

Mercury -110489-08-05 15:07 J -38634467.03 -38634466.87 -38634466.70 0.0496 0.0091

Venus -110487-01-09 06:14 J -38633945.45 -38633945.24 -38633945.04 0.0493 0.0012

Mercury -110483-07-08 23:31 J -38632303.64 -38632303.52 -38632303.40 0.0530 0.0267

Mercury -110483-10-06 11:17 J -38632214.15 -38632214.03 -38632213.91 0.0531 0.0255

Venus -110482-11-17 06:43 J -38631807.42 -38631807.22 -38631807.02 0.0533 0.0062

Mercury -110477-05-24 14:24 J -38630157.07 -38630156.90 -38630156.74 0.0496 0.0048

Mercury -110477-08-22 13:41 J -38630066.96 -38630066.93 -38630066.90 0.0495 0.0485

Venus -110476-09-14 03:50 J -38629679.50 -38629679.34 -38629679.18 0.0493 0.0307

Mercury -110471-04-27 02:24 J -38627993.49 -38627993.40 -38627993.31 0.0530 0.0395

Mercury -110471-07-25 14:24 J -38627904.03 -38627903.90 -38627903.76 0.0531 0.0132

Venus -110470-07-23 00:57 J -38627541.57 -38627541.46 -38627541.33 0.0534 0.0418

Mercury -110465-03-12 14:09 J -38625847.06 -38625846.91 -38625846.75 0.0496 0.0178

Mercury -110465-06-10 13:12 J -38625757.07 -38625756.95 -38625756.83 0.0495 0.0350

Venus -110463-01-11 16:05 J -38625176.91 -38625176.83 -38625176.74 0.0494 0.0453

Mercury -110459-02-13 04:48 J -38623683.31 -38623683.30 -38623683.28 0.0529 0.0525

Mercury -110459-05-13 17:17 J -38623593.91 -38623593.78 -38623593.64 0.0531 0.0018

Mercury -110459-08-11 04:33 J -38623504.34 -38623504.31 -38623504.28 0.0532 0.0517

Venus -110458-11-20 04:48 J -38623038.36 -38623038.30 -38623038.25 0.0532 0.0508  
 Mars -110454-12-19 12:29 J -38621548.23 -38621547.98 -38621547.72 0.0497 0.0201  
 Mercury -110454-12-30 14:09 J -38621537.04 -38621536.91 -38621536.78 0.0497 0.0309  
 Mercury -110453-03-29 12:29 J -38621447.13 -38621446.98 -38621446.82 0.0495 0.0215  
 Venus -110452-09-16 15:21 J -38620911.06 -38620910.86 -38620910.66 0.0494 0.0159  
 Mercury -110447-03-01 19:55 J -38619283.81 -38619283.67 -38619283.54 0.0530 0.0127  
 Mercury -110447-05-30 07:12 J -38619194.29 -38619194.20 -38619194.10 0.0531 0.0390  
 Venus -110446-07-25 21:50 J -38618772.77 -38618772.59 -38618772.39 0.0533 0.0151  
 Mercury -110442-10-18 14:24 J -38617226.97 -38617226.90 -38617226.82 0.0497 0.0434  
 Mercury -110441-01-16 12:29 J -38617137.14 -38617136.98 -38617136.81 0.0496 0.0085  
 Venus -110440-05-22 15:36 J -38616645.05 -38616644.85 -38616644.65 0.0493 0.0134  
 Earth -110437-02-22 04:05 J -38615639.51 -38615639.33 -38615639.15 0.0512 0.0337  
 Moon -110437-02-22 04:48 J -38615639.48 -38615639.30 -38615639.11 0.0512 0.0309 \*  
 Mercury -110436-12-18 21:36 J -38614973.71 -38614973.60 -38614973.48 0.0529 0.0269  
 Mercury -110435-03-18 09:21 J -38614884.22 -38614884.11 -38614883.99 0.0531 0.0252  
 Venus -110434-03-30 12:57 J -38614507.14 -38614506.96 -38614506.78 0.0533 0.0221  
 Mercury -110430-11-04 12:29 J -38612827.15 -38612826.98 -38612826.81 0.0496 0.0046  
 Mercury -110429-02-02 11:45 J -38612737.03 -38612737.01 -38612736.98 0.0495 0.0488  
 Venus -110428-01-25 15:36 J -38612378.96 -38612378.85 -38612378.75 0.0493 0.0425  
 Earth -110425-02-27 04:05 J -38611251.56 -38611251.33 -38611251.09 0.0514 0.0132  
 Moon -110425-02-27 06:00 J -38611251.49 -38611251.25 -38611251.00 0.0514 0.0125 \*  
 Mercury -110424-10-07 00:00 J -38610663.59 -38610663.50 -38610663.41 0.0529 0.0403  
 Mercury -110423-01-04 12:14 J -38610574.12 -38610573.99 -38610573.86 0.0531 0.0123  
 Moon -110420-08-15 22:48 J -38609254.71 -38609254.55 -38609254.38 0.0514 0.0330  
 Earth -110420-08-16 01:55 J -38609254.58 -38609254.42 -38609254.25 0.0514 0.0351 \*  
 Mercury -110418-08-23 12:00 J -38608517.16 -38608517.00 -38608516.85 0.0496 0.0181  
 Mars -110418-09-23 20:24 J -38608485.84 -38608485.65 -38608485.44 0.0496 0.0346  
 Mercury -110418-11-21 10:48 J -38608427.17 -38608427.05 -38608426.93 0.0495 0.0347  
 Venus -110416-05-25 01:12 J -38607876.60 -38607876.45 -38607876.29 0.0494 0.0326  
 Mercury -110412-10-23 15:07 J -38606264.00 -38606263.87 -38606263.73 0.0531 0.0011

Mercury -110411-01-21 02:24 J -38606174.43 -38606174.40 -38606174.36 0.0532 0.0511  
 Venus -110410-04-02 12:00 J -38605738.14 -38605738.00 -38605737.85 0.0533 0.0356  
 Earth -110408-08-20 13:12 J -38604867.17 -38604866.95 -38604866.73 0.0512 0.0088  
 Moon -110408-08-20 16:48 J -38604867.02 -38604866.80 -38604866.57 0.0512 0.0069 \*  
 Mercury -110406-06-11 12:00 J -38604207.12 -38604207.00 -38604206.87 0.0496 0.0309  
 Mercury -110406-09-09 10:33 J -38604117.21 -38604117.06 -38604116.91 0.0495 0.0214  
 Venus -110404-01-28 00:43 J -38603610.68 -38603610.47 -38603610.27 0.0493 0.0032  
 Mars -110400-06-28 00:00 J -38601998.73 -38601998.50 -38601998.27 0.0530 0.0284  
 Mercury -110400-08-11 18:00 J -38601953.88 -38601953.75 -38601953.61 0.0530 0.0129  
 Mercury -110400-11-09 05:31 J -38601864.36 -38601864.27 -38601864.18 0.0532 0.0389  
 Venus -110399-12-06 06:00 J -38601472.45 -38601472.25 -38601472.05 0.0533 0.0001  
 Moon -110396-08-24 17:31 J -38600479.84 -38600479.77 -38600479.69 0.0511 0.0483  
 Earth -110396-08-24 21:07 J -38600479.62 -38600479.62 -38600479.61 0.0511 0.0510  
 Mercury -110394-03-30 12:00 J -38599897.07 -38599897.00 -38599896.92 0.0497 0.0438  
 Mercury -110394-06-28 10:05 J -38599807.25 -38599807.08 -38599806.91 0.0496 0.0080  
 Venus -110393-10-03 00:43 J -38599344.65 -38599344.47 -38599344.30 0.0493 0.0262  
 Mercury -110388-05-30 20:38 J -38597643.76 -38597643.64 -38597643.52 0.0530 0.0261  
 Mercury -110388-08-28 08:24 J -38597554.27 -38597554.15 -38597554.03 0.0531 0.0261  
 Venus -110387-08-10 22:19 J -38597206.71 -38597206.57 -38597206.42 0.0533 0.0367  
 Mercury -110382-04-16 10:05 J -38595497.24 -38595497.08 -38595496.91 0.0496 0.0049  
 Mercury -110382-07-15 09:36 J -38595407.13 -38595407.10 -38595407.07 0.0495 0.0484  
 Mercury -110376-03-18 22:33 J -38593333.65 -38593333.56 -38593333.47 0.0529 0.0401  
 Mercury -110376-06-16 10:33 J -38593244.19 -38593244.06 -38593243.92 0.0530 0.0124  
 Mercury -110370-02-02 10:19 J -38591187.23 -38591187.07 -38591186.92 0.0497 0.0178  
 Mercury -110370-05-03 09:07 J -38591097.24 -38591097.12 -38591097.00 0.0495 0.0351  
 Venus -110369-10-05 13:26 J -38590576.12 -38590575.94 -38590575.75 0.0493 0.0209  
 Mars -110364-04-02 23:17 J -38588935.73 -38588935.53 -38588935.33 0.0530 0.0359  
 Mercury -110364-04-04 13:12 J -38588934.09 -38588933.95 -38588933.81 0.0530 0.0010  
 Mercury -110364-07-03 00:29 J -38588844.52 -38588844.48 -38588844.44 0.0532 0.0505  
 Venus -110363-08-13 18:14 J -38588437.93 -38588437.74 -38588437.56 0.0533 0.0196

Mercury -110359-11-21 09:50 J -38586877.21 -38586877.09 -38586876.96 0.0496 0.0309  
 Mercury -110358-02-19 08:24 J -38586787.30 -38586787.15 -38586787.00 0.0495 0.0213  
 Venus -110357-06-10 10:48 J -38586310.26 -38586310.05 -38586309.85 0.0493 0.0094  
 Moon -110354-02-21 00:29 J -38585324.63 -38585324.48 -38585324.32 0.0512 0.0405  
 Earth -110354-02-21 00:29 J -38585324.60 -38585324.48 -38585324.35 0.0512 0.0435 \*  
 Mercury -110352-01-21 16:05 J -38584623.97 -38584623.83 -38584623.70 0.0531 0.0134  
 Mercury -110352-04-21 03:36 J -38584534.44 -38584534.35 -38584534.26 0.0532 0.0385  
 Venus -110351-04-18 13:12 J -38584172.14 -38584171.95 -38584171.76 0.0534 0.0158  
 Mercury -110347-09-09 10:19 J -38582567.14 -38582567.07 -38582566.99 0.0497 0.0433  
 Mercury -110347-12-08 08:24 J -38582477.32 -38582477.15 -38582476.99 0.0495 0.0084  
 Venus -110345-02-14 11:02 J -38582044.16 -38582044.04 -38582043.91 0.0493 0.0386  
 Moon -110342-02-26 01:12 J -38580936.68 -38580936.45 -38580936.22 0.0514 0.0038  
 Earth -110342-02-26 03:36 J -38580936.59 -38580936.35 -38580936.11 0.0514 0.0046 \*  
 Mercury -110341-11-09 18:57 J -38580313.83 -38580313.71 -38580313.59 0.0530 0.0260  
 Mercury -110340-02-07 06:43 J -38580224.33 -38580224.22 -38580224.10 0.0531 0.0263  
 Venus -110340-12-22 06:43 J -38579906.27 -38579906.22 -38579906.17 0.0534 0.0517  
 Earth -110337-08-15 07:41 J -38578939.30 -38578939.18 -38578939.05 0.0514 0.0424  
 Moon -110337-08-15 11:17 J -38578939.17 -38578939.03 -38578938.89 0.0514 0.0402 \*  
 Mercury -110335-09-26 08:09 J -38578167.33 -38578167.16 -38578167.00 0.0496 0.0050  
 Mercury -110335-12-25 07:26 J -38578077.23 -38578077.19 -38578077.16 0.0495 0.0483  
 Venus -110333-06-12 23:31 J -38577541.65 -38577541.52 -38577541.38 0.0494 0.0379  
 Moon -110330-03-03 10:48 J -38576548.11 -38576548.05 -38576547.98 0.0515 0.0495  
 Mercury -110329-08-28 21:21 J -38576003.70 -38576003.61 -38576003.51 0.0529 0.0391  
 Mercury -110329-11-26 09:36 J -38575914.23 -38575914.10 -38575913.97 0.0531 0.0135  
 Venus -110327-04-21 10:33 J -38575403.18 -38575403.06 -38575402.93 0.0532 0.0414  
 Moon -110325-08-19 13:26 J -38574552.17 -38574551.94 -38574551.72 0.0513 0.0016  
 Earth -110325-08-19 17:02 J -38574552.02 -38574551.79 -38574551.56 0.0513 0.0007 \*  
 Mercury -110323-07-15 08:09 J -38573857.31 -38573857.16 -38573857.00 0.0496 0.0177  
 Mercury -110323-10-13 06:57 J -38573767.32 -38573767.21 -38573767.09 0.0495 0.0352  
 Venus -110321-02-16 23:45 J -38573275.72 -38573275.51 -38573275.31 0.0493 0.0085

Mercury -110317-09-14 12:00 J -38571604.14 -38571604.00 -38571603.87 0.0530 0.0015

Mercury -110317-12-12 23:02 J -38571514.57 -38571514.54 -38571514.50 0.0531 0.0510

Venus -110316-12-25 02:38 J -38571137.59 -38571137.39 -38571137.19 0.0533 0.0047

Earth -110313-08-24 01:26 J -38570164.56 -38570164.44 -38570164.32 0.0512 0.0433

Moon -110313-08-24 04:19 J -38570164.45 -38570164.32 -38570164.19 0.0512 0.0411 \*

Mercury -110311-05-03 08:24 J -38569547.27 -38569547.15 -38569547.02 0.0497 0.0304

Mercury -110311-08-01 06:57 J -38569457.36 -38569457.21 -38569457.06 0.0496 0.0220

Venus -110310-10-22 23:45 J -38569009.69 -38569009.51 -38569009.32 0.0493 0.0210

Mercury -110305-07-03 14:24 J -38567294.03 -38567293.90 -38567293.76 0.0530 0.0133

Mercury -110305-10-01 01:55 J -38567204.51 -38567204.42 -38567204.32 0.0531 0.0385

Venus -110304-08-29 19:55 J -38566871.82 -38566871.67 -38566871.50 0.0533 0.0316

Mercury -110299-02-19 08:24 J -38565237.22 -38565237.15 -38565237.06 0.0497 0.0431

Mars -110299-03-14 03:07 J -38565214.65 -38565214.37 -38565214.09 0.0496 0.0033

Mercury -110299-05-20 06:29 J -38565147.40 -38565147.23 -38565147.07 0.0495 0.0086

Mercury -110293-04-21 17:02 J -38562983.91 -38562983.79 -38562983.67 0.0530 0.0262

Mercury -110293-07-20 05:02 J -38562894.41 -38562894.29 -38562894.17 0.0532 0.0261

Mercury -110287-03-08 06:43 J -38560837.39 -38560837.22 -38560837.06 0.0496 0.0041

Mercury -110287-06-06 05:45 J -38560747.27 -38560747.26 -38560747.24 0.0494 0.0490

Venus -110286-10-25 10:05 J -38560241.25 -38560241.08 -38560240.90 0.0493 0.0256

Mercury -110281-02-08 19:55 J -38558673.76 -38558673.67 -38558673.58 0.0530 0.0388

Mercury -110281-05-08 08:09 J -38558584.29 -38558584.16 -38558584.03 0.0531 0.0139

Venus -110280-09-01 20:09 J -38558102.83 -38558102.66 -38558102.49 0.0533 0.0270

Mercury -110276-12-25 06:29 J -38556527.38 -38556527.23 -38556527.07 0.0496 0.0172

Mercury -110275-03-25 05:17 J -38556437.39 -38556437.28 -38556437.16 0.0495 0.0356

Venus -110274-06-30 10:05 J -38555975.29 -38555975.08 -38555974.87 0.0493 0.0039

Moon -110271-02-20 04:48 J -38555009.38 -38555009.30 -38555009.20 0.0512 0.0471

Earth -110271-02-20 06:00 J -38555009.30 -38555009.25 -38555009.19 0.0512 0.0498 \*

Mercury -110270-11-27 22:33 J -38554363.59 -38554363.56 -38554363.54 0.0529 0.0518

Mercury -110269-02-25 11:02 J -38554274.18 -38554274.04 -38554273.90 0.0531 0.0015

Mercury -110269-05-24 22:19 J -38554184.59 -38554184.57 -38554184.55 0.0532 0.0524

Venus -110268-05-07 13:55 J -38553837.12 -38553836.92 -38553836.73 0.0533 0.0092

Mercury -110264-10-13 06:57 J -38552217.34 -38552217.21 -38552217.08 0.0497 0.0298

Mercury -110263-01-11 05:17 J -38552127.43 -38552127.28 -38552127.13 0.0495 0.0225

Venus -110262-03-05 11:02 J -38551709.19 -38551709.04 -38551708.89 0.0493 0.0330

Earth -110259-02-25 08:38 J -38550621.39 -38550621.14 -38550620.90 0.0513 0.0023

Moon -110259-02-25 12:00 J -38550621.25 -38550621.00 -38550620.76 0.0513 0.0030 \*

Mercury -110258-12-14 13:26 J -38549964.08 -38549963.94 -38549963.81 0.0530 0.0123

Mercury -110257-03-13 00:57 J -38549874.55 -38549874.46 -38549874.37 0.0531 0.0393

Venus -110256-01-10 05:02 J -38549571.39 -38549571.29 -38549571.19 0.0533 0.0462

Moon -110254-08-15 10:05 J -38548624.16 -38548624.08 -38548624.00 0.0515 0.0477

Earth -110254-08-15 13:41 J -38548623.99 -38548623.93 -38548623.87 0.0515 0.0497

Mercury -110252-08-01 07:26 J -38547907.28 -38547907.19 -38547907.11 0.0497 0.0423

Mercury -110252-10-30 05:17 J -38547817.45 -38547817.28 -38547817.12 0.0496 0.0095

Venus -110250-07-02 23:45 J -38547206.59 -38547206.51 -38547206.41 0.0494 0.0439

Moon -110247-03-02 05:31 J -38546233.40 -38546233.27 -38546233.13 0.0515 0.0418

Earth -110247-03-02 09:36 J -38546233.21 -38546233.10 -38546232.98 0.0515 0.0453 \*

Mars -110246-09-21 21:21 J -38545664.87 -38545664.61 -38545664.34 0.0529 0.0096

Mercury -110246-10-02 15:50 J -38545653.96 -38545653.84 -38545653.72 0.0530 0.0255

Mercury -110246-12-31 03:50 J -38545564.46 -38545564.34 -38545564.22 0.0531 0.0267

Venus -110244-05-10 09:36 J -38545068.19 -38545068.10 -38545068.01 0.0533 0.0472

Earth -110242-08-20 01:12 J -38544236.67 -38544236.45 -38544236.22 0.0513 0.0053

Moon -110242-08-20 04:33 J -38544236.53 -38544236.31 -38544236.09 0.0513 0.0076 \*

Mercury -110240-08-18 05:02 J -38543507.45 -38543507.29 -38543507.12 0.0496 0.0036

Venus -110238-03-07 21:21 J -38542940.81 -38542940.61 -38542940.41 0.0493 0.0136

Mercury -110234-07-21 18:14 J -38541343.83 -38541343.74 -38541343.64 0.0530 0.0388

Mercury -110234-10-19 06:29 J -38541254.36 -38541254.23 -38541254.09 0.0531 0.0141

Venus -110232-01-13 04:48 J -38540802.49 -38540802.30 -38540802.10 0.0534 0.0122

Moon -110230-08-24 11:17 J -38539849.19 -38539849.03 -38539848.86 0.0511 0.0364

Earth -110230-08-24 13:41 J -38539849.07 -38539848.93 -38539848.78 0.0511 0.0387 \*

Mercury -110228-06-06 05:31 J -38539197.42 -38539197.27 -38539197.11 0.0496 0.0160



Mercury -110228-09-04 04:19 J -38539107.43 -38539107.32 -38539107.21 0.0495 0.0366

Venus -110227-11-10 21:50 J -38538674.78 -38538674.59 -38538674.39 0.0493 0.0158

Mercury -110222-05-09 21:07 J -38537033.65 -38537033.62 -38537033.59 0.0529 0.0514

Mercury -110222-08-07 09:50 J -38536944.23 -38536944.09 -38536943.96 0.0531 0.0021

Mercury -110222-11-04 20:53 J -38536854.63 -38536854.63 -38536854.62 0.0532 0.0532

Venus -110221-09-17 23:17 J -38536536.71 -38536536.53 -38536536.35 0.0534 0.0237

Mercury -110216-03-25 05:45 J -38534887.40 -38534887.26 -38534887.13 0.0496 0.0288

Mercury -110216-06-23 03:50 J -38534797.48 -38534797.34 -38534797.19 0.0495 0.0234

Venus -110215-07-16 22:33 J -38534408.64 -38534408.56 -38534408.47 0.0493 0.0448

Mercury -110210-05-26 12:43 J -38532634.11 -38532633.97 -38532633.84 0.0530 0.0109

Mercury -110210-08-24 00:14 J -38532544.57 -38532544.49 -38532544.40 0.0532 0.0409

Mercury -110204-01-11 06:00 J -38530577.33 -38530577.25 -38530577.16 0.0497 0.0413

Mercury -110204-04-11 04:05 J -38530487.50 -38530487.33 -38530487.17 0.0496 0.0105

Venus -110203-11-13 11:31 J -38529906.18 -38529906.02 -38529905.86 0.0494 0.0320

Mercury -110198-03-14 14:53 J -38528324.00 -38528323.88 -38528323.75 0.0530 0.0244

Mercury -110198-06-12 02:53 J -38528234.50 -38528234.38 -38528234.26 0.0531 0.0279

Venus -110197-09-20 19:41 J -38527767.83 -38527767.68 -38527767.52 0.0533 0.0332

Mercury -110192-01-28 04:05 J -38526177.50 -38526177.33 -38526177.16 0.0496 0.0024

Venus -110191-07-19 11:31 J -38525640.23 -38525640.02 -38525639.81 0.0493 0.0025

Mercury -110187-12-31 17:31 J -38524013.87 -38524013.77 -38524013.68 0.0529 0.0375

Mercury -110186-03-31 05:45 J -38523924.39 -38523924.26 -38523924.13 0.0531 0.0151

Venus -110185-05-26 13:55 J -38523502.12 -38523501.92 -38523501.72 0.0533 0.0029

Mars -110181-09-01 18:29 J -38521942.90 -38521942.73 -38521942.56 0.0497 0.0392

Mercury -110181-11-16 04:19 J -38521867.48 -38521867.32 -38521867.16 0.0496 0.0151

Mercury -110180-02-14 02:53 J -38521777.48 -38521777.38 -38521777.27 0.0495 0.0376

Venus -110179-03-24 10:19 J -38521374.24 -38521374.07 -38521373.89 0.0493 0.0273

Moon -110176-02-24 05:02 J -38520306.52 -38520306.29 -38520306.06 0.0513 0.0112

Earth -110176-02-24 08:38 J -38520306.37 -38520306.14 -38520305.90 0.0513 0.0105 \*

Mercury -110175-10-19 19:26 J -38519703.72 -38519703.69 -38519703.65 0.0530 0.0512

Mercury -110174-01-17 08:09 J -38519614.29 -38519614.16 -38519614.02 0.0531 0.0025

Venus -110173-01-30 07:26 J -38519236.32 -38519236.19 -38519236.04 0.0534 0.0389

Mercury -110169-09-04 05:02 J -38517557.43 -38517557.29 -38517557.16 0.0496 0.0273

Mercury -110169-12-03 03:07 J -38517467.51 -38517467.37 -38517467.22 0.0495 0.0248

Earth -110164-03-01 12:29 J -38515918.13 -38515917.98 -38515917.81 0.0515 0.0380

Moon -110164-03-01 16:48 J -38515917.97 -38515917.80 -38515917.62 0.0515 0.0348 \*

Mercury -110163-11-05 11:17 J -38515304.16 -38515304.03 -38515303.89 0.0531 0.0104

Mercury -110162-02-02 23:02 J -38515214.62 -38515214.54 -38515214.46 0.0532 0.0417

Moon -110159-08-19 11:31 J -38513921.25 -38513921.02 -38513920.80 0.0513 0.0126

Earth -110159-08-19 14:09 J -38513921.13 -38513920.91 -38513920.69 0.0513 0.0099 \*

Mercury -110157-06-23 05:17 J -38513247.38 -38513247.28 -38513247.19 0.0497 0.0400

Mercury -110157-09-21 02:53 J -38513157.54 -38513157.38 -38513157.21 0.0495 0.0117

Venus -110155-03-26 23:02 J -38512605.73 -38512605.54 -38512605.35 0.0493 0.0201

Mercury -110151-08-24 14:24 J -38510994.03 -38510993.90 -38510993.78 0.0530 0.0229

Mercury -110151-11-22 02:09 J -38510904.52 -38510904.41 -38510904.29 0.0532 0.0295

Venus -110149-02-02 07:55 J -38510467.35 -38510467.17 -38510466.98 0.0533 0.0200

Earth -110147-08-23 23:31 J -38509533.68 -38509533.52 -38509533.34 0.0512 0.0331

Moon -110147-08-24 01:12 J -38509533.63 -38509533.45 -38509533.28 0.0512 0.0313 \*

Mars -110145-06-07 14:24 J -38508880.16 -38508879.90 -38508879.63 0.0496 0.0180

Mercury -110145-07-10 03:07 J -38508847.54 -38508847.37 -38508847.20 0.0496 0.0012

Venus -110144-11-29 23:45 J -38508339.71 -38508339.51 -38508339.30 0.0493 0.0093

Mercury -110139-06-12 16:33 J -38506683.91 -38506683.81 -38506683.70 0.0529 0.0362

Mercury -110139-09-10 04:48 J -38506594.43 -38506594.30 -38506594.16 0.0531 0.0166

Venus -110138-10-08 00:14 J -38506201.68 -38506201.49 -38506201.30 0.0533 0.0170

Mercury -110133-04-28 03:21 J -38504537.52 -38504537.36 -38504537.20 0.0496 0.0139

Mercury -110133-07-27 02:09 J -38504447.51 -38504447.41 -38504447.31 0.0495 0.0389

Venus -110132-08-05 00:43 J -38504073.59 -38504073.47 -38504073.34 0.0493 0.0384

Mars -110127-03-12 10:33 J -38502393.12 -38502393.06 -38502392.99 0.0529 0.0512

Mercury -110127-03-31 18:57 J -38502373.75 -38502373.71 -38502373.66 0.0529 0.0495

Mercury -110127-06-29 07:41 J -38502284.32 -38502284.18 -38502284.04 0.0531 0.0036

Mercury -110121-02-15 03:50 J -38500227.48 -38500227.34 -38500227.20 0.0496 0.0262

Mercury -110121-05-15 02:09 J -38500137.56 -38500137.41 -38500137.27 0.0495 0.0260

Venus -110120-12-02 11:31 J -38499571.15 -38499571.02 -38499570.89 0.0493 0.0381

Mercury -110115-04-17 10:05 J -38497974.22 -38497974.08 -38497973.95 0.0531 0.0099

Mercury -110115-07-15 21:36 J -38497884.68 -38497884.60 -38497884.52 0.0532 0.0421

Venus -110114-10-10 23:02 J -38497432.66 -38497432.54 -38497432.41 0.0534 0.0414

Mercury -110110-12-04 04:33 J -38495917.41 -38495917.31 -38495917.20 0.0496 0.0383

Mercury -110109-03-03 02:24 J -38495827.56 -38495827.40 -38495827.24 0.0495 0.0134

Venus -110108-08-07 12:00 J -38495305.20 -38495305.00 -38495304.79 0.0493 0.0086

Mercury -110103-02-03 12:57 J -38493664.08 -38493663.96 -38493663.83 0.0531 0.0222

Mercury -110103-05-04 00:57 J -38493574.57 -38493574.46 -38493574.34 0.0532 0.0302

Venus -110102-06-15 18:14 J -38493166.94 -38493166.74 -38493166.54 0.0534 0.0058

Mercury -110098-12-21 02:24 J -38491517.57 -38491517.40 -38491517.23 0.0495 0.0006

Venus -110096-04-12 12:29 J -38491039.16 -38491038.98 -38491038.79 0.0493 0.0208

Earth -110093-02-24 19:12 J -38489990.93 -38489990.70 -38489990.47 0.0513 0.0150

Moon -110093-02-24 23:17 J -38489990.76 -38489990.53 -38489990.29 0.0513 0.0157 \*

Mercury -110092-11-22 15:50 J -38489353.94 -38489353.84 -38489353.73 0.0530 0.0348

Mars -110092-12-16 21:07 J -38489329.88 -38489329.62 -38489329.37 0.0530 0.0170

Mercury -110091-02-20 04:19 J -38489264.45 -38489264.32 -38489264.19 0.0531 0.0180

Venus -110090-02-18 12:00 J -38488901.16 -38488901.00 -38488900.84 0.0534 0.0306

Mercury -110086-10-09 02:38 J -38487207.55 -38487207.39 -38487207.23 0.0496 0.0125

Mercury -110085-01-07 01:12 J -38487117.54 -38487117.45 -38487117.35 0.0495 0.0403

Moon -110081-02-29 19:12 J -38485602.90 -38485602.70 -38485602.50 0.0514 0.0301

Earth -110081-02-29 23:02 J -38485602.72 -38485602.54 -38485602.35 0.0514 0.0335 \*

Mercury -110080-09-10 18:14 J -38485043.79 -38485043.74 -38485043.68 0.0529 0.0480

Mercury -110080-12-09 06:57 J -38484954.35 -38484954.21 -38484954.07 0.0531 0.0050

Earth -110076-08-19 00:00 J -38483605.71 -38483605.50 -38483605.28 0.0514 0.0154

Moon -110076-08-19 01:55 J -38483605.63 -38483605.42 -38483605.22 0.0514 0.0183 \*

Mercury -110074-07-28 02:53 J -38482897.52 -38482897.38 -38482897.24 0.0496 0.0250

Mercury -110074-10-26 01:12 J -38482807.59 -38482807.45 -38482807.31 0.0495 0.0273

Venus -110072-04-15 01:55 J -38482270.59 -38482270.42 -38482270.25 0.0493 0.0270

Mercury -110068-09-27 09:36 J -38480644.24 -38480644.10 -38480643.97 0.0530 0.0081  
 Mercury -110068-12-25 21:07 J -38480554.69 -38480554.62 -38480554.54 0.0532 0.0436  
 Venus -110066-02-21 09:21 J -38480132.27 -38480132.11 -38480131.93 0.0533 0.0270  
 Moon -110064-08-23 11:17 J -38479218.22 -38479218.03 -38479217.82 0.0512 0.0268  
 Earth -110064-08-23 12:00 J -38479218.19 -38479218.00 -38479217.81 0.0512 0.0287 \*  
 Mercury -110062-05-16 03:36 J -38478587.45 -38478587.35 -38478587.24 0.0496 0.0371  
 Mercury -110062-08-14 01:26 J -38478497.60 -38478497.44 -38478497.28 0.0495 0.0146  
 Venus -110061-12-19 00:57 J -38478004.66 -38478004.46 -38478004.25 0.0492 0.0029  
 Mercury -110056-07-16 11:31 J -38476334.14 -38476334.02 -38476333.89 0.0531 0.0218  
 Mercury -110056-10-13 23:31 J -38476244.62 -38476244.52 -38476244.40 0.0532 0.0307  
 Venus -110055-10-27 03:07 J -38475866.57 -38475866.37 -38475866.17 0.0534 0.0092  
 Mercury -110050-03-04 04:33 J -38474277.33 -38474277.31 -38474277.28 0.0497 0.0489  
 Mercury -110050-06-02 01:55 J -38474187.59 -38474187.42 -38474187.25 0.0495 0.0022  
 Venus -110049-08-24 02:24 J -38473738.56 -38473738.40 -38473738.24 0.0492 0.0318  
 Mercury -110044-05-04 14:38 J -38472024.00 -38472023.89 -38472023.79 0.0530 0.0343  
 Mercury -110044-08-02 02:53 J -38471934.50 -38471934.38 -38471934.25 0.0532 0.0186  
 Venus -110043-07-01 21:07 J -38471600.72 -38471600.62 -38471600.51 0.0534 0.0453  
 Mercury -110038-03-21 01:55 J -38469877.58 -38469877.42 -38469877.26 0.0496 0.0108  
 Mercury -110038-06-19 00:29 J -38469787.56 -38469787.48 -38469787.39 0.0494 0.0418  
 Venus -110037-12-21 13:55 J -38469236.00 -38469235.92 -38469235.83 0.0493 0.0450  
 Mercury -110032-02-20 17:17 J -38467713.84 -38467713.78 -38467713.71 0.0530 0.0469  
 Mercury -110032-05-21 06:14 J -38467624.38 -38467624.24 -38467624.11 0.0531 0.0065  
 Venus -110031-10-30 03:21 J -38467097.43 -38467097.36 -38467097.29 0.0533 0.0496  
 Mars -110027-11-27 15:07 J -38465608.14 -38465607.87 -38465607.60 0.0497 0.0159  
 Mercury -110026-01-07 02:09 J -38465567.55 -38465567.41 -38465567.26 0.0496 0.0235  
 Mercury -110026-04-07 00:29 J -38465477.62 -38465477.48 -38465477.34 0.0495 0.0287  
 Venus -110025-08-26 14:24 J -38464970.10 -38464969.90 -38464969.70 0.0493 0.0154  
 Mercury -110020-03-09 08:53 J -38463314.27 -38463314.13 -38463314.00 0.0531 0.0068  
 Mercury -110020-06-06 20:24 J -38463224.72 -38463224.65 -38463224.58 0.0532 0.0450  
 Venus -110019-07-04 20:09 J -38462831.85 -38462831.66 -38462831.47 0.0533 0.0130

Mercury -110015-10-26 02:38 J -38461257.50 -38461257.39 -38461257.28 0.0497 0.0360

Mercury -110014-01-24 00:28 J -38461167.64 -38461167.48 -38461167.32 0.0495 0.0158

Venus -110013-05-01 15:07 J -38460704.07 -38460703.87 -38460703.67 0.0493 0.0140

Moon -110010-02-23 23:16 J -38459675.75 -38459675.53 -38459675.31 0.0512 0.0211

Earth -110010-02-24 03:21 J -38459675.58 -38459675.36 -38459675.13 0.0512 0.0204 \*

Mercury -110009-12-26 11:16 J -38459004.16 -38459004.03 -38459003.90 0.0530 0.0198

Mercury -110008-03-25 23:16 J -38458914.64 -38458914.53 -38458914.42 0.0532 0.0324

Venus -110007-03-09 13:26 J -38458566.12 -38458565.94 -38458565.76 0.0534 0.0236

Mercury -110003-08-14 03:36 J -38456947.39 -38456947.35 -38456947.31 0.0497 0.0478

Mercury -110003-11-12 00:57 J -38456857.63 -38456857.46 -38456857.30 0.0495 0.0035

Venus -110001-01-05 15:36 J -38456437.95 -38456437.85 -38456437.75 0.0492 0.0431

# 110TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 110th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Earth	-109998-03-01 00:14 J	-38455287.70	-38455287.49	-38455287.28	0.0514	0.0252		
Moon	-109998-03-01 03:50 J	-38455287.55	-38455287.34	-38455287.13	0.0514	0.0222	*	
Mercury	-109997-10-14 12:57 J	-38454694.06	-38454693.96	-38454693.85	0.0530	0.0340		
Mercury	-109996-01-12 01:26 J	-38454604.56	-38454604.44	-38454604.31	0.0532	0.0190		
Moon	-109993-08-18 15:07 J	-38453290.08	-38453289.87	-38453289.66	0.0514	0.0218		

Earth -109993-08-18 15:50 J -38453290.04 -38453289.84 -38453289.62 0.0514 0.0189 \*  
 Mercury -109991-08-31 01:26 J -38452547.60 -38452547.44 -38452547.27 0.0495 0.0090  
 Mars -109991-09-02 14:09 J -38452545.04 -38452544.91 -38452544.76 0.0495 0.0428  
 Mercury -109991-11-29 00:00 J -38452457.57 -38452457.50 -38452457.42 0.0494 0.0436  
 Venus -109989-05-04 03:07 J -38451935.52 -38451935.37 -38451935.22 0.0493 0.0336  
 Mercury -109985-08-02 15:50 J -38450383.90 -38450383.84 -38450383.77 0.0530 0.0466  
 Mercury -109985-10-31 04:33 J -38450294.44 -38450294.31 -38450294.17 0.0532 0.0069  
 Venus -109983-03-12 12:57 J -38449797.11 -38449796.96 -38449796.81 0.0534 0.0353  
 Moon -109981-08-23 01:40 J -38448902.62 -38448902.43 -38448902.23 0.0512 0.0230  
 Earth -109981-08-23 01:55 J -38448902.61 -38448902.42 -38448902.21 0.0512 0.0246 \*  
 Mercury -109979-06-19 01:26 J -38448237.58 -38448237.44 -38448237.29 0.0496 0.0220  
 Mercury -109979-09-16 23:45 J -38448147.64 -38448147.51 -38448147.38 0.0495 0.0302  
 Venus -109977-01-08 02:52 J -38447669.58 -38447669.38 -38447669.17 0.0492 0.0039  
 Mars -109973-06-06 06:57 J -38446058.44 -38446058.21 -38446057.97 0.0530 0.0262  
 Mercury -109973-08-19 07:55 J -38445984.31 -38445984.17 -38445984.04 0.0531 0.0059  
 Mercury -109973-11-16 19:26 J -38445894.75 -38445894.69 -38445894.62 0.0532 0.0462  
 Venus -109972-11-15 07:12 J -38445531.40 -38445531.20 -38445531.00 0.0534 0.0010  
 Mercury -109967-04-07 01:55 J -38443927.54 -38443927.42 -38443927.30 0.0496 0.0346  
 Mercury -109967-07-05 23:31 J -38443837.67 -38443837.52 -38443837.36 0.0495 0.0172  
 Venus -109966-09-13 03:50 J -38443403.51 -38443403.34 -38443403.16 0.0492 0.0256  
 Mercury -109961-06-07 10:19 J -38441674.20 -38441674.07 -38441673.94 0.0530 0.0187  
 Mercury -109961-09-04 22:19 J -38441584.67 -38441584.57 -38441584.46 0.0532 0.0335  
 Venus -109960-07-20 23:02 J -38441265.67 -38441265.54 -38441265.39 0.0534 0.0381  
 Mercury -109955-01-24 02:24 J -38439617.45 -38439617.40 -38439617.35 0.0497 0.0470  
 Mercury -109955-04-23 23:45 J -38439527.68 -38439527.51 -38439527.35 0.0496 0.0043  
 Mercury -109949-03-26 12:43 J -38437364.08 -38437363.97 -38437363.86 0.0530 0.0320  
 Mercury -109949-06-24 00:57 J -38437274.58 -38437274.46 -38437274.33 0.0531 0.0207  
 Mercury -109943-02-10 00:14 J -38435217.65 -38435217.49 -38435217.32 0.0496 0.0081  
 Mercury -109943-05-10 22:48 J -38435127.61 -38435127.55 -38435127.47 0.0494 0.0447  
 Venus -109942-09-15 15:50 J -38434635.03 -38434634.84 -38434634.66 0.0492 0.0221

Mercury -109937-01-13 14:24 J -38433053.97 -38433053.90 -38433053.84 0.0530 0.0463

Mars -109937-03-12 04:19 J -38432995.50 -38432995.32 -38432995.14 0.0531 0.0393

Mercury -109937-04-12 03:07 J -38432964.51 -38432964.37 -38432964.23 0.0532 0.0069

Venus -109936-07-23 20:52 J -38432496.81 -38432496.63 -38432496.44 0.0534 0.0201

Mercury -109932-11-29 00:57 J -38430907.61 -38430907.46 -38430907.31 0.0496 0.0203

Mercury -109931-02-26 23:02 J -38430817.66 -38430817.54 -38430817.41 0.0494 0.0319

Venus -109930-05-21 16:33 J -38430369.02 -38430368.81 -38430368.61 0.0492 0.0075

Earth -109927-02-23 04:48 J -38429360.49 -38429360.30 -38429360.09 0.0512 0.0286

Moon -109927-02-23 08:52 J -38429360.32 -38429360.13 -38429359.93 0.0512 0.0291 \*

Mercury -109925-01-30 06:00 J -38428654.38 -38428654.25 -38428654.11 0.0531 0.0059

Mercury -109925-04-28 17:45 J -38428564.82 -38428564.76 -38428564.69 0.0533 0.0463

Venus -109924-03-28 15:21 J -38428231.05 -38428230.86 -38428230.67 0.0535 0.0162

Mercury -109920-09-17 00:57 J -38426597.58 -38426597.46 -38426597.34 0.0496 0.0332

Mercury -109920-12-15 22:48 J -38426507.71 -38426507.55 -38426507.40 0.0495 0.0185

Venus -109918-01-24 16:33 J -38426102.94 -38426102.81 -38426102.67 0.0492 0.0371

Moon -109915-02-28 06:28 J -38424972.46 -38424972.23 -38424971.99 0.0514 0.0168

Earth -109915-02-28 09:21 J -38424972.33 -38424972.11 -38424971.89 0.0514 0.0199 \*

Mercury -109914-11-18 09:07 J -38424344.25 -38424344.12 -38424343.99 0.0531 0.0180

Mercury -109913-02-15 21:07 J -38424254.72 -38424254.62 -38424254.51 0.0532 0.0343

Venus -109913-12-01 08:38 J -38423965.16 -38423965.14 -38423965.11 0.0534 0.0529

Earth -109910-08-19 02:09 J -38422974.61 -38422974.41 -38422974.22 0.0514 0.0245

Moon -109910-08-19 01:55 J -38422974.60 -38422974.42 -38422974.24 0.0514 0.0278 \*

Mercury -109908-07-06 01:26 J -38422287.50 -38422287.44 -38422287.38 0.0497 0.0457

Mercury -109908-10-03 22:48 J -38422197.72 -38422197.55 -38422197.39 0.0495 0.0055

Venus -109906-05-24 04:04 J -38421600.45 -38421600.33 -38421600.20 0.0493 0.0399

Mercury -109902-09-06 11:45 J -38420034.13 -38420034.01 -38420033.90 0.0530 0.0311

Mercury -109902-12-05 00:00 J -38419944.63 -38419944.50 -38419944.38 0.0531 0.0216

Venus -109900-03-31 13:55 J -38419462.04 -38419461.92 -38419461.80 0.0533 0.0422

Earth -109898-08-23 10:19 J -38418587.28 -38418587.07 -38418586.86 0.0513 0.0181

Moon -109898-08-23 11:31 J -38418587.24 -38418587.02 -38418586.79 0.0513 0.0168 \*

Mercury -109896-07-22 22:48 J -38417887.71 -38417887.55 -38417887.39 0.0496 0.0075  
 Mercury -109896-10-20 21:36 J -38417797.67 -38417797.60 -38417797.54 0.0495 0.0453  
 Venus -109894-01-27 04:19 J -38417334.52 -38417334.32 -38417334.12 0.0493 0.0102  
 Mercury -109890-06-25 13:55 J -38415723.99 -38415723.92 -38415723.85 0.0529 0.0446  
 Mercury -109890-09-23 02:38 J -38415634.53 -38415634.39 -38415634.26 0.0531 0.0085  
 Venus -109889-12-04 06:57 J -38415196.40 -38415196.21 -38415196.01 0.0534 0.0056  
 Mercury -109884-05-10 23:31 J -38413577.67 -38413577.52 -38413577.37 0.0496 0.0196  
 Mercury -109884-08-08 21:36 J -38413487.72 -38413487.60 -38413487.47 0.0495 0.0326  
 Venus -109883-10-02 05:02 J -38413068.48 -38413068.29 -38413068.10 0.0492 0.0192  
 Mercury -109878-07-12 04:19 J -38411324.46 -38411324.32 -38411324.18 0.0531 0.0057  
 Mercury -109878-10-09 16:04 J -38411234.89 -38411234.83 -38411234.76 0.0533 0.0462  
 Venus -109877-08-08 22:04 J -38410930.73 -38410930.58 -38410930.42 0.0535 0.0322  
 Mars -109872-02-21 10:48 J -38409273.32 -38409273.05 -38409272.76 0.0496 0.0078  
 Mercury -109872-02-27 00:14 J -38409267.61 -38409267.49 -38409267.37 0.0496 0.0319  
 Mercury -109872-05-27 21:50 J -38409177.74 -38409177.59 -38409177.43 0.0495 0.0199  
 Venus -109871-06-07 06:14 J -38408802.27 -38408802.24 -38408802.20 0.0492 0.0483  
 Mercury -109866-04-30 07:12 J -38407014.33 -38407014.20 -38407014.07 0.0531 0.0184  
 Mercury -109866-07-28 19:12 J -38406924.80 -38406924.70 -38406924.59 0.0532 0.0340  
 Mercury -109861-12-16 00:14 J -38404957.55 -38404957.49 -38404957.42 0.0497 0.0447  
 Mercury -109860-03-15 21:36 J -38404867.77 -38404867.60 -38404867.44 0.0495 0.0064  
 Venus -109859-10-04 15:50 J -38404300.01 -38404299.84 -38404299.67 0.0492 0.0279  
 Mercury -109854-02-16 10:04 J -38402704.19 -38402704.08 -38402703.96 0.0530 0.0309  
 Mercury -109854-05-16 22:33 J -38402614.69 -38402614.56 -38402614.44 0.0532 0.0219  
 Venus -109853-08-11 23:16 J -38402161.69 -38402161.53 -38402161.35 0.0534 0.0276  
 Mercury -109848-01-01 21:36 J -38400557.76 -38400557.60 -38400557.44 0.0495 0.0066  
 Mercury -109848-04-01 20:09 J -38400467.72 -38400467.66 -38400467.60 0.0494 0.0461  
 Venus -109847-06-09 16:04 J -38400034.04 -38400033.83 -38400033.62 0.0492 0.0019  
 Moon -109844-02-22 08:09 J -38399045.33 -38399045.16 -38399044.98 0.0512 0.0350  
 Earth -109844-02-22 12:00 J -38399045.18 -38399045.00 -38399044.82 0.0512 0.0343 \*  
 Mercury -109843-12-05 12:28 J -38398394.05 -38398393.98 -38398393.90 0.0530 0.0440



Mercury -109842-03-05 01:12 J -38398304.58 -38398304.45 -38398304.31 0.0531 0.0092

Venus -109841-04-16 15:50 J -38397896.03 -38397895.84 -38397895.64 0.0534 0.0096

Mercury -109837-10-20 21:36 J -38396247.75 -38396247.60 -38396247.44 0.0496 0.0195

Mercury -109836-01-18 19:55 J -38396157.80 -38396157.67 -38396157.55 0.0495 0.0328

Venus -109835-02-12 16:48 J -38395767.96 -38395767.80 -38395767.64 0.0492 0.0313

Earth -109832-02-27 13:26 J -38394657.17 -38394656.94 -38394656.70 0.0513 0.0129

Moon -109832-02-27 15:21 J -38394657.09 -38394656.86 -38394656.63 0.0513 0.0102 \*

Mercury -109831-12-22 03:36 J -38393994.48 -38393994.35 -38393994.21 0.0531 0.0045

Mercury -109830-03-21 15:21 J -38393904.92 -38393904.86 -38393904.80 0.0532 0.0475

Venus -109830-12-21 07:40 J -38393630.27 -38393630.18 -38393630.09 0.0534 0.0470

Earth -109827-08-18 08:52 J -38392659.31 -38392659.13 -38392658.95 0.0515 0.0315

Moon -109827-08-18 09:50 J -38392659.26 -38392659.09 -38392658.92 0.0515 0.0346 \*

Mercury -109825-08-08 22:19 J -38391937.69 -38391937.57 -38391937.44 0.0496 0.0316

Mercury -109825-11-06 20:09 J -38391847.81 -38391847.66 -38391847.51 0.0495 0.0202

Venus -109823-06-12 04:04 J -38391265.39 -38391265.33 -38391265.25 0.0493 0.0460

Mars -109819-08-31 01:40 J -38389724.69 -38389724.43 -38389724.16 0.0530 0.0078

Mercury -109819-10-10 05:16 J -38389684.41 -38389684.28 -38389684.15 0.0530 0.0186

Mercury -109818-01-07 17:16 J -38389594.88 -38389594.78 -38389594.67 0.0532 0.0337

Venus -109817-04-19 11:31 J -38389127.10 -38389127.02 -38389126.93 0.0534 0.0478

Moon -109815-08-22 18:00 J -38388271.97 -38388271.75 -38388271.54 0.0514 0.0110

Earth -109815-08-22 19:55 J -38388271.88 -38388271.67 -38388271.45 0.0514 0.0122 \*

Mercury -109813-05-27 23:02 J -38387627.61 -38387627.54 -38387627.46 0.0497 0.0438

Mercury -109813-08-25 20:24 J -38387537.81 -38387537.65 -38387537.48 0.0495 0.0075

Venus -109811-02-15 04:04 J -38386999.52 -38386999.33 -38386999.13 0.0492 0.0163

Mercury -109807-07-29 07:55 J -38385374.28 -38385374.17 -38385374.06 0.0530 0.0317

Mercury -109807-10-26 20:24 J -38385284.78 -38385284.65 -38385284.53 0.0532 0.0212

Venus -109806-12-24 05:45 J -38384861.45 -38384861.26 -38384861.07 0.0535 0.0115

Mercury -109801-06-13 20:09 J -38383227.83 -38383227.66 -38383227.50 0.0495 0.0060

Mercury -109801-09-11 18:43 J -38383137.77 -38383137.72 -38383137.67 0.0494 0.0466

Venus -109800-10-21 03:36 J -38382733.55 -38382733.35 -38382733.15 0.0492 0.0140

Mercury -109795-05-17 10:33 J -38381064.13 -38381064.06 -38381063.98 0.0530 0.0444

Mercury -109795-08-14 23:31 J -38380974.66 -38380974.52 -38380974.39 0.0532 0.0089

Venus -109794-08-28 23:31 J -38380595.69 -38380595.52 -38380595.34 0.0535 0.0253

Mercury -109789-04-01 20:09 J -38378917.81 -38378917.66 -38378917.51 0.0496 0.0189

Mercury -109789-06-30 18:14 J -38378827.86 -38378827.74 -38378827.61 0.0494 0.0333

Venus -109788-06-26 04:04 J -38378467.42 -38378467.33 -38378467.23 0.0492 0.0436

Mercury -109783-06-03 02:09 J -38376664.55 -38376664.41 -38376664.27 0.0531 0.0040

Mercury -109783-08-31 13:55 J -38376574.98 -38376574.92 -38376574.86 0.0532 0.0477

Mercury -109777-01-19 20:24 J -38374607.78 -38374607.65 -38374607.53 0.0496 0.0317

Mercury -109777-04-18 18:00 J -38374517.90 -38374517.75 -38374517.60 0.0495 0.0200

Venus -109776-10-23 14:52 J -38373965.03 -38373964.88 -38373964.73 0.0493 0.0335

Mercury -109771-03-22 04:33 J -38372354.45 -38372354.31 -38372354.18 0.0530 0.0175

Mercury -109771-06-19 16:33 J -38372264.91 -38372264.81 -38372264.71 0.0532 0.0348

Venus -109770-08-31 20:38 J -38371826.79 -38371826.64 -38371826.48 0.0534 0.0329

Mercury -109766-11-07 21:07 J -38370297.69 -38370297.62 -38370297.54 0.0497 0.0438

Mercury -109765-02-05 18:28 J -38370207.90 -38370207.73 -38370207.57 0.0495 0.0075

Venus -109764-06-28 15:21 J -38369699.07 -38369698.86 -38369698.66 0.0492 0.0040

Earth -109761-02-22 08:52 J -38368730.24 -38368730.13 -38368730.00 0.0510 0.0441

Moon -109761-02-22 12:14 J -38368730.10 -38368729.99 -38368729.88 0.0510 0.0449 \*

Mercury -109759-01-08 05:45 J -38368044.37 -38368044.26 -38368044.14 0.0530 0.0321

Mercury -109759-04-07 18:14 J -38367954.86 -38367954.74 -38367954.61 0.0532 0.0207

Venus -109758-05-06 11:31 J -38367561.22 -38367561.02 -38367560.82 0.0535 0.0051

Mars -109754-08-12 14:09 J -38366002.12 -38366001.91 -38366001.69 0.0498 0.0320

Mercury -109754-11-24 18:43 J -38365897.89 -38365897.72 -38365897.56 0.0496 0.0053

Mercury -109753-02-22 17:16 J -38365807.82 -38365807.78 -38365807.73 0.0494 0.0474

Venus -109752-03-03 15:50 J -38365433.01 -38365432.84 -38365432.66 0.0492 0.0259

Moon -109749-02-27 08:38 J -38364342.39 -38364342.14 -38364341.89 0.0512 0.0008

Earth -109749-02-27 09:50 J -38364342.33 -38364342.09 -38364341.85 0.0512 0.0025 \*

Mercury -109748-10-27 08:09 J -38363734.23 -38363734.16 -38363734.09 0.0530 0.0454

Mercury -109747-01-24 21:07 J -38363644.76 -38363644.62 -38363644.48 0.0531 0.0079

Venus -109746-01-09 04:19 J -38363295.44 -38363295.32 -38363295.20 0.0535 0.0422  
 Moon -109744-08-17 13:12 J -38362344.07 -38362343.95 -38362343.83 0.0516 0.0425  
 Earth -109744-08-17 14:38 J -38362344.03 -38362343.89 -38362343.74 0.0516 0.0392 \*  
 Mercury -109742-09-12 18:14 J -38361587.89 -38361587.74 -38361587.58 0.0496 0.0187  
 Mercury -109742-12-11 16:19 J -38361497.94 -38361497.82 -38361497.69 0.0494 0.0335  
 Earth -109737-03-03 12:00 J -38359954.04 -38359954.00 -38359953.95 0.0514 0.0502  
 Mercury -109736-11-13 00:00 J -38359334.63 -38359334.50 -38359334.36 0.0531 0.0049  
 Mercury -109735-02-10 11:45 J -38359245.06 -38359245.01 -38359244.94 0.0533 0.0474  
 Earth -109732-08-22 00:43 J -38357956.69 -38357956.47 -38357956.24 0.0514 0.0043  
 Moon -109732-08-22 03:36 J -38357956.58 -38357956.35 -38357956.12 0.0514 0.0036 \*  
 Mercury -109730-07-01 18:28 J -38357277.85 -38357277.73 -38357277.60 0.0496 0.0315  
 Mercury -109730-09-29 16:04 J -38357187.98 -38357187.83 -38357187.67 0.0495 0.0202  
 Venus -109728-03-06 00:57 J -38356664.65 -38356664.46 -38356664.27 0.0492 0.0207  
 Mercury -109724-09-01 02:38 J -38355024.52 -38355024.39 -38355024.26 0.0530 0.0176  
 Mercury -109724-11-29 14:38 J -38354934.99 -38354934.89 -38354934.78 0.0532 0.0348  
 Venus -109722-01-12 04:04 J -38354526.51 -38354526.33 -38354526.14 0.0534 0.0173  
 Moon -109720-08-26 04:33 J -38353569.36 -38353569.31 -38353569.25 0.0512 0.0492  
 Earth -109720-08-26 08:09 J -38353569.25 -38353569.16 -38353569.06 0.0512 0.0464 \*  
 Mercury -109718-04-19 18:43 J -38352967.79 -38352967.72 -38352967.65 0.0497 0.0443  
 Mars -109718-05-17 23:45 J -38352939.75 -38352939.51 -38352939.26 0.0496 0.0238  
 Mercury -109718-07-18 15:50 J -38352878.00 -38352877.84 -38352877.67 0.0495 0.0070  
 Venus -109717-11-09 01:12 J -38352398.65 -38352398.45 -38352398.25 0.0492 0.0091  
 Mercury -109712-06-20 04:48 J -38350714.41 -38350714.30 -38350714.19 0.0530 0.0312  
 Mercury -109712-09-17 17:16 J -38350624.91 -38350624.78 -38350624.66 0.0531 0.0215  
 Venus -109711-09-16 19:55 J -38350260.85 -38350260.67 -38350260.48 0.0534 0.0205  
 Mercury -109706-05-06 16:19 J -38348567.99 -38348567.82 -38348567.66 0.0496 0.0057  
 Mercury -109706-08-04 14:52 J -38348477.93 -38348477.88 -38348477.83 0.0494 0.0470  
 Venus -109705-07-15 02:24 J -38348132.52 -38348132.40 -38348132.27 0.0492 0.0385  
 Mercury -109700-04-08 06:00 J -38346404.31 -38346404.25 -38346404.18 0.0529 0.0460  
 Mercury -109700-07-06 18:57 J -38346314.85 -38346314.71 -38346314.57 0.0531 0.0072

Mercury -109694-02-22 16:33 J -38344257.96 -38344257.81 -38344257.65 0.0496 0.0184

Mercury -109694-05-23 14:38 J -38344168.01 -38344167.89 -38344167.76 0.0495 0.0339

Venus -109693-11-11 12:43 J -38343630.09 -38343629.97 -38343629.84 0.0492 0.0386

Mercury -109688-04-24 21:36 J -38342004.74 -38342004.60 -38342004.47 0.0531 0.0060

Mercury -109688-07-23 09:21 J -38341915.18 -38341915.11 -38341915.04 0.0532 0.0460

Venus -109687-09-19 16:19 J -38341491.96 -38341491.82 -38341491.68 0.0534 0.0374

Mercury -109683-12-11 16:19 J -38339947.94 -38339947.82 -38339947.69 0.0496 0.0316

Mercury -109682-03-11 13:55 J -38339858.07 -38339857.92 -38339857.76 0.0495 0.0201

Venus -109681-07-17 11:02 J -38339364.25 -38339364.04 -38339363.84 0.0492 0.0079

Mercury -109676-02-11 00:14 J -38337694.62 -38337694.49 -38337694.35 0.0531 0.0186

Mercury -109676-05-11 12:28 J -38337605.08 -38337604.98 -38337604.87 0.0532 0.0339

Venus -109675-05-25 10:33 J -38337226.26 -38337226.06 -38337225.86 0.0534 0.0009

Mercury -109671-09-29 16:48 J -38335637.87 -38335637.80 -38335637.73 0.0497 0.0443

Mercury -109671-12-28 13:55 J -38335548.09 -38335547.92 -38335547.76 0.0495 0.0069

Venus -109669-03-22 11:16 J -38335098.22 -38335098.03 -38335097.84 0.0492 0.0221

Earth -109666-02-26 09:50 J -38334027.33 -38334027.09 -38334026.85 0.0512 0.0059

Moon -109666-02-26 10:19 J -38334027.30 -38334027.07 -38334026.84 0.0512 0.0087 \*

Mars -109665-11-23 23:16 J -38333390.79 -38333390.53 -38333390.27 0.0530 0.0110

Mercury -109665-11-30 02:52 J -38333384.49 -38333384.38 -38333384.27 0.0530 0.0315

Mercury -109664-02-27 15:21 J -38333294.99 -38333294.86 -38333294.73 0.0532 0.0212

Venus -109663-01-28 02:24 J -38332960.54 -38332960.40 -38332960.25 0.0534 0.0366

Earth -109661-08-16 15:50 J -38332028.91 -38332028.84 -38332028.76 0.0516 0.0485

Moon -109661-08-16 18:14 J -38332028.75 -38332028.74 -38332028.72 0.0516 0.0514

Mercury -109659-10-16 13:40 J -38331238.10 -38331237.93 -38331237.77 0.0496 0.0064

Mercury -109658-01-14 12:00 J -38331148.05 -38331148.00 -38331147.94 0.0494 0.0462

Earth -109654-03-03 11:16 J -38329639.17 -38329639.03 -38329638.89 0.0514 0.0413

Moon -109654-03-03 12:57 J -38329639.10 -38329638.96 -38329638.82 0.0514 0.0423 \*

Mercury -109653-09-18 04:48 J -38329074.37 -38329074.30 -38329074.22 0.0529 0.0453

Mercury -109653-12-16 17:45 J -38328984.90 -38328984.76 -38328984.62 0.0531 0.0079

Moon -109649-08-20 22:04 J -38327641.80 -38327641.58 -38327641.36 0.0515 0.0062

Earth -109649-08-21 01:26 J -38327641.67 -38327641.44 -38327641.22 0.0515 0.0052 \*  
 Mercury -109647-08-04 14:09 J -38326928.06 -38326927.91 -38326927.76 0.0496 0.0190  
 Mercury -109647-11-02 12:14 J -38326838.12 -38326837.99 -38326837.87 0.0495 0.0333  
 Venus -109645-03-24 22:33 J -38326329.74 -38326329.56 -38326329.38 0.0492 0.0257  
 Mercury -109641-10-04 19:26 J -38324674.83 -38324674.69 -38324674.56 0.0530 0.0066  
 Mercury -109640-01-02 07:12 J -38324585.27 -38324585.20 -38324585.13 0.0532 0.0453  
 Venus -109639-01-30 21:21 J -38324191.79 -38324191.61 -38324191.42 0.0534 0.0208  
 Earth -109637-08-25 10:19 J -38323254.22 -38323254.07 -38323253.91 0.0513 0.0376  
 Moon -109637-08-25 13:55 J -38323254.05 -38323253.92 -38323253.78 0.0513 0.0409 \*  
 Mercury -109635-05-23 14:24 J -38322618.02 -38322617.90 -38322617.77 0.0497 0.0316  
 Mercury -109635-08-21 12:00 J -38322528.15 -38322528.00 -38322527.84 0.0495 0.0203  
 Venus -109634-11-28 22:33 J -38322063.76 -38322063.56 -38322063.35 0.0492 0.0045  
 Mercury -109629-07-23 21:50 J -38320364.72 -38320364.59 -38320364.46 0.0530 0.0198  
 Mercury -109629-10-21 09:50 J -38320275.19 -38320275.09 -38320274.98 0.0532 0.0326  
 Venus -109628-10-05 14:24 J -38319926.09 -38319925.90 -38319925.71 0.0535 0.0166  
 Mercury -109623-03-11 14:24 J -38318307.97 -38318307.90 -38318307.83 0.0497 0.0446  
 Mercury -109623-06-09 11:31 J -38318218.19 -38318218.02 -38318217.86 0.0495 0.0065  
 Venus -109622-08-03 21:21 J -38317797.75 -38317797.61 -38317797.46 0.0492 0.0349  
 Mercury -109617-05-12 00:28 J -38316054.59 -38316054.48 -38316054.37 0.0530 0.0326  
 Mercury -109617-08-09 12:57 J -38315965.08 -38315964.96 -38315964.83 0.0532 0.0203  
 Mercury -109611-03-28 11:31 J -38313908.19 -38313908.02 -38313907.86 0.0496 0.0066  
 Mercury -109611-06-26 09:50 J -38313818.15 -38313818.09 -38313818.03 0.0494 0.0459  
 Venus -109610-12-01 07:26 J -38313295.29 -38313295.19 -38313295.09 0.0492 0.0424  
 Mercury -109605-02-29 02:52 J -38311744.45 -38311744.38 -38311744.31 0.0529 0.0457  
 Mercury -109605-05-28 15:50 J -38311654.98 -38311654.84 -38311654.71 0.0531 0.0076  
 Venus -109604-10-08 13:55 J -38311157.03 -38311156.92 -38311156.80 0.0534 0.0430  
 Mars -109600-11-04 13:40 J -38309669.19 -38309668.93 -38309668.66 0.0497 0.0188  
 Mercury -109599-01-14 11:16 J -38309598.18 -38309598.03 -38309597.88 0.0496 0.0198  
 Mercury -109599-04-14 09:21 J -38309508.24 -38309508.11 -38309507.98 0.0495 0.0324  
 Venus -109598-08-06 07:12 J -38309029.40 -38309029.20 -38309028.99 0.0492 0.0123

Mercury -109593-03-16 18:00 J -38307344.88 -38307344.75 -38307344.61 0.0530 0.0061

Mercury -109593-06-14 05:45 J -38307255.32 -38307255.26 -38307255.19 0.0532 0.0460

Venus -109592-06-13 06:14 J -38306891.44 -38306891.24 -38306891.05 0.0534 0.0055

Mercury -109588-11-02 11:45 J -38305288.13 -38305288.01 -38305287.88 0.0497 0.0323

Mercury -109587-01-31 09:21 J -38305198.26 -38305198.11 -38305197.95 0.0495 0.0195

Venus -109586-04-11 08:24 J -38304763.34 -38304763.15 -38304762.95 0.0492 0.0174

Earth -109583-02-25 05:45 J -38303712.49 -38303712.26 -38303712.03 0.0511 0.0160

Moon -109583-02-25 05:45 J -38303712.49 -38303712.26 -38303712.02 0.0511 0.0190 \*

Mercury -109581-01-03 19:40 J -38303034.81 -38303034.68 -38303034.55 0.0530 0.0203

Mercury -109581-04-02 07:55 J -38302945.28 -38302945.17 -38302945.06 0.0531 0.0320

Venus -109580-02-15 19:40 J -38302625.84 -38302625.68 -38302625.53 0.0534 0.0334

Mercury -109576-08-21 12:14 J -38300978.05 -38300977.99 -38300977.91 0.0497 0.0447

Mercury -109576-11-19 09:21 J -38300888.27 -38300888.11 -38300887.94 0.0496 0.0066

Venus -109575-12-15 09:07 J -38300497.17 -38300497.12 -38300497.06 0.0492 0.0471

Moon -109571-03-02 03:36 J -38299324.53 -38299324.35 -38299324.16 0.0513 0.0310

Earth -109571-03-02 05:31 J -38299324.46 -38299324.27 -38299324.08 0.0513 0.0303 \*

Mercury -109570-10-22 21:50 J -38298724.70 -38298724.59 -38298724.48 0.0530 0.0338

Mercury -109569-01-20 10:33 J -38298635.19 -38298635.06 -38298634.94 0.0531 0.0191

Earth -109566-08-21 02:38 J -38297326.61 -38297326.39 -38297326.18 0.0515 0.0144

Moon -109566-08-21 06:14 J -38297326.46 -38297326.24 -38297326.02 0.0515 0.0147 \*

Mars -109564-08-10 04:33 J -38296606.48 -38296606.31 -38296606.13 0.0496 0.0381

Mercury -109564-09-07 08:52 J -38296578.29 -38296578.13 -38296577.96 0.0496 0.0072

Mercury -109564-12-06 07:12 J -38296488.26 -38296488.20 -38296488.13 0.0494 0.0455

Venus -109562-04-13 16:48 J -38295994.96 -38295994.80 -38295994.63 0.0492 0.0293

Mercury -109558-08-11 00:14 J -38294414.55 -38294414.49 -38294414.42 0.0530 0.0469

Mercury -109558-11-08 13:26 J -38294325.08 -38294324.94 -38294324.81 0.0531 0.0066

Venus -109556-02-18 20:09 J -38293856.84 -38293856.66 -38293856.49 0.0534 0.0265

Moon -109554-08-25 09:36 J -38292939.27 -38292939.10 -38292938.92 0.0513 0.0322

Earth -109554-08-25 13:26 J -38292939.12 -38292938.94 -38292938.75 0.0513 0.0292 \*

Mercury -109552-06-26 09:07 J -38292268.27 -38292268.12 -38292267.97 0.0496 0.0199

Mercury -109552-09-24 06:57 J -38292178.33 -38292178.21 -38292178.08 0.0495 0.0322

Venus -109551-12-17 16:48 J -38291729.00 -38291728.80 -38291728.59 0.0492 0.0011

Mars -109546-05-14 09:07 J -38290120.29 -38290120.12 -38290119.94 0.0529 0.0394

Mercury -109546-08-27 16:04 J -38290014.97 -38290014.83 -38290014.69 0.0531 0.0063

Mercury -109546-11-25 04:04 J -38289925.40 -38289925.33 -38289925.26 0.0532 0.0456

Venus -109545-10-24 12:57 J -38289591.16 -38289590.96 -38289590.77 0.0534 0.0108

Mercury -109540-04-14 09:07 J -38287958.23 -38287958.12 -38287957.99 0.0497 0.0329

Mercury -109540-07-13 06:43 J -38287868.38 -38287868.22 -38287868.07 0.0495 0.0187

Venus -109539-08-22 17:16 J -38287462.94 -38287462.78 -38287462.61 0.0492 0.0307

Mercury -109534-06-15 18:28 J -38285704.86 -38285704.73 -38285704.60 0.0530 0.0197

Mercury -109534-09-13 06:43 J -38285615.33 -38285615.22 -38285615.12 0.0532 0.0327

Venus -109533-06-29 03:50 J -38285325.41 -38285325.34 -38285325.25 0.0534 0.0489

Mercury -109528-01-31 09:50 J -38283648.15 -38283648.09 -38283648.02 0.0497 0.0453

Mercury -109528-05-01 06:57 J -38283558.38 -38283558.21 -38283558.05 0.0496 0.0060

Venus -109527-12-20 04:33 J -38282960.36 -38282960.31 -38282960.25 0.0493 0.0473

Mercury -109522-04-03 19:55 J -38281394.77 -38281394.67 -38281394.56 0.0529 0.0340

Mercury -109522-07-02 08:38 J -38281305.27 -38281305.14 -38281305.01 0.0531 0.0188

Venus -109521-10-27 07:26 J -38280822.28 -38280822.19 -38280822.09 0.0534 0.0465

Mercury -109516-02-17 06:57 J -38279248.37 -38279248.21 -38279248.04 0.0496 0.0071

Mercury -109516-05-18 05:16 J -38279158.34 -38279158.28 -38279158.21 0.0495 0.0456

Venus -109515-08-25 04:33 J -38278694.51 -38278694.31 -38278694.12 0.0492 0.0171

Mercury -109510-01-20 22:04 J -38277084.64 -38277084.58 -38277084.52 0.0529 0.0476

Mars -109510-02-16 21:21 J -38277057.85 -38277057.61 -38277057.37 0.0529 0.0236

Mercury -109510-04-20 11:02 J -38276995.18 -38276995.04 -38276994.90 0.0531 0.0056

Venus -109509-07-02 00:28 J -38276556.67 -38276556.48 -38276556.28 0.0534 0.0093

Mercury -109505-12-06 06:43 J -38274938.37 -38274938.22 -38274938.07 0.0496 0.0203

Mercury -109504-03-06 04:33 J -38274848.44 -38274848.31 -38274848.18 0.0495 0.0317

Venus -109503-04-30 02:38 J -38274428.58 -38274428.39 -38274428.19 0.0492 0.0138

Moon -109500-02-24 00:00 J -38273397.68 -38273397.50 -38273397.30 0.0511 0.0295

Earth -109500-02-24 00:43 J -38273397.68 -38273397.47 -38273397.26 0.0511 0.0262 \*

Mercury -109498-02-06 13:40 J -38272685.06 -38272684.93 -38272684.79 0.0531 0.0073

Mercury -109498-05-07 01:40 J -38272595.50 -38272595.43 -38272595.35 0.0532 0.0449

Venus -109497-03-06 18:28 J -38272290.90 -38272290.73 -38272290.56 0.0535 0.0276

Mercury -109493-09-24 07:12 J -38270628.32 -38270628.20 -38270628.07 0.0496 0.0328

Mercury -109493-12-23 04:33 J -38270538.46 -38270538.31 -38270538.15 0.0495 0.0187

Venus -109491-01-03 03:21 J -38270162.44 -38270162.36 -38270162.26 0.0492 0.0436

Earth -109488-03-01 03:21 J -38269009.58 -38269009.36 -38269009.14 0.0513 0.0212

Moon -109488-03-01 05:45 J -38269009.48 -38269009.26 -38269009.03 0.0513 0.0219 \*

Mercury -109487-11-25 16:33 J -38268374.94 -38268374.81 -38268374.68 0.0530 0.0200

Mercury -109486-02-23 04:48 J -38268285.41 -38268285.30 -38268285.19 0.0532 0.0325

Moon -109483-08-20 02:09 J -38267011.61 -38267011.41 -38267011.21 0.0515 0.0235

Earth -109483-08-20 05:45 J -38267011.46 -38267011.26 -38267011.06 0.0515 0.0229 \*

Mercury -109481-07-13 07:26 J -38266318.25 -38266318.19 -38266318.13 0.0497 0.0456

Mercury -109481-10-11 04:19 J -38266228.48 -38266228.32 -38266228.15 0.0495 0.0054

Venus -109479-05-02 13:26 J -38265660.09 -38265659.94 -38265659.79 0.0493 0.0340

Mercury -109475-09-13 18:43 J -38264064.83 -38264064.72 -38264064.61 0.0530 0.0333

Mercury -109475-12-12 07:26 J -38263975.32 -38263975.19 -38263975.06 0.0531 0.0195

Venus -109473-03-09 17:02 J -38263521.95 -38263521.79 -38263521.63 0.0534 0.0317

Earth -109471-08-24 14:38 J -38262624.10 -38262623.89 -38262623.68 0.0514 0.0200

Moon -109471-08-24 18:00 J -38262623.95 -38262623.75 -38262623.55 0.0514 0.0234 \*

Mercury -109469-07-30 04:33 J -38261918.47 -38261918.31 -38261918.14 0.0496 0.0075

Mercury -109469-10-28 02:52 J -38261828.44 -38261828.38 -38261828.31 0.0495 0.0451

Venus -109467-01-05 14:24 J -38261394.11 -38261393.90 -38261393.70 0.0492 0.0041

Mercury -109463-07-02 20:24 J -38259754.71 -38259754.65 -38259754.59 0.0529 0.0475

Mercury -109463-09-30 09:21 J -38259665.25 -38259665.11 -38259664.97 0.0531 0.0056

Venus -109462-11-13 07:12 J -38259256.39 -38259256.20 -38259256.00 0.0534 0.0069

Mercury -109457-05-18 05:02 J -38257608.44 -38257608.29 -38257608.14 0.0497 0.0201

Mercury -109457-08-16 02:52 J -38257518.51 -38257518.38 -38257518.25 0.0495 0.0320

Venus -109456-09-10 15:07 J -38257128.05 -38257127.87 -38257127.69 0.0492 0.0259

Mercury -109451-07-19 11:45 J -38255355.15 -38255355.01 -38255354.87 0.0530 0.0077



Mercury -109451-10-16 23:45 J -38255265.59 -38255265.51 -38255265.44 0.0532 0.0442

Venus -109450-07-18 23:16 J -38254990.64 -38254990.53 -38254990.42 0.0534 0.0446

Mars -109445-01-28 20:09 J -38253335.94 -38253335.66 -38253335.37 0.0497 0.0035

Mercury -109445-03-06 05:02 J -38253298.41 -38253298.29 -38253298.17 0.0497 0.0330

Mercury -109445-06-04 02:24 J -38253208.56 -38253208.40 -38253208.25 0.0495 0.0185

Mercury -109439-05-07 14:09 J -38251045.04 -38251044.91 -38251044.78 0.0530 0.0207

Mercury -109439-08-05 02:38 J -38250955.50 -38250955.39 -38250955.28 0.0532 0.0319

Venus -109438-11-16 06:57 J -38250487.22 -38250487.21 -38250487.18 0.0534 0.0531

Mercury -109434-12-24 05:45 J -38248988.32 -38248988.26 -38248988.20 0.0497 0.0452

Mercury -109433-03-23 02:38 J -38248898.56 -38248898.39 -38248898.23 0.0495 0.0057

Venus -109432-09-12 23:45 J -38248359.70 -38248359.51 -38248359.32 0.0492 0.0212

Mercury -109427-02-23 16:48 J -38246734.90 -38246734.80 -38246734.69 0.0530 0.0335

Mercury -109427-05-24 05:45 J -38246645.39 -38246645.26 -38246645.14 0.0532 0.0196

Venus -109426-07-22 00:43 J -38246221.66 -38246221.47 -38246221.28 0.0534 0.0162

Mercury -109421-01-10 02:24 J -38244588.56 -38244588.40 -38244588.23 0.0496 0.0076

Mercury -109421-04-09 00:43 J -38244498.54 -38244498.47 -38244498.40 0.0494 0.0449

Venus -109420-05-19 00:14 J -38244093.70 -38244093.49 -38244093.29 0.0492 0.0089

Earth -109417-02-24 03:07 J -38243082.55 -38243082.37 -38243082.19 0.0511 0.0336

Moon -109417-02-24 04:19 J -38243082.49 -38243082.32 -38243082.14 0.0511 0.0367 \*

Mercury -109416-12-12 19:12 J -38242424.76 -38242424.70 -38242424.63 0.0529 0.0467

Mercury -109415-03-12 08:24 J -38242335.29 -38242335.15 -38242335.02 0.0531 0.0068

Venus -109414-03-26 17:02 J -38241955.97 -38241955.79 -38241955.60 0.0534 0.0217

Mercury -109410-10-29 02:52 J -38240278.53 -38240278.38 -38240278.23 0.0496 0.0201

Mercury -109409-01-27 00:43 J -38240188.60 -38240188.47 -38240188.34 0.0495 0.0319

Venus -109408-01-22 01:26 J -38239827.56 -38239827.44 -38239827.30 0.0492 0.0386

Moon -109405-02-29 01:55 J -38238694.64 -38238694.42 -38238694.19 0.0512 0.0138

Earth -109405-02-29 04:48 J -38238694.53 -38238694.30 -38238694.07 0.0512 0.0133 \*

Mercury -109404-12-29 10:19 J -38238025.21 -38238025.07 -38238024.93 0.0530 0.0072

Mercury -109403-03-28 22:19 J -38237935.64 -38237935.57 -38237935.50 0.0532 0.0447

Earth -109400-08-19 08:09 J -38236696.34 -38236696.16 -38236695.98 0.0516 0.0314

Moon -109400-08-19 11:45 J -38236696.19 -38236696.01 -38236695.84 0.0516 0.0316 \*  
 Mercury -109398-08-17 03:21 J -38235968.48 -38235968.36 -38235968.24 0.0497 0.0326  
 Mercury -109398-11-15 00:43 J -38235878.62 -38235878.47 -38235878.32 0.0496 0.0189  
 Venus -109396-05-21 12:14 J -38235325.11 -38235324.99 -38235324.87 0.0493 0.0394  
 Mars -109392-08-06 18:57 J -38233786.95 -38233786.71 -38233786.47 0.0528 0.0236  
 Mercury -109392-10-17 12:43 J -38233715.10 -38233714.97 -38233714.84 0.0530 0.0206  
 Mercury -109391-01-15 00:57 J -38233625.57 -38233625.46 -38233625.35 0.0531 0.0318  
 Venus -109390-03-29 13:40 J -38233187.07 -38233186.93 -38233186.78 0.0534 0.0368  
 Moon -109388-08-23 16:19 J -38232309.03 -38232308.82 -38232308.59 0.0514 0.0157  
 Earth -109388-08-23 19:40 J -38232308.90 -38232308.68 -38232308.46 0.0514 0.0127 \*  
 Mercury -109386-06-05 03:50 J -38231658.41 -38231658.34 -38231658.28 0.0497 0.0451  
 Mercury -109386-09-03 00:28 J -38231568.64 -38231568.48 -38231568.31 0.0495 0.0059  
 Venus -109384-01-24 10:19 J -38231059.27 -38231059.07 -38231058.86 0.0492 0.0086  
 Mercury -109380-08-05 14:52 J -38229404.99 -38229404.88 -38229404.77 0.0530 0.0339  
 Mercury -109380-11-03 03:36 J -38229315.47 -38229315.35 -38229315.22 0.0532 0.0192  
 Venus -109379-12-02 07:40 J -38228921.37 -38228921.18 -38228920.98 0.0535 0.0013  
 Mercury -109374-06-22 00:57 J -38227258.62 -38227258.46 -38227258.29 0.0496 0.0069  
 Mercury -109374-09-19 23:02 J -38227168.60 -38227168.54 -38227168.47 0.0494 0.0455  
 Venus -109373-09-29 11:31 J -38226793.20 -38226793.02 -38226792.83 0.0492 0.0214  
 Mercury -109368-05-24 17:31 J -38225094.83 -38225094.77 -38225094.70 0.0530 0.0467  
 Mercury -109368-08-22 06:43 J -38225005.36 -38225005.22 -38225005.08 0.0531 0.0068  
 Venus -109367-08-07 00:57 J -38224655.60 -38224655.46 -38224655.32 0.0535 0.0373  
 Mercury -109362-04-10 01:12 J -38222948.60 -38222948.45 -38222948.30 0.0496 0.0197  
 Mercury -109362-07-08 22:48 J -38222858.67 -38222858.55 -38222858.42 0.0495 0.0322  
 Mars -109356-05-13 00:28 J -38220723.62 -38220723.48 -38220723.34 0.0530 0.0449  
 Mercury -109356-06-10 09:21 J -38220695.25 -38220695.11 -38220694.97 0.0531 0.0061  
 Mercury -109356-09-07 21:21 J -38220605.67 -38220605.61 -38220605.54 0.0532 0.0458  
 Mercury -109350-01-27 01:40 J -38218638.55 -38218638.43 -38218638.30 0.0497 0.0322  
 Mercury -109350-04-26 23:02 J -38218548.70 -38218548.54 -38218548.39 0.0495 0.0193  
 Venus -109349-10-01 23:02 J -38218024.70 -38218024.54 -38218024.36 0.0492 0.0270

Mercury -109344-03-29 11:31 J -38216385.15 -38216385.02 -38216384.89 0.0530 0.0198  
 Mercury -109344-06-26 23:45 J -38216295.62 -38216295.51 -38216295.40 0.0531 0.0326  
 Venus -109343-08-09 22:19 J -38215886.75 -38215886.57 -38215886.38 0.0534 0.0216  
 Mercury -109339-11-15 02:24 J -38214328.47 -38214328.40 -38214328.33 0.0497 0.0446  
 Mercury -109338-02-12 23:16 J -38214238.70 -38214238.53 -38214238.37 0.0496 0.0065  
 Venus -109337-06-06 23:45 J -38213758.71 -38213758.51 -38213758.30 0.0492 0.0033  
 Moon -109334-02-23 03:21 J -38212767.46 -38212767.36 -38212767.24 0.0510 0.0443  
 Earth -109334-02-23 05:31 J -38212767.41 -38212767.27 -38212767.13 0.0510 0.0409 \*  
 Mercury -109332-01-15 13:40 J -38212075.04 -38212074.93 -38212074.82 0.0529 0.0332  
 Mercury -109332-04-15 02:24 J -38211985.53 -38211985.40 -38211985.27 0.0531 0.0197  
 Venus -109331-04-14 15:07 J -38211621.06 -38211620.87 -38211620.67 0.0534 0.0162  
 Mars -109327-07-18 19:55 J -38210064.80 -38210064.67 -38210064.53 0.0498 0.0434  
 Mercury -109327-12-01 23:16 J -38209928.69 -38209928.53 -38209928.36 0.0496 0.0064  
 Mercury -109326-03-01 21:21 J -38209838.66 -38209838.61 -38209838.55 0.0494 0.0460  
 Venus -109325-02-10 23:16 J -38209492.68 -38209492.53 -38209492.38 0.0492 0.0335  
 Earth -109322-02-28 02:24 J -38208379.64 -38208379.40 -38208379.16 0.0512 0.0041  
 Moon -109322-02-28 06:00 J -38208379.50 -38208379.25 -38208379.01 0.0512 0.0050 \*  
 Mercury -109321-11-03 15:36 J -38207764.91 -38207764.85 -38207764.78 0.0530 0.0468  
 Mercury -109320-02-01 04:48 J -38207675.43 -38207675.30 -38207675.16 0.0531 0.0068  
 Venus -109320-12-18 07:55 J -38207355.17 -38207355.17 -38207355.17 0.0535 0.0535  
 Moon -109317-08-18 16:19 J -38206380.97 -38206380.82 -38206380.65 0.0516 0.0367  
 Earth -109317-08-18 19:40 J -38206380.83 -38206380.68 -38206380.52 0.0516 0.0363 \*  
 Mercury -109315-09-20 00:00 J -38205618.65 -38205618.50 -38205618.34 0.0496 0.0186  
 Mercury -109315-12-18 21:36 J -38205528.72 -38205528.60 -38205528.47 0.0494 0.0332  
 Venus -109313-06-09 09:36 J -38204990.18 -38204990.10 -38204990.01 0.0492 0.0446  
 Mercury -109309-11-20 07:55 J -38203365.31 -38203365.17 -38203365.03 0.0531 0.0058  
 Mercury -109308-02-17 19:55 J -38203275.73 -38203275.67 -38203275.60 0.0533 0.0463  
 Venus -109307-04-17 16:33 J -38202851.92 -38202851.81 -38202851.71 0.0534 0.0448  
 Earth -109305-08-23 05:45 J -38201993.48 -38201993.26 -38201993.03 0.0514 0.0070  
 Moon -109305-08-23 08:09 J -38201993.38 -38201993.16 -38201992.95 0.0514 0.0102 \*

Mercury -109303-07-09 00:28 J -38201308.61 -38201308.48 -38201308.36 0.0496 0.0313  
 Mercury -109303-10-06 21:36 J -38201218.75 -38201218.60 -38201218.45 0.0495 0.0200  
 Venus -109301-02-13 10:19 J -38200724.27 -38200724.07 -38200723.87 0.0492 0.0145  
 Mercury -109297-09-08 10:33 J -38199055.19 -38199055.06 -38199054.93 0.0530 0.0186  
 Mercury -109297-12-06 23:02 J -38198965.65 -38198965.54 -38198965.44 0.0532 0.0339  
 Venus -109296-12-21 09:36 J -38198586.30 -38198586.10 -38198585.90 0.0534 0.0074  
 Moon -109293-08-27 13:55 J -38197605.93 -38197605.92 -38197605.91 0.0513 0.0512  
 Earth -109293-08-27 15:07 J -38197605.92 -38197605.87 -38197605.82 0.0513 0.0499 \*  
 Mars -109291-04-23 21:21 J -38197001.88 -38197001.61 -38197001.34 0.0497 0.0161  
 Mercury -109291-04-27 00:57 J -38196998.53 -38196998.46 -38196998.38 0.0497 0.0437  
 Mercury -109291-07-25 21:50 J -38196908.75 -38196908.59 -38196908.43 0.0495 0.0072  
 Venus -109290-10-19 11:45 J -38196458.20 -38196458.01 -38196457.81 0.0492 0.0154  
 Mercury -109285-06-27 12:43 J -38194745.08 -38194744.97 -38194744.86 0.0529 0.0321  
 Mercury -109285-09-25 01:26 J -38194655.57 -38194655.44 -38194655.31 0.0531 0.0208  
 Venus -109284-08-26 00:14 J -38194320.65 -38194320.49 -38194320.32 0.0534 0.0312  
 Mercury -109279-05-13 22:04 J -38192598.74 -38192598.58 -38192598.41 0.0496 0.0056  
 Mercury -109279-08-11 20:24 J -38192508.70 -38192508.65 -38192508.60 0.0495 0.0470  
 Venus -109278-06-24 13:12 J -38192192.03 -38192191.95 -38192191.87 0.0492 0.0451  
 Mercury -109273-04-15 14:52 J -38190434.95 -38190434.88 -38190434.81 0.0529 0.0456  
 Mercury -109273-07-14 04:04 J -38190345.47 -38190345.33 -38190345.20 0.0531 0.0079  
 Mercury -109267-03-01 22:33 J -38188288.71 -38188288.56 -38188288.40 0.0496 0.0179  
 Mercury -109267-05-30 20:09 J -38188198.78 -38188198.66 -38188198.53 0.0495 0.0340  
 Venus -109266-10-21 21:50 J -38187689.75 -38187689.59 -38187689.44 0.0492 0.0326  
 Mercury -109261-05-02 06:14 J -38186035.38 -38186035.24 -38186035.10 0.0531 0.0056  
 Mercury -109261-07-30 18:14 J -38185945.80 -38185945.74 -38185945.67 0.0533 0.0466  
 Venus -109260-08-29 00:28 J -38185551.64 -38185551.48 -38185551.31 0.0535 0.0294  
 Mercury -109256-12-18 23:31 J -38183978.65 -38183978.52 -38183978.39 0.0496 0.0299  
 Mercury -109255-03-18 20:38 J -38183888.79 -38183888.64 -38183888.49 0.0495 0.0215  
 Venus -109254-06-26 23:02 J -38183423.75 -38183423.54 -38183423.34 0.0492 0.0028  
 Earth -109251-02-22 06:57 J -38182452.28 -38182452.21 -38182452.14 0.0510 0.0487

Mercury -109249-02-19 09:07 J -38181725.25 -38181725.12 -38181724.99 0.0531 0.0181

Mercury -109249-05-18 21:36 J -38181635.70 -38181635.60 -38181635.49 0.0532 0.0345

Venus -109248-05-03 18:43 J -38181285.92 -38181285.72 -38181285.52 0.0535 0.0078

Mercury -109244-10-07 00:00 J -38179668.58 -38179668.50 -38179668.41 0.0497 0.0425

Mercury -109243-01-04 20:38 J -38179578.80 -38179578.64 -38179578.47 0.0495 0.0086

Venus -109242-03-02 00:00 J -38179157.67 -38179157.50 -38179157.32 0.0492 0.0274

Moon -109239-02-27 07:40 J -38178064.42 -38178064.18 -38178063.94 0.0512 0.0006

Earth -109239-02-27 11:16 J -38178064.27 -38178064.03 -38178063.78 0.0512 0.0014 \*

Mars -109238-11-01 10:04 J -38177452.34 -38177452.08 -38177451.81 0.0529 0.0012

Mercury -109238-12-08 11:45 J -38177415.12 -38177415.01 -38177414.89 0.0530 0.0309

Mercury -109237-03-07 00:43 J -38177325.60 -38177325.47 -38177325.35 0.0532 0.0222

Venus -109236-01-06 11:16 J -38177020.13 -38177020.03 -38177019.93 0.0535 0.0456

Earth -109234-08-19 05:16 J -38176065.40 -38176065.28 -38176065.14 0.0516 0.0423

Moon -109234-08-19 07:55 J -38176065.28 -38176065.17 -38176065.04 0.0516 0.0424 \*

Mercury -109232-10-23 21:07 J -38175268.78 -38175268.62 -38175268.45 0.0496 0.0043

Mercury -109231-01-21 19:12 J -38175178.73 -38175178.70 -38175178.66 0.0494 0.0480

Earth -109227-03-04 14:38 J -38173675.98 -38173675.89 -38173675.79 0.0513 0.0469

Moon -109227-03-04 18:14 J -38173675.78 -38173675.74 -38173675.69 0.0513 0.0501

Mercury -109226-09-26 14:09 J -38173104.99 -38173104.91 -38173104.84 0.0529 0.0443

Mercury -109226-12-25 03:07 J -38173015.51 -38173015.37 -38173015.23 0.0531 0.0091

Venus -109224-05-06 16:48 J -38172516.84 -38172516.80 -38172516.75 0.0534 0.0515

Moon -109222-08-23 12:28 J -38171678.21 -38171677.98 -38171677.75 0.0515 0.0037

Earth -109222-08-23 14:09 J -38171678.14 -38171677.91 -38171677.69 0.0515 0.0009 \*

Mercury -109220-08-11 21:36 J -38170958.75 -38170958.60 -38170958.44 0.0496 0.0168

Mercury -109220-11-09 19:12 J -38170868.81 -38170868.70 -38170868.58 0.0495 0.0352

Venus -109218-03-04 11:45 J -38170389.19 -38170389.01 -38170388.82 0.0492 0.0212

Mercury -109214-10-13 05:31 J -38168705.40 -38168705.27 -38168705.13 0.0531 0.0044

Mercury -109213-01-10 17:45 J -38168615.82 -38168615.76 -38168615.71 0.0532 0.0478

Venus -109212-01-09 10:04 J -38168251.28 -38168251.08 -38168250.89 0.0534 0.0142

Earth -109210-08-28 01:40 J -38167290.53 -38167290.43 -38167290.31 0.0513 0.0450

Moon -109210-08-28 01:40 J -38167290.52 -38167290.43 -38167290.33 0.0513 0.0460 \*  
 Mercury -109208-05-30 22:19 J -38166648.70 -38166648.57 -38166648.44 0.0496 0.0290  
 Mercury -109208-08-28 19:26 J -38166558.83 -38166558.69 -38166558.54 0.0495 0.0224  
 Venus -109207-11-07 12:00 J -38166123.21 -38166123.00 -38166122.80 0.0492 0.0092  
 Mercury -109202-08-01 07:40 J -38164395.31 -38164395.18 -38164395.05 0.0531 0.0178  
 Mercury -109202-10-29 20:09 J -38164305.76 -38164305.66 -38164305.56 0.0532 0.0349  
 Venus -109201-09-14 02:24 J -38163985.57 -38163985.40 -38163985.21 0.0535 0.0236  
 Mercury -109196-03-18 23:31 J -38162338.61 -38162338.52 -38162338.43 0.0497 0.0408  
 Mercury -109196-06-16 20:09 J -38162248.82 -38162248.66 -38162248.50 0.0495 0.0101  
 Venus -109195-07-13 13:55 J -38161857.04 -38161856.92 -38161856.79 0.0491 0.0387  
 Mercury -109190-05-20 10:33 J -38160085.18 -38160085.06 -38160084.95 0.0530 0.0304  
 Mercury -109190-08-17 23:16 J -38159995.65 -38159995.53 -38159995.40 0.0532 0.0228  
 Mercury -109184-04-04 20:24 J -38157938.82 -38157938.65 -38157938.49 0.0495 0.0029  
 Mercury -109184-07-03 18:28 J -38157848.73 -38157848.73 -38157848.73 0.0494 0.0494  
 Venus -109183-11-09 23:31 J -38157354.64 -38157354.52 -38157354.39 0.0492 0.0393  
 Mercury -109178-03-08 13:12 J -38155775.03 -38155774.95 -38155774.87 0.0530 0.0431  
 Mercury -109178-06-06 02:24 J -38155685.54 -38155685.40 -38155685.26 0.0532 0.0104  
 Venus -109177-09-17 04:33 J -38155216.45 -38155216.31 -38155216.17 0.0535 0.0377  
 Mars -109173-10-12 12:14 J -38153730.25 -38153729.99 -38153729.73 0.0498 0.0203  
 Mercury -109172-01-21 20:52 J -38153628.79 -38153628.63 -38153628.48 0.0496 0.0154  
 Mercury -109172-04-21 18:28 J -38153538.84 -38153538.73 -38153538.62 0.0495 0.0364  
 Venus -109171-07-16 00:43 J -38153088.67 -38153088.47 -38153088.26 0.0492 0.0093  
 Mercury -109166-03-25 04:48 J -38151375.44 -38151375.30 -38151375.16 0.0531 0.0030  
 Mercury -109166-06-22 16:48 J -38151285.84 -38151285.80 -38151285.74 0.0532 0.0493  
 Venus -109165-05-22 20:24 J -38150950.85 -38150950.65 -38150950.45 0.0534 0.0005  
 Mercury -109161-11-09 21:21 J -38149318.74 -38149318.61 -38149318.47 0.0497 0.0279  
 Mercury -109160-02-07 18:28 J -38149228.87 -38149228.73 -38149228.58 0.0495 0.0237  
 Venus -109159-03-21 02:24 J -38148822.59 -38148822.40 -38148822.21 0.0492 0.0206  
 Earth -109156-02-26 18:57 J -38147748.95 -38147748.71 -38147748.47 0.0511 0.0065  
 Moon -109156-02-26 22:48 J -38147748.79 -38147748.55 -38147748.31 0.0511 0.0049 \*

Mercury -109154-01-11 07:12 J -38147065.33 -38147065.20 -38147065.06 0.0530 0.0160  
 Mercury -109154-04-10 19:40 J -38146975.78 -38146975.68 -38146975.58 0.0532 0.0365  
 Venus -109153-01-26 12:28 J -38146685.12 -38146684.98 -38146684.84 0.0535 0.0386  
 Moon -109151-08-18 14:24 J -38145749.98 -38145749.90 -38145749.80 0.0517 0.0474  
 Earth -109151-08-18 16:33 J -38145749.90 -38145749.81 -38145749.72 0.0517 0.0473 \*  
 Mercury -109149-08-28 22:19 J -38145008.66 -38145008.57 -38145008.47 0.0497 0.0397  
 Mercury -109149-11-26 19:12 J -38144918.87 -38144918.70 -38144918.54 0.0495 0.0112  
 Moon -109144-03-03 12:14 J -38143361.12 -38143360.99 -38143360.84 0.0513 0.0416  
 Earth -109144-03-03 15:36 J -38143361.00 -38143360.85 -38143360.68 0.0513 0.0387 \*  
 Mercury -109143-10-30 09:07 J -38142755.24 -38142755.12 -38142755.01 0.0530 0.0300  
 Mercury -109142-01-27 21:50 J -38142665.71 -38142665.59 -38142665.46 0.0532 0.0232  
 Earth -109139-08-23 05:45 J -38141362.48 -38141362.26 -38141362.03 0.0516 0.0026  
 Moon -109139-08-23 06:14 J -38141362.46 -38141362.24 -38141362.03 0.0516 0.0007 \*  
 Mars -109137-07-18 19:26 J -38140666.83 -38140666.69 -38140666.52 0.0496 0.0413  
 Mercury -109137-09-14 19:55 J -38140608.84 -38140608.67 -38140608.51 0.0495 0.0011  
 Venus -109135-03-23 13:12 J -38140054.12 -38140053.95 -38140053.78 0.0492 0.0278  
 Mercury -109131-08-18 11:45 J -38138445.09 -38138445.01 -38138444.93 0.0530 0.0426  
 Mercury -109131-11-16 00:57 J -38138355.59 -38138355.46 -38138355.32 0.0532 0.0110  
 Venus -109129-01-29 13:55 J -38137916.10 -38137915.92 -38137915.74 0.0535 0.0228  
 Earth -109127-08-27 16:19 J -38136974.95 -38136974.82 -38136974.68 0.0513 0.0409  
 Moon -109127-08-27 18:00 J -38136974.89 -38136974.75 -38136974.61 0.0513 0.0411 \*  
 Mercury -109125-07-03 20:09 J -38136298.82 -38136298.66 -38136298.50 0.0496 0.0139  
 Mercury -109125-10-01 17:45 J -38136208.87 -38136208.76 -38136208.65 0.0494 0.0380  
 Venus -109124-11-26 14:09 J -38135788.12 -38135787.91 -38135787.71 0.0492 0.0026  
 Mars -109119-04-22 04:33 J -38134180.47 -38134180.31 -38134180.14 0.0528 0.0417  
 Mercury -109119-09-04 04:04 J -38134045.47 -38134045.33 -38134045.19 0.0531 0.0016  
 Mercury -109119-12-02 16:04 J -38133955.86 -38133955.83 -38133955.79 0.0533 0.0506  
 Venus -109118-10-04 07:26 J -38133650.38 -38133650.19 -38133650.00 0.0535 0.0150  
 Mercury -109113-04-21 20:38 J -38131988.77 -38131988.64 -38131988.50 0.0496 0.0264  
 Mercury -109113-07-20 17:45 J -38131898.90 -38131898.76 -38131898.61 0.0495 0.0251

Venus -109112-08-01 15:36 J -38131522.00 -38131521.85 -38131521.69 0.0492 0.0324  
 Mercury -109107-06-23 06:28 J -38129735.36 -38129735.23 -38129735.09 0.0530 0.0145  
 Mercury -109107-09-20 18:57 J -38129645.81 -38129645.71 -38129645.62 0.0532 0.0379  
 Venus -109106-06-08 22:19 J -38129384.57 -38129384.57 -38129384.55 0.0535 0.0534  
 Mercury -109101-02-08 21:21 J -38127678.71 -38127678.61 -38127678.51 0.0497 0.0387  
 Mercury -109101-05-08 18:00 J -38127588.91 -38127588.75 -38127588.58 0.0495 0.0124  
 Venus -109100-11-29 02:09 J -38127019.47 -38127019.41 -38127019.34 0.0492 0.0464  
 Mercury -109095-04-11 08:52 J -38125425.25 -38125425.13 -38125425.01 0.0530 0.0279  
 Mercury -109095-07-09 21:36 J -38125335.72 -38125335.60 -38125335.48 0.0532 0.0250  
 Venus -109094-10-07 05:45 J -38124881.36 -38124881.26 -38124881.14 0.0534 0.0450  
 Mercury -109089-02-25 18:43 J -38123278.88 -38123278.72 -38123278.55 0.0495 0.0011  
 Venus -109088-08-04 02:24 J -38122753.60 -38122753.40 -38122753.20 0.0491 0.0161  
 Mars -109083-01-25 18:43 J -38121117.96 -38121117.72 -38121117.48 0.0530 0.0231  
 Mercury -109083-01-28 10:19 J -38121115.15 -38121115.07 -38121114.99 0.0530 0.0422  
 Mercury -109083-04-27 23:31 J -38121025.65 -38121025.52 -38121025.38 0.0532 0.0114  
 Venus -109082-06-11 22:04 J -38120615.78 -38120615.58 -38120615.38 0.0535 0.0071  
 Mercury -109078-12-14 19:40 J -38118968.84 -38118968.68 -38118968.52 0.0496 0.0121  
 Mercury -109077-03-13 17:16 J -38118878.88 -38118878.78 -38118878.68 0.0494 0.0398  
 Venus -109076-04-09 04:19 J -38118487.52 -38118487.32 -38118487.12 0.0491 0.0138  
 Moon -109073-02-26 17:45 J -38117434.00 -38117433.76 -38117433.53 0.0511 0.0128  
 Earth -109073-02-26 21:36 J -38117433.83 -38117433.60 -38117433.37 0.0511 0.0140 \*  
 Mercury -109071-02-14 02:38 J -38116715.53 -38116715.39 -38116715.26 0.0532 0.0021  
 Mercury -109071-05-14 14:38 J -38116625.92 -38116625.89 -38116625.85 0.0533 0.0510  
 Venus -109070-02-14 15:36 J -38116350.01 -38116349.85 -38116349.69 0.0535 0.0306  
 Earth -109068-08-18 06:57 J -38115434.23 -38115434.21 -38115434.19 0.0517 0.0514  
 Moon -109068-08-18 07:40 J -38115434.20 -38115434.18 -38115434.15 0.0517 0.0513 \*  
 Mercury -109066-10-02 19:55 J -38114658.80 -38114658.67 -38114658.52 0.0496 0.0248  
 Mercury -109066-12-31 17:02 J -38114568.92 -38114568.79 -38114568.64 0.0494 0.0267  
 Venus -109065-12-13 05:31 J -38114221.36 -38114221.27 -38114221.18 0.0491 0.0438  
 Earth -109061-03-03 01:55 J -38113045.60 -38113045.42 -38113045.24 0.0513 0.0340



Moon -109061-03-03 04:33 J -38113045.47 -38113045.31 -38113045.15 0.0513 0.0372 \*  
 Mercury -109060-12-03 05:31 J -38112405.41 -38112405.27 -38112405.14 0.0531 0.0136  
 Mercury -109059-03-02 18:00 J -38112315.84 -38112315.75 -38112315.66 0.0533 0.0390  
 Earth -109056-08-22 17:31 J -38111046.99 -38111046.77 -38111046.55 0.0516 0.0076  
 Moon -109056-08-22 18:28 J -38111046.97 -38111046.73 -38111046.50 0.0516 0.0047 \*  
 Mercury -109054-07-21 20:38 J -38110348.74 -38110348.64 -38110348.53 0.0497 0.0372  
 Mercury -109054-10-19 17:16 J -38110258.93 -38110258.78 -38110258.62 0.0495 0.0138  
 Venus -109052-04-11 14:52 J -38109719.02 -38109718.88 -38109718.73 0.0492 0.0345  
 Mercury -109048-09-21 07:55 J -38108095.29 -38108095.17 -38108095.05 0.0530 0.0266  
 Mercury -109048-12-19 20:38 J -38108005.76 -38108005.64 -38108005.52 0.0532 0.0263  
 Venus -109046-02-17 16:04 J -38107580.99 -38107580.83 -38107580.66 0.0535 0.0303  
 Moon -109044-08-26 23:31 J -38106659.68 -38106659.52 -38106659.36 0.0514 0.0351  
 Earth -109044-08-27 01:55 J -38106659.58 -38106659.42 -38106659.25 0.0514 0.0352 \*  
 Mercury -109042-05-09 21:21 J -38106038.62 -38106038.61 -38106038.59 0.0497 0.0494  
 Mercury -109042-08-07 17:45 J -38105948.93 -38105948.76 -38105948.60 0.0496 0.0014  
 Venus -109041-12-15 16:04 J -38105453.03 -38105452.83 -38105452.62 0.0492 0.0045  
 Mercury -109036-07-10 10:04 J -38103785.17 -38103785.08 -38103784.99 0.0530 0.0401  
 Mercury -109036-10-07 23:16 J -38103695.67 -38103695.53 -38103695.40 0.0531 0.0132  
 Venus -109035-10-23 08:24 J -38103315.35 -38103315.15 -38103314.95 0.0535 0.0079  
 Mercury -109030-05-26 18:28 J -38101638.89 -38101638.73 -38101638.57 0.0496 0.0111  
 Mercury -109030-08-24 16:04 J -38101548.92 -38101548.83 -38101548.73 0.0494 0.0408  
 Venus -109029-08-20 17:31 J -38101186.94 -38101186.77 -38101186.59 0.0491 0.0255  
 Mercury -109024-07-27 00:57 J -38099385.60 -38099385.46 -38099385.32 0.0531 0.0013  
 Mercury -109024-10-24 13:12 J -38099295.98 -38099295.95 -38099295.91 0.0533 0.0512  
 Venus -109023-06-27 22:33 J -38099049.65 -38099049.56 -38099049.46 0.0535 0.0468  
 Mars -109018-01-07 14:09 J -38097395.19 -38097394.91 -38097394.63 0.0497 0.0055  
 Mercury -109018-03-14 19:26 J -38097328.83 -38097328.69 -38097328.54 0.0496 0.0231  
 Mercury -109018-06-12 16:33 J -38097238.94 -38097238.81 -38097238.67 0.0494 0.0283  
 Mercury -109012-05-15 03:50 J -38095075.48 -38095075.34 -38095075.21 0.0531 0.0135  
 Mercury -109012-08-12 16:19 J -38094985.91 -38094985.82 -38094985.73 0.0533 0.0391

Venus -109011-10-26 08:09 J -38094546.18 -38094546.16 -38094546.13 0.0535 0.0529

Mercury -109007-12-31 19:55 J -38093018.78 -38093018.67 -38093018.56 0.0496 0.0358

Mercury -109006-03-31 16:33 J -38092928.97 -38092928.81 -38092928.65 0.0495 0.0151

Venus -109005-08-23 03:36 J -38092418.53 -38092418.35 -38092418.16 0.0491 0.0227

# 109TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 109th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-109000-03-03 06:43 J	-38090765.34	-38090765.22	-38090765.10	0.0531	0.0260		
Mercury	-109000-05-31 19:40 J	-38090675.80	-38090675.68	-38090675.57	0.0532	0.0271		
Venus	-108999-07-01 01:55 J	-38090280.61	-38090280.42	-38090280.22	0.0535	0.0155		
Mercury	-108995-10-19 20:38 J	-38088708.68	-38088708.64	-38088708.60	0.0497	0.0481		
Mercury	-108994-01-17 16:48 J	-38088618.96	-38088618.80	-38088618.63	0.0495	0.0025		
Venus	-108993-04-28 05:16 J	-38088152.49	-38088152.28	-38088152.08	0.0491	0.0077		
Earth	-108990-02-26 07:12 J	-38087118.43	-38087118.20	-38087117.98	0.0510	0.0187		
Moon	-108990-02-26 10:33 J	-38087118.29	-38087118.06	-38087117.84	0.0510	0.0169	*	
Mercury	-108989-12-20 09:07 J	-38086455.22	-38086455.12	-38086455.03	0.0530	0.0391		
Mercury	-108988-03-19 22:19 J	-38086365.71	-38086365.57	-38086365.44	0.0531	0.0143		
Venus	-108987-03-05 17:45 J	-38086014.94	-38086014.76	-38086014.58	0.0535	0.0231		
Mercury	-108983-11-05 17:02 J	-38084308.94	-38084308.79	-38084308.62	0.0496	0.0105		

Mercury -108982-02-03 14:52 J -38084218.97 -38084218.88 -38084218.79 0.0494 0.0416

Venus -108981-01-02 06:43 J -38083886.35 -38083886.22 -38083886.08 0.0492 0.0375

Moon -108978-03-03 06:57 J -38082730.41 -38082730.21 -38082730.01 0.0512 0.0310

Earth -108978-03-03 08:52 J -38082730.33 -38082730.13 -38082729.92 0.0512 0.0282 \*

Mercury -108977-10-08 11:02 J -38082145.05 -38082145.04 -38082145.03 0.0529 0.0528

Mercury -108976-01-06 00:43 J -38082055.61 -38082055.47 -38082055.33 0.0531 0.0015

Mercury -108976-04-05 12:43 J -38081965.98 -38081965.97 -38081965.96 0.0533 0.0529

Moon -108973-08-22 00:57 J -38080731.67 -38080731.46 -38080731.25 0.0516 0.0108

Earth -108973-08-22 02:52 J -38080731.60 -38080731.38 -38080731.16 0.0516 0.0136 \*

Mercury -108971-08-24 18:00 J -38079998.89 -38079998.75 -38079998.60 0.0496 0.0225

Mercury -108971-11-22 15:07 J -38079909.00 -38079908.87 -38079908.73 0.0495 0.0292

Venus -108969-04-30 16:04 J -38079383.93 -38079383.83 -38079383.71 0.0491 0.0412

Mars -108965-07-16 06:43 J -38077846.46 -38077846.22 -38077845.98 0.0528 0.0214

Mercury -108965-10-25 02:09 J -38077745.55 -38077745.41 -38077745.27 0.0531 0.0134

Mercury -108964-01-22 14:38 J -38077655.98 -38077655.89 -38077655.79 0.0533 0.0392

Venus -108963-03-08 15:36 J -38077245.99 -38077245.85 -38077245.71 0.0535 0.0369

Earth -108961-08-26 14:38 J -38076344.07 -38076343.89 -38076343.71 0.0515 0.0305

Moon -108961-08-26 18:00 J -38076343.93 -38076343.75 -38076343.56 0.0515 0.0300 \*

Mercury -108959-06-12 19:12 J -38075688.82 -38075688.70 -38075688.58 0.0497 0.0344

Mercury -108959-09-10 15:50 J -38075599.00 -38075598.84 -38075598.68 0.0495 0.0166

Venus -108957-01-04 17:31 J -38075117.97 -38075117.77 -38075117.57 0.0491 0.0110

Mercury -108953-08-13 04:48 J -38073435.42 -38073435.30 -38073435.18 0.0531 0.0263

Mercury -108953-11-10 17:45 J -38073345.88 -38073345.76 -38073345.64 0.0532 0.0268

Venus -108952-11-11 09:07 J -38072980.32 -38072980.12 -38072979.92 0.0536 0.0014

Mercury -108947-03-31 19:26 J -38071378.73 -38071378.69 -38071378.63 0.0497 0.0470

Mercury -108947-06-29 15:50 J -38071289.01 -38071288.84 -38071288.68 0.0495 0.0035

Venus -108946-09-09 18:00 J -38070851.93 -38070851.75 -38070851.56 0.0491 0.0196

Mercury -108941-06-01 07:26 J -38069125.28 -38069125.19 -38069125.09 0.0530 0.0390

Mercury -108941-08-29 20:52 J -38069035.77 -38069035.63 -38069035.50 0.0532 0.0146

Venus -108940-07-17 01:55 J -38068714.55 -38068714.42 -38068714.28 0.0535 0.0390

Mercury -108935-04-17 16:04 J -38066978.99 -38066978.83 -38066978.67 0.0496 0.0094

Mercury -108935-07-16 13:40 J -38066889.01 -38066888.93 -38066888.85 0.0494 0.0425

Mercury -108929-03-20 09:50 J -38064815.11 -38064815.09 -38064815.07 0.0529 0.0521

Mars -108929-04-21 14:38 J -38064782.99 -38064782.89 -38064782.77 0.0530 0.0483

Mercury -108929-06-17 23:16 J -38064725.66 -38064725.53 -38064725.39 0.0531 0.0025

Mercury -108923-02-03 16:33 J -38062668.96 -38062668.81 -38062668.67 0.0496 0.0220

Mercury -108923-05-04 13:40 J -38062579.07 -38062578.93 -38062578.80 0.0495 0.0295

Venus -108922-09-12 04:33 J -38062083.48 -38062083.31 -38062083.15 0.0492 0.0289

Mercury -108917-04-06 01:40 J -38060415.57 -38060415.43 -38060415.29 0.0531 0.0118

Mercury -108917-07-04 14:09 J -38060326.00 -38060325.91 -38060325.82 0.0532 0.0407

Venus -108916-07-20 01:12 J -38059945.63 -38059945.45 -38059945.26 0.0535 0.0218

Mercury -108912-11-22 17:31 J -38058358.89 -38058358.77 -38058358.65 0.0497 0.0340

Mercury -108911-02-20 14:09 J -38058269.06 -38058268.91 -38058268.75 0.0495 0.0171

Venus -108910-05-18 06:00 J -38057817.46 -38057817.25 -38057817.05 0.0491 0.0014

Moon -108907-02-25 03:36 J -38056803.56 -38056803.35 -38056803.13 0.0509 0.0261

Earth -108907-02-25 06:43 J -38056803.42 -38056803.22 -38056803.02 0.0509 0.0275 \*

Mercury -108905-01-24 02:52 J -38056105.50 -38056105.38 -38056105.25 0.0530 0.0264

Mercury -108905-04-22 15:50 J -38056015.96 -38056015.84 -38056015.72 0.0532 0.0267

Venus -108904-03-24 15:21 J -38055680.05 -38055679.86 -38055679.68 0.0536 0.0177

Mars -108900-06-27 19:40 J -38054123.88 -38054123.68 -38054123.47 0.0499 0.0340

Mercury -108900-09-10 18:28 J -38054048.78 -38054048.73 -38054048.67 0.0497 0.0459

Mercury -108900-12-09 14:52 J -38053959.05 -38053958.88 -38053958.72 0.0495 0.0047

Venus -108898-01-21 07:40 J -38053551.34 -38053551.18 -38053551.02 0.0491 0.0313

Earth -108895-03-02 07:55 J -38052415.39 -38052415.17 -38052414.94 0.0511 0.0190

Moon -108895-03-02 09:21 J -38052415.32 -38052415.11 -38052414.90 0.0511 0.0221 \*

Mercury -108894-11-12 05:16 J -38051795.37 -38051795.28 -38051795.18 0.0530 0.0396

Mercury -108893-02-09 18:43 J -38051705.85 -38051705.72 -38051705.59 0.0532 0.0140

Earth -108890-08-22 12:00 J -38050416.21 -38050416.00 -38050415.79 0.0517 0.0198

Moon -108890-08-22 14:52 J -38050416.10 -38050415.88 -38050415.66 0.0517 0.0168 \*

Mercury -108888-09-27 14:52 J -38049649.04 -38049648.88 -38049648.72 0.0496 0.0086

Mercury -108888-12-26 12:14 J -38049559.06 -38049558.99 -38049558.91 0.0494 0.0433

Venus -108886-05-20 15:21 J -38049048.91 -38049048.86 -38049048.79 0.0491 0.0468

Mercury -108882-08-31 07:55 J -38047485.19 -38047485.17 -38047485.15 0.0529 0.0523

Mercury -108882-11-28 21:36 J -38047395.74 -38047395.60 -38047395.46 0.0531 0.0018

Venus -108880-03-27 17:31 J -38046910.88 -38046910.77 -38046910.66 0.0535 0.0443

Moon -108878-08-26 18:43 J -38046028.92 -38046028.72 -38046028.52 0.0515 0.0233

Earth -108878-08-26 22:19 J -38046028.76 -38046028.57 -38046028.36 0.0515 0.0239 \*

Mercury -108876-07-16 15:07 J -38045339.01 -38045338.87 -38045338.72 0.0496 0.0213

Mercury -108876-10-14 12:14 J -38045249.12 -38045248.99 -38045248.86 0.0494 0.0302

Venus -108874-01-23 16:04 J -38044783.03 -38044782.83 -38044782.63 0.0491 0.0163

Mercury -108870-09-17 00:14 J -38043085.63 -38043085.49 -38043085.36 0.0531 0.0114

Mercury -108870-12-15 12:43 J -38042996.06 -38042995.97 -38042995.88 0.0532 0.0411

Venus -108869-11-30 09:21 J -38042645.31 -38042645.11 -38042644.91 0.0535 0.0059

Mars -108864-04-02 14:38 J -38041061.14 -38041060.89 -38041060.65 0.0497 0.0250

Mercury -108864-05-04 15:36 J -38041028.97 -38041028.85 -38041028.73 0.0497 0.0339

Mercury -108864-08-02 12:14 J -38040939.15 -38040938.99 -38040938.84 0.0495 0.0171

Venus -108863-09-28 17:16 J -38040516.97 -38040516.78 -38040516.58 0.0491 0.0141

Mercury -108858-07-06 02:09 J -38038775.53 -38038775.41 -38038775.28 0.0530 0.0251

Mercury -108858-10-03 15:07 J -38038685.98 -38038685.87 -38038685.75 0.0532 0.0280

Venus -108857-08-05 00:14 J -38038379.64 -38038379.49 -38038379.33 0.0535 0.0332

Mercury -108852-02-20 16:33 J -38036718.86 -38036718.81 -38036718.75 0.0497 0.0459

Mercury -108852-05-21 12:57 J -38036629.13 -38036628.96 -38036628.80 0.0495 0.0048

Venus -108851-06-03 19:40 J -38036250.78 -38036250.68 -38036250.59 0.0491 0.0438

Mercury -108846-04-24 03:21 J -38034465.45 -38034465.36 -38034465.26 0.0530 0.0398

Mercury -108846-07-22 16:48 J -38034375.94 -38034375.80 -38034375.67 0.0532 0.0137

Mercury -108840-03-09 13:26 J -38032319.10 -38032318.94 -38032318.78 0.0496 0.0078

Mercury -108840-06-07 11:02 J -38032229.11 -38032229.04 -38032228.97 0.0494 0.0441

Venus -108839-10-01 04:04 J -38031748.47 -38031748.33 -38031748.18 0.0491 0.0347

Mercury -108834-05-10 19:12 J -38030065.84 -38030065.70 -38030065.56 0.0531 0.0017

Mercury -108834-08-08 07:40 J -38029976.20 -38029976.18 -38029976.17 0.0533 0.0527

Venus -108833-08-07 22:33 J -38029610.73 -38029610.56 -38029610.38 0.0536 0.0272

Mercury -108829-12-26 13:26 J -38028009.08 -38028008.94 -38028008.79 0.0496 0.0209

Mercury -108828-03-26 10:33 J -38027919.19 -38027919.06 -38027918.93 0.0494 0.0305

Venus -108827-06-06 03:36 J -38027482.56 -38027482.35 -38027482.14 0.0491 0.0037

Earth -108824-02-24 08:38 J -38026488.31 -38026488.14 -38026487.96 0.0509 0.0351

Moon -108824-02-24 11:16 J -38026488.21 -38026488.03 -38026487.86 0.0509 0.0336 \*

Mercury -108822-02-26 22:04 J -38025755.71 -38025755.58 -38025755.44 0.0531 0.0120

Mercury -108822-05-27 10:48 J -38025666.14 -38025666.05 -38025665.96 0.0533 0.0407

Venus -108821-04-12 16:04 J -38025345.03 -38025344.83 -38025344.63 0.0536 0.0109

Mercury -108817-10-14 13:55 J -38023699.03 -38023698.92 -38023698.80 0.0496 0.0335

Mercury -108816-01-12 10:33 J -38023609.21 -38023609.06 -38023608.90 0.0495 0.0174

Venus -108815-02-09 04:33 J -38023216.48 -38023216.31 -38023216.13 0.0491 0.0268

Moon -108812-03-01 10:33 J -38022100.30 -38022100.06 -38022099.82 0.0511 0.0147

Earth -108812-03-01 11:16 J -38022100.26 -38022100.03 -38022099.79 0.0511 0.0119 \*

Mars -108811-10-10 13:40 J -38021512.19 -38021511.93 -38021511.66 0.0529 0.0002

Mercury -108811-12-16 00:28 J -38021445.60 -38021445.48 -38021445.35 0.0530 0.0250

Mercury -108810-03-15 13:26 J -38021356.05 -38021355.94 -38021355.82 0.0532 0.0280

Venus -108810-12-17 07:12 J -38021079.27 -38021079.20 -38021079.13 0.0535 0.0496

Moon -108807-08-21 12:00 J -38020101.19 -38020101.00 -38020100.80 0.0517 0.0253

Earth -108807-08-21 15:36 J -38020101.04 -38020100.85 -38020100.66 0.0517 0.0282 \*

Mercury -108805-08-02 14:24 J -38019388.96 -38019388.90 -38019388.84 0.0497 0.0461

Mercury -108805-10-31 10:33 J -38019299.22 -38019299.06 -38019298.89 0.0495 0.0043

Mercury -108799-10-04 02:24 J -38017135.49 -38017135.40 -38017135.30 0.0530 0.0387

Mercury -108798-01-01 15:50 J -38017045.97 -38017045.84 -38017045.71 0.0531 0.0147

Venus -108797-04-15 14:24 J -38016575.97 -38016575.90 -38016575.82 0.0535 0.0496

Earth -108795-08-26 01:26 J -38015713.65 -38015713.44 -38015713.22 0.0516 0.0154

Moon -108795-08-26 05:31 J -38015713.49 -38015713.27 -38015713.06 0.0516 0.0149 \*

Mercury -108793-08-19 11:16 J -38014989.19 -38014989.03 -38014988.87 0.0496 0.0081

Mercury -108793-11-17 08:52 J -38014899.21 -38014899.13 -38014899.06 0.0494 0.0439

Venus -108791-02-11 14:38 J -38014448.07 -38014447.89 -38014447.70 0.0491 0.0219

Mercury -108787-10-20 17:16 J -38012735.92 -38012735.78 -38012735.64 0.0531 0.0002  
 Mercury -108786-01-18 05:31 J -38012646.29 -38012646.27 -38012646.25 0.0533 0.0522  
 Venus -108786-12-20 03:50 J -38012310.54 -38012310.34 -38012310.14 0.0535 0.0100  
 Mercury -108781-06-07 11:45 J -38010679.15 -38010679.01 -38010678.86 0.0496 0.0206  
 Mercury -108781-09-05 08:52 J -38010589.26 -38010589.13 -38010589.00 0.0495 0.0310  
 Venus -108780-10-17 16:04 J -38010182.03 -38010181.83 -38010181.63 0.0491 0.0086  
 Mercury -108775-08-08 19:40 J -38008425.82 -38008425.68 -38008425.55 0.0531 0.0131  
 Mercury -108775-11-06 08:09 J -38008336.25 -38008336.16 -38008336.06 0.0532 0.0395  
 Venus -108774-08-24 19:55 J -38008044.84 -38008044.67 -38008044.50 0.0536 0.0288  
 Mercury -108769-03-26 12:00 J -38006369.12 -38006369.00 -38006368.88 0.0497 0.0335  
 Mercury -108769-06-24 08:24 J -38006279.30 -38006279.15 -38006278.99 0.0495 0.0175  
 Venus -108768-06-22 15:36 J -38005915.96 -38005915.85 -38005915.72 0.0491 0.0396  
 Mercury -108763-05-27 22:19 J -38004115.70 -38004115.57 -38004115.45 0.0530 0.0259  
 Mercury -108763-08-25 11:16 J -38004026.15 -38004026.03 -38004025.91 0.0532 0.0272  
 Mercury -108757-01-13 12:28 J -38002059.03 -38002058.98 -38002058.91 0.0497 0.0459  
 Mercury -108757-04-12 08:38 J -38001969.30 -38001969.14 -38001968.97 0.0495 0.0045  
 Venus -108756-10-19 23:45 J -38001413.63 -38001413.51 -38001413.38 0.0491 0.0390  
 Mercury -108751-03-16 00:28 J -37999805.57 -37999805.48 -37999805.38 0.0530 0.0390  
 Mercury -108751-06-13 13:55 J -37999716.05 -37999715.92 -37999715.79 0.0532 0.0145  
 Venus -108750-08-27 21:07 J -37999275.77 -37999275.62 -37999275.46 0.0535 0.0333  
 Mars -108746-09-21 03:07 J -37997790.63 -37997790.37 -37997790.10 0.0499 0.0182  
 Mercury -108745-01-30 08:38 J -37997659.30 -37997659.14 -37997658.97 0.0496 0.0087  
 Mercury -108745-04-29 06:00 J -37997569.32 -37997569.25 -37997569.16 0.0494 0.0433  
 Venus -108744-06-25 00:28 J -37997147.68 -37997147.48 -37997147.28 0.0491 0.0085  
 Moon -108741-02-24 07:12 J -37996173.33 -37996173.20 -37996173.05 0.0509 0.0419  
 Earth -108741-02-24 09:21 J -37996173.23 -37996173.11 -37996172.98 0.0509 0.0431 \*  
 Mercury -108739-01-02 02:24 J -37995495.40 -37995495.40 -37995495.39 0.0529 0.0528  
 Mercury -108739-04-01 16:04 J -37995405.97 -37995405.83 -37995405.69 0.0531 0.0017  
 Mercury -108739-06-30 04:19 J -37995316.32 -37995316.32 -37995316.30 0.0533 0.0530  
 Venus -108738-05-02 12:28 J -37995010.18 -37995009.98 -37995009.78 0.0535 0.0059

Mercury -108734-11-18 09:21 J -37993349.25 -37993349.11 -37993348.96 0.0496 0.0210

Mercury -108733-02-16 06:28 J -37993259.36 -37993259.23 -37993259.10 0.0495 0.0305

Venus -108732-02-28 02:24 J -37992881.58 -37992881.40 -37992881.21 0.0491 0.0218

Earth -108729-02-29 07:55 J -37991785.42 -37991785.17 -37991784.93 0.0510 0.0022

Moon -108729-02-29 07:55 J -37991785.40 -37991785.17 -37991784.94 0.0510 0.0049 \*

Mercury -108727-01-18 17:31 J -37991095.90 -37991095.77 -37991095.63 0.0530 0.0136

Mercury -108727-04-18 06:00 J -37991006.33 -37991006.25 -37991006.15 0.0532 0.0390

Venus -108726-01-05 00:28 J -37990744.57 -37990744.48 -37990744.37 0.0535 0.0462

Earth -108724-08-20 17:02 J -37989785.94 -37989785.79 -37989785.63 0.0518 0.0374

Moon -108724-08-20 20:52 J -37989785.80 -37989785.63 -37989785.46 0.0518 0.0342 \*

Mercury -108722-09-06 10:04 J -37989039.20 -37989039.08 -37989038.96 0.0497 0.0334

Mercury -108722-12-05 06:43 J -37988949.38 -37988949.22 -37988949.07 0.0495 0.0176

Earth -108717-03-05 07:26 J -37987397.26 -37987397.19 -37987397.11 0.0512 0.0481

Moon -108717-03-05 10:04 J -37987397.18 -37987397.08 -37987396.98 0.0512 0.0466 \*

Mercury -108716-11-06 19:40 J -37986785.80 -37986785.68 -37986785.56 0.0530 0.0271

Mercury -108715-02-04 08:38 J -37986696.26 -37986696.14 -37986696.02 0.0532 0.0260

Moon -108712-08-25 00:00 J -37985398.72 -37985398.50 -37985398.27 0.0516 0.0065

Earth -108712-08-25 04:04 J -37985398.55 -37985398.33 -37985398.11 0.0516 0.0067 \*

Mercury -108710-06-25 10:19 J -37984729.12 -37984729.07 -37984729.01 0.0497 0.0462

Mars -108710-06-27 02:38 J -37984727.54 -37984727.39 -37984727.23 0.0497 0.0416

Mercury -108710-09-23 06:28 J -37984639.40 -37984639.23 -37984639.07 0.0495 0.0043

Venus -108708-03-02 09:50 J -37984113.26 -37984113.09 -37984112.91 0.0491 0.0259

Mercury -108704-08-25 22:04 J -37982475.67 -37982475.58 -37982475.49 0.0530 0.0401

Mercury -108704-11-23 11:31 J -37982386.15 -37982386.02 -37982385.88 0.0532 0.0135

Venus -108702-01-08 02:52 J -37981975.57 -37981975.38 -37981975.19 0.0536 0.0161

Earth -108700-08-29 14:38 J -37981010.94 -37981010.89 -37981010.84 0.0514 0.0502

Moon -108700-08-29 17:45 J -37981010.84 -37981010.76 -37981010.67 0.0514 0.0473 \*

Mercury -108698-07-12 06:43 J -37980329.38 -37980329.22 -37980329.06 0.0496 0.0087

Mercury -108698-10-10 03:50 J -37980239.41 -37980239.34 -37980239.25 0.0494 0.0432

Venus -108697-11-05 10:48 J -37979847.25 -37979847.05 -37979846.84 0.0491 0.0048



Mars -108692-03-30 09:07 J -37978241.20 -37978241.12 -37978241.03 0.0527 0.0494  
 Mercury -108692-09-11 14:09 J -37978076.05 -37978075.91 -37978075.77 0.0531 0.0007  
 Mercury -108692-12-10 02:24 J -37977986.41 -37977986.40 -37977986.38 0.0533 0.0527  
 Venus -108691-09-12 18:28 J -37977709.91 -37977709.73 -37977709.55 0.0535 0.0228  
 Mercury -108686-04-30 06:57 J -37976019.36 -37976019.21 -37976019.07 0.0496 0.0217  
 Mercury -108686-07-29 03:50 J -37975929.47 -37975929.34 -37975929.21 0.0495 0.0297  
 Venus -108685-07-11 12:00 J -37975581.14 -37975581.00 -37975580.86 0.0491 0.0353  
 Mercury -108680-06-30 16:19 J -37973765.96 -37973765.82 -37973765.68 0.0530 0.0129  
 Mercury -108680-09-28 05:02 J -37973676.38 -37973676.29 -37973676.20 0.0532 0.0396  
 Mercury -108674-02-16 07:40 J -37971709.30 -37971709.18 -37971709.07 0.0497 0.0340  
 Mercury -108674-05-17 04:04 J -37971619.49 -37971619.33 -37971619.17 0.0495 0.0169  
 Venus -108673-11-07 21:07 J -37971078.71 -37971078.62 -37971078.53 0.0491 0.0440  
 Mercury -108668-04-18 17:31 J -37969455.89 -37969455.77 -37969455.64 0.0530 0.0275  
 Mercury -108668-07-17 06:43 J -37969366.34 -37969366.22 -37969366.10 0.0531 0.0255  
 Venus -108667-09-15 14:24 J -37968941.04 -37968940.90 -37968940.76 0.0535 0.0367  
 Mercury -108663-12-05 08:24 J -37967399.21 -37967399.15 -37967399.10 0.0498 0.0463  
 Mercury -108662-03-05 04:19 J -37967309.48 -37967309.32 -37967309.15 0.0496 0.0043  
 Venus -108661-07-13 21:50 J -37966812.79 -37966812.59 -37966812.39 0.0491 0.0133  
 Mars -108656-01-02 12:14 J -37965179.24 -37965178.99 -37965178.73 0.0528 0.0125  
 Mercury -108656-02-04 19:26 J -37965145.77 -37965145.69 -37965145.60 0.0529 0.0412  
 Mercury -108656-05-05 09:07 J -37965056.26 -37965056.12 -37965055.99 0.0531 0.0124  
 Venus -108655-05-21 06:28 J -37964675.43 -37964675.23 -37964675.03 0.0535 0.0021  
 Mercury -108651-12-22 04:19 J -37962999.48 -37962999.32 -37962999.16 0.0496 0.0091  
 Mercury -108650-03-22 01:40 J -37962909.52 -37962909.43 -37962909.35 0.0494 0.0426  
 Venus -108649-03-18 21:07 J -37962546.81 -37962546.62 -37962546.43 0.0491 0.0180  
 Earth -108646-02-28 03:07 J -37961470.61 -37961470.37 -37961470.13 0.0510 0.0079  
 Moon -108646-02-28 03:50 J -37961470.59 -37961470.34 -37961470.09 0.0510 0.0051 \*  
 Mercury -108644-02-21 11:45 J -37960746.15 -37960746.01 -37960745.87 0.0531 0.0011  
 Mercury -108644-05-22 00:00 J -37960656.52 -37960656.50 -37960656.47 0.0533 0.0517  
 Venus -108643-01-23 23:02 J -37960409.67 -37960409.54 -37960409.41 0.0535 0.0405

Moon -108641-08-19 17:02 J -37959470.91 -37959470.79 -37959470.66 0.0518 0.0423  
 Earth -108641-08-19 20:52 J -37959470.73 -37959470.63 -37959470.52 0.0518 0.0455 \*  
 Mercury -108639-10-10 04:48 J -37958689.45 -37958689.30 -37958689.15 0.0496 0.0217  
 Mercury -108638-01-08 01:40 J -37958599.57 -37958599.43 -37958599.30 0.0495 0.0296  
 Venus -108638-11-22 22:33 J -37958280.59 -37958280.56 -37958280.52 0.0491 0.0483  
 Moon -108634-03-05 02:24 J -37957082.56 -37957082.40 -37957082.24 0.0512 0.0377  
 Earth -108634-03-05 05:16 J -37957082.43 -37957082.28 -37957082.12 0.0512 0.0391 \*  
 Mercury -108633-12-10 14:09 J -37956436.04 -37956435.91 -37956435.77 0.0531 0.0134  
 Mercury -108632-03-10 02:52 J -37956346.47 -37956346.38 -37956346.28 0.0532 0.0393  
 Earth -108629-08-24 05:31 J -37955083.49 -37955083.27 -37955083.04 0.0517 0.0024  
 Moon -108629-08-24 09:21 J -37955083.33 -37955083.11 -37955082.89 0.0517 0.0023 \*  
 Mercury -108627-07-29 05:02 J -37954379.40 -37954379.29 -37954379.17 0.0497 0.0345  
 Mercury -108627-10-27 01:26 J -37954289.60 -37954289.44 -37954289.28 0.0495 0.0163  
 Venus -108625-03-21 06:14 J -37953778.41 -37953778.24 -37953778.08 0.0491 0.0304  
 Mercury -108621-09-28 16:19 J -37952125.94 -37952125.82 -37952125.70 0.0530 0.0269  
 Mercury -108621-12-27 05:31 J -37952036.39 -37952036.27 -37952036.15 0.0532 0.0262  
 Venus -108619-01-26 23:02 J -37951640.72 -37951640.54 -37951640.36 0.0535 0.0210  
 Moon -108617-08-28 11:31 J -37950696.17 -37950696.02 -37950695.86 0.0515 0.0374  
 Earth -108617-08-28 14:38 J -37950696.02 -37950695.89 -37950695.75 0.0515 0.0405 \*  
 Mercury -108615-05-17 05:45 J -37950069.31 -37950069.26 -37950069.20 0.0498 0.0469  
 Mercury -108615-08-15 01:55 J -37949979.59 -37949979.42 -37949979.26 0.0496 0.0036  
 Venus -108614-11-25 07:40 J -37949512.38 -37949512.18 -37949511.97 0.0491 0.0011  
 Mercury -108609-07-17 17:45 J -37947815.85 -37947815.76 -37947815.68 0.0529 0.0414  
 Mercury -108609-10-15 07:12 J -37947726.34 -37947726.20 -37947726.07 0.0531 0.0121  
 Venus -108608-10-01 12:00 J -37947375.19 -37947375.00 -37947374.82 0.0535 0.0193  
 Mercury -108603-06-03 02:09 J -37945669.57 -37945669.41 -37945669.25 0.0496 0.0092  
 Mercury -108603-08-31 23:31 J -37945579.60 -37945579.52 -37945579.43 0.0495 0.0427  
 Venus -108602-07-31 09:07 J -37945246.28 -37945246.12 -37945245.96 0.0491 0.0306  
 Mercury -108597-08-03 09:21 J -37943416.25 -37943416.11 -37943415.97 0.0531 0.0014  
 Mercury -108597-10-31 21:36 J -37943326.63 -37943326.60 -37943326.55 0.0532 0.0507

Mars -108592-12-14 06:28 J -37941457.51 -37941457.23 -37941456.94 0.0498 0.0030  
 Mercury -108591-03-22 02:24 J -37941359.55 -37941359.40 -37941359.26 0.0496 0.0221  
 Mercury -108591-06-19 23:02 J -37941269.67 -37941269.54 -37941269.40 0.0495 0.0291  
 Venus -108590-11-27 15:21 J -37940743.90 -37940743.86 -37940743.81 0.0491 0.0479  
 Mercury -108585-05-22 11:45 J -37939106.14 -37939106.01 -37939105.87 0.0531 0.0144  
 Mercury -108585-08-20 00:28 J -37939016.57 -37939016.48 -37939016.38 0.0532 0.0384  
 Venus -108584-10-04 12:57 J -37938606.07 -37938605.96 -37938605.84 0.0536 0.0428  
 Mercury -108579-01-08 03:07 J -37937049.49 -37937049.37 -37937049.26 0.0497 0.0345  
 Mercury -108579-04-07 23:16 J -37936959.68 -37936959.53 -37936959.37 0.0495 0.0163  
 Venus -108578-08-02 16:04 J -37936478.02 -37936477.83 -37936477.63 0.0491 0.0172  
 Mercury -108573-03-10 14:09 J -37934796.03 -37934795.91 -37934795.78 0.0530 0.0274  
 Mercury -108573-06-08 03:21 J -37934706.48 -37934706.36 -37934706.24 0.0532 0.0258  
 Venus -108572-06-09 05:31 J -37934340.47 -37934340.27 -37934340.07 0.0535 0.0043  
 Mercury -108568-10-27 03:36 J -37932739.40 -37932739.35 -37932739.31 0.0497 0.0472  
 Mercury -108567-01-24 23:16 J -37932649.69 -37932649.53 -37932649.36 0.0496 0.0033  
 Venus -108566-04-07 17:16 J -37932211.98 -37932211.78 -37932211.58 0.0491 0.0136  
 Moon -108563-02-27 01:55 J -37931155.64 -37931155.42 -37931155.19 0.0509 0.0134  
 Earth -108563-02-27 03:21 J -37931155.59 -37931155.36 -37931155.13 0.0509 0.0160 \*  
 Mercury -108562-12-28 16:19 J -37930485.91 -37930485.82 -37930485.73 0.0529 0.0408  
 Mercury -108561-03-27 05:45 J -37930396.39 -37930396.26 -37930396.12 0.0531 0.0128  
 Venus -108560-02-11 20:24 J -37930074.80 -37930074.65 -37930074.50 0.0535 0.0351  
 Moon -108558-08-20 01:12 J -37929155.46 -37929155.45 -37929155.42 0.0519 0.0516  
 Mercury -108556-11-12 23:45 J -37928339.67 -37928339.51 -37928339.35 0.0496 0.0097  
 Mercury -108555-02-10 21:07 J -37928249.70 -37928249.62 -37928249.53 0.0495 0.0422  
 Venus -108555-12-11 19:12 J -37927945.78 -37927945.70 -37927945.60 0.0492 0.0439  
 Earth -108551-03-04 03:50 J -37926767.53 -37926767.34 -37926767.14 0.0511 0.0303  
 Moon -108551-03-04 07:26 J -37926767.39 -37926767.19 -37926766.98 0.0511 0.0288 \*  
 Mercury -108549-01-14 07:40 J -37926086.32 -37926086.18 -37926086.04 0.0530 0.0017  
 Mercury -108549-04-12 19:55 J -37925996.70 -37925996.67 -37925996.63 0.0532 0.0507  
 Moon -108546-08-24 02:24 J -37924768.62 -37924768.40 -37924768.18 0.0518 0.0117

Earth -108546-08-24 05:45 J -37924768.47 -37924768.26 -37924768.03 0.0518 0.0120 \*  
 Mercury -108544-09-01 00:28 J -37924029.63 -37924029.48 -37924029.34 0.0497 0.0222  
 Mercury -108544-11-29 21:07 J -37923939.75 -37923939.62 -37923939.48 0.0495 0.0292  
 Venus -108542-04-10 03:36 J -37923443.49 -37923443.35 -37923443.21 0.0491 0.0354  
 Mars -108538-06-23 10:48 J -37921908.24 -37921908.05 -37921907.86 0.0527 0.0357  
 Mercury -108538-11-02 09:36 J -37921776.23 -37921776.10 -37921775.96 0.0530 0.0150  
 Mercury -108537-01-30 22:33 J -37921686.66 -37921686.56 -37921686.47 0.0532 0.0377  
 Venus -108536-02-14 17:45 J -37921305.93 -37921305.76 -37921305.58 0.0535 0.0253  
 Earth -108534-08-28 17:02 J -37920380.97 -37920380.79 -37920380.62 0.0516 0.0321  
 Moon -108534-08-28 18:57 J -37920380.88 -37920380.71 -37920380.52 0.0516 0.0294 \*  
 Mercury -108532-06-20 00:43 J -37919719.58 -37919719.47 -37919719.35 0.0497 0.0348  
 Mercury -108532-09-17 21:07 J -37919629.78 -37919629.62 -37919629.47 0.0495 0.0160  
 Venus -108531-12-14 02:38 J -37919177.60 -37919177.39 -37919177.18 0.0491 0.0040  
 Mercury -108526-08-21 12:00 J -37917466.12 -37917466.00 -37917465.88 0.0530 0.0282  
 Mercury -108526-11-19 01:12 J -37917376.57 -37917376.45 -37917376.33 0.0532 0.0251  
 Venus -108525-10-20 10:48 J -37917040.24 -37917040.05 -37917039.85 0.0536 0.0131  
 Mercury -108520-04-08 01:40 J -37915409.48 -37915409.43 -37915409.38 0.0497 0.0469  
 Mercury -108520-07-06 21:36 J -37915319.77 -37915319.60 -37915319.44 0.0495 0.0034  
 Venus -108519-08-19 04:19 J -37914911.49 -37914911.32 -37914911.15 0.0491 0.0265  
 Mercury -108514-06-09 14:24 J -37913155.99 -37913155.90 -37913155.81 0.0530 0.0411  
 Mercury -108514-09-07 04:04 J -37913066.47 -37913066.33 -37913066.20 0.0532 0.0126  
 Venus -108513-06-25 02:52 J -37912774.43 -37912774.38 -37912774.34 0.0535 0.0519  
 Mercury -108508-04-24 21:36 J -37911009.75 -37911009.60 -37911009.43 0.0496 0.0098  
 Mercury -108508-07-23 18:57 J -37910919.80 -37910919.71 -37910919.63 0.0494 0.0420  
 Mars -108502-03-29 06:14 J -37908845.44 -37908845.24 -37908845.02 0.0529 0.0313  
 Mercury -108502-06-26 06:28 J -37908756.37 -37908756.23 -37908756.09 0.0531 0.0011  
 Mercury -108502-09-23 18:43 J -37908666.74 -37908666.72 -37908666.68 0.0532 0.0516  
 Venus -108501-10-23 11:16 J -37908271.11 -37908271.03 -37908270.95 0.0535 0.0487  
 Mercury -108496-02-10 22:19 J -37906699.71 -37906699.57 -37906699.42 0.0497 0.0222  
 Mercury -108496-05-11 18:57 J -37906609.84 -37906609.71 -37906609.57 0.0495 0.0291

Venus -108495-08-21 14:09 J -37906143.10 -37906142.91 -37906142.73 0.0491 0.0223  
 Mercury -108490-04-14 08:09 J -37904446.29 -37904446.16 -37904446.02 0.0530 0.0145  
 Mercury -108490-07-12 20:52 J -37904356.72 -37904356.63 -37904356.53 0.0532 0.0381  
 Venus -108489-06-28 00:57 J -37904005.65 -37904005.46 -37904005.26 0.0535 0.0089  
 Mercury -108485-11-29 23:02 J -37902389.66 -37902389.54 -37902389.43 0.0497 0.0346  
 Mercury -108484-02-27 19:12 J -37902299.85 -37902299.70 -37902299.54 0.0496 0.0162  
 Venus -108483-04-26 15:21 J -37901877.06 -37901876.86 -37901876.65 0.0491 0.0084  
 Earth -108480-02-26 02:38 J -37900840.60 -37900840.39 -37900840.18 0.0509 0.0244  
 Moon -108480-02-26 05:16 J -37900840.50 -37900840.28 -37900840.05 0.0509 0.0217 \*  
 Mercury -108478-01-31 10:19 J -37900136.19 -37900136.07 -37900135.95 0.0529 0.0281  
 Mercury -108478-04-30 23:31 J -37900046.64 -37900046.52 -37900046.40 0.0531 0.0250  
 Venus -108477-03-02 16:19 J -37899739.98 -37899739.82 -37899739.65 0.0535 0.0304  
 Mars -108473-06-02 13:12 J -37898187.03 -37898186.95 -37898186.85 0.0500 0.0472  
 Mercury -108473-09-17 23:31 J -37898079.56 -37898079.52 -37898079.46 0.0497 0.0469  
 Mercury -108473-12-16 19:26 J -37897989.85 -37897989.69 -37897989.53 0.0496 0.0033  
 Venus -108472-12-30 15:21 J -37897610.97 -37897610.86 -37897610.73 0.0491 0.0393  
 Moon -108468-03-02 19:26 J -37896452.90 -37896452.69 -37896452.46 0.0511 0.0188  
 Earth -108468-03-02 23:31 J -37896452.74 -37896452.52 -37896452.30 0.0511 0.0203 \*  
 Mercury -108467-11-19 12:14 J -37895826.08 -37895825.99 -37895825.91 0.0530 0.0417  
 Mercury -108466-02-17 01:55 J -37895736.56 -37895736.42 -37895736.29 0.0532 0.0120  
 Earth -108463-08-23 14:09 J -37894453.12 -37894452.91 -37894452.70 0.0518 0.0181  
 Moon -108463-08-23 16:48 J -37894453.01 -37894452.80 -37894452.60 0.0518 0.0185 \*  
 Mercury -108461-10-04 20:09 J -37893679.82 -37893679.66 -37893679.50 0.0496 0.0091  
 Mercury -108460-01-02 17:16 J -37893589.86 -37893589.78 -37893589.70 0.0494 0.0424  
 Venus -108459-04-28 23:31 J -37893108.63 -37893108.52 -37893108.39 0.0491 0.0400  
 Mercury -108455-12-06 04:33 J -37891426.45 -37891426.31 -37891426.17 0.0531 0.0013  
 Mercury -108454-03-05 17:16 J -37891336.81 -37891336.78 -37891336.75 0.0533 0.0516  
 Venus -108453-03-05 18:57 J -37890970.87 -37890970.71 -37890970.55 0.0535 0.0327  
 Moon -108451-08-27 23:02 J -37890065.75 -37890065.54 -37890065.33 0.0516 0.0222  
 Earth -108451-08-28 00:00 J -37890065.69 -37890065.50 -37890065.30 0.0516 0.0252 \*

Mercury -108449-07-23 20:24 J -37889369.79 -37889369.65 -37889369.50 0.0496 0.0219

Mercury -108449-10-21 17:02 J -37889279.92 -37889279.79 -37889279.65 0.0495 0.0293

Venus -108447-01-02 00:43 J -37888842.67 -37888842.47 -37888842.27 0.0491 0.0092

Mercury -108443-09-24 07:12 J -37887116.34 -37887116.20 -37887116.07 0.0530 0.0137

Mercury -108443-12-22 19:55 J -37887026.76 -37887026.67 -37887026.57 0.0532 0.0390

Venus -108442-11-09 10:48 J -37886705.25 -37886705.05 -37886704.85 0.0535 0.0064

Mars -108437-03-08 19:26 J -37885123.96 -37885123.69 -37885123.41 0.0498 0.0147

Mercury -108437-05-11 21:07 J -37885059.73 -37885059.62 -37885059.50 0.0497 0.0343

Mercury -108437-08-09 17:31 J -37884969.93 -37884969.77 -37884969.62 0.0495 0.0165

Venus -108436-09-07 02:52 J -37884576.57 -37884576.38 -37884576.19 0.0491 0.0212

Mercury -108431-07-13 08:52 J -37882806.25 -37882806.13 -37882806.01 0.0529 0.0274

Mercury -108431-10-10 22:04 J -37882716.70 -37882716.58 -37882716.46 0.0531 0.0257

Venus -108430-07-15 00:00 J -37882439.59 -37882439.50 -37882439.39 0.0535 0.0465

Mercury -108425-02-28 21:50 J -37880749.64 -37880749.59 -37880749.53 0.0498 0.0466

Mercury -108425-05-28 17:45 J -37880659.92 -37880659.76 -37880659.59 0.0496 0.0040

Mercury -108419-05-01 10:48 J -37878496.13 -37878496.05 -37878495.96 0.0529 0.0411

Mercury -108419-07-30 00:28 J -37878406.61 -37878406.48 -37878406.34 0.0531 0.0124

Mercury -108413-03-16 18:14 J -37876349.90 -37876349.74 -37876349.58 0.0496 0.0089

Mercury -108413-06-14 15:21 J -37876259.94 -37876259.86 -37876259.78 0.0494 0.0427

Venus -108412-09-09 11:16 J -37875808.20 -37875808.03 -37875807.86 0.0491 0.0274

Mercury -108407-05-18 02:38 J -37874096.53 -37874096.39 -37874096.25 0.0531 0.0014

Mercury -108407-08-15 15:21 J -37874006.89 -37874006.86 -37874006.83 0.0533 0.0514

Venus -108406-07-18 01:40 J -37873670.62 -37873670.43 -37873670.24 0.0536 0.0161

Mercury -108401-01-03 19:12 J -37872039.84 -37872039.70 -37872039.55 0.0496 0.0210

Mercury -108401-04-02 15:50 J -37871949.97 -37871949.84 -37871949.71 0.0495 0.0302

Venus -108400-05-15 13:12 J -37871542.16 -37871541.95 -37871541.75 0.0491 0.0033

Moon -108397-02-25 22:19 J -37870525.75 -37870525.57 -37870525.37 0.0509 0.0306

Earth -108397-02-26 01:40 J -37870525.60 -37870525.43 -37870525.24 0.0509 0.0330 \*

Mercury -108395-03-06 05:31 J -37869786.41 -37869786.27 -37869786.14 0.0531 0.0136

Mercury -108395-06-03 18:14 J -37869696.82 -37869696.74 -37869696.64 0.0533 0.0394

Venus -108394-03-22 18:28 J -37869404.91 -37869404.73 -37869404.54 0.0536 0.0226

Mercury -108390-10-22 19:55 J -37867729.79 -37867729.67 -37867729.55 0.0497 0.0335

Mercury -108389-01-20 16:04 J -37867639.99 -37867639.83 -37867639.68 0.0495 0.0171

Venus -108388-01-18 14:38 J -37867276.04 -37867275.89 -37867275.74 0.0491 0.0338

Earth -108385-03-02 05:16 J -37866137.51 -37866137.28 -37866137.04 0.0510 0.0142

Moon -108385-03-02 09:36 J -37866137.33 -37866137.10 -37866136.86 0.0510 0.0124 \*

Mars -108384-09-16 15:07 J -37865574.13 -37865573.87 -37865573.62 0.0528 0.0145

Mercury -108384-12-23 07:55 J -37865476.29 -37865476.17 -37865476.05 0.0530 0.0265

Mercury -108383-03-22 21:07 J -37865386.73 -37865386.62 -37865386.50 0.0532 0.0268

Moon -108380-08-22 19:26 J -37864137.88 -37864137.69 -37864137.48 0.0518 0.0261

Earth -108380-08-22 20:52 J -37864137.82 -37864137.63 -37864137.43 0.0518 0.0251 \*

Mercury -108378-08-10 20:38 J -37863419.70 -37863419.64 -37863419.58 0.0497 0.0457

Mercury -108378-11-08 16:33 J -37863329.98 -37863329.81 -37863329.65 0.0496 0.0045

Venus -108376-05-17 23:31 J -37862773.59 -37862773.52 -37862773.45 0.0491 0.0460

Mercury -108372-10-11 09:50 J -37861166.18 -37861166.09 -37861166.00 0.0529 0.0401

Mercury -108371-01-08 23:31 J -37861076.66 -37861076.52 -37861076.39 0.0531 0.0134

Venus -108370-03-25 17:45 J -37860635.89 -37860635.76 -37860635.62 0.0535 0.0389

Moon -108368-08-27 05:02 J -37859750.50 -37859750.29 -37859750.09 0.0516 0.0151

Earth -108368-08-27 05:16 J -37859750.48 -37859750.28 -37859750.06 0.0516 0.0180 \*

Mercury -108366-08-27 17:02 J -37859019.95 -37859019.79 -37859019.63 0.0496 0.0082

Mercury -108366-11-25 13:55 J -37858929.99 -37858929.92 -37858929.84 0.0495 0.0436

Venus -108364-01-21 00:43 J -37858507.66 -37858507.47 -37858507.27 0.0491 0.0154

Mercury -108360-10-28 01:40 J -37856766.57 -37856766.43 -37856766.29 0.0531 0.0010

Mercury -108359-01-25 14:09 J -37856676.93 -37856676.91 -37856676.88 0.0532 0.0523

Venus -108359-11-28 09:36 J -37856370.30 -37856370.10 -37856369.90 0.0535 0.0003

Mercury -108354-06-15 17:45 J -37854709.91 -37854709.76 -37854709.61 0.0496 0.0204

Mercury -108354-09-13 14:09 J -37854620.03 -37854619.91 -37854619.77 0.0495 0.0308

Venus -108353-09-26 01:26 J -37854241.63 -37854241.44 -37854241.24 0.0491 0.0155

Mars -108348-06-22 00:00 J -37852511.56 -37852511.50 -37852511.41 0.0530 0.0507

Mercury -108348-08-16 03:36 J -37852456.48 -37852456.35 -37852456.21 0.0531 0.0136

Mercury -108348-11-13 16:33 J -37852366.90 -37852366.81 -37852366.71 0.0533 0.0394  
 Venus -108347-08-03 00:57 J -37852104.59 -37852104.46 -37852104.32 0.0536 0.0394  
 Mercury -108342-04-03 18:57 J -37850399.83 -37850399.71 -37850399.59 0.0497 0.0322  
 Mercury -108342-07-02 15:07 J -37850310.03 -37850309.87 -37850309.72 0.0495 0.0184  
 Venus -108341-06-01 03:50 J -37849975.40 -37849975.34 -37849975.25 0.0491 0.0458  
 Mercury -108336-06-04 06:14 J -37848146.36 -37848146.24 -37848146.11 0.0530 0.0263  
 Mercury -108336-09-01 19:40 J -37848056.80 -37848056.68 -37848056.56 0.0532 0.0271  
 Mercury -108330-01-20 19:40 J -37846089.75 -37846089.68 -37846089.61 0.0497 0.0446  
 Mercury -108330-04-20 15:21 J -37846000.02 -37845999.86 -37845999.70 0.0495 0.0055  
 Venus -108329-09-28 11:31 J -37845473.17 -37845473.02 -37845472.87 0.0491 0.0336  
 Mercury -108324-03-23 08:52 J -37843836.22 -37843836.13 -37843836.04 0.0530 0.0391  
 Mercury -108324-06-20 22:33 J -37843746.69 -37843746.56 -37843746.43 0.0532 0.0146  
 Venus -108323-08-06 04:19 J -37843335.49 -37843335.32 -37843335.14 0.0536 0.0241  
 Mars -108319-08-27 19:40 J -37841852.92 -37841852.68 -37841852.43 0.0499 0.0256  
 Mercury -108318-02-06 15:50 J -37841690.00 -37841689.84 -37841689.67 0.0496 0.0072  
 Mercury -108318-05-07 12:57 J -37841600.03 -37841599.96 -37841599.89 0.0494 0.0445  
 Venus -108317-06-03 13:26 J -37841207.15 -37841206.94 -37841206.73 0.0491 0.0030  
 Earth -108314-02-25 10:04 J -37840210.23 -37840210.08 -37840209.91 0.0508 0.0379  
 Moon -108314-02-25 14:09 J -37840210.08 -37840209.91 -37840209.73 0.0508 0.0355 \*  
 Mercury -108312-01-09 10:48 J -37839526.06 -37839526.05 -37839526.04 0.0529 0.0525  
 Mercury -108312-04-09 00:57 J -37839436.61 -37839436.46 -37839436.32 0.0531 0.0022  
 Venus -108311-04-10 18:57 J -37839069.90 -37839069.71 -37839069.52 0.0535 0.0157  
 Mercury -108307-11-25 16:33 J -37837379.96 -37837379.81 -37837379.66 0.0497 0.0195  
 Mercury -108306-02-23 13:12 J -37837290.08 -37837289.95 -37837289.82 0.0495 0.0317  
 Venus -108305-02-07 15:21 J -37836941.03 -37836940.86 -37836940.69 0.0491 0.0275  
 Moon -108302-03-02 07:11 J -37835822.44 -37835822.20 -37835821.96 0.0510 0.0062  
 Earth -108302-03-02 11:16 J -37835822.26 -37835822.03 -37835821.79 0.0510 0.0082 \*  
 Mercury -108300-01-26 03:07 J -37835126.51 -37835126.37 -37835126.24 0.0530 0.0120  
 Mercury -108300-04-25 16:04 J -37835036.92 -37835036.83 -37835036.75 0.0532 0.0407  
 Earth -108297-08-22 06:00 J -37833822.43 -37833822.25 -37833822.07 0.0519 0.0310



Moon -108297-08-22 05:45 J -37833822.42 -37833822.26 -37833822.09 0.0519 0.0329 \*  
 Mercury -108295-09-13 17:31 J -37833069.89 -37833069.77 -37833069.64 0.0497 0.0315  
 Mercury -108295-12-12 13:40 J -37832980.08 -37832979.93 -37832979.78 0.0495 0.0192  
 Moon -108290-03-07 10:33 J -37831434.09 -37831434.06 -37831434.01 0.0511 0.0503  
 Mercury -108289-11-14 04:48 J -37830816.42 -37830816.30 -37830816.18 0.0530 0.0260  
 Mercury -108288-02-11 18:00 J -37830726.86 -37830726.75 -37830726.63 0.0532 0.0275  
 Venus -108287-04-13 19:26 J -37830300.78 -37830300.69 -37830300.59 0.0536 0.0467  
 Earth -108285-08-26 19:40 J -37829434.89 -37829434.68 -37829434.46 0.0517 0.0140  
 Moon -108285-08-26 21:50 J -37829434.82 -37829434.59 -37829434.36 0.0517 0.0114 \*  
 Mars -108283-06-03 09:35 J -37828789.27 -37828789.10 -37828788.91 0.0498 0.0387  
 Mercury -108283-07-02 18:57 J -37828759.79 -37828759.71 -37828759.63 0.0497 0.0431  
 Mercury -108283-09-30 14:38 J -37828670.05 -37828669.89 -37828669.73 0.0495 0.0070  
 Venus -108281-02-10 00:57 J -37828172.65 -37828172.46 -37828172.28 0.0491 0.0217  
 Mercury -108277-09-02 07:11 J -37826506.29 -37826506.20 -37826506.10 0.0530 0.0388  
 Mercury -108277-11-30 21:07 J -37826416.75 -37826416.62 -37826416.49 0.0532 0.0150  
 Venus -108276-12-17 12:57 J -37826035.16 -37826034.96 -37826034.76 0.0536 0.0083  
 Mercury -108271-07-19 15:07 J -37824360.03 -37824359.87 -37824359.71 0.0496 0.0057  
 Mercury -108271-10-17 12:00 J -37824270.06 -37824270.00 -37824269.94 0.0494 0.0458  
 Venus -108270-10-16 02:38 J -37823906.59 -37823906.39 -37823906.19 0.0491 0.0091  
 Mercury -108265-06-21 09:50 J -37822196.12 -37822196.09 -37822196.06 0.0529 0.0516  
 Mercury -108265-09-19 00:00 J -37822106.64 -37822106.50 -37822106.36 0.0531 0.0026  
 Venus -108264-08-22 05:16 J -37821769.45 -37821769.28 -37821769.12 0.0536 0.0309  
 Mercury -108259-05-07 15:50 J -37820049.99 -37820049.84 -37820049.69 0.0496 0.0182  
 Mercury -108259-08-05 12:14 J -37819960.11 -37819959.99 -37819959.86 0.0495 0.0330  
 Venus -108258-06-21 05:02 J -37819640.41 -37819640.29 -37819640.17 0.0491 0.0395  
 Mercury -108253-07-08 02:24 J -37817796.54 -37817796.40 -37817796.27 0.0530 0.0108  
 Mercury -108253-10-05 15:07 J -37817706.95 -37817706.87 -37817706.78 0.0532 0.0420  
 Mercury -108247-02-23 16:33 J -37815739.94 -37815739.81 -37815739.68 0.0497 0.0305  
 Mercury -108247-05-24 12:43 J -37815650.12 -37815649.97 -37815649.82 0.0495 0.0203  
 Venus -108246-10-18 13:11 J -37815138.06 -37815137.95 -37815137.83 0.0491 0.0406

Mercury -108241-04-26 04:19 J -37813486.44 -37813486.32 -37813486.19 0.0530 0.0241  
 Mercury -108241-07-24 17:45 J -37813396.88 -37813396.76 -37813396.65 0.0532 0.0290  
 Venus -108240-08-25 05:02 J -37813000.45 -37813000.29 -37813000.12 0.0536 0.0313  
 Mercury -108236-12-12 17:45 J -37811429.84 -37811429.76 -37811429.68 0.0497 0.0422  
 Mercury -108235-03-12 13:26 J -37811340.10 -37811339.94 -37811339.78 0.0495 0.0080  
 Venus -108234-06-23 14:09 J -37810872.11 -37810871.91 -37810871.70 0.0491 0.0098  
 Moon -108231-02-24 06:57 J -37809895.33 -37809895.21 -37809895.08 0.0507 0.0436  
 Earth -108231-02-24 11:16 J -37809895.13 -37809895.03 -37809894.93 0.0507 0.0459 \*  
 Mars -108230-12-11 18:43 J -37809239.98 -37809239.72 -37809239.46 0.0528 0.0067  
 Mercury -108229-02-13 05:45 J -37809176.35 -37809176.26 -37809176.16 0.0530 0.0384  
 Mercury -108229-05-12 19:40 J -37809086.82 -37809086.68 -37809086.55 0.0532 0.0154  
 Venus -108228-04-29 20:24 J -37808734.85 -37808734.65 -37808734.45 0.0536 0.0082  
 Mercury -108224-12-29 14:24 J -37807030.06 -37807029.90 -37807029.73 0.0496 0.0043  
 Mercury -108223-03-29 11:31 J -37806940.06 -37806940.02 -37806939.98 0.0494 0.0475  
 Venus -108222-02-26 16:48 J -37806605.98 -37806605.80 -37806605.61 0.0491 0.0207  
 Earth -108219-03-01 13:40 J -37805507.18 -37805506.93 -37805506.69 0.0509 0.0011  
 Moon -108219-03-01 17:02 J -37805507.02 -37805506.79 -37805506.55 0.0509 0.0017 \*  
 Mercury -108218-12-02 08:24 J -37804866.19 -37804866.15 -37804866.12 0.0530 0.0513  
 Mercury -108217-02-29 22:33 J -37804776.70 -37804776.56 -37804776.42 0.0532 0.0031  
 Venus -108216-01-02 12:57 J -37804469.05 -37804468.96 -37804468.86 0.0536 0.0471  
 Earth -108214-08-22 20:24 J -37803506.81 -37803506.65 -37803506.48 0.0519 0.0351  
 Moon -108214-08-22 22:19 J -37803506.72 -37803506.57 -37803506.41 0.0519 0.0375 \*  
 Mercury -108212-10-17 15:07 J -37802720.02 -37802719.87 -37802719.72 0.0496 0.0166  
 Mercury -108211-01-15 11:31 J -37802630.13 -37802630.02 -37802629.90 0.0494 0.0345  
 Moon -108207-03-06 16:04 J -37801118.93 -37801118.83 -37801118.71 0.0511 0.0457  
 Earth -108207-03-06 17:45 J -37801118.83 -37801118.76 -37801118.68 0.0511 0.0482 \*  
 Mercury -108206-12-19 01:11 J -37800466.58 -37800466.45 -37800466.31 0.0531 0.0097  
 Mercury -108205-03-17 14:24 J -37800376.98 -37800376.90 -37800376.82 0.0533 0.0432  
 Moon -108202-08-27 04:33 J -37799119.53 -37799119.31 -37799119.09 0.0517 0.0062  
 Earth -108202-08-27 07:26 J -37799119.41 -37799119.19 -37799118.97 0.0517 0.0088 \*

Mercury -108200-08-05 15:50 J -37798409.97 -37798409.84 -37798409.71 0.0497 0.0289  
 Mercury -108200-11-03 12:00 J -37798320.15 -37798320.00 -37798319.85 0.0495 0.0217  
 Venus -108198-03-01 02:24 J -37797837.56 -37797837.40 -37797837.23 0.0491 0.0284  
 Mercury -108194-10-07 03:35 J -37796156.48 -37796156.35 -37796156.22 0.0530 0.0227  
 Mercury -108193-01-04 16:48 J -37796066.91 -37796066.80 -37796066.68 0.0532 0.0304  
 Venus -108192-01-05 15:07 J -37795700.06 -37795699.87 -37795699.67 0.0536 0.0161  
 Earth -108190-08-31 15:50 J -37794731.84 -37794731.84 -37794731.84 0.0515 0.0515  
 Mercury -108188-05-24 16:33 J -37794099.89 -37794099.81 -37794099.72 0.0497 0.0412  
 Mercury -108188-08-22 12:28 J -37794010.14 -37794009.98 -37794009.82 0.0496 0.0091  
 Venus -108187-11-04 04:33 J -37793571.52 -37793571.31 -37793571.10 0.0491 0.0022  
 Mercury -108182-07-26 05:31 J -37791846.37 -37791846.27 -37791846.16 0.0530 0.0363  
 Mercury -108182-10-23 19:11 J -37791756.83 -37791756.70 -37791756.56 0.0531 0.0174  
 Venus -108181-09-10 06:28 J -37791434.41 -37791434.23 -37791434.05 0.0536 0.0236  
 Mercury -108176-06-10 13:26 J -37789700.11 -37789699.94 -37789699.78 0.0496 0.0031  
 Mercury -108176-09-08 10:19 J -37789610.09 -37789610.07 -37789610.04 0.0494 0.0486  
 Venus -108175-07-10 06:43 J -37789305.37 -37789305.22 -37789305.07 0.0491 0.0326  
 Mercury -108170-05-14 06:57 J -37787536.25 -37787536.21 -37787536.18 0.0529 0.0509  
 Mercury -108170-08-11 21:07 J -37787446.76 -37787446.62 -37787446.48 0.0531 0.0036  
 Mars -108165-11-21 21:07 J -37785517.91 -37785517.62 -37785517.33 0.0499 0.0010  
 Mercury -108164-03-29 14:38 J -37785390.05 -37785389.89 -37785389.74 0.0496 0.0149  
 Mercury -108164-06-27 11:02 J -37785300.15 -37785300.04 -37785299.92 0.0494 0.0362  
 Venus -108163-11-06 14:38 J -37784802.93 -37784802.89 -37784802.83 0.0491 0.0475  
 Mercury -108158-05-30 23:45 J -37783136.65 -37783136.51 -37783136.37 0.0531 0.0093  
 Mercury -108158-08-28 12:43 J -37783047.04 -37783046.97 -37783046.89 0.0533 0.0435  
 Venus -108157-09-13 08:24 J -37782665.29 -37782665.15 -37782665.02 0.0536 0.0397  
 Mercury -108152-01-15 15:07 J -37781080.00 -37781079.87 -37781079.73 0.0496 0.0274  
 Mercury -108152-04-15 11:16 J -37780990.17 -37780990.03 -37780989.88 0.0495 0.0232  
 Venus -108151-07-12 16:04 J -37780537.02 -37780536.83 -37780536.63 0.0491 0.0165  
 Earth -108148-02-23 20:52 J -37779579.65 -37779579.63 -37779579.61 0.0507 0.0505  
 Moon -108148-02-24 00:43 J -37779579.53 -37779579.47 -37779579.39 0.0507 0.0484

Mercury -108146-03-19 02:24 J -37778826.52 -37778826.40 -37778826.27 0.0531 0.0220

Mercury -108146-06-16 15:50 J -37778736.95 -37778736.84 -37778736.73 0.0532 0.0314

Venus -108145-05-19 01:26 J -37778399.65 -37778399.44 -37778399.24 0.0536 0.0014

Mercury -108141-11-03 16:04 J -37776769.92 -37776769.83 -37776769.73 0.0497 0.0396

Mercury -108140-02-01 11:45 J -37776680.17 -37776680.01 -37776679.85 0.0495 0.0106

Venus -108139-03-17 18:14 J -37776270.93 -37776270.74 -37776270.54 0.0491 0.0143

Moon -108136-02-28 21:35 J -37775191.85 -37775191.60 -37775191.35 0.0509 0.0059

Earth -108136-03-01 00:14 J -37775191.73 -37775191.49 -37775191.25 0.0509 0.0036 \*

Mercury -108134-01-05 04:48 J -37774516.41 -37774516.30 -37774516.19 0.0530 0.0350

Mercury -108134-04-04 18:28 J -37774426.86 -37774426.73 -37774426.60 0.0532 0.0186

Venus -108133-01-22 15:50 J -37774133.97 -37774133.84 -37774133.70 0.0535 0.0392

Moon -108131-08-22 02:38 J -37773191.49 -37773191.39 -37773191.27 0.0519 0.0442

Earth -108131-08-22 05:45 J -37773191.40 -37773191.26 -37773191.13 0.0519 0.0411 \*

Mercury -108129-11-20 12:14 J -37772370.15 -37772369.99 -37772369.83 0.0496 0.0021

Venus -108128-11-20 20:38 J -37772004.72 -37772004.64 -37772004.55 0.0491 0.0446

Moon -108124-03-06 01:40 J -37770803.56 -37770803.43 -37770803.29 0.0511 0.0414

Earth -108124-03-06 01:55 J -37770803.55 -37770803.42 -37770803.29 0.0511 0.0428 \*

Mercury -108123-10-24 06:43 J -37770206.27 -37770206.22 -37770206.17 0.0529 0.0487

Mercury -108122-01-21 20:52 J -37770116.77 -37770116.63 -37770116.49 0.0531 0.0055

Earth -108119-08-26 17:31 J -37768803.99 -37768803.77 -37768803.54 0.0518 0.0034

Moon -108119-08-26 21:07 J -37768803.84 -37768803.62 -37768803.39 0.0518 0.0016 \*

Mercury -108117-09-08 13:26 J -37768060.10 -37768059.94 -37768059.79 0.0496 0.0140

Mercury -108117-12-07 09:50 J -37767970.19 -37767970.09 -37767969.98 0.0494 0.0372

Venus -108115-03-20 04:19 J -37767502.46 -37767502.32 -37767502.18 0.0491 0.0354

Mars -108111-06-01 17:02 J -37765967.97 -37765967.79 -37765967.59 0.0527 0.0362

Mercury -108111-11-09 22:19 J -37765806.71 -37765806.57 -37765806.43 0.0531 0.0090

Mercury -108110-02-07 11:16 J -37765717.10 -37765717.03 -37765716.95 0.0533 0.0438

Venus -108109-01-25 15:35 J -37765365.03 -37765364.85 -37765364.67 0.0536 0.0232

Moon -108107-08-31 02:38 J -37764416.45 -37764416.39 -37764416.33 0.0516 0.0492

Earth -108107-08-31 06:28 J -37764416.32 -37764416.23 -37764416.15 0.0516 0.0476

Mercury -108105-06-27 14:38 J -37763750.03 -37763749.89 -37763749.75 0.0496 0.0258  
 Mercury -108105-09-25 10:48 J -37763660.19 -37763660.05 -37763659.91 0.0495 0.0249  
 Venus -108104-11-23 06:43 J -37763236.43 -37763236.22 -37763236.02 0.0490 0.0049  
 Mercury -108099-08-29 00:43 J -37761496.59 -37761496.47 -37761496.34 0.0531 0.0219  
 Mercury -108099-11-26 14:09 J -37761407.02 -37761406.91 -37761406.79 0.0533 0.0315  
 Venus -108098-09-30 08:24 J -37761099.34 -37761099.15 -37761098.96 0.0536 0.0160  
 Mercury -108093-04-15 15:21 J -37759439.96 -37759439.86 -37759439.76 0.0497 0.0382  
 Mercury -108093-07-14 11:02 J -37759350.20 -37759350.04 -37759349.88 0.0495 0.0120  
 Venus -108092-07-29 08:09 J -37758970.33 -37758970.16 -37758969.98 0.0491 0.0262  
 Mercury -108087-06-17 03:21 J -37757186.46 -37757186.36 -37757186.25 0.0530 0.0345  
 Mercury -108087-09-14 17:16 J -37757096.91 -37757096.78 -37757096.65 0.0532 0.0193  
 Mercury -108081-05-02 11:31 J -37755040.18 -37755040.02 -37755039.86 0.0495 0.0008  
 Mars -108075-03-07 18:57 J -37752904.91 -37752904.71 -37752904.50 0.0528 0.0331  
 Mercury -108075-04-05 05:45 J -37752876.32 -37752876.26 -37752876.20 0.0529 0.0476  
 Mercury -108075-07-03 19:55 J -37752786.81 -37752786.67 -37752786.54 0.0531 0.0066  
 Venus -108074-10-03 10:33 J -37752330.15 -37752330.06 -37752329.97 0.0536 0.0474  
 Mercury -108069-02-19 12:00 J -37750730.15 -37750730.00 -37750729.84 0.0496 0.0133  
 Mercury -108069-05-19 08:38 J -37750640.24 -37750640.14 -37750640.04 0.0495 0.0380  
 Venus -108068-07-31 17:31 J -37750201.95 -37750201.77 -37750201.59 0.0491 0.0232  
 Mercury -108063-04-21 22:04 J -37748476.72 -37748476.58 -37748476.44 0.0531 0.0071  
 Mercury -108063-07-20 10:48 J -37748387.11 -37748387.05 -37748386.97 0.0533 0.0457  
 Venus -108062-06-08 01:55 J -37748064.62 -37748064.42 -37748064.22 0.0536 0.0078  
 Mercury -108058-12-08 13:11 J -37746420.08 -37746419.95 -37746419.81 0.0497 0.0251  
 Mercury -108057-03-07 09:21 J -37746330.25 -37746330.11 -37746329.97 0.0495 0.0257  
 Venus -108056-04-05 19:55 J -37745935.87 -37745935.67 -37745935.46 0.0491 0.0074  
 Earth -108053-02-29 01:26 J -37744876.67 -37744876.44 -37744876.20 0.0508 0.0117  
 Moon -108053-02-29 02:52 J -37744876.60 -37744876.38 -37744876.16 0.0508 0.0140 \*  
 Mercury -108051-02-07 23:16 J -37744166.66 -37744166.53 -37744166.40 0.0530 0.0216  
 Mercury -108051-05-08 12:43 J -37744077.08 -37744076.97 -37744076.86 0.0532 0.0317  
 Venus -108050-02-10 14:52 J -37743799.04 -37743798.88 -37743798.72 0.0536 0.0330

Earth -108048-08-21 17:31 J -37742875.87 -37742875.77 -37742875.67 0.0520 0.0463  
 Moon -108048-08-21 21:21 J -37742875.68 -37742875.61 -37742875.55 0.0520 0.0494 \*  
 Mars -108046-05-13 01:55 J -37742246.60 -37742246.42 -37742246.24 0.0500 0.0391  
 Mercury -108046-09-26 14:38 J -37742110.00 -37742109.89 -37742109.78 0.0497 0.0368  
 Mercury -108046-12-25 10:19 J -37742020.23 -37742020.07 -37742019.91 0.0495 0.0135  
 Venus -108045-12-09 22:48 J -37741669.68 -37741669.55 -37741669.42 0.0491 0.0378  
 Earth -108041-03-05 02:52 J -37740488.55 -37740488.38 -37740488.20 0.0510 0.0346  
 Moon -108041-03-05 04:19 J -37740488.50 -37740488.32 -37740488.12 0.0510 0.0334 \*  
 Mercury -108040-11-27 01:40 J -37739856.54 -37739856.43 -37739856.33 0.0530 0.0347  
 Mercury -108039-02-24 15:21 J -37739766.99 -37739766.86 -37739766.73 0.0532 0.0191  
 Moon -108036-08-26 01:55 J -37738488.64 -37738488.42 -37738488.20 0.0518 0.0039  
 Earth -108036-08-26 05:45 J -37738488.49 -37738488.26 -37738488.04 0.0518 0.0017 \*  
 Mercury -108034-07-15 15:21 J -37737799.88 -37737799.86 -37737799.84 0.0497 0.0491  
 Mercury -108034-10-13 10:33 J -37737710.22 -37737710.06 -37737709.90 0.0495 0.0006  
 Venus -108032-04-08 04:48 J -37737167.40 -37737167.30 -37737167.19 0.0490 0.0417  
 Mercury -108028-09-15 04:04 J -37735546.39 -37735546.33 -37735546.27 0.0530 0.0474  
 Mercury -108028-12-13 18:14 J -37735456.87 -37735456.74 -37735456.60 0.0532 0.0069  
 Venus -108026-02-13 19:11 J -37735029.86 -37735029.70 -37735029.54 0.0536 0.0315  
 Earth -108024-08-30 16:33 J -37734100.94 -37734100.81 -37734100.68 0.0516 0.0419  
 Moon -108024-08-30 19:40 J -37734100.79 -37734100.68 -37734100.56 0.0516 0.0444 \*  
 Mercury -108022-08-01 11:16 J -37733400.19 -37733400.03 -37733399.88 0.0496 0.0120  
 Mercury -108022-10-30 07:40 J -37733310.28 -37733310.18 -37733310.08 0.0494 0.0391  
 Venus -108021-12-12 06:28 J -37732901.43 -37732901.23 -37732901.02 0.0491 0.0109  
 Mercury -108016-10-01 20:52 J -37731146.77 -37731146.63 -37731146.49 0.0531 0.0064  
 Mercury -108016-12-30 09:50 J -37731057.16 -37731057.09 -37731057.03 0.0533 0.0464  
 Venus -108015-10-19 10:33 J -37730764.26 -37730764.06 -37730763.87 0.0536 0.0084  
 Mars -108010-02-16 06:57 J -37729183.46 -37729183.21 -37729182.95 0.0499 0.0234  
 Mercury -108010-05-20 11:45 J -37729090.15 -37729090.01 -37729089.87 0.0497 0.0246  
 Mercury -108010-08-18 07:55 J -37729000.31 -37729000.17 -37729000.03 0.0495 0.0262  
 Venus -108009-08-17 08:38 J -37728635.33 -37728635.14 -37728634.95 0.0491 0.0200

Mercury -108004-07-20 22:48 J -37726836.68 -37726836.55 -37726836.42 0.0530 0.0198

Mercury -108004-10-18 12:14 J -37726747.10 -37726746.99 -37726746.88 0.0532 0.0334

Venus -108003-06-24 00:43 J -37726498.55 -37726498.47 -37726498.39 0.0536 0.0486

# 108TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 108th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-107998-03-08 12:57 J	-37724780.06	-37724779.96	-37724779.85	0.0497	0.0364		
Mercury	-107998-06-06 08:38 J	-37724690.29	-37724690.14	-37724689.98	0.0495	0.0140		
Mercury	-107992-05-08 23:45 J	-37722526.61	-37722526.51	-37722526.40	0.0530	0.0347		
Mercury	-107992-08-06 13:40 J	-37722437.06	-37722436.93	-37722436.80	0.0532	0.0191		
Venus	-107991-10-22 08:24 J	-37721995.16	-37721995.15	-37721995.13	0.0537	0.0534		
Mercury	-107987-12-25 14:24 J	-37720469.94	-37720469.90	-37720469.86	0.0498	0.0481		
Mercury	-107986-03-25 09:35 J	-37720380.26	-37720380.10	-37720379.94	0.0496	0.0018		
Venus	-107985-08-19 18:43 J	-37719866.88	-37719866.72	-37719866.56	0.0490	0.0297		
Mercury	-107980-02-25 01:55 J	-37718216.47	-37718216.42	-37718216.36	0.0529	0.0480		
Mercury	-107980-05-25 16:19 J	-37718126.96	-37718126.82	-37718126.68	0.0532	0.0062		
Venus	-107979-06-27 00:57 J	-37717729.65	-37717729.46	-37717729.26	0.0537	0.0141		
Mercury	-107974-01-11 10:04 J	-37716070.24	-37716070.08	-37716069.93	0.0496	0.0112		
Mercury	-107974-04-11 06:28 J	-37715980.33	-37715980.23	-37715980.14	0.0494	0.0400		

Venus -107973-04-24 19:40 J -37715600.89 -37715600.68 -37715600.48 0.0490 0.0020  
 Earth -107970-02-28 06:43 J -37714561.45 -37714561.22 -37714561.00 0.0508 0.0179  
 Moon -107970-02-28 06:43 J -37714561.45 -37714561.22 -37714560.99 0.0508 0.0205 \*  
 Mercury -107968-03-13 18:57 J -37713816.85 -37713816.71 -37713816.57 0.0531 0.0065  
 Mercury -107968-06-11 08:09 J -37713727.23 -37713727.16 -37713727.10 0.0533 0.0464  
 Venus -107967-03-01 17:31 J -37713463.94 -37713463.77 -37713463.59 0.0536 0.0253  
 Mercury -107963-10-30 10:33 J -37711760.20 -37711760.06 -37711759.91 0.0496 0.0236  
 Mercury -107962-01-28 06:43 J -37711670.36 -37711670.22 -37711670.08 0.0495 0.0271  
 Venus -107962-12-29 21:21 J -37711334.75 -37711334.61 -37711334.45 0.0491 0.0326  
 Moon -107958-03-05 06:43 J -37710173.42 -37710173.22 -37710173.02 0.0510 0.0279  
 Earth -107958-03-05 09:07 J -37710173.31 -37710173.12 -37710172.91 0.0510 0.0288 \*  
 Mars -107957-08-26 08:38 J -37709633.39 -37709633.14 -37709632.88 0.0527 0.0127  
 Mercury -107957-12-30 21:21 J -37709506.74 -37709506.61 -37709506.48 0.0530 0.0194  
 Mercury -107956-03-30 10:48 J -37709417.16 -37709417.05 -37709416.94 0.0532 0.0338  
 Earth -107953-08-25 11:31 J -37708173.24 -37708173.02 -37708172.80 0.0518 0.0091  
 Moon -107953-08-25 14:52 J -37708173.09 -37708172.88 -37708172.66 0.0518 0.0107 \*  
 Mercury -107951-08-18 11:16 J -37707450.14 -37707450.03 -37707449.92 0.0497 0.0362  
 Mercury -107951-11-16 06:57 J -37707360.37 -37707360.21 -37707360.06 0.0495 0.0141  
 Venus -107949-04-27 04:33 J -37706832.35 -37706832.31 -37706832.26 0.0491 0.0478  
 Mercury -107945-10-18 23:16 J -37705196.64 -37705196.53 -37705196.42 0.0530 0.0330  
 Mercury -107944-01-16 12:57 J -37705107.08 -37705106.96 -37705106.83 0.0532 0.0207  
 Venus -107943-03-04 18:00 J -37704694.89 -37704694.75 -37704694.61 0.0536 0.0377  
 Moon -107941-08-29 19:26 J -37703785.85 -37703785.69 -37703785.53 0.0517 0.0368  
 Earth -107941-08-29 22:04 J -37703785.74 -37703785.58 -37703785.41 0.0517 0.0345 \*  
 Mercury -107939-06-06 12:28 J -37703140.02 -37703139.98 -37703139.94 0.0498 0.0479  
 Mercury -107939-09-04 07:40 J -37703050.34 -37703050.18 -37703050.01 0.0496 0.0023  
 Venus -107937-01-01 06:43 J -37702566.41 -37702566.22 -37702566.02 0.0490 0.0170  
 Mercury -107933-08-07 00:14 J -37700886.55 -37700886.49 -37700886.43 0.0529 0.0480  
 Mercury -107933-11-04 14:24 J -37700797.04 -37700796.90 -37700796.76 0.0531 0.0060  
 Venus -107932-11-07 06:43 J -37700429.42 -37700429.22 -37700429.02 0.0536 0.0034



Mercury -107927-06-23 08:38 J -37698740.30 -37698740.14 -37698739.98 0.0496 0.0104

Mercury -107927-09-21 05:16 J -37698650.37 -37698650.28 -37698650.19 0.0494 0.0409

Venus -107926-09-06 09:07 J -37698300.32 -37698300.12 -37698299.92 0.0491 0.0138

Mars -107921-05-31 11:16 J -37696571.10 -37696571.03 -37696570.95 0.0529 0.0504

Mercury -107921-08-23 16:48 J -37696486.94 -37696486.80 -37696486.66 0.0531 0.0071

Mercury -107921-11-21 05:45 J -37696397.32 -37696397.26 -37696397.19 0.0533 0.0457

Venus -107920-07-12 21:50 J -37696163.70 -37696163.59 -37696163.47 0.0536 0.0434

Mercury -107915-04-11 09:07 J -37694430.26 -37694430.12 -37694429.98 0.0496 0.0231

Mercury -107915-07-10 05:02 J -37694340.42 -37694340.29 -37694340.15 0.0495 0.0275

Venus -107914-05-12 10:04 J -37694034.15 -37694034.08 -37694034.00 0.0491 0.0451

Mercury -107909-06-11 19:26 J -37692176.82 -37692176.69 -37692176.56 0.0530 0.0199

Mercury -107909-09-09 08:52 J -37692087.24 -37692087.13 -37692087.02 0.0532 0.0334

Mercury -107903-01-28 09:50 J -37690120.20 -37690120.09 -37690119.98 0.0497 0.0355

Mercury -107903-04-28 05:31 J -37690030.43 -37690030.27 -37690030.12 0.0495 0.0147

Venus -107902-09-08 16:19 J -37689531.96 -37689531.82 -37689531.67 0.0490 0.0348

Mercury -107897-03-30 21:35 J -37687866.71 -37687866.60 -37687866.49 0.0530 0.0330

Mercury -107897-06-28 11:31 J -37687777.15 -37687777.02 -37687776.89 0.0532 0.0207

Venus -107896-07-16 01:11 J -37687394.63 -37687394.45 -37687394.27 0.0536 0.0210

Mars -107892-08-05 21:21 J -37685912.87 -37685912.61 -37685912.34 0.0500 0.0200

Mercury -107892-11-16 10:33 J -37685810.10 -37685810.06 -37685810.02 0.0498 0.0480

Mercury -107891-02-14 05:45 J -37685720.43 -37685720.26 -37685720.10 0.0496 0.0021

Venus -107890-05-14 18:00 J -37685265.96 -37685265.75 -37685265.55 0.0491 0.0038

Moon -107887-02-27 08:24 J -37684246.33 -37684246.15 -37684245.95 0.0507 0.0279

Earth -107887-02-27 09:35 J -37684246.31 -37684246.10 -37684245.89 0.0507 0.0249 \*

Mercury -107885-01-17 23:16 J -37683556.59 -37683556.53 -37683556.46 0.0529 0.0468

Mercury -107885-04-16 13:40 J -37683467.07 -37683466.93 -37683466.79 0.0531 0.0073

Venus -107884-03-20 15:35 J -37683129.04 -37683128.85 -37683128.66 0.0536 0.0195

Mercury -107880-12-03 06:28 J -37681410.38 -37681410.23 -37681410.07 0.0496 0.0106

Mercury -107879-03-03 03:07 J -37681320.46 -37681320.37 -37681320.28 0.0495 0.0407

Venus -107878-01-17 20:24 J -37680999.81 -37680999.65 -37680999.47 0.0491 0.0270

Earth -107875-03-04 07:26 J -37679858.41 -37679858.19 -37679857.96 0.0509 0.0196  
 Moon -107875-03-04 10:33 J -37679858.29 -37679858.06 -37679857.82 0.0509 0.0188 \*  
 Mercury -107873-02-03 14:52 J -37679157.02 -37679156.88 -37679156.74 0.0530 0.0074  
 Mercury -107873-05-03 03:50 J -37679067.41 -37679067.34 -37679067.27 0.0532 0.0453  
 Moon -107870-08-25 12:28 J -37677858.19 -37677857.98 -37677857.77 0.0520 0.0189  
 Earth -107870-08-25 15:35 J -37677858.06 -37677857.85 -37677857.64 0.0520 0.0173 \*  
 Mercury -107868-09-21 07:26 J -37677100.33 -37677100.19 -37677100.04 0.0497 0.0228  
 Mercury -107868-12-20 03:35 J -37677010.49 -37677010.35 -37677010.22 0.0495 0.0281  
 Mercury -107862-11-22 16:48 J -37674846.92 -37674846.80 -37674846.66 0.0530 0.0209  
 Mercury -107861-02-20 06:28 J -37674757.34 -37674757.23 -37674757.12 0.0532 0.0324  
 Venus -107860-03-23 13:55 J -37674360.03 -37674359.92 -37674359.79 0.0537 0.0427  
 Earth -107858-08-30 02:52 J -37673470.57 -37673470.38 -37673470.18 0.0518 0.0270  
 Moon -107858-08-30 04:33 J -37673470.48 -37673470.31 -37673470.12 0.0518 0.0298 \*  
 Mars -107856-05-12 06:57 J -37672849.34 -37672849.21 -37672849.06 0.0498 0.0434  
 Mercury -107856-07-10 07:55 J -37672790.28 -37672790.17 -37672790.06 0.0497 0.0354  
 Mercury -107856-10-08 03:35 J -37672700.51 -37672700.35 -37672700.20 0.0495 0.0148  
 Venus -107854-01-20 03:35 J -37672231.53 -37672231.35 -37672231.16 0.0490 0.0217  
 Mercury -107850-09-10 19:26 J -37670536.80 -37670536.69 -37670536.58 0.0530 0.0338  
 Mercury -107850-12-09 09:21 J -37670447.24 -37670447.11 -37670446.99 0.0532 0.0200  
 Venus -107849-11-26 06:43 J -37670094.42 -37670094.22 -37670094.02 0.0536 0.0034  
 Mercury -107844-04-28 08:52 J -37668480.17 -37668480.13 -37668480.09 0.0497 0.0476  
 Mercury -107844-07-27 03:50 J -37668390.50 -37668390.34 -37668390.17 0.0496 0.0024  
 Venus -107843-09-25 05:16 J -37667965.48 -37667965.28 -37667965.07 0.0491 0.0095  
 Mercury -107838-06-29 21:21 J -37666226.67 -37666226.61 -37666226.54 0.0529 0.0470  
 Mercury -107838-09-27 11:45 J -37666137.15 -37666137.01 -37666136.87 0.0531 0.0071  
 Venus -107837-07-31 21:35 J -37665828.75 -37665828.60 -37665828.46 0.0536 0.0368  
 Mercury -107832-05-15 04:19 J -37664080.48 -37664080.32 -37664080.17 0.0496 0.0109  
 Mercury -107832-08-13 00:28 J -37663990.57 -37663990.48 -37663990.38 0.0495 0.0403  
 Venus -107831-05-31 06:57 J -37663699.32 -37663699.21 -37663699.09 0.0491 0.0405  
 Mercury -107826-07-16 13:40 J -37661827.07 -37661826.93 -37661826.79 0.0531 0.0067

Mercury -107826-10-14 02:52 J -37661737.44 -37661737.38 -37661737.31 0.0532 0.0462

Mercury -107820-03-03 05:02 J -37659770.43 -37659770.29 -37659770.14 0.0497 0.0232

Mercury -107820-06-01 01:11 J -37659680.59 -37659680.45 -37659680.31 0.0495 0.0276

Venus -107819-09-27 14:24 J -37659197.01 -37659196.90 -37659196.78 0.0490 0.0402

Mercury -107814-05-04 14:52 J -37657517.01 -37657516.88 -37657516.75 0.0530 0.0212

Mercury -107814-08-02 04:19 J -37657427.43 -37657427.32 -37657427.21 0.0532 0.0320

Venus -107813-08-03 18:57 J -37657059.89 -37657059.71 -37657059.53 0.0536 0.0249

Mercury -107809-12-20 06:00 J -37655460.36 -37655460.25 -37655460.13 0.0498 0.0354

Mercury -107808-03-20 01:40 J -37655370.59 -37655370.43 -37655370.27 0.0496 0.0150

Venus -107807-06-02 16:04 J -37654931.04 -37654930.83 -37654930.63 0.0490 0.0090

Earth -107804-02-26 06:28 J -37653931.41 -37653931.23 -37653931.05 0.0506 0.0342

Moon -107804-02-26 08:24 J -37653931.32 -37653931.15 -37653930.98 0.0506 0.0370 \*

Mars -107803-11-19 14:09 J -37653300.18 -37653299.91 -37653299.65 0.0527 0.0015

Mercury -107802-02-20 16:48 J -37653206.91 -37653206.80 -37653206.69 0.0529 0.0349

Mercury -107802-05-21 06:43 J -37653117.35 -37653117.22 -37653117.09 0.0531 0.0188

Venus -107801-04-08 10:04 J -37652794.27 -37652794.08 -37652793.89 0.0536 0.0154

Mercury -107797-10-08 06:43 J -37651150.26 -37651150.22 -37651150.18 0.0498 0.0478

Mercury -107796-01-06 01:40 J -37651060.59 -37651060.43 -37651060.26 0.0496 0.0020

Venus -107795-02-05 16:04 J -37650665.01 -37650664.83 -37650664.64 0.0491 0.0227

Moon -107792-03-03 01:55 J -37649543.66 -37649543.42 -37649543.19 0.0508 0.0092

Earth -107792-03-03 05:16 J -37649543.52 -37649543.28 -37649543.04 0.0508 0.0107 \*

Mercury -107791-12-09 18:57 J -37648896.77 -37648896.71 -37648896.65 0.0529 0.0481

Mercury -107790-03-09 09:21 J -37648807.25 -37648807.11 -37648806.97 0.0531 0.0061

Earth -107787-08-24 20:09 J -37647542.86 -37647542.66 -37647542.46 0.0520 0.0250

Moon -107787-08-24 22:33 J -37647542.75 -37647542.56 -37647542.37 0.0520 0.0261 \*

Mercury -107785-10-25 02:24 J -37646750.56 -37646750.40 -37646750.24 0.0496 0.0108

Mercury -107784-01-22 22:33 J -37646660.65 -37646660.56 -37646660.46 0.0494 0.0403

Mercury -107779-12-26 11:45 J -37644497.15 -37644497.01 -37644496.87 0.0531 0.0069

Mercury -107778-03-26 00:57 J -37644407.53 -37644407.46 -37644407.39 0.0533 0.0459

Venus -107777-04-11 12:43 J -37644025.04 -37644024.97 -37644024.89 0.0536 0.0489

Moon -107775-08-29 04:04 J -37643155.54 -37643155.33 -37643155.11 0.0518 0.0207  
 Earth -107775-08-29 05:16 J -37643155.49 -37643155.28 -37643155.07 0.0518 0.0180 \*  
 Mercury -107773-08-13 02:38 J -37642440.53 -37642440.39 -37642440.25 0.0497 0.0237  
 Mercury -107773-11-10 22:33 J -37642350.69 -37642350.56 -37642350.42 0.0495 0.0270  
 Venus -107771-02-08 00:00 J -37641896.68 -37641896.50 -37641896.33 0.0491 0.0264  
 Mercury -107767-10-14 13:40 J -37640187.06 -37640186.93 -37640186.80 0.0530 0.0205  
 Mercury -107766-01-12 03:07 J -37640097.47 -37640097.37 -37640097.26 0.0532 0.0328  
 Venus -107766-12-16 03:07 J -37639759.56 -37639759.37 -37639759.17 0.0536 0.0086  
 Mercury -107761-06-01 03:35 J -37638130.46 -37638130.35 -37638130.24 0.0497 0.0359  
 Mercury -107761-08-29 23:02 J -37638040.69 -37638040.54 -37638040.38 0.0496 0.0145  
 Venus -107760-10-14 02:24 J -37637630.60 -37637630.40 -37637630.19 0.0491 0.0046  
 Mercury -107755-08-02 14:52 J -37635876.99 -37635876.88 -37635876.78 0.0529 0.0352  
 Mercury -107755-10-31 04:48 J -37635787.43 -37635787.30 -37635787.17 0.0531 0.0184  
 Venus -107754-08-20 14:52 J -37635494.04 -37635493.88 -37635493.72 0.0536 0.0333  
 Mercury -107749-03-20 04:33 J -37633820.34 -37633820.31 -37633820.27 0.0498 0.0480  
 Mercury -107749-06-17 23:45 J -37633730.67 -37633730.51 -37633730.35 0.0496 0.0018  
 Venus -107748-06-19 04:19 J -37633364.45 -37633364.32 -37633364.17 0.0491 0.0356  
 Mercury -107743-05-21 16:33 J -37631566.86 -37631566.81 -37631566.76 0.0529 0.0490  
 Mercury -107743-08-19 06:57 J -37631477.35 -37631477.21 -37631477.07 0.0531 0.0052  
 Mars -107738-10-30 05:31 J -37629579.56 -37629579.27 -37629578.98 0.0500 0.0031  
 Mercury -107737-04-06 00:00 J -37629420.66 -37629420.50 -37629420.34 0.0496 0.0112  
 Mercury -107737-07-04 20:09 J -37629330.75 -37629330.66 -37629330.56 0.0495 0.0399  
 Venus -107736-10-16 09:21 J -37628862.20 -37628862.11 -37628862.02 0.0490 0.0442  
 Mercury -107731-06-07 09:21 J -37627167.25 -37627167.11 -37627166.97 0.0531 0.0081  
 Mercury -107731-09-04 22:33 J -37627077.63 -37627077.56 -37627077.49 0.0533 0.0449  
 Venus -107730-08-23 17:31 J -37626724.93 -37626724.77 -37626724.61 0.0537 0.0310  
 Mercury -107725-01-24 00:43 J -37625110.61 -37625110.47 -37625110.33 0.0497 0.0236  
 Mercury -107725-04-22 20:24 J -37625020.78 -37625020.65 -37625020.51 0.0495 0.0270  
 Venus -107724-06-21 10:33 J -37624596.26 -37624596.06 -37624595.86 0.0490 0.0129  
 Moon -107721-02-26 01:26 J -37623616.53 -37623616.44 -37623616.34 0.0506 0.0462

Earth -107721-02-26 03:50 J -37623616.46 -37623616.34 -37623616.21 0.0506 0.0431 \*  
 Mercury -107719-03-26 11:31 J -37622857.15 -37622857.02 -37622856.89 0.0530 0.0210  
 Mercury -107719-06-24 01:11 J -37622767.56 -37622767.45 -37622767.34 0.0532 0.0323  
 Venus -107718-04-28 09:07 J -37622459.32 -37622459.12 -37622458.92 0.0536 0.0091  
 Mercury -107714-11-12 01:11 J -37620800.56 -37620800.45 -37620800.34 0.0497 0.0363  
 Mercury -107713-02-09 20:38 J -37620710.80 -37620710.64 -37620710.48 0.0495 0.0138  
 Venus -107712-02-24 12:14 J -37620330.19 -37620329.99 -37620329.80 0.0491 0.0184  
 Earth -107709-03-02 04:48 J -37619228.54 -37619228.30 -37619228.05 0.0508 0.0026  
 Moon -107709-03-02 08:52 J -37619228.38 -37619228.13 -37619227.89 0.0508 0.0012 \*  
 Mercury -107707-01-12 13:26 J -37618547.05 -37618546.94 -37618546.83 0.0529 0.0346  
 Mercury -107707-04-12 03:21 J -37618457.49 -37618457.36 -37618457.23 0.0531 0.0191  
 Venus -107707-12-31 22:48 J -37618193.62 -37618193.55 -37618193.48 0.0535 0.0498  
 Moon -107704-08-23 18:14 J -37617227.91 -37617227.74 -37617227.57 0.0520 0.0359  
 Earth -107704-08-23 19:55 J -37617227.83 -37617227.67 -37617227.50 0.0520 0.0349 \*  
 Mercury -107702-08-31 02:09 J -37616490.44 -37616490.41 -37616490.37 0.0498 0.0485  
 Mercury -107702-11-28 21:21 J -37616400.78 -37616400.61 -37616400.45 0.0496 0.0019  
 Moon -107697-03-07 00:14 J -37614840.51 -37614840.49 -37614840.45 0.0509 0.0503  
 Earth -107697-03-07 04:19 J -37614840.39 -37614840.32 -37614840.23 0.0509 0.0479  
 Mercury -107696-10-31 14:38 J -37614236.94 -37614236.89 -37614236.84 0.0528 0.0492  
 Mercury -107695-01-29 05:02 J -37614147.43 -37614147.29 -37614147.15 0.0530 0.0051  
 Venus -107694-05-01 06:00 J -37613690.28 -37613690.25 -37613690.21 0.0536 0.0526  
 Earth -107692-08-28 04:19 J -37612840.54 -37612840.32 -37612840.09 0.0519 0.0082  
 Moon -107692-08-28 04:48 J -37612840.52 -37612840.30 -37612840.09 0.0519 0.0111 \*  
 Mercury -107690-09-16 21:50 J -37612090.75 -37612090.59 -37612090.43 0.0497 0.0114  
 Mercury -107690-12-15 18:00 J -37612000.84 -37612000.75 -37612000.64 0.0495 0.0398  
 Venus -107688-02-26 21:07 J -37611561.77 -37611561.62 -37611561.46 0.0491 0.0313  
 Mars -107684-05-09 18:28 J -37610028.84 -37610028.73 -37610028.60 0.0525 0.0466  
 Mercury -107684-11-17 06:57 J -37609837.35 -37609837.21 -37609837.07 0.0530 0.0089  
 Mercury -107683-02-14 20:09 J -37609747.74 -37609747.66 -37609747.58 0.0532 0.0439  
 Venus -107682-01-03 21:07 J -37609424.81 -37609424.62 -37609424.42 0.0536 0.0125

Mercury -107678-07-05 22:19 J -37607780.71 -37607780.57 -37607780.43 0.0497 0.0241

Mercury -107678-10-03 18:00 J -37607690.88 -37607690.75 -37607690.61 0.0495 0.0265

Venus -107677-11-01 21:07 J -37607295.83 -37607295.62 -37607295.41 0.0490 0.0006

Mercury -107672-09-05 09:07 J -37605527.25 -37605527.12 -37605526.99 0.0530 0.0221

Mercury -107672-12-03 22:48 J -37605437.66 -37605437.55 -37605437.44 0.0532 0.0313

Venus -107671-09-08 13:11 J -37605159.12 -37605158.95 -37605158.78 0.0536 0.0274

Mercury -107666-04-23 23:16 J -37603470.64 -37603470.53 -37603470.42 0.0497 0.0363

Mercury -107666-07-22 18:28 J -37603380.88 -37603380.73 -37603380.57 0.0495 0.0139

Venus -107665-07-07 23:16 J -37603029.69 -37603029.53 -37603029.38 0.0491 0.0317

Mercury -107660-06-24 11:16 J -37601217.13 -37601217.03 -37601216.92 0.0530 0.0352

Mercury -107660-09-22 01:26 J -37601127.57 -37601127.44 -37601127.31 0.0532 0.0186

Mercury -107654-02-09 23:45 J -37599160.53 -37599160.51 -37599160.47 0.0498 0.0488

Mercury -107654-05-10 18:43 J -37599070.88 -37599070.72 -37599070.55 0.0496 0.0016

Venus -107653-11-04 05:16 J -37598527.29 -37598527.28 -37598527.26 0.0491 0.0489

Mars -107648-02-12 05:16 J -37596966.52 -37596966.28 -37596966.03 0.0527 0.0190

Mercury -107648-04-12 13:11 J -37596907.00 -37596906.95 -37596906.90 0.0529 0.0487

Mercury -107648-07-11 03:35 J -37596817.49 -37596817.35 -37596817.21 0.0531 0.0054

Venus -107647-09-11 14:38 J -37596390.03 -37596389.89 -37596389.74 0.0536 0.0365

Mercury -107642-02-26 19:26 J -37594760.84 -37594760.69 -37594760.53 0.0497 0.0118

Mercury -107642-05-27 15:35 J -37594670.94 -37594670.85 -37594670.74 0.0495 0.0393

Venus -107641-07-10 07:26 J -37594261.38 -37594261.19 -37594261.00 0.0491 0.0177

Mercury -107636-04-29 05:02 J -37592507.43 -37592507.29 -37592507.15 0.0530 0.0089

Mercury -107636-07-27 18:14 J -37592417.81 -37592417.74 -37592417.66 0.0532 0.0439

Venus -107635-05-17 03:07 J -37592124.57 -37592124.37 -37592124.17 0.0536 0.0050

Mercury -107631-12-15 20:09 J -37590450.80 -37590450.66 -37590450.52 0.0497 0.0243

Mercury -107630-03-15 16:04 J -37590360.97 -37590360.83 -37590360.69 0.0495 0.0264

Venus -107629-03-15 09:21 J -37589995.31 -37589995.11 -37589994.91 0.0491 0.0135

Moon -107626-03-01 22:19 J -37588913.81 -37588913.57 -37588913.33 0.0507 0.0086

Earth -107626-03-02 02:09 J -37588913.65 -37588913.41 -37588913.16 0.0507 0.0067 \*

Mercury -107624-02-15 06:57 J -37588197.34 -37588197.21 -37588197.08 0.0529 0.0225

Mercury -107624-05-15 20:38 J -37588107.75 -37588107.64 -37588107.53 0.0532 0.0307

Venus -107623-01-19 17:16 J -37587858.88 -37587858.78 -37587858.67 0.0535 0.0457

Earth -107621-08-22 20:52 J -37586912.74 -37586912.63 -37586912.51 0.0521 0.0440

Moon -107621-08-22 21:50 J -37586912.70 -37586912.59 -37586912.48 0.0521 0.0448 \*

Mercury -107619-10-03 20:52 J -37586140.73 -37586140.63 -37586140.52 0.0497 0.0366

Mercury -107618-01-01 16:19 J -37586050.98 -37586050.82 -37586050.67 0.0496 0.0135

Venus -107618-11-19 09:50 J -37585729.16 -37585729.09 -37585729.00 0.0491 0.0450

Earth -107614-03-06 22:48 J -37584525.71 -37584525.55 -37584525.39 0.0509 0.0376

Moon -107614-03-07 02:38 J -37584525.53 -37584525.39 -37584525.24 0.0509 0.0404 \*

Mercury -107613-12-04 08:52 J -37583887.23 -37583887.13 -37583887.03 0.0530 0.0361

Mercury -107612-03-03 23:02 J -37583797.67 -37583797.54 -37583797.41 0.0532 0.0177

Earth -107609-08-27 10:19 J -37582525.30 -37582525.07 -37582524.85 0.0519 0.0011

Moon -107609-08-27 10:48 J -37582525.28 -37582525.05 -37582524.82 0.0519 0.0040 \*

Mercury -107607-07-22 22:04 J -37581830.61 -37581830.58 -37581830.55 0.0498 0.0485

Mercury -107607-10-20 17:02 J -37581740.96 -37581740.79 -37581740.63 0.0496 0.0012

Venus -107605-03-17 16:04 J -37581226.97 -37581226.83 -37581226.69 0.0490 0.0355

Mercury -107601-09-22 11:02 J -37579577.09 -37579577.04 -37579576.99 0.0529 0.0492

Mercury -107601-12-21 01:40 J -37579487.57 -37579487.43 -37579487.29 0.0531 0.0052

Venus -107599-01-22 20:52 J -37579089.81 -37579089.63 -37579089.44 0.0536 0.0194

Moon -107597-08-31 18:28 J -37578137.83 -37578137.73 -37578137.63 0.0517 0.0461

Earth -107597-08-31 19:55 J -37578137.78 -37578137.67 -37578137.55 0.0517 0.0441 \*

Mercury -107595-08-08 17:16 J -37577430.93 -37577430.78 -37577430.62 0.0496 0.0120

Mercury -107595-11-06 13:26 J -37577341.04 -37577340.94 -37577340.84 0.0495 0.0390

Venus -107594-11-21 17:45 J -37576960.97 -37576960.76 -37576960.56 0.0491 0.0043

Mercury -107589-10-09 03:50 J -37575177.48 -37575177.34 -37575177.20 0.0530 0.0082

Mercury -107588-01-06 17:02 J -37575087.86 -37575087.79 -37575087.71 0.0532 0.0446

Venus -107588-09-27 11:31 J -37574824.20 -37574824.02 -37574823.83 0.0536 0.0213

Mars -107583-01-22 10:33 J -37573246.34 -37573246.06 -37573245.78 0.0500 0.0130

Mercury -107583-05-27 18:14 J -37573120.88 -37573120.74 -37573120.60 0.0497 0.0243

Mercury -107583-08-25 13:55 J -37573031.06 -37573030.92 -37573030.78 0.0495 0.0262

Venus -107582-07-27 20:09 J -37572694.83 -37572694.66 -37572694.49 0.0491 0.0270  
 Mercury -107577-07-28 05:31 J -37570867.40 -37570867.27 -37570867.14 0.0529 0.0223  
 Mercury -107577-10-25 18:57 J -37570777.82 -37570777.71 -37570777.59 0.0531 0.0310  
 Mercury -107571-03-15 18:57 J -37568810.82 -37568810.71 -37568810.60 0.0498 0.0366  
 Mercury -107571-06-13 14:24 J -37568721.06 -37568720.90 -37568720.75 0.0496 0.0135  
 Mercury -107565-05-16 07:11 J -37566557.31 -37566557.20 -37566557.10 0.0529 0.0360  
 Mercury -107565-08-13 21:07 J -37566467.75 -37566467.62 -37566467.48 0.0531 0.0177  
 Venus -107564-09-30 10:04 J -37566055.20 -37566055.08 -37566054.95 0.0536 0.0413  
 Mercury -107559-01-01 19:55 J -37564500.70 -37564500.67 -37564500.64 0.0498 0.0487  
 Mercury -107559-04-01 14:52 J -37564411.05 -37564410.88 -37564410.72 0.0496 0.0015  
 Venus -107558-07-30 03:07 J -37563926.56 -37563926.37 -37563926.19 0.0490 0.0223  
 Mercury -107553-03-04 08:38 J -37562247.18 -37562247.14 -37562247.09 0.0529 0.0500  
 Mercury -107553-06-01 23:16 J -37562157.67 -37562157.53 -37562157.39 0.0531 0.0044  
 Venus -107552-06-05 02:09 J -37561789.61 -37561789.41 -37561789.21 0.0537 0.0015  
 Mercury -107547-01-18 15:50 J -37560101.00 -37560100.84 -37560100.69 0.0496 0.0114  
 Mercury -107547-04-18 11:45 J -37560011.10 -37560011.01 -37560010.91 0.0494 0.0395  
 Venus -107546-04-04 05:31 J -37559660.48 -37559660.27 -37559660.07 0.0490 0.0088  
 Earth -107543-02-28 23:16 J -37558598.76 -37558598.53 -37558598.29 0.0507 0.0157  
 Moon -107543-03-01 03:21 J -37558598.58 -37558598.36 -37558598.12 0.0507 0.0173 \*  
 Mercury -107541-03-21 01:55 J -37557847.56 -37557847.42 -37557847.28 0.0531 0.0084  
 Mercury -107541-06-18 15:21 J -37557757.94 -37557757.86 -37557757.79 0.0533 0.0445  
 Venus -107540-02-07 17:45 J -37557523.90 -37557523.76 -37557523.62 0.0536 0.0386  
 Earth -107538-08-23 03:50 J -37556597.38 -37556597.34 -37556597.30 0.0521 0.0510  
 Moon -107538-08-23 03:50 J -37556597.37 -37556597.34 -37556597.30 0.0521 0.0514 \*  
 Mercury -107536-11-06 16:19 J -37555790.96 -37555790.82 -37555790.68 0.0497 0.0240  
 Mercury -107535-02-04 12:00 J -37555701.14 -37555701.00 -37555700.86 0.0495 0.0264  
 Venus -107535-12-08 07:26 J -37555394.30 -37555394.19 -37555394.07 0.0491 0.0401  
 Moon -107531-03-05 22:19 J -37554210.75 -37554210.57 -37554210.38 0.0509 0.0329  
 Earth -107531-03-06 01:55 J -37554210.61 -37554210.42 -37554210.22 0.0509 0.0305 \*  
 Mars -107530-08-03 14:24 J -37553695.12 -37553694.90 -37553694.68 0.0526 0.0279



Mercury -107529-01-08 04:04 J -37553537.46 -37553537.33 -37553537.20 0.0530 0.0216

Mercury -107529-04-06 18:00 J -37553447.86 -37553447.75 -37553447.64 0.0532 0.0318

Moon -107526-08-27 12:57 J -37552210.18 -37552209.96 -37552209.74 0.0519 0.0043

Earth -107526-08-27 14:09 J -37552210.13 -37552209.91 -37552209.69 0.0519 0.0072 \*

Mercury -107524-08-25 17:16 J -37551480.89 -37551480.78 -37551480.67 0.0498 0.0363

Mercury -107524-11-23 12:28 J -37551391.13 -37551390.98 -37551390.82 0.0496 0.0137

Venus -107522-04-06 14:09 J -37550892.01 -37550891.91 -37550891.79 0.0491 0.0410

Mercury -107518-10-27 05:45 J -37549227.36 -37549227.26 -37549227.15 0.0529 0.0354

Mercury -107517-01-24 19:55 J -37549137.80 -37549137.67 -37549137.54 0.0531 0.0182

Venus -107516-02-10 17:45 J -37548754.94 -37548754.76 -37548754.58 0.0536 0.0247

Earth -107514-08-31 22:19 J -37547822.73 -37547822.57 -37547822.40 0.0518 0.0356

Moon -107514-09-01 00:43 J -37547822.62 -37547822.47 -37547822.30 0.0518 0.0374 \*

Mercury -107512-06-13 18:14 J -37547170.77 -37547170.74 -37547170.71 0.0498 0.0485

Mercury -107512-09-11 12:57 J -37547081.12 -37547080.96 -37547080.79 0.0496 0.0018

Venus -107511-12-10 16:04 J -37546626.03 -37546625.83 -37546625.62 0.0491 0.0098

Mercury -107506-08-15 07:26 J -37544917.24 -37544917.19 -37544917.14 0.0528 0.0493

Mercury -107506-11-12 22:04 J -37544827.73 -37544827.58 -37544827.44 0.0531 0.0051

Venus -107505-10-16 08:24 J -37544489.34 -37544489.15 -37544488.95 0.0536 0.0160

Mercury -107500-06-30 13:55 J -37542771.08 -37542770.92 -37542770.77 0.0496 0.0114

Mercury -107500-09-28 09:50 J -37542681.18 -37542681.09 -37542680.99 0.0495 0.0396

Venus -107499-08-15 17:16 J -37542359.96 -37542359.78 -37542359.59 0.0491 0.0218

Mars -107494-05-08 15:07 J -37540633.05 -37540632.87 -37540632.67 0.0528 0.0358

Mercury -107494-08-31 23:45 J -37540517.65 -37540517.51 -37540517.37 0.0531 0.0089

Mercury -107494-11-29 13:11 J -37540428.02 -37540427.95 -37540427.87 0.0533 0.0442

Mercury -107488-04-18 14:52 J -37538461.01 -37538460.88 -37538460.73 0.0497 0.0233

Mercury -107488-07-17 10:33 J -37538371.19 -37538371.06 -37538370.92 0.0495 0.0272

Mercury -107482-06-20 02:24 J -37536207.53 -37536207.40 -37536207.27 0.0530 0.0217

Mercury -107482-09-17 16:04 J -37536117.94 -37536117.83 -37536117.71 0.0532 0.0319

Venus -107481-10-19 11:45 J -37535720.08 -37535720.01 -37535719.93 0.0537 0.0492

Mercury -107476-02-04 15:50 J -37534150.95 -37534150.84 -37534150.73 0.0497 0.0356

Mercury -107476-05-05 11:02 J -37534061.20 -37534061.04 -37534060.89 0.0495 0.0143

Venus -107475-08-18 01:55 J -37533591.59 -37533591.42 -37533591.25 0.0490 0.0280

Mercury -107470-04-08 04:33 J -37531897.41 -37531897.31 -37531897.20 0.0529 0.0347

Mercury -107470-07-06 18:43 J -37531807.85 -37531807.72 -37531807.59 0.0532 0.0192

Venus -107469-06-24 03:21 J -37531454.56 -37531454.36 -37531454.16 0.0536 0.0090

Mars -107465-07-11 18:43 J -37529975.93 -37529975.72 -37529975.48 0.0501 0.0316

Mercury -107465-11-23 16:48 J -37529840.84 -37529840.80 -37529840.75 0.0498 0.0478

Mercury -107464-02-21 11:31 J -37529751.18 -37529751.02 -37529750.85 0.0496 0.0023

Venus -107463-04-23 04:19 J -37529325.52 -37529325.32 -37529325.11 0.0491 0.0034

Moon -107460-02-28 00:43 J -37528283.68 -37528283.47 -37528283.25 0.0507 0.0235

Earth -107460-02-28 04:48 J -37528283.51 -37528283.30 -37528283.08 0.0507 0.0216 \*

Mercury -107458-01-25 06:14 J -37527587.29 -37527587.24 -37527587.18 0.0528 0.0484

Mercury -107458-04-24 20:52 J -37527497.77 -37527497.63 -37527497.49 0.0531 0.0057

Venus -107457-02-27 16:48 J -37527188.96 -37527188.80 -37527188.64 0.0535 0.0323

Mercury -107453-12-10 12:14 J -37525441.14 -37525440.99 -37525440.83 0.0497 0.0108

Mercury -107452-03-10 08:24 J -37525351.24 -37525351.15 -37525351.05 0.0495 0.0402

Venus -107452-12-27 06:43 J -37525059.36 -37525059.22 -37525059.07 0.0491 0.0344

Earth -107448-03-05 04:48 J -37523895.51 -37523895.30 -37523895.08 0.0508 0.0236

Moon -107448-03-05 07:26 J -37523895.38 -37523895.19 -37523894.98 0.0508 0.0266 \*

Mercury -107446-02-10 22:48 J -37523187.69 -37523187.55 -37523187.41 0.0530 0.0078

Mercury -107446-05-11 12:14 J -37523098.06 -37523097.99 -37523097.92 0.0532 0.0449

Earth -107443-08-26 20:09 J -37521894.87 -37521894.66 -37521894.44 0.0520 0.0143

Moon -107443-08-26 22:19 J -37521894.80 -37521894.57 -37521894.35 0.0520 0.0111 \*

Mercury -107441-09-28 13:11 J -37521131.09 -37521130.95 -37521130.80 0.0497 0.0229

Mercury -107441-12-27 08:52 J -37521041.26 -37521041.13 -37521040.99 0.0495 0.0276

Venus -107439-04-25 12:14 J -37520557.04 -37520556.99 -37520556.92 0.0490 0.0468

Mercury -107435-11-30 00:28 J -37518877.61 -37518877.48 -37518877.35 0.0530 0.0218

Mercury -107434-02-27 14:24 J -37518788.01 -37518787.90 -37518787.79 0.0532 0.0317

Venus -107433-03-01 18:14 J -37518419.89 -37518419.74 -37518419.57 0.0537 0.0322

Moon -107431-08-31 07:11 J -37517507.37 -37517507.20 -37517507.03 0.0518 0.0322

Earth -107431-08-31 10:04 J -37517507.25 -37517507.08 -37517506.89 0.0518 0.0307 \*  
 Mars -107429-04-17 14:24 J -37516912.09 -37516911.90 -37516911.69 0.0499 0.0354  
 Mercury -107429-07-17 14:38 J -37516821.00 -37516820.89 -37516820.77 0.0497 0.0346  
 Mercury -107429-10-15 09:50 J -37516731.24 -37516731.09 -37516730.93 0.0495 0.0155  
 Venus -107428-12-29 14:52 J -37516291.07 -37516290.88 -37516290.68 0.0490 0.0156  
 Mercury -107423-09-18 02:52 J -37514567.49 -37514567.38 -37514567.27 0.0530 0.0346  
 Mercury -107423-12-16 17:02 J -37514477.92 -37514477.79 -37514477.65 0.0532 0.0194  
 Venus -107422-11-05 10:48 J -37514154.25 -37514154.05 -37514153.85 0.0537 0.0079  
 Mercury -107417-05-05 15:35 J -37512510.89 -37512510.85 -37512510.79 0.0498 0.0468  
 Mercury -107417-08-03 10:33 J -37512421.23 -37512421.06 -37512420.90 0.0496 0.0030  
 Venus -107416-09-03 17:16 J -37512024.98 -37512024.78 -37512024.59 0.0491 0.0158  
 Mercury -107411-07-07 05:16 J -37510257.34 -37510257.28 -37510257.22 0.0529 0.0476  
 Mercury -107411-10-04 19:55 J -37510167.81 -37510167.67 -37510167.53 0.0531 0.0069  
 Venus -107410-07-11 01:55 J -37509888.50 -37509888.42 -37509888.33 0.0536 0.0483  
 Mercury -107405-05-22 11:16 J -37508111.19 -37508111.03 -37508110.87 0.0496 0.0097  
 Mercury -107405-08-20 07:11 J -37508021.29 -37508021.20 -37508021.11 0.0495 0.0411  
 Venus -107404-05-09 19:55 J -37507758.72 -37507758.67 -37507758.60 0.0491 0.0469  
 Mercury -107399-07-23 21:50 J -37505857.73 -37505857.59 -37505857.45 0.0530 0.0067  
 Mercury -107399-10-21 11:16 J -37505768.10 -37505768.03 -37505767.96 0.0532 0.0461  
 Mercury -107393-03-10 12:00 J -37503801.14 -37503801.00 -37503800.85 0.0497 0.0221  
 Mercury -107393-06-08 07:40 J -37503711.31 -37503711.18 -37503711.05 0.0495 0.0284  
 Venus -107392-09-06 02:24 J -37503256.54 -37503256.40 -37503256.25 0.0491 0.0345  
 Mercury -107387-05-11 23:45 J -37501547.64 -37501547.51 -37501547.37 0.0530 0.0203  
 Mercury -107387-08-09 13:40 J -37501458.04 -37501457.93 -37501457.82 0.0532 0.0331  
 Venus -107386-07-14 02:52 J -37501119.57 -37501119.38 -37501119.19 0.0536 0.0157  
 Mercury -107382-12-28 13:11 J -37499491.06 -37499490.95 -37499490.83 0.0497 0.0339  
 Mercury -107381-03-27 08:24 J -37499401.30 -37499401.15 -37499400.99 0.0495 0.0161  
 Venus -107380-05-12 04:04 J -37498990.54 -37498990.33 -37498990.12 0.0490 0.0031  
 Earth -107377-02-28 04:04 J -37497968.52 -37497968.33 -37497968.13 0.0506 0.0301  
 Moon -107377-02-28 07:55 J -37497968.36 -37497968.17 -37497967.98 0.0506 0.0314 \*

Mars -107376-10-27 11:16 J -37497361.29 -37497361.03 -37497360.77 0.0526 0.0087  
 Mercury -107375-02-28 01:11 J -37497237.56 -37497237.45 -37497237.34 0.0530 0.0345  
 Mercury -107375-05-28 15:35 J -37497147.98 -37497147.85 -37497147.72 0.0532 0.0195  
 Venus -107374-03-18 17:16 J -37496853.96 -37496853.78 -37496853.60 0.0537 0.0251  
 Mercury -107370-10-16 14:52 J -37495180.94 -37495180.88 -37495180.81 0.0498 0.0454  
 Mercury -107369-01-14 09:35 J -37495091.26 -37495091.10 -37495090.94 0.0496 0.0042  
 Venus -107368-01-15 07:11 J -37494724.37 -37494724.20 -37494724.03 0.0491 0.0279  
 Moon -107365-03-04 04:04 J -37493580.56 -37493580.33 -37493580.10 0.0508 0.0184  
 Earth -107365-03-04 06:00 J -37493580.47 -37493580.25 -37493580.01 0.0508 0.0157 \*  
 Mercury -107364-12-17 03:35 J -37492927.41 -37492927.35 -37492927.29 0.0529 0.0475  
 Mercury -107363-03-16 18:14 J -37492837.88 -37492837.74 -37492837.60 0.0532 0.0069  
 Moon -107360-08-26 06:28 J -37491579.43 -37491579.23 -37491579.02 0.0520 0.0159  
 Earth -107360-08-26 09:21 J -37491579.32 -37491579.11 -37491578.90 0.0520 0.0189 \*  
 Mercury -107358-11-02 10:19 J -37490781.23 -37490781.07 -37490780.91 0.0496 0.0085  
 Mercury -107357-01-31 06:14 J -37490691.32 -37490691.24 -37490691.15 0.0494 0.0424  
 Mercury -107351-01-02 20:52 J -37488527.77 -37488527.63 -37488527.49 0.0531 0.0057  
 Mercury -107351-04-02 10:19 J -37488438.13 -37488438.07 -37488438.01 0.0533 0.0472  
 Venus -107350-03-21 22:04 J -37488084.71 -37488084.58 -37488084.45 0.0537 0.0408  
 Earth -107348-08-30 20:24 J -37487191.84 -37487191.65 -37487191.45 0.0518 0.0251  
 Moon -107348-08-31 00:00 J -37487191.69 -37487191.50 -37487191.30 0.0518 0.0260 \*  
 Mercury -107346-08-21 11:16 J -37486471.18 -37486471.03 -37486470.88 0.0497 0.0207  
 Mercury -107346-11-19 06:43 J -37486381.35 -37486381.22 -37486381.08 0.0495 0.0297  
 Venus -107344-01-17 15:35 J -37485956.03 -37485955.85 -37485955.66 0.0490 0.0220  
 Mercury -107340-10-21 23:02 J -37484217.67 -37484217.54 -37484217.41 0.0530 0.0190  
 Mercury -107339-01-19 12:43 J -37484128.07 -37484127.97 -37484127.86 0.0532 0.0344  
 Venus -107339-11-24 12:14 J -37483819.19 -37483818.99 -37483818.79 0.0536 0.0006  
 Mercury -107334-06-09 12:14 J -37482161.11 -37482160.99 -37482160.87 0.0498 0.0330  
 Mercury -107334-09-07 07:26 J -37482071.35 -37482071.19 -37482071.04 0.0496 0.0171  
 Venus -107333-09-22 18:14 J -37481689.94 -37481689.74 -37481689.54 0.0491 0.0092  
 Mercury -107328-08-10 00:43 J -37479907.58 -37479907.47 -37479907.35 0.0529 0.0326

Mercury -107328-11-07 15:07 J -37479818.00 -37479817.87 -37479817.74 0.0531 0.0212

Venus -107327-07-30 02:38 J -37479553.52 -37479553.39 -37479553.27 0.0536 0.0412

Mercury -107322-03-28 13:40 J -37477851.00 -37477850.93 -37477850.86 0.0498 0.0445

Mercury -107322-06-26 08:24 J -37477761.31 -37477761.15 -37477760.99 0.0496 0.0050

Venus -107321-05-28 20:52 J -37477423.74 -37477423.63 -37477423.51 0.0491 0.0401

Mercury -107316-05-29 01:55 J -37475597.48 -37475597.42 -37475597.35 0.0529 0.0471

Mercury -107316-08-26 16:48 J -37475507.94 -37475507.80 -37475507.66 0.0531 0.0074

Mars -107311-10-06 15:07 J -37473641.16 -37473640.87 -37473640.58 0.0501 0.0053

Mercury -107310-04-14 09:35 J -37473451.25 -37473451.10 -37473450.94 0.0496 0.0070

Mercury -107310-07-13 05:45 J -37473361.33 -37473361.26 -37473361.19 0.0494 0.0439

Venus -107309-09-25 03:21 J -37472921.46 -37472921.36 -37472921.24 0.0490 0.0413

Mercury -107304-06-14 19:11 J -37471197.84 -37471197.70 -37471197.55 0.0531 0.0057

Mercury -107304-09-12 08:52 J -37471108.19 -37471108.13 -37471108.07 0.0533 0.0476

Venus -107303-08-02 05:45 J -37470784.44 -37470784.26 -37470784.08 0.0537 0.0242

Mercury -107298-01-31 10:33 J -37469141.21 -37469141.06 -37469140.91 0.0497 0.0193

Mercury -107298-05-01 06:00 J -37469051.37 -37469051.25 -37469051.12 0.0495 0.0311

Venus -107297-05-31 05:31 J -37468655.47 -37468655.27 -37468655.07 0.0490 0.0098

Moon -107294-02-27 10:33 J -37467653.23 -37467653.06 -37467652.88 0.0506 0.0359

Earth -107294-02-27 13:40 J -37467653.10 -37467652.93 -37467652.75 0.0506 0.0348 \*

Mercury -107292-04-02 21:50 J -37466887.72 -37466887.59 -37466887.45 0.0530 0.0181

Mercury -107292-07-01 11:45 J -37466798.11 -37466798.01 -37466797.90 0.0532 0.0354

Venus -107291-04-06 21:50 J -37466518.78 -37466518.59 -37466518.39 0.0536 0.0163

Mercury -107287-11-19 11:31 J -37464831.14 -37464831.02 -37464830.89 0.0497 0.0315

Mercury -107286-02-17 06:43 J -37464741.37 -37464741.22 -37464741.07 0.0495 0.0185

Venus -107285-02-04 08:09 J -37464389.34 -37464389.16 -37464388.97 0.0491 0.0214

Earth -107282-03-04 16:33 J -37463265.04 -37463264.81 -37463264.57 0.0508 0.0115

Moon -107282-03-04 17:31 J -37463265.00 -37463264.77 -37463264.55 0.0508 0.0146 \*

Mercury -107280-01-20 00:00 J -37462577.61 -37462577.50 -37462577.38 0.0529 0.0313

Mercury -107280-04-19 14:09 J -37462488.03 -37462487.91 -37462487.78 0.0532 0.0226

Earth -107277-08-25 18:00 J -37461263.95 -37461263.75 -37461263.56 0.0521 0.0251

Moon -107277-08-25 21:21 J -37461263.81 -37461263.61 -37461263.40 0.0521 0.0218 \*  
 Mercury -107275-09-07 12:28 J -37460521.05 -37460520.98 -37460520.90 0.0498 0.0436  
 Mercury -107275-12-06 07:11 J -37460431.36 -37460431.20 -37460431.03 0.0496 0.0061  
 Mercury -107269-11-08 01:40 J -37458267.50 -37458267.43 -37458267.35 0.0529 0.0450  
 Mercury -107268-02-05 16:33 J -37458177.95 -37458177.81 -37458177.67 0.0531 0.0094  
 Venus -107267-04-09 23:02 J -37457749.62 -37457749.54 -37457749.45 0.0537 0.0482  
 Moon -107265-08-30 02:52 J -37456876.58 -37456876.38 -37456876.17 0.0519 0.0199  
 Earth -107265-08-30 06:28 J -37456876.44 -37456876.23 -37456876.02 0.0519 0.0195 \*  
 Mercury -107263-09-24 08:38 J -37456121.30 -37456121.14 -37456120.98 0.0496 0.0060  
 Mercury -107263-12-23 04:33 J -37456031.38 -37456031.31 -37456031.24 0.0494 0.0449  
 Venus -107261-02-06 17:02 J -37455620.95 -37455620.79 -37455620.62 0.0490 0.0290  
 Mars -107257-04-17 16:48 J -37454088.86 -37454088.80 -37454088.73 0.0525 0.0508  
 Mercury -107257-11-24 17:45 J -37453867.90 -37453867.76 -37453867.61 0.0531 0.0052  
 Mercury -107256-02-22 07:26 J -37453778.25 -37453778.19 -37453778.13 0.0533 0.0479  
 Venus -107256-12-13 12:57 J -37453484.16 -37453483.96 -37453483.76 0.0537 0.0071  
 Mercury -107251-07-13 10:04 J -37451811.23 -37451811.08 -37451810.93 0.0497 0.0177  
 Mercury -107251-10-11 05:31 J -37451721.39 -37451721.27 -37451721.15 0.0495 0.0328  
 Venus -107250-10-12 20:24 J -37451354.86 -37451354.65 -37451354.44 0.0490 0.0020  
 Mercury -107245-09-12 20:24 J -37449557.79 -37449557.65 -37449557.52 0.0531 0.0179  
 Mercury -107245-12-11 10:19 J -37449468.17 -37449468.07 -37449467.97 0.0533 0.0357  
 Venus -107244-08-18 04:48 J -37449218.45 -37449218.30 -37449218.14 0.0537 0.0334  
 Mercury -107239-05-01 10:48 J -37447501.17 -37447501.05 -37447500.92 0.0497 0.0300  
 Mercury -107239-07-30 06:00 J -37447411.40 -37447411.25 -37447411.10 0.0495 0.0200  
 Venus -107238-06-17 22:33 J -37447088.70 -37447088.56 -37447088.41 0.0491 0.0335  
 Mercury -107233-07-01 22:48 J -37445247.66 -37445247.55 -37445247.43 0.0530 0.0306  
 Mercury -107233-09-29 13:11 J -37445158.07 -37445157.95 -37445157.82 0.0532 0.0234  
 Mercury -107227-02-17 12:00 J -37443191.08 -37443191.00 -37443190.91 0.0498 0.0420  
 Mercury -107227-05-18 06:43 J -37443101.38 -37443101.22 -37443101.06 0.0496 0.0075  
 Venus -107226-10-15 04:48 J -37442586.33 -37442586.30 -37442586.25 0.0490 0.0480  
 Mars -107221-01-22 11:16 J -37441026.27 -37441026.03 -37441025.78 0.0526 0.0175

Mercury -107221-04-20 00:57 J -37440937.54 -37440937.46 -37440937.38 0.0529 0.0437

Mercury -107221-07-18 15:35 J -37440847.99 -37440847.85 -37440847.71 0.0531 0.0106

Venus -107220-08-21 08:52 J -37440449.29 -37440449.13 -37440448.98 0.0537 0.0325

Mercury -107215-03-06 07:26 J -37438791.35 -37438791.19 -37438791.03 0.0496 0.0050

Mercury -107215-06-04 03:21 J -37438701.41 -37438701.36 -37438701.30 0.0495 0.0459

Venus -107214-06-20 07:11 J -37438320.39 -37438320.20 -37438320.01 0.0490 0.0168

Earth -107211-02-26 22:33 J -37437337.71 -37437337.56 -37437337.41 0.0505 0.0395

Moon -107211-02-27 00:14 J -37437337.62 -37437337.49 -37437337.34 0.0505 0.0400 \*

Mercury -107209-05-06 17:45 J -37436537.90 -37436537.76 -37436537.62 0.0531 0.0030

Mercury -107209-08-04 07:11 J -37436448.25 -37436448.20 -37436448.16 0.0533 0.0499

Venus -107208-04-25 23:16 J -37436183.72 -37436183.53 -37436183.33 0.0536 0.0087

Mercury -107204-12-23 08:52 J -37434481.28 -37434481.13 -37434480.98 0.0497 0.0168

Mercury -107203-03-23 04:19 J -37434391.44 -37434391.32 -37434391.20 0.0495 0.0338

Venus -107202-02-23 10:04 J -37434054.27 -37434054.08 -37434053.88 0.0490 0.0144

Moon -107199-03-03 18:43 J -37432949.97 -37432949.72 -37432949.47 0.0507 0.0069

Earth -107199-03-03 18:43 J -37432949.96 -37432949.72 -37432949.48 0.0507 0.0038 \*

Mercury -107197-02-23 18:57 J -37432227.85 -37432227.71 -37432227.58 0.0530 0.0175

Mercury -107197-05-23 08:52 J -37432138.23 -37432138.13 -37432138.03 0.0532 0.0360

Venus -107197-12-29 11:31 J -37431918.08 -37431918.02 -37431917.95 0.0536 0.0506

Moon -107194-08-26 03:35 J -37430948.54 -37430948.35 -37430948.15 0.0522 0.0266

Earth -107194-08-26 07:26 J -37430948.38 -37430948.19 -37430948.01 0.0522 0.0296 \*

Mars -107192-03-26 15:07 J -37430369.96 -37430369.87 -37430369.76 0.0502 0.0470

Mercury -107192-10-11 10:19 J -37430171.20 -37430171.07 -37430170.94 0.0497 0.0284

Mercury -107191-01-09 05:31 J -37430081.42 -37430081.27 -37430081.13 0.0495 0.0217

Venus -107191-10-29 13:55 J -37429787.99 -37429787.92 -37429787.84 0.0491 0.0452

Moon -107187-03-08 18:14 J -37428561.74 -37428561.74 -37428561.72 0.0509 0.0508

Earth -107187-03-08 20:09 J -37428561.71 -37428561.66 -37428561.61 0.0509 0.0497

Mercury -107186-12-12 21:07 J -37427917.73 -37427917.62 -37427917.50 0.0530 0.0305

Mercury -107185-03-11 11:31 J -37427828.14 -37427828.02 -37427827.89 0.0532 0.0235

Earth -107182-08-30 20:09 J -37426560.87 -37426560.66 -37426560.44 0.0520 0.0153

Moon -107182-08-30 23:16 J -37426560.74 -37426560.53 -37426560.32 0.0520 0.0152 \*  
 Mercury -107180-07-30 11:16 J -37425861.12 -37425861.03 -37425860.94 0.0497 0.0405  
 Mercury -107180-10-28 06:00 J -37425771.41 -37425771.25 -37425771.09 0.0495 0.0090  
 Venus -107178-02-25 18:28 J -37425285.86 -37425285.73 -37425285.58 0.0490 0.0358  
 Mercury -107174-09-30 23:31 J -37423607.60 -37423607.52 -37423607.43 0.0529 0.0432  
 Mercury -107174-12-29 14:24 J -37423518.04 -37423517.90 -37423517.76 0.0532 0.0112  
 Venus -107172-01-01 17:45 J -37423148.95 -37423148.76 -37423148.57 0.0537 0.0162  
 Mercury -107168-08-16 06:43 J -37421461.38 -37421461.22 -37421461.05 0.0496 0.0037  
 Mercury -107168-11-14 02:52 J -37421371.43 -37421371.38 -37421371.34 0.0494 0.0474  
 Venus -107167-10-31 21:21 J -37421019.82 -37421019.61 -37421019.41 0.0490 0.0045  
 Mercury -107162-10-17 16:48 J -37419207.94 -37419207.80 -37419207.66 0.0531 0.0019  
 Mercury -107161-01-15 06:14 J -37419118.28 -37419118.24 -37419118.20 0.0533 0.0510  
 Venus -107161-09-06 08:09 J -37418883.33 -37418883.16 -37418882.98 0.0536 0.0250  
 Mars -107157-12-31 06:14 J -37417306.51 -37417306.24 -37417305.97 0.0501 0.0191  
 Mercury -107156-06-04 07:26 J -37417151.34 -37417151.19 -37417151.03 0.0497 0.0160  
 Mercury -107156-09-  
 Venus -107155-07-06 23:45 J -37416753.68 -37416753.51 -37416753.33 0.0491 0.0269  
 Mercury -107150-08-05 18:43 J -37414897.86 -37414897.72 -37414897.58 0.0530 0.0153  
 Mercury -107150-11-03 08:38 J -37414808.24 -37414808.14 -37414808.05 0.0532 0.0380  
 Mercury -107144-03-23 09:07 J -37412841.26 -37412841.12 -37412840.99 0.0497 0.0276  
 Mercury -107144-06-21 04:04 J -37412751.47 -37412751.33 -37412751.18 0.0495 0.0225  
 Mercury -107138-05-24 19:40 J -37410587.80 -37410587.68 -37410587.56 0.0530 0.0301  
 Mercury -107138-08-22 10:04 J -37410498.21 -37410498.08 -37410497.96 0.0532 0.0238  
 Venus -107137-09-09 07:55 J -37410114.30 -37410114.17 -37410114.03 0.0537 0.0391  
 Mercury -107132-01-09 10:33 J -37408531.15 -37408531.06 -37408530.96 0.0498 0.0392  
 Mercury -107132-04-09 05:16 J -37408441.44 -37408441.28 -37408441.12 0.0496 0.0104  
 Venus -107131-07-09 09:07 J -37407985.29 -37407985.12 -37407984.93 0.0490 0.0239  
 Moon -107128-02-26 00:00 J -37407022.58 -37407022.50 -37407022.40 0.0504 0.0469  
 Earth -107128-02-26 01:11 J -37407022.54 -37407022.45 -37407022.36 0.0504 0.0466 \*  
 Mercury -107126-03-12 21:50 J -37406277.67 -37406277.59 -37406277.51 0.0529 0.0433



Mercury -107126-06-10 12:28 J -37406188.11 -37406187.98 -37406187.84 0.0532 0.0111

Venus -107125-05-15 00:00 J -37405848.70 -37405848.50 -37405848.30 0.0537 0.0015

Mercury -107120-01-26 06:00 J -37404131.41 -37404131.25 -37404131.09 0.0496 0.0024

Mercury -107120-04-26 01:40 J -37404041.45 -37404041.43 -37404041.39 0.0494 0.0487

Venus -107119-03-14 11:02 J -37403719.24 -37403719.04 -37403718.83 0.0490 0.0080

Moon -107116-03-03 01:26 J -37402634.67 -37402634.44 -37402634.20 0.0507 0.0020

Earth -107116-03-03 02:24 J -37402634.64 -37402634.40 -37402634.15 0.0507 0.0017 \*

Mercury -107114-03-29 15:21 J -37401878.00 -37401877.86 -37401877.72 0.0531 0.0017

Mercury -107114-06-27 04:48 J -37401788.33 -37401788.30 -37401788.26 0.0533 0.0514

Venus -107113-01-18 15:35 J -37401582.97 -37401582.85 -37401582.72 0.0536 0.0421

Earth -107111-08-25 18:28 J -37400632.89 -37400632.73 -37400632.56 0.0522 0.0348

Moon -107111-08-25 21:35 J -37400632.77 -37400632.60 -37400632.42 0.0522 0.0317 \*

Mercury -107109-11-14 06:43 J -37399821.37 -37399821.22 -37399821.06 0.0496 0.0146

Mercury -107108-02-12 02:24 J -37399731.51 -37399731.40 -37399731.29 0.0495 0.0359

Venus -107108-11-17 13:55 J -37399453.04 -37399452.92 -37399452.80 0.0491 0.0393

Earth -107104-03-08 05:02 J -37398246.40 -37398246.29 -37398246.17 0.0508 0.0449

Moon -107104-03-08 07:40 J -37398246.28 -37398246.18 -37398246.06 0.0508 0.0456 \*

Mars -107103-07-13 13:11 J -37397754.17 -37397753.95 -37397753.72 0.0525 0.0259

Mercury -107102-01-15 17:31 J -37397567.90 -37397567.77 -37397567.63 0.0530 0.0145

Mercury -107102-04-15 07:26 J -37397478.28 -37397478.19 -37397478.09 0.0532 0.0389

Moon -107099-08-30 01:40 J -37396245.66 -37396245.43 -37396245.20 0.0520 0.0084

Earth -107099-08-30 04:19 J -37396245.54 -37396245.32 -37396245.10 0.0520 0.0088 \*

Mercury -107097-09-02 07:40 J -37395511.32 -37395511.18 -37395511.05 0.0497 0.0270

Mercury -107097-12-01 02:38 J -37395421.53 -37395421.39 -37395421.24 0.0495 0.0231

Venus -107095-03-16 19:26 J -37394950.79 -37394950.69 -37394950.59 0.0490 0.0424

Mercury -107091-11-03 19:26 J -37393257.81 -37393257.69 -37393257.57 0.0530 0.0281

Mercury -107090-02-01 09:35 J -37393168.22 -37393168.10 -37393167.97 0.0532 0.0257

Venus -107089-01-21 18:00 J -37392813.93 -37392813.75 -37392813.57 0.0537 0.0233

Moon -107087-09-03 17:02 J -37391857.85 -37391857.79 -37391857.73 0.0518 0.0496

Mercury -107085-06-21 09:07 J -37391201.22 -37391201.12 -37391201.02 0.0498 0.0387

Mercury -107085-09-19 03:50 J -37391111.50 -37391111.34 -37391111.18 0.0496 0.0110  
 Venus -107084-11-19 22:19 J -37390684.77 -37390684.57 -37390684.36 0.0490 0.0112  
 Mercury -107079-08-22 20:09 J -37388947.74 -37388947.66 -37388947.57 0.0529 0.0431  
 Mercury -107079-11-20 11:02 J -37388858.18 -37388858.04 -37388857.91 0.0531 0.0113  
 Venus -107078-09-26 06:00 J -37388548.44 -37388548.25 -37388548.07 0.0537 0.0193  
 Mercury -107073-07-08 05:02 J -37386801.45 -37386801.29 -37386801.13 0.0496 0.0011  
 Venus -107072-07-26 01:26 J -37386418.62 -37386418.44 -37386418.24 0.0490 0.0202  
 Mars -107067-04-17 11:45 J -37384692.20 -37384692.01 -37384691.83 0.0527 0.0368  
 Mercury -107067-09-08 13:11 J -37384548.09 -37384547.95 -37384547.81 0.0531 0.0021  
 Mercury -107067-12-07 02:52 J -37384458.42 -37384458.38 -37384458.34 0.0533 0.0510  
 Mercury -107061-04-26 05:45 J -37382491.42 -37382491.26 -37382491.11 0.0496 0.0137  
 Mercury -107061-07-25 01:11 J -37382401.56 -37382401.45 -37382401.34 0.0495 0.0368  
 Mercury -107055-06-27 15:50 J -37380237.98 -37380237.84 -37380237.70 0.0530 0.0145  
 Mercury -107055-09-25 05:45 J -37380148.35 -37380148.26 -37380148.16 0.0533 0.0389  
 Venus -107054-09-29 11:02 J -37379779.13 -37379779.04 -37379778.95 0.0537 0.0473  
 Mercury -107049-02-  
 Mercury -107049-05-13 01:40 J -37378091.57 -37378091.43 -37378091.29 0.0495 0.0241  
 Venus -107048-07-28 08:24 J -37377650.31 -37377650.15 -37377649.98 0.0490 0.0296  
 Mercury -107043-04-15 18:00 J -37375927.87 -37375927.75 -37375927.63 0.0530 0.0276  
 Mercury -107043-07-14 08:24 J -37375838.27 -37375838.15 -37375838.03 0.0532 0.0262  
 Venus -107042-06-04 01:55 J -37375513.62 -37375513.42 -37375513.22 0.0537 0.0064  
 Mars -107038-06-20 22:04 J -37374035.83 -37374035.58 -37374035.32 0.0502 0.0245  
 Mercury -107038-12-02 07:26 J -37373871.29 -37373871.19 -37373871.09 0.0498 0.0383  
 Mercury -107037-03-01 02:09 J -37373781.57 -37373781.41 -37373781.25 0.0496 0.0113  
 Venus -107036-04-02 10:48 J -37373384.26 -37373384.05 -37373383.84 0.0490 0.0019  
 Earth -107033-03-02 08:24 J -37372319.39 -37372319.15 -37372318.91 0.0506 0.0073  
 Moon -107033-03-02 10:19 J -37372319.32 -37372319.07 -37372318.82 0.0506 0.0040 \*  
 Mercury -107031-02-01 19:40 J -37371617.77 -37371617.68 -37371617.59 0.0529 0.0413  
 Mercury -107031-05-02 10:19 J -37371528.20 -37371528.07 -37371527.93 0.0531 0.0130  
 Venus -107030-02-06 15:21 J -37371248.00 -37371247.86 -37371247.70 0.0536 0.0354

Moon -107028-08-24 21:07 J -37370317.76 -37370317.62 -37370317.46 0.0522 0.0393  
 Earth -107028-08-25 00:00 J -37370317.62 -37370317.50 -37370317.37 0.0522 0.0424 \*  
 Mercury -107026-12-19 03:21 J -37369471.53 -37369471.36 -37369471.20 0.0496 0.0014  
 Venus -107025-12-06 14:09 J -37369118.05 -37369117.91 -37369117.75 0.0491 0.0331  
 Moon -107021-03-07 02:09 J -37367931.56 -37367931.41 -37367931.24 0.0507 0.0374  
 Earth -107021-03-07 05:31 J -37367931.43 -37367931.27 -37367931.10 0.0507 0.0367 \*  
 Mercury -107019-02-18 11:31 J -37367218.16 -37367218.02 -37367217.88 0.0531 0.0018  
 Mercury -107019-05-19 00:57 J -37367128.49 -37367128.46 -37367128.42 0.0533 0.0510  
 Earth -107016-08-29 11:16 J -37365930.25 -37365930.03 -37365929.81 0.0521 0.0019  
 Moon -107016-08-29 12:57 J -37365930.18 -37365929.96 -37365929.74 0.0521 0.0015 \*  
 Mercury -107014-10-07 04:19 J -37365161.47 -37365161.32 -37365161.16 0.0497 0.0129  
 Mercury -107013-01-05 00:00 J -37365071.60 -37365071.50 -37365071.39 0.0495 0.0377  
 Venus -107012-04-04 20:09 J -37364615.67 -37364615.66 -37364615.64 0.0490 0.0488  
 Mercury -107008-12-07 13:40 J -37362908.07 -37362907.93 -37362907.79 0.0530 0.0152  
 Mercury -107007-03-07 03:35 J -37362818.44 -37362818.35 -37362818.25 0.0532 0.0382  
 Venus -107006-02-09 15:50 J -37362479.01 -37362478.84 -37362478.67 0.0537 0.0290  
 Moon -107004-09-02 22:48 J -37361542.67 -37361542.55 -37361542.41 0.0519 0.0430  
 Earth -107004-09-02 23:31 J -37361542.61 -37361542.52 -37361542.42 0.0519 0.0463 \*  
 Mars -107002-03-27 18:43 J -37360971.86 -37360971.72 -37360971.56 0.0500 0.0428  
 Mercury -107002-07-26 05:16 J -37360851.42 -37360851.28 -37360851.15 0.0497 0.0253  
 Mercury -107002-10-24 00:14 J -37360761.63 -37360761.49 -37360761.35 0.0495 0.0247  
 Venus -107001-12-08 21:07 J -37360349.81 -37360349.62 -37360349.42 0.0490 0.0168

# 107TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 107th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-106996-09-25 16:04 J	-37358597.95	-37358597.83	-37358597.71	0.0530	0.0280		
Mercury	-106996-12-24 06:28 J	-37358508.35	-37358508.23	-37358508.11	0.0532	0.0259		
Venus	-106995-10-15 07:55 J	-37358213.36	-37358213.17	-37358212.97	0.0537	0.0116		
Mercury	-106990-05-14 06:14 J	-37356541.34	-37356541.24	-37356541.14	0.0498	0.0375		
Mercury	-106990-08-12 00:43 J	-37356451.62	-37356451.47	-37356451.31	0.0496	0.0122		
Venus	-106989-08-13 23:45 J	-37356083.71	-37356083.51	-37356083.32	0.0490	0.0149		
Mercury	-106984-07-14 18:00 J	-37354287.83	-37354287.75	-37354287.66	0.0529	0.0412		
Mercury	-106984-10-12 08:52 J	-37354198.27	-37354198.13	-37354197.99	0.0531	0.0131		
Venus	-106983-06-19 22:04 J	-37353947.60	-37353947.58	-37353947.54	0.0536	0.0528		
Mercury	-106978-05-31 01:26 J	-37352141.61	-37352141.44	-37352141.28	0.0496	0.0016		
Venus	-106977-04-19 02:09 J	-37351817.47	-37351817.41	-37351817.34	0.0491	0.0464		
Mercury	-106972-07-31 10:48 J	-37349888.19	-37349888.05	-37349887.91	0.0531	0.0007		
Mercury	-106972							
Venus	-106971-10-18 09:35 J	-37349444.11	-37349444.10	-37349444.09	0.0537	0.0535		
Mercury	-106966-03-19 02:24 J	-37347831.55	-37347831.40	-37347831.24	0.0497	0.0129		
Mercury	-106966-06-16 21:50 J	-37347741.69	-37347741.59	-37347741.48	0.0495	0.0377		
Venus	-106965-08-16 07:55 J	-37347315.31	-37347315.17	-37347315.03	0.0490	0.0356		
Mercury	-106960-05-19 11:45 J	-37345578.15	-37345578.01	-37345577.87	0.0530	0.0153		
Mercury	-106960-08-17 01:40 J	-37345488.52	-37345488.43	-37345488.33	0.0532	0.0381		
Venus	-106959-06-22 21:07 J	-37345178.82	-37345178.62	-37345178.42	0.0537	0.0109		
Mercury	-106954-01-05 03:35 J	-37343521.49	-37343521.35	-37343521.21	0.0498	0.0249		
Mercury	-106954-04-04 22:48 J	-37343431.69	-37343431.55	-37343431.41	0.0495	0.0253		
Venus	-106953-04-21 10:33 J	-37343049.26	-37343049.06	-37343048.85	0.0490	0.0042		
Moon	-106950-03-02 04:48 J	-37342004.53	-37342004.30	-37342004.07	0.0505	0.0126		

Earth -106950-03-02 07:11 J -37342004.43 -37342004.20 -37342003.97 0.0505 0.0157 \*  
 Mars -106949-10-06 02:38 J -37341420.65 -37341420.39 -37341420.14 0.0525 0.0098  
 Mercury -106948-03-07 13:40 J -37341268.05 -37341267.93 -37341267.81 0.0529 0.0288  
 Mercury -106948-06-05 04:04 J -37341178.45 -37341178.33 -37341178.21 0.0532 0.0250  
 Venus -106947-02-25 11:31 J -37340913.18 -37340913.02 -37340912.85 0.0536 0.0306  
 Earth -106945-08-24 04:33 J -37340002.36 -37340002.31 -37340002.24 0.0523 0.0501  
 Moon -106945-08-24 06:43 J -37340002.31 -37340002.22 -37340002.12 0.0523 0.0471 \*  
 Mercury -106943-10-24 04:19 J -37339211.42 -37339211.32 -37339211.21 0.0498 0.0373  
 Mercury -106942-01-21 23:02 J -37339121.70 -37339121.54 -37339121.38 0.0496 0.0123  
 Venus -106942-12-26 12:00 J -37338783.17 -37338783.00 -37338782.83 0.0490 0.0281  
 Earth -106938-03-07 06:00 J -37337616.44 -37337616.25 -37337616.05 0.0507 0.0290  
 Moon -106938-03-07 09:50 J -37337616.29 -37337616.09 -37337615.89 0.0507 0.0293 \*  
 Mercury -106937-12-24 15:50 J -37336957.93 -37336957.84 -37336957.75 0.0529 0.0419  
 Mercury -106936-03-24 06:43 J -37336868.36 -37336868.22 -37336868.09 0.0531 0.0124  
 Moon -106933-08-28 16:48 J -37335615.03 -37335614.80 -37335614.57 0.0521 0.0057  
 Earth -106933-08-28 17:45 J -37335614.98 -37335614.76 -37335614.54 0.0521 0.0050 \*  
 Mercury -106931-08-12 05:31 J -37334901.28 -37334901.27 -37334901.25 0.0498 0.0493  
 Mercury -106931-11-09 23:45 J -37334811.67 -37334811.51 -37334811.35 0.0496 0.0003  
 Mercury -106924-01-10 08:52 J -37332558.27 -37332558.13 -37332557.98 0.0531 0.0018  
 Mercury -106924-04-09 22:33 J -37332468.58 -37332468.56 -37332468.53 0.0533 0.0523  
 Venus -106923-02-28 15:50 J -37332143.98 -37332143.84 -37332143.69 0.0537 0.0361  
 Moon -106921-09-02 02:38 J -37331227.54 -37331227.39 -37331227.22 0.0519 0.0352  
 Earth -106921-09-02 03:07 J -37331227.52 -37331227.37 -37331227.21 0.0519 0.0381 \*  
 Mercury -106919-08-29 00:14 J -37330501.64 -37330501.49 -37330501.33 0.0497 0.0131  
 Mercury -106919-11-26 19:40 J -37330411.78 -37330411.68 -37330411.57 0.0495 0.0374  
 Venus -106918-12-28 18:43 J -37330014.90 -37330014.72 -37330014.53 0.0490 0.0219  
 Mercury -106913-10-29 10:48 J -37328248.19 -37328248.05 -37328247.91 0.0530 0.0142  
 Mercury -106912-01-27 00:43 J -37328158.56 -37328158.47 -37328158.37 0.0532 0.0392  
 Venus -106912-11-03 05:45 J -37327878.46 -37327878.26 -37327878.06 0.0536 0.0058  
 Mercury -106907-06-17 01:26 J -37326191.58 -37326191.44 -37326191.30 0.0497 0.0252

Mercury -106907-09-14 20:24 J -37326101.79 -37326101.65 -37326101.51 0.0495 0.0250

Venus -106906-09-02 21:50 J -37325748.79 -37325748.59 -37325748.38 0.0490 0.0096

Mercury -106901-08-17 11:45 J -37323938.13 -37323938.01 -37323937.89 0.0529 0.0290

Mercury -106901-11-15 02:09 J -37323848.54 -37323848.41 -37323848.29 0.0531 0.0247

Venus -106900-07-08 16:19 J -37323612.90 -37323612.82 -37323612.74 0.0536 0.0489

Mercury -106895-04-05 02:38 J -37321881.49 -37321881.39 -37321881.29 0.0498 0.0372

Mercury -106895-07-03 21:21 J -37321791.77 -37321791.61 -37321791.46 0.0496 0.0125

Venus -106894-05-09 00:43 J -37321482.58 -37321482.47 -37321482.35 0.0491 0.0411

Mercury -106889-06-05 13:26 J -37319628.02 -37319627.94 -37319627.86 0.0528 0.0428

Mercury -106889-09-03 04:19 J -37319538.46 -37319538.32 -37319538.19 0.0531 0.0115

Mars -106884-09-13 15:21 J -37317702.15 -37317701.86 -37317701.57 0.0502 0.0047

Mercury -106883-01-22 03:21 J -37317571.37 -37317571.36 -37317571.34 0.0498 0.0495

Mercury -106883-04-21 21:35 J -37317481.76 -37317481.60 -37317481.44 0.0496 0.0010

Venus -106882-09-05 04:04 J -37316980.44 -37316980.33 -37316980.21 0.0490 0.0402

Mercury -106877-06-22 06:28 J -37315228.37 -37315228.23 -37315228.08 0.0531 0.0021

Mercury -106877-09-19 20:24 J -37315138.69 -37315138.65 -37315138.62 0.0533 0.0514

Venus -106876-07-11 20:24 J -37314843.84 -37314843.65 -37314843.46 0.0537 0.0176

Mercury -106871-02-07 22:33 J -37313171.72 -37313171.56 -37313171.41 0.0497 0.0128

Mercury -106871-05-08 17:45 J -37313081.86 -37313081.76 -37313081.65 0.0495 0.0376

Venus -106870-05-11 06:14 J -37312714.44 -37312714.24 -37312714.03 0.0490 0.0084

Earth -106867-03-01 06:43 J -37311689.43 -37311689.22 -37311689.00 0.0505 0.0236

Moon -106867-03-01 09:50 J -37311689.31 -37311689.09 -37311688.86 0.0505 0.0204 \*

Mercury -106865-04-10 08:52 J -37310918.27 -37310918.13 -37310918.00 0.0530 0.0146

Mercury -106865-07-08 22:48 J -37310828.64 -37310828.55 -37310828.45 0.0532 0.0388

Venus -106864-03-16 11:16 J -37310578.21 -37310578.03 -37310577.85 0.0536 0.0238

Mercury -106860-11-26 23:02 J -37308861.67 -37308861.54 -37308861.40 0.0497 0.0255

Mercury -106859-02-24 18:00 J -37308771.89 -37308771.75 -37308771.60 0.0495 0.0245

Venus -106858-01-14 08:09 J -37308448.34 -37308448.16 -37308447.98 0.0491 0.0235

Moon -106855-03-06 03:21 J -37307301.57 -37307301.36 -37307301.14 0.0507 0.0213

Earth -106855-03-06 07:11 J -37307301.41 -37307301.20 -37307300.97 0.0507 0.0214 \*

Mercury -106853-01-28 10:33 J -37306608.18 -37306608.06 -37306607.94 0.0529 0.0282

Mercury -106853-04-27 00:57 J -37306518.58 -37306518.46 -37306518.33 0.0531 0.0255

Earth -106850-08-28 18:28 J -37305299.95 -37305299.73 -37305299.52 0.0522 0.0146

Moon -106850-08-28 18:28 J -37305299.94 -37305299.73 -37305299.52 0.0522 0.0153 \*

Mercury -106848-09-15 00:14 J -37304551.59 -37304551.49 -37304551.38 0.0498 0.0376

Mercury -106848-12-13 18:57 J -37304461.87 -37304461.71 -37304461.56 0.0496 0.0120

Mercury -106842-11-16 11:31 J -37302298.11 -37302298.02 -37302297.94 0.0528 0.0430

Mercury -106841-02-14 02:09 J -37302208.54 -37302208.41 -37302208.27 0.0531 0.0112

Venus -106840-03-19 09:21 J -37301809.24 -37301809.11 -37301808.97 0.0537 0.0399

Earth -106838-09-02 03:21 J -37300912.54 -37300912.36 -37300912.17 0.0520 0.0287

Moon -106838-09-02 04:48 J -37300912.50 -37300912.30 -37300912.10 0.0520 0.0257 \*

Mercury -106836-07-04 01:26 J -37300241.45 -37300241.44 -37300241.43 0.0499 0.0496

Mercury -106836-10-01 19:40 J -37300151.84 -37300151.68 -37300151.52 0.0497 0.0005

Venus -106834-01-16 16:33 J -37299679.98 -37299679.81 -37299679.64 0.0490 0.0271

Mercury -106830-12-03 04:04 J -37297898.47 -37297898.33 -37297898.19 0.0530 0.0026

Mercury -106829-03-01 17:45 J -37297808.80 -37297808.76 -37297808.71 0.0532 0.0503

Venus -106829-11-21 23:45 J -37297543.71 -37297543.51 -37297543.31 0.0537 0.0020

Mercury -106824-07-20 20:09 J -37295841.81 -37295841.66 -37295841.50 0.0497 0.0132

Mercury -106824-10-18 15:35 J -37295751.96 -37295751.85 -37295751.74 0.0495 0.0372

Venus -106823-09-21 17:16 J -37295413.98 -37295413.78 -37295413.57 0.0490 0.0052

Mercury -106818-09-21 06:14 J -37293588.38 -37293588.24 -37293588.10 0.0530 0.0156

Mercury -106818-12-19 20:24 J -37293498.75 -37293498.65 -37293498.55 0.0532 0.0378

Venus -106817-07-27 14:38 J -37293278.00 -37293277.89 -37293277.77 0.0536 0.0428

Mercury -106812-05-08 21:07 J -37291531.75 -37291531.62 -37291531.48 0.0497 0.0255

Mercury -106812-08-06 16:04 J -37291441.97 -37291441.83 -37291441.69 0.0495 0.0245

Venus -106811-05-27 19:40 J -37291147.81 -37291147.68 -37291147.54 0.0491 0.0370

Mercury -106806-07-10 08:24 J -37289278.27 -37289278.15 -37289278.03 0.0529 0.0288

Mercury -106806-10-07 22:48 J -37289188.67 -37289188.55 -37289188.42 0.0532 0.0251

Mercury -106800-02-24 21:50 J -37287221.68 -37287221.59 -37287221.48 0.0498 0.0380

Mercury -106800-05-25 16:19 J -37287131.97 -37287131.82 -37287131.66 0.0496 0.0116

Venus -106799-09-24 00:14 J -37286645.57 -37286645.49 -37286645.41 0.0490 0.0449  
 Mars -106795-12-30 19:11 J -37285086.96 -37285086.70 -37285086.45 0.0525 0.0082  
 Mercury -106794-04-28 10:04 J -37284968.16 -37284968.08 -37284968.00 0.0529 0.0425  
 Mercury -106794-07-27 00:57 J -37284878.60 -37284878.46 -37284878.32 0.0531 0.0117  
 Venus -106793-07-30 17:31 J -37284508.95 -37284508.77 -37284508.59 0.0537 0.0231  
 Mercury -106788-03-13 17:16 J -37282821.94 -37282821.78 -37282821.62 0.0497 0.0011  
 Venus -106787-05-30 02:52 J -37282379.57 -37282379.38 -37282379.18 0.0490 0.0133  
 Moon -106784-02-28 02:24 J -37281374.59 -37281374.40 -37281374.20 0.0504 0.0288  
 Earth -106784-02-28 06:00 J -37281374.44 -37281374.25 -37281374.06 0.0504 0.0317 \*  
 Mercury -106782-05-15 02:09 J -37280568.55 -37280568.41 -37280568.26 0.0530 0.0028  
 Mercury -106782-08-12 15:50 J -37280478.88 -37280478.84 -37280478.79 0.0532 0.0501  
 Venus -106781-04-04 04:48 J -37280243.49 -37280243.30 -37280243.11 0.0536 0.0200  
 Mercury -106777-12-30 18:00 J -37278511.90 -37278511.75 -37278511.59 0.0497 0.0134  
 Mercury -106776-03-30 13:26 J -37278422.05 -37278421.94 -37278421.83 0.0495 0.0371  
 Venus -106775-02-02 05:16 J -37278113.47 -37278113.28 -37278113.09 0.0491 0.0186  
 Earth -106772-03-05 04:04 J -37276986.56 -37276986.33 -37276986.09 0.0506 0.0123  
 Moon -106772-03-05 07:55 J -37276986.40 -37276986.17 -37276985.93 0.0506 0.0121 \*  
 Mercury -106770-03-03 03:50 J -37276258.47 -37276258.34 -37276258.20 0.0529 0.0165  
 Mercury -106770-05-31 18:00 J -37276168.85 -37276168.75 -37276168.65 0.0532 0.0369  
 Earth -106767-08-27 18:28 J -37274984.93 -37274984.73 -37274984.53 0.0523 0.0239  
 Moon -106767-08-27 19:11 J -37274984.90 -37274984.70 -37274984.49 0.0523 0.0246 \*  
 Mercury -106765-10-18 18:43 J -37274201.85 -37274201.72 -37274201.58 0.0498 0.0259  
 Mercury -106764-01-16 13:40 J -37274112.07 -37274111.93 -37274111.79 0.0496 0.0240  
 Mercury -106759-12-20 05:45 J -37271948.38 -37271948.26 -37271948.14 0.0529 0.0299  
 Mercury -106758-03-19 20:24 J -37271858.78 -37271858.65 -37271858.53 0.0532 0.0240  
 Venus -106757-04-07 07:40 J -37271474.28 -37271474.18 -37271474.07 0.0537 0.0462  
 Moon -106755-09-01 05:45 J -37270597.47 -37270597.26 -37270597.06 0.0521 0.0181  
 Earth -106755-09-01 07:55 J -37270597.37 -37270597.17 -37270596.96 0.0521 0.0211 \*  
 Mercury -106753-08-06 19:55 J -37269891.77 -37269891.67 -37269891.56 0.0498 0.0379  
 Mercury -106753-11-04 14:24 J -37269802.05 -37269801.90 -37269801.74 0.0496 0.0116



Venus -106751-02-04 11:02 J -37269345.19 -37269345.04 -37269344.88 0.0490 0.0313  
 Mercury -106747-10-08 07:40 J -37267638.26 -37267638.18 -37267638.09 0.0529 0.0432  
 Mercury -106746-01-05 22:48 J -37267548.69 -37267548.55 -37267548.41 0.0531 0.0112  
 Venus -106746-12-11 22:48 J -37267208.75 -37267208.55 -37267208.35 0.0537 0.0050  
 Mercury -106741-08-23 14:52 J -37265492.04 -37265491.88 -37265491.72 0.0496 0.0014  
 Mercury -106741-11-21 10:33 J -37265402.07 -37265402.06 -37265402.05 0.0495 0.0493  
 Venus -106740-10-10 13:11 J -37265079.15 -37265078.95 -37265078.74 0.0490 0.0009  
 Mercury -106735-10-25 00:57 J -37263238.61 -37263238.46 -37263238.32 0.0530 0.0026  
 Mercury -106734-01-22 14:38 J -37263148.93 -37263148.89 -37263148.85 0.0532 0.0507  
 Venus -106734-08-16 12:28 J -37262943.12 -37262942.98 -37262942.83 0.0536 0.0370  
 Mars -106730-12-07 16:33 J -37261369.09 -37261368.81 -37261368.52 0.0502 0.0112  
 Mercury -106729-06-11 15:50 J -37261182.00 -37261181.84 -37261181.69 0.0497 0.0138  
 Mercury -106729-09-09 11:02 J -37261092.15 -37261092.04 -37261091.93 0.0495 0.0366  
 Venus -106728-06-15 16:04 J -37260812.98 -37260812.83 -37260812.68 0.0491 0.0325  
 Mercury -106723-08-13 02:09 J -37258928.55 -37258928.41 -37258928.27 0.0529 0.0164  
 Mercury -106723-11-10 16:19 J -37258838.92 -37258838.82 -37258838.72 0.0531 0.0368  
 Mercury -106717-03-30 16:33 J -37256871.94 -37256871.81 -37256871.67 0.0498 0.0262  
 Mercury -106717-06-28 11:31 J -37256782.16 -37256782.02 -37256781.88 0.0496 0.0239  
 Mercury -106711-06-01 03:35 J -37254618.46 -37254618.35 -37254618.23 0.0529 0.0304  
 Mercury -106711-08-29 18:14 J -37254528.87 -37254528.74 -37254528.61 0.0531 0.0234  
 Venus -106710-08-19 11:45 J -37254174.18 -37254174.01 -37254173.84 0.0537 0.0273  
 Mercury -106705-01-17 17:45 J -37252561.86 -37252561.76 -37252561.67 0.0498 0.0384  
 Mercury -106705-04-16 12:00 J -37252472.16 -37252472.00 -37252471.84 0.0496 0.0111  
 Venus -106704-06-17 22:04 J -37252044.78 -37252044.58 -37252044.39 0.0490 0.0176  
 Earth -106701-02-28 00:00 J -37251059.63 -37251059.50 -37251059.36 0.0504 0.0417  
 Moon -106701-02-28 03:50 J -37251059.49 -37251059.34 -37251059.18 0.0504 0.0385 \*  
 Mercury -106699-03-20 05:16 J -37250308.36 -37250308.28 -37250308.20 0.0529 0.0442  
 Mercury -106699-06-17 20:24 J -37250218.79 -37250218.65 -37250218.51 0.0531 0.0103  
 Venus -106698-04-24 02:52 J -37249908.58 -37249908.38 -37249908.19 0.0537 0.0140  
 Mercury -106693-02-03 12:57 J -37248162.12 -37248161.96 -37248161.80 0.0496 0.0015

Mercury -106693-05-03 08:38 J -37248072.14 -37248072.14 -37248072.14 0.0494 0.0494

Venus -106692-02-21 00:43 J -37247778.67 -37247778.47 -37247778.28 0.0490 0.0142

Moon -106689-03-03 20:38 J -37246671.88 -37246671.64 -37246671.39 0.0506 0.0027

Earth -106689-03-04 00:28 J -37246671.73 -37246671.48 -37246671.24 0.0506 0.0030 \*

Mercury -106687-04-05 22:48 J -37245908.70 -37245908.55 -37245908.41 0.0531 0.0032

Mercury -106687-07-04 12:28 J -37245819.02 -37245818.98 -37245818.93 0.0533 0.0503

Moon -106684-08-26 21:07 J -37244669.78 -37244669.62 -37244669.45 0.0523 0.0332

Earth -106684-08-26 22:48 J -37244669.72 -37244669.55 -37244669.37 0.0523 0.0320 \*

Mercury -106682-11-22 13:40 J -37243852.08 -37243851.93 -37243851.78 0.0497 0.0139

Mercury -106681-02-20 08:52 J -37243762.24 -37243762.13 -37243762.02 0.0495 0.0363

Venus -106681-10-27 02:52 J -37243512.44 -37243512.38 -37243512.31 0.0491 0.0462

Earth -106677-03-09 01:40 J -37242283.50 -37242283.43 -37242283.36 0.0507 0.0483

Moon -106677-03-09 04:04 J -37242283.43 -37242283.33 -37242283.23 0.0507 0.0453 \*

Mars -106676-06-20 05:31 J -37241815.44 -37241815.27 -37241815.10 0.0523 0.0392

Mercury -106675-01-23 00:43 J -37241598.61 -37241598.47 -37241598.33 0.0530 0.0160

Mercury -106675-04-22 14:52 J -37241508.98 -37241508.88 -37241508.78 0.0532 0.0374

Venus -106674-04-27 05:45 J -37241139.30 -37241139.26 -37241139.21 0.0537 0.0522

Earth -106672-08-31 09:35 J -37240282.32 -37240282.10 -37240281.88 0.0521 0.0119

Moon -106672-08-31 12:43 J -37240282.19 -37240281.97 -37240281.74 0.0521 0.0091 \*

Mercury -106670-09-10 14:38 J -37239542.02 -37239541.89 -37239541.76 0.0498 0.0262

Mercury -106670-12-09 09:21 J -37239452.25 -37239452.11 -37239451.97 0.0496 0.0237

Venus -106668-02-23 07:55 J -37239010.30 -37239010.17 -37239010.03 0.0490 0.0362

Mercury -106664-11-11 01:55 J -37237288.53 -37237288.42 -37237288.30 0.0529 0.0302

Mercury -106663-02-08 16:33 J -37237198.93 -37237198.81 -37237198.68 0.0531 0.0237

Venus -106663-12-30 18:00 J -37236873.95 -37236873.75 -37236873.55 0.0536 0.0096

Mercury -106658-06-29 15:35 J -37235231.95 -37235231.85 -37235231.75 0.0499 0.0385

Mercury -106658-09-27 10:04 J -37235142.24 -37235142.08 -37235141.93 0.0496 0.0110

Venus -106657-10-29 10:19 J -37234744.27 -37234744.07 -37234743.86 0.0491 0.0045

Mercury -106652-08-30 03:35 J -37232978.43 -37232978.35 -37232978.27 0.0528 0.0441

Mercury -106652-11-27 18:28 J -37232888.87 -37232888.73 -37232888.59 0.0530 0.0101

Venus -106651-09-04 07:26 J -37232608.34 -37232608.19 -37232608.03 0.0536 0.0325

Mercury -106646-07-16 10:48 J -37230832.21 -37230832.05 -37230831.89 0.0497 0.0016

Mercury -106646-10-14 06:14 J -37230742.25 -37230742.24 -37230742.22 0.0495 0.0492

Venus -106645-07-04 11:45 J -37230478.18 -37230478.01 -37230477.84 0.0491 0.0278

Mars -106640-03-24 22:19 J -37228753.80 -37228753.57 -37228753.33 0.0525 0.0229

Mercury -106640-09-15 20:24 J -37228578.80 -37228578.65 -37228578.51 0.0530 0.0036

Mercury -106640-12-14 10:19 J -37228489.12 -37228489.07 -37228489.02 0.0533 0.0496

Mercury -106634-05-04 12:00 J -37226522.15 -37226522.00 -37226521.85 0.0497 0.0135

Mercury -106634-08-02 06:57 J -37226432.31 -37226432.21 -37226432.10 0.0495 0.0367

Mercury -106628-07-04 22:33 J -37224268.69 -37224268.56 -37224268.42 0.0530 0.0164

Mercury -106628-10-02 12:57 J -37224179.06 -37224178.96 -37224178.86 0.0532 0.0371

Venus -106627-09-07 11:45 J -37223839.16 -37223839.01 -37223838.85 0.0537 0.0346

Mercury -106622-02-20 12:43 J -37222212.10 -37222211.97 -37222211.83 0.0497 0.0260

Mercury -106622-05-21 07:26 J -37222122.33 -37222122.19 -37222122.05 0.0495 0.0238

Venus -106621-07-06 18:57 J -37221709.89 -37221709.71 -37221709.53 0.0490 0.0226

Moon -106618-02-26 22:33 J -37220744.65 -37220744.56 -37220744.45 0.0503 0.0458

Earth -106618-02-27 02:24 J -37220744.44 -37220744.40 -37220744.33 0.0504 0.0488

Mercury -106616-04-23 00:43 J -37219958.59 -37219958.47 -37219958.35 0.0529 0.0297

Mercury -106616-07-21 15:21 J -37219868.99 -37219868.86 -37219868.73 0.0531 0.0243

Venus -106615-05-13 02:24 J -37219573.60 -37219573.40 -37219573.20 0.0536 0.0072

Mars -106611-05-26 08:09 J -37218099.34 -37218099.16 -37218098.96 0.0504 0.0379

Mercury -106611-12-09 13:55 J -37217902.02 -37217901.92 -37217901.82 0.0498 0.0382

Mercury -106610-03-09 08:09 J -37217812.32 -37217812.16 -37217812.00 0.0496 0.0112

Venus -106609-03-11 21:50 J -37217443.79 -37217443.59 -37217443.39 0.0491 0.0092

Earth -106606-03-04 03:07 J -37216356.61 -37216356.37 -37216356.12 0.0505 0.0040

Moon -106606-03-04 06:14 J -37216356.47 -37216356.24 -37216356.00 0.0505 0.0043 \*

Mercury -106604-02-09 02:09 J -37215648.49 -37215648.41 -37215648.33 0.0528 0.0436

Mercury -106604-05-09 17:02 J -37215558.93 -37215558.79 -37215558.65 0.0530 0.0107

Venus -106603-01-15 14:24 J -37215307.97 -37215307.90 -37215307.83 0.0535 0.0497

Earth -106601-08-25 23:31 J -37214354.65 -37214354.52 -37214354.38 0.0523 0.0413

Moon -106601-08-26 02:09 J -37214354.53 -37214354.41 -37214354.27 0.0523 0.0427 \*  
 Mercury -106599-12-26 08:52 J -37213502.29 -37213502.13 -37213501.97 0.0497 0.0014  
 Mercury -106598-03-26 04:33 J -37213412.32 -37213412.31 -37213412.30 0.0495 0.0494  
 Venus -106598-11-16 00:28 J -37213177.58 -37213177.48 -37213177.36 0.0491 0.0410  
 Moon -106594-03-09 00:28 J -37211968.65 -37211968.48 -37211968.31 0.0507 0.0372  
 Earth -106594-03-09 02:09 J -37211968.55 -37211968.41 -37211968.26 0.0507 0.0406 \*  
 Mercury -106592-02-25 18:57 J -37211248.85 -37211248.71 -37211248.57 0.0530 0.0031  
 Mercury -106592-05-26 08:38 J -37211159.18 -37211159.14 -37211159.09 0.0532 0.0498  
 Moon -106589-08-30 08:52 J -37209967.35 -37209967.13 -37209966.91 0.0522 0.0008  
 Earth -106589-08-30 12:28 J -37209967.20 -37209966.98 -37209966.75 0.0522 0.0037 \*  
 Mercury -106587-10-14 09:50 J -37209192.24 -37209192.09 -37209191.93 0.0497 0.0136  
 Mercury -106586-01-12 05:02 J -37209102.40 -37209102.29 -37209102.18 0.0495 0.0367  
 Venus -106585-03-14 04:19 J -37208675.42 -37208675.32 -37208675.20 0.0490 0.0414  
 Mercury -106581-12-14 20:23 J -37206938.78 -37206938.65 -37206938.51 0.0530 0.0170  
 Mercury -106580-03-14 10:47 J -37206849.15 -37206849.05 -37206848.95 0.0532 0.0366  
 Venus -106579-01-18 16:47 J -37206538.99 -37206538.80 -37206538.61 0.0537 0.0163  
 Earth -106577-09-04 02:23 J -37205579.47 -37205579.40 -37205579.31 0.0520 0.0485  
 Moon -106577-09-04 06:14 J -37205579.29 -37205579.24 -37205579.17 0.0520 0.0497  
 Mars -106575-03-02 08:38 J -37205035.36 -37205035.14 -37205034.91 0.0502 0.0316  
 Mercury -106575-08-02 11:16 J -37204882.16 -37204882.03 -37204881.89 0.0497 0.0254  
 Mercury -106575-10-31 05:59 J -37204792.39 -37204792.25 -37204792.11 0.0495 0.0244  
 Venus -106574-11-18 07:26 J -37204409.39 -37204409.19 -37204408.98 0.0490 0.0097  
 Mercury -106569-10-02 22:33 J -37202628.67 -37202628.56 -37202628.44 0.0529 0.0300  
 Mercury -106569-12-31 13:26 J -37202539.07 -37202538.94 -37202538.81 0.0532 0.0241  
 Venus -106568-09-23 08:09 J -37202273.33 -37202273.16 -37202272.98 0.0537 0.0251  
 Mercury -106563-05-21 12:14 J -37200572.09 -37200571.99 -37200571.88 0.0498 0.0377  
 Mercury -106563-08-19 06:28 J -37200482.38 -37200482.23 -37200482.07 0.0496 0.0117  
 Venus -106562-07-24 09:50 J -37200143.27 -37200143.09 -37200142.90 0.0491 0.0225  
 Mercury -106557-07-22 00:43 J -37198318.55 -37198318.47 -37198318.39 0.0529 0.0431  
 Mercury -106557-10-19 15:50 J -37198228.98 -37198228.84 -37198228.70 0.0531 0.0113

Mercury -106551-03-09 13:26 J -37196261.94 -37196261.94 -37196261.92 0.0499 0.0497

Mercury -106551-06-07 07:26 J -37196172.35 -37196172.19 -37196172.03 0.0497 0.0008

Mercury -106545-08-07 17:45 J -37193918.91 -37193918.76 -37193918.62 0.0530 0.0024

Mercury -106545-11-05 07:26 J -37193829.22 -37193829.19 -37193829.14 0.0532 0.0506

Venus -106544-09-26 10:04 J -37193504.21 -37193504.08 -37193503.95 0.0537 0.0408

Mercury -106539-03-26 08:09 J -37191862.31 -37191862.16 -37191862.00 0.0497 0.0133

Mercury -106539-06-24 03:21 J -37191772.46 -37191772.36 -37191772.25 0.0495 0.0371

Venus -106538-07-26 17:59 J -37191374.92 -37191374.75 -37191374.59 0.0490 0.0286

Mercury -106533-05-26 19:26 J -37189608.83 -37189608.69 -37189608.55 0.0529 0.0160

Mercury -106533-08-24 09:35 J -37189519.19 -37189519.10 -37189519.00 0.0532 0.0375

Venus -106532-05-31 23:59 J -37189238.70 -37189238.50 -37189238.29 0.0536 0.0017

Mercury -106527-01-12 09:35 J -37187552.24 -37187552.10 -37187551.97 0.0498 0.0252

Mercury -106527-04-12 04:19 J -37187462.46 -37187462.32 -37187462.18 0.0496 0.0247

Venus -106526-03-31 19:55 J -37187108.87 -37187108.67 -37187108.46 0.0490 0.0035

Moon -106523-03-02 21:35 J -37186041.84 -37186041.60 -37186041.35 0.0504 0.0135

Earth -106523-03-03 00:14 J -37186041.72 -37186041.49 -37186041.25 0.0504 0.0131 \*

Mars -106522-09-13 17:16 J -37185482.01 -37185481.78 -37185481.54 0.0524 0.0226

Mercury -106521-03-14 20:38 J -37185298.76 -37185298.64 -37185298.52 0.0529 0.0302

Mercury -106521-06-12 11:31 J -37185209.15 -37185209.02 -37185208.90 0.0532 0.0239

Venus -106520-02-03 13:26 J -37184973.05 -37184972.94 -37184972.82 0.0536 0.0433

Moon -106518-08-26 06:28 J -37184039.30 -37184039.23 -37184039.15 0.0524 0.0492

Earth -106518-08-26 10:04 J -37184039.18 -37184039.08 -37184038.98 0.0524 0.0469 \*

Mercury -106516-10-31 11:02 J -37183242.14 -37183242.04 -37183241.93 0.0498 0.0367

Mercury -106515-01-29 05:31 J -37183152.43 -37183152.27 -37183152.12 0.0496 0.0127

Venus -106515-12-04 23:31 J -37182842.66 -37182842.52 -37182842.37 0.0491 0.0350

Earth -106511-03-08 01:11 J -37181653.64 -37181653.45 -37181653.26 0.0506 0.0320

Moon -106511-03-08 01:55 J -37181653.61 -37181653.42 -37181653.23 0.0506 0.0290 \*

Mercury -106509-01-01 22:47 J -37180988.63 -37180988.55 -37180988.47 0.0529 0.0433

Mercury -106509-03-31 14:09 J -37180899.05 -37180898.91 -37180898.78 0.0531 0.0114

Earth -106506-08-30 23:02 J -37179651.77 -37179651.54 -37179651.32 0.0522 0.0020

Moon -106506-08-31 02:38 J -37179651.61 -37179651.39 -37179651.16 0.0522 0.0046 \*  
 Mercury -106504-08-19 12:14 J -37178932.01 -37178931.99 -37178931.95 0.0499 0.0488  
 Mercury -106504-11-17 06:14 J -37178842.40 -37178842.24 -37178842.08 0.0496 0.0006  
 Venus -106502-04-03 03:50 J -37178340.38 -37178340.34 -37178340.28 0.0490 0.0473  
 Mercury -106497-01-18 16:33 J -37176588.96 -37176588.81 -37176588.67 0.0531 0.0018  
 Mercury -106497-04-17 06:28 J -37176499.26 -37176499.23 -37176499.20 0.0533 0.0515  
 Venus -106496-02-06 19:11 J -37176203.88 -37176203.70 -37176203.52 0.0537 0.0244  
 Moon -106494-09-  
 Earth -106494-09-04 10:19 J -37175264.20 -37175264.07 -37175263.93 0.0520 0.0418 \*  
 Mercury -106492-09-05 07:11 J -37174532.35 -37174532.20 -37174532.05 0.0497 0.0123  
 Mercury -106492-12-04 02:09 J -37174442.51 -37174442.41 -37174442.30 0.0495 0.0379  
 Venus -106491-12-07 06:43 J -37174074.41 -37174074.22 -37174074.02 0.0490 0.0156  
 Mars -106486-06-19 04:33 J -37172419.44 -37172419.31 -37172419.17 0.0525 0.0450  
 Mercury -106486-11-06 18:28 J -37172278.87 -37172278.73 -37172278.60 0.0529 0.0150  
 Mercury -106485-02-04 08:38 J -37172189.23 -37172189.14 -37172189.04 0.0532 0.0385  
 Venus -106485-10-12 08:23 J -37171938.33 -37171938.15 -37171937.95 0.0536 0.0180  
 Mercury -106480-06-24 08:09 J -37170222.30 -37170222.16 -37170222.02 0.0498 0.0246  
 Mercury -106480-09-22 02:52 J -37170132.52 -37170132.38 -37170132.24 0.0496 0.0253  
 Venus -106479-08-12 09:35 J -37169808.29 -37169808.10 -37169807.90 0.0491 0.0163  
 Mercury -106474-08-25 20:09 J -37167968.78 -37167968.66 -37167968.54 0.0529 0.0287  
 Mercury -106474-11-23 10:47 J -37167879.18 -37167879.05 -37167878.93 0.0531 0.0252  
 Mercury -106468-04-12 09:35 J -37165912.20 -37165912.10 -37165911.99 0.0498 0.0362  
 Mercury -106468-07-11 03:50 J -37165822.49 -37165822.34 -37165822.18 0.0496 0.0131  
 Venus -106467-04-17 12:43 J -37165542.01 -37165541.97 -37165541.92 0.0491 0.0479  
 Mercury -106462-06-13 21:07 J -37163658.70 -37163658.62 -37163658.54 0.0529 0.0432  
 Mercury -106462-09-11 12:14 J -37163569.13 -37163568.99 -37163568.85 0.0531 0.0113  
 Venus -106461-10-15 10:04 J -37163169.16 -37163169.08 -37163168.98 0.0538 0.0482  
 Mars -106457-08-19 17:31 J -37161765.05 -37161764.77 -37161764.49 0.0503 0.0134  
 Mercury -106456-01-29 11:31 J -37161602.06 -37161602.02 -37161601.98 0.0499 0.0475  
 Mercury -106456-04-29 05:16 J -37161512.44 -37161512.28 -37161512.12 0.0496 0.0013

Venus -106455-08-14 17:45 J -37161039.90 -37161039.76 -37161039.61 0.0490 0.0349

Mercury -106450-06-30 14:52 J -37159259.03 -37159258.88 -37159258.74 0.0531 0.0022

Mercury -106450-09-28 04:47 J -37159169.33 -37159169.30 -37159169.27 0.0533 0.0516

Venus -106449-06-20 02:09 J -37158903.61 -37158903.41 -37158903.21 0.0537 0.0070

Mercury -106444-02-15 06:14 J -37157202.40 -37157202.24 -37157202.09 0.0497 0.0111

Mercury -106444-05-16 01:11 J -37157112.55 -37157112.45 -37157112.35 0.0495 0.0390

Venus -106443-04-19 20:23 J -37156773.86 -37156773.65 -37156773.44 0.0490 0.0029

Earth -106440-03-

Moon -106440-03-02 08:52 J -37155726.35 -37155726.13 -37155725.91 0.0504 0.0192 \*

Mercury -106438-04-18 17:16 J -37154948.92 -37154948.78 -37154948.64 0.0530 0.0142

Mercury -106438-07-17 07:40 J -37154859.28 -37154859.18 -37154859.09 0.0532 0.0394

Venus -106437-02-23 17:16 J -37154637.93 -37154637.78 -37154637.63 0.0536 0.0347

Mercury -106433-12-04 07:11 J -37152892.33 -37152892.20 -37152892.05 0.0497 0.0233

Mercury -106432-03-04 01:55 J -37152802.56 -37152802.42 -37152802.28 0.0495 0.0265

Venus -106432-12-23 23:31 J -37152507.68 -37152507.52 -37152507.35 0.0491 0.0290

Earth -106428-03-07 09:50 J -37151338.29 -37151338.09 -37151337.89 0.0506 0.0272

Moon -106428-03-07 11:02 J -37151338.26 -37151338.04 -37151337.82 0.0506 0.0243 \*

Mercury -106426-02-04 19:11 J -37150638.83 -37150638.70 -37150638.58 0.0529 0.0275

Mercury -106426-05-05 09:50 J -37150549.21 -37150549.09 -37150548.97 0.0531 0.0264

Moon -106423-08-30 02:23 J -37149336.62 -37149336.40 -37149336.18 0.0522 0.0115

Earth -106423-08-30 05:45 J -37149336.48 -37149336.26 -37149336.04 0.0522 0.0089 \*

Mercury -106421-09-22 08:23 J -37148582.26 -37148582.15 -37148582.04 0.0498 0.0354

Mercury -106421-12-21 02:38 J -37148492.55 -37148492.39 -37148492.24 0.0496 0.0139

Mercury -106415-11-23 20:38 J -37146328.73 -37146328.64 -37146328.55 0.0528 0.0413

Mercury -106414-02-21 11:45 J -37146239.14 -37146239.01 -37146238.87 0.0531 0.0131

Venus -106413-02-26 19:26 J -37145868.85 -37145868.69 -37145868.53 0.0537 0.0316

Earth -106411-09-03 18:28 J -37144948.89 -37144948.73 -37144948.57 0.0521 0.0355

Moon -106411-09-03 20:38 J -37144948.78 -37144948.64 -37144948.48 0.0521 0.0375 \*

Mercury -106409-07-11 10:04 J -37144272.13 -37144272.08 -37144272.03 0.0499 0.0469

Mercury -106409-10-09 03:50 J -37144182.50 -37144182.34 -37144182.18 0.0496 0.0021

Venus -106408-12-26 07:11 J -37143739.38 -37143739.20 -37143739.02 0.0490 0.0222  
 Mercury -106403-12-10 13:11 J -37141929.09 -37141928.95 -37141928.81 0.0531 0.0013  
 Mercury -106402-03-10 03:07 J -37141839.39 -37141839.37 -37141839.34 0.0533 0.0519  
 Venus -106402-11-01 08:23 J -37141603.34 -37141603.15 -37141602.95 0.0537 0.0110  
 Mercury -106397-07-28 05:31 J -37139872.43 -37139872.27 -37139872.12 0.0497 0.0097  
 Mercury -106397-10-26 00:28 J -37139782.57 -37139782.48 -37139782.39 0.0495 0.0405  
 Venus -106396-08-31 11:02 J -37139473.24 -37139473.04 -37139472.84 0.0490 0.0093  
 Mercury -106391-09-28 15:35 J -37137618.99 -37137618.85 -37137618.71 0.0530 0.0141  
 Mercury -106391-12-27 05:59 J -37137529.34 -37137529.25 -37137529.16 0.0533 0.0396  
 Venus -106390-07-06 23:31 J -37137337.55 -37137337.52 -37137337.48 0.0536 0.0524  
 Mercury -106385-05-16 06:28 J -37135562.37 -37135562.23 -37135562.09 0.0497 0.0219  
 Mercury -106385-08-14 01:11 J -37135472.59 -37135472.45 -37135472.32 0.0495 0.0278  
 Venus -106384-05-06 13:55 J -37135207.03 -37135206.92 -37135206.81 0.0491 0.0414  
 Mercury -106379-07-17 17:59 J -37133308.88 -37133308.75 -37133308.63 0.0530 0.0268  
 Mercury -106379-10-15 08:38 J -37133219.26 -37133219.14 -37133219.01 0.0532 0.0273  
 Mercury -106373-03-04 07:40 J -37131252.29 -37131252.18 -37131252.06 0.0498 0.0340  
 Mercury -106373-06-02 01:55 J -37131162.57 -37131162.42 -37131162.26 0.0496 0.0154  
 Venus -106372-09-02 18:28 J -37130704.83 -37130704.73 -37130704.62 0.0490 0.0415  
 Mars -106368-12-08 11:45 J -37129147.27 -37129147.01 -37129146.75 0.0524 0.0022  
 Mercury -106367-05-05 19:55 J -37128998.77 -37128998.67 -37128998.58 0.0529 0.0400  
 Mercury -106367-08-03 11:02 J -37128909.18 -37128909.04 -37128908.90 0.0531 0.0143  
 Venus -106366-07-10 04:33 J -37128568.50 -37128568.31 -37128568.12 0.0537 0.0152  
 Mercury -106362-12-22 08:52 J -37126942.18 -37126942.13 -37126942.07 0.0499 0.0460  
 Mercury -106361-03-21 02:38 J -37126852.55 -37126852.39 -37126852.22 0.0497 0.0033  
 Venus -106360-05-08 21:21 J -37126438.81 -37126438.61 -37126438.40 0.0490 0.0098  
 Earth -106357-03-01 15:50 J -37125411.05 -37125410.84 -37125410.62 0.0504 0.0232  
 Moon -106357-03-01 16:19 J -37125411.03 -37125410.82 -37125410.59 0.0504 0.0246 \*  
 Mercury -106355-05-22 12:57 J -37124599.10 -37124598.96 -37124598.82 0.0530 0.0009  
 Venus -106354-03-14 18:14 J -37124302.91 -37124302.74 -37124302.56 0.0536 0.0272  
 Mercury -106349-01-08 04:04 J -37122542.48 -37122542.33 -37122542.17 0.0497 0.0090



Mercury -106349-04-06 23:16 J -37122452.62 -37122452.53 -37122452.44 0.0495 0.0414

Venus -106348-01-12 00:43 J -37122172.65 -37122172.47 -37122172.28 0.0490 0.0221

Moon -106345-03-06 09:07 J -37121023.34 -37121023.12 -37121022.90 0.0505 0.0169

Earth -106345-03-06 11:31 J -37121023.24 -37121023.02 -37121022.79 0.0505 0.0195 \*

Mercury -106343-03-10 13:55 J -37120289.05 -37120288.92 -37120288.78 0.0530 0.0138

Mercury -106343-06-08 04:33 J -37120199.40 -37120199.31 -37120199.22 0.0532 0.0399

Earth -106340-08-29 18:57 J -37119020.93 -37119020.71 -37119020.49 0.0523 0.0135

Moon -106340-08-29 21:07 J -37119020.83 -37119020.62 -37119020.41 0.0523 0.0153 \*

Mercury -106338-10-27 05:45 J -37118232.40 -37118232.26 -37118232.11 0.0497 0.0205

Mercury -106337-01-25 00:28 J -37118142.61 -37118142.48 -37118142.35 0.0495 0.0294

Mercury -106332-12-27 16:19 J -37115978.95 -37115978.82 -37115978.70 0.0530 0.0267

Mercury -106331-03-27 07:11 J -37115889.32 -37115889.20 -37115889.08 0.0532 0.0274

Venus -106330-03-17 21:35 J -37115533.73 -37115533.60 -37115533.46 0.0538 0.0399

Moon -106328-09-03 07:55 J -37114633.34 -37114633.17 -37114632.99 0.0521 0.0337

Earth -106328-09-03 08:38 J -37114633.32 -37114633.14 -37114632.96 0.0521 0.0315 \*

Mercury -106326-08-15 06:57 J -37113922.32 -37113922.21 -37113922.09 0.0498 0.0325

Mercury -106326-11-13 01:11 J -37113832.60 -37113832.45 -37113832.30 0.0496 0.0169

Venus -106324-01-14 08:52 J -37113404.30 -37113404.13 -37113403.97 0.0490 0.0291

Mercury -106320-10-15 18:28 J -37111668.82 -37111668.73 -37111668.63 0.0529 0.0395

Mercury -106319-01-13 09:50 J -37111579.23 -37111579.09 -37111578.95 0.0531 0.0150

Venus -106319-11-20 13:26 J -37111268.14 -37111267.94 -37111267.74 0.0537 0.0017

Mercury -106314-06-03 08:23 J -37109612.21 -37109612.15 -37109612.08 0.0498 0.0444

Mercury -106314-09-01 02:09 J -37109522.57 -37109522.41 -37109522.25 0.0496 0.0046

Venus -106313-09-19 11:59 J -37109138.20 -37109138.00 -37109137.79 0.0490 0.0028

Mercury -106308-08-03 20:23 J -37107358.65 -37107358.65 -37107358.64 0.0528 0.0527

Mercury -106308-11-01 11:59 J -37107269.14 -37107269.00 -37107268.85 0.0530 0.0025

Venus -106307-07-26 03:07 J -37107002.48 -37107002.37 -37107002.25 0.0536 0.0437

Mars -106303-11-14 07:40 J -37105430.47 -37105430.18 -37105429.90 0.0503 0.0116

Mercury -106302-06-20 03:07 J -37105212.53 -37105212.37 -37105212.21 0.0497 0.0079

Mercury -106302-09-17 22:04 J -37105122.66 -37105122.58 -37105122.49 0.0495 0.0423

Venus -106301-05-25 15:07 J -37104872.01 -37104871.87 -37104871.73 0.0491 0.0347  
 Mercury -106296-08-20 13:55 J -37102959.06 -37102958.92 -37102958.78 0.0530 0.0114  
 Mercury -106296-11-18 04:19 J -37102869.41 -37102869.32 -37102869.24 0.0532 0.0419  
 Mercury -106290-04-08 04:33 J -37100902.45 -37100902.31 -37100902.16 0.0498 0.0196  
 Mercury -106290-07-06 23:16 J -37100812.66 -37100812.53 -37100812.40 0.0495 0.0303  
 Venus -106289-09-21 20:23 J -37100369.67 -37100369.65 -37100369.63 0.0489 0.0487  
 Mercury -106284-06-08 14:52 J -37098649.01 -37098648.88 -37098648.76 0.0529 0.0262  
 Mercury -106284-09-06 05:45 J -37098559.38 -37098559.26 -37098559.14 0.0532 0.0278  
 Venus -106283-07-29 04:19 J -37098233.50 -37098233.32 -37098233.14 0.0538 0.0221  
 Mercury -106278-01-25 06:28 J -37096592.35 -37096592.23 -37096592.11 0.0498 0.0310  
 Mercury -106278-04-25 00:43 J -37096502.62 -37096502.47 -37096502.32 0.0496 0.0184  
 Venus -106277-05-27 23:59 J -37096103.69 -37096103.50 -37096103.31 0.0490 0.0170  
 Moon -106274-03-01 17:31 J -37095095.95 -37095095.77 -37095095.59 0.0503 0.0320  
 Earth -106274-03-01 19:26 J -37095095.89 -37095095.69 -37095095.50 0.0503 0.0300 \*  
 Mercury -106272-03-27 16:47 J -37094338.89 -37094338.80 -37094338.70 0.0529 0.0394  
 Mercury -106272-06-25 08:09 J -37094249.30 -37094249.16 -37094249.02 0.0531 0.0151  
 Venus -106271-04-02 19:40 J -37093967.86 -37093967.68 -37093967.49 0.0537 0.0196  
 Mercury -106267-11-13 07:40 J -37092282.25 -37092282.18 -37092282.10 0.0498 0.0430  
 Mercury -106266-02-11 01:26 J -37092192.60 -37092192.44 -37092192.28 0.0496 0.0060  
 Venus -106265-02-01 02:23 J -37091837.59 -37091837.40 -37091837.20 0.0490 0.0153  
 Earth -106262-03-06 20:23 J -37090707.88 -37090707.65 -37090707.42 0.0505 0.0148  
 Moon -106262-03-06 23:59 J -37090707.73 -37090707.50 -37090707.26 0.0505 0.0131 \*  
 Mercury -106260-01-13 18:57 J -37090028.72 -37090028.71 -37090028.68 0.0528 0.0523  
 Mercury -106260-04-13 10:47 J -37089939.19 -37089939.05 -37089938.91 0.0531 0.0027  
 Moon -106257-08-29 06:14 J -37088705.45 -37088705.24 -37088705.02 0.0523 0.0193  
 Earth -106257-08-29 06:57 J -37088705.41 -37088705.21 -37088704.99 0.0523 0.0183 \*  
 Mercury -106255-11-30 02:38 J -37087882.55 -37087882.39 -37087882.24 0.0497 0.0064  
 Mercury -106254-02-27 21:35 J -37087792.67 -37087792.60 -37087792.53 0.0495 0.0438  
 Venus -106254-10-07 05:59 J -37087571.30 -37087571.25 -37087571.19 0.0491 0.0471  
 Mars -106249-05-29 22:19 J -37085874.73 -37085874.57 -37085874.40 0.0522 0.0397

Mercury -106248-01-30 12:57 J -37085629.10 -37085628.96 -37085628.82 0.0530 0.0103

Mercury -106248-04-30 03:21 J -37085539.44 -37085539.36 -37085539.28 0.0532 0.0431

Venus -106247-04-06 00:57 J -37085198.54 -37085198.46 -37085198.38 0.0537 0.0485

Moon -106245-09-02 16:19 J -37084318.00 -37084317.82 -37084317.64 0.0521 0.0281

Earth -106245-09-02 17:16 J -37084317.97 -37084317.78 -37084317.58 0.0521 0.0254 \*

Mercury -106243-09-18 03:21 J -37083572.50 -37083572.36 -37083572.21 0.0497 0.0188

Mercury -106243-12-16 22:04 J -37083482.70 -37083482.58 -37083482.45 0.0495 0.0311

Venus -106241-02-03 10:04 J -37083069.22 -37083069.08 -37083068.94 0.0490 0.0360

Mercury -106237-11-18 14:38 J -37081319.01 -37081318.89 -37081318.76 0.0529 0.0240

Mercury -106236-02-16 05:31 J -37081229.39 -37081229.27 -37081229.15 0.0532 0.0299

Venus -106236-12-09 14:38 J -37080933.09 -37080932.89 -37080932.68 0.0537 0.0062

Mercury -106231-07-07 05:02 J -37079262.41 -37079262.29 -37079262.16 0.0498 0.0303

Mercury -106231-10-04 23:16 J -37079172.68 -37079172.53 -37079172.38 0.0496 0.0192

Venus -106230-10-09 13:55 J -37078803.13 -37078802.92 -37078802.72 0.0490 0.0044

Mercury -106225-09-06 15:21 J -37077008.95 -37077008.86 -37077008.76 0.0529 0.0389

Mercury -106225-12-05 06:43 J -37076919.36 -37076919.22 -37076919.09 0.0531 0.0155

Venus -106224-08-14 01:55 J -37076667.56 -37076667.42 -37076667.28 0.0536 0.0376

Mercury -106219-04-25 06:57 J -37074952.29 -37074952.21 -37074952.13 0.0499 0.0417

Mercury -106219-07-24 00:43 J -37074862.63 -37074862.47 -37074862.31 0.0496 0.0074

Venus -106218-06-14 17:31 J -37074536.93 -37074536.77 -37074536.59 0.0490 0.0275

Mars -106213-03-03 15:50 J -37072813.07 -37072812.84 -37072812.60 0.0524 0.0224

Mercury -106213-06-25 17:16 J -37072698.79 -37072698.78 -37072698.76 0.0528 0.0523

Mercury -106213-09-23 08:52 J -37072609.27 -37072609.13 -37072608.98 0.0531 0.0030

Mercury -106207-05-12 01:40 J -37070552.59 -37070552.43 -37070552.27 0.0497 0.0051

Mercury -106207-08-09 20:38 J -37070462.70 -37070462.64 -37070462.57 0.0495 0.0451

Mercury -106201-07-12 11:31 J -37068299.16 -37068299.02 -37068298.88 0.0530 0.0101

Mercury -106201-10-10 01:55 J -37068209.50 -37068209.42 -37068209.34 0.0533 0.0435

Venus -106200-08-17 08:38 J -37067898.30 -37067898.14 -37067897.97 0.0538 0.0312

Mercury -106195-02-28 02:52 J -37066242.53 -37066242.38 -37066242.23 0.0497 0.0172

Mercury -106195-05-28 21:21 J -37066152.73 -37066152.61 -37066152.49 0.0495 0.0325

Venus -106194-06-17 00:14 J -37065768.67 -37065768.49 -37065768.31 0.0490 0.0233  
 Earth -106191-03-01 04:19 J -37064780.49 -37064780.32 -37064780.14 0.0503 0.0344  
 Moon -106191-03-01 07:26 J -37064780.35 -37064780.19 -37064780.01 0.0503 0.0369 \*  
 Mercury -106189-04-30 13:40 J -37063989.06 -37063988.93 -37063988.80 0.0529 0.0231  
 Mercury -106189-07-29 04:19 J -37063899.43 -37063899.32 -37063899.20 0.0532 0.0309  
 Venus -106188-04-21 23:02 J -37063632.74 -37063632.54 -37063632.34 0.0537 0.0110  
 Mars -106184-05-03 22:19 J -37062159.79 -37062159.57 -37062159.35 0.0505 0.0329  
 Mercury -106184-12-17 03:50 J -37061932.47 -37061932.34 -37061932.21 0.0498 0.0296  
 Mercury -106183-03-16 22:04 J -37061842.73 -37061842.58 -37061842.44 0.0496 0.0199  
 Venus -106182-02-20 03:07 J -37061502.58 -37061502.37 -37061502.17 0.0490 0.0088  
 Moon -106179-03-06 00:28 J -37060392.72 -37060392.48 -37060392.24 0.0505 0.0082  
 Earth -106179-03-06 04:33 J -37060392.55 -37060392.31 -37060392.07 0.0505 0.0098 \*  
 Mercury -106177-02-17 15:07 J -37059678.97 -37059678.87 -37059678.76 0.0529 0.0369  
 Mercury -106177-05-17 06:28 J -37059589.37 -37059589.23 -37059589.10 0.0531 0.0175  
 Moon -106174-08-29 13:40 J -37058390.12 -37058389.93 -37058389.74 0.0524 0.0254  
 Earth -106174-08-29 14:23 J -37058390.09 -37058389.90 -37058389.70 0.0524 0.0250 \*  
 Mercury -106172-10-05 05:31 J -37057622.36 -37057622.27 -37057622.18 0.0499 0.0411  
 Mercury -106171-01-02 23:16 J -37057532.69 -37057532.53 -37057532.37 0.0496 0.0079  
 Venus -106171-10-26 07:11 J -37057236.31 -37057236.20 -37057236.08 0.0491 0.0404  
 Mercury -106166-12-06 15:50 J -37055368.86 -37055368.84 -37055368.82 0.0528 0.0519  
 Mercury -106165-03-05 07:26 J -37055279.33 -37055279.19 -37055279.05 0.0530 0.0028  
 Earth -106162-09-03 03:07 J -37054002.58 -37054002.37 -37054002.16 0.0523 0.0196  
 Moon -106162-09-03 05:45 J -37054002.46 -37054002.26 -37054002.05 0.0523 0.0227 \*  
 Mercury -106160-10-22 00:43 J -37053222.63 -37053222.47 -37053222.31 0.0497 0.0040  
 Mercury -106159-01-19 19:40 J -37053132.73 -37053132.68 -37053132.62 0.0495 0.0464  
 Venus -106158-02-22 11:45 J -37052734.10 -37052734.01 -37052733.91 0.0489 0.0431  
 Mercury -106154-12-23 09:35 J -37050969.24 -37050969.10 -37050968.96 0.0530 0.0104  
 Mercury -106153-03-21 23:59 J -37050879.58 -37050879.50 -37050879.42 0.0532 0.0431  
 Venus -106153-12-28 13:55 J -37050598.12 -37050597.92 -37050597.72 0.0538 0.0127  
 Mars -106148-02-08 06:57 J -37049095.40 -37049095.21 -37049095.02 0.0502 0.0386

Mercury -106148-08-10 01:40 J -37048912.58 -37048912.43 -37048912.28 0.0497 0.0163  
 Mercury -106148-11-07 20:09 J -37048822.77 -37048822.66 -37048822.53 0.0495 0.0336  
 Venus -106147-10-28 14:09 J -37048468.11 -37048467.91 -37048467.71 0.0490 0.0107  
 Mercury -106142-10-11 11:45 J -37046659.14 -37046659.01 -37046658.87 0.0530 0.0232  
 Mercury -106141-01-09 02:38 J -37046569.50 -37046569.39 -37046569.27 0.0532 0.0309  
 Venus -106141-09-02 05:31 J -37046332.44 -37046332.27 -37046332.10 0.0537 0.0291  
 Mercury -106136-05-29 02:52 J -37044602.50 -37044602.38 -37044602.25 0.0498 0.0284  
 Mercury -106136-08-26 21:07 J -37044512.77 -37044512.62 -37044512.47 0.0496 0.0210  
 Venus -106135-07-03 17:02 J -37044201.97 -37044201.79 -37044201.61 0.0490 0.0215  
 Mercury -106130-07-30 13:55 J -37042349.02 -37042348.92 -37042348.82 0.0529 0.0362  
 Mercury -106130-10-28 05:02 J -37042259.42 -37042259.29 -37042259.15 0.0531 0.0182  
 Mercury -106124-03-17 04:04 J -37040292.42 -37040292.33 -37040292.24 0.0499 0.0406  
 Mercury -106124-06-14 21:50 J -37040202.75 -37040202.59 -37040202.43 0.0496 0.0084  
 Mercury -106118-05-18 15:21 J -37038038.90 -37038038.86 -37038038.81 0.0528 0.0500  
 Mercury -106118-08-16 06:57 J -37037949.35 -37037949.21 -37037949.06 0.0530 0.0048  
 Venus -106117-09-05 08:38 J -37037563.28 -37037563.14 -37037563.00 0.0537 0.0383  
 Mercury -106112-04-02 23:02 J -37035892.70 -37035892.54 -37035892.38 0.0497 0.0037  
 Mercury -106112-07-01 17:59 J -37035802.79 -37035802.75 -37035802.69 0.0495 0.0467  
 Venus -106111-07-06 00:43 J -37035433.63 -37035433.47 -37035433.31 0.0490 0.0299  
 Moon -106108-02-28 03:35 J -37034465.46 -37034465.35 -37034465.24 0.0502 0.0441  
 Earth -106108-02-28 07:26 J -37034465.33 -37034465.19 -37034465.05 0.0502 0.0411 \*  
 Mercury -106106-06-04 07:55 J -37033639.31 -37033639.17 -37033639.03 0.0530 0.0102  
 Mercury -106106-09-01 22:19 J -37033549.65 -37033549.57 -37033549.49 0.0532 0.0432  
 Venus -106105-05-10 19:40 J -37033297.88 -37033297.68 -37033297.48 0.0537 0.0057  
 Mercury -106100-01-20 00:28 J -37031582.63 -37031582.48 -37031582.33 0.0498 0.0154  
 Mercury -106100-04-19 19:11 J -37031492.82 -37031492.70 -37031492.59 0.0495 0.0345  
 Venus -106099-03-11 04:19 J -37031167.53 -37031167.32 -37031167.12 0.0490 0.0021  
 Earth -106096-03-05 05:59 J -37030077.50 -37030077.25 -37030077.01 0.0503 0.0025  
 Moon -106096-03-05 09:35 J -37030077.34 -37030077.10 -37030076.86 0.0503 0.0015 \*  
 Mars -106095-08-23 19:26 J -37029540.93 -37029540.69 -37029540.46 0.0522 0.0216

Mercury -106094-03-23 09:50 J -37029329.22 -37029329.09 -37029328.96 0.0529 0.0236  
 Mercury -106094-06-21 00:43 J -37029239.59 -37029239.47 -37029239.36 0.0532 0.0303  
 Venus -106093-01-14 09:35 J -37029032.18 -37029032.10 -37029032.01 0.0536 0.0481  
 Earth -106091-08-28 22:19 J -37028074.75 -37028074.57 -37028074.39 0.0525 0.0314  
 Moon -106091-08-29 00:43 J -37028074.65 -37028074.47 -37028074.28 0.0525 0.0305 \*  
 Mercury -106089-11-08 01:40 J -37027272.56 -37027272.43 -37027272.30 0.0498 0.0277  
 Mercury -106088-02-05 19:40 J -37027182.82 -37027182.68 -37027182.53 0.0496 0.0218  
 Venus -106088-11-14 06:28 J -37026901.37 -37026901.23 -37026901.08 0.0491 0.0345  
 Moon -106084-03-10 02:09 J -37025689.45 -37025689.41 -37025689.35 0.0506 0.0493  
 Earth -106084-03-10 05:02 J -37025689.38 -37025689.29 -37025689.19 0.0506 0.0466 \*  
 Mercury -106082-01-09 11:59 J -37025019.11 -37025019.00 -37025018.90 0.0529 0.0366  
 Mercury -106082-04-09 03:07 J -37024929.50 -37024929.37 -37024929.23 0.0531 0.0179  
 Moon -106079-09-02 08:23 J -37023687.35 -37023687.15 -37023686.94 0.0523 0.0168  
 Earth -106079-09-02 11:59 J -37023687.21 -37023687.00 -37023686.78 0.0523 0.0137 \*  
 Mercury -106077-08-27 02:52 J -37022962.47 -37022962.38 -37022962.28 0.0498 0.0396  
 Mercury -106077-11-24 20:38 J -37022872.80 -37022872.64 -37022872.48 0.0496 0.0093  
 Venus -106075-03-13 10:04 J -37022399.09 -37022399.08 -37022399.05 0.0489 0.0486  
 Mercury -106071-10-28 13:40 J -37020708.97 -37020708.93 -37020708.88 0.0528 0.0498  
 Mercury -106070-01-26 05:31 J -37020619.41 -37020619.27 -37020619.13 0.0531 0.0050  
 Venus -106069-01-17 15:50 J -37020263.03 -37020262.84 -37020262.66 0.0537 0.0206  
 Mercury -106065-09-12 21:21 J -37018562.77 -37018562.61 -37018562.45 0.0497 0.0034  
 Mercury -106065-12-11 16:19 J -37018472.87 -37018472.82 -37018472.77 0.0495 0.0468  
 Venus -106064-11-16 12:43 J -37018133.16 -37018132.97 -37018132.77 0.0490 0.0164  
 Mars -106059-05-29 01:11 J -37016478.57 -37016478.45 -37016478.31 0.0525 0.0449  
 Mercury -106059-11-14 07:11 J -37016309.34 -37016309.20 -37016309.05 0.0530 0.0087  
 Mercury -106058-02-11 21:50 J -37016219.67 -37016219.59 -37016219.52 0.0532 0.0447  
 Venus -106058-09-22 04:47 J -37015997.48 -37015997.30 -37015997.11 0.0536 0.0224  
 Mercury -106053-07-01 22:33 J -37014252.71 -37014252.56 -37014252.40 0.0498 0.0154  
 Mercury -106053-09-29 17:16 J -37014162.90 -37014162.78 -37014162.67 0.0496 0.0345  
 Venus -106052-07-22 16:33 J -37013867.00 -37013866.81 -37013866.61 0.0491 0.0156

Mercury -106047-09-02 07:55 J -37011999.30 -37011999.17 -37011999.04 0.0529 0.0236  
 Mercury -106047-11-30 22:47 J -37011909.66 -37011909.55 -37011909.43 0.0531 0.0303  
 Mercury -106041-04-19 23:59 J -37009942.63 -37009942.50 -37009942.36 0.0498 0.0272  
 Mercury -106041-07-18 18:14 J -37009852.88 -37009852.74 -37009852.59 0.0496 0.0223  
 Venus -106040-03-27 20:09 J -37009600.70 -37009600.66 -37009600.60 0.0491 0.0475  
 Mercury -106035-06-21 09:35 J -37007689.20 -37007689.10 -37007689.00 0.0528 0.0372  
 Mercury -106035-09-19 00:57 J -37007599.60 -37007599.46 -37007599.33 0.0531 0.0171  
 Venus -106034-09-25 05:02 J -37007228.40 -37007228.29 -37007228.17 0.0538 0.0436  
 Mars -106030-07-29 05:02 J -37005825.57 -37005825.29 -37005824.99 0.0504 0.0094  
 Mercury -106029-02-07 01:11 J -37005632.54 -37005632.45 -37005632.35 0.0499 0.0393  
 Mercury -106029-05-06 18:57 J -37005542.87 -37005542.71 -37005542.55 0.0496 0.0096  
 Venus -106028-07-24 22:47 J -37005098.69 -37005098.55 -37005098.41 0.0489 0.0354  
 Earth -106025-02-28 08:38 J -37004150.20 -37004150.14 -37004150.07 0.0502 0.0482  
 Mercury -106023-04-09 11:31 J -37003379.06 -37003379.02 -37003378.98 0.0528 0.0505  
 Mercury -106023-07-08 03:21 J -37003289.51 -37003289.36 -37003289.22 0.0531 0.0044  
 Venus -106022-05-30 20:52 J -37002962.84 -37002962.63 -37002962.43 0.0537 0.0022  
 Mercury -106017-02-23 19:55 J -37001232.83 -37001232.67 -37001232.51 0.0497 0.0028  
 Mercury -106017-05-23 14:52 J -37001142.92 -37001142.88 -37001142.84 0.0495 0.0474  
 Venus -106016-03-30 01:40 J -37000832.64 -37000832.43 -37000832.23 0.0490 0.0031  
 Moon -106013-03-04 05:16 J -36999762.53 -36999762.28 -36999762.03 0.0503 0.0053  
 Earth -106013-03-04 08:23 J -36999762.39 -36999762.15 -36999761.91 0.0503 0.0044 \*  
 Mercury -106011-04-26 05:31 J -36998979.41 -36998979.27 -36998979.13 0.0530 0.0087  
 Mercury -106011-07-24 19:55 J -36998889.74 -36998889.67 -36998889.59 0.0532 0.0448  
 Venus -106010-02-02 10:47 J -36998697.18 -36998697.05 -36998696.92 0.0536 0.0406  
 Moon -106008-08-27 23:16 J -36997759.68 -36997759.53 -36997759.37 0.0525 0.0380  
 Earth -106008-08-28 02:52 J -36997759.53 -36997759.38 -36997759.24 0.0525 0.0393 \*  
 Mercury -106006-12-12 20:38 J -36996922.79 -36996922.64 -36996922.49 0.0498 0.0154  
 Mercury -106005-03-11 15:07 J -36996832.98 -36996832.87 -36996832.75 0.0495 0.0345  
 Venus -106005-12-03 04:04 J -36996566.49 -36996566.33 -36996566.16 0.0491 0.0294  
 Earth -106001-03-09 08:23 J -36995374.30 -36995374.15 -36995374.00 0.0505 0.0398

Moon -106001-03-09 09:35 J -36995374.22 -36995374.10 -36995373.97 0.0505 0.0430 \*

# 106TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 106th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-105999-02-12 07:11 J	-36994669.33	-36994669.20	-36994669.07	0.0529	0.0224		
Mercury	-105999-05-12 22:04 J	-36994579.69	-36994579.58	-36994579.47	0.0531	0.0315		
Earth	-105996-09-01 14:09 J	-36993372.13	-36993371.91	-36993371.68	0.0523	0.0050		
Moon	-105996-09-01 17:59 J	-36993371.97	-36993371.75	-36993371.53	0.0523	0.0083	*	
Mercury	-105994-09-30 22:04 J	-36992612.71	-36992612.58	-36992612.45	0.0498	0.0274		
Mercury	-105994-12-29 16:04 J	-36992522.97	-36992522.83	-36992522.68	0.0496	0.0221		
Mercury	-105988-12-01 07:40 J	-36990359.28	-36990359.18	-36990359.07	0.0528	0.0373		
Mercury	-105987-02-28 23:02 J	-36990269.67	-36990269.54	-36990269.40	0.0531	0.0170		
Venus	-105986-02-05 10:19 J	-36989928.25	-36989928.07	-36989927.89	0.0537	0.0249		
Moon	-105984-09-05 20:38 J	-36988984.72	-36988984.64	-36988984.55	0.0522	0.0480		
Earth	-105984-09-06 00:14 J	-36988984.57	-36988984.49	-36988984.40	0.0522	0.0484	*	
Mercury	-105982-07-19 23:16 J	-36988302.62	-36988302.53	-36988302.43	0.0499	0.0393		
Mercury	-105982-10-17 17:16 J	-36988212.94	-36988212.78	-36988212.63	0.0497	0.0099		
Venus	-105981-12-05 11:45 J	-36987798.19	-36987798.01	-36987797.82	0.0490	0.0223		
Mercury	-105976-09-19 09:07 J	-36986049.15	-36986049.12	-36986049.08	0.0527	0.0512		



Mercury -105976-12-18 00:57 J -36985959.60 -36985959.46 -36985959.32 0.0530 0.0035

Venus -105975-10-10 23:59 J -36985662.69 -36985662.50 -36985662.31 0.0537 0.0179

Mercury -105970-08-05 17:59 J -36983902.91 -36983902.75 -36983902.59 0.0497 0.0029

Mercury -105970-11-03 12:43 J -36983813.01 -36983812.97 -36983812.92 0.0495 0.0474

Venus -105969-08-10 13:26 J -36983532.14 -36983531.94 -36983531.74 0.0490 0.0106

Mercury -105964-10-06 03:07 J -36981649.51 -36981649.37 -36981649.23 0.0530 0.0096

Mercury -105963-01-03 17:45 J -36981559.84 -36981559.76 -36981559.69 0.0532 0.0439

Mercury -105958-05-24 18:57 J -36979592.86 -36979592.71 -36979592.55 0.0497 0.0151

Mercury -105958-08-22 13:26 J -36979503.05 -36979502.94 -36979502.82 0.0495 0.0348

Venus -105957-04-15 16:33 J -36979265.90 -36979265.81 -36979265.71 0.0491 0.0429

Mercury -105952-07-25 05:02 J -36977339.42 -36977339.29 -36977339.16 0.0529 0.0227

Mercury -105952-10-22 20:09 J -36977249.78 -36977249.66 -36977249.55 0.0532 0.0313

Venus -105951-10-14 05:16 J -36976893.34 -36976893.28 -36976893.22 0.0538 0.0507

Mercury -105946-03-12 19:55 J -36975282.80 -36975282.67 -36975282.54 0.0498 0.0276

Mercury -105946-06-10 13:55 J -36975193.06 -36975192.92 -36975192.78 0.0496 0.0218

Venus -105945-08-12 19:26 J -36974763.80 -36974763.69 -36974763.57 0.0490 0.0404

Mars -105941-11-16 18:28 J -36973206.99 -36973206.73 -36973206.47 0.0523 0.0022

Mercury -105940-05-13 06:43 J -36973029.33 -36973029.22 -36973029.12 0.0528 0.0364

Mercury -105940-08-10 22:04 J -36972939.72 -36972939.58 -36972939.45 0.0531 0.0179

Venus -105939-06-18 18:28 J -36972627.92 -36972627.73 -36972627.53 0.0537 0.0079

Mercury -105935-12-29 21:07 J -36970972.71 -36970972.62 -36970972.52 0.0499 0.0396

Mercury -105934-03-29 14:52 J -36970883.04 -36970882.88 -36970882.72 0.0497 0.0095

Venus -105933-04-17 23:02 J -36970497.74 -36970497.54 -36970497.34 0.0490 0.0082

Earth -105930-03-04 08:23 J -36969447.38 -36969447.15 -36969446.91 0.0502 0.0120

Moon -105930-03-04 10:33 J -36969447.29 -36969447.06 -36969446.83 0.0502 0.0122 \*

Mercury -105928-03-01 07:26 J -36968719.23 -36968719.19 -36968719.16 0.0527 0.0512

Mercury -105928-05-29 23:02 J -36968629.68 -36968629.54 -36968629.40 0.0530 0.0034

Venus -105927-02-21 04:47 J -36968362.44 -36968362.30 -36968362.15 0.0536 0.0365

Earth -105925-08-27 01:40 J -36967444.50 -36967444.43 -36967444.35 0.0526 0.0493

Moon -105925-08-27 05:31 J -36967444.37 -36967444.27 -36967444.17 0.0526 0.0470 \*

Mercury -105922-01-15 15:50 J -36966573.00 -36966572.84 -36966572.68 0.0498 0.0031

Mercury -105922-04-15 10:47 J -36966483.09 -36966483.05 -36966483.00 0.0495 0.0474

Venus -105922-12-23 02:09 J -36966231.59 -36966231.41 -36966231.23 0.0491 0.0241

Earth -105918-03-09 05:59 J -36965059.43 -36965059.25 -36965059.05 0.0504 0.0313

Moon -105918-03-09 06:14 J -36965059.42 -36965059.24 -36965059.05 0.0504 0.0341 \*

Mercury -105916-03-18 00:43 J -36964319.61 -36964319.47 -36964319.33 0.0529 0.0104

Mercury -105916-06-15 15:21 J -36964229.94 -36964229.86 -36964229.78 0.0532 0.0430

Moon -105913-08-31 11:45 J -36963057.23 -36963057.01 -36963056.78 0.0524 0.0011

Earth -105913-08-31 15:21 J -36963057.08 -36963056.86 -36963056.63 0.0524 0.0041 \*

Mercury -105911-11-03 16:47 J -36962262.95 -36962262.80 -36962262.65 0.0498 0.0153

Mercury -105910-02-01 11:16 J -36962173.15 -36962173.03 -36962172.92 0.0496 0.0345

Mercury -105904-01-04 02:23 J -36960009.52 -36960009.40 -36960009.26 0.0529 0.0238

Mercury -105904-04-03 17:31 J -36959919.88 -36959919.77 -36959919.65 0.0532 0.0303

Venus -105903-02-24 09:07 J -36959593.28 -36959593.12 -36959592.96 0.0538 0.0315

Earth -105901-09-05 05:16 J -36958669.41 -36958669.28 -36958669.14 0.0522 0.0410

Moon -105901-09-05 07:55 J -36958669.30 -36958669.17 -36958669.03 0.0522 0.0403 \*

Mercury -105899-08-22 17:59 J -36957952.88 -36957952.75 -36957952.62 0.0498 0.0274

Mercury -105899-11-20 11:59 J -36957863.14 -36957863.00 -36957862.85 0.0496 0.0220

Venus -105898-12-25 07:11 J -36957463.37 -36957463.20 -36957463.02 0.0490 0.0266

Mercury -105893-10-23 04:19 J -36955699.42 -36955699.32 -36955699.21 0.0528 0.0370

Mercury -105892-01-20 19:55 J -36955609.80 -36955609.67 -36955609.54 0.0531 0.0174

Venus -105892-10-29 23:31 J -36955327.71 -36955327.52 -36955327.32 0.0537 0.0109

Mercury -105887-06-10 18:57 J -36953642.80 -36953642.71 -36953642.61 0.0499 0.0398

Mercury -105887-09-08 12:43 J -36953553.13 -36953552.97 -36953552.82 0.0497 0.0092

Venus -105886-08-30 09:35 J -36953197.30 -36953197.10 -36953196.90 0.0490 0.0060

Mercury -105881-08-11 05:59 J -36951389.29 -36951389.25 -36951389.21 0.0527 0.0507

Mercury -105881-11-08 21:50 J -36951299.74 -36951299.59 -36951299.45 0.0530 0.0041

Mars -105876-10-21 10:19 J -36949492.36 -36949492.07 -36949491.78 0.0504 0.0080

Mercury -105875-06-27 13:40 J -36949243.09 -36949242.93 -36949242.77 0.0497 0.0033

Mercury -105875-09-25 08:23 J -36949153.19 -36949153.15 -36949153.10 0.0495 0.0469

Venus -105874-05-05 12:57 J -36948931.08 -36948930.96 -36948930.83 0.0491 0.0383  
 Mercury -105869-08-27 22:47 J -36946989.69 -36946989.55 -36946989.41 0.0529 0.0105  
 Mercury -105869-11-25 13:26 J -36946900.02 -36946899.94 -36946899.86 0.0531 0.0428  
 Mercury -105863-04-15 14:38 J -36944933.04 -36944932.89 -36944932.74 0.0498 0.0156  
 Mercury -105863-07-14 09:07 J -36944843.23 -36944843.12 -36944843.00 0.0496 0.0343  
 Venus -105862-09-01 17:02 J -36944428.86 -36944428.79 -36944428.72 0.0490 0.0456  
 Mercury -105857-06-16 00:14 J -36942679.62 -36942679.49 -36942679.36 0.0528 0.0244  
 Mercury -105857-09-13 15:21 J -36942589.98 -36942589.86 -36942589.74 0.0531 0.0294  
 Venus -105856-07-07 12:14 J -36942293.18 -36942292.99 -36942292.79 0.0537 0.0119  
 Mercury -105851-02-01 15:35 J -36940622.97 -36940622.85 -36940622.72 0.0498 0.0279  
 Mercury -105851-05-02 09:35 J -36940533.24 -36940533.10 -36940532.95 0.0496 0.0215  
 Venus -105850-05-07 18:14 J -36940162.93 -36940162.74 -36940162.54 0.0490 0.0128  
 Moon -105847-03-03 02:52 J -36939132.61 -36939132.38 -36939132.15 0.0502 0.0216  
 Earth -105847-03-03 03:50 J -36939132.56 -36939132.34 -36939132.12 0.0502 0.0214 \*  
 Mercury -105845-04-04 01:40 J -36938369.52 -36938369.43 -36938369.32 0.0528 0.0382  
 Mercury -105845-07-02 17:16 J -36938279.91 -36938279.78 -36938279.64 0.0531 0.0164  
 Venus -105844-03-12 02:52 J -36938027.55 -36938027.38 -36938027.22 0.0536 0.0305  
 Mercury -105840-11-20 17:02 J -36936312.88 -36936312.79 -36936312.69 0.0499 0.0397  
 Mercury -105839-02-18 10:47 J -36936223.21 -36936223.05 -36936222.90 0.0497 0.0092  
 Venus -105838-01-10 21:21 J -36935896.80 -36935896.61 -36935896.42 0.0491 0.0198  
 Moon -105835-03-08 01:26 J -36934744.64 -36934744.44 -36934744.23 0.0504 0.0252  
 Earth -105835-03-08 03:07 J -36934744.59 -36934744.37 -36934744.16 0.0504 0.0223 \*  
 Mercury -105833-01-22 03:35 J -36934059.38 -36934059.35 -36934059.32 0.0528 0.0514  
 Mercury -105833-04-20 19:40 J -36933969.83 -36933969.68 -36933969.54 0.0530 0.0038  
 Earth -105830-08-31 18:43 J -36932741.94 -36932741.72 -36932741.50 0.0524 0.0124  
 Moon -105830-08-31 21:21 J -36932741.82 -36932741.61 -36932741.39 0.0524 0.0096 \*  
 Mercury -105828-12-07 11:16 J -36931913.18 -36931913.03 -36931912.87 0.0497 0.0037  
 Mercury -105827-03-07 05:59 J -36931823.30 -36931823.25 -36931823.19 0.0495 0.0465  
 Mars -105822-05-08 11:02 J -36929935.12 -36929935.04 -36929934.95 0.0521 0.0488  
 Mercury -105821-02-07 21:21 J -36929659.75 -36929659.61 -36929659.47 0.0529 0.0101

Mercury -105821-05-07 11:59 J -36929570.08 -36929570.00 -36929569.92 0.0532 0.0434  
 Venus -105820-03-15 06:43 J -36929258.36 -36929258.22 -36929258.07 0.0537 0.0375  
 Moon -105818-09-05 04:04 J -36928354.51 -36928354.33 -36928354.14 0.0523 0.0302  
 Earth -105818-09-05 05:45 J -36928354.44 -36928354.26 -36928354.08 0.0523 0.0314 \*  
 Mercury -105816-09-25 12:28 J -36927603.13 -36927602.98 -36927602.83 0.0498 0.0159  
 Mercury -105816-12-24 06:43 J -36927513.33 -36927513.22 -36927513.10 0.0496 0.0339  
 Venus -105814-01-13 03:35 J -36927128.50 -36927128.35 -36927128.19 0.0490 0.0315  
 Mercury -105810-11-26 22:33 J -36925349.69 -36925349.56 -36925349.43 0.0528 0.0244  
 Mercury -105809-02-24 13:26 J -36925260.05 -36925259.94 -36925259.82 0.0531 0.0294  
 Venus -105809-11-17 17:59 J -36924992.95 -36924992.75 -36924992.55 0.0536 0.0067  
 Mercury -105804-07-14 13:26 J -36923293.07 -36923292.94 -36923292.81 0.0499 0.0282  
 Mercury -105804-10-12 07:26 J -36923203.33 -36923203.19 -36923203.04 0.0497 0.0213  
 Venus -105803-09-18 06:28 J -36922862.43 -36922862.23 -36922862.02 0.0491 0.0012  
 Mercury -105798-09-14 23:45 J -36921039.61 -36921039.51 -36921039.41 0.0528 0.0384  
 Mercury -105798-12-13 15:07 J -36920950.00 -36920949.87 -36920949.73 0.0530 0.0160  
 Venus -105797-07-23 06:28 J -36920727.30 -36920727.23 -36920727.15 0.0535 0.0497  
 Mercury -105792-05-02 14:38 J -36918982.98 -36918982.89 -36918982.79 0.0499 0.0402  
 Mercury -105792-07-31 08:09 J -36918893.31 -36918893.16 -36918893.00 0.0497 0.0088  
 Venus -105791-05-24 08:23 J -36918596.29 -36918596.15 -36918596.00 0.0491 0.0338  
 Mars -105786-02-09 21:07 J -36916873.87 -36916873.62 -36916873.37 0.0523 0.0120  
 Mercury -105786-07-04 00:57 J -36916729.47 -36916729.46 -36916729.44 0.0527 0.0525  
 Mercury -105786-10-01 17:02 J -36916639.93 -36916639.79 -36916639.65 0.0530 0.0024  
 Mercury -105780-05-19 09:35 J -36914583.26 -36914583.10 -36914582.95 0.0497 0.0036  
 Mercury -105780-08-17 04:04 J -36914493.38 -36914493.33 -36914493.27 0.0495 0.0466  
 Mercury -105774-07-20 19:11 J -36912329.84 -36912329.70 -36912329.56 0.0530 0.0107  
 Mercury -105774-10-18 09:50 J -36912240.17 -36912240.09 -36912240.01 0.0532 0.0429  
 Venus -105773-07-26 11:45 J -36911958.20 -36911958.01 -36911957.82 0.0537 0.0189  
 Mercury -105768-03-07 10:19 J -36910273.22 -36910273.07 -36910272.92 0.0498 0.0160  
 Mercury -105768-06-05 04:33 J -36910183.42 -36910183.31 -36910183.19 0.0496 0.0336  
 Venus -105767-05-26 14:23 J -36909828.09 -36909827.90 -36909827.70 0.0490 0.0174

Moon -105764-03-02 04:04 J -36908817.52 -36908817.33 -36908817.14 0.0502 0.0286  
 Earth -105764-03-02 04:33 J -36908817.50 -36908817.31 -36908817.11 0.0502 0.0289 \*  
 Mercury -105762-05-08 20:52 J -36908019.75 -36908019.63 -36908019.50 0.0529 0.0241  
 Mercury -105762-08-06 11:59 J -36907930.11 -36907930.00 -36907929.88 0.0531 0.0299  
 Venus -105761-03-31 01:26 J -36907692.62 -36907692.44 -36907692.26 0.0536 0.0241  
 Mars -105757-04-08 13:55 J -36906223.05 -36906222.92 -36906222.78 0.0506 0.0449  
 Mercury -105757-12-24 11:31 J -36905963.15 -36905963.02 -36905962.89 0.0499 0.0282  
 Mercury -105756-03-24 05:16 J -36905873.42 -36905873.28 -36905873.13 0.0496 0.0211  
 Venus -105755-01-29 17:31 J -36905561.96 -36905561.77 -36905561.57 0.0491 0.0151  
 Earth -105752-03-07 04:04 J -36904429.56 -36904429.33 -36904429.10 0.0503 0.0151  
 Moon -105752-03-07 07:11 J -36904429.43 -36904429.20 -36904428.97 0.0503 0.0180 \*  
 Mercury -105750-02-24 22:04 J -36903709.68 -36903709.58 -36903709.48 0.0528 0.0382  
 Mercury -105750-05-25 13:40 J -36903620.07 -36903619.93 -36903619.80 0.0530 0.0161  
 Moon -105747-08-30 15:07 J -36902427.09 -36902426.87 -36902426.66 0.0525 0.0201  
 Earth -105747-08-30 16:47 J -36902426.99 -36902426.80 -36902426.59 0.0525 0.0227 \*  
 Mercury -105745-10-12 12:28 J -36901653.06 -36901652.98 -36901652.88 0.0500 0.0405  
 Mercury -105744-01-10 06:14 J -36901563.40 -36901563.24 -36901563.09 0.0497 0.0085  
 Venus -105744-10-04 20:38 J -36901295.68 -36901295.64 -36901295.59 0.0492 0.0475  
 Mercury -105739-12-13 23:16 J -36899399.54 -36899399.53 -36899399.52 0.0527 0.0523  
 Mercury -105738-03-13 15:07 J -36899310.01 -36899309.87 -36899309.72 0.0530 0.0028  
 Venus -105737-04-03 01:26 J -36898923.55 -36898923.44 -36898923.31 0.0537 0.0422  
 Earth -105735-09-04 05:59 J -36898039.45 -36898039.25 -36898039.04 0.0524 0.0224  
 Moon -105735-09-04 05:59 J -36898039.44 -36898039.25 -36898039.05 0.0524 0.0206 \*  
 Mercury -105733-10-29 07:11 J -36897253.36 -36897253.20 -36897253.04 0.0497 0.0038  
 Mercury -105732-01-27 01:40 J -36897163.48 -36897163.43 -36897163.37 0.0495 0.0463  
 Venus -105731-01-31 23:16 J -36896793.67 -36896793.53 -36896793.39 0.0490 0.0362  
 Mercury -105727-12-30 16:47 J -36894999.95 -36894999.80 -36894999.66 0.0529 0.0116  
 Mercury -105726-03-30 07:26 J -36894910.27 -36894910.19 -36894910.10 0.0532 0.0421  
 Venus -105726-12-07 15:35 J -36894658.05 -36894657.85 -36894657.65 0.0537 0.0004  
 Mars -105721-01-14 19:40 J -36893158.92 -36893158.68 -36893158.43 0.0504 0.0272

Mercury -105721-08-17 08:38 J -36892943.29 -36892943.14 -36892942.99 0.0498 0.0157

Mercury -105721-11-15 02:52 J -36892853.50 -36892853.38 -36892853.26 0.0496 0.0339

Venus -105720-10-07 02:38 J -36892527.59 -36892527.39 -36892527.18 0.0490 0.0039

Mercury -105715-10-18 18:43 J -36890689.85 -36890689.72 -36890689.59 0.0529 0.0246

Mercury -105714-01-16 10:04 J -36890600.20 -36890600.08 -36890599.97 0.0531 0.0295

Venus -105714-08-12 05:59 J -36890392.36 -36890392.25 -36890392.12 0.0536 0.0429

Mercury -105709-06-05 09:35 J -36888633.23 -36888633.10 -36888632.97 0.0498 0.0281

Mercury -105709-09-03 03:21 J -36888543.50 -36888543.36 -36888543.21 0.0496 0.0211

Venus -105708-06-12 05:02 J -36888261.45 -36888261.29 -36888261.12 0.0491 0.0289

Mercury -105703-08-06 20:38 J -36886379.74 -36886379.64 -36886379.54 0.0528 0.0379

Mercury -105703-11-04 12:14 J -36886290.13 -36886289.99 -36886289.86 0.0531 0.0165

Mercury -105697-03-24 10:47 J -36884323.13 -36884323.05 -36884322.95 0.0499 0.0402

Mercury -105697-06-22 04:19 J -36884233.47 -36884233.32 -36884233.16 0.0497 0.0087

Mercury -105691-05-25 21:50 J -36882069.61 -36882069.59 -36882069.57 0.0527 0.0519

Mercury -105691-08-23 13:40 J -36881980.07 -36881979.93 -36881979.78 0.0529 0.0028

Venus -105690-08-15 08:09 J -36881623.34 -36881623.16 -36881622.98 0.0537 0.0244

Mercury -105685-04-10 05:16 J -36879923.44 -36879923.28 -36879923.12 0.0498 0.0039

Mercury -105685-07-08 23:59 J -36879833.56 -36879833.50 -36879833.45 0.0496 0.0463

Venus -105684-06-14 11:59 J -36879493.18 -36879493.00 -36879492.82 0.0490 0.0228

Earth -105681-03-01 05:45 J -36878502.42 -36878502.26 -36878502.09 0.0501 0.0361

Moon -105681-03-01 08:09 J -36878502.34 -36878502.16 -36878501.98 0.0501 0.0347 \*

Mercury -105679-06-11 15:21 J -36877670.01 -36877669.86 -36877669.72 0.0529 0.0111

Mercury -105679-09-09 05:59 J -36877580.33 -36877580.25 -36877580.17 0.0531 0.0423

Venus -105678-04-19 21:21 J -36877357.80 -36877357.61 -36877357.42 0.0536 0.0189

Mercury -105673-01-28 06:28 J -36875613.38 -36875613.23 -36875613.08 0.0498 0.0159

Mercury -105673-04-27 00:43 J -36875523.59 -36875523.47 -36875523.35 0.0496 0.0337

Venus -105672-02-17 14:09 J -36875227.11 -36875226.91 -36875226.71 0.0491 0.0099

Moon -105669-03-05 19:55 J -36874114.91 -36874114.67 -36874114.43 0.0503 0.0080

Earth -105669-03-05 23:45 J -36874114.76 -36874114.51 -36874114.27 0.0503 0.0054 \*

Mars -105668-07-31 16:47 J -36873601.99 -36873601.80 -36873601.60 0.0521 0.0341

Mercury -105667-03-30 16:33 J -36873359.94 -36873359.81 -36873359.69 0.0529 0.0253

Mercury -105667-06-28 07:40 J -36873270.30 -36873270.18 -36873270.06 0.0531 0.0289

Earth -105664-08-30 00:43 J -36872111.65 -36872111.47 -36872111.28 0.0526 0.0292

Moon -105664-08-30 00:57 J -36872111.65 -36872111.46 -36872111.28 0.0526 0.0276 \*

Mercury -105662-11-16 08:09 J -36871303.29 -36871303.16 -36871303.03 0.0498 0.0275

Mercury -105661-02-14 01:55 J -36871213.56 -36871213.42 -36871213.28 0.0496 0.0217

Venus -105661-10-23 17:59 J -36870960.85 -36870960.75 -36870960.64 0.0491 0.0422

Earth -105657-03-10 23:16 J -36869726.57 -36869726.53 -36869726.48 0.0505 0.0495

Moon -105657-03-11 03:21 J -36869726.42 -36869726.36 -36869726.29 0.0505 0.0482

Mercury -105655-01-16 18:28 J -36869049.83 -36869049.73 -36869049.63 0.0528 0.0384

Mercury -105655-04-16 10:04 J -36868960.21 -36868960.08 -36868959.94 0.0531 0.0162

Venus -105654-04-23 01:55 J -36868588.49 -36868588.42 -36868588.34 0.0538 0.0498

Earth -105652-09-03 14:09 J -36867724.12 -36867723.91 -36867723.69 0.0524 0.0157

Moon -105652-09-03 16:04 J -36867724.05 -36867723.83 -36867723.60 0.0524 0.0132 \*

Mercury -105650-09-04 09:21 J -36866993.20 -36866993.11 -36866993.02 0.0499 0.0397

Mercury -105650-12-03 02:38 J -36866903.54 -36866903.39 -36866903.23 0.0497 0.0091

Venus -105648-02-19 20:52 J -36866458.73 -36866458.63 -36866458.52 0.0490 0.0417

Mercury -105644-11-04 20:09 J -36864739.68 -36864739.66 -36864739.63 0.0527 0.0517

Mercury -105643-02-02 12:14 J -36864650.13 -36864649.99 -36864649.84 0.0530 0.0035

Venus -105643-12-26 16:19 J -36864323.02 -36864322.82 -36864322.62 0.0537 0.0071

Mercury -105638-09-21 03:50 J -36862593.50 -36862593.34 -36862593.18 0.0497 0.0034

Mercury -105638-12-19 22:19 J -36862503.62 -36862503.57 -36862503.52 0.0495 0.0467

Venus -105637-10-26 00:14 J -36862192.69 -36862192.49 -36862192.29 0.0490 0.0092

Mars -105632-05-05 20:09 J -36860539.86 -36860539.66 -36860539.45 0.0523 0.0316

Mercury -105632-11-21 13:55 J -36860340.06 -36860339.92 -36860339.78 0.0529 0.0104

Mercury -105631-02-19 04:47 J -36860250.38 -36860250.30 -36860250.22 0.0531 0.0430

Venus -105631-08-31 04:33 J -36860057.46 -36860057.31 -36860057.16 0.0535 0.0365

Mercury -105626-07-10 04:47 J -36858283.45 -36858283.30 -36858283.15 0.0498 0.0157

Mercury -105626-10-07 23:02 J -36858193.66 -36858193.54 -36858193.43 0.0496 0.0340

Venus -105625-07-01 03:07 J -36857926.55 -36857926.37 -36857926.19 0.0491 0.0233

Mercury -105620-09-09 15:21 J -36856029.99 -36856029.86 -36856029.73 0.0528 0.0243

Mercury -105620-12-08 06:28 J -36855940.34 -36855940.23 -36855940.11 0.0531 0.0297

Mercury -105614-04-28 06:14 J -36853973.37 -36853973.24 -36853973.11 0.0499 0.0275

Mercury -105614-07-26 23:59 J -36853883.64 -36853883.50 -36853883.36 0.0496 0.0217

Mercury -105608-06-28 16:19 J -36851719.92 -36851719.82 -36851719.72 0.0528 0.0388

Mercury -105608-09-26 08:09 J -36851630.30 -36851630.16 -36851630.03 0.0531 0.0158

Venus -105607-09-03 06:57 J -36851288.37 -36851288.21 -36851288.05 0.0538 0.0311

Mars -105603-07-03 12:43 J -36849889.23 -36849888.97 -36849888.70 0.0506 0.0225

Mercury -105602-02-14 08:09 J -36849663.26 -36849663.16 -36849663.07 0.0499 0.0389

Mercury -105602-05-15 01:26 J -36849573.60 -36849573.44 -36849573.28 0.0497 0.0099

Venus -105601-07-03 10:19 J -36849158.24 -36849158.07 -36849157.90 0.0490 0.0287

Moon -105598-03-01 01:11 J -36848187.57 -36848187.45 -36848187.32 0.0501 0.0429

Earth -105598-03-01 04:19 J -36848187.42 -36848187.32 -36848187.20 0.0501 0.0445 \*

Mercury -105596-04-16 18:14 J -36847409.76 -36847409.74 -36847409.72 0.0528 0.0520

Mercury -105596-07-15 10:19 J -36847320.21 -36847320.07 -36847319.92 0.0530 0.0032

Venus -105595-05-08 22:04 J -36847022.78 -36847022.58 -36847022.38 0.0537 0.0114

Mercury -105590-03-03 02:23 J -36845263.56 -36845263.40 -36845263.24 0.0497 0.0026

Mercury -105590-05-31 20:52 J -36845173.67 -36845173.63 -36845173.58 0.0495 0.0473

Venus -105589-03-08 13:11 J -36844892.16 -36844891.95 -36844891.75 0.0490 0.0042

Earth -105586-03-06 04:33 J -36843799.55 -36843799.31 -36843799.06 0.0503 0.0011

Moon -105586-03-06 08:52 J -36843799.38 -36843799.13 -36843798.89 0.0503 0.0020 \*

Mercury -105584-05-03 12:28 J -36843010.12 -36843009.98 -36843009.83 0.0530 0.0101

Mercury -105584-08-01 03:21 J -36842920.43 -36842920.36 -36842920.28 0.0532 0.0437

Earth -105581-08-29 07:40 J -36841796.33 -36841796.18 -36841796.01 0.0526 0.0361

Moon -105581-08-29 09:35 J -36841796.27 -36841796.10 -36841795.93 0.0526 0.0353 \*

Mercury -105579-12-20 03:35 J -36840953.50 -36840953.35 -36840953.20 0.0498 0.0148

Mercury -105578-03-19 21:50 J -36840863.71 -36840863.59 -36840863.48 0.0496 0.0348

Venus -105578-11-12 16:33 J -36840625.94 -36840625.81 -36840625.67 0.0491 0.0366

Moon -105574-03-11 01:55 J -36839411.55 -36839411.42 -36839411.28 0.0504 0.0422

Earth -105574-03-11 05:45 J -36839411.37 -36839411.26 -36839411.14 0.0504 0.0440 \*



Mercury -105572-02-19 14:09 J -36838700.03 -36838699.91 -36838699.77 0.0528 0.0234

Mercury -105572-05-20 05:31 J -36838610.39 -36838610.27 -36838610.15 0.0531 0.0306

Moon -105569-09-02 14:52 J -36837409.10 -36837408.88 -36837408.66 0.0524 0.0045

Earth -105569-09-02 17:59 J -36837408.97 -36837408.75 -36837408.53 0.0524 0.0077 \*

Mars -105567-04-09 12:57 J -36836825.05 -36836824.96 -36836824.87 0.0504 0.0478

Mercury -105567-10-08 04:33 J -36836643.43 -36836643.31 -36836643.17 0.0499 0.0271

Mercury -105566-01-05 22:33 J -36836553.71 -36836553.56 -36836553.42 0.0497 0.0222

Venus -105565-03-10 20:09 J -36836123.69 -36836123.66 -36836123.61 0.0490 0.0479

Mercury -105561-12-08 15:35 J -36834389.95 -36834389.85 -36834389.74 0.0528 0.0373

Mercury -105560-03-08 07:11 J -36834300.33 -36834300.20 -36834300.06 0.0530 0.0172

Venus -105559-01-14 15:07 J -36833988.07 -36833987.87 -36833987.68 0.0537 0.0137

Earth -105557-09-07 06:57 J -36833021.22 -36833021.21 -36833021.20 0.0523 0.0521

Moon -105557-09-07 10:47 J -36833021.10 -36833021.05 -36833021.00 0.0523 0.0508

Mercury -105555-07-27 06:14 J -36832333.33 -36832333.24 -36832333.14 0.0499 0.0387

Mercury -105555-10-24 23:45 J -36832243.67 -36832243.51 -36832243.35 0.0497 0.0102

Venus -105554-11-14 23:16 J -36831857.73 -36831857.53 -36831857.34 0.0490 0.0154

Mercury -105549-09-26 16:19 J -36830079.84 -36830079.82 -36830079.80 0.0527 0.0520

Mercury -105549-12-25 08:38 J -36829990.29 -36829990.14 -36829990.00 0.0530 0.0033

Venus -105548-09-19 03:21 J -36829722.52 -36829722.36 -36829722.19 0.0536 0.0300

Mercury -105543-05-15 08:23 J -36828023.16 -36828023.15 -36828023.14 0.0500 0.0498

Mercury -105543-08-13 01:26 J -36827933.60 -36827933.44 -36827933.28 0.0497 0.0015

Mercury -105543-11-10 19:55 J -36827843.70 -36827843.67 -36827843.64 0.0495 0.0484

Venus -105542-07-21 03:21 J -36827591.55 -36827591.36 -36827591.17 0.0491 0.0169

Mercury -105537-10-13 10:47 J -36825680.19 -36825680.05 -36825679.91 0.0530 0.0100

Mercury -105536-01-11 01:40 J -36825590.51 -36825590.43 -36825590.35 0.0532 0.0437

Mercury -105531-06-01 02:38 J -36823623.54 -36823623.39 -36823623.24 0.0498 0.0138

Mercury -105531-08-29 20:38 J -36823533.75 -36823533.64 -36823533.53 0.0496 0.0358

Mercury -105525-08-01 12:57 J -36821370.09 -36821369.96 -36821369.83 0.0529 0.0228

Mercury -105525-10-30 04:19 J -36821280.44 -36821280.32 -36821280.21 0.0532 0.0313

Venus -105524-09-22 10:19 J -36820953.20 -36820953.07 -36820952.94 0.0538 0.0398

Mercury -105519-03-20 03:50 J -36819313.47 -36819313.34 -36819313.20 0.0498 0.0258  
 Mercury -105519-06-17 21:35 J -36819223.74 -36819223.60 -36819223.46 0.0496 0.0234  
 Venus -105518-07-23 09:50 J -36818823.23 -36818823.09 -36818822.94 0.0490 0.0349  
 Earth -105515-02-28 12:28 J -36817872.02 -36817871.98 -36817871.93 0.0501 0.0492  
 Moon -105515-02-28 16:33 J -36817871.89 -36817871.81 -36817871.72 0.0501 0.0464  
 Mars -105514-10-26 03:50 J -36817267.59 -36817267.34 -36817267.08 0.0521 0.0116  
 Mercury -105513-05-20 14:38 J -36817059.99 -36817059.89 -36817059.78 0.0528 0.0362  
 Mercury -105513-08-18 06:14 J -36816970.37 -36816970.24 -36816970.10 0.0530 0.0183  
 Venus -105512-05-27 23:31 J -36816687.72 -36816687.52 -36816687.32 0.0536 0.0035  
 Mercury -105507-01-06 05:02 J -36815003.39 -36815003.29 -36815003.19 0.0499 0.0379  
 Mercury -105507-04-05 22:19 J -36814913.72 -36814913.57 -36814913.41 0.0497 0.0110  
 Venus -105506-03-28 13:11 J -36814557.16 -36814556.95 -36814556.75 0.0491 0.0025  
 Moon -105503-03-05 07:26 J -36813484.44 -36813484.19 -36813483.95 0.0502 0.0039  
 Earth -105503-03-05 11:16 J -36813484.27 -36813484.03 -36813483.79 0.0502 0.0061 \*  
 Mercury -105501-03-08 16:04 J -36812749.87 -36812749.83 -36812749.79 0.0527 0.0501  
 Mercury -105501-06-06 08:09 J -36812660.31 -36812660.16 -36812660.02 0.0530 0.0048  
 Venus -105500-01-30 12:28 J -36812422.08 -36812421.98 -36812421.88 0.0535 0.0469  
 Moon -105498-08-29 11:02 J -36811481.15 -36811481.04 -36811480.91 0.0527 0.0436  
 Earth -105498-08-29 14:09 J -36811481.03 -36811480.91 -36811480.78 0.0527 0.0432 \*  
 Mercury -105496-10-25 06:57 J -36810693.23 -36810693.21 -36810693.19 0.0500 0.0493  
 Mercury -105495-01-22 23:59 J -36810603.66 -36810603.50 -36810603.34 0.0497 0.0013  
 Mercury -105495-04-22 18:28 J -36810513.75 -36810513.73 -36810513.71 0.0495 0.0490  
 Venus -105495-12-01 16:47 J -36810290.96 -36810290.80 -36810290.64 0.0491 0.0300  
 Earth -105491-03-10 05:31 J -36809096.43 -36809096.27 -36809096.09 0.0504 0.0359  
 Moon -105491-03-10 08:09 J -36809096.33 -36809096.16 -36809095.98 0.0504 0.0340 \*  
 Mercury -105489-03-25 09:07 J -36808350.26 -36808350.12 -36808349.98 0.0530 0.0098  
 Mercury -105489-06-22 23:59 J -36808260.58 -36808260.50 -36808260.42 0.0532 0.0438  
 Earth -105486-09-03 05:45 J -36807093.48 -36807093.26 -36807093.04 0.0525 0.0027  
 Moon -105486-09-03 09:35 J -36807093.32 -36807093.10 -36807092.88 0.0525 0.0006 \*  
 Mercury -105484-11-11 01:40 J -36806293.58 -36806293.43 -36806293.28 0.0498 0.0125

Mercury -105483-02-08 19:40 J -36806203.78 -36806203.68 -36806203.57 0.0496 0.0372

Mars -105478-07-30 18:43 J -36804205.77 -36804205.72 -36804205.66 0.0524 0.0509

Mercury -105477-01-12 11:16 J -36804040.16 -36804040.03 -36804039.90 0.0529 0.0229

Mercury -105477-04-11 02:38 J -36803950.51 -36803950.39 -36803950.28 0.0532 0.0313

Venus -105476-02-02 16:33 J -36803652.99 -36803652.81 -36803652.62 0.0538 0.0217

Moon -105474-09-07 16:19 J -36802705.92 -36802705.82 -36802705.72 0.0523 0.0464

Earth -105474-09-07 19:55 J -36802705.75 -36802705.67 -36802705.57 0.0523 0.0477 \*

Mercury -105472-08-30 03:07 J -36801983.51 -36801983.37 -36801983.24 0.0498 0.0245

Mercury -105472-11-27 20:38 J -36801893.77 -36801893.64 -36801893.50 0.0496 0.0247

Venus -105471-12-03 23:59 J -36801522.68 -36801522.50 -36801522.31 0.0490 0.0221

Mercury -105466-10-31 13:26 J -36799730.05 -36799729.94 -36799729.84 0.0528 0.0357

Mercury -105465-01-29 05:02 J -36799640.42 -36799640.29 -36799640.15 0.0531 0.0189

Venus -105465-10-08 07:40 J -36799387.36 -36799387.18 -36799386.99 0.0537 0.0210

Mercury -105460-06-18 04:33 J -36797673.42 -36797673.31 -36797673.21 0.0499 0.0364

Mercury -105460-09-15 21:50 J -36797583.75 -36797583.59 -36797583.44 0.0497 0.0123

Venus -105459-08-09 03:35 J -36797256.55 -36797256.35 -36797256.15 0.0491 0.0105

Mercury -105454-08-19 15:07 J -36795419.92 -36795419.87 -36795419.82 0.0527 0.0489

Mercury -105454-11-17 07:11 J -36795330.34 -36795330.20 -36795330.06 0.0530 0.0059

Mars -105449-09-26 20:38 J -36793554.94 -36793554.64 -36793554.35 0.0506 0.0019

Mercury -105448-04-06 05:45 J -36793363.29 -36793363.26 -36793363.22 0.0500 0.0484

Mercury -105448-07-04 22:47 J -36793273.71 -36793273.55 -36793273.39 0.0497 0.0008

Venus -105447-04-14 06:57 J -36792990.31 -36792990.21 -36792990.11 0.0492 0.0431

Mercury -105442-09-05 08:52 J -36791020.27 -36791020.13 -36791019.99 0.0529 0.0077

Mercury -105442-12-03 23:45 J -36790930.58 -36790930.51 -36790930.44 0.0532 0.0457

Venus -105441-10-11 11:02 J -36790618.13 -36790618.04 -36790617.95 0.0537 0.0474

Mercury -105436-04-23 00:28 J -36788963.64 -36788963.48 -36788963.33 0.0498 0.0118

Mercury -105436-07-21 18:28 J -36788873.83 -36788873.73 -36788873.63 0.0496 0.0379

Venus -105435-08-11 10:47 J -36788488.15 -36788488.05 -36788487.94 0.0489 0.0418

Mercury -105430-06-24 09:35 J -36786710.23 -36786710.10 -36786709.97 0.0529 0.0225

Mercury -105430-09-22 00:57 J -36786620.57 -36786620.46 -36786620.34 0.0531 0.0316

Venus -105429-06-15 22:47 J -36786352.75 -36786352.55 -36786352.34 0.0537 0.0036  
 Mercury -105424-02-09 02:23 J -36784653.54 -36784653.40 -36784653.27 0.0498 0.0232  
 Mercury -105424-05-09 19:55 J -36784563.80 -36784563.67 -36784563.53 0.0496 0.0261  
 Venus -105423-04-16 15:07 J -36784222.07 -36784221.87 -36784221.67 0.0490 0.0096  
 Earth -105420-03-04 14:09 J -36783169.15 -36783168.91 -36783168.68 0.0501 0.0130  
 Moon -105420-03-04 17:02 J -36783169.02 -36783168.79 -36783168.56 0.0501 0.0111 \*  
 Mercury -105418-04-12 11:31 J -36782400.12 -36782400.02 -36782399.91 0.0528 0.0357  
 Mercury -105418-07-11 03:21 J -36782310.49 -36782310.36 -36782310.22 0.0531 0.0190  
 Venus -105417-02-19 13:26 J -36782087.07 -36782086.94 -36782086.79 0.0536 0.0395  
 Earth -105415-08-29 03:21 J -36781165.45 -36781165.36 -36781165.26 0.0527 0.0476  
 Moon -105415-08-29 07:11 J -36781165.28 -36781165.20 -36781165.12 0.0527 0.0488 \*  
 Mercury -105413-11-28 03:50 J -36780343.45 -36780343.34 -36780343.23 0.0499 0.0350  
 Mercury -105412-02-25 21:07 J -36780253.78 -36780253.62 -36780253.47 0.0496 0.0138  
 Venus -105412-12-20 18:14 J -36779955.92 -36779955.74 -36779955.56 0.0491 0.0232  
 Moon -105408-03-09 13:11 J -36778781.15 -36778780.95 -36778780.73 0.0503 0.0288  
 Earth -105408-03-09 14:23 J -36778781.09 -36778780.90 -36778780.71 0.0503 0.0312 \*  
 Mercury -105406-01-29 13:40 J -36778089.98 -36778089.93 -36778089.87 0.0528 0.0485  
 Mercury -105406-04-29 05:59 J -36778000.40 -36778000.25 -36778000.11 0.0530 0.0066  
 Moon -105403-09-02 13:55 J -36776778.14 -36776777.92 -36776777.69 0.0525 0.0058  
 Earth -105403-09-02 17:45 J -36776777.98 -36776777.76 -36776777.54 0.0525 0.0021 \*  
 Mercury -105401-09-16 05:16 J -36776033.33 -36776033.28 -36776033.23 0.0500 0.0468  
 Mercury -105401-12-14 22:19 J -36775943.73 -36775943.57 -36775943.42 0.0497 0.0019  
 Mercury -105394-02-15 07:55 J -36773690.31 -36773690.17 -36773690.02 0.0529 0.0066  
 Mercury -105394-05-15 22:47 J -36773600.61 -36773600.55 -36773600.48 0.0532 0.0469  
 Venus -105393-02-22 19:55 J -36773317.84 -36773317.67 -36773317.51 0.0537 0.0305  
 Earth -105391-09-07 04:33 J -36772390.45 -36772390.31 -36772390.18 0.0523 0.0414  
 Moon -105391-09-07 07:11 J -36772390.33 -36772390.20 -36772390.06 0.0523 0.0413 \*  
 Mercury -105389-10-02 23:16 J -36771633.68 -36771633.53 -36771633.38 0.0498 0.0108  
 Mercury -105389-12-31 17:16 J -36771543.87 -36771543.78 -36771543.68 0.0496 0.0388  
 Venus -105388-12-23 00:57 J -36771187.62 -36771187.46 -36771187.29 0.0490 0.0290

Mercury -105383-12-04 09:35 J -36769380.23 -36769380.10 -36769379.97 0.0529 0.0202  
 Mercury -105382-03-04 00:57 J -36769290.57 -36769290.46 -36769290.35 0.0531 0.0337  
 Venus -105382-10-28 09:07 J -36769052.31 -36769052.12 -36769051.92 0.0536 0.0131  
 Mercury -105377-07-22 00:57 J -36767323.60 -36767323.46 -36767323.32 0.0499 0.0224  
 Mercury -105377-10-19 18:43 J -36767233.85 -36767233.72 -36767233.58 0.0496 0.0269  
 Venus -105376-08-28 05:02 J -36766921.49 -36766921.29 -36766921.08 0.0490 0.0034  
 Mercury -105371-09-22 10:04 J -36765070.18 -36765070.08 -36765069.97 0.0528 0.0352  
 Mercury -105371-12-21 01:55 J -36764980.55 -36764980.42 -36764980.28 0.0531 0.0194  
 Mercury -105365-05-10 02:52 J -36763013.49 -36763013.38 -36763013.26 0.0499 0.0337  
 Mercury -105365-08-07 20:23 J -36762923.80 -36762923.65 -36762923.50 0.0497 0.0152  
 Venus -105364-05-03 09:35 J -36762655.23 -36762655.10 -36762654.95 0.0491 0.0356  
 Mars -105359-01-19 07:26 J -36760933.45 -36760933.19 -36760932.94 0.0522 0.0083  
 Mercury -105359-07-11 11:59 J -36760760.06 -36760760.00 -36760759.95 0.0528 0.0485  
 Mercury -105359-10-09 04:04 J -36760670.47 -36760670.33 -36760670.18 0.0530 0.0067  
 Mercury -105353-02-27 04:33 J -36758703.37 -36758703.31 -36758703.25 0.0500 0.0454  
 Mercury -105353-05-26 21:35 J -36758613.76 -36758613.60 -36758613.45 0.0497 0.0033  
 Venus -105352-08-30 12:28 J -36758152.99 -36758152.98 -36758152.97 0.0489 0.0488  
 Mercury -105347-07-28 06:43 J -36756360.37 -36756360.22 -36756360.08 0.0530 0.0063  
 Mercury -105347-10-25 21:35 J -36756270.66 -36756270.60 -36756270.54 0.0532 0.0475  
 Venus -105346-07-06 03:50 J -36756017.54 -36756017.34 -36756017.15 0.0537 0.0128  
 Mercury -105341-03-14 22:47 J -36754303.71 -36754303.55 -36754303.40 0.0498 0.0092  
 Mercury -105341-06-12 16:47 J -36754213.89 -36754213.80 -36754213.71 0.0495 0.0403  
 Venus -105340-05-05 15:50 J -36753887.03 -36753886.84 -36753886.64 0.0490 0.0163  
 Moon -105337-03-03 22:19 J -36752853.81 -36752853.57 -36752853.33 0.0501 0.0158  
 Earth -105337-03-03 23:59 J -36752853.73 -36752853.50 -36752853.27 0.0501 0.0170 \*  
 Mercury -105335-05-16 08:38 J -36752050.28 -36752050.14 -36752050.00 0.0529 0.0191  
 Mercury -105335-08-13 23:59 J -36751960.61 -36751960.50 -36751960.39 0.0531 0.0348  
 Venus -105334-03-10 17:31 J -36751751.93 -36751751.77 -36751751.60 0.0536 0.0304  
 Mars -105330-03-17 05:59 J -36750284.38 -36750284.25 -36750284.11 0.0507 0.0448  
 Mercury -105329-01-01 23:45 J -36749993.65 -36749993.51 -36749993.36 0.0498 0.0216

Mercury -105329-03-31 17:31 J -36749903.90 -36749903.77 -36749903.64 0.0496 0.0278

Venus -105328-01-08 19:11 J -36749620.90 -36749620.70 -36749620.51 0.0491 0.0165

Moon -105325-03-08 22:19 J -36748465.77 -36748465.57 -36748465.36 0.0503 0.0238

Earth -105325-03-08 23:16 J -36748465.73 -36748465.53 -36748465.32 0.0503 0.0266 \*

Mercury -105323-03-04 10:04 J -36747740.19 -36747740.08 -36747739.96 0.0528 0.0328

Mercury -105323-06-02 01:55 J -36747650.55 -36747650.42 -36747650.29 0.0531 0.0216

Earth -105320-09-02 01:40 J -36746462.65 -36746462.43 -36746462.21 0.0526 0.0087

Moon -105320-09-02 04:33 J -36746462.52 -36746462.31 -36746462.10 0.0526 0.0117 \*

Mercury -105318-10-21 01:40 J -36745683.54 -36745683.43 -36745683.31 0.0499 0.0330

Mercury -105317-01-18 18:57 J -36745593.86 -36745593.71 -36745593.56 0.0497 0.0159

Venus -105317-09-13 23:31 J -36745354.54 -36745354.52 -36745354.49 0.0492 0.0488

Mercury -105312-12-21 10:33 J -36743430.12 -36743430.06 -36743430.00 0.0527 0.0479

Mercury -105311-03-21 02:38 J -36743340.53 -36743340.39 -36743340.24 0.0530 0.0071

Venus -105310-03-13 18:43 J -36742982.86 -36742982.72 -36742982.57 0.0538 0.0370

Moon -105308-09-06 13:55 J -36742075.08 -36742074.92 -36742074.75 0.0524 0.0367

Earth -105308-09-06 15:21 J -36742075.02 -36742074.86 -36742074.69 0.0524 0.0363 \*

Mercury -105306-08-09 03:50 J -36741373.41 -36741373.34 -36741373.27 0.0500 0.0442

Mercury -105306-11-06 20:38 J -36741283.80 -36741283.64 -36741283.48 0.0497 0.0043

Venus -105304-01-11 03:35 J -36740852.48 -36740852.35 -36740852.21 0.0489 0.0364

Mercury -105299-01-07 04:47 J -36739030.44 -36739030.30 -36739030.16 0.0530 0.0062

Mercury -105299-04-06 19:40 J -36738940.74 -36738940.68 -36738940.61 0.0532 0.0474

Venus -105299-11-16 09:21 J -36738717.31 -36738717.11 -36738716.91 0.0537 0.0061

Mars -105295-12-23 01:11 J -36737219.68 -36737219.45 -36737219.21 0.0505 0.0309

Mercury -105294-08-25 21:50 J -36736973.74 -36736973.59 -36736973.43 0.0498 0.0080

Mercury -105294-11-23 15:50 J -36736883.92 -36736883.84 -36736883.75 0.0495 0.0416

Venus -105293-09-16 06:28 J -36736586.43 -36736586.23 -36736586.02 0.0490 0.0036

Mercury -105288-10-26 06:57 J -36734720.34 -36734720.21 -36734720.07 0.0529 0.0189

Mercury -105287-01-23 22:33 J -36734630.67 -36734630.56 -36734630.46 0.0532 0.0352

Venus -105287-07-22 00:14 J -36734451.57 -36734451.49 -36734451.40 0.0536 0.0486

Mercury -105282-06-13 23:16 J -36732663.67 -36732663.53 -36732663.39 0.0498 0.0200

Mercury -105282-09-11 17:02 J -36732573.92 -36732573.79 -36732573.66 0.0496 0.0292

Venus -105281-05-22 10:04 J -36732320.24 -36732320.08 -36732319.91 0.0491 0.0293

Mercury -105276-08-14 08:52 J -36730410.24 -36730410.13 -36730410.01 0.0528 0.0320

Mercury -105276-11-12 00:43 J -36730320.60 -36730320.47 -36730320.34 0.0531 0.0225

Mercury -105270-04-02 00:28 J -36728353.60 -36728353.48 -36728353.36 0.0499 0.0322

Mercury -105270-06-30 17:45 J -36728263.91 -36728263.76 -36728263.61 0.0497 0.0166

Mercury -105264-06-02 10:19 J -36726100.14 -36726100.07 -36726099.99 0.0527 0.0458

Mercury -105264-08-31 02:38 J -36726010.53 -36726010.39 -36726010.25 0.0530 0.0091

Venus -105263-07-25 05:02 J -36725682.48 -36725682.29 -36725682.11 0.0537 0.0205

Mercury -105258-01-19 02:09 J -36724043.47 -36724043.41 -36724043.33 0.0500 0.0437

Mercury -105258-04-18 19:11 J -36723953.85 -36723953.70 -36723953.54 0.0497 0.0049

Venus -105257-05-24 17:16 J -36723551.96 -36723551.78 -36723551.60 0.0490 0.0232

Moon -105254-03-04 03:50 J -36722538.54 -36722538.34 -36722538.13 0.0500 0.0228

Earth -105254-03-04 04:19 J -36722538.54 -36722538.32 -36722538.11 0.0500 0.0231 \*

Mercury -105252-06-19 03:21 J -36721700.51 -36721700.36 -36721700.22 0.0529 0.0058

Mercury -105252-09-16 18:14 J -36721610.80 -36721610.74 -36721610.68 0.0532 0.0477

Venus -105251-03-29 15:21 J -36721417.03 -36721416.86 -36721416.67 0.0536 0.0246

Mercury -105246-02-04 20:52 J -36719643.78 -36719643.63 -36719643.47 0.0498 0.0069

Mercury -105246-05-05 15:07 J -36719553.95 -36719553.87 -36719553.79 0.0496 0.0428

Venus -105245-01-28 21:21 J -36719285.81 -36719285.61 -36719285.41 0.0490 0.0092

Earth -105242-03-09 02:38 J -36718150.61 -36718150.39 -36718150.17 0.0502 0.0199

Moon -105242-03-09 05:16 J -36718150.51 -36718150.28 -36718150.04 0.0502 0.0170 \*

Mars -105241-07-10 20:09 J -36717660.85 -36717660.66 -36717660.46 0.0519 0.0336

Mercury -105240-04-07 05:02 J -36717390.42 -36717390.29 -36717390.15 0.0529 0.0192

Mercury -105240-07-05 20:38 J -36717300.75 -36717300.64 -36717300.54 0.0531 0.0349

Moon -105237-09-01 10:19 J -36716147.29 -36716147.07 -36716146.85 0.0527 0.0167

Earth -105237-09-01 11:45 J -36716147.22 -36716147.01 -36716146.79 0.0527 0.0140 \*

Mercury -105235-11-23 22:19 J -36715333.72 -36715333.57 -36715333.43 0.0498 0.0190

Mercury -105234-02-21 15:50 J -36715243.96 -36715243.84 -36715243.71 0.0496 0.0303

Venus -105234-10-04 00:28 J -36715019.58 -36715019.48 -36715019.38 0.0491 0.0422

Mercury -105228-01-24 07:11 J -36713080.31 -36713080.20 -36713080.08 0.0528 0.0320

Mercury -105228-04-23 23:02 J -36712990.67 -36712990.54 -36712990.41 0.0531 0.0226

Venus -105227-04-01 22:19 J -36712647.66 -36712647.57 -36712647.46 0.0538 0.0460

Moon -105225-09-06 01:55 J -36711759.59 -36711759.42 -36711759.25 0.0524 0.0330

Earth -105225-09-06 02:23 J -36711759.58 -36711759.40 -36711759.22 0.0524 0.0312 \*

Mercury -105223-09-11 23:45 J -36711023.63 -36711023.51 -36711023.39 0.0499 0.0308

Mercury -105223-12-10 17:02 J -36710933.94 -36710933.79 -36710933.64 0.0496 0.0180

Venus -105221-01-31 03:21 J -36710517.46 -36710517.36 -36710517.26 0.0489 0.0426

Mercury -105217-11-12 09:07 J -36708770.19 -36708770.12 -36708770.05 0.0527 0.0451

Mercury -105216-02-10 01:26 J -36708680.59 -36708680.44 -36708680.30 0.0530 0.0098

Venus -105216-12-05 12:28 J -36708382.18 -36708381.98 -36708381.77 0.0537 0.0028

Mercury -105211-07-01 00:57 J -36706713.54 -36706713.46 -36706713.38 0.0500 0.0430

Mercury -105211-09-28 17:45 J -36706623.91 -36706623.76 -36706623.60 0.0497 0.0055

Venus -105210-10-06 06:28 J -36706251.44 -36706251.23 -36706251.03 0.0490 0.0098

Mars -105205-04-14 22:47 J -36704598.75 -36704598.55 -36704598.35 0.0522 0.0322

Mercury -105205-11-29 03:07 J -36704370.52 -36704370.37 -36704370.23 0.0529 0.0041

Mercury -105204-02-26 17:59 J -36704280.80 -36704280.75 -36704280.70 0.0532 0.0495

Venus -105204-08-10 01:11 J -36704116.57 -36704116.45 -36704116.32 0.0536 0.0411

Mercury -105199-07-17 19:26 J -36702313.85 -36702313.69 -36702313.54 0.0498 0.0065

Mercury -105199-10-15 13:26 J -36702224.01 -36702223.94 -36702223.86 0.0496 0.0432

Venus -105198-06-11 10:33 J -36701985.24 -36701985.06 -36701984.88 0.0491 0.0227

Mercury -105193-09-17 03:35 J -36700060.49 -36700060.35 -36700060.21 0.0528 0.0187

Mercury -105193-12-15 18:57 J -36699970.81 -36699970.71 -36699970.60 0.0531 0.0352

Mercury -105187-05-05 21:07 J -36698003.77 -36698003.62 -36698003.48 0.0499 0.0182

Mercury -105187-08-03 14:38 J -36697914.01 -36697913.89 -36697913.76 0.0496 0.0312

Mercury -105181-07-06 05:16 J -36695750.40 -36695750.28 -36695750.17 0.0528 0.0323

Mercury -105181-10-03 21:07 J -36695660.75 -36695660.62 -36695660.49 0.0531 0.0221

Venus -105180-08-13 02:52 J -36695347.56 -36695347.38 -36695347.21 0.0538 0.0266

Mars -105176-06-11 00:28 J -36693949.75 -36693949.48 -36693949.20 0.0507 0.0177

Mercury -105175-02-21 22:19 J -36693693.69 -36693693.57 -36693693.44 0.0499 0.0302



Mercury -105175-05-22 15:35 J -36693603.99 -36693603.85 -36693603.70 0.0497 0.0187

Venus -105174-06-13 16:47 J -36693216.96 -36693216.80 -36693216.63 0.0489 0.0295

Earth -105171-03-03 08:52 J -36692223.33 -36692223.13 -36692222.93 0.0500 0.0290

Moon -105171-03-03 11:02 J -36692223.24 -36692223.04 -36692222.84 0.0500 0.0294 \*

Mercury -105169-04-24 06:57 J -36691440.28 -36691440.21 -36691440.13 0.0527 0.0455

Mercury -105169-07-22 23:16 J -36691350.67 -36691350.53 -36691350.38 0.0530 0.0096

Venus -105168-04-17 17:59 J -36691081.94 -36691081.75 -36691081.56 0.0537 0.0162

Mercury -105164-12-10 23:59 J -36689383.58 -36689383.50 -36689383.42 0.0500 0.0419

Mercury -105163-03-10 16:47 J -36689293.96 -36689293.80 -36689293.64 0.0497 0.0065

Venus -105162-02-16 20:09 J -36688950.87 -36688950.66 -36688950.46 0.0490 0.0034

Moon -105159-03-08 04:33 J -36687835.54 -36687835.31 -36687835.08 0.0502 0.0112

Earth -105159-03-08 08:23 J -36687835.39 -36687835.15 -36687834.92 0.0502 0.0143 \*

Mercury -105157-05-11 01:26 J -36687040.58 -36687040.44 -36687040.29 0.0530 0.0035

Mercury -105157-08-08 16:33 J -36686950.86 -36686950.81 -36686950.77 0.0532 0.0499

Moon -105154-09-01 17:59 J -36685831.94 -36685831.75 -36685831.55 0.0527 0.0230

Earth -105154-09-01 18:14 J -36685831.94 -36685831.74 -36685831.53 0.0527 0.0210 \*

Mercury -105152-12-27 17:45 J -36684983.92 -36684983.76 -36684983.60 0.0498 0.0061

Mercury -105151-03-27 11:45 J -36684894.08 -36684894.01 -36684893.93 0.0496 0.0435

Venus -105151-10-22 23:16 J -36684684.67 -36684684.53 -36684684.40 0.0491 0.0365

Mercury -105145-02-28 03:07 J -36682730.51 -36682730.37 -36682730.23 0.0529 0.0171

Mercury -105145-05-27 18:28 J -36682640.83 -36682640.73 -36682640.63 0.0531 0.0368

Venus -105144-04-20 22:19 J -36682312.60 -36682312.57 -36682312.54 0.0538 0.0530

Earth -105142-09-06 06:57 J -36681444.41 -36681444.21 -36681444.01 0.0525 0.0233

Moon -105142-09-06 09:21 J -36681444.31 -36681444.11 -36681443.91 0.0525 0.0259 \*

Mercury -105140-10-15 19:11 J -36680673.84 -36680673.70 -36680673.55 0.0499 0.0180

Mercury -105139-01-13 12:57 J -36680584.08 -36680583.96 -36680583.84 0.0496 0.0313

Venus -105138-02-19 02:52 J -36680182.38 -36680182.38 -36680182.37 0.0489 0.0489

Mercury -105134-12-17 03:35 J -36678420.47 -36678420.35 -36678420.23 0.0528 0.0321

Mercury -105133-03-15 19:26 J -36678330.82 -36678330.69 -36678330.56 0.0530 0.0222

Venus -105133-12-24 08:23 J -36678047.35 -36678047.15 -36678046.95 0.0537 0.0078

Mercury -105128-08-03 20:52 J -36676363.75 -36676363.63 -36676363.50 0.0500 0.0297

Mercury -105128-11-01 14:09 J -36676274.05 -36676273.91 -36676273.76 0.0497 0.0193

Venus -105127-10-25 06:43 J -36675916.41 -36675916.22 -36675916.02 0.0490 0.0164

Mercury -105122-10-05 04:47 J -36674110.36 -36674110.30 -36674110.22 0.0527 0.0459

Mercury -105121-01-02 21:07 J -36674020.76 -36674020.62 -36674020.47 0.0530 0.0090

Venus -105121-08-28 21:50 J -36673781.74 -36673781.59 -36673781.44 0.0536 0.0359

Mercury -105116-05-22 22:19 J -36672053.65 -36672053.57 -36672053.48 0.0500 0.0416

Mercury -105116-08-20 15:07 J -36671964.02 -36671963.87 -36671963.71 0.0497 0.0069

Venus -105115-06-30 09:07 J -36671650.31 -36671650.12 -36671649.93 0.0491 0.0169

Mercury -105110-10-21 23:16 J -36669710.67 -36669710.53 -36669710.38 0.0530 0.0041

Mercury -105109-01-19 14:23 J -36669620.95 -36669620.90 -36669620.85 0.0532 0.0494

Mercury -105104-06-08 16:33 J -36667653.97 -36667653.81 -36667653.66 0.0498 0.0054

Mercury -105104-09-06 10:19 J -36667564.13 -36667564.07 -36667563.99 0.0496 0.0443

Mercury -105098-08-10 01:11 J -36665400.58 -36665400.45 -36665400.31 0.0529 0.0172

Mercury -105098-11-07 16:47 J -36665310.90 -36665310.80 -36665310.70 0.0531 0.0368

Venus -105097-09-01 04:19 J -36665012.47 -36665012.32 -36665012.16 0.0538 0.0346

Mercury -105092-03-27 17:31 J -36663343.92 -36663343.77 -36663343.63 0.0499 0.0179

Mercury -105092-06-25 11:02 J -36663254.16 -36663254.04 -36663253.91 0.0496 0.0314

Venus -105091-07-02 14:52 J -36662882.02 -36662881.88 -36662881.74 0.0490 0.0350

Moon -105088-03-02 10:04 J -36661908.24 -36661908.08 -36661907.91 0.0500 0.0364

Earth -105088-03-02 13:26 J -36661908.11 -36661907.94 -36661907.76 0.0500 0.0349 \*

Mars -105087-10-05 01:40 J -36661326.67 -36661326.43 -36661326.18 0.0520 0.0125

Mercury -105086-05-29 02:38 J -36661090.50 -36661090.39 -36661090.27 0.0528 0.0309

Mercury -105086-08-26 18:28 J -36661000.85 -36661000.73 -36661000.60 0.0531 0.0236

Venus -105085-05-06 17:16 J -36660746.98 -36660746.78 -36660746.58 0.0536 0.0095

Mercury -105080-01-13 18:57 J -36659033.83 -36659033.71 -36659033.58 0.0499 0.0297

Mercury -105080-04-13 12:14 J -36658944.14 -36658943.99 -36658943.84 0.0497 0.0192

Venus -105079-03-07 18:43 J -36658615.93 -36658615.72 -36658615.52 0.0491 0.0023

Earth -105076-03-07 10:19 J -36657520.31 -36657520.07 -36657519.83 0.0501 0.0075

Moon -105076-03-07 14:23 J -36657520.14 -36657519.90 -36657519.66 0.0501 0.0047 \*

Mercury -105074-03-17 03:07 J -36656780.44 -36656780.37 -36656780.29 0.0527 0.0457  
 Mercury -105074-06-14 19:26 J -36656690.83 -36656690.69 -36656690.55 0.0529 0.0089  
 Earth -105071-08-31 19:11 J -36655516.88 -36655516.70 -36655516.51 0.0528 0.0301  
 Moon -105071-08-31 21:07 J -36655516.80 -36655516.62 -36655516.43 0.0528 0.0310 \*  
 Mercury -105069-11-01 20:23 J -36654723.73 -36654723.65 -36654723.56 0.0500 0.0416  
 Mercury -105068-01-30 13:26 J -36654634.10 -36654633.94 -36654633.78 0.0498 0.0070  
 Venus -105068-11-10 22:19 J -36654349.72 -36654349.57 -36654349.41 0.0492 0.0305  
 Earth -105064-03-12 07:26 J -36653132.20 -36653132.19 -36653132.17 0.0502 0.0501  
 Mercury -105062-04-02 21:07 J -36652380.77 -36652380.62 -36652380.48 0.0529 0.0048  
 Mercury -105062-07-01 11:59 J -36652291.05 -36652291.00 -36652290.94 0.0532 0.0487  
 Moon -105059-09-05 06:43 J -36651129.42 -36651129.22 -36651129.01 0.0526 0.0183  
 Earth -105059-09-05 10:04 J -36651129.29 -36651129.08 -36651128.87 0.0526 0.0154 \*  
 Mercury -105057-11-18 14:38 J -36650324.05 -36650323.89 -36650323.74 0.0498 0.0054  
 Mercury -105056-02-16 08:23 J -36650234.21 -36650234.15 -36650234.07 0.0496 0.0443  
 Mars -105051-07-09 11:16 J -36648265.10 -36648265.03 -36648264.94 0.0522 0.0494  
 Mercury -105050-01-19 22:47 J -36648070.68 -36648070.55 -36648070.41 0.0529 0.0180  
 Mercury -105050-04-19 14:23 J -36647981.00 -36647980.90 -36647980.80 0.0531 0.0361  
 Venus -105049-01-13 08:23 J -36647712.34 -36647712.15 -36647711.95 0.0537 0.0151  
 Mercury -105045-09-06 15:50 J -36646013.98 -36646013.84 -36646013.69 0.0499 0.0174  
 Mercury -105045-12-05 09:35 J -36645924.23 -36645924.10 -36645923.98 0.0496 0.0318  
 Venus -105044-11-13 03:21 J -36645581.54 -36645581.36 -36645581.17 0.0490 0.0214  
 Mercury -105039-11-08 00:43 J -36643760.59 -36643760.47 -36643760.35 0.0528 0.0311  
 Mercury -105038-02-05 16:33 J -36643670.93 -36643670.81 -36643670.68 0.0531 0.0233  
 Venus -105038-09-17 22:33 J -36643446.73 -36643446.56 -36643446.39 0.0536 0.0284  
 Mercury -105033-06-25 17:02 J -36641703.92 -36641703.79 -36641703.67 0.0499 0.0298  
 Mercury -105033-09-23 10:04 J -36641614.22 -36641614.08 -36641613.93 0.0497 0.0190  
 Venus -105032-07-19 05:59 J -36641315.45 -36641315.25 -36641315.05 0.0491 0.0120  
 Mercury -105027-08-27 02:09 J -36639450.49 -36639450.41 -36639450.34 0.0527 0.0448  
 Mercury -105027-11-24 18:28 J -36639360.87 -36639360.73 -36639360.59 0.0530 0.0099  
 Mars -105022-09-04 12:57 J -36637616.26 -36637615.96 -36637615.67 0.0507 0.0021

Mercury -105021-04-13 18:28 J -36637393.81 -36637393.73 -36637393.64 0.0500 0.0417  
 Mercury -105021-07-12 11:16 J -36637304.18 -36637304.03 -36637303.87 0.0498 0.0068  
 Venus -105020-03-24 09:50 J -36637049.17 -36637049.09 -36637049.00 0.0492 0.0449  
 Mercury -105015-09-12 19:11 J -36635050.84 -36635050.70 -36635050.55 0.0529 0.0047  
 Mercury -105015-12-11 10:19 J -36634961.13 -36634961.07 -36634961.02 0.0531 0.0486  
 Venus -105014-09-20 22:33 J -36634677.69 -36634677.56 -36634677.42 0.0537 0.0389  
 Mercury -105009-04-30 12:28 J -36632994.13 -36632993.98 -36632993.82 0.0499 0.0055  
 Mercury -105009-07-29 06:28 J -36632904.29 -36632904.23 -36632904.15 0.0496 0.0443  
 Venus -105008-07-21 13:11 J -36632547.07 -36632546.95 -36632546.84 0.0490 0.0407  
 Earth -105005-03-01 13:26 J -36631593.06 -36631592.94 -36631592.81 0.0499 0.0421  
 Moon -105005-03-01 17:31 J -36631592.88 -36631592.77 -36631592.65 0.0499 0.0440 \*  
 Mercury -105003-07-01 20:38 J -36630740.78 -36630740.64 -36630740.50 0.0528 0.0185  
 Mercury -105003-09-29 11:59 J -36630651.10 -36630651.00 -36630650.89 0.0531 0.0353  
 Venus -105002-05-26 11:45 J -36630412.21 -36630412.01 -36630411.81 0.0536 0.0050

# 105TH MILLENNIUM BCE

This is a list of transits visible from Jupiter in the 105th millennium BCE.

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-104997-02-17 13:40 J	-36628684.07	-36628683.93	-36628683.78	0.0499	0.0176		
Mercury	-104997-05-17 07:11 J	-36628594.32	-36628594.20	-36628594.07	0.0496	0.0316		

Venus -104996-03-26 15:07 J -36628281.07 -36628280.87 -36628280.67 0.0490 0.0073  
 Moon -104993-03-06 03:50 J -36627205.59 -36627205.34 -36627205.10 0.0500 0.0041  
 Earth -104993-03-06 07:55 J -36627205.42 -36627205.17 -36627204.93 0.0500 0.0011 \*  
 Mercury -104991-04-19 22:04 J -36626430.69 -36626430.58 -36626430.46 0.0528 0.0321  
 Mercury -104991-07-18 14:09 J -36626341.04 -36626340.91 -36626340.78 0.0531 0.0223  
 Venus -104990-01-29 01:40 J -36626146.51 -36626146.43 -36626146.34 0.0536 0.0482  
 Moon -104988-08-30 21:35 J -36625201.75 -36625201.60 -36625201.45 0.0528 0.0381  
 Earth -104988-08-31 00:28 J -36625201.63 -36625201.48 -36625201.31 0.0528 0.0376 \*  
 Mercury -104986-12-06 15:07 J -36624373.99 -36624373.87 -36624373.74 0.0499 0.0296  
 Mercury -104985-03-05 08:23 J -36624284.30 -36624284.15 -36624284.00 0.0497 0.0193  
 Venus -104985-11-29 18:14 J -36624014.91 -36624014.74 -36624014.56 0.0491 0.0258  
 Earth -104981-03-11 06:14 J -36622817.37 -36622817.24 -36622817.11 0.0502 0.0420  
 Moon -104981-03-11 09:07 J -36622817.23 -36622817.12 -36622817.00 0.0502 0.0434 \*  
 Mercury -104979-02-05 23:45 J -36622120.58 -36622120.51 -36622120.43 0.0527 0.0454  
 Mercury -104979-05-06 16:19 J -36622030.96 -36622030.82 -36622030.68 0.0530 0.0095  
 Earth -104976-09-04 13:26 J -36620814.16 -36620813.94 -36620813.71 0.0526 0.0072  
 Moon -104976-09-04 17:16 J -36620813.99 -36620813.78 -36620813.55 0.0526 0.0108 \*  
 Mercury -104974-09-24 16:19 J -36620063.90 -36620063.82 -36620063.73 0.0500 0.0418  
 Mercury -104974-12-23 09:07 J -36619974.27 -36619974.12 -36619973.96 0.0498 0.0066  
 Mercury -104967-02-22 17:59 J -36617720.90 -36617720.75 -36617720.61 0.0529 0.0041  
 Mercury -104967-05-23 09:07 J -36617631.17 -36617631.12 -36617631.07 0.0532 0.0493  
 Venus -104966-02-01 06:28 J -36617377.41 -36617377.23 -36617377.04 0.0537 0.0213  
 Earth -104964-09-09 01:11 J -36616426.49 -36616426.45 -36616426.39 0.0524 0.0509  
 Mercury -104962-10-11 10:19 J -36615664.22 -36615664.07 -36615663.91 0.0498 0.0058  
 Mercury -104961-01-09 04:19 J -36615574.39 -36615574.32 -36615574.25 0.0496 0.0439  
 Venus -104961-12-01 23:59 J -36615246.67 -36615246.50 -36615246.32 0.0490 0.0264  
 Mercury -104956-12-11 18:43 J -36613410.85 -36613410.72 -36613410.58 0.0528 0.0186  
 Mercury -104955-03-11 10:19 J -36613321.18 -36613321.07 -36613320.97 0.0530 0.0352  
 Venus -104955-10-06 16:47 J -36613111.98 -36613111.80 -36613111.62 0.0536 0.0240  
 Mercury -104950-07-30 11:31 J -36611354.16 -36611354.02 -36611353.87 0.0499 0.0180

Mercury -104950-10-28 05:02 J -36611264.41 -36611264.29 -36611264.16 0.0497 0.0314

Venus -104949-08-07 03:21 J -36610980.57 -36610980.36 -36610980.16 0.0491 0.0067

Mercury -104944-09-29 19:55 J -36609100.78 -36609100.67 -36609100.55 0.0527 0.0326

Mercury -104944-12-28 11:59 J -36609011.13 -36609011.00 -36609010.87 0.0530 0.0217

Mercury -104938-05-18 12:57 J -36607044.09 -36607043.96 -36607043.84 0.0500 0.0300

Mercury -104938-08-16 05:59 J -36606954.40 -36606954.25 -36606954.10 0.0497 0.0188

Venus -104937-04-12 05:45 J -36606714.38 -36606714.26 -36606714.14 0.0492 0.0401

Mars -104933-12-28 06:28 J -36604993.49 -36604993.23 -36604992.97 0.0520 0.0023

Mercury -104932-07-18 21:07 J -36604790.68 -36604790.62 -36604790.55 0.0527 0.0465

Mercury -104932-10-16 13:40 J -36604701.07 -36604700.93 -36604700.79 0.0530 0.0084

Venus -104931-10-09 20:52 J -36604342.74 -36604342.63 -36604342.53 0.0538 0.0454

Mercury -104926-03-06 14:38 J -36602733.97 -36602733.89 -36602733.81 0.0500 0.0417

Mercury -104926-06-04 07:11 J -36602644.35 -36602644.20 -36602644.04 0.0498 0.0068

Venus -104925-08-09 08:23 J -36602212.22 -36602212.15 -36602212.07 0.0489 0.0452

Mercury -104920-08-04 15:35 J -36600390.99 -36600390.85 -36600390.70 0.0529 0.0048

Mercury -104920-11-02 06:57 J -36600301.27 -36600301.21 -36600301.16 0.0532 0.0488

Venus -104919-06-14 11:02 J -36600077.24 -36600077.04 -36600076.84 0.0537 0.0021

Mercury -104914-03-23 08:09 J -36598334.31 -36598334.16 -36598334.00 0.0498 0.0060

Mercury -104914-06-21 02:09 J -36598244.49 -36598244.41 -36598244.34 0.0496 0.0435

Venus -104913-04-14 11:02 J -36597946.24 -36597946.04 -36597945.84 0.0490 0.0119

Earth -104910-03-06 08:38 J -36596890.38 -36596890.14 -36596889.90 0.0500 0.0083

Moon -104910-03-06 11:59 J -36596890.23 -36596890.00 -36596889.76 0.0500 0.0109 \*

Mercury -104908-05-23 17:16 J -36596080.92 -36596080.78 -36596080.64 0.0528 0.0182

Mercury -104908-08-21 08:52 J -36595991.23 -36595991.13 -36595991.02 0.0531 0.0357

Venus -104907-02-16 23:45 J -36595811.63 -36595811.51 -36595811.38 0.0535 0.0421

Earth -104905-08-30 00:57 J -36594886.56 -36594886.46 -36594886.36 0.0528 0.0471

Moon -104905-08-30 04:47 J -36594886.40 -36594886.30 -36594886.20 0.0528 0.0466 \*

Mercury -104902-01-09 09:21 J -36594024.25 -36594024.11 -36594023.96 0.0499 0.0182

Mercury -104902-04-09 02:52 J -36593934.50 -36593934.38 -36593934.25 0.0497 0.0310

Venus -104902-12-19 14:23 J -36593680.08 -36593679.90 -36593679.71 0.0491 0.0212

Moon -104898-03-11 05:02 J -36592502.45 -36592502.29 -36592502.10 0.0502 0.0361  
 Earth -104898-03-11 06:57 J -36592502.38 -36592502.21 -36592502.03 0.0502 0.0347 \*  
 Mercury -104896-03-11 18:14 J -36591770.86 -36591770.74 -36591770.63 0.0527 0.0325  
 Mercury -104896-06-09 10:04 J -36591681.21 -36591681.08 -36591680.95 0.0530 0.0217  
 Moon -104893-09-03 06:57 J -36590499.43 -36590499.21 -36590498.98 0.0527 0.0004  
 Earth -104893-09-03 10:47 J -36590499.27 -36590499.05 -36590498.82 0.0527 0.0035 \*  
 Mercury -104891-10-28 10:33 J -36589714.18 -36589714.06 -36589713.93 0.0500 0.0304  
 Mercury -104890-01-26 03:50 J -36589624.49 -36589624.34 -36589624.19 0.0498 0.0185  
 Mercury -104885-12-28 19:11 J -36587460.76 -36587460.70 -36587460.63 0.0526 0.0467  
 Mercury -104884-03-28 11:31 J -36587371.16 -36587371.02 -36587370.87 0.0529 0.0081  
 Venus -104883-02-20 00:28 J -36587042.65 -36587042.48 -36587042.30 0.0537 0.0256  
 Earth -104881-09-08 00:28 J -36586111.61 -36586111.48 -36586111.34 0.0525 0.0415  
 Moon -104881-09-08 03:50 J -36586111.46 -36586111.34 -36586111.22 0.0525 0.0430 \*  
 Mercury -104879-08-16 11:59 J -36585404.07 -36585404.00 -36585403.91 0.0500 0.0423  
 Mercury -104879-11-14 04:47 J -36585314.45 -36585314.30 -36585314.14 0.0498 0.0062  
 Venus -104878-12-21 19:26 J -36584911.84 -36584911.69 -36584911.53 0.0490 0.0311  
 Mercury -104872-01-14 12:57 J -36583061.10 -36583060.96 -36583060.81 0.0529 0.0060  
 Mercury -104872-04-14 04:18 J -36582971.38 -36582971.32 -36582971.26 0.0532 0.0478  
 Venus -104872-10-25 14:09 J -36582777.10 -36582776.91 -36582776.72 0.0536 0.0180  
 Mars -104868-11-27 19:40 J -36581282.95 -36581282.68 -36581282.41 0.0507 0.0215  
 Mercury -104867-09-02 06:14 J -36581004.39 -36581004.24 -36581004.08 0.0498 0.0060  
 Mercury -104867-12-01 00:14 J -36580914.57 -36580914.49 -36580914.42 0.0496 0.0436  
 Venus -104866-08-26 23:02 J -36580645.74 -36580645.54 -36580645.33 0.0491 0.0020  
 Mercury -104861-11-02 14:52 J -36578751.01 -36578750.88 -36578750.74 0.0528 0.0189  
 Mercury -104860-01-31 06:42 J -36578661.33 -36578661.22 -36578661.12 0.0531 0.0351  
 Mercury -104855-06-21 07:26 J -36576694.34 -36576694.19 -36576694.05 0.0499 0.0183  
 Mercury -104855-09-19 00:42 J -36576604.59 -36576604.47 -36576604.34 0.0496 0.0308  
 Venus -104854-05-02 01:54 J -36576379.56 -36576379.42 -36576379.28 0.0492 0.0355  
 Mercury -104849-08-21 16:33 J -36574440.92 -36574440.81 -36574440.69 0.0527 0.0324  
 Mercury -104849-11-19 08:38 J -36574351.27 -36574351.14 -36574351.01 0.0530 0.0220

Venus -104848-10-28 19:11 J -36574007.74 -36574007.70 -36574007.65 0.0538 0.0519  
 Mercury -104843-04-09 08:38 J -36572384.26 -36572384.14 -36572384.01 0.0500 0.0304  
 Mercury -104843-07-08 01:40 J -36572294.57 -36572294.43 -36572294.28 0.0497 0.0184  
 Mercury -104837-06-09 17:30 J -36570130.84 -36570130.77 -36570130.70 0.0526 0.0465  
 Mercury -104837-09-07 09:50 J -36570041.23 -36570041.09 -36570040.94 0.0529 0.0083  
 Venus -104836-07-03 06:28 J -36569742.43 -36569742.23 -36569742.03 0.0536 0.0070  
 Mercury -104831-01-26 10:04 J -36568074.16 -36568074.08 -36568074.00 0.0501 0.0426  
 Mercury -104831-04-26 02:38 J -36567984.54 -36567984.39 -36567984.23 0.0498 0.0059  
 Venus -104830-05-04 07:40 J -36567611.36 -36567611.18 -36567610.98 0.0491 0.0172  
 Moon -104827-03-05 05:59 J -36566575.49 -36566575.25 -36566575.02 0.0499 0.0183  
 Earth -104827-03-05 08:23 J -36566575.38 -36566575.15 -36566574.92 0.0499 0.0158 \*  
 Mercury -104825-06-26 11:16 J -36565731.17 -36565731.03 -36565730.88 0.0528 0.0058  
 Mercury -104825-09-24 02:23 J -36565641.46 -36565641.40 -36565641.34 0.0531 0.0476  
 Venus -104824-03-07 18:42 J -36565476.86 -36565476.72 -36565476.57 0.0535 0.0373  
 Mercury -104819-02-12 03:50 J -36563674.49 -36563674.34 -36563674.18 0.0499 0.0065  
 Mercury -104819-05-12 21:35 J -36563584.67 -36563584.60 -36563584.52 0.0496 0.0432  
 Venus -104818-01-07 10:18 J -36563345.26 -36563345.07 -36563344.88 0.0491 0.0163  
 Earth -104815-03-10 01:26 J -36562187.65 -36562187.44 -36562187.23 0.0501 0.0249  
 Moon -104815-03-10 01:40 J -36562187.63 -36562187.43 -36562187.24 0.0501 0.0268 \*  
 Mars -104814-06-19 03:21 J -36561721.49 -36561721.36 -36561721.22 0.0518 0.0438  
 Mercury -104813-04-14 12:28 J -36561421.12 -36561420.98 -36561420.85 0.0528 0.0198  
 Mercury -104813-07-13 04:04 J -36561331.43 -36561331.33 -36561331.22 0.0531 0.0342  
 Earth -104810-09-03 16:18 J -36560184.04 -36560183.82 -36560183.60 0.0528 0.0108  
 Moon -104810-09-03 19:40 J -36560183.90 -36560183.68 -36560183.46 0.0528 0.0074 \*  
 Mercury -104808-12-01 05:30 J -36559364.41 -36559364.27 -36559364.12 0.0499 0.0181  
 Mercury -104807-02-28 23:02 J -36559274.66 -36559274.54 -36559274.42 0.0497 0.0310  
 Mercury -104801-02-01 14:09 J -36557111.02 -36557110.91 -36557110.79 0.0528 0.0331  
 Mercury -104801-05-01 06:14 J -36557021.37 -36557021.24 -36557021.10 0.0530 0.0216  
 Venus -104800-03-10 23:59 J -36556707.65 -36556707.50 -36556707.34 0.0537 0.0328  
 Moon -104798-09-08 04:04 J -36555796.50 -36555796.33 -36555796.15 0.0525 0.0346



Earth -104798-09-08 06:14 J -36555796.41 -36555796.24 -36555796.07 0.0525 0.0340 \*  
 Mercury -104796-09-19 06:42 J -36555054.34 -36555054.22 -36555054.09 0.0500 0.0304  
 Mercury -104796-12-17 23:45 J -36554964.65 -36554964.51 -36554964.36 0.0497 0.0184  
 Venus -104794-01-09 16:18 J -36554576.96 -36554576.82 -36554576.69 0.0490 0.0360  
 Mercury -104790-11-20 15:50 J -36552800.91 -36552800.84 -36552800.77 0.0527 0.0464  
 Mercury -104789-02-18 08:23 J -36552711.29 -36552711.15 -36552711.01 0.0530 0.0084  
 Venus -104789-11-13 13:40 J -36552442.13 -36552441.93 -36552441.73 0.0536 0.0111  
 Mercury -104784-07-08 08:23 J -36550744.23 -36550744.15 -36550744.07 0.0500 0.0423  
 Mercury -104784-10-06 00:57 J -36550654.62 -36550654.46 -36550654.30 0.0498 0.0060  
 Venus -104783-09-14 19:40 J -36550310.89 -36550310.68 -36550310.48 0.0491 0.0029  
 Mars -104778-03-23 23:16 J -36548659.76 -36548659.53 -36548659.29 0.0520 0.0204  
 Mercury -104778-12-07 09:50 J -36548401.24 -36548401.09 -36548400.95 0.0528 0.0056  
 Mercury -104777-03-06 00:57 J -36548311.52 -36548311.46 -36548311.40 0.0531 0.0479  
 Mercury -104772-07-25 01:54 J -36546344.58 -36546344.42 -36546344.26 0.0499 0.0065  
 Mercury -104772-10-22 19:40 J -36546254.75 -36546254.68 -36546254.60 0.0496 0.0431  
 Venus -104771-05-20 22:47 J -36546044.71 -36546044.55 -36546044.39 0.0492 0.0304  
 Mercury -104766-09-25 11:02 J -36544091.18 -36544091.04 -36544090.90 0.0528 0.0194  
 Mercury -104766-12-24 02:38 J -36544001.50 -36544001.39 -36544001.28 0.0530 0.0345  
 Mercury -104760-05-13 03:21 J -36542034.50 -36542034.36 -36542034.21 0.0499 0.0184  
 Mercury -104760-08-10 20:38 J -36541944.76 -36541944.64 -36541944.51 0.0497 0.0308  
 Mercury -104754-07-14 11:45 J -36539781.12 -36539781.01 -36539780.89 0.0527 0.0338  
 Mercury -104754-10-12 04:04 J -36539691.46 -36539691.33 -36539691.20 0.0530 0.0208  
 Venus -104753-07-22 03:50 J -36539407.54 -36539407.34 -36539407.15 0.0537 0.0131  
 Mars -104749-05-15 20:52 J -36538013.85 -36538013.63 -36538013.40 0.0509 0.0330  
 Mercury -104748-03-01 05:16 J -36537724.40 -36537724.28 -36537724.16 0.0500 0.0299  
 Mercury -104748-05-29 22:18 J -36537634.72 -36537634.57 -36537634.43 0.0497 0.0188  
 Venus -104747-05-23 05:02 J -36537276.48 -36537276.29 -36537276.11 0.0490 0.0224  
 Earth -104744-03-04 05:30 J -36536260.48 -36536260.27 -36536260.06 0.0499 0.0247  
 Moon -104744-03-04 06:28 J -36536260.42 -36536260.23 -36536260.03 0.0499 0.0266 \*  
 Mercury -104742-05-02 13:26 J -36535471.00 -36535470.94 -36535470.87 0.0527 0.0471

Mercury -104742-07-31 06:14 J -36535381.39 -36535381.24 -36535381.10 0.0530 0.0079  
 Venus -104741-03-26 18:14 J -36535141.90 -36535141.74 -36535141.57 0.0536 0.0304  
 Mercury -104737-12-18 06:42 J -36533414.30 -36533414.22 -36533414.14 0.0500 0.0419  
 Mercury -104736-03-17 23:16 J -36533324.69 -36533324.53 -36533324.37 0.0498 0.0063  
 Venus -104735-01-26 07:40 J -36533010.38 -36533010.18 -36533009.98 0.0491 0.0111  
 Earth -104732-03-09 04:18 J -36531872.54 -36531872.32 -36531872.09 0.0501 0.0182  
 Moon -104732-03-09 05:59 J -36531872.47 -36531872.25 -36531872.01 0.0501 0.0207 \*  
 Mercury -104730-05-19 08:09 J -36531071.30 -36531071.16 -36531071.01 0.0529 0.0052  
 Mercury -104730-08-16 23:30 J -36530981.57 -36530981.52 -36530981.46 0.0532 0.0484  
 Moon -104727-09-02 18:42 J -36529868.94 -36529868.72 -36529868.50 0.0528 0.0156  
 Earth -104727-09-02 20:52 J -36529868.83 -36529868.63 -36529868.42 0.0528 0.0187 \*  
 Mercury -104724-01-04 00:28 J -36529014.64 -36529014.48 -36529014.32 0.0498 0.0060  
 Mercury -104724-04-03 18:14 J -36528924.82 -36528924.74 -36528924.67 0.0496 0.0434  
 Venus -104724-10-01 11:16 J -36528744.11 -36528744.03 -36528743.94 0.0492 0.0443  
 Mercury -104718-03-07 09:35 J -36526761.24 -36526761.10 -36526760.96 0.0528 0.0188  
 Mercury -104718-06-05 01:11 J -36526671.55 -36526671.45 -36526671.34 0.0530 0.0351  
 Venus -104717-03-29 21:50 J -36526372.72 -36526372.59 -36526372.45 0.0537 0.0391  
 Earth -104715-09-07 06:57 J -36525481.40 -36525481.21 -36525481.01 0.0526 0.0249  
 Moon -104715-09-07 07:26 J -36525481.37 -36525481.19 -36525480.99 0.0526 0.0247 \*  
 Mars -104713-02-21 00:42 J -36524949.64 -36524949.47 -36524949.28 0.0507 0.0399  
 Mercury -104713-10-23 01:40 J -36524704.58 -36524704.43 -36524704.29 0.0499 0.0183  
 Mercury -104712-01-20 18:57 J -36524614.83 -36524614.71 -36524614.59 0.0497 0.0308  
 Venus -104711-01-28 13:54 J -36524242.02 -36524241.92 -36524241.81 0.0490 0.0417  
 Mercury -104707-12-24 10:47 J -36522451.16 -36522451.05 -36522450.93 0.0527 0.0328  
 Mercury -104706-03-24 02:52 J -36522361.51 -36522361.38 -36522361.25 0.0530 0.0216  
 Venus -104706-12-03 10:33 J -36522107.26 -36522107.06 -36522106.86 0.0536 0.0053  
 Mercury -104701-08-11 03:21 J -36520394.49 -36520394.36 -36520394.24 0.0500 0.0300  
 Mercury -104701-11-08 20:09 J -36520304.80 -36520304.66 -36520304.51 0.0497 0.0187  
 Venus -104700-10-03 17:02 J -36519975.99 -36519975.79 -36519975.59 0.0491 0.0085  
 Mercury -104695-10-12 11:30 J -36518141.09 -36518141.02 -36518140.96 0.0527 0.0475

Mercury -104694-01-10 04:04 J -36518051.47 -36518051.33 -36518051.19 0.0530 0.0074

Venus -104694-08-07 22:18 J -36517841.64 -36517841.57 -36517841.50 0.0535 0.0498

Mercury -104689-05-30 05:16 J -36516084.36 -36516084.28 -36516084.19 0.0500 0.0413

Mercury -104689-08-27 21:50 J -36515994.74 -36515994.59 -36515994.43 0.0498 0.0070

Venus -104688-06-08 21:06 J -36515709.79 -36515709.62 -36515709.44 0.0491 0.0245

Mercury -104683-10-29 05:59 J -36513741.39 -36513741.25 -36513741.10 0.0529 0.0057

Mercury -104682-01-26 21:35 J -36513651.66 -36513651.60 -36513651.54 0.0532 0.0481

Mercury -104677-06-15 23:02 J -36511684.69 -36511684.54 -36511684.38 0.0498 0.0053

Mercury -104677-09-13 16:47 J -36511594.87 -36511594.80 -36511594.73 0.0496 0.0440

Mercury -104671-08-17 08:09 J -36509431.30 -36509431.16 -36509431.03 0.0528 0.0185

Mercury -104671-11-14 23:45 J -36509341.61 -36509341.51 -36509341.40 0.0531 0.0356

Venus -104670-08-11 05:30 J -36509072.45 -36509072.27 -36509072.08 0.0537 0.0212

Mercury -104665-04-04 00:28 J -36507374.63 -36507374.48 -36507374.34 0.0499 0.0174

Mercury -104665-07-02 17:45 J -36507284.88 -36507284.76 -36507284.64 0.0497 0.0316

Venus -104664-06-11 03:06 J -36506941.54 -36506941.37 -36506941.20 0.0490 0.0281

Earth -104661-03-03 11:30 J -36505945.21 -36505945.02 -36505944.82 0.0499 0.0301

Moon -104661-03-03 12:28 J -36505945.17 -36505944.98 -36505944.78 0.0499 0.0309 \*

Mars -104660-09-12 05:59 J -36505387.48 -36505387.25 -36505387.02 0.0518 0.0235

Mercury -104659-06-05 09:35 J -36505121.22 -36505121.10 -36505120.98 0.0527 0.0320

Mercury -104659-09-03 01:40 J -36505031.56 -36505031.43 -36505031.30 0.0530 0.0224

Venus -104658-04-15 18:14 J -36504806.93 -36504806.74 -36504806.56 0.0535 0.0232

Mercury -104653-01-22 01:40 J -36503064.55 -36503064.43 -36503064.31 0.0500 0.0296

Mercury -104653-04-20 18:28 J -36502974.87 -36502974.73 -36502974.58 0.0498 0.0191

Venus -104652-02-14 06:14 J -36502675.45 -36502675.24 -36502675.04 0.0491 0.0052

Moon -104649-03-08 05:59 J -36501557.48 -36501557.25 -36501557.03 0.0500 0.0149

Earth -104649-03-08 09:06 J -36501557.36 -36501557.12 -36501556.89 0.0500 0.0121 \*

Mercury -104647-03-24 10:33 J -36500811.12 -36500811.06 -36500810.98 0.0526 0.0461

Mercury -104647-06-22 03:21 J -36500721.51 -36500721.36 -36500721.22 0.0529 0.0088

Earth -104644-09-02 00:14 J -36499553.68 -36499553.49 -36499553.29 0.0528 0.0270

Moon -104644-09-02 01:11 J -36499553.64 -36499553.45 -36499553.26 0.0528 0.0243 \*

Mercury -104642-11-10 03:35 J -36498754.44 -36498754.35 -36498754.27 0.0501 0.0411

Mercury -104641-02-07 20:09 J -36498664.82 -36498664.66 -36498664.51 0.0498 0.0072

Venus -104641-10-20 10:04 J -36498409.21 -36498409.08 -36498408.96 0.0492 0.0383

Mercury -104635-04-10 04:04 J -36496411.47 -36496411.33 -36496411.18 0.0529 0.0059

Mercury -104635-07-08 19:40 J -36496321.74 -36496321.68 -36496321.62 0.0532 0.0479

Venus -104634-04-18 20:23 J -36496037.75 -36496037.65 -36496037.54 0.0538 0.0458

Earth -104632-09-06 16:47 J -36495166.01 -36495165.80 -36495165.59 0.0527 0.0191

Moon -104632-09-06 18:28 J -36495165.95 -36495165.73 -36495165.51 0.0527 0.0176 \*

Mercury -104630-11-26 21:50 J -36494354.74 -36494354.59 -36494354.43 0.0498 0.0046

Mercury -104629-02-24 15:35 J -36494264.91 -36494264.85 -36494264.78 0.0496 0.0450

Venus -104628-02-16 13:26 J -36493906.97 -36493906.94 -36493906.90 0.0489 0.0481

Mars -104624-06-16 14:23 J -36492326.07 -36492325.90 -36492325.72 0.0520 0.0375

Mercury -104623-01-27 05:59 J -36492101.38 -36492101.25 -36492101.11 0.0528 0.0189

Mercury -104623-04-26 21:50 J -36492011.69 -36492011.59 -36492011.48 0.0531 0.0354

Venus -104623-12-22 11:02 J -36491772.24 -36491772.04 -36491771.84 0.0537 0.0023

Mercury -104618-09-14 23:16 J -36490044.67 -36490044.53 -36490044.38 0.0499 0.0165

Mercury -104618-12-13 16:33 J -36489954.93 -36489954.81 -36489954.69 0.0496 0.0325

Venus -104617-10-22 16:47 J -36489641.00 -36489640.80 -36489640.61 0.0490 0.0148

Mercury -104612-11-15 08:09 J -36487791.28 -36487791.16 -36487791.04 0.0528 0.0317

Mercury -104611-02-13 00:14 J -36487701.61 -36487701.49 -36487701.35 0.0530 0.0229

Venus -104611-08-27 01:26 J -36487506.57 -36487506.44 -36487506.31 0.0535 0.0413

Mercury -104606-07-04 00:42 J -36485734.59 -36485734.47 -36485734.34 0.0500 0.0285

Mercury -104606-10-01 17:45 J -36485644.91 -36485644.76 -36485644.62 0.0497 0.0202

Venus -104605-06-27 20:09 J -36485374.84 -36485374.66 -36485374.47 0.0491 0.0186

Mercury -104600-09-03 09:35 J -36483481.17 -36483481.10 -36483481.02 0.0526 0.0451

Mercury -104600-12-02 02:09 J -36483391.55 -36483391.41 -36483391.26 0.0529 0.0098

Mars -104595-08-09 17:59 J -36481680.04 -36481679.75 -36481679.46 0.0509 0.0107

Mercury -104594-04-22 02:09 J -36481424.50 -36481424.41 -36481424.32 0.0501 0.0405

Mercury -104594-07-20 18:42 J -36481334.88 -36481334.72 -36481334.57 0.0498 0.0077

Mercury -104588-09-20 03:50 J -36479081.49 -36479081.34 -36479081.20 0.0529 0.0043

Mercury -104588-12-18 19:11 J -36478991.75 -36478991.70 -36478991.66 0.0531 0.0495

Venus -104587-08-30 05:02 J -36478737.46 -36478737.29 -36478737.11 0.0537 0.0284

Mercury -104582-05-08 20:23 J -36477024.81 -36477024.65 -36477024.50 0.0499 0.0040

Mercury -104582-08-06 13:54 J -36476934.98 -36476934.92 -36476934.85 0.0496 0.0454

Venus -104581-06-30 02:38 J -36476606.53 -36476606.39 -36476606.24 0.0490 0.0347

Moon -104578-03-03 10:04 J -36475630.23 -36475630.08 -36475629.93 0.0498 0.0379

Earth -104578-03-03 12:28 J -36475630.14 -36475629.98 -36475629.82 0.0498 0.0375 \*

Mercury -104576-07-09 04:18 J -36474771.45 -36474771.32 -36474771.18 0.0528 0.0187

Mercury -104576-10-06 20:09 J -36474681.76 -36474681.66 -36474681.55 0.0531 0.0355

Venus -104575-05-04 16:33 J -36474472.00 -36474471.81 -36474471.61 0.0536 0.0168

Mercury -104570-02-24 22:18 J -36472714.72 -36472714.57 -36472714.42 0.0499 0.0154

Mercury -104570-05-25 15:35 J -36472624.96 -36472624.85 -36472624.73 0.0497 0.0337

Venus -104569-03-05 07:11 J -36472340.40 -36472340.20 -36472339.99 0.0491 0.0020

Earth -104566-03-08 10:33 J -36471242.31 -36471242.06 -36471241.82 0.0500 0.0048

Moon -104566-03-08 14:38 J -36471242.14 -36471241.89 -36471241.65 0.0500 0.0081 \*

Mercury -104564-04-27 06:14 J -36470461.36 -36470461.24 -36470461.12 0.0528 0.0318

Mercury -104564-07-25 22:33 J -36470371.69 -36470371.56 -36470371.43 0.0531 0.0228

Earth -104561-09-01 12:14 J -36469238.16 -36469237.99 -36469237.81 0.0529 0.0318

Moon -104561-09-01 13:40 J -36469238.12 -36469237.93 -36469237.74 0.0529 0.0296 \*

Mercury -104559-12-13 23:59 J -36468404.63 -36468404.50 -36468404.37 0.0500 0.0273

Mercury -104558-03-13 16:47 J -36468314.94 -36468314.80 -36468314.66 0.0497 0.0213

Venus -104558-11-09 10:33 J -36468074.21 -36468074.06 -36468073.90 0.0492 0.0317

Moon -104554-03-13 05:30 J -36466854.32 -36466854.27 -36466854.21 0.0502 0.0488

Earth -104554-03-13 09:50 J -36466854.15 -36466854.09 -36466854.02 0.0502 0.0480

Mercury -104552-02-13 08:09 J -36466151.24 -36466151.16 -36466151.08 0.0527 0.0447

Mercury -104552-05-14 00:57 J -36466061.61 -36466061.46 -36466061.32 0.0530 0.0103

Moon -104549-09-06 00:28 J -36464850.69 -36464850.48 -36464850.27 0.0527 0.0114

Earth -104549-09-06 03:21 J -36464850.58 -36464850.36 -36464850.14 0.0527 0.0137 \*

Mercury -104547-10-02 01:40 J -36464094.53 -36464094.43 -36464094.34 0.0500 0.0390

Mercury -104547-12-30 17:59 J -36464004.90 -36464004.75 -36464004.59 0.0498 0.0092

Mercury -104540-03-02 02:38 J -36461751.53 -36461751.39 -36461751.24 0.0529 0.0033  
 Mercury -104540-05-30 18:14 J -36461661.78 -36461661.74 -36461661.70 0.0531 0.0506  
 Venus -104539-01-10 13:40 J -36461437.13 -36461436.93 -36461436.73 0.0537 0.0108  
 Mercury -104535-10-18 19:11 J -36459694.86 -36459694.70 -36459694.55 0.0499 0.0033  
 Mercury -104534-01-16 12:42 J -36459605.02 -36459604.97 -36459604.91 0.0496 0.0462  
 Venus -104534-11-11 16:47 J -36459305.98 -36459305.80 -36459305.61 0.0490 0.0214  
 Mercury -104529-12-19 04:04 J -36457441.46 -36457441.33 -36457441.19 0.0528 0.0166  
 Mercury -104528-03-18 19:54 J -36457351.77 -36457351.67 -36457351.57 0.0531 0.0374  
 Venus -104528-09-15 02:09 J -36457171.56 -36457171.41 -36457171.25 0.0535 0.0337  
 Mercury -104523-08-06 20:52 J -36455384.78 -36455384.63 -36455384.48 0.0499 0.0148  
 Mercury -104523-11-04 14:09 J -36455295.02 -36455294.91 -36455294.79 0.0497 0.0343  
 Venus -104522-07-17 20:52 J -36455039.83 -36455039.63 -36455039.43 0.0491 0.0117  
 Mercury -104517-10-07 04:33 J -36453131.42 -36453131.31 -36453131.19 0.0527 0.0315  
 Mercury -104516-01-04 20:52 J -36453041.76 -36453041.63 -36453041.50 0.0530 0.0231  
 Mercury -104511-05-25 23:02 J -36451074.67 -36451074.54 -36451074.41 0.0500 0.0260  
 Mercury -104511-08-23 15:50 J -36450984.98 -36450984.84 -36450984.69 0.0497 0.0227  
 Venus -104510-03-23 01:40 J -36450773.51 -36450773.43 -36450773.34 0.0492 0.0446  
 Mars -104506-12-07 05:02 J -36449053.54 -36449053.29 -36449053.03 0.0518 0.0050  
 Mercury -104505-07-26 06:14 J -36448821.31 -36448821.24 -36448821.16 0.0527 0.0448  
 Mercury -104505-10-23 23:02 J -36448731.68 -36448731.54 -36448731.40 0.0530 0.0102  
 Venus -104504-09-18 06:14 J -36448402.39 -36448402.24 -36448402.09 0.0538 0.0361  
 Mercury -104499-03-14 00:42 J -36446764.57 -36446764.47 -36446764.37 0.0500 0.0378  
 Mercury -104499-06-11 17:16 J -36446674.94 -36446674.78 -36446674.63 0.0498 0.0105  
 Venus -104498-07-20 03:50 J -36446271.44 -36446271.34 -36446271.23 0.0489 0.0416  
 Earth -104495-03-02 20:38 J -36445314.76 -36445314.64 -36445314.50 0.0498 0.0420  
 Moon -104495-03-03 00:42 J -36445314.61 -36445314.47 -36445314.33 0.0498 0.0411 \*  
 Mercury -104493-08-12 01:26 J -36444421.59 -36444421.44 -36444421.30 0.0529 0.0026  
 Mercury -104493-11-09 16:47 J -36444331.83 -36444331.80 -36444331.76 0.0532 0.0512  
 Venus -104492-05-23 21:06 J -36444136.82 -36444136.62 -36444136.41 0.0537 0.0074  
 Mercury -104488-12-31 02:38 J -36442454.41 -36442454.39 -36442454.37 0.0501 0.0494

Mercury -104487-03-30 18:42 J -36442364.88 -36442364.72 -36442364.57 0.0498 0.0019

Mercury -104487-06-28 12:14 J -36442275.03 -36442274.99 -36442274.95 0.0496 0.0477

Venus -104486-03-25 07:40 J -36442005.38 -36442005.18 -36442004.98 0.0490 0.0084

Moon -104483-03-07 15:50 J -36440927.08 -36440926.84 -36440926.60 0.0500 0.0038

Earth -104483-03-07 20:09 J -36440926.90 -36440926.66 -36440926.42 0.0500 0.0006 \*

Mercury -104481-05-31 03:06 J -36440111.51 -36440111.37 -36440111.22 0.0528 0.0156

Mercury -104481-08-28 19:11 J -36440021.80 -36440021.70 -36440021.61 0.0531 0.0385

Venus -104480-01-26 10:33 J -36439871.11 -36439871.06 -36439871.00 0.0535 0.0512

Moon -104478-09-01 17:16 J -36438922.93 -36438922.78 -36438922.62 0.0529 0.0370

Earth -104478-09-01 20:09 J -36438922.81 -36438922.66 -36438922.50 0.0529 0.0383 \*

Mercury -104475-01-16 19:54 J -36438054.82 -36438054.67 -36438054.52 0.0499 0.0140

Mercury -104475-04-16 12:57 J -36437965.07 -36437964.96 -36437964.84 0.0497 0.0352

Venus -104475-11-28 11:02 J -36437739.21 -36437739.04 -36437738.86 0.0492 0.0250

Earth -104471-03-12 18:28 J -36436538.84 -36436538.73 -36436538.60 0.0501 0.0434

Moon -104471-03-12 21:50 J -36436538.69 -36436538.59 -36436538.46 0.0501 0.0438 \*

Mercury -104469-03-19 04:33 J -36435801.43 -36435801.31 -36435801.18 0.0527 0.0292

Mercury -104469-06-16 20:52 J -36435711.76 -36435711.63 -36435711.50 0.0530 0.0252

Earth -104466-09-06 10:47 J -36434535.28 -36434535.05 -36434534.83 0.0528 0.0071

Moon -104466-09-06 14:23 J -36434535.12 -36434534.90 -36434534.67 0.0528 0.0044 \*

Mercury -104464-11-04 21:50 J -36433744.73 -36433744.59 -36433744.46 0.0500 0.0254

Mercury -104463-02-02 14:38 J -36433655.03 -36433654.89 -36433654.75 0.0497 0.0233

Mercury -104457-01-06 04:47 J -36431491.37 -36431491.30 -36431491.22 0.0527 0.0443

Mercury -104457-04-04 21:35 J -36431401.74 -36431401.60 -36431401.46 0.0530 0.0107

Venus -104456-01-29 12:28 J -36431102.17 -36431101.98 -36431101.79 0.0537 0.0174

Moon -104454-09-10 21:50 J -36430147.66 -36430147.59 -36430147.51 0.0526 0.0494

Earth -104454-09-11 01:26 J -36430147.45 -36430147.44 -36430147.40 0.0526 0.0523

Mercury -104452-08-23 23:59 J -36429434.60 -36429434.50 -36429434.40 0.0500 0.0365

Mercury -104452-11-21 16:18 J -36429344.97 -36429344.82 -36429344.66 0.0498 0.0119

Venus -104451-11-30 19:11 J -36428970.86 -36428970.70 -36428970.53 0.0490 0.0289

Mercury -104445-01-22 23:30 J -36427091.66 -36427091.52 -36427091.37 0.0529 0.0027

Mercury -104445-04-21 15:06 J -36427001.90 -36427001.87 -36427001.83 0.0532 0.0511

Venus -104445-10-04 02:38 J -36426836.56 -36426836.39 -36426836.21 0.0536 0.0265

Mars -104441-11-03 22:47 J -36425344.82 -36425344.55 -36425344.28 0.0508 0.0193

Mercury -104440-06-12 01:40 J -36425124.46 -36425124.43 -36425124.39 0.0501 0.0481

Mercury -104440-09-09 17:45 J -36425034.91 -36425034.76 -36425034.60 0.0498 0.0012

Mercury -104440-12-08 11:30 J -36424945.04 -36424945.02 -36424945.00 0.0496 0.0490

Venus -104439-08-05 22:33 J -36424704.76 -36424704.56 -36424704.36 0.0491 0.0046

Mercury -104434-11-11 01:40 J -36422781.57 -36422781.43 -36422781.28 0.0528 0.0152

Mercury -104433-02-08 17:30 J -36422691.86 -36422691.77 -36422691.67 0.0531 0.0391

Mercury -104428-06-28 19:26 J -36420724.84 -36420724.69 -36420724.54 0.0499 0.0123

Mercury -104428-09-26 12:28 J -36420635.08 -36420634.98 -36420634.87 0.0496 0.0368

Venus -104427-04-11 02:23 J -36420438.52 -36420438.40 -36420438.27 0.0492 0.0379

Mercury -104422-08-30 03:35 J -36418471.47 -36418471.35 -36418471.22 0.0527 0.0281

Mercury -104422-11-27 19:54 J -36418381.80 -36418381.67 -36418381.55 0.0530 0.0263

Venus -104421-10-07 10:04 J -36418067.19 -36418067.08 -36418066.97 0.0537 0.0454

Mercury -104416-04-16 20:38 J -36416414.77 -36416414.64 -36416414.50 0.0500 0.0245

Mercury -104416-07-15 13:26 J -36416325.08 -36416324.94 -36416324.80 0.0497 0.0242

Venus -104415-08-08 04:33 J -36415936.33 -36415936.31 -36415936.28 0.0490 0.0485

Moon -104412-03-02 01:54 J -36414999.51 -36414999.42 -36414999.31 0.0498 0.0452

Earth -104412-03-02 06:14 J -36414999.32 -36414999.24 -36414999.14 0.0498 0.0462 \*

Mercury -104410-06-18 04:47 J -36414161.38 -36414161.30 -36414161.21 0.0527 0.0419

Mercury -104410-09-15 21:35 J -36414071.74 -36414071.60 -36414071.46 0.0529 0.0129

Venus -104409-06-11 23:02 J -36413801.74 -36413801.54 -36413801.34 0.0536 0.0009

Mercury -104404-02-02 22:33 J -36412104.66 -36412104.56 -36412104.45 0.0500 0.0359

Mercury -104404-05-03 15:06 J -36412015.02 -36412014.87 -36412014.72 0.0498 0.0125

Venus -104403-04-13 09:06 J -36411670.31 -36411670.12 -36411669.92 0.0490 0.0156

Earth -104400-03-07 00:42 J -36410611.71 -36410611.47 -36410611.23 0.0499 0.0053

Moon -104400-03-07 04:33 J -36410611.55 -36410611.31 -36410611.07 0.0499 0.0020 \*

Mercury -104398-07-04 22:18 J -36409761.72 -36409761.57 -36409761.43 0.0529 0.0025

Mercury -104398-10-02 13:40 J -36409671.96 -36409671.93 -36409671.90 0.0532 0.0516



Venus -104397-02-15 08:52 J -36409536.23 -36409536.13 -36409536.02 0.0535 0.0451  
 Earth -104395-09-01 05:02 J -36408607.40 -36408607.29 -36408607.16 0.0530 0.0443  
 Moon -104395-09-01 08:52 J -36408607.25 -36408607.13 -36408607.00 0.0530 0.0434 \*  
 Mercury -104393-11-22 00:42 J -36407794.51 -36407794.47 -36407794.41 0.0501 0.0470  
 Mercury -104392-02-19 17:02 J -36407704.95 -36407704.79 -36407704.63 0.0499 0.0010  
 Venus -104392-12-17 13:54 J -36407404.11 -36407403.92 -36407403.73 0.0491 0.0174  
 Moon -104388-03-11 20:23 J -36406223.82 -36406223.65 -36406223.48 0.0500 0.0365  
 Earth -104388-03-11 22:33 J -36406223.71 -36406223.56 -36406223.39 0.0500 0.0371 \*  
 Mars -104387-05-29 00:28 J -36405780.59 -36405780.48 -36405780.36 0.0516 0.0454  
 Mercury -104386-04-22 23:59 J -36405451.64 -36405451.50 -36405451.36 0.0528 0.0151  
 Mercury -104386-07-21 15:50 J -36405361.93 -36405361.84 -36405361.74 0.0531 0.0389  
 Moon -104383-09-05 18:28 J -36404219.96 -36404219.73 -36404219.51 0.0528 0.0009  
 Earth -104383-09-05 22:18 J -36404219.79 -36404219.57 -36404219.35 0.0528 0.0024 \*  
 Mercury -104381-12-08 18:28 J -36403394.88 -36403394.73 -36403394.58 0.0499 0.0110  
 Mercury -104380-03-08 11:45 J -36403305.11 -36403305.01 -36403304.91 0.0496 0.0380  
 Mercury -104374-02-09 01:54 J -36401141.54 -36401141.42 -36401141.29 0.0528 0.0280  
 Mercury -104374-05-09 18:14 J -36401051.86 -36401051.74 -36401051.61 0.0531 0.0267  
 Venus -104373-02-18 17:02 J -36400766.96 -36400766.79 -36400766.61 0.0538 0.0269  
 Earth -104371-09-10 13:40 J -36399832.02 -36399831.93 -36399831.83 0.0526 0.0476  
 Moon -104371-09-10 16:47 J -36399831.90 -36399831.80 -36399831.69 0.0526 0.0460 \*  
 Mercury -104369-09-26 20:09 J -36399084.80 -36399084.66 -36399084.52 0.0499 0.0229  
 Mercury -104369-12-25 12:57 J -36398995.09 -36398994.96 -36398994.82 0.0497 0.0258  
 Venus -104368-12-19 19:40 J -36398635.82 -36398635.68 -36398635.54 0.0490 0.0356  
 Mercury -104363-11-28 03:50 J -36396831.43 -36396831.34 -36396831.25 0.0527 0.0410  
 Mercury -104362-02-25 20:23 J -36396741.79 -36396741.65 -36396741.50 0.0530 0.0139  
 Venus -104362-10-24 06:57 J -36396501.40 -36396501.21 -36396501.02 0.0536 0.0171  
 Mercury -104357-07-15 21:21 J -36394774.71 -36394774.61 -36394774.50 0.0500 0.0350  
 Mercury -104357-10-13 13:54 J -36394685.07 -36394684.92 -36394684.77 0.0498 0.0133  
 Venus -104356-08-24 23:02 J -36394369.74 -36394369.54 -36394369.34 0.0491 0.0021  
 Mars -104351-03-02 23:02 J -36392718.77 -36392718.54 -36392718.30 0.0519 0.0196

Mercury -104351-12-14 22:04 J -36392431.72 -36392431.58 -36392431.43 0.0529 0.0008

Mercury -104345-05-03 23:30 J -36390464.57 -36390464.52 -36390464.46 0.0501 0.0464

Mercury -104345-08-01 15:35 J -36390375.00 -36390374.85 -36390374.69 0.0499 0.0017

Venus -104344-04-30 03:35 J -36390103.50 -36390103.35 -36390103.19 0.0492 0.0311

Mercury -104339-10-02 22:33 J -36388121.70 -36388121.56 -36388121.42 0.0528 0.0146

Mercury -104339-12-31 14:23 J -36388031.99 -36388031.90 -36388031.80 0.0531 0.0394

Venus -104338-10-27 08:09 J -36387732.21 -36387732.16 -36387732.11 0.0538 0.0516

Mercury -104333-05-20 17:30 J -36386064.92 -36386064.77 -36386064.62 0.0499 0.0100

Mercury -104333-08-18 10:47 J -36385975.14 -36385975.05 -36385974.95 0.0497 0.0392

Mercury -104327-07-22 00:14 J -36383811.62 -36383811.49 -36383811.37 0.0527 0.0280

Mercury -104327-10-19 16:33 J -36383721.94 -36383721.81 -36383721.69 0.0530 0.0264

Venus -104326-07-01 22:04 J -36383466.78 -36383466.58 -36383466.38 0.0537 0.0074

Mars -104322-04-23 21:21 J -36382074.84 -36382074.61 -36382074.37 0.0511 0.0304

Mercury -104321-03-08 18:57 J -36381754.84 -36381754.71 -36381754.57 0.0500 0.0219

Mercury -104321-06-06 11:59 J -36381665.13 -36381665.00 -36381664.87 0.0497 0.0269

Venus -104320-05-02 10:18 J -36381335.25 -36381335.07 -36381334.89 0.0490 0.0225

Moon -104317-03-06 04:47 J -36380296.55 -36380296.30 -36380296.05 0.0498 0.0074

Earth -104317-03-06 07:40 J -36380296.42 -36380296.18 -36380295.94 0.0498 0.0102 \*

Mercury -104315-05-10 01:54 J -36379501.51 -36379501.42 -36379501.32 0.0527 0.0410

Mercury -104315-08-07 18:42 J -36379411.86 -36379411.72 -36379411.58 0.0530 0.0140

Venus -104314-03-06 12:57 J -36379201.11 -36379200.96 -36379200.81 0.0536 0.0361

Moon -104312-08-31 12:28 J -36378292.05 -36378291.98 -36378291.88 0.0530 0.0488

Earth -104312-08-31 16:33 J -36378291.89 -36378291.81 -36378291.72 0.0530 0.0490 \*

Mercury -104310-12-26 20:52 J -36377444.74 -36377444.63 -36377444.52 0.0500 0.0336

Mercury -104309-03-25 13:11 J -36377355.10 -36377354.95 -36377354.80 0.0498 0.0147

Venus -104308-01-05 13:54 J -36377069.12 -36377068.92 -36377068.72 0.0491 0.0110

Earth -104305-03-11 06:28 J -36375908.41 -36375908.23 -36375908.05 0.0500 0.0324

Moon -104305-03-11 06:42 J -36375908.40 -36375908.22 -36375908.03 0.0500 0.0312 \*

Mercury -104303-05-26 20:52 J -36375101.78 -36375101.63 -36375101.48 0.0529 0.0011

Earth -104300-09-05 06:14 J -36373904.46 -36373904.24 -36373904.02 0.0528 0.0040

Moon -104300-09-05 09:35 J -36373904.32 -36373904.10 -36373903.89 0.0528 0.0072 \*  
 Mercury -104298-10-14 22:18 J -36373134.63 -36373134.57 -36373134.51 0.0501 0.0456  
 Mercury -104297-01-12 14:23 J -36373045.06 -36373044.90 -36373044.75 0.0498 0.0025  
 Venus -104297-09-10 17:02 J -36372802.87 -36372802.79 -36372802.70 0.0493 0.0448  
 Mercury -104291-03-14 22:18 J -36370791.71 -36370791.57 -36370791.43 0.0528 0.0126  
 Mercury -104291-06-12 14:09 J -36370702.00 -36370701.91 -36370701.82 0.0531 0.0413  
 Venus -104290-03-09 18:14 J -36370431.89 -36370431.74 -36370431.58 0.0537 0.0348  
 Moon -104288-09-09 17:59 J -36369516.90 -36369516.75 -36369516.59 0.0527 0.0393  
 Earth -104288-09-09 19:54 J -36369516.81 -36369516.67 -36369516.52 0.0527 0.0406 \*  
 Mars -104286-01-29 12:14 J -36369010.12 -36369009.99 -36369009.85 0.0508 0.0454  
 Mercury -104286-10-31 16:04 J -36368734.98 -36368734.83 -36368734.68 0.0499 0.0095  
 Mercury -104285-01-29 09:21 J -36368645.21 -36368645.11 -36368645.02 0.0497 0.0396  
 Venus -104284-01-07 20:23 J -36368300.75 -36368300.65 -36368300.54 0.0490 0.0424  
 Mercury -104280-12-31 22:47 J -36366481.68 -36366481.55 -36366481.43 0.0527 0.0275  
 Mercury -104279-03-31 15:06 J -36366392.00 -36366391.87 -36366391.75 0.0530 0.0268  
 Venus -104279-11-12 04:04 J -36366166.53 -36366166.33 -36366166.13 0.0536 0.0115  
 Mercury -104274-08-19 17:45 J -36364424.89 -36364424.76 -36364424.61 0.0500 0.0211  
 Mercury -104274-11-17 10:47 J -36364335.18 -36364335.05 -36364334.92 0.0497 0.0278  
 Venus -104273-09-13 00:57 J -36364034.66 -36364034.46 -36364034.26 0.0491 0.0094  
 Mercury -104268-10-19 23:59 J -36362171.59 -36362171.50 -36362171.40 0.0526 0.0412  
 Mercury -104267-01-17 16:47 J -36362081.94 -36362081.80 -36362081.66 0.0529 0.0136  
 Mercury -104262-06-07 19:26 J -36360114.80 -36360114.69 -36360114.57 0.0500 0.0329  
 Mercury -104262-09-05 11:59 J -36360025.15 -36360025.00 -36360024.85 0.0498 0.0155  
 Venus -104261-05-19 03:50 J -36359768.51 -36359768.34 -36359768.16 0.0492 0.0245  
 Mercury -104256-11-05 18:57 J -36357771.86 -36357771.71 -36357771.56 0.0529 0.0009  
 Mercury -104250-03-26 21:21 J -36355804.68 -36355804.61 -36355804.54 0.0501 0.0444  
 Mercury -104250-06-24 13:26 J -36355715.10 -36355714.94 -36355714.78 0.0498 0.0034  
 Mercury -104244-08-24 20:52 J -36353461.77 -36353461.63 -36353461.49 0.0528 0.0121  
 Mercury -104244-11-22 12:42 J -36353372.05 -36353371.97 -36353371.88 0.0531 0.0418  
 Venus -104243-07-21 00:57 J -36353131.65 -36353131.46 -36353131.26 0.0537 0.0163

Mercury -104238-04-12 14:38 J -36351405.05 -36351404.89 -36351404.74 0.0499 0.0091

Mercury -104238-07-11 07:40 J -36351315.27 -36351315.18 -36351315.08 0.0497 0.0400

Venus -104237-05-21 09:21 J -36351000.28 -36351000.11 -36350999.94 0.0490 0.0286

Earth -104234-03-06 14:38 J -36349981.12 -36349980.89 -36349980.65 0.0498 0.0153

Moon -104234-03-06 15:50 J -36349981.07 -36349980.84 -36349980.62 0.0498 0.0130 \*

Mars -104233-08-22 12:28 J -36349446.20 -36349445.98 -36349445.74 0.0517 0.0227

Mercury -104232-06-12 22:18 J -36349151.70 -36349151.57 -36349151.44 0.0527 0.0258

Mercury -104232-09-10 14:38 J -36349062.01 -36349061.89 -36349061.77 0.0530 0.0285

Venus -104231-03-25 13:40 J -36348866.10 -36348865.93 -36348865.76 0.0535 0.0285

Mercury -104226-01-29 16:18 J -36347094.96 -36347094.82 -36347094.68 0.0500 0.0208

Mercury -104226-04-29 09:06 J -36347005.25 -36347005.12 -36347004.99 0.0497 0.0280

Venus -104225-01-25 13:26 J -36346734.14 -36346733.94 -36346733.73 0.0491 0.0049

Earth -104222-03-11 10:33 J -36345593.26 -36345593.06 -36345592.85 0.0499 0.0265

Moon -104222-03-11 12:14 J -36345593.21 -36345592.99 -36345592.77 0.0499 0.0243 \*

Mercury -104220-03-31 22:33 J -36344841.65 -36344841.56 -36344841.47 0.0526 0.0407

Mercury -104220-06-29 15:21 J -36344752.00 -36344751.86 -36344751.72 0.0529 0.0139

Moon -104217-09-04 07:26 J -36343589.41 -36343589.19 -36343588.97 0.0530 0.0151

Earth -104217-09-04 09:50 J -36343589.31 -36343589.09 -36343588.88 0.0530 0.0120 \*

Mercury -104215-11-17 17:59 J -36342784.86 -36342784.75 -36342784.63 0.0501 0.0324

Mercury -104214-02-15 10:33 J -36342695.21 -36342695.06 -36342694.91 0.0498 0.0161

Venus -104214-09-30 17:45 J -36342467.88 -36342467.76 -36342467.63 0.0493 0.0381

Mercury -104208-04-17 16:47 J -36340441.94 -36340441.80 -36340441.65 0.0528 0.0012

Venus -104207-03-28 15:06 J -36340097.00 -36340096.87 -36340096.74 0.0538 0.0404

Earth -104205-09-09 01:40 J -36339201.60 -36339201.43 -36339201.26 0.0528 0.0338

Moon -104205-09-09 01:40 J -36339201.59 -36339201.43 -36339201.26 0.0528 0.0340 \*

Mercury -104203-09-05 19:40 J -36338474.74 -36338474.68 -36338474.60 0.0501 0.0441

Mercury -104203-12-04 11:45 J -36338385.16 -36338385.01 -36338384.85 0.0499 0.0041

Venus -104201-01-27 19:26 J -36337965.71 -36337965.69 -36337965.66 0.0489 0.0485

Mars -104197-05-26 19:40 J -36336384.84 -36336384.68 -36336384.50 0.0519 0.0387

Mercury -104196-02-03 18:42 J -36336131.86 -36336131.72 -36336131.58 0.0528 0.0126

Mercury -104196-05-04 10:47 J -36336042.14 -36336042.05 -36336041.97 0.0531 0.0413

Venus -104196-12-01 05:45 J -36335831.47 -36335831.26 -36335831.06 0.0536 0.0035

Mercury -104191-09-22 13:26 J -36334075.10 -36334074.94 -36334074.79 0.0499 0.0081

Mercury -104191-12-21 06:28 J -36333985.31 -36333985.23 -36333985.14 0.0497 0.0409

Venus -104190-10-02 23:02 J -36333699.73 -36333699.54 -36333699.34 0.0490 0.0151

Mercury -104185-11-22 20:23 J -36331821.77 -36331821.65 -36331821.52 0.0527 0.0258

Mercury -104184-02-20 12:57 J -36331732.08 -36331731.96 -36331731.84 0.0530 0.0287

Venus -104184-08-05 19:26 J -36331565.78 -36331565.69 -36331565.60 0.0535 0.0474

Mercury -104179-07-11 14:38 J -36329765.03 -36329764.89 -36329764.75 0.0500 0.0205

Mercury -104179-10-09 07:26 J -36329675.32 -36329675.19 -36329675.06 0.0497 0.0282

Venus -104178-06-08 01:54 J -36329433.61 -36329433.42 -36329433.23 0.0492 0.0189

Mercury -104173-09-10 21:50 J -36327511.69 -36327511.59 -36327511.49 0.0526 0.0394

Mercury -104173-12-09 14:38 J -36327422.03 -36327421.89 -36327421.75 0.0529 0.0153

Mars -104168-07-17 21:06 J -36325740.91 -36325740.62 -36325740.32 0.0510 0.0074

Mercury -104167-04-29 16:18 J -36325454.94 -36325454.82 -36325454.70 0.0501 0.0323

Mercury -104167-07-28 08:38 J -36325365.29 -36325365.14 -36325364.99 0.0498 0.0161

Mercury -104161-09-27 15:06 J -36323112.01 -36323111.87 -36323111.72 0.0528 0.0016

Venus -104160-08-08 20:23 J -36322796.83 -36322796.65 -36322796.46 0.0537 0.0212

Mercury -104155-02-15 17:59 J -36321144.82 -36321144.75 -36321144.68 0.0502 0.0440

Mercury -104155-05-16 10:04 J -36321055.23 -36321055.08 -36321054.92 0.0499 0.0042

Venus -104154-06-10 08:52 J -36320665.27 -36320665.13 -36320664.98 0.0490 0.0350

Earth -104151-03-05 17:02 J -36319666.00 -36319665.79 -36319665.57 0.0497 0.0215

Moon -104151-03-05 17:45 J -36319665.99 -36319665.76 -36319665.52 0.0497 0.0199 \*

Mercury -104149-07-16 16:33 J -36318801.95 -36318801.81 -36318801.67 0.0527 0.0131

Mercury -104149-10-14 08:23 J -36318712.23 -36318712.15 -36318712.05 0.0530 0.0408

Venus -104148-04-13 09:21 J -36318531.29 -36318531.11 -36318530.93 0.0535 0.0235

Mercury -104143-03-04 11:30 J -36316745.17 -36316745.02 -36316744.87 0.0499 0.0080

Mercury -104143-06-02 04:33 J -36316655.39 -36316655.31 -36316655.22 0.0497 0.0411

Venus -104142-02-13 11:30 J -36316399.22 -36316399.02 -36316398.81 0.0491 0.0012

Moon -104139-03-10 08:38 J -36315278.36 -36315278.14 -36315277.92 0.0499 0.0166

Earth -104139-03-10 11:30 J -36315278.24 -36315278.02 -36315277.80 0.0499 0.0193 \*  
 Mercury -104137-05-04 18:14 J -36314491.87 -36314491.74 -36314491.62 0.0527 0.0264  
 Mercury -104137-08-02 10:33 J -36314402.18 -36314402.06 -36314401.94 0.0530 0.0280  
 Earth -104134-09-04 16:47 J -36313274.01 -36313273.80 -36313273.59 0.0530 0.0185  
 Moon -104134-09-04 17:16 J -36313273.98 -36313273.78 -36313273.58 0.0530 0.0214 \*  
 Mercury -104132-12-21 13:11 J -36312435.09 -36312434.95 -36312434.81 0.0500 0.0199  
 Mercury -104131-03-21 05:45 J -36312345.38 -36312345.26 -36312345.13 0.0497 0.0289  
 Venus -104131-10-19 15:06 J -36312133.01 -36312132.87 -36312132.71 0.0492 0.0327  
 Mercury -104125-02-21 19:40 J -36310181.77 -36310181.68 -36310181.58 0.0526 0.0397  
 Mercury -104125-05-21 12:42 J -36310092.11 -36310091.97 -36310091.83 0.0529 0.0152  
 Venus -104124-04-16 16:04 J -36309761.91 -36309761.83 -36309761.74 0.0538 0.0485  
 Earth -104122-09-09 06:28 J -36308886.42 -36308886.23 -36308886.03 0.0528 0.0262  
 Moon -104122-09-09 08:09 J -36308886.36 -36308886.16 -36308885.96 0.0528 0.0272 \*  
 Mercury -104120-10-09 14:23 J -36308125.01 -36308124.90 -36308124.78 0.0501 0.0322  
 Mercury -104119-01-07 06:42 J -36308035.37 -36308035.22 -36308035.07 0.0498 0.0161  
 Mercury -104113-03-09 14:09 J -36305782.05 -36305781.91 -36305781.76 0.0528 0.0020  
 Venus -104113-12-20 04:47 J -36305496.50 -36305496.30 -36305496.09 0.0536 0.0036  
 Mercury -104108-07-28 16:04 J -36303814.90 -36303814.83 -36303814.76 0.0502 0.0440  
 Mercury -104108-10-26 08:09 J -36303725.31 -36303725.16 -36303725.00 0.0499 0.0040  
 Venus -104107-10-21 20:52 J -36303364.82 -36303364.63 -36303364.45 0.0491 0.0205  
 Mercury -104102-12-27 14:52 J -36301472.02 -36301471.88 -36301471.74 0.0527 0.0129  
 Mercury -104101-03-26 06:42 J -36301382.31 -36301382.22 -36301382.13 0.0530 0.0408  
 Venus -104101-08-24 14:38 J -36301231.01 -36301230.89 -36301230.77 0.0534 0.0426  
 Mercury -104096-08-14 09:35 J -36299415.25 -36299415.10 -36299414.95 0.0500 0.0081  
 Mercury -104096-11-12 02:52 J -36299325.47 -36299325.38 -36299325.30 0.0497 0.0411  
 Venus -104095-06-27 00:14 J -36299098.68 -36299098.49 -36299098.29 0.0492 0.0131  
 Mercury -104090-10-15 16:04 J -36297161.96 -36297161.83 -36297161.71 0.0526 0.0269  
 Mercury -104089-01-13 08:23 J -36297072.27 -36297072.15 -36297072.03 0.0529 0.0273  
 Mercury -104084-06-02 11:02 J -36295105.18 -36295105.04 -36295104.90 0.0500 0.0201  
 Mercury -104084-08-31 03:50 J -36295015.47 -36295015.34 -36295015.21 0.0498 0.0286

Venus -104083-03-02 03:06 J -36294832.43 -36294832.37 -36294832.31 0.0493 0.0471

Mars -104079-11-15 23:59 J -36293112.75 -36293112.50 -36293112.24 0.0517 0.0063

Mercury -104078-08-03 17:16 J -36292851.87 -36292851.78 -36292851.69 0.0526 0.0405

Mercury -104078-11-01 10:04 J -36292762.22 -36292762.08 -36292761.94 0.0529 0.0143

Venus -104077-08-27 19:26 J -36292461.85 -36292461.69 -36292461.51 0.0537 0.0283

Mercury -104072-03-21 12:42 J -36290795.08 -36290794.97 -36290794.85 0.0501 0.0318

Mercury -104072-06-19 05:02 J -36290705.43 -36290705.29 -36290705.14 0.0498 0.0165

Venus -104071-06-29 05:16 J -36290330.39 -36290330.28 -36290330.16 0.0490 0.0400

Moon -104068-03-04 14:09 J -36289351.09 -36289350.91 -36289350.71 0.0497 0.0282

Earth -104068-03-04 16:33 J -36289351.00 -36289350.81 -36289350.61 0.0497 0.0291 \*

Mercury -104066-08-20 11:59 J -36288452.14 -36288452.00 -36288451.85 0.0529 0.0015

Venus -104065-05-02 09:35 J -36288196.29 -36288196.10 -36288195.91 0.0536 0.0161

Mercury -104060-01-07 14:09 J -36286484.98 -36286484.91 -36286484.84 0.0501 0.0440

Mercury -104060-04-07 06:14 J -36286395.40 -36286395.24 -36286395.09 0.0499 0.0041

Venus -104059-03-04 07:54 J -36286064.37 -36286064.17 -36286063.96 0.0491 0.0061

Earth -104056-03-09 13:40 J -36284963.16 -36284962.93 -36284962.69 0.0499 0.0125

Moon -104056-03-09 17:30 J -36284963.01 -36284962.77 -36284962.52 0.0499 0.0097 \*

Mercury -104054-06-08 13:40 J -36284142.08 -36284141.93 -36284141.79 0.0528 0.0124

Mercury -104054-09-06 05:30 J -36284052.35 -36284052.27 -36284052.18 0.0531 0.0416

Earth -104051-09-03 17:30 J -36282958.96 -36282958.77 -36282958.58 0.0530 0.0277

Moon -104051-09-03 18:42 J -36282958.91 -36282958.72 -36282958.53 0.0530 0.0302 \*

Mercury -104048-01-24 07:26 J -36282085.34 -36282085.19 -36282085.03 0.0500 0.0084

Mercury -104048-04-24 00:28 J -36281995.56 -36281995.48 -36281995.38 0.0497 0.0408

Venus -104048-11-07 11:45 J -36281798.17 -36281798.01 -36281797.84 0.0492 0.0278

Mercury -104042-03-27 14:09 J -36279832.03 -36279831.91 -36279831.78 0.0526 0.0268

Mercury -104042-06-25 06:28 J -36279742.35 -36279742.23 -36279742.10 0.0529 0.0275

Venus -104041-05-05 10:33 J -36279427.08 -36279427.06 -36279427.03 0.0537 0.0530

Moon -104039-09-08 01:40 J -36278571.64 -36278571.43 -36278571.22 0.0529 0.0173

Earth -104039-09-08 04:18 J -36278571.53 -36278571.32 -36278571.11 0.0529 0.0160 \*

Mercury -104037-11-12 08:52 J -36277775.27 -36277775.13 -36277774.99 0.0501 0.0204

Mercury -104036-02-10 01:40 J -36277685.56 -36277685.43 -36277685.30 0.0498 0.0284

Mercury -104030-01-13 15:06 J -36275521.96 -36275521.87 -36275521.78 0.0526 0.0409

Mercury -104030-04-13 07:54 J -36275432.31 -36275432.17 -36275432.03 0.0529 0.0138

Venus -104029-01-08 23:02 J -36275161.74 -36275161.54 -36275161.34 0.0536 0.0080

Mercury -104025-08-31 10:18 J -36273465.18 -36273465.07 -36273464.95 0.0501 0.0323

Mercury -104025-11-29 02:52 J -36273375.53 -36273375.38 -36273375.23 0.0498 0.0161

Venus -104024-11-09 16:47 J -36273029.97 -36273029.80 -36273029.62 0.0490 0.0256

Mercury -104018-01-30 09:21 J -36271122.25 -36271122.11 -36271121.96 0.0528 0.0016

Venus -104018-09-13 12:28 J -36270896.13 -36270895.98 -36270895.84 0.0535 0.0364

Mars -104014-10-11 09:06 J -36269407.40 -36269407.12 -36269406.83 0.0510 0.0139

Mercury -104013-06-19 12:14 J -36269155.05 -36269154.99 -36269154.91 0.0502 0.0439

Mercury -104013-09-17 04:18 J -36269065.48 -36269065.32 -36269065.16 0.0499 0.0040

Venus -104012-07-15 20:23 J -36268763.85 -36268763.65 -36268763.45 0.0491 0.0082

Mercury -104007-11-18 11:16 J -36266812.17 -36266812.03 -36266811.89 0.0528 0.0129

Mercury -104006-02-16 03:21 J -36266722.45 -36266722.36 -36266722.27 0.0531 0.0410

Mercury -104001-07-06 05:30 J -36264755.43 -36264755.27 -36264755.12 0.0499 0.0085

Mercury -104001-10-03 22:33 J -36264665.65 -36264665.56 -36264665.47 0.0497 0.0405

# 104TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 104th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
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Venus -104000-03-20 23:02 J -36264497.64 -36264497.54 -36264497.44 0.0493 0.0425  
 Mercury -103995-09-06 12:42 J -36262502.10 -36262501.97 -36262501.84 0.0527 0.0264  
 Mercury -103995-12-05 05:16 J -36262412.41 -36262412.28 -36262412.16 0.0530 0.0279  
 Venus -103994-09-16 17:59 J -36262126.90 -36262126.75 -36262126.60 0.0537 0.0348  
 Mercury -103989-04-24 06:57 J -36260445.35 -36260445.21 -36260445.07 0.0500 0.0206  
 Mercury -103989-07-22 23:30 J -36260355.65 -36260355.52 -36260355.39 0.0498 0.0281  
 Venus -103988-07-18 01:26 J -36259995.51 -36259995.44 -36259995.36 0.0490 0.0449  
 Earth -103985-03-03 18:28 J -36259035.89 -36259035.73 -36259035.55 0.0496 0.0356  
 Moon -103985-03-03 22:04 J -36259035.75 -36259035.58 -36259035.40 0.0496 0.0350 \*  
 Mercury -103983-06-25 13:26 J -36258192.03 -36258191.94 -36258191.85 0.0525 0.0408  
 Mercury -103983-09-23 06:14 J -36258102.38 -36258102.24 -36258102.10 0.0528 0.0138  
 Venus -103982-05-22 04:33 J -36257861.51 -36257861.31 -36257861.11 0.0535 0.0112  
 Mercury -103977-02-11 08:09 J -36256135.27 -36256135.16 -36256135.04 0.0501 0.0327  
 Mercury -103977-05-11 00:28 J -36256045.62 -36256045.48 -36256045.33 0.0499 0.0158  
 Venus -103976-03-23 04:47 J -36255729.50 -36255729.30 -36255729.10 0.0491 0.0112  
 Moon -103973-03-08 09:35 J -36254648.35 -36254648.10 -36254647.86 0.0498 0.0022  
 Earth -103973-03-08 13:40 J -36254648.17 -36254647.93 -36254647.69 0.0498 0.0052 \*  
 Mercury -103971-07-12 07:26 J -36253792.33 -36253792.19 -36253792.04 0.0528 0.0008  
 Moon -103968-09-02 13:11 J -36252644.09 -36252643.95 -36252643.81 0.0531 0.0406  
 Earth -103968-09-02 15:21 J -36252644.01 -36252643.86 -36252643.70 0.0531 0.0380 \*  
 Mercury -103966-11-30 10:04 J -36251825.15 -36251825.08 -36251825.01 0.0502 0.0444  
 Mercury -103965-02-28 01:54 J -36251735.58 -36251735.42 -36251735.27 0.0499 0.0035  
 Venus -103965-11-26 07:26 J -36251463.37 -36251463.19 -36251463.01 0.0492 0.0229  
 Earth -103961-03-13 05:59 J -36250260.34 -36250260.25 -36250260.14 0.0499 0.0454  
 Moon -103961-03-13 10:04 J -36250260.19 -36250260.08 -36250259.96 0.0499 0.0440 \*  
 Mars -103960-05-07 02:23 J -36249840.40 -36249840.40 -36249840.38 0.0514 0.0513  
 Mercury -103959-04-30 08:38 J -36249482.28 -36249482.14 -36249482.00 0.0528 0.0139  
 Mercury -103959-07-29 00:42 J -36249392.56 -36249392.47 -36249392.37 0.0530 0.0400  
 Earth -103956-09-07 08:52 J -36248256.35 -36248256.13 -36248255.91 0.0529 0.0083

Moon -103956-09-07 12:28 J -36248256.20 -36248255.98 -36248255.75 0.0529 0.0104 \*  
 Mercury -103954-12-17 03:35 J -36247425.50 -36247425.35 -36247425.20 0.0500 0.0083  
 Mercury -103953-03-15 20:38 J -36247335.73 -36247335.64 -36247335.55 0.0497 0.0406  
 Mercury -103947-02-16 10:18 J -36245172.20 -36245172.07 -36245171.94 0.0527 0.0272  
 Mercury -103947-05-17 02:52 J -36245082.50 -36245082.38 -36245082.26 0.0530 0.0272  
 Venus -103946-01-27 22:18 J -36244826.77 -36244826.57 -36244826.38 0.0537 0.0151  
 Mercury -103942-10-05 04:47 J -36243115.44 -36243115.30 -36243115.16 0.0500 0.0207  
 Mercury -103941-01-02 21:21 J -36243025.73 -36243025.61 -36243025.48 0.0498 0.0280  
 Venus -103941-11-28 12:42 J -36242695.13 -36242694.97 -36242694.81 0.0490 0.0304  
 Mercury -103936-12-05 11:45 J -36240862.11 -36240862.01 -36240861.92 0.0526 0.0407  
 Mercury -103935-03-05 04:33 J -36240772.45 -36240772.31 -36240772.16 0.0529 0.0142  
 Venus -103935-10-02 11:16 J -36240561.20 -36240561.03 -36240560.86 0.0535 0.0298  
 Mercury -103930-07-24 06:28 J -36238805.35 -36238805.23 -36238805.12 0.0501 0.0327  
 Mercury -103930-10-21 22:33 J -36238715.71 -36238715.56 -36238715.41 0.0498 0.0156  
 Venus -103929-08-03 16:18 J -36238429.03 -36238428.82 -36238428.62 0.0492 0.0035  
 Mars -103924-02-08 16:04 J -36236779.08 -36236778.83 -36236778.58 0.0516 0.0113  
 Mercury -103924-12-22 05:45 J -36236462.41 -36236462.26 -36236462.11 0.0528 0.0002  
 Mercury -103918-05-12 07:40 J -36234495.24 -36234495.18 -36234495.11 0.0502 0.0448  
 Mercury -103918-08-09 23:45 J -36234405.67 -36234405.51 -36234405.36 0.0499 0.0032  
 Venus -103917-04-08 19:26 J -36234162.82 -36234162.69 -36234162.56 0.0493 0.0376  
 Mercury -103912-10-10 06:57 J -36232152.36 -36232152.21 -36232152.07 0.0527 0.0140  
 Mercury -103911-01-07 22:47 J -36232062.64 -36232062.55 -36232062.45 0.0530 0.0399  
 Venus -103911-10-05 12:28 J -36231792.11 -36231791.98 -36231791.84 0.0537 0.0395  
 Mercury -103906-05-29 01:11 J -36230095.60 -36230095.45 -36230095.30 0.0500 0.0089  
 Mercury -103906-08-26 17:59 J -36230005.83 -36230005.75 -36230005.65 0.0497 0.0402  
 Moon -103902-03-03 09:50 J -36228721.18 -36228721.09 -36228720.98 0.0496 0.0445  
 Earth -103902-03-03 14:09 J -36228721.01 -36228720.91 -36228720.81 0.0496 0.0447 \*  
 Mercury -103900-07-29 07:40 J -36227842.30 -36227842.18 -36227842.05 0.0527 0.0282  
 Mercury -103900-10-27 00:14 J -36227752.61 -36227752.49 -36227752.36 0.0530 0.0263  
 Venus -103899-06-10 01:26 J -36227526.65 -36227526.44 -36227526.24 0.0536 0.0054

Mars -103895-03-28 23:45 J -36226138.65 -36226138.51 -36226138.36 0.0513 0.0446  
 Mercury -103894-03-17 03:06 J -36225785.51 -36225785.37 -36225785.23 0.0500 0.0205  
 Mercury -103894-06-14 19:40 J -36225695.81 -36225695.68 -36225695.55 0.0498 0.0281  
 Venus -103893-04-11 01:11 J -36225394.64 -36225394.45 -36225394.26 0.0491 0.0163  
 Earth -103890-03-08 10:04 J -36224333.33 -36224333.08 -36224332.84 0.0497 0.0037  
 Moon -103890-03-08 14:09 J -36224333.15 -36224332.91 -36224332.67 0.0497 0.0067 \*  
 Mercury -103888-05-17 09:06 J -36223532.21 -36223532.12 -36223532.02 0.0526 0.0415  
 Mercury -103888-08-15 02:23 J -36223442.54 -36223442.40 -36223442.26 0.0529 0.0134  
 Venus -103887-02-12 15:06 J -36223260.94 -36223260.87 -36223260.79 0.0534 0.0496  
 Earth -103885-09-01 20:38 J -36222328.75 -36222328.64 -36222328.52 0.0531 0.0455  
 Moon -103885-09-02 00:14 J -36222328.59 -36222328.49 -36222328.39 0.0531 0.0474 \*  
 Mercury -103882-01-03 04:33 J -36221475.43 -36221475.31 -36221475.20 0.0501 0.0326  
 Mercury -103882-04-02 20:38 J -36221385.79 -36221385.64 -36221385.49 0.0498 0.0156  
 Venus -103882-12-16 04:04 J -36221128.52 -36221128.33 -36221128.14 0.0492 0.0180  
 Moon -103878-03-13 04:18 J -36219945.48 -36219945.32 -36219945.15 0.0499 0.0369  
 Earth -103878-03-13 07:26 J -36219945.34 -36219945.19 -36219945.03 0.0499 0.0382 \*  
 Mercury -103876-06-03 04:04 J -36219132.48 -36219132.33 -36219132.18 0.0528 0.0004  
 Moon -103873-09-06 07:11 J -36217941.42 -36217941.20 -36217940.97 0.0529 0.0019  
 Earth -103873-09-06 11:16 J -36217941.26 -36217941.03 -36217940.81 0.0529 0.0011 \*  
 Mercury -103871-10-22 06:14 J -36217165.31 -36217165.24 -36217165.17 0.0502 0.0445  
 Mercury -103870-01-19 22:04 J -36217075.74 -36217075.58 -36217075.43 0.0499 0.0035  
 Mercury -103864-03-22 05:16 J -36214822.42 -36214822.28 -36214822.14 0.0527 0.0136  
 Mercury -103864-06-19 21:21 J -36214732.70 -36214732.61 -36214732.52 0.0530 0.0402  
 Venus -103863-02-15 18:42 J -36214491.90 -36214491.72 -36214491.53 0.0536 0.0208  
 Earth -103861-09-10 21:21 J -36213553.73 -36213553.61 -36213553.48 0.0528 0.0429  
 Moon -103861-09-11 00:57 J -36213553.56 -36213553.46 -36213553.35 0.0528 0.0459 \*  
 Mars -103859-01-03 07:40 J -36213074.41 -36213074.18 -36213073.94 0.0511 0.0310  
 Mercury -103859-11-07 23:02 J -36212765.69 -36212765.54 -36212765.39 0.0500 0.0092  
 Mercury -103858-02-05 16:04 J -36212675.92 -36212675.83 -36212675.74 0.0498 0.0399  
 Venus -103858-12-18 09:35 J -36212360.24 -36212360.10 -36212359.96 0.0491 0.0357

Mercury -103852-01-08 06:14 J -36210512.36 -36210512.24 -36210512.11 0.0526 0.0277

Mercury -103852-04-07 22:47 J -36210422.67 -36210422.55 -36210422.42 0.0529 0.0266

Venus -103852-10-21 06:57 J -36210226.39 -36210226.21 -36210226.03 0.0535 0.0245

Mercury -103847-08-27 00:42 J -36208455.61 -36208455.47 -36208455.33 0.0501 0.0210

Mercury -103847-11-24 17:16 J -36208365.91 -36208365.78 -36208365.65 0.0498 0.0277

Venus -103846-08-23 12:42 J -36208094.18 -36208093.97 -36208093.77 0.0491 0.0017

Mercury -103841-10-27 06:42 J -36206202.30 -36206202.22 -36206202.13 0.0526 0.0423

Mercury -103840-01-24 23:59 J -36206112.64 -36206112.50 -36206112.36 0.0529 0.0126

Mercury -103835-06-15 02:52 J -36204145.50 -36204145.38 -36204145.26 0.0501 0.0323

Mercury -103835-09-12 18:57 J -36204055.86 -36204055.71 -36204055.56 0.0498 0.0159

Venus -103834-04-28 16:47 J -36203827.95 -36203827.80 -36203827.64 0.0493 0.0321

Mercury -103829-11-13 01:40 J -36201802.57 -36201802.43 -36201802.28 0.0528 0.0017

Mercury -103828-02-10 17:45 J -36201712.77 -36201712.76 -36201712.76 0.0531 0.0530

Venus -103828-10-24 11:59 J -36201457.10 -36201457.00 -36201456.90 0.0537 0.0468

Mercury -103823-04-03 04:33 J -36199835.38 -36199835.31 -36199835.24 0.0502 0.0442

Mercury -103823-07-01 20:09 J -36199745.81 -36199745.66 -36199745.50 0.0499 0.0037

Mercury -103817-09-01 03:35 J -36197492.49 -36197492.35 -36197492.21 0.0527 0.0135

Mercury -103817-11-29 19:40 J -36197402.77 -36197402.68 -36197402.58 0.0530 0.0405

Venus -103816-06-29 01:40 J -36197191.63 -36197191.43 -36197191.22 0.0536 0.0022

Mercury -103811-04-19 21:35 J -36195435.75 -36195435.60 -36195435.44 0.0500 0.0087

Mercury -103811-07-18 14:38 J -36195345.98 -36195345.89 -36195345.80 0.0497 0.0402

Venus -103810-04-30 22:04 J -36195059.76 -36195059.58 -36195059.39 0.0491 0.0215

Moon -103807-03-07 10:18 J -36194018.31 -36194018.07 -36194017.83 0.0497 0.0129

Earth -103807-03-07 13:54 J -36194018.16 -36194017.92 -36194017.68 0.0497 0.0097 \*

Mars -103806-07-31 22:47 J -36193506.74 -36193506.55 -36193506.35 0.0514 0.0330

Mercury -103805-06-20 04:47 J -36193182.43 -36193182.30 -36193182.17 0.0526 0.0272

Mercury -103805-09-17 21:21 J -36193092.73 -36193092.61 -36193092.48 0.0529 0.0271

Venus -103804-03-03 13:40 J -36192926.05 -36192925.93 -36192925.81 0.0534 0.0430

Mercury -103799-02-05 22:47 J -36191125.69 -36191125.55 -36191125.41 0.0501 0.0210

Mercury -103799-05-06 15:21 J -36191035.99 -36191035.86 -36191035.73 0.0498 0.0277

Venus -103798-01-04 01:11 J -36190793.65 -36190793.45 -36190793.26 0.0492 0.0127  
 Earth -103795-03-12 09:50 J -36189630.27 -36189630.09 -36189629.90 0.0499 0.0315  
 Moon -103795-03-12 11:30 J -36189630.20 -36189630.02 -36189629.84 0.0499 0.0314 \*  
 Mercury -103793-04-08 05:30 J -36188872.35 -36188872.27 -36188872.17 0.0525 0.0414  
 Mercury -103793-07-06 22:47 J -36188782.69 -36188782.55 -36188782.41 0.0528 0.0134  
 Earth -103790-09-06 11:30 J -36187626.24 -36187626.02 -36187625.80 0.0530 0.0098  
 Moon -103790-09-06 15:06 J -36187626.09 -36187625.87 -36187625.65 0.0530 0.0074 \*  
 Mercury -103788-11-25 00:42 J -36186815.58 -36186815.47 -36186815.35 0.0501 0.0326  
 Mercury -103787-02-22 16:47 J -36186725.94 -36186725.80 -36186725.65 0.0499 0.0157  
 Venus -103787-09-09 04:47 J -36186527.36 -36186527.30 -36186527.24 0.0493 0.0466  
 Mercury -103781-04-24 23:30 J -36184472.66 -36184472.52 -36184472.37 0.0528 0.0013  
 Mercury -103781-07-23 15:21 J -36184382.87 -36184382.86 -36184382.84 0.0531 0.0525  
 Venus -103780-03-06 16:04 J -36184157.01 -36184156.83 -36184156.66 0.0537 0.0268  
 Moon -103778-09-11 02:09 J -36183238.57 -36183238.41 -36183238.25 0.0529 0.0384  
 Earth -103778-09-11 04:47 J -36183238.46 -36183238.30 -36183238.14 0.0529 0.0362 \*  
 Mercury -103776-09-13 03:06 J -36182505.44 -36182505.37 -36182505.30 0.0502 0.0437  
 Mercury -103776-12-11 18:42 J -36182415.87 -36182415.72 -36182415.56 0.0499 0.0041  
 Venus -103774-01-06 07:40 J -36182025.28 -36182025.18 -36182025.07 0.0490 0.0415  
 Mars -103770-05-05 02:23 J -36180445.61 -36180445.40 -36180445.18 0.0517 0.0266  
 Mercury -103769-02-12 01:26 J -36180162.59 -36180162.44 -36180162.30 0.0528 0.0142  
 Mercury -103769-05-11 17:45 J -36180072.86 -36180072.76 -36180072.67 0.0531 0.0399  
 Venus -103769-11-09 06:14 J -36179891.43 -36179891.24 -36179891.05 0.0536 0.0176  
 Mercury -103764-09-29 20:09 J -36178105.81 -36178105.66 -36178105.51 0.0500 0.0081  
 Mercury -103764-12-28 12:57 J -36178016.05 -36178015.96 -36178015.87 0.0497 0.0407  
 Venus -103763-09-11 11:02 J -36177759.25 -36177759.04 -36177758.84 0.0491 0.0075  
 Mercury -103758-12-01 03:06 J -36175852.50 -36175852.37 -36175852.24 0.0527 0.0272  
 Mercury -103757-02-28 19:40 J -36175762.80 -36175762.68 -36175762.55 0.0530 0.0274  
 Mercury -103752-07-18 21:50 J -36173795.73 -36173795.59 -36173795.45 0.0500 0.0201  
 Mercury -103752-10-16 14:09 J -36173706.04 -36173705.91 -36173705.78 0.0498 0.0284  
 Venus -103751-05-17 14:38 J -36173493.06 -36173492.89 -36173492.72 0.0493 0.0267

Mercury -103746-09-19 04:18 J -36171542.41 -36171542.32 -36171542.22 0.0526 0.0407  
 Mercury -103746-12-17 21:21 J -36171452.75 -36171452.61 -36171452.46 0.0529 0.0142  
 Mars -103741-06-21 10:04 J -36169805.34 -36169805.08 -36169804.82 0.0513 0.0246  
 Mercury -103740-05-06 23:02 J -36169485.65 -36169485.54 -36169485.42 0.0501 0.0324  
 Mercury -103740-08-04 15:06 J -36169396.01 -36169395.87 -36169395.72 0.0499 0.0159  
 Mercury -103734-10-05 22:47 J -36167142.70 -36167142.55 -36167142.40 0.0528 0.0004  
 Venus -103733-07-17 23:30 J -36166856.72 -36166856.52 -36166856.32 0.0536 0.0086  
 Mercury -103728-02-23 00:57 J -36165175.52 -36165175.46 -36165175.38 0.0502 0.0438  
 Mercury -103728-05-23 16:47 J -36165085.95 -36165085.80 -36165085.64 0.0499 0.0042  
 Venus -103727-05-19 20:23 J -36164724.82 -36164724.65 -36164724.49 0.0491 0.0274  
 Earth -103724-03-06 12:42 J -36163703.20 -36163702.97 -36163702.74 0.0496 0.0178  
 Moon -103724-03-06 15:06 J -36163703.08 -36163702.87 -36163702.66 0.0496 0.0207 \*  
 Mercury -103722-07-24 23:16 J -36162832.67 -36162832.53 -36162832.38 0.0527 0.0144  
 Mercury -103722-10-22 15:35 J -36162742.94 -36162742.85 -36162742.75 0.0530 0.0397  
 Venus -103721-03-22 10:47 J -36162591.19 -36162591.05 -36162590.91 0.0535 0.0373  
 Mercury -103716-03-11 18:57 J -36160775.86 -36160775.71 -36160775.56 0.0500 0.0074  
 Mercury -103716-06-09 11:45 J -36160686.09 -36160686.01 -36160685.92 0.0497 0.0415  
 Venus -103715-01-23 00:42 J -36160458.67 -36160458.47 -36160458.26 0.0492 0.0063  
 Moon -103712-03-11 09:35 J -36159315.32 -36159315.10 -36159314.87 0.0498 0.0240  
 Earth -103712-03-11 09:35 J -36159315.31 -36159315.10 -36159314.88 0.0498 0.0235 \*  
 Mercury -103710-05-13 00:57 J -36158522.58 -36158522.46 -36158522.33 0.0527 0.0276  
 Mercury -103710-08-10 17:45 J -36158432.88 -36158432.76 -36158432.63 0.0530 0.0270  
 Moon -103707-09-05 18:28 J -36157310.95 -36157310.73 -36157310.50 0.0531 0.0129  
 Earth -103707-09-05 21:35 J -36157310.82 -36157310.60 -36157310.39 0.0531 0.0154 \*  
 Mercury -103705-12-28 20:38 J -36156465.79 -36156465.64 -36156465.50 0.0500 0.0194  
 Mercury -103704-03-28 12:57 J -36156376.09 -36156375.96 -36156375.83 0.0498 0.0292  
 Venus -103704-09-28 04:18 J -36156192.43 -36156192.32 -36156192.21 0.0493 0.0404  
 Mercury -103698-03-01 02:38 J -36154212.48 -36154212.39 -36154212.29 0.0526 0.0406  
 Mercury -103698-05-29 19:54 J -36154122.81 -36154122.67 -36154122.53 0.0529 0.0143  
 Venus -103697-03-25 18:28 J -36153821.87 -36153821.73 -36153821.57 0.0537 0.0355

Earth -103695-09-10 12:42 J -36152923.15 -36152922.97 -36152922.78 0.0529 0.0300  
 Moon -103695-09-10 13:40 J -36152923.09 -36152922.93 -36152922.75 0.0529 0.0315 \*  
 Mercury -103693-10-16 22:04 J -36152155.69 -36152155.58 -36152155.45 0.0501 0.0313  
 Mercury -103692-01-14 14:09 J -36152066.05 -36152065.91 -36152065.76 0.0498 0.0170  
 Venus -103691-01-25 06:28 J -36151690.28 -36151690.23 -36151690.18 0.0490 0.0474  
 Mercury -103686-03-17 21:35 J -36149812.75 -36149812.60 -36149812.45 0.0528 0.0012  
 Venus -103686-11-29 07:26 J -36149556.39 -36149556.19 -36149555.99 0.0535 0.0097  
 Mercury -103681-08-04 23:30 J -36147845.59 -36147845.52 -36147845.44 0.0502 0.0433  
 Mercury -103681-11-02 15:21 J -36147756.01 -36147755.86 -36147755.70 0.0499 0.0046  
 Venus -103680-09-30 09:50 J -36147424.29 -36147424.09 -36147423.90 0.0491 0.0136  
 Mercury -103674-01-03 22:47 J -36145502.69 -36145502.55 -36145502.40 0.0527 0.0127  
 Mercury -103674-04-03 15:06 J -36145412.96 -36145412.87 -36145412.78 0.0530 0.0412  
 Mercury -103669-08-21 17:16 J -36143445.94 -36143445.78 -36143445.63 0.0500 0.0072  
 Mercury -103669-11-19 10:04 J -36143356.16 -36143356.08 -36143356.00 0.0497 0.0417  
 Venus -103668-06-05 13:54 J -36143158.11 -36143157.92 -36143157.74 0.0492 0.0204  
 Mercury -103663-10-22 23:16 J -36141192.66 -36141192.53 -36141192.41 0.0526 0.0275  
 Mercury -103662-01-20 16:04 J -36141102.96 -36141102.83 -36141102.71 0.0530 0.0270  
 Mercury -103657-06-09 19:26 J -36139135.83 -36139135.69 -36139135.55 0.0501 0.0184  
 Mercury -103657-09-07 11:45 J -36139046.13 -36139046.01 -36139045.88 0.0498 0.0302  
 Mars -103652-10-24 16:18 J -36137173.06 -36137172.82 -36137172.58 0.0515 0.0161  
 Mercury -103651-08-11 00:42 J -36136882.56 -36136882.47 -36136882.38 0.0526 0.0408  
 Mercury -103651-11-08 17:59 J -36136792.89 -36136792.75 -36136792.61 0.0529 0.0141  
 Venus -103650-08-06 23:45 J -36136521.70 -36136521.51 -36136521.32 0.0537 0.0159  
 Mercury -103645-03-28 21:06 J -36134825.74 -36134825.62 -36134825.49 0.0501 0.0302  
 Mercury -103645-06-26 13:11 J -36134736.09 -36134735.95 -36134735.80 0.0498 0.0180  
 Venus -103644-06-07 20:38 J -36134389.79 -36134389.64 -36134389.49 0.0490 0.0340  
 Moon -103641-03-05 18:42 J -36133387.93 -36133387.72 -36133387.50 0.0496 0.0254  
 Earth -103641-03-05 19:26 J -36133387.90 -36133387.69 -36133387.47 0.0496 0.0228 \*  
 Mercury -103639-08-27 20:09 J -36132482.81 -36132482.66 -36132482.52 0.0528 0.0018  
 Venus -103638-04-11 14:23 J -36132256.07 -36132255.90 -36132255.73 0.0535 0.0284

Mercury -103633-01-15 23:02 J -36130515.62 -36130515.54 -36130515.46 0.0502 0.0418  
 Mercury -103633-04-14 14:38 J -36130426.04 -36130425.89 -36130425.73 0.0499 0.0060  
 Venus -103632-02-11 00:14 J -36130123.69 -36130123.49 -36130123.28 0.0492 0.0010  
 Moon -103629-03-10 15:50 J -36129000.05 -36128999.84 -36128999.62 0.0498 0.0204  
 Earth -103629-03-10 17:45 J -36128999.98 -36128999.76 -36128999.53 0.0498 0.0190 \*  
 Mercury -103627-06-15 21:50 J -36128172.74 -36128172.59 -36128172.45 0.0527 0.0117  
 Mercury -103627-09-13 14:09 J -36128083.00 -36128082.91 -36128082.83 0.0530 0.0422  
 Earth -103624-09-05 03:06 J -36126995.57 -36126995.37 -36126995.17 0.0531 0.0227  
 Moon -103624-09-05 04:33 J -36126995.51 -36126995.31 -36126995.11 0.0531 0.0198 \*  
 Mercury -103621-02-01 16:04 J -36126115.99 -36126115.83 -36126115.68 0.0500 0.0066  
 Mercury -103621-05-01 08:52 J -36126026.21 -36126026.13 -36126026.05 0.0497 0.0424  
 Venus -103621-10-17 03:35 J -36125857.49 -36125857.35 -36125857.20 0.0493 0.0342  
 Mars -103616-07-29 10:33 J -36124111.14 -36124111.06 -36124110.97 0.0517 0.0486  
 Mercury -103615-04-03 23:02 J -36123862.67 -36123862.54 -36123862.41 0.0526 0.0255  
 Mercury -103615-07-02 15:35 J -36123772.97 -36123772.85 -36123772.72 0.0529 0.0289  
 Venus -103614-04-14 18:57 J -36123486.82 -36123486.71 -36123486.59 0.0537 0.0430  
 Earth -103612-09-09 18:28 J -36122607.94 -36122607.73 -36122607.53 0.0529 0.0226  
 Moon -103612-09-09 18:57 J -36122607.91 -36122607.71 -36122607.49 0.0529 0.0231 \*  
 Mercury -103610-11-20 17:59 J -36121805.90 -36121805.75 -36121805.61 0.0501 0.0180  
 Mercury -103609-02-18 10:18 J -36121716.19 -36121716.07 -36121715.94 0.0498 0.0306  
 Mercury -103603-01-20 23:02 J -36119552.63 -36119552.54 -36119552.44 0.0526 0.0405  
 Mercury -103603-04-20 16:18 J -36119462.96 -36119462.82 -36119462.68 0.0529 0.0144  
 Venus -103603-12-18 05:30 J -36119221.47 -36119221.27 -36119221.07 0.0536 0.0034  
 Mercury -103598-09-08 20:09 J -36117495.78 -36117495.66 -36117495.53 0.0501 0.0291  
 Mercury -103598-12-07 12:14 J -36117406.13 -36117405.99 -36117405.84 0.0498 0.0191  
 Venus -103597-10-19 11:30 J -36117089.20 -36117089.02 -36117088.83 0.0491 0.0209  
 Mercury -103591-02-06 18:14 J -36115152.89 -36115152.74 -36115152.59 0.0528 0.0013  
 Venus -103591-08-22 19:26 J -36114955.78 -36114955.69 -36114955.60 0.0534 0.0478  
 Mars -103587-09-16 09:35 J -36113470.39 -36113470.10 -36113469.80 0.0512 0.0048  
 Mercury -103586-06-27 22:04 J -36113185.66 -36113185.58 -36113185.49 0.0502 0.0407



Mercury -103586-09-25 13:54 J -36113096.08 -36113095.92 -36113095.77 0.0499 0.0072

Venus -103585-06-24 15:06 J -36112823.07 -36112822.87 -36112822.68 0.0492 0.0133

Mercury -103580-11-25 20:09 J -36110842.80 -36110842.66 -36110842.51 0.0528 0.0115

Mercury -103579-02-23 12:42 J -36110753.06 -36110752.97 -36110752.89 0.0531 0.0426

Mercury -103574-07-14 15:21 J -36108786.01 -36108785.86 -36108785.70 0.0500 0.0050

Mercury -103574-10-12 08:09 J -36108696.23 -36108696.16 -36108696.08 0.0497 0.0439

Venus -103573-02-28 18:42 J -36108556.77 -36108556.72 -36108556.66 0.0493 0.0475

Mercury -103568-09-13 21:50 J -36106532.72 -36106532.59 -36106532.45 0.0527 0.0245

Mercury -103568-12-12 14:38 J -36106443.01 -36106442.89 -36106442.77 0.0530 0.0299

Venus -103567-08-26 03:06 J -36106186.55 -36106186.37 -36106186.19 0.0536 0.0250

Mercury -103562-05-02 16:47 J -36104475.94 -36104475.80 -36104475.66 0.0501 0.0171

Mercury -103562-07-31 09:06 J -36104386.24 -36104386.12 -36104385.99 0.0498 0.0314

Venus -103561-06-26 20:38 J -36104054.75 -36104054.64 -36104054.52 0.0490 0.0408

Moon -103558-03-06 03:06 J -36103072.56 -36103072.37 -36103072.19 0.0496 0.0293

Earth -103558-03-06 04:18 J -36103072.52 -36103072.32 -36103072.11 0.0496 0.0272 \*

Mercury -103556-07-02 23:02 J -36102222.64 -36102222.54 -36102222.44 0.0526 0.0383

Mercury -103556-09-30 16:18 J -36102132.96 -36102132.82 -36102132.68 0.0529 0.0165

Venus -103555-04-30 15:50 J -36101921.03 -36101920.84 -36101920.66 0.0535 0.0204

Mercury -103550-02-18 18:42 J -36100165.84 -36100165.72 -36100165.59 0.0501 0.0286

Mercury -103550-05-19 10:47 J -36100076.19 -36100076.05 -36100075.90 0.0499 0.0197

Venus -103549-03-02 01:11 J -36099788.65 -36099788.45 -36099788.25 0.0491 0.0071

Earth -103546-03-10 21:35 J -36098684.83 -36098684.60 -36098684.36 0.0497 0.0129

Moon -103546-03-11 00:57 J -36098684.69 -36098684.46 -36098684.21 0.0497 0.0151 \*

Mercury -103544-07-19 16:47 J -36097822.95 -36097822.80 -36097822.65 0.0528 0.0018

Earth -103541-09-04 11:59 J -36096680.19 -36096680.00 -36096679.81 0.0532 0.0286

Moon -103541-09-04 12:42 J -36096680.18 -36096679.97 -36096679.77 0.0532 0.0256 \*

Mercury -103539-12-07 21:06 J -36095855.71 -36095855.62 -36095855.52 0.0502 0.0396

Mercury -103538-03-07 12:57 J -36095766.11 -36095765.96 -36095765.81 0.0499 0.0083

Venus -103538-11-06 05:59 J -36095522.41 -36095522.25 -36095522.07 0.0493 0.0266

Mercury -103532-05-07 18:28 J -36093512.88 -36093512.73 -36093512.59 0.0527 0.0114

Mercury -103532-08-05 10:47 J -36093423.13 -36093423.05 -36093422.96 0.0530 0.0426

Venus -103531-05-03 19:11 J -36093151.76 -36093151.70 -36093151.63 0.0538 0.0505

Moon -103529-09-09 03:50 J -36092292.54 -36092292.34 -36092292.13 0.0530 0.0176

Earth -103529-09-09 06:14 J -36092292.45 -36092292.24 -36092292.03 0.0530 0.0180 \*

Mercury -103527-12-24 14:38 J -36091456.05 -36091455.89 -36091455.74 0.0500 0.0037

Mercury -103526-03-24 07:26 J -36091366.25 -36091366.19 -36091366.13 0.0497 0.0452

Mercury -103520-02-23 20:23 J -36089202.78 -36089202.65 -36089202.52 0.0527 0.0242

Mercury -103520-05-24 13:11 J -36089113.07 -36089112.95 -36089112.83 0.0530 0.0302

Venus -103519-01-06 10:04 J -36088886.29 -36088886.08 -36088885.88 0.0536 0.0063

Mercury -103515-10-12 16:18 J -36087145.97 -36087145.82 -36087145.67 0.0500 0.0155

Mercury -103514-01-10 08:38 J -36087056.25 -36087056.14 -36087056.02 0.0498 0.0330

Venus -103514-11-08 11:59 J -36086754.17 -36086754.00 -36086753.83 0.0491 0.0277

Mercury -103509-12-12 22:04 J -36084892.69 -36084892.58 -36084892.48 0.0526 0.0373

Mercury -103508-03-12 15:06 J -36084803.00 -36084802.87 -36084802.73 0.0529 0.0176

Venus -103508-09-10 23:30 J -36084620.65 -36084620.52 -36084620.37 0.0534 0.0385

Mercury -103503-07-31 17:45 J -36082835.89 -36082835.76 -36082835.63 0.0501 0.0276

Mercury -103503-10-29 09:50 J -36082746.23 -36082746.09 -36082745.95 0.0498 0.0206

Venus -103502-07-14 15:06 J -36082488.07 -36082487.87 -36082487.67 0.0492 0.0066

Mars -103497-01-19 08:23 J -36080838.41 -36080838.15 -36080837.90 0.0515 0.0077

Mercury -103497-09-30 23:02 J -36080582.57 -36080582.54 -36080582.51 0.0525 0.0511

Mercury -103497-12-29 16:47 J -36080492.95 -36080492.80 -36080492.66 0.0528 0.0042

Mercury -103491-05-19 19:54 J -36078525.76 -36078525.67 -36078525.58 0.0502 0.0390

Mercury -103491-08-17 11:30 J -36078436.17 -36078436.02 -36078435.86 0.0499 0.0090

Venus -103490-03-19 19:40 J -36078221.79 -36078221.68 -36078221.56 0.0493 0.0406

Mercury -103485-10-17 17:02 J -36076182.93 -36076182.79 -36076182.64 0.0527 0.0109

Mercury -103484-01-15 09:21 J -36076093.19 -36076093.11 -36076093.02 0.0530 0.0430

Venus -103484-09-14 01:26 J -36075851.61 -36075851.44 -36075851.28 0.0537 0.0314

Mercury -103479-03-07 22:18 J -36074215.58 -36074215.57 -36074215.56 0.0503 0.0500

Mercury -103479-06-05 13:40 J -36074126.08 -36074125.93 -36074125.78 0.0500 0.0025

Mercury -103479-09-03 06:28 J -36074036.28 -36074036.23 -36074036.17 0.0497 0.0464

Venus -103478-07-16 23:16 J -36073719.56 -36073719.53 -36073719.50 0.0490 0.0484  
 Earth -103475-03-05 10:04 J -36072757.26 -36072757.08 -36072756.89 0.0495 0.0323  
 Moon -103475-03-05 13:11 J -36072757.12 -36072756.95 -36072756.76 0.0495 0.0337 \*  
 Mercury -103473-08-05 18:28 J -36071872.86 -36071872.73 -36071872.59 0.0526 0.0243  
 Mercury -103473-11-03 11:30 J -36071783.14 -36071783.02 -36071782.90 0.0530 0.0302  
 Venus -103472-05-19 15:06 J -36071586.06 -36071585.87 -36071585.67 0.0535 0.0135  
 Mars -103468-03-05 04:04 J -36070200.44 -36070200.33 -36070200.21 0.0514 0.0471  
 Mercury -103467-03-24 15:21 J -36069816.00 -36069815.86 -36069815.71 0.0500 0.0143  
 Mercury -103467-06-22 07:40 J -36069726.29 -36069726.18 -36069726.06 0.0498 0.0343  
 Venus -103466-03-22 02:38 J -36069453.58 -36069453.39 -36069453.19 0.0491 0.0144  
 Moon -103463-03-10 01:54 J -36068369.66 -36068369.42 -36068369.19 0.0497 0.0107  
 Earth -103463-03-10 05:59 J -36068369.49 -36068369.25 -36068369.01 0.0497 0.0084 \*  
 Mercury -103461-05-24 20:23 J -36067562.76 -36067562.65 -36067562.55 0.0526 0.0371  
 Mercury -103461-08-22 13:40 J -36067473.07 -36067472.93 -36067472.79 0.0529 0.0177  
 Moon -103458-09-04 21:50 J -36066364.77 -36066364.59 -36066364.41 0.0532 0.0304  
 Earth -103458-09-04 23:59 J -36066364.67 -36066364.50 -36066364.32 0.0532 0.0331 \*  
 Mercury -103455-01-10 17:16 J -36065505.91 -36065505.78 -36065505.65 0.0501 0.0260  
 Mercury -103455-04-10 09:21 J -36065416.25 -36065416.11 -36065415.97 0.0498 0.0222  
 Venus -103455-11-25 06:42 J -36065187.41 -36065187.22 -36065187.03 0.0492 0.0198  
 Mercury -103449-03-12 21:50 J -36063252.63 -36063252.59 -36063252.54 0.0525 0.0502  
 Mercury -103449-06-10 15:35 J -36063163.00 -36063162.85 -36063162.70 0.0528 0.0049  
 Earth -103446-09-09 14:38 J -36061977.11 -36061976.89 -36061976.67 0.0530 0.0119  
 Moon -103446-09-09 17:59 J -36061976.97 -36061976.75 -36061976.52 0.0530 0.0110 \*  
 Mercury -103444-10-29 18:42 J -36061195.81 -36061195.72 -36061195.62 0.0502 0.0381  
 Mercury -103443-01-27 10:33 J -36061106.22 -36061106.06 -36061105.91 0.0499 0.0098  
 Mercury -103437-03-29 17:02 J -36058852.94 -36058852.79 -36058852.64 0.0527 0.0086  
 Mercury -103437-06-27 09:21 J -36058763.18 -36058763.11 -36058763.03 0.0530 0.0452  
 Venus -103436-01-25 11:59 J -36058551.20 -36058551.00 -36058550.81 0.0536 0.0145  
 Mars -103433-12-11 01:26 J -36057135.67 -36057135.44 -36057135.21 0.0512 0.0321  
 Mercury -103432-08-17 20:52 J -36056885.65 -36056885.63 -36056885.60 0.0503 0.0494

Mercury -103432-11-15 12:14 J -36056796.14 -36056795.99 -36056795.83 0.0500 0.0022

Mercury -103431-02-13 05:02 J -36056706.33 -36056706.29 -36056706.24 0.0497 0.0470

Venus -103431-11-27 12:57 J -36056419.10 -36056418.96 -36056418.81 0.0491 0.0348

Mercury -103425-01-16 17:16 J -36054542.91 -36054542.78 -36054542.65 0.0526 0.0236

Mercury -103425-04-15 10:04 J -36054453.20 -36054453.08 -36054452.96 0.0529 0.0307

Venus -103425-09-29 21:35 J -36054285.76 -36054285.60 -36054285.44 0.0534 0.0324

Mercury -103420-09-03 14:23 J -36052486.05 -36052485.90 -36052485.75 0.0501 0.0133

Mercury -103420-12-02 06:57 J -36052396.32 -36052396.21 -36052396.10 0.0498 0.0353

Venus -103419-08-02 17:45 J -36052152.96 -36052152.76 -36052152.56 0.0492 0.0011

Mercury -103414-11-04 18:28 J -36050232.83 -36050232.73 -36050232.62 0.0526 0.0371

Mercury -103413-02-02 11:45 J -36050143.15 -36050143.01 -36050142.87 0.0529 0.0176

Mercury -103408-06-22 16:04 J -36048175.96 -36048175.83 -36048175.69 0.0501 0.0251

Mercury -103408-09-20 08:09 J -36048086.29 -36048086.16 -36048086.02 0.0498 0.0233

Venus -103407-04-07 21:21 J -36047886.76 -36047886.61 -36047886.46 0.0493 0.0333

Mercury -103402-08-23 20:09 J -36045922.70 -36045922.66 -36045922.62 0.0525 0.0502

Mercury -103402-11-21 13:54 J -36045833.07 -36045832.92 -36045832.77 0.0528 0.0050

Venus -103401-10-03 05:16 J -36045516.41 -36045516.28 -36045516.15 0.0537 0.0408

Mercury -103396-04-10 18:14 J -36043865.84 -36043865.74 -36043865.64 0.0502 0.0366

Mercury -103396-07-09 09:50 J -36043776.24 -36043776.09 -36043775.94 0.0499 0.0112

Moon -103392-03-04 14:09 J -36042442.06 -36042441.91 -36042441.76 0.0495 0.0381

Earth -103392-03-04 18:14 J -36042441.91 -36042441.74 -36042441.58 0.0495 0.0368 \*

Mercury -103390-09-09 15:50 J -36041522.99 -36041522.84 -36041522.70 0.0527 0.0080

Mercury -103390-12-08 08:09 J -36041433.23 -36041433.16 -36041433.09 0.0530 0.0459

Venus -103389-06-07 19:26 J -36041250.90 -36041250.69 -36041250.49 0.0535 0.0042

Mercury -103384-01-27 19:40 J -36039555.71 -36039555.68 -36039555.64 0.0503 0.0486

Mercury -103384-04-27 11:02 J -36039466.19 -36039466.04 -36039465.88 0.0500 0.0013

Mercury -103384-07-26 03:50 J -36039376.38 -36039376.34 -36039376.30 0.0497 0.0477

Venus -103383-04-10 02:38 J -36039118.57 -36039118.39 -36039118.20 0.0491 0.0209

Earth -103380-03-09 14:23 J -36038054.14 -36038053.90 -36038053.65 0.0497 0.0041

Moon -103380-03-09 18:42 J -36038053.96 -36038053.72 -36038053.48 0.0497 0.0070 \*

Mars -103379-07-11 04:47 J -36037565.50 -36037565.30 -36037565.11 0.0513 0.0328  
 Mercury -103378-06-28 17:02 J -36037212.93 -36037212.79 -36037212.65 0.0526 0.0215  
 Mercury -103378-09-26 09:50 J -36037123.20 -36037123.09 -36037122.98 0.0529 0.0327  
 Venus -103377-02-11 07:40 J -36036985.25 -36036985.18 -36036985.10 0.0534 0.0494  
 Earth -103375-09-04 05:45 J -36036049.40 -36036049.26 -36036049.11 0.0533 0.0403  
 Moon -103375-09-04 09:21 J -36036049.27 -36036049.11 -36036048.95 0.0533 0.0375 \*  
 Mercury -103372-02-13 12:57 J -36035156.11 -36035155.96 -36035155.81 0.0501 0.0128  
 Mercury -103372-05-14 05:16 J -36035066.38 -36035066.28 -36035066.17 0.0498 0.0358  
 Venus -103372-12-14 07:11 J -36034852.40 -36034852.20 -36034852.00 0.0493 0.0131  
 Moon -103368-03-14 06:14 J -36033666.32 -36033666.24 -36033666.15 0.0498 0.0463  
 Earth -103368-03-14 09:21 J -36033666.21 -36033666.11 -36033666.00 0.0498 0.0448 \*  
 Mercury -103366-04-16 17:02 J -36032902.89 -36032902.79 -36032902.68 0.0525 0.0365  
 Mercury -103366-07-15 10:18 J -36032813.20 -36032813.07 -36032812.93 0.0528 0.0182  
 Moon -103363-09-08 16:04 J -36031662.05 -36031661.83 -36031661.61 0.0532 0.0034  
 Earth -103363-09-08 19:54 J -36031661.89 -36031661.67 -36031661.45 0.0532 0.0049 \*  
 Mercury -103361-12-02 15:06 J -36030846.01 -36030845.87 -36030845.74 0.0502 0.0243  
 Mercury -103360-03-02 07:11 J -36030756.34 -36030756.20 -36030756.07 0.0499 0.0241  
 Venus -103360-08-19 11:45 J -36030586.07 -36030586.01 -36030585.95 0.0494 0.0471  
 Mercury -103354-02-02 18:14 J -36028592.78 -36028592.74 -36028592.70 0.0525 0.0502  
 Mercury -103354-05-03 11:59 J -36028503.15 -36028503.00 -36028502.85 0.0528 0.0048  
 Venus -103353-02-14 09:50 J -36028216.27 -36028216.09 -36028215.90 0.0536 0.0209  
 Earth -103351-09-13 12:57 J -36027274.01 -36027273.96 -36027273.89 0.0530 0.0509  
 Moon -103351-09-13 16:33 J -36027273.90 -36027273.81 -36027273.72 0.0530 0.0480 \*  
 Mercury -103349-09-20 17:02 J -36026535.90 -36026535.79 -36026535.69 0.0502 0.0359  
 Mercury -103349-12-19 08:38 J -36026446.29 -36026446.14 -36026445.99 0.0499 0.0120  
 Venus -103348-12-16 13:26 J -36026084.04 -36026083.94 -36026083.83 0.0490 0.0416  
 Mars -103343-04-14 10:18 J -36024504.28 -36024504.07 -36024503.86 0.0515 0.0281  
 Mercury -103342-02-19 13:54 J -36024193.07 -36024192.92 -36024192.78 0.0527 0.0082  
 Mercury -103342-05-20 06:14 J -36024103.31 -36024103.24 -36024103.17 0.0530 0.0458  
 Venus -103342-10-20 00:28 J -36023950.66 -36023950.48 -36023950.29 0.0535 0.0237

Mercury -103337-07-09 18:57 J -36022225.76 -36022225.71 -36022225.66 0.0503 0.0473

Mercury -103337-10-07 10:18 J -36022136.23 -36022136.07 -36022135.92 0.0500 0.0007

Mercury -103336-01-05 03:06 J -36022046.40 -36022046.37 -36022046.35 0.0497 0.0489

Venus -103336-08-21 17:16 J -36021817.98 -36021817.78 -36021817.58 0.0491 0.0075

Mercury -103331-12-08 15:35 J -36019882.99 -36019882.85 -36019882.71 0.0527 0.0211

Mercury -103330-03-08 08:23 J -36019793.26 -36019793.15 -36019793.04 0.0530 0.0332

Mercury -103325-07-26 11:30 J -36017826.17 -36017826.02 -36017825.87 0.0501 0.0122

Mercury -103325-10-24 03:50 J -36017736.44 -36017736.34 -36017736.23 0.0498 0.0364

Venus -103324-04-26 20:23 J -36017551.82 -36017551.65 -36017551.48 0.0493 0.0272

Mercury -103319-09-26 16:47 J -36015572.91 -36015572.80 -36015572.69 0.0526 0.0347

Mercury -103319-12-25 10:04 J -36015483.22 -36015483.08 -36015482.95 0.0529 0.0199

Venus -103318-10-23 06:14 J -36015181.31 -36015181.24 -36015181.15 0.0537 0.0487

Mars -103314-05-30 12:28 J -36013866.25 -36013865.98 -36013865.71 0.0514 0.0213

Mercury -103313-05-14 13:26 J -36013516.07 -36013515.94 -36013515.80 0.0501 0.0239

Mercury -103313-08-12 05:30 J -36013426.41 -36013426.27 -36013426.13 0.0499 0.0244

Earth -103309-03-03 23:59 J -36012126.62 -36012126.50 -36012126.36 0.0494 0.0415

Moon -103309-03-04 04:18 J -36012126.44 -36012126.32 -36012126.19 0.0494 0.0420 \*

Mercury -103307-07-15 16:47 J -36011262.84 -36011262.80 -36011262.75 0.0524 0.0496

Mercury -103307-10-13 10:33 J -36011173.21 -36011173.06 -36011172.92 0.0527 0.0053

Venus -103306-06-27 15:50 J -36010916.04 -36010915.84 -36010915.63 0.0535 0.0020

Mercury -103301-03-02 15:21 J -36009205.96 -36009205.86 -36009205.75 0.0503 0.0354

Mercury -103301-05-31 07:11 J -36009116.35 -36009116.20 -36009116.05 0.0500 0.0126

Venus -103300-04-29 03:35 J -36008783.51 -36008783.35 -36008783.18 0.0491 0.0280

Moon -103297-03-08 15:35 J -36007739.10 -36007738.85 -36007738.60 0.0495 0.0014

Earth -103297-03-08 19:11 J -36007738.95 -36007738.70 -36007738.46 0.0495 0.0017 \*

Mercury -103295-08-01 11:45 J -36006863.15 -36006863.01 -36006862.86 0.0527 0.0084

Mercury -103295-10-30 04:18 J -36006773.39 -36006773.32 -36006773.25 0.0530 0.0454

Venus -103294-03-02 04:47 J -36006650.41 -36006650.30 -36006650.18 0.0534 0.0436

Moon -103292-09-03 06:28 J -36005734.34 -36005734.23 -36005734.11 0.0534 0.0452

Earth -103292-09-03 10:18 J -36005734.16 -36005734.07 -36005733.97 0.0534 0.0476 \*

Mercury -103290-12-20 17:16 J -36004895.82 -36004895.78 -36004895.72 0.0503 0.0469

Mercury -103289-03-19 08:38 J -36004806.29 -36004806.14 -36004805.98 0.0500 0.0014

Mercury -103289-06-17 01:26 J -36004716.45 -36004716.44 -36004716.42 0.0497 0.0495

Venus -103288-01-02 06:42 J -36004517.42 -36004517.22 -36004517.02 0.0492 0.0065

Earth -103285-03-13 13:11 J -36003351.10 -36003350.95 -36003350.80 0.0497 0.0387

Moon -103285-03-13 14:38 J -36003351.03 -36003350.89 -36003350.75 0.0497 0.0396 \*

Mercury -103283-05-20 13:26 J -36002553.08 -36002552.94 -36002552.80 0.0526 0.0214

Mercury -103283-08-18 06:14 J -36002463.35 -36002463.24 -36002463.12 0.0530 0.0329

Earth -103280-09-08 05:02 J -36001346.52 -36001346.29 -36001346.07 0.0532 0.0009

Moon -103280-09-08 08:23 J -36001346.37 -36001346.15 -36001345.93 0.0532 0.0029 \*

Mercury -103277-01-06 10:33 J -36000496.21 -36000496.06 -36000495.91 0.0501 0.0112

Mercury -103277-04-05 02:52 J -36000406.48 -36000406.38 -36000406.28 0.0498 0.0373

Venus -103277-09-07 10:33 J -36000251.17 -36000251.06 -36000250.95 0.0494 0.0409

Mercury -103271-03-08 15:06 J -35998242.99 -35998242.87 -35998242.76 0.0526 0.0346

Mercury -103271-06-06 08:23 J -35998153.29 -35998153.15 -35998153.02 0.0529 0.0201

Venus -103270-03-05 12:28 J -35997881.15 -35997880.98 -35997880.81 0.0536 0.0296

Moon -103268-09-12 17:30 J -35996958.91 -35996958.77 -35996958.62 0.0530 0.0414

Earth -103268-09-12 19:54 J -35996958.79 -35996958.67 -35996958.55 0.0530 0.0440 \*

Mercury -103266-10-25 11:45 J -35996186.14 -35996186.01 -35996185.87 0.0501 0.0236

Mercury -103265-01-23 03:50 J -35996096.47 -35996096.34 -35996096.20 0.0499 0.0247

Venus -103264-01-04 11:45 J -35995749.05 -35995749.01 -35995748.96 0.0490 0.0475

Mercury -103260-12-25 16:04 J -35993932.88 -35993932.83 -35993932.77 0.0525 0.0483

Mercury -103259-03-25 09:50 J -35993843.24 -35993843.09 -35993842.94 0.0528 0.0067

Venus -103259-11-08 01:11 J -35993615.65 -35993615.45 -35993615.26 0.0535 0.0161

Mercury -103254-08-13 13:40 J -35991876.03 -35991875.93 -35991875.82 0.0502 0.0352

Mercury -103254-11-11 05:30 J -35991786.42 -35991786.27 -35991786.12 0.0499 0.0127

Venus -103253-09-09 16:04 J -35991483.02 -35991482.83 -35991482.63 0.0492 0.0135

Mercury -103247-01-11 10:18 J -35989533.22 -35989533.07 -35989532.92 0.0526 0.0079

Mercury -103247-04-11 02:38 J -35989443.46 -35989443.39 -35989443.32 0.0530 0.0457

Mercury -103242-06-01 15:50 J -35987565.90 -35987565.84 -35987565.79 0.0503 0.0468

Mercury -103242-08-30 06:57 J -35987476.36 -35987476.21 -35987476.05 0.0500 0.0017

Venus -103241-05-15 20:09 J -35987216.85 -35987216.66 -35987216.48 0.0493 0.0207

Mercury -103236-10-30 11:16 J -35985223.16 -35985223.03 -35985222.89 0.0526 0.0218

Mercury -103235-01-28 04:18 J -35985133.43 -35985133.32 -35985133.21 0.0529 0.0324

Mercury -103230-06-18 08:38 J -35983166.29 -35983166.14 -35983165.99 0.0501 0.0111

Mercury -103230-09-16 00:57 J -35983076.56 -35983076.46 -35983076.35 0.0498 0.0376

Moon -103226-03-03 22:18 J -35981811.61 -35981811.57 -35981811.52 0.0494 0.0485

Earth -103226-03-04 02:09 J -35981811.46 -35981811.41 -35981811.35 0.0494 0.0480

Mars -103225-10-03 22:18 J -35981231.81 -35981231.57 -35981231.32 0.0513 0.0145

Mercury -103224-08-18 12:42 J -35980913.08 -35980912.97 -35980912.86 0.0525 0.0352

Mercury -103224-11-16 05:59 J -35980823.38 -35980823.25 -35980823.11 0.0529 0.0195

Venus -103223-07-16 16:18 J -35980581.02 -35980580.82 -35980580.62 0.0536 0.0093

Mercury -103218-04-06 10:33 J -35978856.19 -35978856.06 -35978855.92 0.0501 0.0228

Mercury -103218-07-05 02:38 J -35978766.53 -35978766.39 -35978766.26 0.0499 0.0254

Venus -103217-05-18 01:26 J -35978448.59 -35978448.44 -35978448.29 0.0491 0.0337

Earth -103214-03-08 21:21 J -35977423.85 -35977423.61 -35977423.37 0.0495 0.0080

Moon -103214-03-08 23:30 J -35977423.76 -35977423.52 -35977423.29 0.0495 0.0052 \*

Mercury -103212-06-06 14:09 J -35976602.97 -35976602.91 -35976602.86 0.0525 0.0485

Mercury -103212-09-04 07:54 J -35976513.32 -35976513.17 -35976513.02 0.0528 0.0066

Venus -103211-03-21 06:14 J -35976315.39 -35976315.24 -35976315.08 0.0534 0.0355

Moon -103209-09-02 19:26 J -35975418.71 -35975418.69 -35975418.65 0.0534 0.0528

Mercury -103206-01-23 11:59 J -35974546.10 -35974546.00 -35974545.89 0.0502 0.0350

Mercury -103206-04-23 03:35 J -35974456.50 -35974456.35 -35974456.20 0.0499 0.0129

Venus -103205-01-22 04:18 J -35974182.53 -35974182.32 -35974182.12 0.0492 0.0015

Earth -103202-03-13 17:30 J -35973035.94 -35973035.77 -35973035.58 0.0497 0.0330

Moon -103202-03-13 17:59 J -35973035.94 -35973035.75 -35973035.55 0.0497 0.0326 \*

Mercury -103200-06-23 09:21 J -35972203.26 -35972203.11 -35972202.96 0.0527 0.0069

Mercury -103200-09-21 01:54 J -35972113.49 -35972113.42 -35972113.36 0.0530 0.0468

Moon -103197-09-07 04:47 J -35971031.53 -35971031.30 -35971031.08 0.0532 0.0118

Earth -103197-09-07 07:11 J -35971031.41 -35971031.20 -35971030.97 0.0532 0.0094 \*



Mercury -103195-11-11 13:54 J -35970235.97 -35970235.92 -35970235.86 0.0503 0.0467  
 Mercury -103194-02-09 05:16 J -35970146.44 -35970146.28 -35970146.13 0.0500 0.0010  
 Mercury -103194-05-09 22:04 J -35970056.58 -35970056.58 -35970056.58 0.0498 0.0497  
 Venus -103194-09-27 08:09 J -35969916.30 -35969916.16 -35969916.02 0.0494 0.0356  
 Mars -103189-07-08 06:42 J -35968170.31 -35968170.22 -35968170.12 0.0515 0.0475  
 Mercury -103188-04-11 09:50 J -35967893.23 -35967893.09 -35967892.96 0.0526 0.0214  
 Mercury -103188-07-10 02:38 J -35967803.50 -35967803.39 -35967803.28 0.0529 0.0326  
 Venus -103187-03-24 07:54 J -35967546.32 -35967546.17 -35967546.02 0.0536 0.0347  
 Earth -103185-09-11 18:57 J -35966643.88 -35966643.71 -35966643.54 0.0531 0.0346  
 Moon -103185-09-11 19:40 J -35966643.85 -35966643.68 -35966643.51 0.0531 0.0330 \*  
 Mercury -103183-11-28 06:42 J -35965836.37 -35965836.22 -35965836.07 0.0501 0.0112  
 Mercury -103182-02-25 23:02 J -35965746.63 -35965746.54 -35965746.43 0.0499 0.0376  
 Mercury -103176-01-28 10:33 J -35963583.16 -35963583.06 -35963582.94 0.0525 0.0355  
 Mercury -103176-04-28 04:04 J -35963493.47 -35963493.33 -35963493.20 0.0528 0.0191  
 Venus -103176-11-26 20:09 J -35963280.85 -35963280.66 -35963280.46 0.0535 0.0112  
 Mercury -103171-09-16 08:23 J -35961526.28 -35961526.15 -35961526.01 0.0502 0.0230  
 Mercury -103171-12-15 00:28 J -35961436.61 -35961436.48 -35961436.35 0.0499 0.0253  
 Venus -103170-09-29 13:25 J -35961148.12 -35961147.94 -35961147.75 0.0492 0.0193  
 Mercury -103165-11-16 11:30 J -35959273.06 -35959273.02 -35959272.97 0.0524 0.0493  
 Mercury -103164-02-14 05:30 J -35959183.42 -35959183.27 -35959183.13 0.0528 0.0058  
 Mars -103160-08-23 08:37 J -35957532.43 -35957532.14 -35957531.84 0.0514 0.0028  
 Mercury -103159-07-05 10:33 J -35957216.17 -35957216.06 -35957215.95 0.0502 0.0345  
 Mercury -103159-10-03 02:09 J -35957126.56 -35957126.41 -35957126.26 0.0499 0.0133  
 Venus -103158-06-04 17:16 J -35956881.97 -35956881.78 -35956881.58 0.0493 0.0153  
 Mercury -103153-12-03 07:11 J -35954873.35 -35954873.20 -35954873.05 0.0527 0.0073  
 Mercury -103152-03-02 23:45 J -35954783.58 -35954783.51 -35954783.44 0.0530 0.0465  
 Mercury -103147-04-23 11:59 J -35952906.05 -35952906.00 -35952905.94 0.0503 0.0466  
 Mercury -103147-07-22 03:21 J -35952816.52 -35952816.36 -35952816.21 0.0500 0.0012  
 Mercury -103147-10-19 19:54 J -35952726.67 -35952726.67 -35952726.66 0.0497 0.0496  
 Mercury -103141-09-21 08:23 J -35950563.28 -35950563.15 -35950563.01 0.0526 0.0208

Mercury -103141-12-20 01:25 J -35950473.55 -35950473.44 -35950473.33 0.0529 0.0334

Venus -103140-08-04 15:35 J -35950246.04 -35950245.85 -35950245.66 0.0536 0.0163

Mercury -103135-05-10 04:47 J -35948506.45 -35948506.30 -35948506.15 0.0501 0.0113

Mercury -103135-08-07 21:06 J -35948416.72 -35948416.62 -35948416.51 0.0498 0.0374

Venus -103134-06-06 22:18 J -35948113.69 -35948113.57 -35948113.44 0.0491 0.0390

Moon -103131-03-08 00:13 J -35947108.73 -35947108.49 -35947108.24 0.0495 0.0111

Earth -103131-03-08 00:42 J -35947108.70 -35947108.47 -35947108.24 0.0495 0.0138 \*

Mercury -103129-07-10 08:52 J -35946253.24 -35946253.13 -35946253.02 0.0525 0.0352

Mercury -103129-10-08 02:09 J -35946163.54 -35946163.41 -35946163.27 0.0528 0.0193

Venus -103128-04-09 01:54 J -35945980.59 -35945980.42 -35945980.26 0.0533 0.0304

Mercury -103123-02-26 06:28 J -35944196.37 -35944196.23 -35944196.10 0.0502 0.0233

Mercury -103123-05-26 22:18 J -35944106.70 -35944106.57 -35944106.43 0.0499 0.0251

Venus -103122-02-10 01:40 J -35943847.63 -35943847.43 -35943847.22 0.0493 0.0046

Moon -103119-03-12 17:01 J -35942720.99 -35942720.79 -35942720.58 0.0496 0.0254

Earth -103119-03-12 18:57 J -35942720.91 -35942720.71 -35942720.50 0.0496 0.0262 \*

Mercury -103117-04-28 09:35 J -35941943.14 -35941943.10 -35941943.05 0.0524 0.0494

Mercury -103117-07-27 03:21 J -35941853.50 -35941853.36 -35941853.21 0.0527 0.0056

Earth -103114-09-07 05:30 J -35940716.47 -35940716.27 -35940716.06 0.0533 0.0192

Moon -103114-09-07 06:42 J -35940716.41 -35940716.22 -35940716.02 0.0533 0.0220 \*

Mercury -103112-12-15 08:09 J -35939886.26 -35939886.16 -35939886.05 0.0503 0.0350

Mercury -103111-03-14 23:45 J -35939796.66 -35939796.51 -35939796.36 0.0500 0.0129

Venus -103111-10-16 04:47 J -35939581.46 -35939581.30 -35939581.14 0.0494 0.0302

Mercury -103105-05-15 04:33 J -35937543.45 -35937543.31 -35937543.16 0.0527 0.0082

Mercury -103105-08-12 21:06 J -35937453.69 -35937453.62 -35937453.54 0.0530 0.0456

Venus -103104-04-12 05:59 J -35937211.37 -35937211.25 -35937211.12 0.0537 0.0414

Earth -103102-09-11 23:59 J -35936328.69 -35936328.50 -35936328.30 0.0531 0.0272

Moon -103102-09-12 00:57 J -35936328.66 -35936328.46 -35936328.25 0.0531 0.0262 \*

Mercury -103100-10-03 10:18 J -35935576.12 -35935576.07 -35935576.01 0.0503 0.0464

Mercury -103099-01-01 01:25 J -35935486.59 -35935486.44 -35935486.28 0.0500 0.0019

Mercury -103093-03-03 06:13 J -35933233.38 -35933233.24 -35933233.11 0.0526 0.0215

Mercury -103093-05-31 23:16 J -35933143.65 -35933143.53 -35933143.42 0.0529 0.0328

Venus -103093-12-15 19:54 J -35932945.88 -35932945.67 -35932945.47 0.0535 0.0039

Mercury -103088-10-20 02:52 J -35931176.53 -35931176.38 -35931176.23 0.0501 0.0113

Mercury -103087-01-17 18:57 J -35931086.80 -35931086.71 -35931086.60 0.0498 0.0373

Venus -103087-10-18 09:49 J -35930813.27 -35930813.09 -35930812.91 0.0491 0.0242

Mercury -103082-12-21 07:25 J -35928923.30 -35928923.19 -35928923.08 0.0525 0.0349

Mercury -103081-03-20 00:42 J -35928833.60 -35928833.47 -35928833.33 0.0528 0.0197

Venus -103081-08-20 08:37 J -35928680.22 -35928680.14 -35928680.06 0.0533 0.0490

Mercury -103076-08-08 04:33 J -35926866.45 -35926866.31 -35926866.18 0.0502 0.0233

Mercury -103076-11-05 20:23 J -35926776.78 -35926776.65 -35926776.51 0.0499 0.0249

Venus -103075-06-23 13:11 J -35926547.14 -35926546.95 -35926546.75 0.0493 0.0105

Mars -103071-12-28 15:35 J -35924898.10 -35924897.85 -35924897.59 0.0513 0.0036

Mercury -103070-10-09 07:54 J -35924613.22 -35924613.17 -35924613.12 0.0524 0.0492

Mercury -103069-01-07 01:40 J -35924523.58 -35924523.43 -35924523.28 0.0527 0.0056

Mercury -103064-05-27 05:59 J -35922556.35 -35922556.25 -35922556.14 0.0503 0.0354

Mercury -103064-08-24 21:35 J -35922466.75 -35922466.60 -35922466.45 0.0500 0.0125

Venus -103063-02-26 16:18 J -35922280.90 -35922280.82 -35922280.74 0.0495 0.0453

Mercury -103058-10-26 02:37 J -35920213.53 -35920213.39 -35920213.24 0.0526 0.0084

Mercury -103057-01-23 19:11 J -35920123.77 -35920123.70 -35920123.62 0.0529 0.0452

Venus -103057-08-23 10:04 J -35919911.27 -35919911.08 -35919910.90 0.0535 0.0210

Mercury -103052-03-15 07:54 J -35918246.22 -35918246.17 -35918246.12 0.0504 0.0470

Mercury -103052-06-12 23:01 J -35918156.69 -35918156.54 -35918156.38 0.0501 0.0016

Mercury -103052-09-10 15:49 J -35918066.86 -35918066.84 -35918066.82 0.0498 0.0493

Venus -103051-06-25 17:59 J -35917778.83 -35917778.75 -35917778.65 0.0491 0.0441

Moon -103048-03-06 20:09 J -35916793.87 -35916793.66 -35916793.44 0.0494 0.0200

Earth -103048-03-06 21:21 J -35916793.82 -35916793.61 -35916793.39 0.0494 0.0225 \*

Mercury -103046-08-14 03:35 J -35915903.49 -35915903.35 -35915903.22 0.0526 0.0224

Mercury -103046-11-11 20:37 J -35915813.76 -35915813.64 -35915813.53 0.0529 0.0318

Venus -103045-04-27 22:33 J -35915645.74 -35915645.56 -35915645.37 0.0534 0.0246

Mercury -103040-04-01 00:57 J -35913846.60 -35913846.46 -35913846.31 0.0501 0.0113

Mercury -103040-06-29 17:16 J -35913756.88 -35913756.78 -35913756.68 0.0498 0.0373

Venus -103039-02-28 22:04 J -35913512.78 -35913512.58 -35913512.38 0.0492 0.0097

Earth -103036-03-11 16:18 J -35912406.04 -35912405.82 -35912405.59 0.0496 0.0177

Moon -103036-03-11 19:25 J -35912405.92 -35912405.69 -35912405.45 0.0496 0.0165 \*

Mercury -103034-06-02 04:47 J -35911593.40 -35911593.30 -35911593.19 0.0525 0.0358

Mercury -103034-08-30 22:18 J -35911503.70 -35911503.57 -35911503.43 0.0528 0.0190

Earth -103031-09-06 10:18 J -35910401.26 -35910401.07 -35910400.88 0.0533 0.0269

Moon -103031-09-06 10:47 J -35910401.24 -35910401.05 -35910400.85 0.0533 0.0298 \*

Mercury -103028-01-18 02:37 J -35909536.53 -35909536.39 -35909536.26 0.0502 0.0234

Mercury -103028-04-17 18:13 J -35909446.87 -35909446.74 -35909446.60 0.0499 0.0248

Venus -103028-11-04 00:57 J -35909246.63 -35909246.46 -35909246.29 0.0494 0.0254

Mercury -103022-03-21 06:13 J -35907283.29 -35907283.24 -35907283.20 0.0524 0.0492

Mercury -103022-06-18 23:59 J -35907193.64 -35907193.50 -35907193.35 0.0527 0.0059

Venus -103021-05-01 04:47 J -35906876.38 -35906876.30 -35906876.21 0.0537 0.0483

Moon -103019-09-10 23:16 J -35906013.73 -35906013.53 -35906013.32 0.0531 0.0175

Earth -103019-09-11 01:25 J -35906013.65 -35906013.44 -35906013.23 0.0531 0.0182 \*

Mercury -103017-11-06 04:18 J -35905226.43 -35905226.32 -35905226.22 0.0503 0.0353

Mercury -103016-02-03 19:40 J -35905136.83 -35905136.68 -35905136.53 0.0500 0.0125

Mercury -103010-04-07 00:57 J -35902883.61 -35902883.46 -35902883.31 0.0526 0.0082

Mercury -103010-07-05 17:30 J -35902793.84 -35902793.77 -35902793.70 0.0529 0.0454

Venus -103009-01-04 15:35 J -35902611.05 -35902610.85 -35902610.64 0.0534 0.0021

Mars -103006-11-16 04:18 J -35901199.59 -35901199.32 -35901199.04 0.0514 0.0199

Mercury -103005-08-25 05:45 J -35900916.31 -35900916.26 -35900916.21 0.0504 0.0474

Mercury -103005-11-22 20:52 J -35900826.78 -35900826.63 -35900826.47 0.0501 0.0009

Mercury -103004-02-20 13:40 J -35900736.96 -35900736.93 -35900736.91 0.0498 0.0490

Venus -103004-11-06 06:13 J -35900478.41 -35900478.24 -35900478.08 0.0492 0.0294

# 103RD MILLENNIUM

# BCE

**This is a list of transits visible from Jupiter in the 103rd millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-102998-01-24 01:40 J	-35898573.56	-35898573.43	-35898573.29	0.0525	0.0223		
Mercury	-102998-04-23 18:42 J	-35898483.83	-35898483.72	-35898483.60	0.0528	0.0319		
Venus	-102998-09-09 03:21 J	-35898345.46	-35898345.36	-35898345.24	0.0533	0.0442		
Mercury	-102993-09-10 22:33 J	-35896516.70	-35896516.56	-35896516.41	0.0501	0.0119		
Mercury	-102993-12-09 14:52 J	-35896426.98	-35896426.88	-35896426.78	0.0499	0.0367		
Venus	-102992-07-12 09:06 J	-35896212.32	-35896212.12	-35896211.92	0.0493	0.0054		
Mercury	-102987-11-12 02:23 J	-35894263.51	-35894263.40	-35894263.29	0.0525	0.0367		
Mercury	-102986-02-09 19:54 J	-35894173.81	-35894173.67	-35894173.53	0.0528	0.0180		
Mercury	-102981-06-30 00:42 J	-35892206.60	-35892206.47	-35892206.33	0.0502	0.0233		
Mercury	-102981-09-27 16:33 J	-35892116.94	-35892116.81	-35892116.68	0.0499	0.0249		
Venus	-102980-03-17 13:11 J	-35891946.06	-35891945.95	-35891945.83	0.0494	0.0400		
Mercury	-102975-08-31 03:35 J	-35889953.39	-35889953.35	-35889953.31	0.0524	0.0501		
Mercury	-102975-11-28 21:35 J	-35889863.75	-35889863.60	-35889863.45	0.0527	0.0050		
Venus	-102974-09-12 08:37 J	-35889576.31	-35889576.14	-35889575.96	0.0536	0.0280		
Mercury	-102969-04-18 02:23 J	-35887896.51	-35887896.40	-35887896.29	0.0503	0.0353		
Mercury	-102969-07-16 17:45 J	-35887806.91	-35887806.76	-35887806.61	0.0500	0.0125		
Earth	-102965-03-05 22:47 J	-35886478.74	-35886478.55	-35886478.35	0.0494	0.0292		
Moon	-102965-03-06 01:40 J	-35886478.64	-35886478.43	-35886478.22	0.0494	0.0267	*	
Mercury	-102963-09-16 23:16 J	-35885553.68	-35885553.53	-35885553.39	0.0527	0.0083		

Mercury -102963-12-15 15:49 J -35885463.91 -35885463.84 -35885463.76 0.0530 0.0456

Venus -102962-05-17 22:04 J -35885310.77 -35885310.58 -35885310.38 0.0534 0.0175

Mercury -102957-02-05 04:04 J -35883586.37 -35883586.33 -35883586.27 0.0503 0.0471

Mercury -102957-05-04 19:11 J -35883496.85 -35883496.70 -35883496.54 0.0500 0.0012

Mercury -102957-08-02 11:45 J -35883407.03 -35883407.01 -35883406.98 0.0498 0.0490

Venus -102956-03-19 17:59 J -35883177.94 -35883177.75 -35883177.55 0.0492 0.0146

Moon -102953-03-10 15:21 J -35882091.09 -35882090.86 -35882090.62 0.0496 0.0099

Earth -102953-03-10 19:11 J -35882090.93 -35882090.70 -35882090.46 0.0496 0.0115 \*

Mars -102952-06-18 23:01 J -35881625.69 -35881625.54 -35881625.38 0.0511 0.0404

Mercury -102951-07-06 00:13 J -35881243.63 -35881243.49 -35881243.36 0.0525 0.0220

Mercury -102951-10-03 17:16 J -35881153.90 -35881153.78 -35881153.67 0.0528 0.0321

Moon -102948-09-05 05:30 J -35880086.40 -35880086.27 -35880086.13 0.0533 0.0410

Earth -102948-09-05 07:25 J -35880086.35 -35880086.19 -35880086.03 0.0533 0.0375 \*

Mercury -102945-02-21 20:37 J -35879186.79 -35879186.64 -35879186.50 0.0502 0.0122

Mercury -102945-05-21 12:42 J -35879097.07 -35879096.97 -35879096.86 0.0499 0.0364

Venus -102945-11-22 21:06 J -35878911.81 -35878911.62 -35878911.44 0.0494 0.0204

Moon -102941-03-15 17:59 J -35877702.79 -35877702.75 -35877702.71 0.0497 0.0489

Mercury -102939-04-24 00:57 J -35876933.57 -35876933.46 -35876933.35 0.0524 0.0361

Mercury -102939-07-22 18:28 J -35876843.87 -35876843.73 -35876843.59 0.0528 0.0184

Venus -102938-05-21 00:13 J -35876541.50 -35876541.49 -35876541.47 0.0536 0.0534

Earth -102936-09-09 23:30 J -35875698.74 -35875698.52 -35875698.30 0.0532 0.0080

Moon -102936-09-10 02:37 J -35875698.62 -35875698.39 -35875698.17 0.0532 0.0079 \*

Mercury -102934-12-10 22:18 J -35874876.70 -35874876.57 -35874876.43 0.0502 0.0239

Mercury -102933-03-09 14:09 J -35874787.04 -35874786.91 -35874786.77 0.0499 0.0243

Mercury -102927-02-10 00:57 J -35872623.48 -35872623.46 -35872623.42 0.0524 0.0509

Mercury -102927-05-10 19:11 J -35872533.85 -35872533.70 -35872533.55 0.0527 0.0042

Venus -102926-01-23 12:13 J -35872276.20 -35872275.99 -35872275.79 0.0535 0.0074

Mercury -102922-09-29 00:42 J -35870566.58 -35870566.47 -35870566.36 0.0503 0.0351

Mercury -102922-12-27 16:04 J -35870476.98 -35870476.83 -35870476.68 0.0500 0.0127

Venus -102921-11-25 03:21 J -35870143.50 -35870143.36 -35870143.22 0.0491 0.0349

Mars -102916-03-22 22:47 J -35868564.79 -35868564.55 -35868564.31 0.0513 0.0180  
 Mercury -102915-02-26 20:52 J -35868223.78 -35868223.63 -35868223.49 0.0527 0.0091  
 Mercury -102915-05-27 13:25 J -35868134.01 -35868133.94 -35868133.86 0.0530 0.0449  
 Venus -102915-09-28 01:54 J -35868010.56 -35868010.42 -35868010.27 0.0534 0.0378  
 Mercury -102910-07-18 02:23 J -35866256.45 -35866256.40 -35866256.34 0.0503 0.0469  
 Mercury -102910-10-15 17:30 J -35866166.92 -35866166.77 -35866166.62 0.0500 0.0005  
 Mercury -102909-01-13 09:49 J -35866077.10 -35866077.09 -35866077.06 0.0498 0.0492  
 Venus -102909-07-31 06:28 J -35865877.44 -35865877.23 -35865877.03 0.0493 0.0009  
 Mercury -102904-12-15 22:18 J -35863913.71 -35863913.57 -35863913.43 0.0526 0.0221  
 Mercury -102903-03-15 15:35 J -35863823.97 -35863823.85 -35863823.74 0.0529 0.0322  
 Mercury -102898-08-03 19:11 J -35861856.85 -35861856.70 -35861856.55 0.0501 0.0117  
 Mercury -102898-11-01 11:16 J -35861767.14 -35861767.03 -35861766.93 0.0498 0.0368  
 Venus -102897-04-05 09:49 J -35861611.23 -35861611.09 -35861610.95 0.0494 0.0351  
 Mercury -102892-10-03 23:16 J -35859603.64 -35859603.53 -35859603.42 0.0524 0.0358  
 Mercury -102891-01-01 16:47 J -35859513.93 -35859513.80 -35859513.66 0.0528 0.0189  
 Venus -102891-10-01 06:57 J -35859241.37 -35859241.21 -35859241.06 0.0536 0.0345  
 Mars -102887-05-03 17:45 J -35857930.94 -35857930.76 -35857930.57 0.0516 0.0403  
 Mercury -102886-05-22 20:23 J -35857546.78 -35857546.65 -35857546.51 0.0502 0.0240  
 Mercury -102886-08-20 12:13 J -35857457.13 -35857456.99 -35857456.85 0.0499 0.0242  
 Moon -102882-03-05 22:18 J -35856163.74 -35856163.57 -35856163.40 0.0494 0.0333  
 Earth -102882-03-06 01:54 J -35856163.59 -35856163.42 -35856163.25 0.0494 0.0355 \*  
 Mercury -102880-07-22 23:59 J -35855293.54 -35855293.50 -35855293.46 0.0524 0.0499  
 Mercury -102880-10-20 17:59 J -35855203.90 -35855203.75 -35855203.60 0.0527 0.0050  
 Venus -102879-06-05 18:42 J -35854975.91 -35854975.72 -35854975.52 0.0534 0.0117  
 Mercury -102874-03-10 22:33 J -35853236.67 -35853236.56 -35853236.46 0.0503 0.0355  
 Mercury -102874-06-08 13:54 J -35853147.07 -35853146.92 -35853146.77 0.0500 0.0123  
 Venus -102873-04-07 15:06 J -35852843.06 -35852842.87 -35852842.68 0.0492 0.0200  
 Earth -102870-03-10 16:18 J -35851776.06 -35851775.82 -35851775.58 0.0495 0.0029  
 Moon -102870-03-10 20:23 J -35851775.89 -35851775.65 -35851775.40 0.0495 0.0015 \*  
 Mercury -102868-08-08 18:28 J -35850893.87 -35850893.73 -35850893.58 0.0526 0.0096

Mercury -102868-11-06 11:16 J -35850804.10 -35850804.03 -35850803.95 0.0530 0.0443

Earth -102865-09-04 12:28 J -35849771.09 -35849770.98 -35849770.86 0.0534 0.0451

Moon -102865-09-04 15:35 J -35849770.94 -35849770.85 -35849770.75 0.0534 0.0482 \*

Mercury -102863-12-28 00:57 J -35848926.51 -35848926.46 -35848926.40 0.0504 0.0465

Mercury -102862-03-27 16:04 J -35848836.99 -35848836.83 -35848836.68 0.0501 0.0016

Mercury -102862-06-25 08:23 J -35848747.16 -35848747.15 -35848747.14 0.0498 0.0495

Venus -102862-12-12 19:25 J -35848576.88 -35848576.69 -35848576.49 0.0493 0.0144

Moon -102858-03-15 08:23 J -35847388.29 -35847388.15 -35847388.00 0.0496 0.0406

Earth -102858-03-15 11:59 J -35847388.11 -35847388.00 -35847387.88 0.0496 0.0433 \*

Mercury -102856-05-27 19:54 J -35846583.80 -35846583.67 -35846583.53 0.0526 0.0228

Mercury -102856-08-25 13:11 J -35846494.06 -35846493.95 -35846493.83 0.0529 0.0316

Moon -102853-09-09 03:35 J -35845383.57 -35845383.35 -35845383.13 0.0533 0.0018

Earth -102853-09-09 07:11 J -35845383.42 -35845383.20 -35845382.98 0.0533 0.0016 \*

Mars -102851-02-09 03:21 J -35844865.51 -35844865.36 -35844865.20 0.0514 0.0433

Mercury -102850-01-13 17:30 J -35844526.91 -35844526.77 -35844526.62 0.0501 0.0113

Mercury -102850-04-13 09:35 J -35844437.20 -35844437.10 -35844436.99 0.0498 0.0372

Mercury -102844-03-15 21:35 J -35842273.71 -35842273.60 -35842273.49 0.0525 0.0359

Mercury -102844-06-13 15:06 J -35842184.00 -35842183.87 -35842183.73 0.0528 0.0189

Venus -102843-02-11 13:25 J -35841941.14 -35841940.94 -35841940.75 0.0535 0.0154

Earth -102841-09-13 22:47 J -35840995.64 -35840995.55 -35840995.43 0.0531 0.0467

Moon -102841-09-14 02:23 J -35840995.46 -35840995.40 -35840995.32 0.0531 0.0500 \*

Mercury -102839-11-01 19:11 J -35840216.83 -35840216.70 -35840216.56 0.0502 0.0232

Mercury -102838-01-30 11:01 J -35840127.17 -35840127.04 -35840126.91 0.0499 0.0249

Venus -102838-12-15 00:42 J -35839808.58 -35839808.47 -35839808.35 0.0491 0.0403

Mercury -102832-01-01 22:33 J -35837963.60 -35837963.56 -35837963.51 0.0524 0.0494

Mercury -102832-04-01 16:33 J -35837873.95 -35837873.81 -35837873.66 0.0527 0.0057

Venus -102832-10-17 01:40 J -35837675.59 -35837675.43 -35837675.26 0.0533 0.0304

Mercury -102827-08-20 20:52 J -35835906.74 -35835906.63 -35835906.53 0.0503 0.0353

Mercury -102827-11-18 12:13 J -35835817.14 -35835816.99 -35835816.84 0.0500 0.0125

Venus -102826-08-20 03:49 J -35835542.55 -35835542.34 -35835542.14 0.0493 0.0055



Mercury -102820-01-18 17:45 J -35833563.91 -35833563.76 -35833563.62 0.0526 0.0084

Mercury -102820-04-18 10:18 J -35833474.14 -35833474.07 -35833473.99 0.0529 0.0454

Mercury -102815-06-08 23:01 J -35831596.60 -35831596.54 -35831596.49 0.0504 0.0467

Mercury -102815-09-06 13:54 J -35831507.07 -35831506.92 -35831506.76 0.0501 0.0011

Mercury -102815-12-05 06:28 J -35831417.25 -35831417.23 -35831417.22 0.0498 0.0494

Venus -102814-04-25 07:40 J -35831276.34 -35831276.18 -35831276.02 0.0494 0.0293

Mercury -102809-11-06 17:59 J -35829253.89 -35829253.75 -35829253.62 0.0525 0.0231

Mercury -102808-02-04 11:16 J -35829164.15 -35829164.03 -35829163.92 0.0529 0.0312

Venus -102808-10-20 03:49 J -35828906.47 -35828906.34 -35828906.21 0.0536 0.0404

Mercury -102803-06-25 16:04 J -35827196.97 -35827196.83 -35827196.68 0.0501 0.0108

Mercury -102803-09-23 08:23 J -35827107.25 -35827107.15 -35827107.05 0.0499 0.0378

Earth -102799-03-05 02:09 J -35825848.52 -35825848.41 -35825848.28 0.0493 0.0427

Moon -102799-03-05 06:28 J -35825848.37 -35825848.23 -35825848.09 0.0493 0.0405 \*

Mars -102798-09-12 10:04 J -35825292.30 -35825292.08 -35825291.85 0.0511 0.0253

Mercury -102797-08-25 19:11 J -35824943.80 -35824943.70 -35824943.59 0.0525 0.0365

Mercury -102797-11-23 12:57 J -35824854.09 -35824853.96 -35824853.82 0.0528 0.0184

Venus -102796-06-24 17:45 J -35824640.96 -35824640.76 -35824640.55 0.0535 0.0049

Mercury -102791-04-13 17:59 J -35822886.88 -35822886.75 -35822886.61 0.0502 0.0224

Mercury -102791-07-12 09:35 J -35822797.23 -35822797.10 -35822796.96 0.0499 0.0256

Venus -102790-04-27 14:09 J -35822508.08 -35822507.91 -35822507.74 0.0492 0.0263

Moon -102787-03-09 17:16 J -35821461.02 -35821460.78 -35821460.53 0.0495 0.0049

Earth -102787-03-09 21:21 J -35821460.85 -35821460.61 -35821460.37 0.0495 0.0027 \*

Mercury -102785-06-13 20:37 J -35820633.68 -35820633.64 -35820633.59 0.0524 0.0495

Mercury -102785-09-11 14:52 J -35820544.02 -35820543.88 -35820543.73 0.0527 0.0057

Venus -102784-02-27 07:54 J -35820375.24 -35820375.17 -35820375.09 0.0533 0.0496

Earth -102782-09-04 20:09 J -35819455.71 -35819455.66 -35819455.60 0.0534 0.0514

Mercury -102779-01-30 19:54 J -35818576.78 -35818576.67 -35818576.56 0.0503 0.0342

Mercury -102779-04-30 11:16 J -35818487.18 -35818487.03 -35818486.88 0.0500 0.0135

Venus -102779-12-31 17:45 J -35818241.96 -35818241.76 -35818241.56 0.0493 0.0086

Earth -102775-03-14 18:13 J -35817072.89 -35817072.74 -35817072.59 0.0496 0.0382

Moon -102775-03-14 20:23 J -35817072.81 -35817072.65 -35817072.49 0.0496 0.0365 \*  
 Mercury -102773-06-30 16:18 J -35816233.96 -35816233.82 -35816233.67 0.0526 0.0077  
 Mercury -102773-09-28 09:21 J -35816144.18 -35816144.11 -35816144.05 0.0529 0.0462  
 Earth -102770-09-09 10:04 J -35815068.30 -35815068.08 -35815067.86 0.0533 0.0068  
 Moon -102770-09-09 13:54 J -35815068.14 -35815067.92 -35815067.70 0.0533 0.0058 \*  
 Mercury -102768-11-18 21:21 J -35814266.66 -35814266.61 -35814266.55 0.0504 0.0463  
 Mercury -102767-02-16 12:28 J -35814177.14 -35814176.98 -35814176.83 0.0501 0.0011  
 Venus -102767-09-05 20:37 J -35813975.73 -35813975.64 -35813975.54 0.0495 0.0438  
 Mars -102762-06-16 23:16 J -35812230.70 -35812230.53 -35812230.36 0.0514 0.0380  
 Mercury -102761-04-18 17:30 J -35811923.91 -35811923.77 -35811923.64 0.0525 0.0215  
 Mercury -102761-07-17 10:33 J -35811834.17 -35811834.06 -35811833.94 0.0528 0.0328  
 Venus -102760-03-02 12:28 J -35811606.17 -35811605.98 -35811605.80 0.0535 0.0224  
 Moon -102758-09-13 23:01 J -35810680.67 -35810680.54 -35810680.39 0.0531 0.0413  
 Earth -102758-09-14 01:54 J -35810680.57 -35810680.42 -35810680.26 0.0531 0.0384 \*  
 Mercury -102756-12-05 14:23 J -35809867.05 -35809866.90 -35809866.75 0.0502 0.0106  
 Mercury -102755-03-05 06:28 J -35809777.33 -35809777.23 -35809777.13 0.0499 0.0379  
 Venus -102754-01-02 23:30 J -35809473.58 -35809473.52 -35809473.46 0.0491 0.0466  
 Mercury -102749-02-05 17:30 J -35807613.88 -35807613.77 -35807613.66 0.0525 0.0364  
 Mercury -102749-05-05 11:16 J -35807524.17 -35807524.03 -35807523.89 0.0528 0.0183  
 Venus -102749-11-04 22:47 J -35807340.73 -35807340.55 -35807340.37 0.0534 0.0247  
 Mercury -102744-09-23 16:47 J -35805556.93 -35805556.80 -35805556.66 0.0502 0.0217  
 Mercury -102744-12-22 08:23 J -35805467.28 -35805467.15 -35805467.01 0.0499 0.0265  
 Venus -102743-09-08 04:18 J -35805207.51 -35805207.32 -35805207.12 0.0492 0.0125  
 Mercury -102738-11-24 18:42 J -35803303.76 -35803303.72 -35803303.68 0.0524 0.0498  
 Mercury -102737-02-22 12:57 J -35803214.11 -35803213.96 -35803213.81 0.0527 0.0053  
 Mars -102733-07-28 08:09 J -35801596.45 -35801596.16 -35801595.87 0.0516 0.0125  
 Mercury -102732-07-12 18:42 J -35801246.83 -35801246.72 -35801246.60 0.0503 0.0333  
 Mercury -102732-10-10 10:04 J -35801157.23 -35801157.08 -35801156.93 0.0500 0.0144  
 Venus -102731-05-14 07:54 J -35800941.34 -35800941.17 -35800940.98 0.0494 0.0226  
 Mercury -102726-12-11 14:37 J -35798904.03 -35798903.89 -35798903.74 0.0527 0.0077

Mercury -102725-03-10 07:40 J -35798814.25 -35798814.18 -35798814.11 0.0530 0.0464

Venus -102725-11-08 06:57 J -35798571.28 -35798571.21 -35798571.13 0.0537 0.0495

Mercury -102720-04-30 20:52 J -35796936.70 -35796936.63 -35796936.57 0.0503 0.0449

Mercury -102720-07-29 11:45 J -35796847.16 -35796847.01 -35796846.86 0.0500 0.0024

Moon -102716-03-04 05:30 J -35795533.35 -35795533.27 -35795533.17 0.0493 0.0457

Earth -102716-03-04 09:49 J -35795533.15 -35795533.09 -35795533.02 0.0493 0.0472

Mercury -102714-09-29 16:18 J -35794593.96 -35794593.82 -35794593.68 0.0525 0.0206

Mercury -102714-12-28 09:35 J -35794504.21 -35794504.10 -35794503.99 0.0529 0.0336

Venus -102713-07-13 20:09 J -35794305.86 -35794305.66 -35794305.46 0.0535 0.0038

Mercury -102708-05-17 13:11 J -35792537.10 -35792536.95 -35792536.80 0.0501 0.0099

Mercury -102708-08-15 05:01 J -35792447.38 -35792447.29 -35792447.19 0.0499 0.0385

Venus -102707-05-16 13:11 J -35792173.10 -35792172.95 -35792172.79 0.0492 0.0326

Earth -102704-03-09 04:33 J -35791145.55 -35791145.31 -35791145.07 0.0494 0.0075

Moon -102704-03-09 07:11 J -35791145.43 -35791145.20 -35791144.96 0.0494 0.0100 \*

Mercury -102702-07-18 17:16 J -35790283.90 -35790283.78 -35790283.67 0.0525 0.0344

Mercury -102702-10-16 10:47 J -35790194.18 -35790194.05 -35790193.91 0.0528 0.0202

Venus -102701-03-18 08:23 J -35790040.27 -35790040.15 -35790040.02 0.0533 0.0421

Mercury -102696-03-05 15:06 J -35788227.00 -35788226.87 -35788226.73 0.0502 0.0215

Mercury -102696-06-03 06:57 J -35788137.34 -35788137.21 -35788137.08 0.0499 0.0267

Venus -102695-01-19 17:30 J -35787906.97 -35787906.77 -35787906.56 0.0493 0.0022

Moon -102692-03-13 19:54 J -35786757.86 -35786757.67 -35786757.46 0.0495 0.0303

Earth -102692-03-13 20:37 J -35786757.82 -35786757.64 -35786757.45 0.0495 0.0316 \*

Mercury -102690-05-06 17:01 J -35785973.83 -35785973.79 -35785973.74 0.0524 0.0495

Mercury -102690-08-04 11:16 J -35785884.18 -35785884.03 -35785883.88 0.0527 0.0055

Moon -102687-09-08 14:52 J -35784753.10 -35784752.88 -35784752.66 0.0534 0.0117

Earth -102687-09-08 17:45 J -35784752.97 -35784752.76 -35784752.54 0.0534 0.0131 \*

Mercury -102685-12-22 17:45 J -35783916.88 -35783916.76 -35783916.65 0.0503 0.0324

Mercury -102684-03-22 09:06 J -35783827.27 -35783827.12 -35783826.98 0.0500 0.0154

Venus -102684-09-24 22:33 J -35783640.69 -35783640.56 -35783640.42 0.0495 0.0364

Mercury -102678-05-23 12:42 J -35781574.11 -35781573.97 -35781573.82 0.0526 0.0078

Mercury -102678-08-21 05:45 J -35781484.33 -35781484.26 -35781484.19 0.0530 0.0462

Venus -102677-03-21 11:59 J -35781271.16 -35781271.00 -35781270.83 0.0536 0.0296

Earth -102675-09-13 12:42 J -35780365.14 -35780364.97 -35780364.79 0.0532 0.0336

Moon -102675-09-13 13:54 J -35780365.08 -35780364.92 -35780364.76 0.0532 0.0362 \*

Mercury -102673-10-10 19:54 J -35779606.74 -35779606.67 -35779606.60 0.0504 0.0438

Mercury -102672-01-08 10:47 J -35779517.20 -35779517.05 -35779516.90 0.0500 0.0035

Mercury -102666-03-11 14:37 J -35777264.03 -35777263.89 -35777263.75 0.0526 0.0204

Mercury -102666-06-09 07:54 J -35777174.28 -35777174.17 -35777174.06 0.0529 0.0339

Venus -102666-11-25 02:37 J -35777005.58 -35777005.39 -35777005.19 0.0534 0.0155

Mercury -102661-10-27 12:28 J -35775207.13 -35775206.98 -35775206.82 0.0501 0.0085

Mercury -102660-01-25 04:33 J -35775117.40 -35775117.31 -35775117.22 0.0498 0.0400

Venus -102660-09-27 04:33 J -35774872.50 -35774872.31 -35774872.13 0.0492 0.0191

Mercury -102655-12-28 16:04 J -35772953.94 -35772953.83 -35772953.71 0.0525 0.0335

Mercury -102654-03-28 09:49 J -35772864.23 -35772864.09 -35772863.96 0.0528 0.0211

Mercury -102649-08-15 14:09 J -35770897.05 -35770896.91 -35770896.78 0.0502 0.0206

Mercury -102649-11-13 05:45 J -35770807.39 -35770807.26 -35770807.13 0.0499 0.0275

Venus -102648-06-02 07:25 J -35770606.38 -35770606.19 -35770605.99 0.0494 0.0162

Mars -102644-12-06 21:21 J -35768957.86 -35768957.61 -35768957.35 0.0512 0.0029

Mercury -102643-10-16 16:47 J -35768643.85 -35768643.80 -35768643.73 0.0524 0.0474

Mercury -102642-01-14 11:01 J -35768554.18 -35768554.04 -35768553.89 0.0527 0.0078

Mercury -102637-06-03 16:18 J -35766586.94 -35766586.82 -35766586.71 0.0503 0.0320

Mercury -102637-09-01 07:40 J -35766497.33 -35766497.18 -35766497.04 0.0500 0.0158

Mercury -102631-11-02 11:16 J -35764244.17 -35764244.03 -35764243.88 0.0526 0.0073

Mercury -102630-01-31 04:18 J -35764154.39 -35764154.32 -35764154.25 0.0529 0.0465

Venus -102630-08-02 17:59 J -35763970.95 -35763970.75 -35763970.55 0.0535 0.0101

Mercury -102625-03-22 18:42 J -35762276.79 -35762276.72 -35762276.64 0.0504 0.0429

Mercury -102625-06-20 09:49 J -35762187.24 -35762187.09 -35762186.94 0.0501 0.0045

Venus -102624-06-04 15:21 J -35761837.97 -35761837.86 -35761837.74 0.0491 0.0403

Moon -102621-03-08 08:37 J -35760830.38 -35760830.14 -35760829.90 0.0494 0.0156

Earth -102621-03-08 09:49 J -35760830.33 -35760830.09 -35760829.86 0.0494 0.0128 \*

Mercury -102619-08-21 12:42 J -35759934.11 -35759933.97 -35759933.83 0.0525 0.0205

Mercury -102619-11-19 06:13 J -35759844.36 -35759844.24 -35759844.13 0.0529 0.0338

Venus -102618-04-07 07:54 J -35759705.32 -35759705.17 -35759705.02 0.0533 0.0352

Mercury -102613-04-08 11:45 J -35757877.16 -35757877.01 -35757876.86 0.0501 0.0073

Mercury -102613-07-07 03:35 J -35757787.43 -35757787.35 -35757787.26 0.0498 0.0412

Venus -102612-02-07 19:11 J -35757571.91 -35757571.70 -35757571.50 0.0493 0.0055

Moon -102609-03-13 03:35 J -35756442.54 -35756442.35 -35756442.15 0.0495 0.0267

Earth -102609-03-13 04:47 J -35756442.50 -35756442.30 -35756442.10 0.0495 0.0271 \*

Mercury -102607-06-09 14:23 J -35755624.01 -35755623.90 -35755623.78 0.0525 0.0334

Mercury -102607-09-07 08:09 J -35755534.29 -35755534.16 -35755534.02 0.0528 0.0214

Earth -102604-09-08 05:30 J -35754437.48 -35754437.27 -35754437.06 0.0534 0.0176

Moon -102604-09-08 06:57 J -35754437.42 -35754437.21 -35754437.01 0.0534 0.0152 \*

Mercury -102601-01-26 13:40 J -35753567.07 -35753566.93 -35753566.79 0.0502 0.0189

Mercury -102601-04-25 05:16 J -35753477.41 -35753477.28 -35753477.16 0.0499 0.0291

Venus -102601-10-13 23:16 J -35753305.70 -35753305.53 -35753305.37 0.0494 0.0296

Mercury -102595-03-28 15:49 J -35751313.91 -35751313.84 -35751313.77 0.0524 0.0464

Mercury -102595-06-26 10:04 J -35751224.23 -35751224.08 -35751223.93 0.0527 0.0086

Venus -102594-04-10 16:04 J -35750935.96 -35750935.83 -35750935.69 0.0536 0.0391

Earth -102592-09-12 20:37 J -35750049.82 -35750049.64 -35750049.44 0.0532 0.0274

Moon -102592-09-12 21:21 J -35750049.80 -35750049.61 -35750049.41 0.0532 0.0292 \*

Mercury -102590-11-14 15:06 J -35749256.98 -35749256.87 -35749256.75 0.0503 0.0311

Mercury -102589-02-12 06:28 J -35749167.37 -35749167.23 -35749167.08 0.0500 0.0167

Mercury -102583-04-14 11:16 J -35746914.18 -35746914.03 -35746913.88 0.0526 0.0050

Mercury -102583-07-13 04:04 J -35746824.38 -35746824.33 -35746824.27 0.0529 0.0487

Venus -102583-12-14 04:33 J -35746670.51 -35746670.31 -35746670.11 0.0534 0.0071

Mars -102579-10-22 21:21 J -35745261.89 -35745261.61 -35745261.32 0.0516 0.0147

Mercury -102578-09-02 17:30 J -35744946.85 -35744946.77 -35744946.69 0.0504 0.0423

Mercury -102578-12-01 08:23 J -35744857.30 -35744857.15 -35744856.99 0.0501 0.0051

Venus -102577-10-16 05:16 J -35744537.45 -35744537.28 -35744537.11 0.0492 0.0261

Mercury -102571-01-31 11:30 J -35742604.16 -35742604.02 -35742603.88 0.0525 0.0199

Mercury -102571-05-01 04:47 J -35742514.41 -35742514.30 -35742514.19 0.0529 0.0343  
 Mercury -102566-09-19 10:47 J -35740547.21 -35740547.05 -35740546.90 0.0502 0.0064  
 Mercury -102566-12-18 02:37 J -35740457.47 -35740457.39 -35740457.30 0.0499 0.0423  
 Venus -102565-06-21 10:04 J -35740271.28 -35740271.08 -35740270.88 0.0493 0.0082  
 Mercury -102560-11-19 12:42 J -35738294.09 -35738293.97 -35738293.86 0.0525 0.0333  
 Mercury -102559-02-17 06:28 J -35738204.37 -35738204.23 -35738204.10 0.0528 0.0213  
 Mercury -102554-07-08 12:42 J -35736237.11 -35736236.97 -35736236.83 0.0502 0.0178  
 Mercury -102554-10-06 04:18 J -35736147.44 -35736147.32 -35736147.20 0.0499 0.0303  
 Venus -102553-02-25 13:40 J -35736005.02 -35736004.93 -35736004.83 0.0495 0.0433  
 Mercury -102548-09-07 14:09 J -35733983.98 -35733983.91 -35733983.84 0.0524 0.0463  
 Mercury -102548-12-06 08:23 J -35733894.30 -35733894.15 -35733894.00 0.0527 0.0088  
 Venus -102547-08-21 22:04 J -35733635.76 -35733635.58 -35733635.39 0.0536 0.0197  
 Mercury -102542-04-26 14:37 J -35731927.01 -35731926.89 -35731926.76 0.0503 0.0294  
 Mercury -102542-07-25 05:59 J -35731837.39 -35731837.25 -35731837.11 0.0500 0.0183  
 Venus -102541-06-23 16:04 J -35731502.89 -35731502.83 -35731502.78 0.0491 0.0471  
 Moon -102538-03-08 17:45 J -35730514.97 -35730514.76 -35730514.54 0.0494 0.0199  
 Earth -102538-03-08 18:42 J -35730514.95 -35730514.72 -35730514.49 0.0494 0.0169 \*  
 Mercury -102536-09-24 10:04 J -35729584.23 -35729584.08 -35729583.93 0.0526 0.0043  
 Mercury -102536-12-23 03:06 J -35729494.42 -35729494.37 -35729494.32 0.0530 0.0496  
 Venus -102535-04-26 12:13 J -35729370.17 -35729369.99 -35729369.81 0.0533 0.0256  
 Mercury -102530-02-12 16:18 J -35727616.90 -35727616.82 -35727616.73 0.0504 0.0414  
 Mercury -102530-05-13 07:25 J -35727527.35 -35727527.19 -35727527.04 0.0501 0.0061  
 Venus -102529-02-27 19:11 J -35727236.90 -35727236.70 -35727236.51 0.0493 0.0122  
 Earth -102526-03-13 14:09 J -35726127.12 -35726126.91 -35726126.69 0.0495 0.0232  
 Moon -102526-03-13 17:01 J -35726127.01 -35726126.79 -35726126.57 0.0495 0.0234 \*  
 Mars -102525-05-28 21:49 J -35725684.72 -35725684.59 -35725684.44 0.0510 0.0422  
 Mercury -102524-07-13 11:16 J -35725274.17 -35725274.03 -35725273.89 0.0525 0.0177  
 Mercury -102524-10-11 04:47 J -35725184.41 -35725184.30 -35725184.20 0.0529 0.0365  
 Earth -102521-09-07 11:45 J -35724122.21 -35724122.01 -35724121.81 0.0534 0.0246  
 Moon -102521-09-07 11:59 J -35724122.21 -35724122.00 -35724121.78 0.0534 0.0215 \*

Mercury -102518-03-01 09:21 J -35723217.26 -35723217.11 -35723216.96 0.0502 0.0056

Mercury -102518-05-30 01:25 J -35723127.52 -35723127.44 -35723127.36 0.0499 0.0428

Venus -102518-11-02 23:45 J -35722970.69 -35722970.51 -35722970.33 0.0494 0.0226

Mercury -102512-05-01 11:16 J -35720964.14 -35720964.03 -35720963.91 0.0524 0.0326

Mercury -102512-07-30 05:01 J -35720874.42 -35720874.29 -35720874.15 0.0528 0.0220

Venus -102511-04-29 13:54 J -35720601.02 -35720600.92 -35720600.81 0.0536 0.0454

Moon -102509-09-12 01:25 J -35719734.64 -35719734.44 -35719734.25 0.0533 0.0224

Earth -102509-09-12 03:06 J -35719734.57 -35719734.37 -35719734.16 0.0533 0.0208 \*

Mercury -102507-12-18 11:30 J -35718907.16 -35718907.02 -35718906.87 0.0502 0.0170

Mercury -102506-03-18 03:21 J -35718817.48 -35718817.36 -35718817.24 0.0500 0.0313

Mercury -102500-02-17 12:28 J -35716654.05 -35716653.98 -35716653.91 0.0524 0.0462

Mercury -102500-05-18 06:42 J -35716564.37 -35716564.22 -35716564.08 0.0527 0.0088

Venus -102499-01-02 03:21 J -35716335.57 -35716335.36 -35716335.16 0.0535 0.0009

Mercury -102495-10-06 13:40 J -35714597.05 -35714596.93 -35714596.81 0.0503 0.0284

Mercury -102494-01-04 05:01 J -35714507.43 -35714507.29 -35714507.15 0.0500 0.0194

Venus -102494-11-05 06:28 J -35714202.37 -35714202.23 -35714202.07 0.0492 0.0336

Mars -102489-03-02 01:54 J -35712623.66 -35712623.42 -35712623.18 0.0512 0.0181

Mercury -102488-03-06 08:23 J -35712254.30 -35712254.15 -35712254.00 0.0526 0.0040

Mercury -102488-06-04 01:25 J -35712164.49 -35712164.44 -35712164.39 0.0530 0.0497

Venus -102488-09-06 17:45 J -35712069.86 -35712069.76 -35712069.65 0.0533 0.0451

Mercury -102483-07-25 15:49 J -35710286.93 -35710286.84 -35710286.75 0.0504 0.0399

Mercury -102483-10-23 06:42 J -35710197.37 -35710197.22 -35710197.07 0.0501 0.0075

Venus -102482-07-11 10:33 J -35709936.27 -35709936.06 -35709935.86 0.0493 0.0015

Mercury -102477-12-23 10:04 J -35707944.22 -35707944.08 -35707943.94 0.0526 0.0169

Mercury -102476-03-23 03:21 J -35707854.46 -35707854.36 -35707854.25 0.0529 0.0372

Mercury -102471-08-11 08:09 J -35705887.31 -35705887.16 -35705887.01 0.0501 0.0048

Mercury -102471-11-09 00:13 J -35705797.56 -35705797.49 -35705797.42 0.0499 0.0436

Venus -102470-03-16 13:25 J -35705670.07 -35705669.94 -35705669.80 0.0495 0.0369

Mercury -102465-10-11 11:16 J -35703634.16 -35703634.03 -35703633.91 0.0525 0.0306

Mercury -102464-01-09 05:01 J -35703544.43 -35703544.29 -35703544.16 0.0528 0.0240

Venus -102464-09-10 00:13 J -35703300.66 -35703300.49 -35703300.32 0.0535 0.0281  
 Mars -102460-04-10 09:35 J -35701992.29 -35701992.10 -35701991.91 0.0518 0.0397  
 Mercury -102459-05-30 10:18 J -35701577.22 -35701577.07 -35701576.93 0.0502 0.0165  
 Mercury -102459-08-28 01:54 J -35701487.54 -35701487.42 -35701487.30 0.0499 0.0317  
 Earth -102455-03-08 01:54 J -35700199.63 -35700199.42 -35700199.19 0.0493 0.0212  
 Moon -102455-03-08 04:33 J -35700199.53 -35700199.31 -35700199.09 0.0493 0.0239 \*  
 Mercury -102453-07-30 11:01 J -35699324.11 -35699324.04 -35699323.96 0.0523 0.0454  
 Mercury -102453-10-28 05:16 J -35699234.43 -35699234.28 -35699234.13 0.0527 0.0094  
 Venus -102452-05-15 09:49 J -35699035.28 -35699035.09 -35699034.90 0.0533 0.0195  
 Mercury -102447-03-18 12:28 J -35697267.11 -35697266.98 -35697266.86 0.0503 0.0278  
 Mercury -102447-06-16 03:49 J -35697177.48 -35697177.34 -35697177.20 0.0500 0.0202  
 Venus -102446-03-18 21:06 J -35696901.81 -35696901.62 -35696901.43 0.0493 0.0198  
 Moon -102443-03-12 16:47 J -35695812.02 -35695811.80 -35695811.57 0.0494 0.0187  
 Earth -102443-03-12 20:23 J -35695811.87 -35695811.65 -35695811.42 0.0494 0.0182 \*  
 Mercury -102441-08-16 06:42 J -35694924.37 -35694924.22 -35694924.08 0.0526 0.0043  
 Mercury -102441-11-13 23:30 J -35694834.57 -35694834.52 -35694834.47 0.0529 0.0495  
 Moon -102438-09-07 16:18 J -35693807.01 -35693806.82 -35693806.64 0.0535 0.0278  
 Earth -102438-09-07 17:59 J -35693806.93 -35693806.75 -35693806.56 0.0535 0.0310 \*  
 Mercury -102435-01-04 14:37 J -35692956.98 -35692956.89 -35692956.80 0.0504 0.0391  
 Mercury -102435-04-04 05:30 J -35692867.42 -35692867.27 -35692867.12 0.0501 0.0083  
 Venus -102435-11-22 00:42 J -35692635.66 -35692635.47 -35692635.28 0.0494 0.0153  
 Mercury -102429-06-04 08:09 J -35690614.30 -35690614.16 -35690614.02 0.0525 0.0170  
 Mercury -102429-09-02 01:25 J -35690524.54 -35690524.44 -35690524.33 0.0529 0.0372  
 Earth -102426-09-12 13:54 J -35689419.13 -35689418.92 -35689418.71 0.0534 0.0159  
 Moon -102426-09-12 17:01 J -35689419.01 -35689418.79 -35689418.57 0.0534 0.0169 \*  
 Mars -102424-01-16 20:09 J -35688926.78 -35688926.66 -35688926.51 0.0515 0.0456  
 Mercury -102423-01-21 07:25 J -35688557.34 -35688557.19 -35688557.04 0.0501 0.0035  
 Mercury -102423-04-20 23:16 J -35688467.59 -35688467.53 -35688467.46 0.0498 0.0450  
 Mercury -102417-03-23 09:35 J -35686304.22 -35686304.10 -35686303.97 0.0525 0.0301  
 Mercury -102417-06-21 03:35 J -35686214.48 -35686214.35 -35686214.22 0.0528 0.0245



Venus -102416-01-21 06:57 J -35686000.41 -35686000.21 -35686000.01 0.0535 0.0091  
 Mercury -102412-11-09 08:52 J -35684247.27 -35684247.13 -35684246.98 0.0502 0.0157  
 Mercury -102411-02-07 00:28 J -35684157.59 -35684157.48 -35684157.36 0.0499 0.0324  
 Venus -102411-11-24 05:59 J -35683867.37 -35683867.25 -35683867.13 0.0492 0.0400  
 Mercury -102405-01-10 10:33 J -35681994.14 -35681994.06 -35681993.97 0.0524 0.0437  
 Mercury -102405-04-09 04:47 J -35681904.44 -35681904.30 -35681904.15 0.0527 0.0113  
 Venus -102405-09-25 19:40 J -35681734.82 -35681734.68 -35681734.53 0.0533 0.0369  
 Mercury -102400-08-28 11:01 J -35679937.17 -35679937.04 -35679936.92 0.0503 0.0273  
 Mercury -102400-11-26 02:09 J -35679847.55 -35679847.41 -35679847.26 0.0500 0.0206  
 Venus -102399-07-30 10:18 J -35679601.28 -35679601.07 -35679600.87 0.0493 0.0053  
 Mercury -102393-01-27 05:16 J -35677594.43 -35677594.28 -35677594.13 0.0526 0.0036  
 Mercury -102393-04-25 22:04 J -35677504.62 -35677504.58 -35677504.53 0.0529 0.0500  
 Mercury -102388-06-16 13:11 J -35675627.05 -35675626.95 -35675626.86 0.0504 0.0387  
 Mercury -102388-09-14 04:04 J -35675537.48 -35675537.33 -35675537.18 0.0501 0.0088  
 Venus -102387-04-04 14:23 J -35675335.06 -35675334.90 -35675334.74 0.0495 0.0297  
 Mercury -102382-11-15 06:13 J -35673284.38 -35673284.24 -35673284.09 0.0525 0.0171  
 Mercury -102381-02-12 23:45 J -35673194.62 -35673194.51 -35673194.41 0.0528 0.0369  
 Venus -102381-09-28 21:21 J -35672965.76 -35672965.61 -35672965.45 0.0535 0.0342  
 Mercury -102376-04-04 15:21 J -35671316.88 -35671316.86 -35671316.84 0.0505 0.0500  
 Mercury -102376-07-03 05:59 J -35671227.40 -35671227.25 -35671227.10 0.0502 0.0031  
 Mercury -102376-09-30 21:49 J -35671137.65 -35671137.59 -35671137.52 0.0499 0.0455  
 Moon -102372-03-07 03:21 J -35669884.54 -35669884.36 -35669884.16 0.0492 0.0297  
 Earth -102372-03-07 06:57 J -35669884.41 -35669884.21 -35669884.00 0.0492 0.0266 \*  
 Mars -102371-08-22 21:35 J -35669350.82 -35669350.60 -35669350.36 0.0510 0.0224  
 Mercury -102370-09-03 07:40 J -35668974.31 -35668974.18 -35668974.06 0.0524 0.0304  
 Mercury -102370-12-02 01:25 J -35668884.57 -35668884.44 -35668884.31 0.0528 0.0242  
 Venus -102369-06-03 11:45 J -35668700.21 -35668700.01 -35668699.81 0.0534 0.0111  
 Mercury -102364-04-21 07:54 J -35666917.31 -35666917.17 -35666917.02 0.0502 0.0146  
 Mercury -102364-07-19 23:30 J -35666827.63 -35666827.52 -35666827.40 0.0499 0.0335  
 Venus -102363-04-06 20:09 J -35666566.83 -35666566.66 -35666566.48 0.0492 0.0262

Earth -102360-03-12 01:25 J -35665496.68 -35665496.44 -35665496.20 0.0494 0.0128  
 Moon -102360-03-12 05:30 J -35665496.50 -35665496.27 -35665496.04 0.0494 0.0141 \*  
 Mercury -102358-06-22 08:52 J -35664664.21 -35664664.13 -35664664.04 0.0524 0.0435  
 Mercury -102358-09-20 03:21 J -35664574.51 -35664574.36 -35664574.22 0.0527 0.0115  
 Earth -102355-09-07 01:11 J -35663491.60 -35663491.45 -35663491.28 0.0535 0.0375  
 Moon -102355-09-07 04:18 J -35663491.49 -35663491.32 -35663491.14 0.0535 0.0338 \*  
 Mercury -102352-02-07 09:35 J -35662607.23 -35662607.10 -35662606.98 0.0503 0.0268  
 Mercury -102352-05-08 00:42 J -35662517.61 -35662517.47 -35662517.33 0.0500 0.0210  
 Venus -102352-12-10 23:01 J -35662300.73 -35662300.54 -35662300.33 0.0494 0.0094  
 Mercury -102346-07-09 04:33 J -35660264.46 -35660264.31 -35660264.16 0.0526 0.0020  
 Mercury -102346-10-06 21:35 J -35660174.63 -35660174.60 -35660174.57 0.0529 0.0515  
 Moon -102343-09-11 14:23 J -35659104.12 -35659103.90 -35659103.69 0.0534 0.0087  
 Earth -102343-09-11 17:59 J -35659103.97 -35659103.75 -35659103.53 0.0534 0.0082 \*  
 Mercury -102341-11-26 11:30 J -35658297.11 -35658297.02 -35658296.92 0.0504 0.0384  
 Mercury -102340-02-24 02:23 J -35658207.55 -35658207.40 -35658207.24 0.0501 0.0092  
 Venus -102340-08-16 02:52 J -35658034.46 -35658034.38 -35658034.29 0.0496 0.0447  
 Mars -102335-05-27 04:18 J -35656289.48 -35656289.32 -35656289.15 0.0511 0.0391  
 Mercury -102334-04-27 04:47 J -35655954.44 -35655954.30 -35655954.15 0.0525 0.0166  
 Mercury -102334-07-25 22:04 J -35655864.68 -35655864.58 -35655864.47 0.0528 0.0374  
 Venus -102333-02-10 03:21 J -35655665.55 -35655665.36 -35655665.16 0.0534 0.0149  
 Earth -102331-09-16 06:42 J -35654716.26 -35654716.22 -35654716.18 0.0533 0.0522  
 Moon -102331-09-16 10:04 J -35654716.16 -35654716.08 -35654715.99 0.0533 0.0492  
 Mercury -102329-09-14 13:40 J -35653986.95 -35653986.93 -35653986.91 0.0505 0.0499  
 Mercury -102329-12-13 04:18 J -35653897.47 -35653897.32 -35653897.17 0.0502 0.0028  
 Mercury -102328-03-12 20:23 J -35653807.71 -35653807.65 -35653807.59 0.0499 0.0458  
 Venus -102328-12-13 05:45 J -35653532.31 -35653532.26 -35653532.19 0.0492 0.0469  
 Mercury -102322-02-13 05:45 J -35651644.38 -35651644.26 -35651644.14 0.0524 0.0304  
 Mercury -102322-05-13 23:30 J -35651554.65 -35651554.52 -35651554.39 0.0527 0.0240  
 Venus -102322-10-15 16:04 J -35651399.99 -35651399.83 -35651399.66 0.0532 0.0313  
 Mercury -102317-10-01 06:13 J -35649587.39 -35649587.24 -35649587.10 0.0503 0.0145

Mercury -102317-12-29 21:49 J -35649497.70 -35649497.59 -35649497.48 0.0500 0.0337

Venus -102316-08-18 09:06 J -35649266.32 -35649266.12 -35649265.92 0.0493 0.0117

Mercury -102311-12-02 06:42 J -35647334.30 -35647334.22 -35647334.14 0.0523 0.0440

Mercury -102310-03-02 00:57 J -35647244.60 -35647244.46 -35647244.31 0.0527 0.0109

Mars -102306-07-05 17:30 J -35645658.05 -35645657.77 -35645657.48 0.0518 0.0123

Mercury -102305-07-20 08:09 J -35645277.28 -35645277.16 -35645277.03 0.0503 0.0260

Mercury -102305-10-17 23:30 J -35645187.66 -35645187.52 -35645187.38 0.0500 0.0218

Venus -102304-04-23 12:57 J -35645000.14 -35644999.96 -35644999.78 0.0495 0.0235

Mercury -102299-12-19 02:37 J -35642934.54 -35642934.39 -35642934.24 0.0526 0.0021

Mercury -102298-03-18 19:40 J -35642844.71 -35642844.68 -35642844.65 0.0529 0.0515

Venus -102298-10-18 23:16 J -35642630.65 -35642630.53 -35642630.40 0.0536 0.0428

Mercury -102293-05-08 09:49 J -35640967.18 -35640967.09 -35640966.99 0.0504 0.0381

Mercury -102293-08-06 00:42 J -35640877.62 -35640877.47 -35640877.31 0.0501 0.0095

Earth -102289-03-06 11:59 J -35639569.17 -35639569.00 -35639568.81 0.0492 0.0319

Moon -102289-03-06 16:18 J -35639568.99 -35639568.82 -35639568.64 0.0492 0.0343 \*

Mercury -102287-10-07 03:49 J -35638624.48 -35638624.34 -35638624.19 0.0525 0.0155

Mercury -102286-01-04 21:21 J -35638534.71 -35638534.61 -35638534.51 0.0528 0.0385

Venus -102286-06-23 11:59 J -35638365.20 -35638365.00 -35638364.79 0.0534 0.0036

Mercury -102281-02-25 11:59 J -35636657.02 -35636657.00 -35636656.98 0.0505 0.0497

Mercury -102281-05-25 02:37 J -35636567.54 -35636567.39 -35636567.24 0.0502 0.0027

Mercury -102281-08-22 18:28 J -35636477.78 -35636477.73 -35636477.67 0.0499 0.0459

Venus -102280-04-25 17:59 J -35636231.89 -35636231.75 -35636231.59 0.0492 0.0321

Moon -102277-03-11 02:52 J -35635181.62 -35635181.38 -35635181.14 0.0493 0.0091

Earth -102277-03-11 06:42 J -35635181.46 -35635181.22 -35635180.98 0.0493 0.0077 \*

Mercury -102275-07-26 04:04 J -35634314.45 -35634314.33 -35634314.20 0.0524 0.0300

Mercury -102275-10-23 21:49 J -35634224.72 -35634224.59 -35634224.46 0.0527 0.0243

Venus -102274-02-25 22:04 J -35634099.64 -35634099.58 -35634099.52 0.0531 0.0504

Moon -102272-09-05 19:54 J -35633176.79 -35633176.67 -35633176.55 0.0536 0.0440

Earth -102272-09-05 23:16 J -35633176.62 -35633176.53 -35633176.42 0.0536 0.0474 \*

Mercury -102269-03-13 04:18 J -35632257.47 -35632257.32 -35632257.18 0.0503 0.0145

Mercury -102269-06-10 19:54 J -35632167.78 -35632167.67 -35632167.56 0.0500 0.0337

Venus -102269-12-29 21:49 J -35631965.79 -35631965.59 -35631965.39 0.0494 0.0031

Earth -102265-03-16 00:13 J -35630793.56 -35630793.49 -35630793.41 0.0495 0.0469

Moon -102265-03-16 02:23 J -35630793.41 -35630793.40 -35630793.38 0.0495 0.0493 \*

Mercury -102263-05-14 04:47 J -35630004.38 -35630004.30 -35630004.22 0.0523 0.0440

Mercury -102263-08-11 23:01 J -35629914.68 -35629914.54 -35629914.39 0.0526 0.0107

Earth -102260-09-10 17:45 J -35628788.99 -35628788.76 -35628788.54 0.0535 0.0009

Moon -102260-09-10 21:21 J -35628788.83 -35628788.61 -35628788.39 0.0535 0.0009 \*

Mercury -102258-12-31 06:13 J -35627947.37 -35627947.24 -35627947.11 0.0504 0.0262

Mercury -102257-03-29 21:21 J -35627857.74 -35627857.61 -35627857.46 0.0500 0.0218

Venus -102257-09-04 00:57 J -35627699.58 -35627699.46 -35627699.33 0.0496 0.0386

Mercury -102251-05-31 00:13 J -35625604.64 -35625604.49 -35625604.34 0.0526 0.0028

Mercury -102251-08-28 17:16 J -35625514.82 -35625514.78 -35625514.74 0.0529 0.0508

Venus -102250-03-01 02:52 J -35625330.57 -35625330.38 -35625330.20 0.0535 0.0221

Moon -102248-09-15 10:33 J -35624401.19 -35624401.06 -35624400.92 0.0533 0.0422

Earth -102248-09-15 13:11 J -35624401.06 -35624400.95 -35624400.83 0.0533 0.0455 \*

Mercury -102246-10-19 08:23 J -35623637.24 -35623637.15 -35623637.05 0.0504 0.0376

Mercury -102245-01-16 23:16 J -35623547.68 -35623547.53 -35623547.38 0.0501 0.0099

Mercury -102239-03-19 01:40 J -35621294.57 -35621294.43 -35621294.28 0.0525 0.0159

Mercury -102239-06-16 19:11 J -35621204.80 -35621204.70 -35621204.60 0.0528 0.0382

Venus -102239-11-03 16:47 J -35621064.98 -35621064.80 -35621064.61 0.0533 0.0235

Mercury -102234-08-07 10:18 J -35619327.10 -35619327.07 -35619327.05 0.0505 0.0495

Mercury -102234-11-05 00:42 J -35619237.62 -35619237.47 -35619237.32 0.0502 0.0026

Mercury -102233-02-02 16:33 J -35619147.86 -35619147.81 -35619147.75 0.0499 0.0459

Venus -102233-09-06 06:13 J -35618931.43 -35618931.24 -35618931.05 0.0493 0.0171

Mercury -102227-01-05 02:52 J -35616984.50 -35616984.38 -35616984.25 0.0524 0.0294

Mercury -102227-04-04 20:37 J -35616894.76 -35616894.64 -35616894.50 0.0527 0.0251

Mercury -102222-08-24 02:37 J -35614927.54 -35614927.39 -35614927.25 0.0503 0.0145

Mercury -102222-11-21 18:13 J -35614837.86 -35614837.74 -35614837.63 0.0500 0.0337

Venus -102221-05-12 09:49 J -35614665.28 -35614665.09 -35614664.90 0.0495 0.0183

Mars -102217-11-15 20:23 J -35613016.91 -35613016.65 -35613016.40 0.0509 0.0029  
 Mercury -102216-10-24 03:06 J -35612674.45 -35612674.37 -35612674.29 0.0523 0.0437  
 Mercury -102215-01-21 21:21 J -35612584.75 -35612584.61 -35612584.46 0.0526 0.0110  
 Venus -102215-11-06 18:57 J -35612295.79 -35612295.71 -35612295.62 0.0535 0.0482  
 Mercury -102210-06-12 04:04 J -35610617.45 -35610617.33 -35610617.20 0.0504 0.0265  
 Mercury -102210-09-09 19:25 J -35610527.83 -35610527.69 -35610527.55 0.0501 0.0215  
 Moon -102206-03-06 11:30 J -35609254.16 -35609254.02 -35609253.88 0.0492 0.0400  
 Earth -102206-03-06 15:35 J -35609254.00 -35609253.85 -35609253.69 0.0492 0.0376 \*  
 Mercury -102204-11-09 22:18 J -35608274.72 -35608274.57 -35608274.42 0.0525 0.0029  
 Mercury -102203-02-07 15:21 J -35608184.90 -35608184.86 -35608184.82 0.0528 0.0505  
 Venus -102203-07-12 07:11 J -35608030.41 -35608030.20 -35608030.00 0.0533 0.0019  
 Mercury -102198-03-31 06:13 J -35606307.34 -35606307.24 -35606307.14 0.0505 0.0380  
 Mercury -102198-06-28 21:06 J -35606217.77 -35606217.62 -35606217.47 0.0501 0.0095  
 Venus -102197-05-14 15:06 J -35605897.00 -35605896.87 -35605896.74 0.0492 0.0376  
 Earth -102194-03-11 05:16 J -35604866.52 -35604866.28 -35604866.03 0.0493 0.0005  
 Moon -102194-03-11 08:09 J -35604866.39 -35604866.16 -35604865.92 0.0493 0.0021 \*  
 Mercury -102192-08-28 23:16 J -35603964.68 -35603964.53 -35603964.39 0.0525 0.0167  
 Mercury -102192-11-26 16:47 J -35603874.91 -35603874.80 -35603874.70 0.0528 0.0373  
 Venus -102191-03-16 19:54 J -35603764.78 -35603764.67 -35603764.55 0.0532 0.0441  
 Moon -102189-09-05 07:40 J -35602861.23 -35602861.18 -35602861.11 0.0537 0.0515  
 Mercury -102186-01-17 08:23 J -35601997.17 -35601997.15 -35601997.11 0.0505 0.0494  
 Mercury -102186-04-16 23:01 J -35601907.69 -35601907.54 -35601907.39 0.0502 0.0023  
 Mercury -102186-07-15 14:52 J -35601817.93 -35601817.88 -35601817.82 0.0499 0.0462  
 Venus -102185-01-18 18:57 J -35601630.91 -35601630.71 -35601630.51 0.0494 0.0024  
 Moon -102182-03-15 22:18 J -35600478.70 -35600478.57 -35600478.42 0.0494 0.0411  
 Earth -102182-03-15 23:16 J -35600478.67 -35600478.53 -35600478.37 0.0494 0.0393 \*  
 Mercury -102180-06-17 00:28 J -35599654.60 -35599654.48 -35599654.35 0.0524 0.0300  
 Mercury -102180-09-14 18:28 J -35599564.86 -35599564.73 -35599564.60 0.0527 0.0245  
 Moon -102177-09-09 19:40 J -35598473.91 -35598473.68 -35598473.46 0.0535 0.0093  
 Earth -102177-09-09 22:47 J -35598473.78 -35598473.55 -35598473.33 0.0535 0.0084 \*

Mercury -102174-02-03 00:42 J -35597597.62 -35597597.47 -35597597.33 0.0503 0.0145

Mercury -102174-05-03 16:04 J -35597507.94 -35597507.83 -35597507.71 0.0500 0.0336

Venus -102174-09-23 21:35 J -35597364.74 -35597364.60 -35597364.45 0.0495 0.0335

Mercury -102168-04-05 01:25 J -35595344.52 -35595344.44 -35595344.35 0.0523 0.0435

Mercury -102168-07-03 19:54 J -35595254.81 -35595254.67 -35595254.52 0.0526 0.0114

Venus -102167-03-20 02:09 J -35594995.57 -35594995.41 -35594995.23 0.0535 0.0293

Earth -102165-09-14 14:37 J -35594086.05 -35594085.89 -35594085.73 0.0533 0.0367

Moon -102165-09-14 15:49 J -35594086.00 -35594085.84 -35594085.67 0.0533 0.0339 \*

Mercury -102163-11-22 02:23 J -35593287.53 -35593287.40 -35593287.27 0.0504 0.0264

Mercury -102162-02-19 17:30 J -35593197.90 -35593197.77 -35593197.63 0.0501 0.0214

Mercury -102156-04-21 20:37 J -35590944.79 -35590944.64 -35590944.49 0.0525 0.0027

Mercury -102156-07-20 13:40 J -35590854.97 -35590854.93 -35590854.89 0.0528 0.0506

Venus -102156-11-22 12:57 J -35590730.15 -35590729.96 -35590729.77 0.0532 0.0179

Mars -102152-09-27 17:45 J -35589325.06 -35589324.76 -35589324.47 0.0518 0.0063

Mercury -102151-09-10 04:04 J -35588977.43 -35588977.33 -35588977.24 0.0505 0.0385

Mercury -102151-12-08 18:57 J -35588887.86 -35588887.71 -35588887.56 0.0502 0.0091

Venus -102150-09-26 03:06 J -35588596.55 -35588596.37 -35588596.19 0.0493 0.0226

Mercury -102144-02-07 21:21 J -35586634.75 -35586634.61 -35586634.47 0.0524 0.0167

Mercury -102144-05-08 14:52 J -35586544.98 -35586544.88 -35586544.78 0.0527 0.0372

Mercury -102139-06-29 06:13 J -35584667.26 -35584667.24 -35584667.22 0.0505 0.0499

Mercury -102139-09-26 20:37 J -35584577.79 -35584577.64 -35584577.49 0.0502 0.0030

Mercury -102139-12-25 12:28 J -35584488.03 -35584487.98 -35584487.91 0.0499 0.0456

Venus -102138-06-01 06:13 J -35584330.44 -35584330.24 -35584330.05 0.0495 0.0131

Mercury -102133-11-26 21:49 J -35582324.71 -35582324.59 -35582324.46 0.0524 0.0309

Mercury -102132-02-24 15:49 J -35582234.97 -35582234.84 -35582234.70 0.0527 0.0236

Mercury -102127-07-15 22:47 J -35580267.69 -35580267.55 -35580267.40 0.0503 0.0144

Mercury -102127-10-13 14:23 J -35580178.02 -35580177.90 -35580177.79 0.0500 0.0337

Venus -102126-02-04 09:49 J -35580064.13 -35580064.09 -35580064.05 0.0496 0.0485

Earth -102123-03-05 13:40 J -35578939.01 -35578938.93 -35578938.83 0.0491 0.0454

Moon -102123-03-05 17:16 J -35578938.85 -35578938.78 -35578938.71 0.0491 0.0469 \*

Mercury -102121-09-14 23:01 J -35578014.62 -35578014.54 -35578014.46 0.0523 0.0443

Mercury -102121-12-13 17:30 J -35577924.92 -35577924.77 -35577924.62 0.0527 0.0106

Venus -102120-07-31 05:59 J -35577695.45 -35577695.25 -35577695.05 0.0534 0.0086

Mercury -102115-05-04 00:28 J -35575957.61 -35575957.48 -35575957.35 0.0503 0.0264

Mercury -102115-08-01 15:35 J -35575867.99 -35575867.85 -35575867.71 0.0500 0.0213

Venus -102114-06-03 11:30 J -35575562.12 -35575562.02 -35575561.92 0.0492 0.0426

Moon -102111-03-10 05:30 J -35574551.52 -35574551.27 -35574551.01 0.0493 0.0043

Earth -102111-03-10 07:11 J -35574551.44 -35574551.20 -35574550.96 0.0493 0.0067 \*

Mercury -102109-10-01 18:57 J -35573614.86 -35573614.71 -35573614.56 0.0526 0.0026

Mercury -102109-12-30 11:59 J -35573525.03 -35573525.00 -35573524.96 0.0529 0.0509

Venus -102108-04-04 19:25 J -35573429.84 -35573429.69 -35573429.55 0.0532 0.0371

Mercury -102103-02-20 02:23 J -35571647.49 -35571647.40 -35571647.30 0.0504 0.0383

Mercury -102103-05-20 17:16 J -35571557.93 -35571557.78 -35571557.63 0.0501 0.0092

Venus -102102-02-06 14:52 J -35571296.08 -35571295.88 -35571295.68 0.0494 0.0073

Moon -102099-03-15 01:40 J -35570163.59 -35570163.43 -35570163.26 0.0494 0.0347

Earth -102099-03-15 02:23 J -35570163.58 -35570163.40 -35570163.22 0.0494 0.0331 \*

Mars -102098-05-08 07:54 J -35569744.27 -35569744.17 -35569744.06 0.0507 0.0458

Mercury -102097-07-20 19:40 J -35569304.82 -35569304.68 -35569304.54 0.0524 0.0165

Mercury -102097-10-18 13:11 J -35569215.05 -35569214.95 -35569214.85 0.0527 0.0373

Earth -102094-09-09 18:28 J -35568158.94 -35568158.73 -35568158.52 0.0535 0.0193

Moon -102094-09-09 20:23 J -35568158.85 -35568158.65 -35568158.45 0.0535 0.0209 \*

Mercury -102092-12-09 04:04 J -35567337.34 -35567337.33 -35567337.32 0.0506 0.0504

Mercury -102091-03-08 18:28 J -35567247.88 -35567247.73 -35567247.58 0.0503 0.0033

Mercury -102091-06-06 10:18 J -35567158.13 -35567158.07 -35567158.00 0.0500 0.0452

Venus -102091-10-12 17:30 J -35567029.93 -35567029.77 -35567029.60 0.0496 0.0286

Mercury -102085-05-08 20:09 J -35564994.78 -35564994.66 -35564994.53 0.0523 0.0307

Mercury -102085-08-06 14:09 J -35564905.04 -35564904.91 -35564904.78 0.0527 0.0237

Venus -102084-04-07 21:06 J -35564660.77 -35564660.62 -35564660.46 0.0534 0.0343

Moon -102082-09-14 11:16 J -35563771.23 -35563771.03 -35563770.82 0.0534 0.0232

Earth -102082-09-14 11:30 J -35563771.21 -35563771.02 -35563770.83 0.0534 0.0262 \*

Mercury -102080-12-25 20:23 J -35562937.79 -35562937.65 -35562937.51 0.0503 0.0150

Mercury -102079-03-25 11:45 J -35562848.12 -35562848.01 -35562847.89 0.0500 0.0331

Mercury -102073-02-25 20:23 J -35560684.72 -35560684.65 -35560684.57 0.0523 0.0452

Mercury -102073-05-25 14:52 J -35560595.02 -35560594.88 -35560594.73 0.0526 0.0097

Venus -102073-12-11 08:52 J -35560395.32 -35560395.13 -35560394.93 0.0533 0.0124

Mercury -102068-10-13 22:47 J -35558627.68 -35558627.55 -35558627.43 0.0504 0.0264

Mercury -102067-01-11 13:40 J -35558538.06 -35558537.93 -35558537.79 0.0501 0.0214

Venus -102067-10-14 23:45 J -35558261.67 -35558261.51 -35558261.34 0.0493 0.0280

Mars -102062-02-09 05:01 J -35556683.54 -35556683.29 -35556683.04 0.0510 0.0118

Mercury -102061-03-13 16:18 J -35556284.97 -35556284.82 -35556284.67 0.0526 0.0038

Mercury -102061-06-11 09:35 J -35556195.14 -35556195.10 -35556195.05 0.0529 0.0501

Mercury -102056-08-02 00:28 J -35554317.57 -35554317.48 -35554317.38 0.0504 0.0383

Mercury -102056-10-30 15:21 J -35554228.01 -35554227.86 -35554227.71 0.0501 0.0092

Venus -102055-06-20 02:37 J -35553995.59 -35553995.39 -35553995.19 0.0494 0.0079

Mercury -102050-12-31 17:45 J -35551974.90 -35551974.76 -35551974.62 0.0525 0.0167

Mercury -102049-03-30 11:16 J -35551885.13 -35551885.03 -35551884.92 0.0528 0.0374

Mercury -102044-05-21 02:23 J -35550007.41 -35550007.40 -35550007.38 0.0505 0.0500

Mercury -102044-08-18 16:47 J -35549917.95 -35549917.80 -35549917.64 0.0502 0.0032

Mercury -102044-11-16 08:37 J -35549828.20 -35549828.14 -35549828.07 0.0499 0.0453

Venus -102043-02-23 05:30 J -35549729.35 -35549729.27 -35549729.17 0.0496 0.0439

Mercury -102038-10-19 18:28 J -35547664.85 -35547664.73 -35547664.60 0.0523 0.0304

Mercury -102037-01-17 12:28 J -35547575.11 -35547574.98 -35547574.84 0.0527 0.0239

Venus -102037-08-19 02:52 J -35547360.57 -35547360.38 -35547360.18 0.0534 0.0149

Mercury -102032-06-06 18:13 J -35545607.88 -35545607.74 -35545607.60 0.0503 0.0154

Mercury -102032-09-04 09:35 J -35545518.21 -35545518.10 -35545517.98 0.0500 0.0328

Venus -102031-06-22 07:25 J -35545227.23 -35545227.19 -35545227.14 0.0492 0.0479

Moon -102028-03-09 09:21 J -35544236.34 -35544236.11 -35544235.88 0.0492 0.0102

Earth -102028-03-09 09:21 J -35544236.34 -35544236.11 -35544235.87 0.0492 0.0131 \*

Mercury -102026-08-07 18:57 J -35543354.78 -35543354.71 -35543354.63 0.0522 0.0446

Mercury -102026-11-05 13:25 J -35543265.08 -35543264.94 -35543264.79 0.0526 0.0101



Venus -102025-04-23 14:52 J -35543095.04 -35543094.88 -35543094.71 0.0532 0.0318

Mercury -102020-03-25 20:23 J -35541297.78 -35541297.65 -35541297.53 0.0504 0.0271

Mercury -102020-06-23 11:16 J -35541208.16 -35541208.03 -35541207.89 0.0501 0.0208

Venus -102019-02-25 10:47 J -35540961.24 -35540961.05 -35540960.85 0.0494 0.0125

Earth -102016-03-13 23:01 J -35539848.75 -35539848.54 -35539848.33 0.0493 0.0245

Moon -102016-03-14 00:57 J -35539848.67 -35539848.46 -35539848.24 0.0493 0.0257 \*

Mercury -102014-08-24 13:54 J -35538955.07 -35538954.92 -35538954.77 0.0525 0.0043

Mercury -102014-11-22 07:11 J -35538865.25 -35538865.20 -35538865.15 0.0529 0.0493

Moon -102011-09-08 21:49 J -35537843.79 -35537843.59 -35537843.40 0.0536 0.0296

Earth -102011-09-08 22:04 J -35537843.77 -35537843.58 -35537843.38 0.0536 0.0274 \*

Mercury -102008-01-11 22:47 J -35536987.65 -35536987.55 -35536987.46 0.0505 0.0382

Mercury -102008-04-11 13:25 J -35536898.09 -35536897.94 -35536897.79 0.0502 0.0092

Venus -102008-10-31 15:06 J -35536695.04 -35536694.87 -35536694.69 0.0495 0.0229

Mercury -102002-06-12 15:21 J -35534645.01 -35534644.86 -35534644.72 0.0525 0.0176

Mercury -102002-09-10 08:52 J -35534555.23 -35534555.13 -35534555.02 0.0528 0.0366

Venus -102001-04-26 19:25 J -35534325.82 -35534325.69 -35534325.56 0.0535 0.0410

# 102ND MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 102nd millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
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Moon -101999-09-13 16:04 J -35533456.03 -35533455.83 -35533455.62 0.0534 0.0166  
 Earth -101999-09-13 17:16 J -35533455.98 -35533455.78 -35533455.56 0.0534 0.0193 \*  
 Mars -101998-12-22 12:13 J -35532991.24 -35532990.99 -35532990.75 0.0517 0.0289  
 Mercury -101997-10-31 00:42 J -35532677.49 -35532677.47 -35532677.44 0.0505 0.0498  
 Mercury -101996-01-28 15:06 J -35532588.02 -35532587.87 -35532587.72 0.0502 0.0029  
 Mercury -101996-04-28 06:42 J -35532498.28 -35532498.22 -35532498.15 0.0499 0.0454  
 Mercury -101990-03-31 16:33 J -35530334.93 -35530334.81 -35530334.69 0.0524 0.0307  
 Mercury -101990-06-29 10:47 J -35530245.18 -35530245.05 -35530244.92 0.0527 0.0238  
 Venus -101990-12-31 09:06 J -35530060.33 -35530060.12 -35530059.92 0.0533 0.0049  
 Mercury -101985-11-16 16:47 J -35528277.94 -35528277.80 -35528277.65 0.0503 0.0149  
 Mercury -101984-02-14 08:09 J -35528188.27 -35528188.16 -35528188.04 0.0500 0.0331  
 Venus -101984-11-02 20:23 J -35527926.80 -35527926.65 -35527926.50 0.0493 0.0330  
 Mercury -101978-01-17 17:16 J -35526024.85 -35526024.78 -35526024.69 0.0522 0.0444  
 Mercury -101978-04-17 11:59 J -35525935.15 -35525935.00 -35525934.86 0.0526 0.0105  
 Venus -101978-09-04 21:06 J -35525794.67 -35525794.62 -35525794.56 0.0531 0.0509  
 Mercury -101973-09-04 18:13 J -35523967.86 -35523967.74 -35523967.61 0.0504 0.0272  
 Mercury -101973-12-03 09:21 J -35523878.25 -35523878.11 -35523877.97 0.0501 0.0206  
 Venus -101972-07-08 22:47 J -35523660.75 -35523660.55 -35523660.35 0.0495 0.0028  
 Mercury -101966-02-03 12:42 J -35521625.12 -35521624.97 -35521624.82 0.0525 0.0036  
 Mercury -101966-05-04 05:59 J -35521535.29 -35521535.25 -35521535.21 0.0528 0.0500  
 Mercury -101961-06-23 20:23 J -35519657.74 -35519657.65 -35519657.55 0.0505 0.0387  
 Mercury -101961-09-21 11:16 J -35519568.18 -35519568.03 -35519567.88 0.0502 0.0087  
 Venus -101960-03-14 02:23 J -35519394.53 -35519394.40 -35519394.28 0.0496 0.0386  
 Mercury -101955-11-22 12:57 J -35517315.10 -35517314.96 -35517314.82 0.0524 0.0181  
 Mercury -101954-02-20 06:42 J -35517225.33 -35517225.22 -35517225.11 0.0528 0.0359  
 Venus -101954-09-07 23:01 J -35517025.73 -35517025.54 -35517025.35 0.0534 0.0202  
 Mercury -101949-04-11 23:01 J -35515347.56 -35515347.54 -35515347.51 0.0506 0.0497  
 Mercury -101949-07-10 13:25 J -35515258.09 -35515257.94 -35515257.79 0.0502 0.0027  
 Mercury -101949-10-08 05:01 J -35515168.34 -35515168.29 -35515168.22 0.0499 0.0457  
 Earth -101945-03-08 08:23 J -35513921.37 -35513921.15 -35513920.93 0.0492 0.0207

Moon -101945-03-08 09:49 J -35513921.32 -35513921.09 -35513920.85 0.0492 0.0176 \*  
 Mars -101944-07-31 15:21 J -35513411.06 -35513410.86 -35513410.66 0.0508 0.0319  
 Mercury -101943-09-10 14:09 J -35513005.03 -35513004.91 -35513004.79 0.0524 0.0315  
 Mercury -101943-12-09 08:23 J -35512915.28 -35512915.15 -35512915.02 0.0527 0.0231  
 Venus -101942-05-13 12:57 J -35512760.14 -35512759.96 -35512759.78 0.0532 0.0255  
 Mercury -101937-04-28 15:21 J -35510948.01 -35510947.86 -35510947.72 0.0503 0.0146  
 Mercury -101937-07-27 06:42 J -35510858.34 -35510858.22 -35510858.11 0.0500 0.0334  
 Venus -101936-03-16 08:52 J -35510626.32 -35510626.13 -35510625.94 0.0493 0.0182  
 Moon -101933-03-12 23:16 J -35509533.75 -35509533.53 -35509533.31 0.0493 0.0192  
 Earth -101933-03-13 02:09 J -35509533.64 -35509533.41 -35509533.18 0.0493 0.0183 \*  
 Mercury -101931-06-29 15:21 J -35508694.93 -35508694.86 -35508694.78 0.0523 0.0446  
 Mercury -101931-09-27 10:04 J -35508605.23 -35508605.08 -35508604.93 0.0526 0.0103  
 Moon -101928-09-08 01:54 J -35507528.57 -35507528.42 -35507528.26 0.0536 0.0376  
 Earth -101928-09-08 03:06 J -35507528.54 -35507528.37 -35507528.20 0.0536 0.0347 \*  
 Mercury -101925-02-15 17:16 J -35506637.91 -35506637.78 -35506637.66 0.0504 0.0264  
 Mercury -101925-05-15 08:09 J -35506548.30 -35506548.16 -35506548.02 0.0501 0.0212  
 Venus -101925-11-19 12:13 J -35506360.18 -35506359.99 -35506359.80 0.0495 0.0175  
 Mercury -101919-07-16 11:16 J -35504295.18 -35504295.03 -35504294.88 0.0525 0.0031  
 Mercury -101919-10-14 04:33 J -35504205.35 -35504205.31 -35504205.27 0.0528 0.0505  
 Venus -101918-05-16 18:42 J -35503990.80 -35503990.72 -35503990.63 0.0535 0.0483  
 Earth -101916-09-12 17:30 J -35503140.99 -35503140.77 -35503140.55 0.0534 0.0098  
 Moon -101916-09-12 19:54 J -35503140.90 -35503140.67 -35503140.44 0.0534 0.0075 \*  
 Mercury -101914-12-04 18:42 J -35502327.81 -35502327.72 -35502327.62 0.0505 0.0386  
 Mercury -101913-03-03 09:21 J -35502238.26 -35502238.11 -35502237.96 0.0502 0.0088  
 Mars -101908-05-05 00:13 J -35500349.69 -35500349.49 -35500349.28 0.0510 0.0300  
 Mercury -101907-05-04 11:59 J -35499985.14 -35499985.00 -35499984.85 0.0524 0.0170  
 Mercury -101907-08-02 05:45 J -35499895.36 -35499895.26 -35499895.16 0.0527 0.0370  
 Venus -101906-01-19 06:42 J -35499725.42 -35499725.22 -35499725.02 0.0533 0.0015  
 Mercury -101902-09-22 21:06 J -35498017.64 -35498017.62 -35498017.60 0.0506 0.0500  
 Mercury -101902-12-21 11:16 J -35497928.18 -35497928.03 -35497927.87 0.0503 0.0034

Mercury -101901-03-20 03:06 J -35497838.43 -35497838.37 -35497838.31 0.0500 0.0453

Venus -101901-11-21 17:30 J -35497591.89 -35497591.77 -35497591.64 0.0493 0.0388

Mercury -101895-02-20 11:59 J -35495675.12 -35495675.00 -35495674.88 0.0523 0.0318

Mercury -101895-05-21 06:13 J -35495585.37 -35495585.24 -35495585.11 0.0527 0.0227

Venus -101895-09-23 17:16 J -35495459.88 -35495459.78 -35495459.68 0.0531 0.0458

Mercury -101890-10-09 13:54 J -35493618.07 -35493617.92 -35493617.78 0.0503 0.0143

Mercury -101889-01-07 05:01 J -35493528.40 -35493528.29 -35493528.17 0.0500 0.0339

Venus -101889-07-27 22:18 J -35493325.78 -35493325.57 -35493325.37 0.0494 0.0038

Mercury -101884-12-09 12:57 J -35491365.03 -35491364.96 -35491364.88 0.0523 0.0453

Mercury -101883-03-09 07:40 J -35491275.32 -35491275.18 -35491275.03 0.0526 0.0098

Mars -101879-06-09 05:30 J -35489722.50 -35489722.27 -35489722.03 0.0520 0.0315

Mercury -101878-07-28 15:49 J -35489307.97 -35489307.84 -35489307.71 0.0504 0.0258

Mercury -101878-10-26 06:42 J -35489218.36 -35489218.22 -35489218.08 0.0501 0.0218

Venus -101877-04-02 01:25 J -35489059.59 -35489059.44 -35489059.28 0.0496 0.0323

Mercury -101872-12-26 09:21 J -35486965.26 -35486965.11 -35486964.96 0.0525 0.0034

Mercury -101871-03-26 02:52 J -35486875.42 -35486875.38 -35486875.34 0.0529 0.0505

Venus -101871-09-27 00:42 J -35486690.63 -35486690.47 -35486690.29 0.0535 0.0287

Mercury -101866-05-16 17:45 J -35484997.85 -35484997.76 -35484997.66 0.0505 0.0375

Mercury -101866-08-14 08:23 J -35484908.30 -35484908.15 -35484908.00 0.0501 0.0098

Moon -101862-03-08 11:16 J -35483606.24 -35483606.03 -35483605.82 0.0492 0.0228

Earth -101862-03-08 13:54 J -35483606.12 -35483605.92 -35483605.71 0.0492 0.0259 \*

Mercury -101860-10-14 10:47 J -35482655.20 -35482655.05 -35482654.91 0.0524 0.0163

Mercury -101859-01-12 04:33 J -35482565.42 -35482565.31 -35482565.21 0.0528 0.0377

Venus -101859-06-01 13:54 J -35482425.11 -35482424.92 -35482424.73 0.0532 0.0175

Mercury -101854-03-04 19:40 J -35480687.71 -35480687.68 -35480687.66 0.0506 0.0496

Mercury -101854-06-02 09:49 J -35480598.24 -35480598.09 -35480597.94 0.0503 0.0027

Mercury -101854-08-31 01:25 J -35480508.50 -35480508.44 -35480508.38 0.0500 0.0456

Venus -101853-04-04 06:28 J -35480291.40 -35480291.23 -35480291.05 0.0494 0.0240

Earth -101850-03-13 07:40 J -35479218.42 -35479218.18 -35479217.95 0.0493 0.0129

Moon -101850-03-13 11:30 J -35479218.26 -35479218.02 -35479217.78 0.0493 0.0132 \*

Mercury -101848-08-02 11:30 J -35478345.14 -35478345.02 -35478344.90 0.0523 0.0302

Mercury -101848-10-31 05:30 J -35478255.40 -35478255.27 -35478255.13 0.0527 0.0242

Earth -101845-09-07 04:18 J -35477213.45 -35477213.32 -35477213.19 0.0536 0.0437

Moon -101845-09-07 06:28 J -35477213.33 -35477213.23 -35477213.11 0.0536 0.0466 \*

Mars -101843-03-17 02:52 J -35476657.43 -35476657.38 -35476657.31 0.0517 0.0506

Mercury -101842-03-21 11:59 J -35476288.15 -35476288.00 -35476287.86 0.0503 0.0143

Mercury -101842-06-19 03:06 J -35476198.48 -35476198.37 -35476198.25 0.0500 0.0339

Venus -101842-12-09 10:33 J -35476025.26 -35476025.06 -35476024.86 0.0495 0.0115

Moon -101838-03-17 18:28 J -35474830.78 -35474830.73 -35474830.67 0.0494 0.0480

Mercury -101836-05-21 11:16 J -35474035.11 -35474035.03 -35474034.96 0.0522 0.0453

Mercury -101836-08-19 05:59 J -35473945.40 -35473945.25 -35473945.11 0.0526 0.0096

Moon -101833-09-11 19:54 J -35472825.89 -35472825.67 -35472825.45 0.0536 0.0012

Earth -101833-09-11 23:16 J -35472825.75 -35472825.53 -35472825.31 0.0536 0.0028 \*

Mercury -101830-01-07 14:23 J -35471978.02 -35471977.90 -35471977.77 0.0504 0.0253

Mercury -101830-04-07 05:30 J -35471888.41 -35471888.27 -35471888.13 0.0501 0.0224

Venus -101830-08-14 15:06 J -35471758.93 -35471758.87 -35471758.80 0.0497 0.0469

Mercury -101824-06-07 07:11 J -35469635.35 -35469635.20 -35469635.04 0.0525 0.0039

Mercury -101824-09-05 00:42 J -35469545.51 -35469545.47 -35469545.43 0.0529 0.0500

Venus -101823-02-07 05:16 J -35469390.48 -35469390.28 -35469390.08 0.0534 0.0082

Earth -101821-09-16 18:57 J -35468437.79 -35468437.71 -35468437.62 0.0534 0.0492

Moon -101821-09-16 22:33 J -35468437.60 -35468437.56 -35468437.51 0.0534 0.0522

Mercury -101819-10-26 16:33 J -35467667.91 -35467667.81 -35467667.70 0.0505 0.0368

Mercury -101818-01-24 07:11 J -35467578.35 -35467578.20 -35467578.05 0.0501 0.0106

Venus -101818-12-11 17:30 J -35467256.85 -35467256.77 -35467256.69 0.0492 0.0454

Mercury -101812-03-26 08:52 J -35465325.27 -35465325.13 -35465324.98 0.0525 0.0164

Mercury -101812-06-24 02:37 J -35465235.49 -35465235.39 -35465235.28 0.0528 0.0377

Venus -101812-10-12 19:54 J -35465124.82 -35465124.67 -35465124.53 0.0532 0.0372

Mercury -101807-08-14 18:42 J -35463357.75 -35463357.72 -35463357.67 0.0505 0.0483

Mercury -101807-11-12 09:06 J -35463268.27 -35463268.12 -35463267.97 0.0502 0.0013

Mercury -101806-02-10 00:42 J -35463178.52 -35463178.47 -35463178.42 0.0499 0.0468

Venus -101806-08-16 21:06 J -35462990.82 -35462990.62 -35462990.42 0.0494 0.0100  
 Mercury -101800-01-12 10:04 J -35461015.20 -35461015.08 -35461014.95 0.0523 0.0296  
 Mercury -101800-04-12 04:18 J -35460925.45 -35460925.32 -35460925.18 0.0527 0.0250  
 Mercury -101795-08-31 10:33 J -35458958.20 -35458958.06 -35458957.91 0.0503 0.0137  
 Mercury -101795-11-29 01:54 J -35458868.53 -35458868.42 -35458868.31 0.0500 0.0343  
 Venus -101794-04-21 23:45 J -35458724.68 -35458724.51 -35458724.33 0.0496 0.0263  
 Mars -101790-10-25 20:23 J -35457076.90 -35457076.65 -35457076.40 0.0508 0.0113  
 Mercury -101789-10-31 10:47 J -35456705.13 -35456705.05 -35456704.96 0.0522 0.0434  
 Mercury -101788-01-29 05:30 J -35456615.42 -35456615.27 -35456615.12 0.0526 0.0114  
 Venus -101788-10-16 00:57 J -35456355.61 -35456355.46 -35456355.31 0.0534 0.0362  
 Mercury -101783-06-19 12:42 J -35454648.10 -35454647.97 -35454647.84 0.0504 0.0252  
 Mercury -101783-09-17 03:49 J -35454558.48 -35454558.34 -35454558.21 0.0501 0.0226  
 Earth -101779-03-07 17:30 J -35453290.95 -35453290.77 -35453290.58 0.0491 0.0316  
 Moon -101779-03-07 21:21 J -35453290.81 -35453290.61 -35453290.41 0.0491 0.0283 \*  
 Mercury -101777-11-17 05:30 J -35452305.42 -35452305.27 -35452305.12 0.0525 0.0037  
 Mercury -101776-02-14 23:01 J -35452215.58 -35452215.54 -35452215.50 0.0528 0.0501  
 Venus -101776-06-20 10:47 J -35452090.24 -35452090.05 -35452089.84 0.0533 0.0118  
 Mercury -101771-04-07 15:21 J -35450337.96 -35450337.86 -35450337.75 0.0505 0.0361  
 Mercury -101771-07-06 05:59 J -35450248.40 -35450248.25 -35450248.10 0.0502 0.0114  
 Venus -101770-04-24 07:54 J -35449956.33 -35449956.17 -35449956.01 0.0493 0.0314  
 Moon -101767-03-12 07:11 J -35448903.43 -35448903.20 -35448902.95 0.0492 0.0068  
 Earth -101767-03-12 11:16 J -35448903.27 -35448903.03 -35448902.79 0.0492 0.0071 \*  
 Mercury -101765-09-05 06:57 J -35447995.36 -35447995.21 -35447995.07 0.0524 0.0166  
 Mercury -101765-12-04 00:42 J -35447905.57 -35447905.47 -35447905.36 0.0528 0.0374  
 Moon -101762-09-07 09:49 J -35446898.12 -35446898.09 -35446898.05 0.0537 0.0527  
 Earth -101762-09-07 12:57 J -35446898.04 -35446897.96 -35446897.86 0.0537 0.0492  
 Mercury -101759-01-24 17:45 J -35446027.81 -35446027.76 -35446027.71 0.0506 0.0473  
 Mercury -101759-04-24 08:09 J -35445938.32 -35445938.16 -35445938.01 0.0502 0.0015  
 Mercury -101759-07-22 23:30 J -35445848.55 -35445848.52 -35445848.47 0.0499 0.0478  
 Venus -101759-12-28 11:30 J -35445690.22 -35445690.02 -35445689.82 0.0495 0.0043

Earth -101755-03-17 05:01 J -35444515.37 -35444515.29 -35444515.20 0.0494 0.0462  
 Moon -101755-03-17 08:09 J -35444515.27 -35444515.16 -35444515.05 0.0494 0.0435 \*  
 Mars -101754-07-29 21:49 J -35444015.65 -35444015.59 -35444015.51 0.0510 0.0489  
 Mercury -101753-06-24 08:23 J -35443685.27 -35443685.15 -35443685.02 0.0524 0.0295  
 Mercury -101753-09-22 02:37 J -35443595.52 -35443595.39 -35443595.26 0.0527 0.0250  
 Earth -101750-09-12 09:21 J -35442510.33 -35442510.11 -35442509.89 0.0536 0.0023  
 Moon -101750-09-12 12:57 J -35442510.18 -35442509.96 -35442509.74 0.0536 0.0031 \*  
 Mercury -101747-02-10 10:04 J -35441628.23 -35441628.08 -35441627.94 0.0503 0.0121  
 Mercury -101747-05-11 01:11 J -35441538.55 -35441538.45 -35441538.34 0.0500 0.0358  
 Venus -101747-09-02 15:06 J -35441423.98 -35441423.87 -35441423.75 0.0496 0.0402  
 Mercury -101741-04-12 09:35 J -35439375.18 -35439375.10 -35439375.01 0.0523 0.0426  
 Mercury -101741-07-11 04:18 J -35439285.46 -35439285.32 -35439285.17 0.0526 0.0122  
 Venus -101740-02-26 08:37 J -35439055.33 -35439055.14 -35439054.95 0.0534 0.0174  
 Moon -101738-09-16 22:18 J -35438122.69 -35438122.57 -35438122.45 0.0534 0.0452  
 Earth -101738-09-17 01:11 J -35438122.58 -35438122.45 -35438122.31 0.0534 0.0423 \*  
 Mercury -101736-11-29 11:30 J -35437318.15 -35437318.02 -35437317.88 0.0504 0.0244  
 Mercury -101735-02-27 02:37 J -35437228.53 -35437228.39 -35437228.26 0.0501 0.0233  
 Mercury -101729-04-29 05:30 J -35434975.42 -35434975.27 -35434975.12 0.0525 0.0015  
 Mercury -101729-07-27 22:47 J -35434885.57 -35434885.55 -35434885.53 0.0528 0.0521  
 Venus -101729-10-31 21:06 J -35434789.79 -35434789.62 -35434789.45 0.0532 0.0291  
 Mars -101725-09-02 11:16 J -35433388.32 -35433388.03 -35433387.74 0.0520 0.0059  
 Mercury -101724-09-17 13:54 J -35433008.02 -35433007.92 -35433007.81 0.0505 0.0357  
 Mercury -101724-12-16 04:33 J -35432918.46 -35432918.31 -35432918.16 0.0502 0.0117  
 Venus -101723-09-04 21:06 J -35432655.81 -35432655.62 -35432655.43 0.0494 0.0167  
 Mercury -101717-02-16 05:16 J -35430665.42 -35430665.28 -35430665.13 0.0524 0.0163  
 Mercury -101717-05-15 23:16 J -35430575.63 -35430575.53 -35430575.43 0.0528 0.0378  
 Mercury -101712-07-06 16:33 J -35428697.86 -35428697.81 -35428697.75 0.0506 0.0466  
 Mercury -101712-10-04 06:57 J -35428608.36 -35428608.21 -35428608.06 0.0503 0.0005  
 Mercury -101711-01-01 22:33 J -35428518.59 -35428518.56 -35428518.53 0.0500 0.0488  
 Venus -101711-05-11 01:54 J -35428389.60 -35428389.42 -35428389.22 0.0496 0.0186

Mercury -101706-12-05 06:28 J -35426355.35 -35426355.23 -35426355.10 0.0523 0.0296

Mercury -101705-03-04 00:57 J -35426265.60 -35426265.46 -35426265.33 0.0527 0.0249

Venus -101705-11-03 23:59 J -35426020.61 -35426020.50 -35426020.38 0.0535 0.0432

Mercury -101700-07-23 09:06 J -35424298.27 -35424298.12 -35424297.98 0.0503 0.0111

Mercury -101700-10-21 00:13 J -35424208.59 -35424208.49 -35424208.38 0.0500 0.0369

Moon -101696-03-06 21:21 J -35422975.78 -35422975.61 -35422975.42 0.0491 0.0331

Earth -101696-03-07 01:40 J -35422975.60 -35422975.43 -35422975.27 0.0491 0.0358 \*

Mercury -101694-09-23 07:54 J -35422045.26 -35422045.17 -35422045.08 0.0523 0.0425

Mercury -101694-12-22 02:37 J -35421955.53 -35421955.39 -35421955.24 0.0526 0.0124

Venus -101693-07-09 14:37 J -35421755.09 -35421754.89 -35421754.68 0.0533 0.0026

Mercury -101688-05-11 11:16 J -35419988.17 -35419988.03 -35419987.90 0.0504 0.0227

Mercury -101688-08-09 01:54 J -35419898.55 -35419898.42 -35419898.28 0.0501 0.0250

Venus -101687-05-13 08:09 J -35419621.28 -35419621.16 -35419621.03 0.0493 0.0383

Earth -101684-03-11 19:40 J -35418587.92 -35418587.68 -35418587.44 0.0492 0.0030

Moon -101684-03-11 22:47 J -35418587.79 -35418587.55 -35418587.31 0.0492 0.0018 \*

Mercury -101682-10-10 04:18 J -35417645.47 -35417645.32 -35417645.17 0.0525 0.0005

Venus -101681-03-14 04:47 J -35417489.38 -35417489.30 -35417489.21 0.0531 0.0477

Mercury -101676-02-27 12:57 J -35415678.07 -35415677.96 -35415677.86 0.0505 0.0348

Mercury -101676-05-28 03:21 J -35415588.50 -35415588.36 -35415588.21 0.0502 0.0127

Venus -101675-01-16 11:01 J -35415355.24 -35415355.04 -35415354.83 0.0495 0.0025

Moon -101672-03-16 12:42 J -35414200.12 -35414199.97 -35414199.82 0.0494 0.0393

Earth -101672-03-16 14:09 J -35414200.03 -35414199.91 -35414199.78 0.0494 0.0421 \*

Mars -101671-04-16 21:49 J -35413803.60 -35413803.59 -35413803.57 0.0506 0.0504

Mercury -101670-07-29 05:16 J -35413335.42 -35413335.28 -35413335.13 0.0524 0.0141

Mercury -101670-10-26 23:01 J -35413245.63 -35413245.54 -35413245.44 0.0528 0.0400

Moon -101667-09-11 11:30 J -35412195.24 -35412195.02 -35412194.79 0.0536 0.0098

Earth -101667-09-11 14:52 J -35412195.10 -35412194.88 -35412194.66 0.0536 0.0095 \*

Mercury -101665-12-16 15:21 J -35411367.92 -35411367.86 -35411367.80 0.0506 0.0461

Mercury -101664-03-16 05:30 J -35411278.42 -35411278.27 -35411278.12 0.0503 0.0010

Mercury -101664-06-13 21:06 J -35411188.64 -35411188.62 -35411188.59 0.0500 0.0492



Venus -101664-09-21 15:21 J -35411089.01 -35411088.86 -35411088.71 0.0496 0.0334  
 Mercury -101658-05-17 05:01 J -35409025.41 -35409025.29 -35409025.16 0.0523 0.0290  
 Mercury -101658-08-14 23:30 J -35408935.65 -35408935.52 -35408935.39 0.0527 0.0254  
 Venus -101657-03-17 06:13 J -35408720.42 -35408720.24 -35408720.05 0.0534 0.0237  
 Earth -101655-09-16 07:25 J -35407807.35 -35407807.19 -35407807.02 0.0535 0.0360  
 Moon -101655-09-16 09:06 J -35407807.26 -35407807.12 -35407806.97 0.0535 0.0395 \*  
 Mercury -101652-01-02 07:54 J -35406968.32 -35406968.17 -35406968.02 0.0504 0.0103  
 Mercury -101652-04-01 23:16 J -35406878.63 -35406878.53 -35406878.43 0.0500 0.0378  
 Mercury -101646-03-05 06:13 J -35404715.33 -35404715.24 -35404715.15 0.0522 0.0424  
 Mercury -101646-06-03 00:57 J -35404625.61 -35404625.46 -35404625.32 0.0526 0.0124  
 Venus -101646-11-20 19:54 J -35404454.85 -35404454.67 -35404454.48 0.0532 0.0224  
 Mercury -101641-10-21 10:04 J -35402658.21 -35402658.08 -35402657.94 0.0504 0.0217  
 Mercury -101640-01-19 01:11 J -35402568.58 -35402568.45 -35402568.32 0.0501 0.0260  
 Venus -101640-09-23 22:47 J -35402320.72 -35402320.55 -35402320.37 0.0493 0.0244  
 Mars -101635-01-18 23:30 J -35400742.77 -35400742.52 -35400742.26 0.0508 0.0092  
 Mercury -101634-03-22 02:37 J -35400315.54 -35400315.39 -35400315.24 0.0525 0.0009  
 Mercury -101629-08-09 12:28 J -35398348.09 -35398347.98 -35398347.87 0.0505 0.0331  
 Mercury -101629-11-07 02:52 J -35398258.52 -35398258.38 -35398258.23 0.0502 0.0143  
 Venus -101628-05-30 02:37 J -35398054.58 -35398054.39 -35398054.19 0.0495 0.0114  
 Mercury -101622-01-08 04:04 J -35396005.47 -35396005.33 -35396005.18 0.0524 0.0133  
 Mercury -101622-04-07 22:04 J -35395915.67 -35395915.58 -35395915.49 0.0528 0.0408  
 Venus -101622-11-24 04:18 J -35395685.34 -35395685.32 -35395685.29 0.0535 0.0530  
 Mercury -101617-05-28 14:09 J -35394037.97 -35394037.91 -35394037.84 0.0506 0.0451  
 Mercury -101617-08-26 04:33 J -35393948.46 -35393948.31 -35393948.16 0.0502 0.0021  
 Venus -101616-02-02 05:01 J -35393788.33 -35393788.29 -35393788.23 0.0497 0.0480  
 Earth -101613-03-06 11:16 J -35392660.17 -35392660.03 -35392659.89 0.0491 0.0395  
 Moon -101613-03-06 14:37 J -35392660.04 -35392659.89 -35392659.73 0.0491 0.0373 \*  
 Mercury -101611-10-27 05:01 J -35391695.42 -35391695.29 -35391695.16 0.0523 0.0268  
 Mercury -101610-01-24 23:16 J -35391605.65 -35391605.53 -35391605.40 0.0527 0.0276  
 Venus -101610-07-29 17:01 J -35391420.00 -35391419.79 -35391419.59 0.0533 0.0064

Mercury -101605-06-14 06:42 J -35389638.37 -35389638.22 -35389638.08 0.0503 0.0097

Mercury -101605-09-11 21:49 J -35389548.68 -35389548.59 -35389548.49 0.0500 0.0384

Venus -101604-06-01 08:52 J -35389286.21 -35389286.13 -35389286.06 0.0493 0.0453

Moon -101601-03-11 01:25 J -35388272.69 -35388272.44 -35388272.18 0.0491 0.0033

Earth -101601-03-11 03:21 J -35388272.60 -35388272.36 -35388272.11 0.0491 0.0013 \*

Mercury -101599-08-15 04:47 J -35387385.39 -35387385.30 -35387385.20 0.0522 0.0417

Mercury -101599-11-12 23:30 J -35387295.66 -35387295.52 -35387295.37 0.0526 0.0130

Venus -101598-04-03 02:37 J -35387154.51 -35387154.39 -35387154.26 0.0531 0.0415

Mercury -101593-04-02 09:06 J -35385328.26 -35385328.12 -35385327.99 0.0504 0.0209

Mercury -101593-06-30 23:59 J -35385238.63 -35385238.50 -35385238.37 0.0501 0.0269

Venus -101592-02-04 13:25 J -35385020.14 -35385019.94 -35385019.74 0.0495 0.0103

Moon -101589-03-15 21:06 J -35383884.79 -35383884.62 -35383884.46 0.0492 0.0353

Earth -101589-03-15 20:52 J -35383884.78 -35383884.63 -35383884.46 0.0492 0.0376 \*

Mercury -101587-09-01 00:57 J -35382985.61 -35382985.46 -35382985.31 0.0525 0.0014

Earth -101584-09-10 22:18 J -35381879.78 -35381879.57 -35381879.36 0.0537 0.0153

Moon -101584-09-11 00:13 J -35381879.70 -35381879.49 -35381879.28 0.0537 0.0143 \*

Mercury -101581-01-20 11:16 J -35381018.14 -35381018.03 -35381017.91 0.0505 0.0322

Mercury -101581-04-19 01:54 J -35380928.56 -35380928.42 -35380928.27 0.0502 0.0152

Venus -101581-10-10 17:01 J -35380753.96 -35380753.79 -35380753.61 0.0496 0.0256

Mercury -101575-06-20 02:23 J -35378675.55 -35378675.40 -35378675.25 0.0524 0.0132

Mercury -101575-09-17 20:09 J -35378585.75 -35378585.66 -35378585.56 0.0528 0.0408

Venus -101574-04-06 10:04 J -35378385.24 -35378385.08 -35378384.92 0.0535 0.0332

Earth -101572-09-15 19:11 J -35377491.88 -35377491.70 -35377491.52 0.0535 0.0315

Moon -101572-09-15 18:57 J -35377491.88 -35377491.71 -35377491.53 0.0535 0.0346 \*

Mars -101571-11-28 14:23 J -35377053.15 -35377052.90 -35377052.64 0.0519 0.0268

Mercury -101570-11-08 13:40 J -35376708.00 -35376707.93 -35376707.86 0.0506 0.0435

Mercury -101569-02-06 03:49 J -35376618.49 -35376618.34 -35376618.18 0.0502 0.0037

Mercury -101563-04-08 03:49 J -35374365.47 -35374365.34 -35374365.21 0.0523 0.0261

Mercury -101563-07-06 22:04 J -35374275.70 -35374275.58 -35374275.45 0.0527 0.0283

Venus -101563-12-10 00:13 J -35374119.69 -35374119.49 -35374119.29 0.0532 0.0127

Mercury -101558-11-25 05:30 J -35372308.42 -35372308.27 -35372308.12 0.0503 0.0088

Mercury -101557-02-22 20:37 J -35372218.73 -35372218.64 -35372218.54 0.0500 0.0393

Venus -101557-10-12 22:33 J -35371985.71 -35371985.56 -35371985.40 0.0493 0.0311

Mercury -101551-01-25 04:47 J -35370055.40 -35370055.30 -35370055.20 0.0522 0.0396

Mercury -101551-04-24 23:30 J -35369965.67 -35369965.52 -35369965.38 0.0526 0.0151

Mercury -101546-09-13 07:40 J -35367998.32 -35367998.18 -35367998.04 0.0504 0.0203

Mercury -101546-12-11 22:33 J -35367908.68 -35367908.56 -35367908.43 0.0501 0.0274

Venus -101545-06-18 02:52 J -35367719.58 -35367719.38 -35367719.18 0.0495 0.0045

Mercury -101539-02-10 23:30 J -35365655.67 -35365655.52 -35365655.37 0.0525 0.0009

Mercury -101534-07-02 10:04 J -35363688.20 -35363688.08 -35363687.97 0.0505 0.0316

Mercury -101534-09-30 00:42 J -35363598.62 -35363598.47 -35363598.33 0.0502 0.0159

Venus -101533-02-22 06:57 J -35363453.32 -35363453.21 -35363453.09 0.0497 0.0402

Moon -101530-03-06 17:16 J -35362344.90 -35362344.78 -35362344.64 0.0490 0.0418

Earth -101530-03-06 19:25 J -35362344.79 -35362344.69 -35362344.57 0.0490 0.0433 \*

Mercury -101528-11-30 00:42 J -35361345.62 -35361345.47 -35361345.33 0.0524 0.0131

Mercury -101527-02-27 18:28 J -35361255.82 -35361255.73 -35361255.64 0.0527 0.0408

Venus -101527-08-17 14:52 J -35361085.07 -35361084.88 -35361084.68 0.0533 0.0130

Mercury -101522-04-20 12:13 J -35359378.06 -35359377.99 -35359377.91 0.0506 0.0429

Mercury -101522-07-19 02:37 J -35359288.54 -35359288.39 -35359288.24 0.0503 0.0043

Earth -101518-03-11 10:18 J -35357957.31 -35357957.07 -35357956.82 0.0491 0.0059

Moon -101518-03-11 10:33 J -35357957.29 -35357957.06 -35357956.83 0.0491 0.0084 \*

Mars -101517-07-10 23:59 J -35357469.70 -35357469.50 -35357469.29 0.0506 0.0297

Mercury -101516-09-18 01:54 J -35357035.55 -35357035.42 -35357035.29 0.0523 0.0261

Mercury -101516-12-16 20:09 J -35356945.78 -35356945.66 -35356945.53 0.0527 0.0283

Venus -101515-04-22 05:30 J -35356819.43 -35356819.27 -35356819.11 0.0531 0.0326

Mercury -101510-05-07 04:47 J -35354978.45 -35354978.30 -35354978.15 0.0503 0.0074

Mercury -101510-08-04 19:54 J -35354888.75 -35354888.67 -35354888.58 0.0500 0.0406

Venus -101509-02-24 13:40 J -35354685.12 -35354684.93 -35354684.74 0.0494 0.0173

Earth -101506-03-16 04:18 J -35353569.50 -35353569.32 -35353569.14 0.0492 0.0329

Moon -101506-03-16 05:59 J -35353569.45 -35353569.25 -35353569.05 0.0492 0.0309 \*

Mercury -101504-07-07 03:06 J -35352725.46 -35352725.37 -35352725.26 0.0523 0.0392

Mercury -101504-10-04 22:04 J -35352635.73 -35352635.58 -35352635.44 0.0526 0.0156

Moon -101501-09-10 06:28 J -35351564.45 -35351564.23 -35351564.01 0.0537 0.0193

Earth -101501-09-10 06:57 J -35351564.42 -35351564.21 -35351564.01 0.0537 0.0211 \*

Mercury -101498-02-23 06:28 J -35350668.37 -35350668.23 -35350668.09 0.0504 0.0195

Mercury -101498-05-23 21:21 J -35350578.73 -35350578.61 -35350578.48 0.0501 0.0282

Venus -101498-10-30 16:33 J -35350419.00 -35350418.81 -35350418.62 0.0496 0.0191

Mercury -101492-07-23 23:16 J -35348325.68 -35348325.53 -35348325.38 0.0525 0.0024

Venus -101491-04-25 11:59 J -35348050.12 -35348050.00 -35348049.87 0.0534 0.0417

Moon -101489-09-14 23:16 J -35347176.71 -35347176.53 -35347176.34 0.0535 0.0276

Earth -101489-09-15 00:28 J -35347176.68 -35347176.48 -35347176.28 0.0535 0.0244 \*

Mercury -101487-12-12 08:37 J -35346358.25 -35346358.14 -35346358.02 0.0505 0.0311

Mercury -101486-03-11 23:16 J -35346268.67 -35346268.53 -35346268.39 0.0502 0.0163

Mars -101481-04-14 05:45 J -35344408.45 -35344408.26 -35344408.05 0.0508 0.0313

Mercury -101480-05-11 23:16 J -35344015.68 -35344015.53 -35344015.38 0.0524 0.0123

Mercury -101480-08-09 17:01 J -35343925.87 -35343925.79 -35343925.70 0.0527 0.0414

Venus -101480-12-28 21:35 J -35343784.80 -35343784.60 -35343784.39 0.0532 0.0065

Mercury -101475-09-30 11:01 J -35342048.12 -35342048.04 -35342047.96 0.0506 0.0425

Mercury -101475-12-29 01:11 J -35341958.60 -35341958.45 -35341958.30 0.0503 0.0048

Venus -101474-11-01 23:59 J -35341650.63 -35341650.50 -35341650.38 0.0494 0.0386

Mercury -101468-02-28 00:13 J -35339705.62 -35339705.49 -35339705.36 0.0523 0.0259

Mercury -101468-05-28 18:28 J -35339615.86 -35339615.73 -35339615.61 0.0526 0.0282

Venus -101468-09-02 10:33 J -35339519.08 -35339519.06 -35339519.03 0.0530 0.0524

Mercury -101463-10-17 03:21 J -35337648.51 -35337648.36 -35337648.21 0.0504 0.0069

Mercury -101462-01-14 18:42 J -35337558.81 -35337558.72 -35337558.64 0.0500 0.0411

Venus -101462-07-08 03:06 J -35337384.57 -35337384.37 -35337384.16 0.0495 0.0030

Mercury -101457-12-17 01:11 J -35335395.55 -35335395.45 -35335395.35 0.0522 0.0393

Mercury -101456-03-16 19:54 J -35335305.81 -35335305.67 -35335305.52 0.0526 0.0154

Mars -101452-05-16 15:21 J -35333784.09 -35333783.86 -35333783.62 0.0522 0.0316

Mercury -101451-08-05 05:30 J -35333338.41 -35333338.27 -35333338.13 0.0504 0.0184

Mercury -101451-11-02 20:23 J -35333248.77 -35333248.65 -35333248.52 0.0501 0.0293

Venus -101450-03-13 06:57 J -35333118.36 -35333118.21 -35333118.06 0.0497 0.0333

Earth -101447-03-06 01:11 J -35332029.48 -35332029.45 -35332029.41 0.0490 0.0483

Moon -101447-03-06 01:25 J -35332029.48 -35332029.44 -35332029.38 0.0490 0.0478 \*

Mercury -101444-01-02 21:35 J -35330995.75 -35330995.60 -35330995.45 0.0525 0.0026

Venus -101444-09-05 18:13 J -35330749.93 -35330749.74 -35330749.56 0.0534 0.0222

Mercury -101439-05-24 07:11 J -35329028.31 -35329028.20 -35329028.08 0.0505 0.0305

Mercury -101439-08-21 21:49 J -35328938.73 -35328938.59 -35328938.44 0.0502 0.0170

Earth -101435-03-10 17:45 J -35327641.99 -35327641.76 -35327641.52 0.0491 0.0103

Moon -101435-03-10 19:25 J -35327641.93 -35327641.69 -35327641.45 0.0491 0.0131 \*

Mercury -101433-10-21 22:47 J -35326685.70 -35326685.55 -35326685.40 0.0524 0.0109

Mercury -101432-01-19 16:33 J -35326595.89 -35326595.81 -35326595.72 0.0527 0.0430

Venus -101432-05-11 07:11 J -35326484.38 -35326484.20 -35326484.02 0.0531 0.0243

Mercury -101427-03-12 09:35 J -35324718.18 -35324718.10 -35324718.02 0.0506 0.0420

Mercury -101427-06-09 23:45 J -35324628.66 -35324628.51 -35324628.36 0.0503 0.0051

Venus -101426-03-15 12:28 J -35324350.15 -35324349.98 -35324349.80 0.0494 0.0237

Moon -101423-03-15 08:37 J -35323254.33 -35323254.14 -35323253.94 0.0492 0.0269

Earth -101423-03-15 11:30 J -35323254.22 -35323254.02 -35323253.82 0.0492 0.0285 \*

Mercury -101421-08-09 22:47 J -35322375.68 -35322375.55 -35322375.42 0.0523 0.0253

Mercury -101421-11-07 17:01 J -35322285.91 -35322285.79 -35322285.66 0.0526 0.0288

Moon -101418-09-10 05:45 J -35321249.44 -35321249.26 -35321249.08 0.0538 0.0282

Earth -101418-09-10 06:28 J -35321249.41 -35321249.23 -35321249.04 0.0538 0.0302 \*

Mercury -101415-03-29 01:40 J -35320318.58 -35320318.43 -35320318.28 0.0504 0.0067

Mercury -101415-06-26 17:01 J -35320228.87 -35320228.79 -35320228.70 0.0501 0.0415

Venus -101415-11-18 16:18 J -35320084.01 -35320083.82 -35320083.62 0.0496 0.0122

Mercury -101409-05-28 23:30 J -35318065.62 -35318065.52 -35318065.42 0.0522 0.0391

Mercury -101409-08-26 18:13 J -35317975.89 -35317975.74 -35317975.60 0.0525 0.0154

Venus -101408-05-14 08:37 J -35317715.23 -35317715.14 -35317715.05 0.0534 0.0476

Earth -101406-09-15 02:23 J -35316861.61 -35316861.40 -35316861.18 0.0537 0.0164

Moon -101406-09-15 04:47 J -35316861.51 -35316861.30 -35316861.08 0.0537 0.0192 \*

Mercury -101403-01-15 03:49 J -35316008.48 -35316008.34 -35316008.20 0.0505 0.0182

Mercury -101403-04-14 18:42 J -35315918.84 -35315918.72 -35315918.59 0.0501 0.0296

Venus -101403-07-24 19:25 J -35315817.73 -35315817.69 -35315817.64 0.0498 0.0485

Mercury -101397-06-14 19:25 J -35313665.84 -35313665.69 -35313665.54 0.0525 0.0023

Venus -101396-01-16 22:18 J -35313449.77 -35313449.57 -35313449.36 0.0533 0.0017

Mercury -101392-11-03 06:13 J -35311698.36 -35311698.24 -35311698.12 0.0505 0.0296

Mercury -101391-01-31 20:37 J -35311608.78 -35311608.64 -35311608.49 0.0502 0.0178

Venus -101391-11-20 22:33 J -35311315.64 -35311315.56 -35311315.47 0.0493 0.0450

Mercury -101385-04-02 20:52 J -35309355.78 -35309355.63 -35309355.48 0.0524 0.0109

Mercury -101385-07-01 14:37 J -35309265.97 -35309265.89 -35309265.80 0.0527 0.0430

Venus -101385-09-21 12:28 J -35309184.08 -35309183.98 -35309183.86 0.0530 0.0441

Mercury -101380-08-22 07:54 J -35307388.25 -35307388.17 -35307388.08 0.0506 0.0416

Mercury -101380-11-19 22:18 J -35307298.72 -35307298.57 -35307298.42 0.0503 0.0055

Venus -101379-07-27 01:11 J -35307049.65 -35307049.45 -35307049.25 0.0495 0.0087

Mercury -101373-01-20 21:49 J -35305045.72 -35305045.59 -35305045.45 0.0523 0.0243

Mercury -101373-04-19 16:18 J -35304955.95 -35304955.82 -35304955.70 0.0526 0.0300

Mercury -101368-09-08 00:13 J -35302988.64 -35302988.49 -35302988.34 0.0504 0.0065

Mercury -101368-12-06 15:21 J -35302898.94 -35302898.86 -35302898.77 0.0501 0.0416

Venus -101367-04-01 04:47 J -35302783.47 -35302783.30 -35302783.13 0.0497 0.0276

Mars -101363-10-05 03:21 J -35301135.62 -35301135.36 -35301135.11 0.0506 0.0087

Mercury -101362-11-08 21:49 J -35300735.69 -35300735.59 -35300735.48 0.0521 0.0386

Mercury -101361-02-06 16:33 J -35300645.95 -35300645.81 -35300645.66 0.0525 0.0159

Venus -101361-09-24 14:37 J -35300415.06 -35300414.89 -35300414.71 0.0533 0.0281

Mercury -101356-06-27 01:54 J -35298678.56 -35298678.42 -35298678.28 0.0505 0.0183

Mercury -101356-09-24 17:01 J -35298588.92 -35298588.79 -35298588.67 0.0502 0.0296

Moon -101352-03-09 20:52 J -35297326.84 -35297326.63 -35297326.41 0.0490 0.0183

Earth -101352-03-09 23:30 J -35297326.75 -35297326.52 -35297326.29 0.0490 0.0151 \*

Mercury -101350-11-25 17:30 J -35296335.92 -35296335.77 -35296335.62 0.0524 0.0024

Venus -101349-05-30 03:21 J -35296149.55 -35296149.36 -35296149.17 0.0531 0.0186

Mercury -101344-04-15 04:04 J -35294368.44 -35294368.33 -35294368.21 0.0506 0.0298

Mercury -101344-07-13 18:42 J -35294278.86 -35294278.72 -35294278.58 0.0502 0.0177  
 Venus -101343-04-03 10:47 J -35294015.21 -35294015.05 -35294014.89 0.0494 0.0300  
 Earth -101340-03-14 13:11 J -35292939.17 -35292938.95 -35292938.74 0.0491 0.0219  
 Moon -101340-03-14 16:47 J -35292939.02 -35292938.80 -35292938.58 0.0491 0.0210 \*  
 Mercury -101338-09-13 18:28 J -35292025.88 -35292025.73 -35292025.58 0.0524 0.0114  
 Mercury -101338-12-12 12:28 J -35291936.07 -35291935.98 -35291935.89 0.0527 0.0424  
 Earth -101335-09-09 12:42 J -35290934.12 -35290933.97 -35290933.80 0.0538 0.0370  
 Moon -101335-09-09 15:06 J -35290934.05 -35290933.87 -35290933.69 0.0538 0.0342 \*  
 Mercury -101332-02-01 06:42 J -35290058.31 -35290058.22 -35290058.14 0.0506 0.0411  
 Mercury -101332-05-01 20:52 J -35289968.78 -35289968.63 -35289968.48 0.0503 0.0061  
 Venus -101332-12-07 14:37 J -35289749.09 -35289748.89 -35289748.69 0.0496 0.0060  
 Mars -101327-07-09 03:06 J -35288074.39 -35288074.37 -35288074.33 0.0508 0.0505  
 Mercury -101326-07-02 19:40 J -35287715.81 -35287715.68 -35287715.54 0.0523 0.0246  
 Mercury -101326-09-30 14:09 J -35287626.03 -35287625.91 -35287625.79 0.0527 0.0297  
 Moon -101323-09-14 05:30 J -35286546.49 -35286546.27 -35286546.06 0.0536 0.0119  
 Earth -101323-09-14 08:37 J -35286546.36 -35286546.14 -35286545.92 0.0536 0.0096 \*  
 Mercury -101320-02-17 22:33 J -35285658.71 -35285658.56 -35285658.41 0.0504 0.0063  
 Mercury -101320-05-18 13:40 J -35285569.01 -35285568.93 -35285568.85 0.0500 0.0418  
 Venus -101320-08-12 17:01 J -35285482.89 -35285482.79 -35285482.69 0.0498 0.0429  
 Mercury -101314-04-20 20:37 J -35283405.74 -35283405.64 -35283405.53 0.0522 0.0380  
 Mercury -101314-07-19 15:35 J -35283316.00 -35283315.85 -35283315.71 0.0525 0.0166  
 Venus -101313-02-05 22:47 J -35283114.75 -35283114.55 -35283114.35 0.0533 0.0093  
 Moon -101311-09-19 05:01 J -35282158.33 -35282158.29 -35282158.24 0.0535 0.0522  
 Mercury -101309-12-07 00:28 J -35281348.62 -35281348.48 -35281348.34 0.0505 0.0181  
 Mercury -101308-03-06 15:06 J -35281258.99 -35281258.87 -35281258.74 0.0501 0.0298  
 Mercury -101302-05-07 16:04 J -35279005.98 -35279005.83 -35279005.68 0.0524 0.0027  
 Venus -101302-10-11 09:21 J -35278849.24 -35278849.11 -35278848.96 0.0530 0.0380  
 Mars -101298-08-09 22:04 J -35277450.87 -35277450.58 -35277450.29 0.0522 0.0107  
 Mercury -101297-09-25 02:09 J -35277038.53 -35277038.41 -35277038.29 0.0506 0.0301  
 Mercury -101297-12-23 16:47 J -35276948.94 -35276948.80 -35276948.66 0.0503 0.0175

Venus -101296-08-14 23:01 J -35276714.74 -35276714.54 -35276714.35 0.0495 0.0147

Mercury -101290-02-23 16:47 J -35274695.95 -35274695.80 -35274695.66 0.0523 0.0114

Mercury -101290-05-24 10:33 J -35274606.15 -35274606.06 -35274605.97 0.0527 0.0422

Mercury -101285-07-14 04:18 J -35272728.40 -35272728.32 -35272728.23 0.0507 0.0415

Mercury -101285-10-11 18:42 J -35272638.87 -35272638.72 -35272638.57 0.0503 0.0058

Venus -101284-04-20 02:09 J -35272448.59 -35272448.41 -35272448.23 0.0497 0.0217

Mercury -101279-12-12 17:16 J -35270385.91 -35270385.78 -35270385.65 0.0523 0.0253

Mercury -101278-03-12 11:45 J -35270296.14 -35270296.01 -35270295.89 0.0526 0.0289

Venus -101278-10-14 12:57 J -35270080.11 -35270079.96 -35270079.80 0.0534 0.0349

Mercury -101273-07-30 20:52 J -35268328.78 -35268328.63 -35268328.48 0.0504 0.0060

Mercury -101273-10-28 11:59 J -35268239.08 -35268239.00 -35268238.92 0.0501 0.0421

Earth -101269-03-08 23:45 J -35267011.72 -35267011.51 -35267011.29 0.0490 0.0222

Moon -101269-03-09 03:35 J -35267011.57 -35267011.35 -35267011.14 0.0490 0.0252 \*

Mercury -101267-09-30 18:13 J -35266075.84 -35266075.74 -35266075.63 0.0522 0.0386

Mercury -101267-12-29 13:11 J -35265986.09 -35265985.95 -35265985.81 0.0525 0.0160

Venus -101266-06-19 03:06 J -35265814.57 -35265814.37 -35265814.17 0.0532 0.0112

Mercury -101261-05-18 22:33 J -35264018.70 -35264018.56 -35264018.42 0.0505 0.0180

Mercury -101261-08-16 13:25 J -35263929.06 -35263928.94 -35263928.82 0.0501 0.0297

Venus -101260-04-22 07:40 J -35263680.31 -35263680.18 -35263680.03 0.0494 0.0354

Moon -101257-03-13 12:13 J -35262624.21 -35262623.99 -35262623.75 0.0491 0.0155

Earth -101257-03-13 16:18 J -35262624.05 -35262623.82 -35262623.59 0.0491 0.0159 \*

Mercury -101255-07-19 19:11 J -35261765.70 -35261765.70 -35261765.69 0.0521 0.0520

Mercury -101255-10-17 14:23 J -35261676.05 -35261675.90 -35261675.74 0.0525 0.0033

Moon -101252-09-08 11:45 J -35260619.14 -35260619.01 -35260618.88 0.0538 0.0428

Earth -101252-09-08 14:37 J -35260619.00 -35260618.89 -35260618.77 0.0538 0.0455 \*

Mercury -101249-03-07 00:28 J -35259708.60 -35259708.48 -35259708.36 0.0506 0.0298

Mercury -101249-06-04 15:06 J -35259619.02 -35259618.87 -35259618.73 0.0502 0.0176

Venus -101249-12-26 11:01 J -35259414.24 -35259414.04 -35259413.83 0.0496 0.0011

Mars -101244-03-26 19:25 J -35257862.71 -35257862.69 -35257862.65 0.0504 0.0501

Mercury -101243-08-05 15:06 J -35257366.02 -35257365.87 -35257365.72 0.0523 0.0111



Mercury -101243-11-03 08:52 J -35257276.21 -35257276.13 -35257276.04 0.0526 0.0425

Earth -101240-09-13 04:18 J -35256231.54 -35256231.32 -35256231.09 0.0537 0.0016

Moon -101240-09-13 08:09 J -35256231.39 -35256231.16 -35256230.94 0.0537 0.0012 \*

Mercury -101238-12-25 02:23 J -35255398.48 -35255398.40 -35255398.32 0.0507 0.0419

Mercury -101237-03-23 16:33 J -35255308.96 -35255308.81 -35255308.66 0.0504 0.0054

Venus -101237-08-31 13:25 J -35255148.07 -35255147.94 -35255147.80 0.0498 0.0377

Mercury -101231-05-24 15:35 J -35253055.98 -35253055.85 -35253055.72 0.0522 0.0251

Mercury -101231-08-22 09:49 J -35252966.21 -35252966.09 -35252965.96 0.0526 0.0290

Venus -101230-02-24 17:59 J -35252779.95 -35252779.75 -35252779.55 0.0532 0.0145

Moon -101228-09-17 19:25 J -35251843.83 -35251843.69 -35251843.55 0.0536 0.0413

Earth -101228-09-17 22:33 J -35251843.68 -35251843.56 -35251843.43 0.0536 0.0443 \*

Mercury -101225-01-10 18:28 J -35250998.88 -35250998.73 -35250998.58 0.0504 0.0065

Mercury -101225-04-09 09:35 J -35250909.18 -35250909.10 -35250909.01 0.0501 0.0416

Mercury -101219-03-12 15:49 J -35248745.94 -35248745.84 -35248745.74 0.0522 0.0394

Mercury -101219-06-10 10:47 J -35248656.20 -35248656.05 -35248655.91 0.0525 0.0152

Venus -101219-10-30 06:28 J -35248514.39 -35248514.23 -35248514.07 0.0530 0.0321

Mercury -101214-10-29 20:52 J -35246688.77 -35246688.63 -35246688.49 0.0505 0.0179

Mercury -101213-01-27 11:30 J -35246599.14 -35246599.02 -35246598.89 0.0502 0.0298

Venus -101213-09-02 20:09 J -35246379.84 -35246379.66 -35246379.47 0.0495 0.0204

Mars -101209-12-28 15:06 J -35244802.12 -35244801.87 -35244801.61 0.0506 0.0071

Mercury -101207-03-29 11:59 J -35244346.15 -35244346.00 -35244345.85 0.0524 0.0024

Mercury -101202-08-17 22:33 J -35242378.67 -35242378.56 -35242378.43 0.0505 0.0299

Mercury -101202-11-15 13:11 J -35242289.09 -35242288.95 -35242288.81 0.0502 0.0175

Venus -101201-05-08 22:47 J -35242113.74 -35242113.55 -35242113.35 0.0497 0.0165

Mercury -101195-01-15 13:11 J -35240036.09 -35240035.95 -35240035.80 0.0524 0.0112

Mercury -101195-04-15 07:25 J -35239946.28 -35239946.19 -35239946.11 0.0527 0.0427

Venus -101195-11-02 12:42 J -35239745.09 -35239744.97 -35239744.85 0.0534 0.0422

Mercury -101190-06-06 00:42 J -35238068.55 -35238068.47 -35238068.39 0.0506 0.0416

Mercury -101190-09-03 14:52 J -35237979.03 -35237978.88 -35237978.73 0.0503 0.0054

Moon -101186-03-08 23:45 J -35236696.70 -35236696.51 -35236696.33 0.0490 0.0309

Earth -101186-03-09 03:21 J -35236696.55 -35236696.36 -35236696.15 0.0490 0.0278 \*  
 Mercury -101184-11-03 13:54 J -35235726.06 -35235725.92 -35235725.79 0.0522 0.0249  
 Mercury -101183-02-01 08:09 J -35235636.28 -35235636.16 -35235636.03 0.0525 0.0292  
 Venus -101183-07-07 23:59 J -35235479.70 -35235479.50 -35235479.29 0.0531 0.0051  
 Mercury -101178-06-22 16:18 J -35233668.97 -35233668.82 -35233668.67 0.0504 0.0070  
 Mercury -101178-09-20 07:25 J -35233579.27 -35233579.19 -35233579.10 0.0501 0.0411  
 Venus -101177-05-11 04:04 J -35233345.45 -35233345.33 -35233345.22 0.0494 0.0407  
 Earth -101174-03-13 18:57 J -35232308.95 -35232308.71 -35232308.47 0.0491 0.0097  
 Moon -101174-03-13 22:18 J -35232308.80 -35232308.57 -35232308.34 0.0491 0.0104 \*  
 Mercury -101172-08-22 14:09 J -35231416.01 -35231415.91 -35231415.81 0.0521 0.0390  
 Mercury -101172-11-20 09:06 J -35231326.27 -35231326.12 -35231325.98 0.0525 0.0154  
 Venus -101171-03-12 11:59 J -35231214.03 -35231214.00 -35231213.95 0.0529 0.0517  
 Moon -101169-09-07 13:40 J -35230303.96 -35230303.93 -35230303.90 0.0539 0.0533  
 Mercury -101166-04-10 18:13 J -35229358.87 -35229358.74 -35229358.60 0.0505 0.0187  
 Mercury -101166-07-09 09:06 J -35229269.24 -35229269.12 -35229268.99 0.0502 0.0291  
 Venus -101165-01-15 07:11 J -35229079.40 -35229079.20 -35229079.00 0.0496 0.0044  
 Earth -101162-03-18 07:54 J -35227921.25 -35227921.17 -35227921.10 0.0492 0.0464  
 Mercury -101160-09-08 09:35 J -35227016.25 -35227016.10 -35227015.95 0.0524 0.0015  
 Moon -101157-09-12 04:18 J -35225916.55 -35225916.32 -35225916.10 0.0538 0.0082  
 Earth -101157-09-12 07:40 J -35225916.40 -35225916.18 -35225915.96 0.0538 0.0094 \*  
 Mercury -101154-01-27 20:52 J -35225048.75 -35225048.63 -35225048.51 0.0506 0.0299  
 Mercury -101154-04-27 11:16 J -35224959.17 -35224959.03 -35224958.89 0.0503 0.0175  
 Venus -101154-09-20 11:01 J -35224813.19 -35224813.04 -35224812.88 0.0498 0.0319  
 Mercury -101148-06-27 10:47 J -35222706.20 -35222706.05 -35222705.90 0.0523 0.0120  
 Mercury -101148-09-25 04:47 J -35222616.39 -35222616.30 -35222616.21 0.0527 0.0419  
 Venus -101147-03-15 16:18 J -35222445.01 -35222444.82 -35222444.63 0.0533 0.0212  
 Earth -101145-09-17 03:35 J -35221528.50 -35221528.35 -35221528.18 0.0536 0.0371  
 Moon -101145-09-17 05:45 J -35221528.42 -35221528.26 -35221528.09 0.0536 0.0341 \*  
 Mars -101144-11-02 15:35 J -35221117.13 -35221116.85 -35221116.56 0.0522 0.0124  
 Mercury -101143-11-15 22:47 J -35220738.63 -35220738.55 -35220738.46 0.0506 0.0416

Mercury -101142-02-13 12:57 J -35220649.11 -35220648.96 -35220648.81 0.0503 0.0054  
 Mercury -101136-04-15 11:59 J -35218396.14 -35218396.00 -35218395.87 0.0523 0.0252  
 Mercury -101136-07-14 06:28 J -35218306.36 -35218306.23 -35218306.11 0.0526 0.0291  
 Venus -101136-11-18 05:59 J -35218179.43 -35218179.25 -35218179.07 0.0531 0.0249  
 Mercury -101131-12-02 14:52 J -35216339.03 -35216338.88 -35216338.74 0.0504 0.0068  
 Mercury -101130-03-02 05:45 J -35216249.34 -35216249.26 -35216249.17 0.0501 0.0413  
 Venus -101130-09-22 16:18 J -35216044.99 -35216044.82 -35216044.65 0.0495 0.0253  
 Mercury -101124-02-01 12:28 J -35214086.08 -35214085.98 -35214085.88 0.0521 0.0388  
 Mercury -101124-05-02 07:25 J -35213996.33 -35213996.19 -35213996.05 0.0525 0.0156  
 Mercury -101119-09-20 16:18 J -35212028.96 -35212028.82 -35212028.68 0.0505 0.0190  
 Mercury -101119-12-19 06:57 J -35211939.33 -35211939.21 -35211939.08 0.0502 0.0287  
 Venus -101118-05-28 18:28 J -35211778.92 -35211778.73 -35211778.53 0.0497 0.0116  
 Mercury -101112-02-18 08:09 J -35209686.31 -35209686.16 -35209686.01 0.0524 0.0019  
 Venus -101112-11-21 08:09 J -35209410.24 -35209410.16 -35209410.07 0.0533 0.0476  
 Mercury -101107-07-09 18:28 J -35207718.85 -35207718.73 -35207718.61 0.0506 0.0306  
 Mercury -101107-10-07 08:52 J -35207629.27 -35207629.13 -35207628.99 0.0503 0.0168  
 Venus -101106-01-31 21:35 J -35207512.65 -35207512.60 -35207512.56 0.0499 0.0483  
 Earth -101103-03-08 01:40 J -35206381.59 -35206381.43 -35206381.26 0.0489 0.0355  
 Moon -101103-03-08 05:30 J -35206381.42 -35206381.27 -35206381.12 0.0489 0.0382 \*  
 Mercury -101101-12-07 08:09 J -35205376.30 -35205376.16 -35205376.01 0.0523 0.0128  
 Mercury -101100-03-07 02:23 J -35205286.49 -35205286.40 -35205286.31 0.0527 0.0410  
 Venus -101100-07-26 19:25 J -35205144.89 -35205144.69 -35205144.48 0.0532 0.0012  
 Mercury -101095-04-27 21:06 J -35203408.70 -35203408.62 -35203408.54 0.0507 0.0416  
 Mercury -101095-07-26 11:01 J -35203319.19 -35203319.04 -35203318.89 0.0503 0.0056  
 Venus -101094-05-31 01:25 J -35203010.50 -35203010.44 -35203010.37 0.0494 0.0463  
 Moon -101091-03-12 14:52 J -35201994.13 -35201993.88 -35201993.63 0.0490 0.0029  
 Earth -101091-03-12 17:30 J -35201994.01 -35201993.77 -35201993.53 0.0490 0.0019 \*  
 Mars -101090-06-20 00:28 J -35201529.65 -35201529.48 -35201529.29 0.0504 0.0363  
 Mercury -101089-09-25 09:21 J -35201066.24 -35201066.11 -35201065.98 0.0522 0.0261  
 Mercury -101089-12-24 03:49 J -35200976.46 -35200976.34 -35200976.21 0.0526 0.0282

Venus -101088-03-31 09:35 J -35200879.20 -35200879.10 -35200879.00 0.0530 0.0457  
 Mercury -101083-05-14 12:57 J -35199009.11 -35199008.96 -35199008.81 0.0504 0.0066  
 Mercury -101083-08-12 04:04 J -35198919.42 -35198919.33 -35198919.25 0.0501 0.0413  
 Venus -101082-02-03 04:18 J -35198744.52 -35198744.32 -35198744.12 0.0495 0.0099  
 Earth -101079-03-17 09:49 J -35197606.22 -35197606.09 -35197605.94 0.0492 0.0401  
 Moon -101079-03-17 10:47 J -35197606.16 -35197606.05 -35197605.94 0.0492 0.0432 \*  
 Mercury -101077-07-14 10:18 J -35196756.17 -35196756.07 -35196755.97 0.0522 0.0393  
 Mercury -101077-10-12 05:30 J -35196666.42 -35196666.27 -35196666.13 0.0525 0.0154  
 Earth -101074-09-12 10:47 J -35195601.26 -35195601.05 -35195600.84 0.0538 0.0173  
 Moon -101074-09-12 13:11 J -35195601.15 -35195600.95 -35195600.74 0.0538 0.0169 \*  
 Mercury -101071-03-02 14:52 J -35194699.02 -35194698.88 -35194698.74 0.0505 0.0185  
 Mercury -101071-05-31 05:30 J -35194609.39 -35194609.27 -35194609.14 0.0502 0.0292  
 Venus -101071-10-09 07:25 J -35194478.36 -35194478.19 -35194478.02 0.0497 0.0269  
 Mercury -101065-07-31 06:28 J -35192356.38 -35192356.23 -35192356.08 0.0524 0.0020  
 Venus -101064-04-03 14:37 J -35192110.06 -35192109.89 -35192109.72 0.0532 0.0280  
 Moon -101062-09-17 00:13 J -35191213.70 -35191213.49 -35191213.28 0.0536 0.0234  
 Earth -101062-09-17 01:25 J -35191213.63 -35191213.44 -35191213.25 0.0536 0.0268 \*  
 Mercury -101060-12-19 16:33 J -35190388.93 -35190388.81 -35190388.70 0.0506 0.0308  
 Mercury -101059-03-19 06:42 J -35190299.36 -35190299.22 -35190299.07 0.0503 0.0167  
 Mars -101054-03-24 06:42 J -35188468.44 -35188468.22 -35188467.99 0.0506 0.0245  
 Mercury -101053-05-19 07:11 J -35188046.35 -35188046.20 -35188046.06 0.0523 0.0120  
 Mercury -101053-08-17 01:11 J -35187956.54 -35187956.45 -35187956.36 0.0526 0.0417  
 Venus -101053-12-07 02:37 J -35187844.58 -35187844.39 -35187844.20 0.0530 0.0191  
 Mercury -101048-10-07 18:42 J -35186078.80 -35186078.72 -35186078.64 0.0507 0.0423  
 Mercury -101047-01-05 08:52 J -35185989.28 -35185989.13 -35185988.98 0.0504 0.0049  
 Venus -101047-10-11 12:42 J -35185710.13 -35185709.97 -35185709.81 0.0495 0.0306  
 Mercury -101041-03-07 06:57 J -35183736.34 -35183736.21 -35183736.08 0.0522 0.0267  
 Mercury -101041-06-05 01:40 J -35183646.56 -35183646.43 -35183646.31 0.0526 0.0276  
 Mercury -101036-10-24 11:16 J -35181679.18 -35181679.03 -35181678.88 0.0504 0.0065  
 Mercury -101035-01-22 02:23 J -35181589.49 -35181589.40 -35181589.32 0.0501 0.0415

Venus -101035-06-16 17:01 J -35181444.00 -35181443.79 -35181443.59 0.0496 0.0055

Mercury -101030-12-25 07:54 J -35179426.27 -35179426.17 -35179426.07 0.0521 0.0401

Mercury -101029-03-24 02:52 J -35179336.52 -35179336.38 -35179336.23 0.0525 0.0146

Mars -101025-04-19 23:45 J -35177848.53 -35177848.51 -35177848.45 0.0524 0.0520

Mercury -101024-08-12 13:11 J -35177369.09 -35177368.95 -35177368.81 0.0505 0.0183

Mercury -101024-11-10 03:49 J -35177279.46 -35177279.34 -35177279.21 0.0502 0.0294

Venus -101023-02-19 19:40 J -35177177.78 -35177177.68 -35177177.57 0.0498 0.0423

Moon -101020-03-07 01:54 J -35176066.52 -35176066.42 -35176066.30 0.0489 0.0439

Earth -101020-03-07 04:47 J -35176066.42 -35176066.30 -35176066.17 0.0489 0.0414 \*

Mercury -101017-01-11 04:33 J -35175026.47 -35175026.31 -35175026.16 0.0524 0.0023

Venus -101017-08-14 20:09 J -35174809.86 -35174809.66 -35174809.46 0.0532 0.0079

Mercury -101012-05-31 15:21 J -35173058.98 -35173058.86 -35173058.74 0.0506 0.0300

Mercury -101012-08-29 05:30 J -35172969.41 -35172969.27 -35172969.12 0.0503 0.0174

Earth -101008-03-11 21:35 J -35171678.84 -35171678.60 -35171678.36 0.0490 0.0036

Moon -101008-03-11 22:33 J -35171678.79 -35171678.56 -35171678.32 0.0490 0.0021 \*

Mercury -101006-10-30 05:30 J -35170716.42 -35170716.27 -35170716.12 0.0523 0.0116

Mercury -101005-01-27 23:45 J -35170626.60 -35170626.51 -35170626.43 0.0526 0.0421

Venus -101005-04-19 09:21 J -35170544.25 -35170544.11 -35170543.97 0.0529 0.0383

# 101ST MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 101st millennium BCE.**

PLANET	MAX-	C	START	MAX	END	SUNRAD	DEPTH	S
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TRANSIT

TIME

Mercury -101000-03-19 17:01 J -35168748.87 -35168748.79 -35168748.71 0.0507 0.0422

Mercury -101000-06-17 06:57 J -35168659.36 -35168659.21 -35168659.06 0.0504 0.0048

Venus -100999-02-22 00:42 J -35168409.66 -35168409.47 -35168409.28 0.0496 0.0151

Earth -100996-03-16 14:09 J -35167291.09 -35167290.91 -35167290.74 0.0492 0.0342

Moon -100996-03-16 14:23 J -35167291.06 -35167290.90 -35167290.73 0.0492 0.0370 \*

Mercury -100994-08-18 05:59 J -35166406.38 -35166406.25 -35166406.11 0.0522 0.0255

Mercury -100994-11-16 00:42 J -35166316.60 -35166316.47 -35166316.35 0.0525 0.0286

Moon -100991-09-11 07:40 J -35165286.38 -35165286.18 -35165285.98 0.0538 0.0272

Earth -100991-09-11 09:06 J -35165286.31 -35165286.12 -35165285.92 0.0538 0.0273 \*

Mars -100989-01-26 20:09 J -35164783.89 -35164783.66 -35164783.43 0.0522 0.0317

Mercury -100988-04-05 09:06 J -35164349.27 -35164349.12 -35164348.97 0.0505 0.0069

Mercury -100988-07-03 23:59 J -35164259.58 -35164259.50 -35164259.41 0.0501 0.0411

Venus -100988-10-28 04:18 J -35164143.50 -35164143.32 -35164143.14 0.0498 0.0215

Mercury -100982-06-06 05:45 J -35162096.36 -35162096.26 -35162096.17 0.0521 0.0405

Mercury -100982-09-04 00:42 J -35162006.61 -35162006.47 -35162006.32 0.0525 0.0142

Venus -100981-04-22 10:18 J -35161775.23 -35161775.07 -35161774.91 0.0533 0.0333

Earth -100979-09-16 05:16 J -35160898.49 -35160898.28 -35160898.07 0.0537 0.0192

Moon -100979-09-16 05:16 J -35160898.49 -35160898.28 -35160898.08 0.0537 0.0159 \*

Mercury -100976-01-22 11:45 J -35160039.15 -35160039.01 -35160038.87 0.0505 0.0180

Mercury -100976-04-22 02:23 J -35159949.52 -35159949.40 -35159949.28 0.0502 0.0296

Mercury -100970-06-23 02:09 J -35157696.56 -35157696.41 -35157696.26 0.0524 0.0012

Venus -100970-12-27 00:13 J -35157509.69 -35157509.49 -35157509.30 0.0531 0.0130

Mercury -100965-11-10 13:54 J -35155729.04 -35155728.92 -35155728.80 0.0506 0.0295

Mercury -100964-02-08 04:04 J -35155639.47 -35155639.33 -35155639.18 0.0503 0.0178

Venus -100964-10-30 11:30 J -35155375.15 -35155375.02 -35155374.89 0.0494 0.0368

Mercury -100958-04-11 03:35 J -35153386.50 -35153386.35 -35153386.20 0.0523 0.0119

Mercury -100958-07-09 21:49 J -35153296.68 -35153296.59 -35153296.50 0.0527 0.0420

Mercury -100953-08-29 16:04 J -35151418.91 -35151418.83 -35151418.74 0.0507 0.0411

Mercury -100953-11-27 05:59 J -35151329.40 -35151329.25 -35151329.10 0.0503 0.0058  
 Venus -100952-07-05 14:37 J -35151109.09 -35151108.89 -35151108.68 0.0496 0.0009  
 Mercury -100946-01-28 04:33 J -35149076.44 -35149076.31 -35149076.17 0.0522 0.0250  
 Mercury -100946-04-27 23:16 J -35148986.65 -35148986.53 -35148986.41 0.0526 0.0291  
 Mercury -100941-09-15 07:25 J -35147019.34 -35147019.19 -35147019.04 0.0504 0.0067  
 Mercury -100941-12-13 22:33 J -35146929.65 -35146929.56 -35146929.48 0.0501 0.0412  
 Venus -100940-03-10 16:33 J -35146842.94 -35146842.81 -35146842.67 0.0498 0.0370  
 Earth -100937-03-06 10:18 J -35145751.13 -35145751.07 -35145750.99 0.0489 0.0466  
 Moon -100937-03-06 11:30 J -35145751.03 -35145751.02 -35145750.98 0.0489 0.0487 \*  
 Mars -100936-09-12 23:01 J -35145195.78 -35145195.54 -35145195.30 0.0504 0.0174  
 Mercury -100935-11-16 05:01 J -35144766.39 -35144766.29 -35144766.19 0.0521 0.0390  
 Mercury -100934-02-14 00:13 J -35144676.64 -35144676.49 -35144676.35 0.0525 0.0156  
 Venus -100934-09-03 18:42 J -35144474.91 -35144474.72 -35144474.52 0.0532 0.0149  
 Mercury -100929-07-04 09:49 J -35142709.23 -35142709.09 -35142708.96 0.0505 0.0183  
 Mercury -100929-10-02 00:28 J -35142619.61 -35142619.48 -35142619.36 0.0502 0.0295  
 Earth -100925-03-10 23:30 J -35141363.76 -35141363.52 -35141363.29 0.0490 0.0100  
 Moon -100925-03-10 23:45 J -35141363.76 -35141363.51 -35141363.27 0.0490 0.0080 \*  
 Mercury -100923-12-03 00:13 J -35140366.65 -35140366.49 -35140366.34 0.0524 0.0015  
 Venus -100922-05-09 05:01 J -35140209.44 -35140209.29 -35140209.12 0.0530 0.0332  
 Mercury -100917-04-22 12:28 J -35138399.10 -35138398.98 -35138398.86 0.0506 0.0292  
 Mercury -100917-07-21 02:37 J -35138309.53 -35138309.39 -35138309.24 0.0503 0.0182  
 Venus -100916-03-13 00:57 J -35138074.64 -35138074.46 -35138074.28 0.0495 0.0221  
 Moon -100913-03-15 14:09 J -35136976.09 -35136975.91 -35136975.73 0.0491 0.0304  
 Earth -100913-03-15 15:49 J -35136976.03 -35136975.84 -35136975.63 0.0491 0.0278 \*  
 Mercury -100911-09-21 01:11 J -35136056.59 -35136056.45 -35136056.30 0.0523 0.0124  
 Mercury -100911-12-19 19:40 J -35135966.77 -35135966.68 -35135966.59 0.0527 0.0415  
 Earth -100908-09-10 16:18 J -35134970.99 -35134970.82 -35134970.64 0.0539 0.0333  
 Moon -100908-09-10 16:18 J -35134970.98 -35134970.82 -35134970.65 0.0539 0.0341 \*  
 Mercury -100905-02-09 14:37 J -35134088.97 -35134088.89 -35134088.80 0.0507 0.0406  
 Mercury -100905-05-09 04:47 J -35133999.45 -35133999.30 -35133999.15 0.0503 0.0065

Venus -100905-11-16 04:18 J -35133808.52 -35133808.32 -35133808.13 0.0497 0.0145

Mars -100900-06-16 21:35 J -35132134.74 -35132134.60 -35132134.45 0.0507 0.0417

Mercury -100899-07-10 02:37 J -35131746.52 -35131746.39 -35131746.26 0.0522 0.0253

Mercury -100899-10-07 21:21 J -35131656.73 -35131656.61 -35131656.49 0.0526 0.0290

Venus -100898-05-12 12:28 J -35131440.10 -35131439.98 -35131439.85 0.0534 0.0421

Earth -100896-09-15 13:25 J -35130583.16 -35130582.94 -35130582.73 0.0537 0.0134

Moon -100896-09-15 14:52 J -35130583.11 -35130582.88 -35130582.65 0.0537 0.0101 \*

Mercury -100893-02-26 06:42 J -35129689.37 -35129689.22 -35129689.07 0.0504 0.0054

Mercury -100893-05-25 21:35 J -35129599.68 -35129599.60 -35129599.52 0.0501 0.0424

Mercury -100887-04-28 03:35 J -35127436.45 -35127436.35 -35127436.24 0.0521 0.0384

Mercury -100887-07-26 22:47 J -35127346.69 -35127346.55 -35127346.40 0.0525 0.0162

Venus -100886-01-15 02:09 J -35127174.62 -35127174.41 -35127174.21 0.0531 0.0044

Mercury -100882-12-15 08:23 J -35125379.29 -35125379.15 -35125379.01 0.0505 0.0177

Mercury -100881-03-13 23:01 J -35125289.66 -35125289.54 -35125289.42 0.0502 0.0299

Venus -100881-11-18 09:21 J -35125040.21 -35125040.11 -35125040.01 0.0494 0.0428

Mercury -100875-05-14 23:45 J -35123036.66 -35123036.51 -35123036.36 0.0524 0.0026

Venus -100875-09-19 14:52 J -35122908.93 -35122908.88 -35122908.83 0.0529 0.0509

Mars -100871-07-14 18:57 J -35121514.95 -35121514.71 -35121514.46 0.0524 0.0288

Mercury -100870-10-03 10:33 J -35121069.17 -35121069.06 -35121068.93 0.0506 0.0292

Mercury -100869-01-01 00:57 J -35120979.60 -35120979.46 -35120979.32 0.0503 0.0182

Venus -100869-07-24 13:11 J -35120774.15 -35120773.95 -35120773.75 0.0496 0.0067

Mercury -100863-03-02 23:30 J -35118726.67 -35118726.52 -35118726.37 0.0523 0.0122

Mercury -100863-05-31 17:45 J -35118636.85 -35118636.76 -35118636.67 0.0526 0.0415

Mercury -100858-07-22 13:25 J -35116759.03 -35116758.94 -35116758.85 0.0507 0.0400

Mercury -100858-10-20 03:21 J -35116669.51 -35116669.36 -35116669.21 0.0504 0.0070

Venus -100857-03-29 17:45 J -35116507.92 -35116507.76 -35116507.59 0.0498 0.0296

Mercury -100852-12-20 00:28 J -35114416.61 -35114416.48 -35114416.34 0.0522 0.0256

Mercury -100851-03-19 19:25 J -35114326.82 -35114326.69 -35114326.57 0.0526 0.0287

Venus -100851-09-22 17:01 J -35114139.97 -35114139.79 -35114139.60 0.0533 0.0214

Mercury -100846-08-08 05:30 J -35112359.42 -35112359.27 -35112359.12 0.0504 0.0047



Mercury -100846-11-05 20:37 J -35112269.72 -35112269.64 -35112269.57 0.0501 0.0433  
 Moon -100842-03-11 04:33 J -35111048.54 -35111048.31 -35111048.08 0.0489 0.0124  
 Earth -100842-03-11 06:13 J -35111048.47 -35111048.24 -35111048.01 0.0489 0.0146 \*  
 Mercury -100840-10-08 01:40 J -35110106.53 -35110106.43 -35110106.32 0.0521 0.0385  
 Mercury -100839-01-05 20:52 J -35110016.77 -35110016.63 -35110016.48 0.0525 0.0162  
 Venus -100839-05-28 07:54 J -35109874.35 -35109874.17 -35109873.99 0.0530 0.0243  
 Mercury -100834-05-27 07:40 J -35108049.32 -35108049.18 -35108049.04 0.0505 0.0163  
 Mercury -100834-08-24 22:18 J -35107959.69 -35107959.57 -35107959.45 0.0502 0.0313  
 Venus -100833-04-01 00:28 J -35107739.65 -35107739.48 -35107739.32 0.0495 0.0287  
 Earth -100830-03-15 23:16 J -35106660.75 -35106660.53 -35106660.32 0.0491 0.0233  
 Moon -100830-03-16 02:23 J -35106660.61 -35106660.40 -35106660.18 0.0491 0.0254 \*  
 Mercury -100828-07-27 02:52 J -35105796.40 -35105796.38 -35105796.36 0.0520 0.0516  
 Mercury -100828-10-24 22:33 J -35105706.71 -35105706.56 -35105706.41 0.0524 0.0034  
 Earth -100825-09-09 21:49 J -35104655.73 -35104655.59 -35104655.43 0.0539 0.0403  
 Moon -100825-09-09 23:16 J -35104655.68 -35104655.53 -35104655.38 0.0539 0.0413 \*  
 Mercury -100822-03-15 09:35 J -35103739.23 -35103739.10 -35103738.98 0.0506 0.0284  
 Mercury -100822-06-12 23:45 J -35103649.65 -35103649.51 -35103649.37 0.0503 0.0189  
 Venus -100822-12-06 02:52 J -35103473.58 -35103473.38 -35103473.18 0.0497 0.0083  
 Mercury -100816-08-12 23:16 J -35101396.68 -35101396.53 -35101396.38 0.0523 0.0103  
 Mercury -100816-11-10 17:30 J -35101306.85 -35101306.77 -35101306.68 0.0526 0.0435  
 Venus -100815-05-31 13:25 J -35101105.01 -35101104.94 -35101104.88 0.0533 0.0501  
 Moon -100813-09-14 14:09 J -35100268.12 -35100267.91 -35100267.69 0.0537 0.0025  
 Earth -100813-09-14 17:01 J -35100268.02 -35100267.79 -35100267.57 0.0537 0.0057 \*  
 Mercury -100810-01-01 11:45 J -35099429.09 -35099429.01 -35099428.91 0.0507 0.0398  
 Mercury -100810-04-01 01:54 J -35099339.57 -35099339.42 -35099339.27 0.0504 0.0073  
 Venus -100810-08-11 06:28 J -35099207.31 -35099207.23 -35099207.14 0.0499 0.0451  
 Mercury -100804-05-31 23:01 J -35097086.67 -35097086.54 -35097086.41 0.0522 0.0251  
 Mercury -100804-08-29 17:45 J -35096996.88 -35096996.76 -35096996.63 0.0525 0.0290  
 Venus -100803-02-02 23:16 J -35096839.74 -35096839.53 -35096839.33 0.0531 0.0019  
 Earth -100801-09-19 10:33 J -35095880.12 -35095880.06 -35095879.98 0.0537 0.0510

Moon -100801-09-19 14:09 J -35095879.94 -35095879.91 -35095879.85 0.0537 0.0525  
 Mercury -100799-10-20 14:37 J -35095118.89 -35095118.89 -35095118.88 0.0508 0.0506  
 Mercury -100798-01-18 04:18 J -35095029.47 -35095029.32 -35095029.17 0.0505 0.0040  
 Mercury -100798-04-17 19:11 J -35094939.76 -35094939.70 -35094939.62 0.0501 0.0441  
 Mercury -100792-03-19 23:45 J -35092776.61 -35092776.51 -35092776.40 0.0521 0.0386  
 Mercury -100792-06-17 18:57 J -35092686.85 -35092686.71 -35092686.56 0.0525 0.0161  
 Venus -100792-10-08 12:57 J -35092574.06 -35092573.96 -35092573.84 0.0529 0.0445  
 Mercury -100787-11-06 06:42 J -35090719.36 -35090719.22 -35090719.08 0.0505 0.0153  
 Mercury -100786-02-03 21:06 J -35090629.73 -35090629.62 -35090629.50 0.0502 0.0323  
 Venus -100786-08-13 14:37 J -35090439.08 -35090438.89 -35090438.69 0.0496 0.0143  
 Mars -100782-12-07 21:49 J -35088861.85 -35088861.59 -35088861.33 0.0504 0.0019  
 Mercury -100780-01-06 00:57 J -35088466.47 -35088466.46 -35088466.44 0.0520 0.0516  
 Mercury -100780-04-05 20:37 J -35088376.79 -35088376.64 -35088376.49 0.0524 0.0034  
 Mercury -100775-08-25 08:52 J -35086409.25 -35086409.13 -35086409.00 0.0506 0.0269  
 Mercury -100775-11-22 23:16 J -35086319.67 -35086319.53 -35086319.39 0.0503 0.0205  
 Venus -100774-04-18 18:13 J -35086172.92 -35086172.74 -35086172.56 0.0498 0.0224  
 Mercury -100768-01-22 22:04 J -35084066.73 -35084066.58 -35084066.43 0.0523 0.0095  
 Mercury -100768-04-22 16:18 J -35083976.89 -35083976.82 -35083976.74 0.0527 0.0443  
 Venus -100768-10-11 20:52 J -35083804.79 -35083804.63 -35083804.46 0.0533 0.0310  
 Mercury -100763-06-13 10:47 J -35082099.14 -35082099.05 -35082098.95 0.0507 0.0389  
 Mercury -100763-09-11 00:42 J -35082009.62 -35082009.47 -35082009.32 0.0504 0.0081  
 Earth -100759-03-10 15:06 J -35080733.10 -35080732.87 -35080732.65 0.0489 0.0186  
 Moon -100759-03-10 17:59 J -35080732.98 -35080732.75 -35080732.51 0.0489 0.0157 \*  
 Mercury -100757-11-10 22:47 J -35079756.68 -35079756.55 -35079756.41 0.0522 0.0231  
 Mercury -100756-02-08 17:45 J -35079666.88 -35079666.76 -35079666.64 0.0526 0.0311  
 Venus -100756-06-16 09:49 J -35079539.28 -35079539.09 -35079538.89 0.0530 0.0159  
 Mercury -100751-04-01 13:25 J -35077788.96 -35077788.94 -35077788.92 0.0508 0.0501  
 Mercury -100751-06-30 02:52 J -35077699.53 -35077699.38 -35077699.23 0.0505 0.0036  
 Mercury -100751-09-27 17:45 J -35077609.82 -35077609.76 -35077609.68 0.0501 0.0444  
 Venus -100750-04-21 00:13 J -35077404.62 -35077404.49 -35077404.34 0.0495 0.0356

Moon -100747-03-15 02:09 J -35076345.63 -35076345.41 -35076345.19 0.0490 0.0203  
 Earth -100747-03-15 05:59 J -35076345.47 -35076345.25 -35076345.02 0.0490 0.0189 \*  
 Mercury -100745-08-29 22:33 J -35075446.67 -35075446.56 -35075446.46 0.0521 0.0379  
 Mercury -100745-11-27 17:45 J -35075356.91 -35075356.76 -35075356.62 0.0524 0.0165  
 Moon -100742-09-09 23:16 J -35074340.61 -35074340.53 -35074340.44 0.0540 0.0495  
 Earth -100742-09-10 01:25 J -35074340.53 -35074340.44 -35074340.32 0.0540 0.0477 \*  
 Mercury -100739-04-18 05:30 J -35073389.41 -35073389.27 -35073389.13 0.0506 0.0146  
 Mercury -100739-07-16 20:09 J -35073299.77 -35073299.66 -35073299.55 0.0502 0.0331  
 Venus -100739-12-25 05:01 J -35073138.49 -35073138.29 -35073138.09 0.0497 0.0005  
 Mercury -100733-06-17 23:16 J -35071136.55 -35071136.53 -35071136.51 0.0520 0.0514  
 Mercury -100733-09-15 18:57 J -35071046.86 -35071046.71 -35071046.56 0.0524 0.0035  
 Earth -100730-09-15 00:13 J -35069952.71 -35069952.49 -35069952.26 0.0539 0.0007  
 Moon -100730-09-15 03:49 J -35069952.56 -35069952.34 -35069952.11 0.0539 0.0027 \*  
 Mercury -100727-02-04 07:54 J -35069079.30 -35069079.17 -35069079.04 0.0506 0.0259  
 Mercury -100727-05-04 22:04 J -35068989.71 -35068989.58 -35068989.44 0.0503 0.0215  
 Venus -100727-08-30 08:23 J -35068872.28 -35068872.15 -35068872.01 0.0499 0.0371  
 Mercury -100721-07-04 20:09 J -35066736.80 -35066736.66 -35066736.50 0.0523 0.0096  
 Mercury -100721-10-02 14:37 J -35066646.97 -35066646.89 -35066646.81 0.0527 0.0443  
 Venus -100720-02-22 02:37 J -35066504.59 -35066504.39 -35066504.19 0.0532 0.0110  
 Moon -100718-09-19 18:42 J -35065564.81 -35065564.72 -35065564.62 0.0537 0.0483  
 Earth -100718-09-19 22:18 J -35065564.68 -35065564.57 -35065564.46 0.0537 0.0464 \*  
 Mars -100717-10-08 21:06 J -35065179.92 -35065179.62 -35065179.33 0.0524 0.0040  
 Mercury -100716-11-23 10:18 J -35064769.17 -35064769.07 -35064768.97 0.0507 0.0373  
 Mercury -100715-02-21 00:13 J -35064679.64 -35064679.49 -35064679.34 0.0504 0.0097  
 Mercury -100709-04-22 21:35 J -35062426.74 -35062426.60 -35062426.46 0.0522 0.0223  
 Mercury -100709-07-21 16:18 J -35062336.93 -35062336.82 -35062336.70 0.0526 0.0319  
 Venus -100709-10-27 17:16 J -35062238.93 -35062238.78 -35062238.62 0.0529 0.0348  
 Mercury -100704-09-11 12:13 J -35060459.02 -35060458.99 -35060458.95 0.0508 0.0492  
 Mercury -100704-12-10 01:54 J -35060369.57 -35060369.42 -35060369.27 0.0504 0.0025  
 Mercury -100703-03-09 16:47 J -35060279.86 -35060279.80 -35060279.74 0.0501 0.0453

Venus -100703-09-01 14:23 J -35060104.08 -35060103.90 -35060103.72 0.0496 0.0210  
 Mercury -100697-02-09 22:18 J -35058116.68 -35058116.57 -35058116.45 0.0521 0.0359  
 Mercury -100697-05-09 17:30 J -35058026.91 -35058026.77 -35058026.62 0.0525 0.0187  
 Mercury -100692-09-28 04:04 J -35056059.47 -35056059.33 -35056059.18 0.0505 0.0141  
 Mercury -100692-12-26 18:42 J -35055969.83 -35055969.72 -35055969.60 0.0502 0.0336  
 Venus -100691-05-07 18:13 J -35055837.93 -35055837.74 -35055837.54 0.0498 0.0156  
 Mercury -100686-11-28 21:49 J -35053806.61 -35053806.59 -35053806.55 0.0520 0.0507  
 Mercury -100685-02-26 17:30 J -35053716.92 -35053716.77 -35053716.62 0.0523 0.0042  
 Venus -100685-10-30 18:42 J -35053469.86 -35053469.72 -35053469.58 0.0533 0.0374  
 Mercury -100680-07-17 06:42 J -35051749.35 -35051749.22 -35051749.09 0.0507 0.0253  
 Mercury -100680-10-14 20:52 J -35051659.76 -35051659.63 -35051659.49 0.0503 0.0222  
 Moon -100676-03-09 19:40 J -35050417.90 -35050417.68 -35050417.46 0.0489 0.0195  
 Earth -100676-03-09 23:30 J -35050417.74 -35050417.52 -35050417.31 0.0489 0.0223 \*  
 Mercury -100674-12-15 18:42 J -35049406.88 -35049406.72 -35049406.57 0.0523 0.0094  
 Mercury -100673-03-14 12:57 J -35049317.04 -35049316.96 -35049316.88 0.0526 0.0443  
 Venus -100673-07-05 08:09 J -35049204.36 -35049204.16 -35049203.96 0.0530 0.0092  
 Mercury -100668-05-05 09:06 J -35047439.22 -35047439.12 -35047439.02 0.0507 0.0365  
 Mercury -100668-08-02 23:01 J -35047349.68 -35047349.54 -35047349.39 0.0504 0.0107  
 Venus -100667-05-10 01:54 J -35047069.51 -35047069.42 -35047069.32 0.0495 0.0435  
 Earth -100664-03-14 13:54 J -35046030.15 -35046029.92 -35046029.69 0.0490 0.0146  
 Moon -100664-03-14 17:30 J -35046030.00 -35046029.77 -35046029.54 0.0490 0.0152 \*  
 Mars -100663-05-30 00:13 J -35045588.67 -35045588.49 -35045588.31 0.0502 0.0362  
 Mercury -100662-10-03 19:40 J -35045096.81 -35045096.68 -35045096.53 0.0522 0.0223  
 Mercury -100661-01-01 14:37 J -35045007.01 -35045006.89 -35045006.77 0.0526 0.0319  
 Earth -100659-09-09 12:28 J -35044025.02 -35044024.98 -35044024.91 0.0540 0.0522  
 Mercury -100656-02-21 11:45 J -35043129.06 -35043129.01 -35043128.96 0.0508 0.0476  
 Mercury -100656-05-22 01:25 J -35043039.59 -35043039.44 -35043039.29 0.0504 0.0016  
 Mercury -100656-08-19 16:18 J -35042949.87 -35042949.82 -35042949.77 0.0501 0.0468  
 Venus -100655-01-13 05:45 J -35042803.46 -35042803.26 -35042803.06 0.0496 0.0070  
 Mercury -100650-07-22 21:06 J -35040786.74 -35040786.62 -35040786.51 0.0521 0.0352

Mercury -100650-10-20 16:18 J -35040696.96 -35040696.82 -35040696.68 0.0525 0.0193  
 Moon -100647-09-14 05:45 J -35039637.48 -35039637.26 -35039637.04 0.0538 0.0080  
 Earth -100647-09-14 09:21 J -35039637.34 -35039637.11 -35039636.89 0.0538 0.0058 \*  
 Mercury -100644-03-10 03:06 J -35038729.51 -35038729.37 -35038729.23 0.0505 0.0131  
 Mercury -100644-06-07 17:30 J -35038639.87 -35038639.77 -35038639.65 0.0502 0.0345  
 Venus -100644-09-18 08:09 J -35038537.32 -35038537.16 -35038537.00 0.0499 0.0304  
 Mercury -100638-05-10 21:35 J -35036476.64 -35036476.60 -35036476.54 0.0520 0.0488  
 Mercury -100638-08-08 17:30 J -35036386.93 -35036386.77 -35036386.62 0.0524 0.0062  
 Venus -100637-03-13 05:16 J -35036169.47 -35036169.28 -35036169.09 0.0532 0.0198  
 Earth -100635-09-19 03:49 J -35035249.48 -35035249.34 -35035249.19 0.0537 0.0396  
 Moon -100635-09-19 06:28 J -35035249.36 -35035249.23 -35035249.10 0.0537 0.0425 \*  
 Mercury -100633-12-27 05:16 J -35034419.40 -35034419.28 -35034419.15 0.0506 0.0247  
 Mercury -100632-03-26 19:40 J -35034329.82 -35034329.68 -35034329.55 0.0503 0.0227  
 Mars -100627-03-03 05:45 J -35032527.49 -35032527.26 -35032527.03 0.0504 0.0242  
 Mercury -100626-05-27 17:16 J -35032076.93 -35032076.78 -35032076.63 0.0522 0.0086  
 Mercury -100626-08-25 11:45 J -35031987.09 -35031987.01 -35031986.94 0.0526 0.0450  
 Venus -100626-11-16 15:21 J -35031904.03 -35031903.86 -35031903.69 0.0529 0.0283  
 Mercury -100621-10-15 07:54 J -35030109.27 -35030109.17 -35030109.07 0.0508 0.0359  
 Mercury -100620-01-12 21:49 J -35030019.74 -35030019.59 -35030019.44 0.0504 0.0113  
 Venus -100620-09-20 16:04 J -35029768.99 -35029768.83 -35029768.66 0.0496 0.0290  
 Mercury -100614-03-15 18:13 J -35027766.88 -35027766.74 -35027766.60 0.0522 0.0220  
 Mercury -100614-06-13 12:57 J -35027677.08 -35027676.96 -35027676.84 0.0525 0.0320  
 Mercury -100609-08-03 10:18 J -35025799.12 -35025799.07 -35025799.01 0.0508 0.0470  
 Mercury -100609-10-31 23:59 J -35025709.65 -35025709.50 -35025709.35 0.0505 0.0013  
 Mercury -100608-01-29 15:06 J -35025619.92 -35025619.87 -35025619.83 0.0501 0.0476  
 Venus -100608-05-26 19:40 J -35025502.88 -35025502.68 -35025502.48 0.0497 0.0077  
 Mercury -100602-01-01 19:11 J -35023456.81 -35023456.70 -35023456.59 0.0521 0.0352  
 Mercury -100602-04-01 14:23 J -35023367.04 -35023366.90 -35023366.76 0.0525 0.0193  
 Venus -100602-11-19 21:35 J -35023134.70 -35023134.60 -35023134.50 0.0533 0.0466  
 Mercury -100597-08-20 02:23 J -35021399.54 -35021399.40 -35021399.25 0.0505 0.0117

Mercury -100597-11-17 17:01 J -35021309.90 -35021309.79 -35021309.69 0.0502 0.0359

Venus -100596-01-29 23:01 J -35021236.62 -35021236.54 -35021236.45 0.0500 0.0448

Earth -100593-03-09 06:57 J -35020102.41 -35020102.21 -35020102.00 0.0489 0.0266

Moon -100593-03-09 10:47 J -35020102.26 -35020102.05 -35020101.84 0.0489 0.0236 \*

Mercury -100591-10-20 20:09 J -35019146.71 -35019146.66 -35019146.60 0.0520 0.0482

Mercury -100590-01-18 16:04 J -35019056.98 -35019056.83 -35019056.68 0.0524 0.0067

Venus -100590-07-25 11:59 J -35018869.20 -35018869.00 -35018868.79 0.0531 0.0007

Mercury -100585-06-08 04:18 J -35017089.45 -35017089.32 -35017089.19 0.0506 0.0238

Mercury -100585-09-05 18:28 J -35016999.86 -35016999.73 -35016999.59 0.0503 0.0235

Moon -100581-03-13 19:54 J -35015714.91 -35015714.67 -35015714.42 0.0490 0.0105

Earth -100581-03-13 22:47 J -35015714.79 -35015714.55 -35015714.31 0.0490 0.0107 \*

Mercury -100579-11-06 17:01 J -35014746.94 -35014746.79 -35014746.64 0.0523 0.0067

Mercury -100578-02-04 11:16 J -35014657.09 -35014657.03 -35014656.96 0.0526 0.0469

Venus -100578-03-30 01:25 J -35014603.53 -35014603.44 -35014603.33 0.0528 0.0459

Mercury -100573-03-27 06:28 J -35012779.33 -35012779.23 -35012779.12 0.0507 0.0353

Mercury -100573-06-24 20:37 J -35012689.79 -35012689.64 -35012689.50 0.0504 0.0118

Venus -100572-02-01 05:16 J -35012468.47 -35012468.28 -35012468.08 0.0496 0.0138

Earth -100569-03-18 15:06 J -35011326.89 -35011326.87 -35011326.83 0.0490 0.0487

Moon -100569-03-18 16:33 J -35011326.89 -35011326.81 -35011326.73 0.0490 0.0457 \*

Mercury -100567-08-25 16:47 J -35010436.93 -35010436.80 -35010436.65 0.0521 0.0213

Mercury -100567-11-23 11:45 J -35010347.13 -35010347.01 -35010346.90 0.0525 0.0327

Earth -100564-09-13 10:04 J -35009322.29 -35009322.08 -35009321.86 0.0539 0.0142

Moon -100564-09-13 12:57 J -35009322.17 -35009321.96 -35009321.75 0.0539 0.0156 \*

Mars -100562-01-03 01:40 J -35008845.66 -35008845.43 -35008845.19 0.0524 0.0312

Mercury -100561-01-14 08:52 J -35008469.18 -35008469.13 -35008469.07 0.0509 0.0467

Mercury -100561-04-12 22:33 J -35008379.71 -35008379.56 -35008379.41 0.0505 0.0013

Mercury -100561-07-11 13:40 J -35008289.97 -35008289.93 -35008289.89 0.0502 0.0482

Venus -100561-10-07 09:06 J -35008202.30 -35008202.12 -35008201.94 0.0499 0.0229

Mercury -100555-06-13 17:30 J -35006126.88 -35006126.77 -35006126.65 0.0520 0.0348

Mercury -100555-09-11 12:42 J -35006037.11 -35006036.97 -35006036.83 0.0524 0.0194

Venus -100554-04-02 02:52 J -35005834.56 -35005834.38 -35005834.20 0.0532 0.0263  
 Moon -100552-09-18 05:59 J -35004934.42 -35004934.25 -35004934.07 0.0538 0.0352  
 Earth -100552-09-18 07:25 J -35004934.36 -35004934.19 -35004934.00 0.0538 0.0326 \*  
 Mercury -100549-01-31 00:57 J -35004069.61 -35004069.46 -35004069.32 0.0506 0.0113  
 Mercury -100549-04-29 15:35 J -35003979.95 -35003979.85 -35003979.75 0.0502 0.0364  
 Mercury -100543-04-01 18:13 J -35001816.79 -35001816.74 -35001816.68 0.0520 0.0483  
 Mercury -100543-06-30 13:54 J -35001727.07 -35001726.92 -35001726.77 0.0524 0.0065  
 Venus -100543-12-05 17:01 J -35001568.98 -35001568.79 -35001568.60 0.0530 0.0198  
 Mercury -100538-11-19 03:21 J -34999759.49 -34999759.36 -34999759.23 0.0506 0.0227  
 Mercury -100537-02-16 17:30 J -34999669.90 -34999669.77 -34999669.63 0.0503 0.0247  
 Venus -100537-10-09 16:04 J -34999433.96 -34999433.83 -34999433.68 0.0495 0.0360  
 Mercury -100531-04-18 15:21 J -34997417.01 -34997416.86 -34997416.71 0.0523 0.0064  
 Mercury -100531-07-17 09:49 J -34997327.16 -34997327.09 -34997327.03 0.0526 0.0472  
 Mercury -100526-09-07 05:16 J -34995449.38 -34995449.28 -34995449.17 0.0507 0.0346  
 Mercury -100526-12-05 19:11 J -34995359.84 -34995359.70 -34995359.55 0.0504 0.0125  
 Venus -100525-06-14 18:42 J -34995167.92 -34995167.72 -34995167.52 0.0497 0.0013  
 Mercury -100519-02-04 16:18 J -34993106.96 -34993106.82 -34993106.68 0.0522 0.0197  
 Mercury -100519-05-05 11:01 J -34993017.15 -34993017.04 -34993016.92 0.0525 0.0342  
 Mercury -100514-06-26 07:40 J -34991139.24 -34991139.18 -34991139.12 0.0508 0.0461  
 Mercury -100514-09-23 21:21 J -34991049.76 -34991049.61 -34991049.46 0.0505 0.0012  
 Mercury -100514-12-22 12:13 J -34990960.03 -34990959.99 -34990959.96 0.0502 0.0486  
 Venus -100513-02-18 21:49 J -34990901.72 -34990901.59 -34990901.46 0.0500 0.0385  
 Moon -100510-03-09 12:28 J -34989787.18 -34989786.98 -34989786.77 0.0488 0.0275  
 Earth -100510-03-09 15:21 J -34989787.04 -34989786.86 -34989786.66 0.0488 0.0303 \*  
 Mars -100509-08-23 08:09 J -34989254.41 -34989254.16 -34989253.91 0.0502 0.0139  
 Mercury -100508-11-23 16:04 J -34988796.94 -34988796.83 -34988796.71 0.0520 0.0342  
 Mercury -100507-02-21 11:16 J -34988707.16 -34988707.03 -34988706.88 0.0524 0.0202  
 Venus -100507-08-13 09:35 J -34988534.30 -34988534.10 -34988533.90 0.0530 0.0070  
 Mercury -100502-07-12 23:16 J -34986739.67 -34986739.53 -34986739.38 0.0506 0.0111  
 Mercury -100502-10-10 13:54 J -34986650.02 -34986649.92 -34986649.81 0.0503 0.0367

Earth -100498-03-14 06:13 J -34985399.48 -34985399.24 -34985398.99 0.0489 0.0067  
 Moon -100498-03-14 07:40 J -34985399.41 -34985399.18 -34985398.94 0.0489 0.0059 \*  
 Mercury -100496-09-11 16:33 J -34984486.86 -34984486.81 -34984486.75 0.0519 0.0479  
 Mercury -100496-12-10 12:13 J -34984397.14 -34984396.99 -34984396.84 0.0523 0.0067  
 Venus -100495-04-17 22:47 J -34984268.68 -34984268.55 -34984268.41 0.0528 0.0396  
 Mercury -100490-05-01 01:40 J -34982429.56 -34982429.43 -34982429.30 0.0507 0.0225  
 Mercury -100490-07-29 15:49 J -34982339.97 -34982339.84 -34982339.70 0.0503 0.0250  
 Venus -100489-02-21 05:01 J -34982133.48 -34982133.29 -34982133.11 0.0496 0.0209  
 Moon -100486-03-18 19:40 J -34981011.82 -34981011.68 -34981011.53 0.0490 0.0399  
 Earth -100486-03-18 19:25 J -34981011.79 -34981011.69 -34981011.56 0.0490 0.0432 \*  
 Mercury -100484-09-28 13:11 J -34980087.10 -34980086.95 -34980086.80 0.0523 0.0067  
 Mercury -100484-12-27 07:40 J -34979997.25 -34979997.18 -34979997.12 0.0526 0.0468  
 Moon -100481-09-12 16:33 J -34979007.02 -34979006.81 -34979006.60 0.0540 0.0210  
 Earth -100481-09-12 18:13 J -34979006.94 -34979006.74 -34979006.53 0.0540 0.0200 \*  
 Mercury -100478-02-17 04:04 J -34978119.43 -34978119.33 -34978119.22 0.0507 0.0338  
 Mercury -100478-05-17 17:59 J -34978029.89 -34978029.75 -34978029.60 0.0504 0.0134  
 Venus -100478-10-27 08:37 J -34977867.33 -34977867.14 -34977866.95 0.0498 0.0160  
 Mars -100473-05-27 09:06 J -34976193.22 -34976193.12 -34976193.00 0.0505 0.0451  
 Mercury -100472-07-17 14:23 J -34975777.04 -34975776.90 -34975776.75 0.0522 0.0197  
 Mercury -100472-10-15 09:21 J -34975687.22 -34975687.11 -34975687.00 0.0525 0.0343  
 Venus -100471-04-21 05:16 J -34975499.43 -34975499.28 -34975499.13 0.0532 0.0352  
 Earth -100469-09-17 15:06 J -34974619.06 -34974618.87 -34974618.67 0.0538 0.0264  
 Moon -100469-09-17 15:21 J -34974619.04 -34974618.86 -34974618.68 0.0538 0.0295 \*  
 Mercury -100467-12-06 06:13 J -34973809.30 -34973809.24 -34973809.17 0.0508 0.0455  
 Mercury -100466-03-05 19:54 J -34973719.82 -34973719.67 -34973719.52 0.0505 0.0014  
 Mercury -100466-06-03 10:33 J -34973630.08 -34973630.06 -34973630.02 0.0501 0.0491  
 Mercury -100460-05-05 15:21 J -34971466.98 -34971466.86 -34971466.74 0.0521 0.0331  
 Mercury -100460-08-03 10:33 J -34971377.20 -34971377.06 -34971376.92 0.0524 0.0213  
 Venus -100460-12-24 18:28 J -34971233.93 -34971233.73 -34971233.53 0.0530 0.0115  
 Mercury -100455-12-22 21:49 J -34969409.73 -34969409.59 -34969409.44 0.0506 0.0107



Mercury -100454-03-22 12:28 J -34969320.08 -34969319.98 -34969319.88 0.0502 0.0370

Venus -100454-10-29 14:23 J -34969099.00 -34969098.90 -34969098.79 0.0495 0.0421

Mercury -100448-02-21 15:21 J -34967156.92 -34967156.86 -34967156.80 0.0519 0.0473

Mercury -100448-05-22 10:47 J -34967067.20 -34967067.05 -34967066.90 0.0523 0.0073

Mars -100444-06-20 17:45 J -34965576.99 -34965576.76 -34965576.52 0.0526 0.0314

Mercury -100443-10-10 23:45 J -34965099.64 -34965099.51 -34965099.37 0.0507 0.0226

Mercury -100442-01-08 14:09 J -34965010.04 -34965009.91 -34965009.78 0.0504 0.0250

Venus -100442-07-04 17:30 J -34964832.97 -34964832.77 -34964832.57 0.0498 0.0054

Mercury -100436-03-10 11:30 J -34962757.17 -34962757.02 -34962756.87 0.0522 0.0065

Mercury -100436-06-08 05:45 J -34962667.32 -34962667.26 -34962667.19 0.0525 0.0469

Mercury -100431-07-30 02:09 J -34960789.51 -34960789.41 -34960789.30 0.0508 0.0339

Mercury -100431-10-27 16:04 J -34960699.97 -34960699.83 -34960699.68 0.0504 0.0134

Venus -100430-03-09 20:23 J -34960566.80 -34960566.65 -34960566.49 0.0500 0.0319

Earth -100427-03-08 18:42 J -34959471.87 -34959471.72 -34959471.55 0.0488 0.0362

Moon -100427-03-08 20:23 J -34959471.81 -34959471.65 -34959471.48 0.0488 0.0337 \*

Mercury -100425-12-27 12:13 J -34958447.13 -34958446.99 -34958446.85 0.0521 0.0202

Mercury -100424-03-27 06:57 J -34958357.32 -34958357.21 -34958357.09 0.0525 0.0338

Venus -100424-09-01 09:06 J -34958199.32 -34958199.12 -34958198.92 0.0531 0.0144

Mercury -100419-05-18 04:47 J -34956479.36 -34956479.30 -34956479.23 0.0508 0.0450

Mercury -100419-08-15 18:28 J -34956389.88 -34956389.73 -34956389.58 0.0505 0.0017

Mercury -100419-11-13 09:21 J -34956300.13 -34956300.11 -34956300.09 0.0502 0.0496

Moon -100415-03-13 09:21 J -34955084.36 -34955084.11 -34955083.86 0.0489 0.0006

Earth -100415-03-13 09:35 J -34955084.35 -34955084.10 -34955083.86 0.0489 0.0010 \*

Mercury -100413-10-15 13:11 J -34954137.07 -34954136.95 -34954136.83 0.0521 0.0333

Mercury -100412-01-13 08:37 J -34954047.28 -34954047.14 -34954047.01 0.0524 0.0211

Venus -100412-05-06 23:30 J -34953933.68 -34953933.52 -34953933.35 0.0529 0.0317

Mercury -100407-06-03 20:23 J -34952079.80 -34952079.65 -34952079.51 0.0506 0.0104

Mercury -100407-09-01 10:47 J -34951990.15 -34951990.05 -34951989.95 0.0502 0.0373

Venus -100406-03-12 02:37 J -34951798.55 -34951798.39 -34951798.21 0.0496 0.0268

Moon -100403-03-17 23:30 J -34950696.68 -34950696.52 -34950696.36 0.0490 0.0351

Earth -100403-03-18 00:57 J -34950696.61 -34950696.46 -34950696.30 0.0490 0.0379 \*  
 Mercury -100401-08-03 13:54 J -34949826.98 -34949826.92 -34949826.85 0.0520 0.0467  
 Mercury -100401-11-01 09:35 J -34949737.25 -34949737.10 -34949736.94 0.0523 0.0081  
 Earth -100398-09-12 21:06 J -34948691.81 -34948691.62 -34948691.42 0.0539 0.0279  
 Moon -100398-09-12 21:49 J -34948691.78 -34948691.59 -34948691.41 0.0539 0.0284 \*  
 Mercury -100395-03-22 22:18 J -34947769.70 -34947769.57 -34947769.43 0.0507 0.0222  
 Mercury -100395-06-20 12:28 J -34947680.10 -34947679.98 -34947679.84 0.0503 0.0253  
 Venus -100395-11-15 05:59 J -34947532.45 -34947532.25 -34947532.05 0.0498 0.0104  
 Mercury -100389-08-20 10:04 J -34945427.23 -34945427.08 -34945426.93 0.0522 0.0060  
 Mercury -100389-11-18 04:18 J -34945337.38 -34945337.32 -34945337.25 0.0525 0.0473  
 Venus -100388-05-10 02:09 J -34945164.54 -34945164.41 -34945164.28 0.0532 0.0414  
 Earth -100386-09-17 11:59 J -34944304.21 -34944304.00 -34944303.78 0.0539 0.0162  
 Moon -100386-09-17 13:11 J -34944304.17 -34944303.95 -34944303.74 0.0539 0.0193 \*  
 Mercury -100383-01-09 00:13 J -34943459.60 -34943459.49 -34943459.38 0.0508 0.0341  
 Mercury -100383-04-08 14:09 J -34943370.05 -34943369.91 -34943369.76 0.0505 0.0131  
 Venus -100383-07-21 07:54 J -34943266.22 -34943266.17 -34943266.11 0.0501 0.0481  
 Mercury -100377-06-08 10:33 J -34941117.20 -34941117.06 -34941116.92 0.0521 0.0199  
 Mercury -100377-09-06 05:16 J -34941027.39 -34941027.28 -34941027.16 0.0524 0.0338  
 Venus -100376-01-12 14:37 J -34940899.10 -34940898.89 -34940898.69 0.0529 0.0059  
 Mercury -100372-10-28 02:37 J -34939149.45 -34939149.39 -34939149.32 0.0509 0.0455  
 Mercury -100371-01-25 16:18 J -34939059.97 -34939059.82 -34939059.67 0.0505 0.0014  
 Mercury -100371-04-25 07:11 J -34938970.22 -34938970.20 -34938970.17 0.0502 0.0493  
 Venus -100371-11-17 11:45 J -34938764.04 -34938764.01 -34938763.96 0.0495 0.0483  
 Mercury -100365-03-27 10:47 J -34936807.17 -34936807.05 -34936806.93 0.0520 0.0339  
 Mercury -100365-06-25 06:13 J -34936717.38 -34936717.24 -34936717.10 0.0524 0.0204  
 Venus -100365-09-17 03:21 J -34936633.38 -34936633.36 -34936633.33 0.0527 0.0523  
 Mercury -100360-11-13 18:42 J -34934749.87 -34934749.72 -34934749.57 0.0506 0.0101  
 Mercury -100359-02-11 09:06 J -34934660.21 -34934660.12 -34934660.02 0.0503 0.0376  
 Venus -100359-07-23 15:35 J -34934498.05 -34934497.85 -34934497.65 0.0497 0.0115  
 Mars -100355-11-17 02:37 J -34932920.65 -34932920.39 -34932920.13 0.0503 0.0036

Mercury -100353-01-14 11:30 J -34932497.08 -34932497.02 -34932496.95 0.0520 0.0473

Mercury -100353-04-13 07:25 J -34932407.34 -34932407.19 -34932407.04 0.0523 0.0074

Mercury -100348-09-01 20:37 J -34930439.77 -34930439.64 -34930439.51 0.0507 0.0220

Mercury -100348-11-30 10:47 J -34930350.18 -34930350.05 -34930349.92 0.0503 0.0253

Venus -100347-03-28 17:45 J -34930231.93 -34930231.76 -34930231.58 0.0499 0.0263

Moon -100344-03-07 22:18 J -34929156.71 -34929156.57 -34929156.42 0.0488 0.0392

Earth -100344-03-07 22:47 J -34929156.68 -34929156.55 -34929156.43 0.0488 0.0416 \*

Mercury -100341-01-31 08:37 J -34928097.30 -34928097.14 -34928096.99 0.0522 0.0058

Mercury -100341-04-30 02:52 J -34928007.43 -34928007.38 -34928007.31 0.0526 0.0478

Venus -100341-09-20 09:21 J -34927864.29 -34927864.11 -34927863.92 0.0531 0.0221

Mercury -100336-06-20 22:47 J -34926129.66 -34926129.55 -34926129.44 0.0508 0.0338

Mercury -100336-09-18 12:42 J -34926040.12 -34926039.97 -34926039.83 0.0504 0.0133

Moon -100332-03-12 13:11 J -34924769.18 -34924768.95 -34924768.72 0.0489 0.0061

Earth -100332-03-12 14:23 J -34924769.14 -34924768.90 -34924768.66 0.0489 0.0045 \*

Mercury -100330-11-19 08:52 J -34923787.27 -34923787.13 -34923786.98 0.0521 0.0195

Mercury -100329-02-17 03:35 J -34923697.46 -34923697.35 -34923697.23 0.0524 0.0342

Venus -100329-05-25 21:06 J -34923598.80 -34923598.62 -34923598.44 0.0528 0.0252

Mercury -100324-04-09 00:42 J -34921819.53 -34921819.47 -34921819.41 0.0509 0.0458

Mercury -100324-07-07 14:09 J -34921730.06 -34921729.91 -34921729.76 0.0506 0.0013

Mercury -100324-10-05 05:01 J -34921640.32 -34921640.29 -34921640.26 0.0502 0.0490

Venus -100323-03-30 23:30 J -34921463.67 -34921463.52 -34921463.37 0.0497 0.0324

Earth -100320-03-17 05:01 J -34920381.47 -34920381.29 -34920381.10 0.0490 0.0323

Moon -100320-03-17 08:09 J -34920381.35 -34920381.16 -34920380.96 0.0490 0.0298 \*

Mercury -100318-09-07 09:06 J -34919477.23 -34919477.12 -34919477.00 0.0520 0.0336

Mercury -100318-12-06 04:33 J -34919387.45 -34919387.31 -34919387.17 0.0523 0.0206

Earth -100315-09-11 16:47 J -34918376.95 -34918376.80 -34918376.64 0.0540 0.0387

Moon -100315-09-11 17:30 J -34918376.93 -34918376.77 -34918376.61 0.0540 0.0387 \*

Mercury -100312-04-25 16:18 J -34917419.96 -34917419.82 -34917419.67 0.0506 0.0107

Mercury -100312-07-24 06:57 J -34917330.31 -34917330.21 -34917330.11 0.0503 0.0370

Venus -100312-12-04 02:37 J -34917197.59 -34917197.39 -34917197.19 0.0498 0.0048

Mercury -100306-06-26 09:06 J -34915167.18 -34915167.12 -34915167.06 0.0519 0.0479

Mercury -100306-09-24 05:01 J -34915077.44 -34915077.29 -34915077.14 0.0523 0.0068

Venus -100305-05-28 23:01 J -34914829.62 -34914829.54 -34914829.44 0.0532 0.0478

Moon -100303-09-16 13:25 J -34913989.15 -34913988.94 -34913988.73 0.0539 0.0116

Earth -100303-09-16 15:49 J -34913989.06 -34913988.84 -34913988.62 0.0539 0.0085 \*

Mercury -100300-02-11 18:57 J -34913109.84 -34913109.71 -34913109.58 0.0507 0.0220

Mercury -100300-05-12 09:06 J -34913020.25 -34913020.12 -34913019.99 0.0504 0.0254

Venus -100300-08-09 05:59 J -34912931.36 -34912931.25 -34912931.14 0.0500 0.0421

Mercury -100294-07-13 05:59 J -34910767.40 -34910767.25 -34910767.09 0.0522 0.0066

Mercury -100294-10-11 00:28 J -34910677.54 -34910677.48 -34910677.41 0.0526 0.0471

Venus -100293-02-01 13:25 J -34910564.15 -34910563.94 -34910563.74 0.0530 0.0013

Mars -100290-09-14 17:01 J -34909243.08 -34909242.79 -34909242.50 0.0526 0.0067

Mercury -100289-11-30 20:52 J -34908799.73 -34908799.63 -34908799.51 0.0508 0.0338

Mercury -100288-02-28 10:47 J -34908710.19 -34908710.05 -34908709.90 0.0504 0.0133

Mercury -100282-05-01 07:11 J -34906457.35 -34906457.20 -34906457.06 0.0521 0.0196

Mercury -100282-07-30 02:09 J -34906367.53 -34906367.41 -34906367.30 0.0525 0.0343

Venus -100282-10-07 03:35 J -34906298.46 -34906298.35 -34906298.25 0.0528 0.0449

Mercury -100277-09-18 23:16 J -34904489.59 -34904489.53 -34904489.47 0.0509 0.0454

Mercury -100277-12-17 12:42 J -34904400.12 -34904399.97 -34904399.82 0.0505 0.0013

Mercury -100276-03-17 03:35 J -34904310.38 -34904310.35 -34904310.33 0.0502 0.0491

Venus -100276-08-11 11:45 J -34904163.20 -34904163.01 -34904162.82 0.0497 0.0167

Mercury -100270-02-17 07:25 J -34902147.30 -34902147.19 -34902147.07 0.0520 0.0333

Mercury -100270-05-18 02:52 J -34902057.52 -34902057.38 -34902057.24 0.0523 0.0208

Mercury -100265-10-05 14:09 J -34900090.05 -34900089.91 -34900089.76 0.0507 0.0112

Mercury -100264-01-03 04:47 J -34900000.40 -34900000.30 -34900000.20 0.0503 0.0366

Venus -100264-04-16 13:40 J -34899897.11 -34899896.93 -34899896.75 0.0500 0.0212

Moon -100261-03-07 01:25 J -34898841.52 -34898841.44 -34898841.35 0.0488 0.0453

Earth -100261-03-07 02:23 J -34898841.45 -34898841.40 -34898841.33 0.0488 0.0472 \*

Mercury -100259-12-06 07:40 J -34897837.24 -34897837.18 -34897837.12 0.0519 0.0474

Mercury -100258-03-06 03:21 J -34897747.51 -34897747.36 -34897747.21 0.0522 0.0071

Venus -100258-10-10 05:01 J -34897529.47 -34897529.29 -34897529.12 0.0531 0.0276

Mercury -100253-07-24 16:33 J -34895779.94 -34895779.81 -34895779.68 0.0507 0.0227

Mercury -100253-10-22 06:42 J -34895690.35 -34895690.22 -34895690.09 0.0504 0.0247

Earth -100249-03-11 13:25 J -34894454.18 -34894453.94 -34894453.70 0.0488 0.0119

Moon -100249-03-11 16:04 J -34894454.07 -34894453.83 -34894453.59 0.0488 0.0138 \*

Mercury -100247-12-23 03:35 J -34893437.50 -34893437.35 -34893437.20 0.0522 0.0072

Mercury -100246-03-22 22:04 J -34893347.65 -34893347.58 -34893347.51 0.0525 0.0462

Venus -100246-06-14 17:01 J -34893263.98 -34893263.79 -34893263.60 0.0529 0.0199

Mercury -100241-05-12 19:11 J -34891469.81 -34891469.70 -34891469.59 0.0508 0.0338

Mercury -100241-08-10 08:52 J -34891380.27 -34891380.13 -34891379.98 0.0505 0.0133

Venus -100240-04-18 21:06 J -34891128.75 -34891128.62 -34891128.49 0.0496 0.0382

Moon -100237-03-16 00:28 J -34890066.69 -34890066.48 -34890066.27 0.0489 0.0225

Earth -100237-03-16 04:18 J -34890066.53 -34890066.32 -34890066.11 0.0489 0.0248 \*

Mars -100236-05-08 14:37 J -34889648.05 -34889647.89 -34889647.73 0.0500 0.0389

Mercury -100235-10-11 04:33 J -34889127.45 -34889127.31 -34889127.17 0.0521 0.0205

Mercury -100234-01-08 23:30 J -34889037.63 -34889037.52 -34889037.40 0.0525 0.0334

Moon -100232-09-10 19:40 J -34888061.80 -34888061.68 -34888061.57 0.0540 0.0457

Earth -100232-09-10 21:35 J -34888061.72 -34888061.60 -34888061.49 0.0540 0.0459 \*

Mercury -100229-02-29 21:21 J -34887159.67 -34887159.61 -34887159.54 0.0509 0.0454

Mercury -100229-05-29 10:47 J -34887070.20 -34887070.05 -34887069.90 0.0505 0.0015

Mercury -100229-08-27 01:40 J -34886980.46 -34886980.43 -34886980.40 0.0502 0.0490

Venus -100229-12-22 23:30 J -34886862.72 -34886862.52 -34886862.31 0.0498 0.0012

Mercury -100223-07-30 05:16 J -34884817.39 -34884817.28 -34884817.15 0.0520 0.0338

Mercury -100223-10-28 00:57 J -34884727.60 -34884727.46 -34884727.32 0.0524 0.0206

Earth -100220-09-15 17:59 J -34883673.98 -34883673.75 -34883673.53 0.0539 0.0010

Moon -100220-09-15 21:21 J -34883673.84 -34883673.61 -34883673.38 0.0539 0.0036 \*

Mercury -100217-03-17 12:42 J -34882760.11 -34882759.97 -34882759.82 0.0506 0.0108

Mercury -100217-06-15 03:06 J -34882670.47 -34882670.37 -34882670.26 0.0503 0.0369

Venus -100217-08-28 02:09 J -34882596.54 -34882596.41 -34882596.28 0.0500 0.0371

Mercury -100211-05-18 05:45 J -34880507.31 -34880507.26 -34880507.19 0.0519 0.0473

Mercury -100211-08-16 01:40 J -34880417.58 -34880417.43 -34880417.28 0.0522 0.0073

Venus -100210-02-20 11:16 J -34880229.23 -34880229.03 -34880228.83 0.0530 0.0078

Moon -100208-09-20 05:16 J -34879286.41 -34879286.28 -34879286.15 0.0538 0.0432

Earth -100208-09-20 08:52 J -34879286.25 -34879286.13 -34879286.00 0.0538 0.0440 \*

Mercury -100205-01-04 14:23 J -34878450.03 -34878449.90 -34878449.77 0.0507 0.0231

Mercury -100205-04-03 04:33 J -34878360.44 -34878360.31 -34878360.18 0.0504 0.0243

Mars -100200-02-09 19:25 J -34876586.93 -34876586.69 -34876586.46 0.0503 0.0211

Mercury -100199-06-04 02:09 J -34876107.56 -34876107.41 -34876107.26 0.0521 0.0067

Mercury -100199-09-01 20:37 J -34876017.70 -34876017.64 -34876017.57 0.0525 0.0466

Venus -100199-10-25 23:45 J -34875963.65 -34875963.51 -34875963.37 0.0527 0.0392

Mercury -100194-10-23 16:47 J -34874139.91 -34874139.80 -34874139.70 0.0508 0.0346

Mercury -100193-01-21 06:28 J -34874050.37 -34874050.23 -34874050.08 0.0505 0.0125

Venus -100193-08-30 07:40 J -34873828.36 -34873828.18 -34873828.00 0.0497 0.0218

Mercury -100187-03-23 01:54 J -34871797.55 -34871797.42 -34871797.27 0.0521 0.0213

Mercury -100187-06-20 21:06 J -34871707.74 -34871707.62 -34871707.50 0.0524 0.0327

Mercury -100182-08-11 19:25 J -34869829.75 -34869829.69 -34869829.62 0.0509 0.0456

Mercury -100182-11-09 08:52 J -34869740.28 -34869740.13 -34869739.98 0.0506 0.0017

Mercury -100181-02-06 23:30 J -34869650.54 -34869650.52 -34869650.48 0.0502 0.0491

Venus -100181-05-05 11:30 J -34869562.21 -34869562.02 -34869561.82 0.0499 0.0153

Mercury -100175-01-09 02:52 J -34867487.50 -34867487.38 -34867487.27 0.0520 0.0346

Mercury -100175-04-08 22:18 J -34867397.71 -34867397.57 -34867397.43 0.0524 0.0197

Venus -100175-10-29 02:37 J -34867194.55 -34867194.39 -34867194.23 0.0532 0.0339

Mercury -100170-08-28 11:01 J -34865430.18 -34865430.04 -34865429.89 0.0506 0.0107

Mercury -100170-11-26 01:25 J -34865340.54 -34865340.44 -34865340.34 0.0503 0.0369

Moon -100166-03-11 12:13 J -34864139.20 -34864138.99 -34864138.77 0.0488 0.0204

Earth -100166-03-11 15:49 J -34864139.07 -34864138.84 -34864138.61 0.0488 0.0180 \*

Mercury -100164-10-28 03:35 J -34863177.40 -34863177.35 -34863177.29 0.0519 0.0478

Mercury -100163-01-25 23:45 J -34863087.67 -34863087.51 -34863087.36 0.0523 0.0070

Venus -100163-07-03 16:47 J -34862929.00 -34862928.80 -34862928.60 0.0529 0.0125

Mercury -100158-06-16 13:11 J -34861120.08 -34861119.95 -34861119.82 0.0507 0.0225

Mercury -100158-09-14 03:06 J -34861030.50 -34861030.37 -34861030.24 0.0504 0.0248

Venus -100157-05-07 17:16 J -34860793.87 -34860793.78 -34860793.68 0.0496 0.0434

Earth -100154-03-16 07:25 J -34859751.41 -34859751.19 -34859750.96 0.0489 0.0191

Moon -100154-03-16 11:16 J -34859751.25 -34859751.03 -34859750.80 0.0489 0.0177 \*

Mercury -100152-11-14 00:28 J -34858777.63 -34858777.48 -34858777.33 0.0522 0.0065

Mercury -100151-02-11 18:57 J -34858687.77 -34858687.71 -34858687.64 0.0525 0.0469

Mercury -100146-04-04 14:37 J -34856809.99 -34856809.89 -34856809.78 0.0508 0.0349

Mercury -100146-07-03 04:33 J -34856720.46 -34856720.31 -34856720.17 0.0505 0.0122

Venus -100145-01-11 19:11 J -34856527.90 -34856527.70 -34856527.50 0.0498 0.0057

Mercury -100140-09-02 00:57 J -34854467.60 -34854467.46 -34854467.32 0.0520 0.0204

Mercury -100140-11-30 19:54 J -34854377.79 -34854377.67 -34854377.56 0.0524 0.0334

Moon -100137-09-14 10:18 J -34853359.29 -34853359.07 -34853358.84 0.0539 0.0075

Earth -100137-09-14 14:09 J -34853359.13 -34853358.91 -34853358.69 0.0539 0.0104 \*

Mars -100136-12-07 16:33 J -34852910.09 -34852909.81 -34852909.52 0.0526 0.0113

Mercury -100134-01-21 17:01 J -34852499.84 -34852499.79 -34852499.72 0.0509 0.0464

Mercury -100134-04-21 06:42 J -34852410.37 -34852410.22 -34852410.07 0.0506 0.0014

Mercury -100134-07-19 21:21 J -34852320.65 -34852320.61 -34852320.57 0.0502 0.0483

Venus -100134-09-16 22:04 J -34852261.73 -34852261.58 -34852261.42 0.0500 0.0320

Mercury -100128-06-21 00:28 J -34850157.59 -34850157.48 -34850157.37 0.0520 0.0352

Mercury -100128-09-18 19:54 J -34850067.81 -34850067.67 -34850067.52 0.0523 0.0191

Venus -100127-03-11 06:28 J -34849894.43 -34849894.23 -34849894.03 0.0530 0.0128

Earth -100125-09-19 11:16 J -34848971.19 -34848971.03 -34848970.86 0.0539 0.0360

Moon -100125-09-19 14:37 J -34848971.06 -34848970.89 -34848970.72 0.0539 0.0349 \*

Mercury -100122-02-07 09:06 J -34848100.26 -34848100.12 -34848099.97 0.0507 0.0108

Mercury -100122-05-07 23:30 J -34848010.62 -34848010.52 -34848010.41 0.0503 0.0369

Mercury -100116-04-09 00:57 J -34845847.50 -34845847.46 -34845847.40 0.0519 0.0487

Mercury -100116-07-07 21:06 J -34845757.77 -34845757.62 -34845757.47 0.0523 0.0060

Venus -100116-11-13 20:37 J -34845628.80 -34845628.64 -34845628.48 0.0528 0.0335

Mercury -100111-11-26 11:30 J -34843790.15 -34843790.02 -34843789.89 0.0507 0.0224

Mercury -100110-02-24 01:25 J -34843700.57 -34843700.44 -34843700.31 0.0504 0.0249

Venus -100110-09-19 05:45 J -34843493.43 -34843493.26 -34843493.09 0.0497 0.0278

Mercury -100104-04-25 22:18 J -34841447.72 -34841447.57 -34841447.42 0.0522 0.0069

Mercury -100104-07-24 17:01 J -34841357.86 -34841357.79 -34841357.72 0.0526 0.0466

Mercury -100099-09-14 13:40 J -34839480.04 -34839479.93 -34839479.82 0.0508 0.0340

Mercury -100099-12-13 03:21 J -34839390.51 -34839390.36 -34839390.22 0.0505 0.0129

Venus -100098-05-25 08:37 J -34839227.34 -34839227.14 -34839226.95 0.0499 0.0098

Mercury -100092-02-11 23:16 J -34837137.67 -34837137.53 -34837137.39 0.0521 0.0201

Mercury -100092-05-12 18:13 J -34837047.85 -34837047.74 -34837047.62 0.0524 0.0337

Venus -100092-11-17 01:54 J -34836859.54 -34836859.42 -34836859.29 0.0531 0.0413

Mercury -100087-07-03 15:21 J -34835169.91 -34835169.86 -34835169.80 0.0509 0.0463

Mercury -100087-10-01 04:47 J -34835080.45 -34835080.30 -34835080.15 0.0506 0.0004

Mercury -100087-12-29 19:25 J -34834990.73 -34834990.69 -34834990.65 0.0502 0.0482

Venus -100086-01-28 09:35 J -34834961.15 -34834961.10 -34834961.05 0.0501 0.0484

Earth -100083-03-10 19:54 J -34833823.88 -34833823.67 -34833823.46 0.0488 0.0235

Moon -100083-03-10 23:45 J -34833823.71 -34833823.51 -34833823.30 0.0488 0.0262 \*

Mars -100082-08-02 08:52 J -34833314.36 -34833314.13 -34833313.89 0.0501 0.0212

Mercury -100081-11-30 23:30 J -34832827.63 -34832827.52 -34832827.40 0.0520 0.0341

Mercury -100080-02-28 18:57 J -34832737.85 -34832737.71 -34832737.57 0.0523 0.0202

Venus -100080-07-22 14:23 J -34832594.10 -34832593.90 -34832593.70 0.0529 0.0062

Mercury -100075-07-20 06:57 J -34830770.35 -34830770.21 -34830770.06 0.0507 0.0113

Mercury -100075-10-17 21:21 J -34830680.71 -34830680.61 -34830680.51 0.0503 0.0363

Venus -100074-05-27 13:54 J -34830458.94 -34830458.92 -34830458.88 0.0496 0.0488

Moon -100071-03-15 04:18 J -34829436.56 -34829436.32 -34829436.08 0.0489 0.0107

Earth -100071-03-15 07:54 J -34829436.41 -34829436.17 -34829435.94 0.0489 0.0123 \*

Mercury -100069-09-18 22:47 J -34828517.59 -34828517.55 -34828517.50 0.0519 0.0491

Mercury -100069-12-17 18:57 J -34828427.86 -34828427.71 -34828427.56 0.0522 0.0055

Mercury -100063-05-08 09:49 J -34826460.23 -34826460.09 -34826459.96 0.0508 0.0224

Mercury -100063-08-05 23:45 J -34826370.64 -34826370.51 -34826370.38 0.0504 0.0250

Venus -100062-01-30 18:13 J -34826192.93 -34826192.74 -34826192.54 0.0498 0.0122

Mercury -100057-10-05 19:54 J -34824117.82 -34824117.67 -34824117.52 0.0522 0.0077



Mercury -100056-01-03 14:37 J -34824027.96 -34824027.89 -34824027.82 0.0525 0.0458

Earth -100054-09-14 19:25 J -34823043.90 -34823043.69 -34823043.47 0.0540 0.0171

Moon -100054-09-14 22:47 J -34823043.76 -34823043.55 -34823043.33 0.0540 0.0142 \*

Mercury -100051-02-24 12:13 J -34822150.10 -34822149.99 -34822149.89 0.0508 0.0337

Mercury -100051-05-25 01:40 J -34822060.57 -34822060.43 -34822060.28 0.0505 0.0133

Venus -100051-10-05 21:06 J -34821926.79 -34821926.62 -34821926.44 0.0500 0.0255

Mars -100046-05-06 06:28 J -34820253.40 -34820253.23 -34820253.06 0.0503 0.0370

Mercury -100045-07-24 21:06 J -34819807.76 -34819807.62 -34819807.48 0.0521 0.0206

Mercury -100045-10-22 16:18 J -34819717.94 -34819717.82 -34819717.71 0.0525 0.0334

Venus -100044-03-30 07:25 J -34819559.38 -34819559.19 -34819559.00 0.0531 0.0209

Moon -100042-09-19 14:37 J -34818656.09 -34818655.89 -34818655.70 0.0539 0.0277

Earth -100042-09-19 17:01 J -34818655.97 -34818655.79 -34818655.60 0.0539 0.0293 \*

Mercury -100040-12-13 14:23 J -34817839.96 -34817839.90 -34817839.83 0.0509 0.0453

Mercury -100039-03-13 03:49 J -34817750.49 -34817750.34 -34817750.19 0.0505 0.0014

Mercury -100039-06-10 18:28 J -34817660.76 -34817660.73 -34817660.70 0.0502 0.0491

Mercury -100033-05-12 21:49 J -34815497.70 -34815497.59 -34815497.47 0.0520 0.0338

Mercury -100033-08-10 17:30 J -34815407.91 -34815407.77 -34815407.63 0.0523 0.0205

Venus -100033-12-02 21:21 J -34815293.79 -34815293.61 -34815293.43 0.0528 0.0256

Mercury -100028-12-30 05:16 J -34813440.42 -34813440.28 -34813440.13 0.0507 0.0112

Mercury -100027-03-29 19:40 J -34813350.78 -34813350.68 -34813350.58 0.0503 0.0365

Venus -100027-10-08 02:23 J -34813158.55 -34813158.40 -34813158.25 0.0497 0.0332

Mercury -100021-02-29 22:04 J -34811187.63 -34811187.58 -34811187.51 0.0519 0.0477

Mercury -100021-05-29 18:13 J -34811097.89 -34811097.74 -34811097.59 0.0522 0.0069

Mercury -100016-10-18 07:40 J -34809130.31 -34809130.18 -34809130.05 0.0508 0.0227

Mercury -100015-01-15 21:35 J -34809040.73 -34809040.60 -34809040.46 0.0504 0.0247

Venus -100015-06-13 05:45 J -34808892.46 -34808892.26 -34808892.06 0.0499 0.0042

Mercury -100009-03-17 17:59 J -34806787.91 -34806787.75 -34806787.60 0.0521 0.0079

Mercury -100009-06-15 12:42 J -34806698.04 -34806697.97 -34806697.90 0.0525 0.0456

Venus -100009-12-05 21:49 J -34806524.69 -34806524.59 -34806524.50 0.0532 0.0466

Mercury -100004-08-06 10:33 J -34804820.17 -34804820.06 -34804819.95 0.0509 0.0336

Mercury -100004-11-04 00:13 J -34804730.63 -34804730.49 -34804730.35 0.0505 0.0135  
 Venus -100003-02-16 09:35 J -34804626.21 -34804626.10 -34804625.98 0.0501 0.0414

# 100TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 100th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Moon	-100000-03-09 19:25 J	-34803508.87	-34803508.69	-34803508.50	0.0487	0.0322		
Earth	-100000-03-09 23:16 J	-34803508.73	-34803508.53	-34803508.34	0.0487	0.0291	*	
Mercury	-99997-01-04 18:42 J	-34802477.86	-34802477.72	-34802477.58	0.0521	0.0212		
Mercury	-99997-04-03 13:54 J	-34802388.03	-34802387.92	-34802387.80	0.0524	0.0328		
Venus	-99997-08-10 11:30 J	-34802259.22	-34802259.02	-34802258.81	0.0529	0.0013		
Mercury	-99992-05-25 12:57 J	-34800510.02	-34800509.96	-34800509.89	0.0509	0.0448		
Mercury	-99992-08-23 02:23 J	-34800420.55	-34800420.40	-34800420.25	0.0506	0.0019		
Mercury	-99992-11-20 17:01 J	-34800330.81	-34800330.79	-34800330.77	0.0502	0.0496		
Earth	-99988-03-14 12:42 J	-34799121.21	-34799120.97	-34799120.73	0.0488	0.0071		
Moon	-99988-03-14 15:21 J	-34799121.10	-34799120.86	-34799120.63	0.0488	0.0064	*	
Mercury	-99986-10-23 19:54 J	-34798167.79	-34798167.67	-34798167.56	0.0520	0.0341		
Mercury	-99985-01-21 15:35 J	-34798077.99	-34798077.85	-34798077.71	0.0524	0.0203		
Venus	-99985-04-15 02:37 J	-34797993.48	-34797993.39	-34797993.28	0.0527	0.0458		
Mars	-99981-03-03 01:54 J	-34796575.61	-34796575.42	-34796575.22	0.0525	0.0392		

Mercury -99980-06-11 04:33 J -34796110.45 -34796110.31 -34796110.16 0.0506 0.0099

Mercury -99980-09-08 18:57 J -34796020.81 -34796020.71 -34796020.61 0.0503 0.0376

Venus -99979-02-18 16:47 J -34795857.99 -34795857.80 -34795857.61 0.0497 0.0185

Moon -99976-03-19 03:49 J -34794733.41 -34794733.34 -34794733.26 0.0490 0.0467

Earth -99976-03-19 04:47 J -34794733.39 -34794733.30 -34794733.19 0.0490 0.0442 \*

Mercury -99974-08-11 20:37 J -34793857.70 -34793857.64 -34793857.57 0.0519 0.0472

Mercury -99974-11-09 16:47 J -34793767.95 -34793767.80 -34793767.65 0.0523 0.0074

Moon -99971-09-13 19:54 J -34792728.88 -34792728.67 -34792728.46 0.0540 0.0222

Earth -99971-09-13 22:47 J -34792728.75 -34792728.55 -34792728.35 0.0540 0.0248 \*

Mercury -99968-03-30 06:13 J -34791800.37 -34791800.24 -34791800.10 0.0507 0.0222

Mercury -99968-06-27 20:09 J -34791710.78 -34791710.66 -34791710.52 0.0504 0.0251

Venus -99968-10-24 18:28 J -34791591.91 -34791591.73 -34791591.54 0.0500 0.0199

Mercury -99962-08-28 17:30 J -34789457.93 -34789457.77 -34789457.62 0.0521 0.0062

Mercury -99962-11-26 11:59 J -34789368.05 -34789368.00 -34789367.93 0.0525 0.0472

Venus -99961-04-18 07:11 J -34789224.37 -34789224.20 -34789224.03 0.0530 0.0283

Earth -99959-09-18 18:13 J -34788340.95 -34788340.74 -34788340.53 0.0539 0.0207

Moon -99959-09-18 19:25 J -34788340.89 -34788340.69 -34788340.48 0.0539 0.0190 \*

Mercury -99956-01-16 08:37 J -34787490.24 -34787490.14 -34787490.03 0.0508 0.0337

Mercury -99956-04-15 22:18 J -34787400.71 -34787400.57 -34787400.42 0.0505 0.0134

Mercury -99950-06-16 17:01 J -34785147.93 -34785147.79 -34785147.65 0.0520 0.0210

Mercury -99950-09-14 12:13 J -34785058.11 -34785057.99 -34785057.87 0.0524 0.0328

Venus -99950-12-22 17:16 J -34784958.97 -34784958.78 -34784958.59 0.0528 0.0202

Mercury -99945-11-04 11:45 J -34783180.08 -34783180.01 -34783179.95 0.0510 0.0445

Mercury -99944-02-02 00:57 J -34783090.61 -34783090.46 -34783090.31 0.0506 0.0023

Mercury -99944-05-02 15:35 J -34783000.86 -34783000.85 -34783000.84 0.0503 0.0501

Venus -99944-10-27 03:06 J -34782823.48 -34782823.37 -34782823.25 0.0497 0.0406

Mercury -99938-04-04 17:45 J -34780837.88 -34780837.76 -34780837.64 0.0520 0.0344

Mercury -99938-07-03 13:25 J -34780748.08 -34780747.94 -34780747.80 0.0523 0.0198

Mercury -99933-11-21 03:21 J -34778780.50 -34778780.36 -34778780.21 0.0507 0.0092

Mercury -99932-02-18 17:30 J -34778690.86 -34778690.77 -34778690.67 0.0503 0.0383

Venus -99932-07-02 06:28 J -34778557.43 -34778557.23 -34778557.03 0.0498 0.0034

Mars -99928-10-26 03:06 J -34776980.63 -34776980.37 -34776980.11 0.0501 0.0033

Mercury -99926-01-21 18:42 J -34776527.78 -34776527.72 -34776527.66 0.0519 0.0474

Mercury -99926-04-21 14:52 J -34776438.03 -34776437.88 -34776437.73 0.0523 0.0072

Mercury -99921-09-09 05:45 J -34774470.40 -34774470.26 -34774470.13 0.0507 0.0208

Mercury -99921-12-07 19:40 J -34774380.81 -34774380.68 -34774380.55 0.0504 0.0265

Venus -99920-03-07 09:06 J -34774291.26 -34774291.12 -34774290.97 0.0501 0.0346

Earth -99917-03-09 05:59 J -34773193.42 -34773193.25 -34773193.07 0.0487 0.0335

Moon -99917-03-09 08:23 J -34773193.30 -34773193.15 -34773192.99 0.0487 0.0366 \*

Mercury -99914-02-07 16:04 J -34772127.98 -34772127.83 -34772127.68 0.0522 0.0056

Mercury -99914-05-08 10:47 J -34772038.11 -34772038.05 -34772037.99 0.0525 0.0478

Venus -99914-08-30 14:23 J -34771924.10 -34771923.90 -34771923.70 0.0530 0.0090

Mercury -99909-06-28 07:25 J -34770160.30 -34770160.19 -34770160.07 0.0508 0.0329

Mercury -99909-09-25 21:06 J -34770070.76 -34770070.62 -34770070.48 0.0505 0.0140

Moon -99905-03-13 19:11 J -34768805.95 -34768805.70 -34768805.44 0.0488 0.0025

Earth -99905-03-13 20:37 J -34768805.89 -34768805.64 -34768805.40 0.0488 0.0029 \*

Mercury -99903-11-26 16:47 J -34767817.95 -34767817.80 -34767817.66 0.0521 0.0192

Mercury -99902-02-24 11:59 J -34767728.11 -34767728.00 -34767727.89 0.0524 0.0346

Venus -99902-05-05 03:35 J -34767658.49 -34767658.35 -34767658.20 0.0527 0.0378

Mercury -99897-04-16 10:04 J -34765850.15 -34765850.08 -34765850.01 0.0509 0.0443

Mercury -99897-07-14 23:16 J -34765760.67 -34765760.53 -34765760.38 0.0506 0.0028

Mercury -99897-10-12 13:54 J -34765670.92 -34765670.92 -34765670.91 0.0503 0.0502

Venus -99896-03-09 15:35 J -34765523.02 -34765522.85 -34765522.67 0.0498 0.0249

Moon -99893-03-18 09:35 J -34764418.21 -34764418.10 -34764417.98 0.0489 0.0421

Earth -99893-03-18 10:18 J -34764418.21 -34764418.07 -34764417.92 0.0489 0.0392 \*

Mercury -99891-09-14 16:04 J -34763507.94 -34763507.83 -34763507.71 0.0519 0.0340

Mercury -99891-12-13 11:45 J -34763418.15 -34763418.01 -34763417.87 0.0523 0.0202

Earth -99888-09-13 01:11 J -34762413.63 -34762413.45 -34762413.27 0.0541 0.0325

Moon -99888-09-13 02:52 J -34762413.56 -34762413.38 -34762413.20 0.0541 0.0303 \*

Mercury -99885-05-03 01:54 J -34761450.56 -34761450.42 -34761450.27 0.0507 0.0088

Mercury -99885-07-31 16:18 J -34761360.91 -34761360.82 -34761360.72 0.0503 0.0389  
 Venus -99885-11-12 19:54 J -34761256.86 -34761256.67 -34761256.47 0.0500 0.0121  
 Mercury -99879-07-03 16:47 J -34759197.86 -34759197.80 -34759197.74 0.0519 0.0475  
 Mercury -99879-10-01 12:57 J -34759108.11 -34759107.96 -34759107.81 0.0522 0.0071  
 Venus -99878-05-08 05:01 J -34758889.44 -34758889.29 -34758889.13 0.0531 0.0349  
 Moon -99876-09-18 01:11 J -34758025.68 -34758025.45 -34758025.22 0.0540 0.0125  
 Earth -99876-09-18 00:57 J -34758025.67 -34758025.46 -34758025.24 0.0540 0.0148 \*  
 Mercury -99873-02-20 04:33 J -34757140.45 -34757140.31 -34757140.18 0.0508 0.0200  
 Mercury -99873-05-19 18:28 J -34757050.86 -34757050.73 -34757050.60 0.0504 0.0273  
 Venus -99873-07-18 22:47 J -34756990.56 -34756990.55 -34756990.52 0.0502 0.0499  
 Mercury -99867-07-20 14:09 J -34754798.06 -34754797.91 -34754797.76 0.0522 0.0057  
 Mercury -99867-10-18 09:06 J -34754708.18 -34754708.12 -34754708.06 0.0525 0.0478  
 Venus -99866-01-10 19:54 J -34754623.87 -34754623.67 -34754623.46 0.0529 0.0113  
 Mars -99863-08-20 05:45 J -34753306.53 -34753306.26 -34753305.99 0.0528 0.0212  
 Mercury -99862-12-09 06:57 J -34752830.32 -34752830.21 -34752830.09 0.0508 0.0314  
 Mercury -99861-03-07 20:37 J -34752740.78 -34752740.64 -34752740.50 0.0505 0.0156  
 Venus -99861-11-15 03:06 J -34752488.42 -34752488.37 -34752488.31 0.0496 0.0476  
 Mercury -99855-05-08 15:21 J -34750488.00 -34750487.86 -34750487.71 0.0521 0.0185  
 Mercury -99855-08-06 10:33 J -34750398.17 -34750398.06 -34750397.94 0.0524 0.0354  
 Mercury -99850-09-27 08:52 J -34748520.20 -34748520.13 -34748520.05 0.0509 0.0434  
 Mercury -99850-12-25 22:18 J -34748430.72 -34748430.57 -34748430.42 0.0506 0.0033  
 Venus -99849-07-21 05:16 J -34748222.48 -34748222.28 -34748222.08 0.0498 0.0098  
 Mercury -99843-02-24 16:04 J -34746177.95 -34746177.83 -34746177.71 0.0520 0.0320  
 Mercury -99843-05-25 11:30 J -34746088.15 -34746088.02 -34746087.88 0.0523 0.0222  
 Mercury -99838-10-14 00:28 J -34744120.62 -34744120.48 -34744120.33 0.0507 0.0084  
 Mercury -99837-01-11 14:52 J -34744030.97 -34744030.88 -34744030.79 0.0503 0.0392  
 Venus -99837-03-26 08:37 J -34743956.31 -34743956.14 -34743955.97 0.0501 0.0280  
 Moon -99834-03-09 12:28 J -34742878.12 -34742877.98 -34742877.84 0.0487 0.0402  
 Earth -99834-03-09 13:40 J -34742878.08 -34742877.93 -34742877.77 0.0487 0.0373 \*  
 Mercury -99832-12-13 15:21 J -34741867.92 -34741867.86 -34741867.79 0.0518 0.0468

Mercury -99831-03-13 11:30 J -34741778.17 -34741778.02 -34741777.87 0.0522 0.0076

Venus -99831-09-18 11:45 J -34741589.21 -34741589.01 -34741588.82 0.0530 0.0152

Mercury -99826-08-02 03:06 J -34739810.50 -34739810.37 -34739810.23 0.0508 0.0195

Mercury -99826-10-30 17:16 J -34739720.91 -34739720.78 -34739720.66 0.0504 0.0280

Moon -99822-03-14 03:49 J -34738490.57 -34738490.34 -34738490.10 0.0488 0.0013

Earth -99822-03-14 04:18 J -34738490.56 -34738490.32 -34738490.07 0.0488 0.0012 \*

Mercury -99820-12-30 12:28 J -34737468.14 -34737467.98 -34737467.83 0.0521 0.0057

Mercury -99819-03-30 07:11 J -34737378.26 -34737378.20 -34737378.14 0.0525 0.0477

Venus -99819-05-24 01:40 J -34737323.59 -34737323.43 -34737323.26 0.0527 0.0313

Mercury -99814-05-21 05:45 J -34735500.37 -34735500.26 -34735500.14 0.0509 0.0306

Mercury -99814-08-18 19:25 J -34735410.83 -34735410.69 -34735410.55 0.0505 0.0165

Venus -99813-03-28 17:16 J -34735187.93 -34735187.78 -34735187.63 0.0497 0.0329

Earth -99810-03-18 17:59 J -34734102.91 -34734102.75 -34734102.57 0.0489 0.0350

Moon -99810-03-18 20:37 J -34734102.80 -34734102.64 -34734102.48 0.0489 0.0377 \*

Mars -99809-04-17 04:04 J -34733707.46 -34733707.33 -34733707.18 0.0499 0.0414

Mercury -99808-10-18 13:25 J -34733158.08 -34733157.94 -34733157.79 0.0521 0.0186

Mercury -99807-01-16 08:52 J -34733068.24 -34733068.13 -34733068.02 0.0524 0.0353

Moon -99805-09-12 11:30 J -34732098.19 -34732098.02 -34732097.84 0.0541 0.0355

Earth -99805-09-12 11:30 J -34732098.17 -34732098.02 -34732097.85 0.0541 0.0373 \*

Mercury -99802-03-09 08:23 J -34731190.23 -34731190.15 -34731190.07 0.0509 0.0418

Mercury -99802-06-06 21:49 J -34731100.74 -34731100.59 -34731100.45 0.0506 0.0050

Venus -99802-12-02 20:37 J -34730921.84 -34730921.64 -34730921.43 0.0499 0.0046

Mercury -99796-08-06 14:37 J -34728848.01 -34728847.89 -34728847.76 0.0520 0.0314

Mercury -99796-11-04 10:18 J -34728758.20 -34728758.07 -34728757.93 0.0523 0.0229

Venus -99795-05-27 09:06 J -34728554.23 -34728554.12 -34728554.01 0.0531 0.0447

Moon -99793-09-17 07:11 J -34727710.41 -34727710.20 -34727709.98 0.0540 0.0063

Earth -99793-09-17 09:06 J -34727710.34 -34727710.12 -34727709.90 0.0540 0.0092 \*

Mercury -99790-03-25 23:30 J -34726790.66 -34726790.52 -34726790.37 0.0507 0.0074

Mercury -99790-06-23 13:40 J -34726701.01 -34726700.93 -34726700.84 0.0503 0.0402

Venus -99790-08-07 22:18 J -34726655.67 -34726655.57 -34726655.47 0.0502 0.0432

Mercury -99784-05-25 15:06 J -34724537.94 -34724537.87 -34724537.79 0.0519 0.0449

Mercury -99784-08-23 11:16 J -34724448.18 -34724448.03 -34724447.88 0.0522 0.0097

Venus -99783-01-29 22:33 J -34724288.77 -34724288.56 -34724288.36 0.0529 0.0025

Moon -99781-09-22 08:09 J -34723322.18 -34723322.16 -34723322.13 0.0539 0.0534

Mercury -99778-01-12 01:54 J -34722480.56 -34722480.42 -34722480.28 0.0508 0.0189

Mercury -99778-04-11 15:49 J -34722390.96 -34722390.84 -34722390.71 0.0504 0.0284

Mars -99773-01-20 08:52 J -34720646.37 -34720646.13 -34720645.89 0.0501 0.0186

Mercury -99772-06-11 11:01 J -34720138.19 -34720138.04 -34720137.88 0.0521 0.0050

Mercury -99772-09-09 05:45 J -34720048.31 -34720048.26 -34720048.20 0.0525 0.0484

Venus -99772-10-04 09:06 J -34720023.18 -34720023.12 -34720023.06 0.0526 0.0502

Mercury -99767-10-31 04:33 J -34718170.43 -34718170.31 -34718170.19 0.0509 0.0300

Mercury -99766-01-28 18:13 J -34718080.88 -34718080.74 -34718080.60 0.0505 0.0171

Venus -99766-08-10 07:11 J -34717887.39 -34717887.20 -34717887.01 0.0498 0.0179

Mercury -99760-03-30 11:45 J -34715828.15 -34715828.01 -34715827.86 0.0520 0.0183

Mercury -99760-06-28 06:57 J -34715738.31 -34715738.21 -34715738.09 0.0524 0.0355

Mercury -99755-08-19 07:11 J -34713860.28 -34713860.20 -34713860.11 0.0510 0.0411

Mercury -99755-11-16 20:37 J -34713770.79 -34713770.64 -34713770.49 0.0506 0.0057

Venus -99754-04-15 10:33 J -34713621.24 -34713621.06 -34713620.87 0.0500 0.0197

Earth -99751-03-08 22:18 J -34712562.69 -34712562.57 -34712562.44 0.0487 0.0412

Moon -99751-03-08 21:49 J -34712562.68 -34712562.59 -34712562.48 0.0487 0.0441 \*

Mercury -99748-01-16 12:42 J -34711518.09 -34711517.97 -34711517.84 0.0520 0.0313

Mercury -99748-04-16 08:23 J -34711428.28 -34711428.15 -34711428.01 0.0523 0.0230

Venus -99748-10-07 14:37 J -34711254.07 -34711253.89 -34711253.70 0.0530 0.0245

Mercury -99743-09-04 23:01 J -34709460.69 -34709460.54 -34709460.40 0.0507 0.0059

Mercury -99743-12-03 13:11 J -34709371.03 -34709370.95 -34709370.86 0.0503 0.0417

Earth -99739-03-13 12:42 J -34708175.21 -34708174.97 -34708174.73 0.0488 0.0052

Moon -99739-03-13 14:52 J -34708175.13 -34708174.88 -34708174.63 0.0488 0.0040 \*

Mercury -99737-11-04 13:40 J -34707208.00 -34707207.93 -34707207.84 0.0519 0.0443

Mercury -99736-02-02 10:04 J -34707118.23 -34707118.08 -34707117.93 0.0522 0.0103

Venus -99736-06-12 05:44 J -34706988.44 -34706988.26 -34706988.07 0.0528 0.0216

Mercury -99731-06-24 00:56 J -34705150.60 -34705150.46 -34705150.32 0.0508 0.0179

Mercury -99731-09-21 14:52 J -34705061.00 -34705060.88 -34705060.76 0.0504 0.0294

Venus -99730-04-17 17:01 J -34704852.91 -34704852.79 -34704852.67 0.0497 0.0397

Moon -99727-03-17 23:59 J -34703787.67 -34703787.50 -34703787.33 0.0489 0.0340

Earth -99727-03-18 03:20 J -34703787.53 -34703787.36 -34703787.16 0.0489 0.0314 \*

Mercury -99725-11-21 11:01 J -34702808.20 -34702808.04 -34702807.89 0.0521 0.0033

Mercury -99724-02-19 05:44 J -34702718.30 -34702718.26 -34702718.22 0.0525 0.0503

Moon -99722-09-12 15:35 J -34701782.97 -34701782.85 -34701782.71 0.0541 0.0432

Earth -99722-09-12 17:16 J -34701782.91 -34701782.78 -34701782.65 0.0541 0.0438 \*

Mercury -99719-04-12 03:20 J -34700840.48 -34700840.36 -34700840.24 0.0509 0.0294

Mercury -99719-07-10 17:01 J -34700750.93 -34700750.79 -34700750.65 0.0505 0.0177

Venus -99719-12-21 20:23 J -34700586.85 -34700586.65 -34700586.44 0.0499 0.0025

Mercury -99713-09-09 10:47 J -34698498.20 -34698498.05 -34698497.91 0.0520 0.0174

Mercury -99713-12-08 05:44 J -34698408.36 -34698408.26 -34698408.15 0.0524 0.0363

Venus -99712-06-15 06:56 J -34698219.25 -34698219.21 -34698219.16 0.0531 0.0514

Earth -99710-09-17 10:47 J -34697395.28 -34697395.05 -34697394.83 0.0541 0.0013

Moon -99710-09-17 13:54 J -34697395.15 -34697394.92 -34697394.69 0.0541 0.0020 \*

Mars -99709-11-13 11:44 J -34696972.30 -34696972.01 -34696971.72 0.0528 0.0067

Mercury -99707-01-29 05:59 J -34696530.34 -34696530.25 -34696530.17 0.0510 0.0406

Mercury -99707-04-28 19:11 J -34696440.84 -34696440.70 -34696440.55 0.0506 0.0063

Venus -99707-08-26 23:44 J -34696320.65 -34696320.51 -34696320.36 0.0502 0.0353

Mercury -99701-06-28 11:16 J -34694188.15 -34694188.03 -34694187.91 0.0519 0.0309

Mercury -99701-09-26 06:56 J -34694098.35 -34694098.21 -34694098.07 0.0523 0.0231

Venus -99700-02-17 20:37 J -34693953.84 -34693953.64 -34693953.44 0.0529 0.0044

Moon -99698-09-22 05:30 J -34693007.37 -34693007.27 -34693007.15 0.0540 0.0470

Earth -99698-09-22 09:35 J -34693007.20 -34693007.10 -34693007.00 0.0540 0.0477 \*

Mercury -99695-02-14 21:35 J -34692130.74 -34692130.60 -34692130.45 0.0507 0.0054

Mercury -99695-05-15 11:59 J -34692041.08 -34692041.00 -34692040.92 0.0504 0.0424

Mercury -99689-04-16 11:59 J -34689878.08 -34689878.00 -34689877.92 0.0519 0.0442

Mercury -99689-07-15 08:08 J -34689788.31 -34689788.16 -34689788.01 0.0522 0.0103



Venus -99689-10-23 11:16 J -34689688.14 -34689688.03 -34689687.89 0.0526 0.0416

Mercury -99684-12-04 00:13 J -34687820.63 -34687820.49 -34687820.35 0.0508 0.0165

Mercury -99683-03-03 14:08 J -34687731.03 -34687730.91 -34687730.79 0.0504 0.0308

Venus -99683-08-29 07:54 J -34687552.34 -34687552.17 -34687551.99 0.0498 0.0255

Mercury -99677-05-03 09:20 J -34685478.26 -34685478.11 -34685477.95 0.0521 0.0029

Mercury -99677-08-01 04:18 J -34685388.35 -34685388.32 -34685388.29 0.0525 0.0508

Mercury -99672-09-22 02:08 J -34683510.53 -34683510.41 -34683510.28 0.0509 0.0285

Mercury -99672-12-20 15:49 J -34683420.98 -34683420.84 -34683420.70 0.0505 0.0185

Venus -99671-05-04 10:04 J -34683286.27 -34683286.08 -34683285.88 0.0500 0.0129

Earth -99668-03-08 07:25 J -34682247.28 -34682247.19 -34682247.10 0.0487 0.0448

Moon -99668-03-08 09:20 J -34682247.17 -34682247.11 -34682247.04 0.0487 0.0469 \*

Mercury -99665-02-20 10:18 J -34681168.22 -34681168.07 -34681167.92 0.0520 0.0157

Mercury -99665-05-20 05:30 J -34681078.37 -34681078.27 -34681078.16 0.0524 0.0380

Venus -99665-10-26 17:30 J -34680918.93 -34680918.77 -34680918.61 0.0530 0.0335

Mercury -99660-07-11 04:32 J -34679200.39 -34679200.31 -34679200.21 0.0510 0.0400

Mercury -99660-10-08 17:59 J -34679110.90 -34679110.75 -34679110.60 0.0506 0.0068

Moon -99656-03-12 18:42 J -34677859.96 -34677859.72 -34677859.49 0.0487 0.0068

Earth -99656-03-12 22:04 J -34677859.82 -34677859.58 -34677859.34 0.0487 0.0085 \*

Mars -99655-07-12 13:11 J -34677373.19 -34677372.95 -34677372.71 0.0499 0.0185

Mercury -99654-12-09 10:04 J -34676858.21 -34676858.08 -34676857.95 0.0519 0.0300

Mercury -99653-03-08 05:44 J -34676768.40 -34676768.26 -34676768.13 0.0523 0.0239

Venus -99653-07-01 04:04 J -34676653.52 -34676653.33 -34676653.13 0.0527 0.0147

Mercury -99648-07-27 20:08 J -34674800.80 -34674800.66 -34674800.51 0.0507 0.0049

Mercury -99648-10-25 10:32 J -34674711.14 -34674711.06 -34674710.98 0.0504 0.0429

Venus -99647-05-06 17:59 J -34674517.80 -34674517.75 -34674517.69 0.0497 0.0476

Earth -99644-03-17 12:28 J -34673472.17 -34673471.98 -34673471.78 0.0488 0.0277

Moon -99644-03-17 16:32 J -34673472.00 -34673471.81 -34673471.62 0.0488 0.0302 \*

Mercury -99642-09-27 10:18 J -34672548.15 -34672548.07 -34672547.98 0.0518 0.0437

Mercury -99642-12-26 06:28 J -34672458.38 -34672458.23 -34672458.08 0.0522 0.0107

Earth -99639-09-11 19:11 J -34671467.76 -34671467.70 -34671467.64 0.0542 0.0517

Moon -99639-09-11 21:49 J -34671467.65 -34671467.59 -34671467.52 0.0542 0.0517 \*  
 Mercury -99636-05-15 22:47 J -34670490.69 -34670490.55 -34670490.41 0.0508 0.0161  
 Mercury -99636-08-13 12:42 J -34670401.09 -34670400.97 -34670400.85 0.0505 0.0313  
 Venus -99635-01-09 21:20 J -34670251.81 -34670251.61 -34670251.41 0.0499 0.0101  
 Mercury -99630-10-14 07:25 J -34668148.34 -34668148.19 -34668148.03 0.0521 0.0027  
 Mercury -99629-01-12 02:23 J -34668058.44 -34668058.40 -34668058.37 0.0525 0.0507  
 Moon -99627-09-16 16:32 J -34667080.03 -34667079.81 -34667079.59 0.0541 0.0076  
 Earth -99627-09-16 20:23 J -34667079.88 -34667079.65 -34667079.43 0.0541 0.0040 \*  
 Mercury -99624-03-04 01:25 J -34666180.57 -34666180.44 -34666180.32 0.0509 0.0273  
 Mercury -99624-06-01 14:52 J -34666091.01 -34666090.88 -34666090.74 0.0505 0.0198  
 Venus -99624-09-15 00:42 J -34665985.64 -34665985.47 -34665985.31 0.0501 0.0277  
 Mars -99619-04-15 16:04 J -34664311.97 -34664311.83 -34664311.67 0.0501 0.0407  
 Mercury -99618-08-02 08:37 J -34663838.29 -34663838.14 -34663837.99 0.0520 0.0154  
 Mercury -99618-10-31 04:04 J -34663748.44 -34663748.33 -34663748.23 0.0524 0.0383  
 Venus -99617-03-08 23:59 J -34663618.70 -34663618.50 -34663618.30 0.0529 0.0138  
 Earth -99615-09-21 18:13 J -34662691.87 -34662691.74 -34662691.60 0.0539 0.0423  
 Moon -99615-09-21 21:49 J -34662691.72 -34662691.59 -34662691.45 0.0539 0.0425 \*  
 Mercury -99613-12-21 03:35 J -34661870.44 -34661870.35 -34661870.26 0.0510 0.0391  
 Mercury -99612-03-20 16:47 J -34661780.95 -34661780.80 -34661780.65 0.0506 0.0076  
 Mercury -99606-05-21 09:20 J -34659528.23 -34659528.11 -34659527.98 0.0519 0.0286  
 Mercury -99606-08-19 05:01 J -34659438.42 -34659438.29 -34659438.15 0.0523 0.0255  
 Venus -99606-11-12 13:54 J -34659353.07 -34659352.92 -34659352.75 0.0526 0.0327  
 Mercury -99601-10-09 05:59 J -34657560.26 -34657560.25 -34657560.23 0.0511 0.0506  
 Mercury -99600-01-06 18:56 J -34657470.85 -34657470.71 -34657470.56 0.0507 0.0042  
 Mercury -99600-04-06 09:06 J -34657381.19 -34657381.12 -34657381.04 0.0504 0.0435  
 Venus -99600-09-17 06:56 J -34657217.36 -34657217.21 -34657217.05 0.0498 0.0321  
 Mercury -99594-03-09 09:20 J -34655218.20 -34655218.11 -34655218.03 0.0518 0.0428  
 Mercury -99594-06-07 05:16 J -34655128.43 -34655128.28 -34655128.13 0.0521 0.0114  
 Mercury -99589-10-25 21:06 J -34653160.76 -34653160.62 -34653160.48 0.0508 0.0159  
 Mercury -99588-01-23 11:01 J -34653071.15 -34653071.04 -34653070.92 0.0505 0.0316

Venus -99588-05-23 10:04 J -34652951.28 -34652951.08 -34652950.88 0.0501 0.0056

Earth -99585-03-07 16:32 J -34651931.83 -34651931.81 -34651931.77 0.0486 0.0483

Mercury -99582-03-26 05:59 J -34650818.41 -34650818.25 -34650818.10 0.0521 0.0021

Mercury -99582-06-24 00:42 J -34650728.50 -34650728.47 -34650728.44 0.0524 0.0509

Venus -99582-11-15 14:52 J -34650584.01 -34650583.88 -34650583.75 0.0530 0.0400

Mercury -99577-08-13 23:44 J -34648850.63 -34648850.51 -34648850.39 0.0509 0.0272

Mercury -99577-11-11 13:25 J -34648761.08 -34648760.94 -34648760.81 0.0506 0.0200

Venus -99576-01-26 12:42 J -34648685.06 -34648684.97 -34648684.87 0.0503 0.0439

Earth -99573-03-12 03:49 J -34647544.57 -34647544.34 -34647544.10 0.0487 0.0135

Moon -99573-03-12 07:54 J -34647544.40 -34647544.17 -34647543.93 0.0487 0.0108 \*

Mercury -99570-01-12 06:42 J -34646508.37 -34646508.22 -34646508.07 0.0520 0.0156

Mercury -99570-04-12 01:54 J -34646418.52 -34646418.42 -34646418.32 0.0524 0.0381

Venus -99570-07-21 04:47 J -34646318.50 -34646318.30 -34646318.09 0.0528 0.0067

Mercury -99565-06-02 02:23 J -34644540.49 -34644540.40 -34644540.30 0.0510 0.0383

Mercury -99565-08-30 15:35 J -34644450.99 -34644450.85 -34644450.70 0.0506 0.0086

Moon -99561-03-16 14:23 J -34643157.11 -34643156.90 -34643156.69 0.0488 0.0246

Earth -99561-03-16 17:59 J -34643156.96 -34643156.75 -34643156.53 0.0488 0.0226 \*

Mercury -99559-10-31 07:40 J -34642198.31 -34642198.18 -34642198.05 0.0519 0.0285

Mercury -99558-01-29 03:20 J -34642108.49 -34642108.36 -34642108.23 0.0523 0.0255

Venus -99558-03-25 19:54 J -34642052.68 -34642052.67 -34642052.65 0.0525 0.0524

Mars -99554-02-08 03:06 J -34640637.57 -34640637.37 -34640637.16 0.0527 0.0368

Mercury -99553-03-21 04:32 J -34640230.33 -34640230.31 -34640230.28 0.0511 0.0500

Mercury -99553-06-18 17:44 J -34640140.91 -34640140.76 -34640140.62 0.0507 0.0038

Mercury -99553-09-16 07:54 J -34640051.24 -34640051.17 -34640051.10 0.0504 0.0439

Venus -99552-01-28 20:08 J -34639916.85 -34639916.66 -34639916.47 0.0499 0.0166

Mercury -99547-08-19 08:08 J -34637888.24 -34637888.16 -34637888.06 0.0518 0.0418

Mercury -99547-11-17 04:32 J -34637798.46 -34637798.31 -34637798.16 0.0522 0.0126

Earth -99544-09-16 00:42 J -34636764.69 -34636764.47 -34636764.25 0.0541 0.0111

Moon -99544-09-16 04:18 J -34636764.53 -34636764.32 -34636764.11 0.0541 0.0144 \*

Mercury -99541-04-06 19:54 J -34635830.81 -34635830.67 -34635830.53 0.0508 0.0153

Mercury -99541-07-05 09:49 J -34635741.21 -34635741.09 -34635740.98 0.0505 0.0320

Venus -99541-10-03 23:01 J -34635650.73 -34635650.54 -34635650.36 0.0501 0.0215

Mercury -99535-09-05 04:32 J -34633488.46 -34633488.31 -34633488.15 0.0520 0.0018

Mercury -99535-12-03 23:16 J -34633398.55 -34633398.53 -34633398.50 0.0524 0.0516

Venus -99534-03-28 21:49 J -34633283.77 -34633283.59 -34633283.40 0.0529 0.0206

Moon -99532-09-20 13:40 J -34632377.11 -34632376.93 -34632376.75 0.0540 0.0327

Earth -99532-09-20 16:32 J -34632376.98 -34632376.81 -34632376.63 0.0540 0.0328 \*

Mercury -99529-01-24 21:49 J -34631520.71 -34631520.59 -34631520.46 0.0509 0.0272

Mercury -99529-04-23 11:30 J -34631431.15 -34631431.02 -34631430.88 0.0506 0.0200

Mercury -99523-06-24 05:01 J -34629178.44 -34629178.29 -34629178.14 0.0519 0.0151

Mercury -99523-09-22 00:13 J -34629088.59 -34629088.49 -34629088.38 0.0523 0.0383

Venus -99523-12-01 11:01 J -34629018.21 -34629018.04 -34629017.86 0.0526 0.0264

Mercury -99518-11-13 00:28 J -34627210.57 -34627210.48 -34627210.38 0.0510 0.0385

Mercury -99517-02-10 13:54 J -34627121.07 -34627120.92 -34627120.78 0.0507 0.0085

Venus -99517-10-06 05:59 J -34626882.37 -34626882.25 -34626882.12 0.0498 0.0390

Mercury -99511-04-12 05:16 J -34624868.40 -34624868.28 -34624868.14 0.0519 0.0289

Mercury -99511-07-11 01:11 J -34624778.58 -34624778.45 -34624778.32 0.0523 0.0251

Mercury -99506-09-01 03:20 J -34622900.39 -34622900.36 -34622900.33 0.0511 0.0495

Mercury -99506-11-29 16:18 J -34622810.97 -34622810.82 -34622810.67 0.0507 0.0030

Mercury -99505-02-27 06:28 J -34622721.29 -34622721.23 -34622721.16 0.0504 0.0446

Venus -99505-06-11 09:35 J -34622616.31 -34622616.10 -34622615.90 0.0500 0.0015

Mars -99501-10-05 13:11 J -34621039.21 -34621038.95 -34621038.69 0.0499 0.0010

Mercury -99499-01-29 06:13 J -34620558.33 -34620558.24 -34620558.15 0.0518 0.0420

Mercury -99499-04-29 02:23 J -34620468.55 -34620468.40 -34620468.25 0.0522 0.0124

Venus -99499-12-04 16:04 J -34620248.90 -34620248.83 -34620248.74 0.0531 0.0485

Mercury -99494-09-17 18:13 J -34618500.87 -34618500.74 -34618500.59 0.0508 0.0150

Mercury -99494-12-16 08:08 J -34618411.27 -34618411.16 -34618411.04 0.0504 0.0324

Venus -99493-02-15 11:16 J -34618350.16 -34618350.03 -34618349.90 0.0502 0.0375

Moon -99490-03-12 06:13 J -34617229.47 -34617229.24 -34617229.00 0.0487 0.0155

Earth -99490-03-12 10:04 J -34617229.31 -34617229.08 -34617228.86 0.0487 0.0182 \*

Mercury -99487-02-15 03:20 J -34616158.51 -34616158.36 -34616158.20 0.0521 0.0017

Mercury -99487-05-15 22:18 J -34616068.57 -34616068.57 -34616068.57 0.0525 0.0524

Venus -99487-08-09 05:59 J -34615983.45 -34615983.25 -34615983.04 0.0528 0.0019

Mercury -99482-07-06 20:37 J -34614190.76 -34614190.64 -34614190.52 0.0509 0.0266

Mercury -99482-10-04 10:04 J -34614101.21 -34614101.08 -34614100.94 0.0505 0.0205

Earth -99478-03-17 00:42 J -34612841.69 -34612841.47 -34612841.24 0.0488 0.0182

Moon -99478-03-17 03:35 J -34612841.57 -34612841.35 -34612841.14 0.0488 0.0200 \*

Mercury -99476-12-04 03:35 J -34611848.50 -34611848.35 -34611848.20 0.0519 0.0146

Mercury -99475-03-03 22:47 J -34611758.65 -34611758.55 -34611758.45 0.0523 0.0389

Venus -99475-04-13 18:13 J -34611717.84 -34611717.74 -34611717.64 0.0525 0.0455

Mercury -99470-04-24 22:32 J -34609880.65 -34609880.56 -34609880.47 0.0510 0.0387

Mercury -99470-07-23 11:59 J -34609791.15 -34609791.00 -34609790.86 0.0507 0.0083

Venus -99469-02-17 17:44 J -34609581.93 -34609581.76 -34609581.58 0.0499 0.0229

Mercury -99464-09-22 03:49 J -34607538.47 -34607538.34 -34607538.21 0.0518 0.0284

Mercury -99464-12-20 23:30 J -34607448.65 -34607448.52 -34607448.38 0.0522 0.0254

Moon -99461-09-14 18:28 J -34606449.93 -34606449.73 -34606449.53 0.0541 0.0247

Earth -99461-09-14 21:35 J -34606449.80 -34606449.60 -34606449.39 0.0541 0.0212 \*

Mercury -99458-02-11 01:11 J -34605570.48 -34605570.45 -34605570.42 0.0511 0.0499

Mercury -99458-05-11 14:08 J -34605481.05 -34605480.91 -34605480.76 0.0508 0.0035

Mercury -99458-08-09 04:18 J -34605391.38 -34605391.32 -34605391.24 0.0504 0.0443

Venus -99458-10-23 20:37 J -34605315.83 -34605315.64 -34605315.44 0.0501 0.0153

Mercury -99452-07-11 03:49 J -34603228.42 -34603228.34 -34603228.25 0.0518 0.0425

Mercury -99452-10-09 00:13 J -34603138.64 -34603138.49 -34603138.34 0.0522 0.0119

Venus -99451-04-16 20:08 J -34602948.83 -34602948.66 -34602948.48 0.0529 0.0274

Earth -99449-09-19 21:35 J -34602061.79 -34602061.60 -34602061.39 0.0541 0.0259

Moon -99449-09-19 23:16 J -34602061.71 -34602061.53 -34602061.33 0.0541 0.0268 \*

Mercury -99446-02-27 16:47 J -34601170.94 -34601170.80 -34601170.66 0.0508 0.0147

Mercury -99446-05-28 06:42 J -34601081.33 -34601081.22 -34601081.11 0.0505 0.0327

Mercury -99440-07-28 01:11 J -34598828.60 -34598828.45 -34598828.29 0.0521 0.0012

Mercury -99440-10-25 20:08 J -34598738.68 -34598738.66 -34598738.64 0.0525 0.0520

Venus -99440-12-20 10:47 J -34598683.24 -34598683.05 -34598682.85 0.0527 0.0190

Mars -99436-07-26 17:01 J -34597369.03 -34597368.79 -34597368.54 0.0530 0.0282

Mercury -99435-12-16 18:56 J -34596860.83 -34596860.71 -34596860.58 0.0509 0.0264

Mercury -99434-03-16 08:23 J -34596771.28 -34596771.15 -34596771.01 0.0505 0.0207

Venus -99434-10-26 03:35 J -34596547.43 -34596547.35 -34596547.26 0.0498 0.0449

Mercury -99428-05-16 02:08 J -34594518.56 -34594518.41 -34594518.26 0.0520 0.0142

Mercury -99428-08-13 21:20 J -34594428.70 -34594428.61 -34594428.51 0.0524 0.0393

Mercury -99423-10-04 21:20 J -34592550.71 -34592550.61 -34592550.52 0.0510 0.0381

Mercury -99422-01-02 10:32 J -34592461.21 -34592461.06 -34592460.92 0.0506 0.0087

Venus -99422-07-01 06:28 J -34592281.43 -34592281.23 -34592281.03 0.0500 0.0069

Mercury -99416-03-04 02:23 J -34590208.53 -34590208.40 -34590208.27 0.0518 0.0280

Mercury -99416-06-01 22:04 J -34590118.71 -34590118.58 -34590118.45 0.0522 0.0258

Mercury -99411-07-23 23:01 J -34588240.56 -34588240.54 -34588240.51 0.0511 0.0503

Mercury -99411-10-21 12:13 J -34588151.14 -34588150.99 -34588150.85 0.0508 0.0038

Mercury -99410-01-19 02:23 J -34588061.47 -34588061.40 -34588061.33 0.0504 0.0440

Venus -99410-03-06 07:40 J -34588015.34 -34588015.18 -34588015.03 0.0503 0.0321

Earth -99407-03-11 15:35 J -34586914.06 -34586913.85 -34586913.63 0.0487 0.0232

Moon -99407-03-11 18:28 J -34586913.94 -34586913.73 -34586913.52 0.0487 0.0201 \*

Mercury -99405-12-21 02:23 J -34585898.49 -34585898.40 -34585898.31 0.0517 0.0419

Mercury -99404-03-20 22:32 J -34585808.71 -34585808.56 -34585808.41 0.0521 0.0122

Venus -99404-08-28 02:08 J -34585648.61 -34585648.41 -34585648.20 0.0527 0.0075

Mercury -99399-08-09 14:23 J -34583841.03 -34583840.90 -34583840.75 0.0509 0.0154

Mercury -99399-11-07 04:18 J -34583751.43 -34583751.32 -34583751.20 0.0505 0.0322

Moon -99395-03-16 00:28 J -34582526.72 -34582526.48 -34582526.24 0.0487 0.0129

Earth -99395-03-16 02:08 J -34582526.65 -34582526.41 -34582526.18 0.0487 0.0116 \*

Mercury -99392-01-06 22:47 J -34581498.70 -34581498.55 -34581498.40 0.0520 0.0018

Mercury -99392-04-06 17:44 J -34581408.79 -34581408.76 -34581408.73 0.0524 0.0512

Venus -99392-05-02 15:06 J -34581383.00 -34581382.87 -34581382.74 0.0525 0.0397

Mercury -99387-05-28 17:16 J -34579530.91 -34579530.78 -34579530.66 0.0509 0.0265

Mercury -99387-08-26 06:42 J -34579441.35 -34579441.22 -34579441.08 0.0506 0.0207

Venus -99386-03-08 16:04 J -34579247.00 -34579246.83 -34579246.67 0.0499 0.0291

Moon -99383-03-20 15:35 J -34578138.93 -34578138.85 -34578138.76 0.0488 0.0452

Earth -99383-03-20 15:49 J -34578138.88 -34578138.84 -34578138.78 0.0488 0.0475 \*

Mars -99382-03-28 04:04 J -34577766.48 -34577766.33 -34577766.18 0.0497 0.0401

Mercury -99381-10-25 23:44 J -34577188.66 -34577188.51 -34577188.36 0.0520 0.0150

Mercury -99380-01-23 18:56 J -34577098.80 -34577098.71 -34577098.60 0.0524 0.0387

Earth -99378-09-15 02:52 J -34576134.57 -34576134.38 -34576134.19 0.0541 0.0280

Moon -99378-09-15 04:47 J -34576134.47 -34576134.30 -34576134.12 0.0541 0.0310 \*

Mercury -99375-03-16 19:25 J -34575220.78 -34575220.69 -34575220.59 0.0510 0.0381

Mercury -99375-06-14 08:37 J -34575131.28 -34575131.14 -34575130.99 0.0506 0.0087

Venus -99375-11-11 18:13 J -34574980.94 -34574980.74 -34574980.54 0.0501 0.0094

Mercury -99369-08-14 00:28 J -34572878.61 -34572878.48 -34572878.35 0.0519 0.0281

Mercury -99369-11-11 20:23 J -34572788.78 -34572788.65 -34572788.52 0.0523 0.0259

Venus -99368-05-05 20:23 J -34572613.80 -34572613.65 -34572613.50 0.0529 0.0351

Moon -99366-09-19 23:59 J -34571746.71 -34571746.50 -34571746.28 0.0540 0.0192

Earth -99366-09-20 00:13 J -34571746.70 -34571746.49 -34571746.28 0.0540 0.0179 \*

Mercury -99363-01-02 21:49 J -34570910.62 -34570910.59 -34570910.56 0.0511 0.0497

Mercury -99363-04-02 10:47 J -34570821.20 -34570821.05 -34570820.90 0.0507 0.0033

Mercury -99363-07-01 00:56 J -34570731.53 -34570731.46 -34570731.39 0.0504 0.0442

Venus -99363-07-17 19:54 J -34570714.72 -34570714.67 -34570714.61 0.0503 0.0484

Mercury -99357-06-02 00:42 J -34568568.56 -34568568.47 -34568568.38 0.0517 0.0417

Mercury -99357-08-30 20:52 J -34568478.78 -34568478.63 -34568478.48 0.0521 0.0125

Venus -99356-01-08 08:52 J -34568348.33 -34568348.13 -34568347.93 0.0526 0.0122

Mercury -99351-01-19 12:28 J -34566511.12 -34566510.98 -34566510.84 0.0509 0.0157

Mercury -99351-04-19 02:08 J -34566421.52 -34566421.41 -34566421.29 0.0505 0.0318

Mars -99347-12-30 07:54 J -34564705.41 -34564705.17 -34564704.93 0.0499 0.0194

Mercury -99345-06-18 21:20 J -34564168.77 -34564168.61 -34564168.46 0.0520 0.0013

Mercury -99345-09-16 16:04 J -34564078.85 -34564078.83 -34564078.80 0.0524 0.0516

Mercury -99340-11-07 14:52 J -34562201.00 -34562200.88 -34562200.76 0.0510 0.0272

Mercury -99339-02-05 04:18 J -34562111.45 -34562111.32 -34562111.18 0.0506 0.0199

Venus -99339-07-20 02:23 J -34561946.59 -34561946.40 -34561946.20 0.0500 0.0122  
 Mercury -99333-04-06 21:06 J -34559858.76 -34559858.62 -34559858.47 0.0519 0.0157  
 Mercury -99333-07-05 16:32 J -34559768.91 -34559768.81 -34559768.70 0.0523 0.0379  
 Mercury -99328-08-26 17:44 J -34557890.86 -34557890.76 -34557890.67 0.0510 0.0383  
 Mercury -99328-11-24 06:56 J -34557801.36 -34557801.21 -34557801.07 0.0507 0.0086  
 Venus -99327-03-25 05:44 J -34557680.43 -34557680.26 -34557680.09 0.0502 0.0260  
 Moon -99324-03-10 14:23 J -34556599.10 -34556598.90 -34556598.69 0.0486 0.0267  
 Earth -99324-03-10 16:18 J -34556599.01 -34556598.82 -34556598.63 0.0486 0.0298 \*  
 Mercury -99321-01-24 21:49 J -34555548.72 -34555548.59 -34555548.46 0.0519 0.0290  
 Mercury -99321-04-23 17:44 J -34555458.89 -34555458.76 -34555458.62 0.0522 0.0250  
 Venus -99321-09-16 00:13 J -34555313.69 -34555313.49 -34555313.29 0.0528 0.0139  
 Mercury -99316-06-14 20:08 J -34553580.69 -34553580.66 -34553580.63 0.0511 0.0497  
 Mercury -99316-09-12 08:52 J -34553491.27 -34553491.13 -34553490.98 0.0507 0.0035  
 Mercury -99316-12-10 23:01 J -34553401.61 -34553401.54 -34553401.47 0.0504 0.0442  
 Earth -99312-03-15 04:47 J -34552211.54 -34552211.30 -34552211.06 0.0487 0.0057  
 Moon -99312-03-15 04:47 J -34552211.53 -34552211.30 -34552211.07 0.0487 0.0065 \*  
 Mercury -99310-11-12 22:32 J -34551238.65 -34551238.56 -34551238.47 0.0518 0.0421  
 Mercury -99309-02-10 18:56 J -34551148.86 -34551148.71 -34551148.56 0.0522 0.0122  
 Venus -99309-05-21 14:52 J -34551048.04 -34551047.88 -34551047.72 0.0526 0.0323  
 Mercury -99304-07-01 11:01 J -34549181.18 -34549181.04 -34549180.90 0.0508 0.0152  
 Mercury -99304-09-29 00:56 J -34549091.58 -34549091.46 -34549091.35 0.0505 0.0321  
 Venus -99303-03-27 12:13 J -34548912.14 -34548911.99 -34548911.84 0.0499 0.0343  
 Earth -99300-03-19 19:40 J -34547823.80 -34547823.68 -34547823.56 0.0488 0.0420  
 Moon -99300-03-19 21:49 J -34547823.73 -34547823.59 -34547823.44 0.0488 0.0392 \*  
 Mercury -99298-11-29 19:40 J -34546838.84 -34546838.68 -34546838.53 0.0520 0.0012  
 Mercury -99297-02-27 14:37 J -34546748.91 -34546748.89 -34546748.87 0.0524 0.0518  
 Moon -99295-09-13 21:35 J -34545819.74 -34545819.60 -34545819.45 0.0541 0.0413  
 Earth -99295-09-13 22:47 J -34545819.71 -34545819.55 -34545819.39 0.0541 0.0386 \*  
 Mercury -99292-04-19 12:42 J -34544871.09 -34544870.97 -34544870.85 0.0510 0.0276  
 Mercury -99292-07-18 02:08 J -34544781.54 -34544781.41 -34544781.27 0.0506 0.0195



Venus -99292-11-30 13:25 J -34544646.14 -34544645.94 -34544645.74 0.0501 0.0046

Mercury -99286-09-17 19:54 J -34542528.82 -34542528.67 -34542528.52 0.0519 0.0150

Mercury -99286-12-16 15:20 J -34542438.96 -34542438.86 -34542438.76 0.0523 0.0384

Venus -99285-05-24 16:32 J -34542278.94 -34542278.81 -34542278.68 0.0529 0.0408

Moon -99283-09-18 17:59 J -34541431.96 -34541431.75 -34541431.53 0.0541 0.0087

Earth -99283-09-18 19:11 J -34541431.92 -34541431.70 -34541431.47 0.0541 0.0069 \*

Mars -99282-10-19 14:52 J -34541036.17 -34541035.88 -34541035.60 0.0530 0.0106

Mercury -99280-02-05 15:06 J -34540560.96 -34540560.87 -34540560.77 0.0511 0.0391

Mercury -99280-05-06 04:18 J -34540471.46 -34540471.32 -34540471.17 0.0507 0.0079

Venus -99280-08-05 15:35 J -34540379.94 -34540379.85 -34540379.75 0.0504 0.0435

Mercury -99274-07-06 19:25 J -34538218.82 -34538218.69 -34538218.56 0.0518 0.0296

Mercury -99274-10-04 15:20 J -34538128.99 -34538128.86 -34538128.72 0.0522 0.0243

Venus -99273-01-28 04:04 J -34538013.53 -34538013.33 -34538013.12 0.0527 0.0073

Earth -99271-09-23 17:30 J -34537043.81 -34537043.77 -34537043.73 0.0540 0.0530

Mercury -99269-11-24 18:13 J -34536250.77 -34536250.74 -34536250.72 0.0512 0.0500

Mercury -99268-02-22 06:56 J -34536161.35 -34536161.21 -34536161.06 0.0508 0.0037

Mercury -99268-05-22 21:06 J -34536071.69 -34536071.62 -34536071.55 0.0504 0.0440

Mercury -99262-04-24 19:54 J -34533908.75 -34533908.67 -34533908.58 0.0518 0.0430

Mercury -99262-07-23 16:18 J -34533818.97 -34533818.82 -34533818.67 0.0521 0.0113

Mercury -99257-12-11 09:20 J -34531851.25 -34531851.11 -34531850.97 0.0508 0.0152

Mercury -99256-03-10 23:01 J -34531761.65 -34531761.54 -34531761.42 0.0505 0.0320

Venus -99256-08-07 23:59 J -34531611.69 -34531611.50 -34531611.31 0.0500 0.0181

Mercury -99250-05-11 17:30 J -34529508.93 -34529508.77 -34529508.62 0.0520 0.0018

Mercury -99250-08-09 12:28 J -34529419.00 -34529418.98 -34529418.95 0.0524 0.0515

Mercury -99245-09-29 11:30 J -34527541.14 -34527541.02 -34527540.90 0.0509 0.0270

Mercury -99245-12-28 00:56 J -34527451.60 -34527451.46 -34527451.32 0.0506 0.0200

Venus -99244-04-13 02:08 J -34527345.59 -34527345.41 -34527345.22 0.0502 0.0207

Earth -99241-03-09 19:40 J -34526283.84 -34526283.68 -34526283.51 0.0486 0.0353

Moon -99241-03-09 19:54 J -34526283.84 -34526283.67 -34526283.49 0.0486 0.0325 \*

Mercury -99238-02-27 18:13 J -34525198.89 -34525198.74 -34525198.59 0.0519 0.0149

Mercury -99238-05-28 13:25 J -34525109.03 -34525108.94 -34525108.83 0.0523 0.0386

Venus -99238-10-05 23:01 J -34524978.73 -34524978.54 -34524978.36 0.0528 0.0209

Mercury -99233-07-18 13:11 J -34523231.04 -34523230.95 -34523230.86 0.0511 0.0394

Mercury -99233-10-16 02:23 J -34523141.55 -34523141.40 -34523141.25 0.0507 0.0074

Earth -99229-03-14 08:37 J -34521896.39 -34521896.14 -34521895.90 0.0487 0.0008

Moon -99229-03-14 10:18 J -34521896.32 -34521896.07 -34521895.82 0.0487 0.0003 \*

Mars -99228-06-20 19:25 J -34521432.92 -34521432.69 -34521432.46 0.0497 0.0227

Mercury -99227-12-16 18:13 J -34520888.87 -34520888.74 -34520888.61 0.0518 0.0288

Mercury -99226-03-16 14:08 J -34520799.04 -34520798.91 -34520798.77 0.0522 0.0250

Venus -99226-06-10 11:44 J -34520713.18 -34520713.01 -34520712.83 0.0525 0.0263

Mercury -99221-05-06 15:49 J -34518920.85 -34518920.84 -34518920.83 0.0512 0.0507

Mercury -99221-08-04 04:32 J -34518831.45 -34518831.31 -34518831.16 0.0508 0.0046

Mercury -99221-11-01 18:42 J -34518741.79 -34518741.72 -34518741.64 0.0505 0.0433

Venus -99220-04-15 08:08 J -34518577.28 -34518577.16 -34518577.04 0.0499 0.0394

Moon -99217-03-18 16:04 J -34517509.00 -34517508.83 -34517508.65 0.0487 0.0320

Earth -99217-03-18 19:25 J -34517508.86 -34517508.69 -34517508.52 0.0487 0.0350 \*

Mercury -99215-10-04 17:30 J -34516578.85 -34516578.77 -34516578.68 0.0517 0.0436

Mercury -99214-01-02 14:08 J -34516489.07 -34516488.91 -34516488.76 0.0521 0.0107

Moon -99212-09-12 22:18 J -34515504.65 -34515504.57 -34515504.48 0.0542 0.0497

Earth -99212-09-12 22:47 J -34515504.65 -34515504.55 -34515504.44 0.0542 0.0473 \*

Mercury -99209-05-23 07:25 J -34514521.33 -34514521.19 -34514521.05 0.0509 0.0154

Mercury -99209-08-20 21:06 J -34514431.73 -34514431.62 -34514431.50 0.0505 0.0319

Venus -99209-12-19 11:44 J -34514311.21 -34514311.01 -34514310.81 0.0501 0.0017

Mercury -99203-10-21 14:52 J -34512179.03 -34512178.88 -34512178.72 0.0520 0.0025

Mercury -99202-01-19 10:04 J -34512089.12 -34512089.08 -34512089.05 0.0524 0.0506

Venus -99202-06-13 13:11 J -34511944.03 -34511943.95 -34511943.85 0.0530 0.0469

Earth -99200-09-17 23:30 J -34511116.75 -34511116.52 -34511116.30 0.0541 0.0010

Moon -99200-09-18 02:08 J -34511116.64 -34511116.41 -34511116.18 0.0541 0.0029 \*

Mercury -99197-03-11 09:49 J -34510211.21 -34510211.09 -34510210.97 0.0510 0.0269

Mercury -99197-06-08 23:16 J -34510121.67 -34510121.53 -34510121.40 0.0506 0.0201

Venus -99197-08-24 13:54 J -34510045.05 -34510044.92 -34510044.78 0.0503 0.0372  
 Mars -99192-03-24 16:32 J -34508371.99 -34508371.81 -34508371.62 0.0500 0.0348  
 Mercury -99191-08-09 15:49 J -34507868.99 -34507868.84 -34507868.69 0.0519 0.0155  
 Mercury -99191-11-07 11:30 J -34507779.13 -34507779.02 -34507778.92 0.0523 0.0381  
 Venus -99190-02-16 04:04 J -34507678.53 -34507678.33 -34507678.12 0.0527 0.0010  
 Moon -99188-09-22 17:44 J -34506728.86 -34506728.76 -34506728.66 0.0540 0.0478  
 Earth -99188-09-22 21:35 J -34506728.72 -34506728.60 -34506728.48 0.0540 0.0457 \*  
 Mercury -99186-12-29 12:13 J -34505901.08 -34505900.99 -34505900.90 0.0510 0.0385  
 Mercury -99185-03-28 01:11 J -34505811.59 -34505811.45 -34505811.30 0.0507 0.0082  
 Mercury -99179-05-28 16:32 J -34503558.94 -34503558.81 -34503558.68 0.0518 0.0286  
 Mercury -99179-08-26 12:28 J -34503469.11 -34503468.98 -34503468.84 0.0522 0.0253  
 Venus -99179-10-21 18:28 J -34503412.82 -34503412.73 -34503412.63 0.0524 0.0459  
 Mercury -99174-10-17 13:54 J -34501590.93 -34501590.92 -34501590.90 0.0512 0.0508  
 Mercury -99173-01-15 02:52 J -34501501.53 -34501501.38 -34501501.24 0.0508 0.0045  
 Mercury -99173-04-13 16:47 J -34501411.87 -34501411.80 -34501411.72 0.0505 0.0431  
 Venus -99173-08-26 19:40 J -34501276.86 -34501276.68 -34501276.50 0.0500 0.0230  
 Mercury -99167-03-16 16:32 J -34499248.89 -34499248.81 -34499248.72 0.0517 0.0425  
 Mercury -99167-06-14 12:56 J -34499159.11 -34499158.96 -34499158.81 0.0521 0.0117  
 Mercury -99162-11-03 05:01 J -34497191.42 -34497191.29 -34497191.15 0.0509 0.0161  
 Mercury -99161-01-31 18:56 J -34497101.83 -34497101.71 -34497101.60 0.0506 0.0313  
 Venus -99161-05-01 22:18 J -34497010.76 -34497010.57 -34497010.38 0.0502 0.0155  
 Earth -99158-03-09 20:52 J -34495968.75 -34495968.63 -34495968.50 0.0486 0.0413  
 Moon -99158-03-09 22:18 J -34495968.72 -34495968.57 -34495968.42 0.0486 0.0384 \*  
 Mercury -99155-04-02 12:42 J -34494849.13 -34494848.97 -34494848.82 0.0520 0.0030  
 Mercury -99155-07-01 07:40 J -34494759.21 -34494759.18 -34494759.13 0.0524 0.0501  
 Venus -99155-10-24 17:59 J -34494643.93 -34494643.75 -34494643.57 0.0528 0.0258  
 Mercury -99150-08-22 07:54 J -34492881.29 -34492881.17 -34492881.04 0.0510 0.0271  
 Mercury -99150-11-19 21:20 J -34492791.74 -34492791.61 -34492791.47 0.0506 0.0200  
 Moon -99146-03-14 07:11 J -34491581.44 -34491581.20 -34491580.97 0.0486 0.0069  
 Earth -99146-03-14 10:04 J -34491581.32 -34491581.08 -34491580.84 0.0486 0.0061 \*

Mercury -99143-01-19 13:25 J -34490539.09 -34490538.94 -34490538.79 0.0519 0.0163

Mercury -99143-04-19 08:52 J -34490449.23 -34490449.13 -34490449.02 0.0523 0.0373

Venus -99143-06-29 08:23 J -34490378.34 -34490378.15 -34490377.96 0.0526 0.0208

Mercury -99138-06-10 10:32 J -34488571.15 -34488571.06 -34488570.96 0.0511 0.0383

Mercury -99138-09-07 23:30 J -34488481.66 -34488481.52 -34488481.37 0.0507 0.0085

Venus -99137-05-04 06:42 J -34488242.29 -34488242.22 -34488242.14 0.0498 0.0458

Earth -99134-03-18 22:47 J -34487193.74 -34487193.55 -34487193.35 0.0487 0.0294

Moon -99134-03-19 02:52 J -34487193.58 -34487193.38 -34487193.17 0.0487 0.0265 \*

Mercury -99132-11-07 14:08 J -34486229.03 -34486228.91 -34486228.78 0.0518 0.0293

Mercury -99131-02-05 10:18 J -34486139.20 -34486139.07 -34486138.94 0.0522 0.0248

Earth -99129-09-12 03:49 J -34485189.35 -34485189.34 -34485189.32 0.0542 0.0540

Mars -99127-01-12 16:47 J -34484702.08 -34484701.80 -34484701.52 0.0529 0.0156

Mercury -99126-03-29 13:11 J -34484260.98 -34484260.95 -34484260.92 0.0511 0.0498

Mercury -99126-06-27 01:54 J -34484171.57 -34484171.42 -34484171.28 0.0508 0.0037

Mercury -99126-09-24 15:49 J -34484081.91 -34484081.84 -34484081.77 0.0504 0.0440

Venus -99125-01-08 09:20 J -34483976.31 -34483976.11 -34483975.91 0.0500 0.0076

Mercury -99120-08-26 14:52 J -34481918.96 -34481918.88 -34481918.79 0.0517 0.0423

Mercury -99120-11-24 11:30 J -34481829.17 -34481829.02 -34481828.87 0.0521 0.0120

Moon -99117-09-16 20:23 J -34480801.87 -34480801.65 -34480801.43 0.0541 0.0059

Earth -99117-09-16 23:59 J -34480801.72 -34480801.50 -34480801.28 0.0541 0.0089 \*

Mercury -99114-04-15 03:35 J -34479861.49 -34479861.35 -34479861.22 0.0509 0.0160

Mercury -99114-07-13 17:01 J -34479771.90 -34479771.79 -34479771.67 0.0505 0.0314

Venus -99114-09-13 10:04 J -34479710.23 -34479710.08 -34479709.92 0.0503 0.0321

Mercury -99108-09-12 11:59 J -34477519.16 -34477519.00 -34477518.85 0.0520 0.0020

Mercury -99108-12-11 06:56 J -34477429.23 -34477429.21 -34477429.18 0.0524 0.0513

Venus -99107-03-07 02:37 J -34477343.59 -34477343.39 -34477343.18 0.0527 0.0072

Earth -99105-09-21 19:54 J -34476413.83 -34476413.67 -34476413.50 0.0540 0.0362

Moon -99105-09-21 23:59 J -34476413.66 -34476413.50 -34476413.35 0.0540 0.0382 \*

Mercury -99102-02-01 05:59 J -34475551.37 -34475551.25 -34475551.13 0.0510 0.0275

Mercury -99102-05-01 19:11 J -34475461.83 -34475461.70 -34475461.56 0.0506 0.0196

Mercury -99096-07-01 11:16 J -34473209.18 -34473209.03 -34473208.88 0.0519 0.0165  
 Mercury -99096-09-29 06:56 J -34473119.32 -34473119.21 -34473119.10 0.0523 0.0370  
 Venus -99096-11-09 13:40 J -34473078.05 -34473077.93 -34473077.80 0.0524 0.0410  
 Mercury -99091-11-20 08:52 J -34471241.22 -34471241.13 -34471241.04 0.0511 0.0383  
 Mercury -99090-02-17 22:04 J -34471151.73 -34471151.58 -34471151.44 0.0507 0.0085  
 Venus -99090-09-15 19:25 J -34470941.85 -34470941.69 -34470941.53 0.0499 0.0299  
 Mercury -99084-04-19 11:59 J -34468899.13 -34468899.00 -34468898.87 0.0518 0.0298  
 Mercury -99084-07-18 07:54 J -34468809.30 -34468809.17 -34468809.03 0.0522 0.0242  
 Mercury -99079-09-08 11:30 J -34466931.05 -34466931.02 -34466930.98 0.0512 0.0495  
 Mercury -99079-12-07 00:13 J -34466841.63 -34466841.49 -34466841.34 0.0508 0.0035  
 Mercury -99078-03-06 14:23 J -34466751.97 -34466751.90 -34466751.83 0.0504 0.0443  
 Venus -99078-05-21 22:04 J -34466675.78 -34466675.58 -34466675.38 0.0502 0.0084  
 Moon -99075-03-08 23:30 J -34465653.62 -34465653.52 -34465653.42 0.0486 0.0439  
 Earth -99075-03-09 01:54 J -34465653.48 -34465653.42 -34465653.34 0.0486 0.0463 \*  
 Mars -99074-09-14 07:40 J -34465099.44 -34465099.18 -34465098.92 0.0498 0.0062  
 Mercury -99072-02-05 12:42 J -34464589.06 -34464588.97 -34464588.88 0.0517 0.0428  
 Mercury -99072-05-06 09:20 J -34464499.26 -34464499.11 -34464498.96 0.0521 0.0115  
 Venus -99072-11-12 19:11 J -34464308.86 -34464308.70 -34464308.55 0.0529 0.0341  
 Mercury -99067-09-25 02:37 J -34462531.53 -34462531.39 -34462531.25 0.0509 0.0148  
 Mercury -99067-12-23 16:18 J -34462441.93 -34462441.82 -34462441.71 0.0505 0.0324  
 Venus -99066-01-25 00:13 J -34462409.55 -34462409.49 -34462409.42 0.0504 0.0475  
 Earth -99063-03-13 15:20 J -34461266.09 -34461265.86 -34461265.62 0.0487 0.0110  
 Moon -99063-03-13 19:11 J -34461265.93 -34461265.70 -34461265.46 0.0487 0.0126 \*  
 Mercury -99060-02-22 10:18 J -34460189.22 -34460189.07 -34460188.91 0.0520 0.0015  
 Mercury -99060-05-23 05:30 J -34460099.29 -34460099.27 -34460099.25 0.0524 0.0517  
 Venus -99060-07-18 09:49 J -34460043.29 -34460043.09 -34460042.89 0.0526 0.0124  
 Mercury -99055-07-14 04:32 J -34458221.43 -34458221.31 -34458221.19 0.0510 0.0270  
 Mercury -99055-10-11 17:44 J -34458131.89 -34458131.76 -34458131.62 0.0506 0.0200  
 Moon -99051-03-18 00:42 J -34456878.69 -34456878.47 -34456878.25 0.0487 0.0214  
 Earth -99051-03-18 04:47 J -34456878.51 -34456878.30 -34456878.09 0.0487 0.0246 \*

Mercury -99049-12-11 10:47 J -34455879.20 -34455879.05 -34455878.90 0.0519 0.0149

Mercury -99048-03-11 06:13 J -34455789.33 -34455789.24 -34455789.13 0.0523 0.0386

Mercury -99043-05-02 06:56 J -34453911.30 -34453911.21 -34453911.11 0.0511 0.0385

Mercury -99043-07-30 20:08 J -34453821.81 -34453821.66 -34453821.52 0.0507 0.0083

Venus -99042-01-27 06:56 J -34453641.41 -34453641.21 -34453641.02 0.0501 0.0134

Mercury -99037-09-29 10:04 J -34451569.21 -34451569.08 -34451568.95 0.0518 0.0297

Mercury -99037-12-28 06:13 J -34451479.38 -34451479.24 -34451479.11 0.0522 0.0241

Earth -99034-09-17 00:42 J -34450486.68 -34450486.47 -34450486.26 0.0542 0.0170

Moon -99034-09-17 04:32 J -34450486.53 -34450486.31 -34450486.09 0.0542 0.0134 \*

Mercury -99031-02-18 10:04 J -34449601.12 -34449601.08 -34449601.05 0.0512 0.0493

Mercury -99031-05-18 22:47 J -34449511.70 -34449511.55 -34449511.40 0.0508 0.0029

Mercury -99031-08-16 12:42 J -34449422.03 -34449421.97 -34449421.90 0.0505 0.0446

Venus -99031-10-02 10:32 J -34449375.23 -34449375.06 -34449374.88 0.0503 0.0247

Mercury -99025-07-18 10:32 J -34447259.14 -34447259.06 -34447258.97 0.0517 0.0431

Mercury -99025-10-16 07:11 J -34447169.35 -34447169.20 -34447169.05 0.0521 0.0111

Venus -99024-03-25 23:44 J -34447008.70 -34447008.51 -34447008.31 0.0527 0.0133

Moon -99022-09-21 21:49 J -34446098.77 -34446098.59 -34446098.40 0.0541 0.0315

Earth -99022-09-22 01:25 J -34446098.63 -34446098.44 -34446098.25 0.0541 0.0300 \*

Mercury -99019-03-07 01:25 J -34445201.58 -34445201.44 -34445201.30 0.0509 0.0143

Mercury -99019-06-04 14:52 J -34445111.99 -34445111.88 -34445111.76 0.0505 0.0330

Mercury -99013-08-04 08:08 J -34442859.31 -34442859.16 -34442859.00 0.0520 0.0020

Mercury -99013-11-02 03:20 J -34442769.38 -34442769.36 -34442769.33 0.0524 0.0515

Venus -99013-11-28 15:06 J -34442743.02 -34442742.87 -34442742.70 0.0525 0.0327

Mars -99009-06-30 15:49 J -34441432.96 -34441432.84 -34441432.72 0.0532 0.0478

Mercury -99008-12-24 03:49 J -34440891.47 -34440891.34 -34440891.22 0.0510 0.0257

Mercury -99007-03-23 17:01 J -34440801.92 -34440801.79 -34440801.65 0.0506 0.0213

Venus -99007-10-04 18:42 J -34440606.86 -34440606.72 -34440606.59 0.0499 0.0367

Mercury -99001-05-23 09:20 J -34438549.26 -34438549.11 -34438548.96 0.0519 0.0145

Mercury -99001-08-21 05:01 J -34438459.39 -34438459.29 -34438459.19 0.0523 0.0390

# 99TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 99th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-98996-10-12 05:44 J	-34436581.35	-34436581.26	-34436581.16	0.0511	0.0378		
Mercury	-98995-01-09 18:42 J	-34436491.86	-34436491.72	-34436491.57	0.0507	0.0089		
Venus	-98995-06-09 19:54 J	-34436340.87	-34436340.67	-34436340.47	0.0501	0.0025		
Moon	-98992-03-08 13:11 J	-34435337.97	-34435337.95	-34435337.93	0.0486	0.0484		
Mercury	-98989-03-11 09:35 J	-34434239.23	-34434239.10	-34434238.96	0.0518	0.0280		
Mercury	-98989-06-09 05:44 J	-34434149.39	-34434149.26	-34434149.12	0.0522	0.0259		
Venus	-98989-12-01 19:40 J	-34433973.80	-34433973.68	-34433973.55	0.0529	0.0420		
Mercury	-98984-07-31 08:23 J	-34432271.19	-34432271.15	-34432271.11	0.0512	0.0492		
Mercury	-98984-10-28 21:06 J	-34432181.77	-34432181.62	-34432181.47	0.0508	0.0028		
Mercury	-98983-01-26 11:01 J	-34432092.10	-34432092.04	-34432091.97	0.0505	0.0447		
Venus	-98983-02-12 22:18 J	-34432074.68	-34432074.57	-34432074.45	0.0504	0.0414		
Moon	-98980-03-12 17:30 J	-34430951.00	-34430950.77	-34430950.54	0.0486	0.0174		
Earth	-98980-03-12 21:35 J	-34430950.83	-34430950.60	-34430950.37	0.0486	0.0153	*	
Mercury	-98978-12-29 08:52 J	-34429929.21	-34429929.13	-34429929.04	0.0517	0.0428		
Mercury	-98977-03-28 05:30 J	-34429839.42	-34429839.27	-34429839.12	0.0521	0.0114		
Venus	-98977-08-06 06:13 J	-34429708.45	-34429708.24	-34429708.04	0.0526	0.0067		
Mars	-98973-04-07 13:40 J	-34428368.12	-34428367.93	-34428367.75	0.0530	0.0407		
Mercury	-98972-08-16 23:59 J	-34427871.65	-34427871.50	-34427871.36	0.0509	0.0140		
Mercury	-98972-11-14 13:25 J	-34427782.04	-34427781.94	-34427781.82	0.0506	0.0335		

Earth -98968-03-17 11:01 J -34426563.26 -34426563.04 -34426562.81 0.0487 0.0202  
 Moon -98968-03-17 14:37 J -34426563.11 -34426562.89 -34426562.67 0.0487 0.0175 \*  
 Mercury -98965-01-15 06:13 J -34425529.39 -34425529.24 -34425529.08 0.0520 0.0019  
 Mercury -98965-04-14 01:25 J -34425439.46 -34425439.44 -34425439.41 0.0524 0.0512  
 Mercury -98960-06-05 02:37 J -34423561.52 -34423561.39 -34423561.27 0.0510 0.0251  
 Mercury -98960-09-02 15:49 J -34423471.97 -34423471.84 -34423471.70 0.0506 0.0219  
 Venus -98959-02-15 07:54 J -34423306.35 -34423306.17 -34423305.98 0.0500 0.0214  
 Mars -98955-03-06 05:01 J -34421826.39 -34421826.29 -34421826.18 0.0496 0.0451  
 Mercury -98954-11-03 07:11 J -34421219.35 -34421219.20 -34421219.05 0.0519 0.0147  
 Mercury -98953-02-01 02:52 J -34421129.47 -34421129.38 -34421129.27 0.0523 0.0389  
 Moon -98951-09-16 06:13 J -34420171.45 -34420171.24 -34420171.02 0.0542 0.0187  
 Earth -98951-09-16 10:04 J -34420171.29 -34420171.08 -34420170.88 0.0542 0.0221 \*  
 Mercury -98948-03-24 05:16 J -34419251.38 -34419251.28 -34419251.18 0.0511 0.0364  
 Mercury -98948-06-21 18:13 J -34419161.89 -34419161.74 -34419161.60 0.0507 0.0103  
 Venus -98948-10-21 10:47 J -34419040.23 -34419040.05 -34419039.86 0.0502 0.0174  
 Mercury -98942-08-22 08:08 J -34416909.29 -34416909.16 -34416909.02 0.0518 0.0275  
 Mercury -98942-11-20 04:18 J -34416819.45 -34416819.32 -34416819.18 0.0522 0.0265  
 Venus -98941-04-14 03:06 J -34416673.56 -34416673.37 -34416673.19 0.0528 0.0226  
 Earth -98939-09-21 07:54 J -34415783.37 -34415783.17 -34415782.97 0.0541 0.0238  
 Moon -98939-09-21 10:18 J -34415783.26 -34415783.07 -34415782.87 0.0541 0.0248 \*  
 Mercury -98936-01-10 07:25 J -34414941.24 -34414941.19 -34414941.15 0.0512 0.0483  
 Mercury -98936-04-09 19:54 J -34414851.81 -34414851.67 -34414851.52 0.0508 0.0025  
 Mercury -98936-07-08 09:49 J -34414762.15 -34414762.09 -34414762.02 0.0505 0.0454  
 Mercury -98930-06-10 08:37 J -34412599.23 -34412599.14 -34412599.04 0.0517 0.0409  
 Mercury -98930-09-08 05:16 J -34412509.43 -34412509.28 -34412509.13 0.0521 0.0132  
 Venus -98930-12-18 16:47 J -34412407.98 -34412407.80 -34412407.61 0.0525 0.0243  
 Mercury -98924-01-26 22:18 J -34410541.71 -34410541.57 -34410541.42 0.0509 0.0137  
 Mercury -98924-04-26 11:59 J -34410452.11 -34410452.00 -34410451.89 0.0506 0.0337  
 Venus -98924-10-23 17:30 J -34410271.86 -34410271.77 -34410271.67 0.0499 0.0433  
 Mars -98920-12-08 08:52 J -34408765.38 -34408765.13 -34408764.88 0.0497 0.0145



Mercury -98918-06-27 04:47 J -34408199.45 -34408199.30 -34408199.14 0.0520 0.0016

Mercury -98918-09-24 23:59 J -34408109.52 -34408109.50 -34408109.47 0.0523 0.0517

Mercury -98913-11-15 01:11 J -34406231.58 -34406231.45 -34406231.32 0.0510 0.0246

Mercury -98912-02-12 14:37 J -34406142.03 -34406141.89 -34406141.76 0.0507 0.0225

Venus -98912-06-28 21:20 J -34406005.81 -34406005.61 -34406005.41 0.0502 0.0056

Mercury -98906-04-15 05:30 J -34403889.42 -34403889.27 -34403889.12 0.0519 0.0145

Mercury -98906-07-14 01:11 J -34403799.55 -34403799.45 -34403799.35 0.0522 0.0389

Venus -98906-12-21 17:30 J -34403638.85 -34403638.77 -34403638.69 0.0529 0.0486

Mercury -98901-09-03 03:49 J -34401921.44 -34401921.34 -34401921.23 0.0511 0.0358

Mercury -98901-12-01 17:01 J -34401831.94 -34401831.79 -34401831.65 0.0507 0.0110

Venus -98900-03-03 23:59 J -34401739.64 -34401739.50 -34401739.34 0.0504 0.0332

Earth -98897-03-12 05:44 J -34400635.48 -34400635.26 -34400635.03 0.0486 0.0193

Moon -98897-03-12 09:06 J -34400635.32 -34400635.12 -34400634.90 0.0486 0.0217 \*

Mercury -98894-02-01 06:13 J -34399579.37 -34399579.24 -34399579.10 0.0518 0.0276

Mercury -98894-05-02 02:23 J -34399489.53 -34399489.40 -34399489.26 0.0522 0.0264

Venus -98894-08-26 08:37 J -34399373.35 -34399373.14 -34399372.93 0.0527 0.0023

Mercury -98889-06-22 06:42 J -34397611.27 -34397611.22 -34397611.16 0.0512 0.0468

Mercury -98889-09-19 19:25 J -34397521.84 -34397521.69 -34397521.54 0.0508 0.0005

Mercury -98889-12-18 09:20 J -34397432.16 -34397432.11 -34397432.06 0.0505 0.0469

Moon -98885-03-16 17:01 J -34396248.03 -34396247.79 -34396247.55 0.0487 0.0136

Earth -98885-03-16 19:25 J -34396247.92 -34396247.69 -34396247.46 0.0487 0.0161 \*

Mercury -98883-11-20 07:11 J -34395269.29 -34395269.20 -34395269.10 0.0517 0.0404

Mercury -98882-02-18 03:49 J -34395179.49 -34395179.34 -34395179.19 0.0521 0.0138

Venus -98882-05-01 00:28 J -34395107.59 -34395107.48 -34395107.37 0.0524 0.0434

Mercury -98877-07-08 21:20 J -34393211.75 -34393211.61 -34393211.47 0.0509 0.0126

Mercury -98877-10-06 11:01 J -34393122.15 -34393122.04 -34393121.93 0.0505 0.0346

Venus -98876-03-06 07:11 J -34392971.36 -34392971.20 -34392971.03 0.0500 0.0280

Mercury -98871-12-07 04:32 J -34390869.46 -34390869.31 -34390869.15 0.0520 0.0015

Earth -98868-09-15 14:23 J -34389856.08 -34389855.90 -34389855.70 0.0542 0.0289

Moon -98868-09-15 17:16 J -34389855.97 -34389855.78 -34389855.58 0.0542 0.0255 \*

Mercury -98865-04-26 23:59 J -34388901.63 -34388901.50 -34388901.38 0.0510 0.0242  
 Mercury -98865-07-25 13:11 J -34388812.08 -34388811.95 -34388811.82 0.0507 0.0229  
 Venus -98865-11-09 10:18 J -34388705.27 -34388705.07 -34388704.88 0.0502 0.0106  
 Mercury -98859-09-25 04:18 J -34386559.47 -34386559.32 -34386559.17 0.0518 0.0138  
 Mercury -98859-12-23 23:59 J -34386469.60 -34386469.50 -34386469.41 0.0522 0.0395  
 Venus -98858-05-04 00:42 J -34386338.64 -34386338.47 -34386338.30 0.0528 0.0291  
 Moon -98856-09-20 08:08 J -34385468.38 -34385468.16 -34385467.93 0.0542 0.0161  
 Earth -98856-09-20 09:20 J -34385468.32 -34385468.11 -34385467.89 0.0542 0.0159 \*  
 Mars -98855-09-24 18:42 J -34385098.99 -34385098.72 -34385098.46 0.0532 0.0208  
 Mercury -98853-02-14 02:37 J -34384591.49 -34384591.39 -34384591.29 0.0511 0.0353  
 Mercury -98853-05-13 15:35 J -34384501.99 -34384501.85 -34384501.70 0.0508 0.0116  
 Venus -98853-07-15 12:56 J -34384439.00 -34384438.96 -34384438.92 0.0505 0.0493  
 Mercury -98847-07-14 04:47 J -34382249.43 -34382249.30 -34382249.17 0.0518 0.0271  
 Mercury -98847-10-12 00:56 J -34382159.59 -34382159.46 -34382159.33 0.0521 0.0266  
 Venus -98846-01-06 14:52 J -34382073.07 -34382072.88 -34382072.68 0.0525 0.0176  
 Mercury -98842-12-03 05:30 J -34380281.33 -34380281.27 -34380281.21 0.0512 0.0462  
 Mercury -98841-03-01 18:13 J -34380191.89 -34380191.74 -34380191.59 0.0508 0.0002  
 Mercury -98841-05-30 08:08 J -34380102.20 -34380102.16 -34380102.11 0.0505 0.0477  
 Mercury -98835-05-02 05:16 J -34377939.37 -34377939.28 -34377939.18 0.0517 0.0403  
 Mercury -98835-07-31 01:54 J -34377849.56 -34377849.42 -34377849.27 0.0521 0.0139  
 Mercury -98830-12-19 20:52 J -34375881.78 -34375881.63 -34375881.49 0.0509 0.0112  
 Mercury -98829-03-18 10:18 J -34375792.17 -34375792.07 -34375791.96 0.0506 0.0361  
 Venus -98829-07-17 22:18 J -34375670.76 -34375670.57 -34375670.37 0.0501 0.0134  
 Mercury -98823-05-19 03:20 J -34373539.52 -34373539.36 -34373539.21 0.0520 0.0018  
 Mercury -98818-10-07 22:47 J -34371571.67 -34371571.55 -34371571.42 0.0510 0.0232  
 Mercury -98817-01-05 12:13 J -34371482.12 -34371481.99 -34371481.86 0.0506 0.0238  
 Venus -98817-03-22 23:44 J -34371404.68 -34371404.51 -34371404.34 0.0503 0.0262  
 Moon -98814-03-12 12:42 J -34370320.18 -34370319.97 -34370319.75 0.0486 0.0253  
 Earth -98814-03-12 15:06 J -34370320.08 -34370319.87 -34370319.65 0.0486 0.0228 \*  
 Mercury -98811-03-07 04:04 J -34369229.49 -34369229.33 -34369229.18 0.0519 0.0120

Mercury -98811-06-04 23:30 J -34369139.60 -34369139.52 -34369139.42 0.0523 0.0415

Venus -98811-09-14 11:16 J -34369038.23 -34369038.03 -34369037.82 0.0527 0.0115

Mercury -98806-07-27 01:25 J -34367261.54 -34367261.44 -34367261.33 0.0511 0.0346

Mercury -98806-10-24 14:23 J -34367172.04 -34367171.90 -34367171.75 0.0507 0.0122

Earth -98802-03-17 04:47 J -34365932.53 -34365932.30 -34365932.07 0.0486 0.0129

Moon -98802-03-17 05:16 J -34365932.51 -34365932.28 -34365932.05 0.0486 0.0113 \*

Mars -98801-05-30 12:42 J -34365492.20 -34365491.97 -34365491.73 0.0496 0.0222

Mercury -98800-12-24 03:35 J -34364919.49 -34364919.35 -34364919.22 0.0517 0.0262

Mercury -98799-03-23 23:44 J -34364829.64 -34364829.51 -34364829.38 0.0521 0.0274

Venus -98799-05-19 22:47 J -34364772.69 -34364772.55 -34364772.40 0.0524 0.0364

Mercury -98794-05-15 04:04 J -34362951.39 -34362951.33 -34362951.27 0.0513 0.0458

Mercury -98794-08-12 16:47 J -34362861.94 -34362861.80 -34362861.65 0.0509 0.0011

Mercury -98794-11-10 06:42 J -34362772.25 -34362772.22 -34362772.17 0.0505 0.0483

Venus -98793-03-25 08:37 J -34362636.28 -34362636.14 -34362636.00 0.0500 0.0361

Earth -98790-03-21 18:42 J -34361544.74 -34361544.72 -34361544.68 0.0487 0.0483

Mercury -98788-10-12 03:49 J -34360609.44 -34360609.34 -34360609.24 0.0516 0.0398

Mercury -98787-01-10 00:28 J -34360519.63 -34360519.48 -34360519.33 0.0520 0.0142

Moon -98785-09-14 15:20 J -34359541.04 -34359540.86 -34359540.67 0.0543 0.0332

Earth -98785-09-14 17:01 J -34359540.95 -34359540.79 -34359540.62 0.0543 0.0364 \*

Mercury -98782-05-31 19:25 J -34358551.83 -34358551.69 -34358551.55 0.0509 0.0106

Mercury -98782-08-29 09:06 J -34358462.22 -34358462.12 -34358462.02 0.0506 0.0367

Venus -98782-11-29 11:44 J -34358370.21 -34358370.01 -34358369.81 0.0502 0.0023

Mercury -98776-10-29 01:25 J -34356209.60 -34356209.44 -34356209.29 0.0520 0.0015

Venus -98775-05-23 03:06 J -34356003.51 -34356003.37 -34356003.23 0.0528 0.0382

Moon -98773-09-19 18:28 J -34355152.94 -34355152.73 -34355152.51 0.0542 0.0102

Earth -98773-09-19 19:25 J -34355152.91 -34355152.69 -34355152.47 0.0542 0.0112 \*

Mercury -98770-03-19 22:04 J -34354241.71 -34354241.58 -34354241.45 0.0510 0.0218

Mercury -98770-06-17 11:30 J -34354152.15 -34354152.02 -34354151.89 0.0507 0.0252

Venus -98770-08-04 14:08 J -34354104.01 -34354103.91 -34354103.79 0.0505 0.0414

Mars -98765-03-03 18:28 J -34352430.90 -34352430.73 -34352430.55 0.0498 0.0369

Mercury -98764-08-17 02:23 J -34351899.55 -34351899.40 -34351899.24 0.0519 0.0115  
 Mercury -98764-11-14 22:18 J -34351809.66 -34351809.57 -34351809.48 0.0523 0.0419  
 Venus -98763-01-25 18:28 J -34351737.93 -34351737.73 -34351737.52 0.0526 0.0081  
 Moon -98761-09-24 21:35 J -34350764.60 -34350764.60 -34350764.60 0.0541 0.0540  
 Mercury -98758-01-06 00:28 J -34349931.59 -34349931.48 -34349931.37 0.0511 0.0336  
 Mercury -98758-04-05 13:25 J -34349842.08 -34349841.94 -34349841.80 0.0507 0.0131  
 Mercury -98752-06-05 03:06 J -34347589.51 -34347589.37 -34347589.23 0.0518 0.0246  
 Mercury -98752-09-02 23:16 J -34347499.65 -34347499.53 -34347499.40 0.0522 0.0291  
 Mercury -98747-10-25 02:52 J -34345621.44 -34345621.38 -34345621.31 0.0512 0.0451  
 Mercury -98746-01-22 15:35 J -34345531.99 -34345531.85 -34345531.70 0.0508 0.0019  
 Mercury -98746-04-22 05:30 J -34345442.30 -34345442.27 -34345442.23 0.0505 0.0489  
 Venus -98746-08-06 21:49 J -34345335.77 -34345335.59 -34345335.41 0.0501 0.0203  
 Mercury -98740-03-24 02:37 J -34343279.49 -34343279.39 -34343279.28 0.0516 0.0388  
 Mercury -98740-06-21 23:16 J -34343189.68 -34343189.53 -34343189.38 0.0520 0.0151  
 Mercury -98735-11-10 17:59 J -34341221.89 -34341221.75 -34341221.61 0.0510 0.0102  
 Mercury -98734-02-08 07:40 J -34341132.28 -34341132.18 -34341132.08 0.0506 0.0372  
 Venus -98734-04-12 00:28 J -34341069.67 -34341069.48 -34341069.29 0.0504 0.0185  
 Earth -98731-03-12 01:40 J -34340004.63 -34340004.43 -34340004.22 0.0486 0.0257  
 Moon -98731-03-12 02:08 J -34340004.59 -34340004.41 -34340004.22 0.0486 0.0286 \*  
 Mercury -98728-04-09 23:59 J -34338879.66 -34338879.50 -34338879.35 0.0519 0.0020  
 Venus -98728-10-03 09:20 J -34338703.30 -34338703.11 -34338702.91 0.0527 0.0183  
 Mercury -98723-08-29 20:37 J -34336911.77 -34336911.64 -34336911.51 0.0511 0.0214  
 Mercury -98723-11-27 10:04 J -34336822.21 -34336822.08 -34336821.95 0.0507 0.0257  
 Earth -98719-03-16 12:28 J -34335617.21 -34335616.98 -34335616.74 0.0486 0.0086  
 Moon -98719-03-16 14:08 J -34335617.16 -34335616.91 -34335616.66 0.0486 0.0079 \*  
 Mercury -98716-01-27 00:28 J -34334569.63 -34334569.48 -34334569.32 0.0519 0.0115  
 Mercury -98716-04-26 20:23 J -34334479.74 -34334479.65 -34334479.56 0.0522 0.0418  
 Venus -98716-06-08 00:13 J -34334437.66 -34334437.49 -34334437.31 0.0524 0.0281  
 Mercury -98711-06-17 23:30 J -34332601.63 -34332601.52 -34332601.41 0.0511 0.0325  
 Mercury -98711-09-15 12:28 J -34332512.12 -34332511.98 -34332511.84 0.0508 0.0143

Venus -98710-04-14 09:20 J -34332301.20 -34332301.11 -34332301.01 0.0500 0.0437

Moon -98707-03-20 22:32 J -34331229.61 -34331229.56 -34331229.48 0.0487 0.0467

Earth -98707-03-21 02:08 J -34331229.51 -34331229.41 -34331229.31 0.0487 0.0438 \*

Mercury -98705-11-15 01:25 J -34330259.57 -34330259.44 -34330259.30 0.0518 0.0243

Mercury -98704-02-12 21:35 J -34330169.72 -34330169.60 -34330169.47 0.0522 0.0295

Moon -98702-09-15 01:54 J -34329225.56 -34329225.42 -34329225.26 0.0543 0.0388

Earth -98702-09-15 02:23 J -34329225.54 -34329225.40 -34329225.26 0.0543 0.0413 \*

Mars -98701-12-19 16:32 J -34328764.09 -34328763.81 -34328763.52 0.0531 0.0114

Mercury -98699-04-06 01:54 J -34328291.49 -34328291.42 -34328291.35 0.0512 0.0442

Mercury -98699-07-04 14:37 J -34328202.04 -34328201.89 -34328201.75 0.0508 0.0025

Mercury -98699-10-02 04:32 J -34328112.34 -34328112.31 -34328112.29 0.0505 0.0496

Venus -98699-12-18 11:16 J -34328035.23 -34328035.03 -34328034.83 0.0502 0.0047

Mercury -98693-09-03 02:08 J -34325949.52 -34325949.41 -34325949.30 0.0517 0.0374

Mercury -98693-12-01 22:47 J -34325859.70 -34325859.55 -34325859.41 0.0521 0.0166

Venus -98692-06-11 05:30 J -34325668.35 -34325668.27 -34325668.17 0.0528 0.0474

Earth -98690-09-20 00:56 J -34324837.69 -34324837.46 -34324837.24 0.0542 0.0046

Moon -98690-09-20 03:35 J -34324837.58 -34324837.35 -34324837.12 0.0542 0.0027 \*

Mercury -98687-04-22 16:47 J -34323891.94 -34323891.80 -34323891.65 0.0509 0.0096

Mercury -98687-07-21 06:28 J -34323802.33 -34323802.23 -34323802.13 0.0506 0.0378

Venus -98687-08-23 13:25 J -34323769.08 -34323768.94 -34323768.79 0.0505 0.0347

Mercury -98681-06-22 01:40 J -34321639.43 -34321639.43 -34321639.42 0.0515 0.0515

Mercury -98681-09-19 22:47 J -34321549.71 -34321549.55 -34321549.40 0.0519 0.0027

Venus -98680-02-13 17:16 J -34321402.99 -34321402.78 -34321402.57 0.0525 0.0008

Moon -98678-09-24 14:08 J -34320450.02 -34320449.91 -34320449.78 0.0541 0.0452

Earth -98678-09-24 17:59 J -34320449.85 -34320449.75 -34320449.65 0.0541 0.0484 \*

Mercury -98675-02-08 19:11 J -34319581.83 -34319581.70 -34319581.57 0.0511 0.0212

Mercury -98675-05-09 08:23 J -34319492.27 -34319492.15 -34319492.02 0.0507 0.0260

Mercury -98669-07-08 23:16 J -34317239.69 -34317239.53 -34317239.38 0.0518 0.0109

Mercury -98669-10-06 18:42 J -34317149.80 -34317149.72 -34317149.63 0.0522 0.0422

Venus -98669-10-19 07:25 J -34317137.27 -34317137.19 -34317137.10 0.0522 0.0472

Mercury -98664-11-27 21:49 J -34315271.70 -34315271.59 -34315271.48 0.0512 0.0324

Mercury -98663-02-25 10:47 J -34315182.19 -34315182.05 -34315181.90 0.0508 0.0145

Venus -98663-08-25 21:49 J -34315000.75 -34315000.59 -34315000.41 0.0501 0.0279

Mercury -98657-04-26 23:30 J -34312929.66 -34312929.52 -34312929.38 0.0517 0.0244

Mercury -98657-07-25 19:40 J -34312839.80 -34312839.68 -34312839.55 0.0521 0.0293

Mercury -98652-09-16 00:42 J -34310961.54 -34310961.47 -34310961.39 0.0512 0.0434

Mercury -98652-12-14 13:25 J -34310872.08 -34310871.94 -34310871.79 0.0509 0.0031

Venus -98651-05-01 00:56 J -34310734.65 -34310734.46 -34310734.26 0.0503 0.0109

Earth -98648-03-11 08:08 J -34309689.34 -34309689.16 -34309688.97 0.0485 0.0304

Moon -98648-03-11 09:20 J -34309689.29 -34309689.11 -34309688.92 0.0485 0.0330 \*

Mars -98647-08-24 18:28 J -34309157.99 -34309157.73 -34309157.47 0.0496 0.0013

Mercury -98645-02-14 00:13 J -34308619.59 -34308619.49 -34308619.38 0.0517 0.0374

Mercury -98645-05-13 20:52 J -34308529.77 -34308529.63 -34308529.48 0.0521 0.0167

Venus -98645-10-22 11:44 J -34308368.18 -34308368.01 -34308367.83 0.0527 0.0273

Mercury -98640-10-02 15:35 J -34306561.99 -34306561.85 -34306561.71 0.0509 0.0088

Mercury -98640-12-31 05:16 J -34306472.38 -34306472.28 -34306472.19 0.0506 0.0384

Moon -98636-03-15 17:16 J -34305302.02 -34305301.78 -34305301.55 0.0486 0.0045

Earth -98636-03-15 20:08 J -34305301.90 -34305301.66 -34305301.41 0.0486 0.0045 \*

Mercury -98634-12-03 00:42 J -34304309.49 -34304309.47 -34304309.44 0.0516 0.0505

Mercury -98633-03-01 21:49 J -34304219.74 -34304219.59 -34304219.43 0.0520 0.0038

Venus -98633-06-27 02:37 J -34304102.58 -34304102.39 -34304102.20 0.0524 0.0193

Mercury -98628-07-21 17:59 J -34302251.88 -34302251.75 -34302251.62 0.0510 0.0205

Mercury -98628-10-19 07:11 J -34302162.32 -34302162.20 -34302162.07 0.0507 0.0266

Earth -98624-03-20 10:18 J -34300914.20 -34300914.07 -34300913.93 0.0487 0.0401

Moon -98624-03-20 14:23 J -34300914.00 -34300913.90 -34300913.78 0.0487 0.0434 \*

Mercury -98622-12-19 21:49 J -34299909.74 -34299909.59 -34299909.43 0.0518 0.0101

Mercury -98621-03-18 17:30 J -34299819.85 -34299819.77 -34299819.68 0.0522 0.0429

Earth -98619-09-13 23:44 J -34298910.58 -34298910.51 -34298910.43 0.0543 0.0509

Moon -98619-09-14 01:40 J -34298910.53 -34298910.43 -34298910.32 0.0543 0.0485 \*

Mercury -98616-05-09 20:08 J -34297941.77 -34297941.66 -34297941.55 0.0512 0.0324

Mercury -98616-08-07 09:06 J -34297852.26 -34297852.12 -34297851.98 0.0508 0.0146

Venus -98615-01-06 10:04 J -34297700.27 -34297700.08 -34297699.88 0.0502 0.0115

Mercury -98610-10-07 22:04 J -34295599.72 -34295599.58 -34295599.44 0.0517 0.0237

Mercury -98609-01-05 18:13 J -34295509.86 -34295509.74 -34295509.61 0.0521 0.0297

Moon -98607-09-18 19:54 J -34294522.89 -34294522.67 -34294522.45 0.0542 0.0072

Earth -98607-09-18 23:16 J -34294522.75 -34294522.53 -34294522.30 0.0542 0.0047 \*

Mercury -98604-02-25 22:47 J -34293631.62 -34293631.55 -34293631.47 0.0513 0.0436

Mercury -98604-05-26 11:44 J -34293542.16 -34293542.01 -34293541.87 0.0509 0.0034

Venus -98604-09-11 12:28 J -34293434.14 -34293433.98 -34293433.81 0.0505 0.0277

Mercury -98598-07-26 22:04 J -34291289.68 -34291289.58 -34291289.47 0.0516 0.0376

Mercury -98598-10-24 18:56 J -34291199.86 -34291199.71 -34291199.57 0.0520 0.0164

Venus -98597-03-04 17:01 J -34291068.00 -34291067.79 -34291067.59 0.0526 0.0067

Earth -98595-09-24 00:42 J -34290134.61 -34290134.47 -34290134.33 0.0542 0.0422

Moon -98595-09-24 04:32 J -34290134.46 -34290134.31 -34290134.15 0.0542 0.0395 \*

Mercury -98592-03-14 14:23 J -34289232.05 -34289231.90 -34289231.76 0.0510 0.0084

Mercury -98592-06-12 03:49 J -34289142.43 -34289142.34 -34289142.24 0.0506 0.0391

Mercury -98586-05-14 22:47 J -34286979.57 -34286979.55 -34286979.52 0.0516 0.0506

Mercury -98586-08-12 19:54 J -34286889.83 -34286889.67 -34286889.52 0.0519 0.0036

Venus -98586-11-08 08:23 J -34286802.28 -34286802.15 -34286802.01 0.0523 0.0393

Mars -98582-06-07 16:47 J -34285494.84 -34285494.80 -34285494.75 0.0534 0.0526

Mercury -98581-12-31 16:32 J -34284921.94 -34284921.81 -34284921.68 0.0510 0.0200

Mercury -98580-03-31 05:44 J -34284832.38 -34284832.26 -34284832.13 0.0507 0.0270

Venus -98580-09-13 20:37 J -34284665.78 -34284665.64 -34284665.49 0.0500 0.0344

Mercury -98574-05-31 20:37 J -34282579.79 -34282579.64 -34282579.48 0.0518 0.0095

Mercury -98574-08-29 16:18 J -34282489.89 -34282489.82 -34282489.73 0.0522 0.0439

Mercury -98569-10-19 18:56 J -34280611.82 -34280611.71 -34280611.60 0.0511 0.0317

Mercury -98568-01-17 07:54 J -34280522.31 -34280522.17 -34280522.03 0.0508 0.0151

Venus -98568-05-19 23:01 J -34280399.74 -34280399.54 -34280399.34 0.0503 0.0048

Moon -98565-03-10 12:42 J -34279374.11 -34279373.97 -34279373.82 0.0485 0.0372

Earth -98565-03-10 15:35 J -34279374.02 -34279373.85 -34279373.68 0.0485 0.0344 \*

Mercury -98562-03-19 20:52 J -34278269.77 -34278269.63 -34278269.49 0.0517 0.0231

Mercury -98562-06-17 16:47 J -34278179.92 -34278179.80 -34278179.67 0.0521 0.0303

Venus -98562-11-11 10:18 J -34278033.22 -34278033.07 -34278032.91 0.0527 0.0343

Mercury -98557-08-07 20:52 J -34276301.70 -34276301.63 -34276301.55 0.0513 0.0438

Mercury -98557-11-05 09:49 J -34276212.24 -34276212.09 -34276211.95 0.0509 0.0031

Venus -98556-01-22 23:30 J -34276133.60 -34276133.52 -34276133.42 0.0506 0.0449

Mercury -98556-02-02 23:44 J -34276122.51 -34276122.51 -34276122.50 0.0506 0.0505

Earth -98553-03-15 03:49 J -34274986.58 -34274986.34 -34274986.09 0.0486 0.0008

Moon -98553-03-15 07:54 J -34274986.41 -34274986.17 -34274985.92 0.0486 0.0014 \*

Mercury -98550-01-05 20:52 J -34273959.74 -34273959.63 -34273959.52 0.0516 0.0369

Mercury -98550-04-05 17:16 J -34273869.92 -34273869.78 -34273869.63 0.0520 0.0170

Venus -98550-07-16 23:44 J -34273767.71 -34273767.51 -34273767.31 0.0524 0.0130

Mars -98546-03-15 07:25 J -34272430.40 -34272430.19 -34272429.96 0.0532 0.0345

Mercury -98545-08-24 12:13 J -34271902.13 -34271901.99 -34271901.85 0.0510 0.0086

Mercury -98545-11-22 01:54 J -34271812.52 -34271812.42 -34271812.33 0.0506 0.0387

Moon -98541-03-19 09:49 J -34270599.24 -34270599.09 -34270598.93 0.0486 0.0374

Earth -98541-03-19 14:08 J -34270599.08 -34270598.91 -34270598.74 0.0486 0.0343 \*

Mercury -98539-10-24 20:37 J -34269649.66 -34269649.64 -34269649.62 0.0515 0.0510

Mercury -98538-01-22 17:44 J -34269559.92 -34269559.76 -34269559.61 0.0519 0.0033

Mercury -98533-06-12 14:52 J -34267592.01 -34267591.88 -34267591.74 0.0511 0.0199

Mercury -98533-09-10 04:18 J -34267502.44 -34267502.32 -34267502.20 0.0507 0.0273

Venus -98532-01-25 09:20 J -34267365.30 -34267365.11 -34267364.92 0.0502 0.0184

Mars -98528-02-13 13:40 J -34265885.07 -34265884.93 -34265884.78 0.0494 0.0408

Mercury -98527-11-10 18:28 J -34265249.88 -34265249.73 -34265249.57 0.0518 0.0098

Mercury -98526-02-08 14:08 J -34265159.99 -34265159.91 -34265159.82 0.0522 0.0435

Earth -98524-09-18 05:44 J -34264207.48 -34264207.26 -34264207.04 0.0542 0.0108

Moon -98524-09-18 09:49 J -34264207.31 -34264207.09 -34264206.88 0.0542 0.0136 \*

Mercury -98521-03-31 17:16 J -34263281.89 -34263281.78 -34263281.66 0.0511 0.0315

Mercury -98521-06-29 06:13 J -34263192.38 -34263192.24 -34263192.10 0.0508 0.0154

Venus -98521-09-30 11:01 J -34263099.22 -34263099.04 -34263098.86 0.0504 0.0213



Mercury -98515-08-29 19:11 J -34260939.84 -34260939.70 -34260939.56 0.0517 0.0228

Mercury -98515-11-27 15:20 J -34260849.98 -34260849.86 -34260849.73 0.0521 0.0308

Venus -98514-03-24 17:59 J -34260732.95 -34260732.75 -34260732.55 0.0526 0.0148

Moon -98512-09-23 00:28 J -34259819.66 -34259819.48 -34259819.29 0.0542 0.0321

Earth -98512-09-23 04:18 J -34259819.49 -34259819.32 -34259819.15 0.0542 0.0349 \*

Mercury -98509-01-18 19:54 J -34258971.75 -34258971.67 -34258971.60 0.0513 0.0431

Mercury -98509-04-17 08:23 J -34258882.29 -34258882.15 -34258882.00 0.0509 0.0036

Mercury -98503-06-17 19:25 J -34256629.80 -34256629.69 -34256629.58 0.0516 0.0364

Mercury -98503-09-15 15:49 J -34256539.98 -34256539.84 -34256539.69 0.0520 0.0174

Venus -98503-11-27 07:11 J -34256467.36 -34256467.20 -34256467.04 0.0523 0.0322

Mercury -98497-02-04 10:18 J -34254572.22 -34254572.07 -34254571.93 0.0510 0.0090

Mercury -98497-05-03 23:44 J -34254482.60 -34254482.51 -34254482.41 0.0507 0.0385

Venus -98497-10-02 17:30 J -34254330.89 -34254330.77 -34254330.65 0.0501 0.0402

Mars -98493-11-17 18:42 J -34252823.95 -34252823.72 -34252823.47 0.0496 0.0189

Mercury -98491-04-05 19:11 J -34252319.73 -34252319.70 -34252319.67 0.0515 0.0503

Mercury -98491-07-04 16:18 J -34252229.98 -34252229.82 -34252229.67 0.0519 0.0038

Mercury -98486-11-23 12:42 J -34250262.10 -34250261.97 -34250261.84 0.0511 0.0204

Mercury -98485-02-21 02:08 J -34250172.54 -34250172.41 -34250172.29 0.0508 0.0267

Venus -98485-06-07 19:54 J -34250064.87 -34250064.67 -34250064.47 0.0503 0.0011

Earth -98482-03-10 18:28 J -34249058.86 -34249058.73 -34249058.59 0.0485 0.0401

Moon -98482-03-10 22:04 J -34249058.68 -34249058.58 -34249058.45 0.0485 0.0426 \*

Mercury -98479-04-22 16:04 J -34247919.98 -34247919.83 -34247919.67 0.0518 0.0104

Mercury -98479-07-21 11:59 J -34247830.08 -34247830.00 -34247829.91 0.0522 0.0428

Venus -98479-11-30 07:40 J -34247698.31 -34247698.18 -34247698.05 0.0527 0.0405

Mercury -98474-09-11 15:35 J -34245951.96 -34245951.85 -34245951.74 0.0512 0.0315

Mercury -98474-12-10 04:32 J -34245862.45 -34245862.31 -34245862.17 0.0508 0.0154

Venus -98473-02-11 22:32 J -34245798.69 -34245798.56 -34245798.43 0.0506 0.0381

Moon -98470-03-15 02:08 J -34244671.65 -34244671.41 -34244671.16 0.0486 0.0048

Earth -98470-03-15 06:28 J -34244671.47 -34244671.23 -34244670.99 0.0486 0.0058 \*

Mercury -98467-02-08 16:47 J -34243609.94 -34243609.80 -34243609.66 0.0517 0.0235

Mercury -98467-05-09 13:11 J -34243520.08 -34243519.95 -34243519.83 0.0521 0.0301

Venus -98467-08-04 22:32 J -34243432.77 -34243432.56 -34243432.36 0.0525 0.0061

Mercury -98462-06-30 18:13 J -34241641.82 -34241641.74 -34241641.67 0.0513 0.0430

Mercury -98462-09-28 06:42 J -34241552.36 -34241552.22 -34241552.07 0.0509 0.0036

Earth -98458-03-19 17:59 J -34240283.94 -34240283.75 -34240283.55 0.0486 0.0289

Moon -98458-03-19 21:35 J -34240283.77 -34240283.60 -34240283.42 0.0486 0.0321 \*

Mercury -98456-11-27 17:30 J -34239299.88 -34239299.77 -34239299.66 0.0516 0.0365

Mercury -98455-02-25 14:08 J -34239210.05 -34239209.91 -34239209.76 0.0520 0.0174

Venus -98455-04-09 13:54 J -34239166.94 -34239166.92 -34239166.90 0.0522 0.0518

Mercury -98450-07-17 09:06 J -34237242.27 -34237242.12 -34237241.98 0.0510 0.0085

Mercury -98450-10-14 22:32 J -34237152.65 -34237152.56 -34237152.47 0.0506 0.0389

Venus -98449-02-14 05:59 J -34237030.42 -34237030.25 -34237030.07 0.0502 0.0240

Mercury -98444-09-15 17:30 J -34234989.80 -34234989.77 -34234989.73 0.0515 0.0500

Mercury -98444-12-14 14:37 J -34234900.04 -34234899.89 -34234899.73 0.0519 0.0040

Moon -98441-09-16 21:35 J -34233892.80 -34233892.60 -34233892.39 0.0542 0.0241

Earth -98441-09-17 01:40 J -34233892.64 -34233892.43 -34233892.22 0.0542 0.0212 \*

Mercury -98438-05-05 10:47 J -34232932.18 -34232932.05 -34232931.92 0.0511 0.0208

Mercury -98438-08-02 23:59 J -34232842.63 -34232842.50 -34232842.37 0.0508 0.0263

Venus -98438-10-20 06:42 J -34232764.41 -34232764.22 -34232764.03 0.0505 0.0162

Mercury -98432-10-02 14:52 J -34230590.04 -34230589.88 -34230589.73 0.0517 0.0097

Mercury -98432-12-31 10:32 J -34230500.14 -34230500.06 -34230499.97 0.0521 0.0432

Venus -98431-04-12 14:23 J -34230398.08 -34230397.90 -34230397.70 0.0525 0.0209

Earth -98429-09-21 23:01 J -34229504.74 -34229504.54 -34229504.33 0.0542 0.0241

Moon -98429-09-22 01:54 J -34229504.62 -34229504.42 -34229504.22 0.0542 0.0221 \*

Mars -98428-08-30 19:25 J -34229161.91 -34229161.69 -34229161.47 0.0534 0.0338

Mercury -98426-02-21 13:11 J -34228622.06 -34228621.95 -34228621.84 0.0512 0.0323

Mercury -98426-05-22 02:08 J -34228532.55 -34228532.41 -34228532.27 0.0509 0.0146

Mercury -98420-07-21 14:23 J -34226280.04 -34226279.90 -34226279.76 0.0517 0.0241

Mercury -98420-10-19 10:47 J -34226190.18 -34226190.05 -34226189.93 0.0521 0.0294

Venus -98420-12-16 03:06 J -34226132.55 -34226132.37 -34226132.19 0.0523 0.0269

Mercury -98415-12-10 16:18 J -34224311.90 -34224311.82 -34224311.75 0.0513 0.0432

Mercury -98414-03-10 04:47 J -34224222.44 -34224222.30 -34224222.15 0.0509 0.0037

Venus -98414-10-22 15:35 J -34223995.91 -34223995.85 -34223995.77 0.0500 0.0465

Mercury -98408-05-09 14:52 J -34221969.99 -34221969.88 -34221969.77 0.0516 0.0373

Mercury -98408-08-07 11:44 J -34221880.16 -34221880.01 -34221879.87 0.0520 0.0166

Mercury -98403-12-27 07:11 J -34219912.34 -34219912.20 -34219912.06 0.0510 0.0084

Mercury -98402-03-26 20:37 J -34219822.73 -34219822.64 -34219822.54 0.0506 0.0388

Venus -98402-06-27 17:44 J -34219729.96 -34219729.76 -34219729.56 0.0503 0.0073

Moon -98399-03-09 17:59 J -34218743.78 -34218743.75 -34218743.72 0.0485 0.0481

Earth -98399-03-09 21:49 J -34218743.66 -34218743.59 -34218743.50 0.0485 0.0456

Mercury -98396-02-25 15:20 J -34217659.89 -34217659.86 -34217659.83 0.0515 0.0504

Mercury -98396-05-26 12:42 J -34217570.13 -34217569.97 -34217569.82 0.0519 0.0040

Venus -98396-12-19 07:25 J -34217363.26 -34217363.19 -34217363.10 0.0528 0.0483

Mercury -98391-10-15 09:20 J -34215602.24 -34215602.11 -34215601.97 0.0511 0.0203

Mercury -98390-01-12 22:32 J -34215512.68 -34215512.56 -34215512.43 0.0507 0.0268

Venus -98390-03-02 18:56 J -34215463.86 -34215463.71 -34215463.55 0.0505 0.0327

Earth -98387-03-14 10:18 J -34214356.30 -34214356.07 -34214355.83 0.0486 0.0111

Moon -98387-03-14 13:54 J -34214356.15 -34214355.92 -34214355.68 0.0486 0.0095 \*

Mercury -98384-03-14 13:11 J -34213260.11 -34213259.95 -34213259.80 0.0518 0.0096

Mercury -98384-06-12 08:52 J -34213170.21 -34213170.13 -34213170.04 0.0521 0.0435

Venus -98384-08-23 21:06 J -34213097.82 -34213097.62 -34213097.41 0.0524 0.0013

Mercury -98379-08-03 11:16 J -34211292.14 -34211292.03 -34211291.92 0.0512 0.0326

Mercury -98379-11-01 00:13 J -34211202.63 -34211202.49 -34211202.35 0.0509 0.0142

Moon -98375-03-18 19:40 J -34209968.89 -34209968.68 -34209968.47 0.0486 0.0262

Earth -98375-03-18 22:18 J -34209968.78 -34209968.57 -34209968.35 0.0486 0.0235 \*

Mars -98374-05-10 07:25 J -34209551.42 -34209551.19 -34209550.96 0.0494 0.0226

Mercury -98373-12-31 13:11 J -34208950.09 -34208949.95 -34208949.81 0.0516 0.0233

Mercury -98372-03-31 09:20 J -34208860.23 -34208860.11 -34208859.98 0.0520 0.0300

Venus -98372-04-28 10:47 J -34208832.14 -34208832.05 -34208831.95 0.0521 0.0458

Mercury -98367-05-22 13:40 J -34206981.99 -34206981.93 -34206981.85 0.0513 0.0442

Mercury -98367-08-20 02:23 J -34206892.54 -34206892.40 -34206892.25 0.0510 0.0027

Mercury -98367-11-17 16:18 J -34206802.84 -34206802.82 -34206802.80 0.0506 0.0500

Venus -98366-03-05 01:40 J -34206695.59 -34206695.43 -34206695.26 0.0502 0.0291

Mercury -98361-10-19 12:28 J -34204640.09 -34204639.98 -34204639.87 0.0516 0.0379

Mercury -98360-01-17 09:06 J -34204550.26 -34204550.12 -34204549.97 0.0520 0.0160

Earth -98358-09-17 01:40 J -34203577.62 -34203577.43 -34203577.24 0.0543 0.0297

Moon -98358-09-17 05:01 J -34203577.47 -34203577.29 -34203577.12 0.0543 0.0326 \*

Mercury -98355-06-08 05:16 J -34202582.42 -34202582.28 -34202582.14 0.0510 0.0087

Mercury -98355-09-05 18:42 J -34202492.81 -34202492.72 -34202492.62 0.0507 0.0386

Venus -98355-11-08 05:01 J -34202429.49 -34202429.29 -34202429.10 0.0504 0.0099

Mercury -98349-08-07 12:42 J -34200329.98 -34200329.97 -34200329.96 0.0515 0.0513

Mercury -98349-11-05 10:04 J -34200240.24 -34200240.08 -34200239.93 0.0519 0.0029

Venus -98348-05-01 11:30 J -34200063.19 -34200063.02 -34200062.84 0.0526 0.0268

Moon -98346-09-22 01:25 J -34199189.66 -34199189.44 -34199189.21 0.0542 0.0156

Earth -98346-09-22 03:06 J -34199189.58 -34199189.37 -34199189.16 0.0542 0.0171 \*

Mercury -98343-03-27 07:40 J -34198272.31 -34198272.18 -34198272.05 0.0511 0.0203

Mercury -98343-06-24 20:52 J -34198182.76 -34198182.63 -34198182.51 0.0507 0.0267

Venus -98343-07-14 06:13 J -34198163.27 -34198163.24 -34198163.20 0.0507 0.0499

Mars -98338-02-11 05:44 J -34196490.45 -34196490.26 -34196490.07 0.0496 0.0347

Mercury -98337-08-24 10:47 J -34195930.20 -34195930.05 -34195929.89 0.0518 0.0101

Mercury -98337-11-22 06:42 J -34195840.30 -34195840.22 -34195840.13 0.0522 0.0431

Venus -98336-01-04 02:37 J -34195797.58 -34195797.39 -34195797.19 0.0524 0.0195

Mercury -98331-01-13 10:04 J -34193962.19 -34193962.08 -34193961.97 0.0512 0.0319

Mercury -98331-04-12 23:01 J -34193872.68 -34193872.54 -34193872.40 0.0508 0.0148

Mercury -98325-06-12 11:16 J -34191620.17 -34191620.03 -34191619.88 0.0517 0.0233

Mercury -98325-09-10 07:40 J -34191530.30 -34191530.18 -34191530.05 0.0520 0.0302

Mercury -98320-11-01 11:59 J -34189652.07 -34189652.00 -34189651.93 0.0513 0.0443

Mercury -98319-01-30 00:28 J -34189562.63 -34189562.48 -34189562.33 0.0510 0.0021

Mercury -98319-04-29 14:08 J -34189472.93 -34189472.91 -34189472.88 0.0506 0.0496

Venus -98319-07-16 12:42 J -34189395.17 -34189394.97 -34189394.78 0.0503 0.0120

Mercury -98313-03-31 11:16 J -34187310.14 -34187310.03 -34187309.92 0.0515 0.0371

Mercury -98313-06-29 08:08 J -34187220.31 -34187220.16 -34187220.02 0.0519 0.0167

Mercury -98308-11-18 02:52 J -34185252.52 -34185252.38 -34185252.24 0.0511 0.0096

Mercury -98307-02-15 16:18 J -34185162.92 -34185162.82 -34185162.72 0.0507 0.0377

Venus -98307-03-21 14:37 J -34185129.06 -34185128.89 -34185128.73 0.0506 0.0279

Moon -98304-03-13 08:37 J -34184041.38 -34184041.14 -34184040.91 0.0485 0.0157

Earth -98304-03-13 11:30 J -34184041.25 -34184041.02 -34184040.79 0.0485 0.0172 \*

Mercury -98301-04-17 07:40 J -34182910.34 -34182910.18 -34182910.02 0.0518 0.0022

Venus -98301-09-11 15:49 J -34182763.04 -34182762.84 -34182762.63 0.0525 0.0059

Mercury -98296-09-06 05:44 J -34180942.39 -34180942.26 -34180942.13 0.0511 0.0206

Mercury -98296-12-04 18:56 J -34180852.84 -34180852.71 -34180852.59 0.0508 0.0265

Earth -98292-03-17 23:30 J -34179653.75 -34179653.52 -34179653.30 0.0486 0.0173

Moon -98292-03-18 00:28 J -34179653.69 -34179653.48 -34179653.27 0.0486 0.0197 \*

Mercury -98289-02-04 08:08 J -34178600.31 -34178600.16 -34178600.00 0.0518 0.0111

Mercury -98289-05-04 04:18 J -34178510.41 -34178510.32 -34178510.23 0.0522 0.0422

Venus -98289-05-17 06:56 J -34178497.34 -34178497.21 -34178497.08 0.0522 0.0405

Mercury -98284-06-25 08:23 J -34176632.26 -34176632.15 -34176632.04 0.0512 0.0320

Mercury -98284-09-22 21:06 J -34176542.76 -34176542.62 -34176542.48 0.0508 0.0148

Venus -98283-03-23 23:44 J -34176360.65 -34176360.51 -34176360.36 0.0501 0.0353

Mercury -98278-11-23 08:52 J -34174290.26 -34174290.13 -34174289.99 0.0517 0.0240

Mercury -98277-02-21 05:16 J -34174200.40 -34174200.28 -34174200.15 0.0521 0.0297

Moon -98275-09-16 02:37 J -34173262.54 -34173262.39 -34173262.22 0.0543 0.0399

Earth -98275-09-16 05:01 J -34173262.45 -34173262.29 -34173262.12 0.0543 0.0369 \*

Mars -98274-11-24 19:11 J -34172827.98 -34172827.70 -34172827.42 0.0533 0.0085

Mercury -98272-04-13 10:47 J -34172322.12 -34172322.05 -34172321.97 0.0513 0.0435

Mercury -98272-07-11 23:16 J -34172232.67 -34172232.53 -34172232.38 0.0509 0.0032

Mercury -98272-10-09 12:56 J -34172142.97 -34172142.96 -34172142.94 0.0506 0.0503

Venus -98272-11-27 01:54 J -34172094.62 -34172094.42 -34172094.22 0.0504 0.0042

Mercury -98266-09-11 09:20 J -34169980.21 -34169980.11 -34169979.99 0.0516 0.0371

Mercury -98266-12-10 06:13 J -34169890.38 -34169890.24 -34169890.09 0.0519 0.0169

Venus -98265-05-20 11:01 J -34169728.19 -34169728.04 -34169727.88 0.0526 0.0343  
 Earth -98263-09-21 01:25 J -34168874.66 -34168874.44 -34168874.22 0.0542 0.0077  
 Moon -98263-09-21 01:25 J -34168874.66 -34168874.44 -34168874.23 0.0542 0.0072 \*  
 Mercury -98260-04-30 00:56 J -34167922.60 -34167922.46 -34167922.31 0.0510 0.0097  
 Mercury -98260-07-28 14:23 J -34167833.00 -34167832.90 -34167832.80 0.0507 0.0375  
 Venus -98260-08-02 01:25 J -34167828.53 -34167828.44 -34167828.35 0.0507 0.0452  
 Mercury -98254-06-30 09:20 J -34165670.13 -34165670.11 -34165670.09 0.0515 0.0508  
 Mercury -98254-09-28 06:42 J -34165580.38 -34165580.22 -34165580.07 0.0518 0.0033  
 Venus -98253-01-24 00:28 J -34165462.68 -34165462.48 -34165462.28 0.0523 0.0131  
 Earth -98251-09-25 21:49 J -34164486.64 -34164486.59 -34164486.52 0.0541 0.0523  
 Mercury -98248-02-16 03:20 J -34163612.49 -34163612.36 -34163612.22 0.0512 0.0214  
 Mercury -98248-05-16 16:32 J -34163522.94 -34163522.81 -34163522.68 0.0508 0.0257  
 Mercury -98242-07-17 05:59 J -34161270.40 -34161270.25 -34161270.10 0.0517 0.0114  
 Mercury -98242-10-15 01:54 J -34161180.51 -34161180.42 -34161180.33 0.0521 0.0417  
 Mercury -98237-12-05 06:28 J -34159302.34 -34159302.23 -34159302.12 0.0512 0.0323  
 Mercury -98236-03-04 19:11 J -34159212.84 -34159212.70 -34159212.56 0.0509 0.0146  
 Venus -98236-08-04 11:30 J -34159060.21 -34159060.02 -34159059.83 0.0503 0.0185  
 Mercury -98230-05-05 06:28 J -34156960.37 -34156960.23 -34156960.09 0.0517 0.0247  
 Mercury -98230-08-03 02:52 J -34156870.50 -34156870.38 -34156870.25 0.0520 0.0288  
 Mercury -98225-09-23 09:06 J -34154992.19 -34154992.12 -34154992.04 0.0513 0.0434  
 Mercury -98225-12-21 21:35 J -34154902.74 -34154902.60 -34154902.45 0.0509 0.0033  
 Mercury -98224-03-21 11:16 J -34154813.03 -34154813.03 -34154813.01 0.0506 0.0504  
 Venus -98224-04-09 13:25 J -34154794.12 -34154793.94 -34154793.75 0.0505 0.0211  
 Earth -98221-03-12 15:06 J -34153726.08 -34153725.87 -34153725.65 0.0485 0.0226  
 Moon -98221-03-12 16:32 J -34153726.02 -34153725.81 -34153725.60 0.0485 0.0206 \*  
 Mars -98220-08-02 16:47 J -34153218.06 -34153217.80 -34153217.53 0.0494 0.0069  
 Mercury -98218-02-21 06:56 J -34152650.31 -34152650.21 -34152650.10 0.0516 0.0378  
 Mercury -98218-05-22 04:04 J -34152560.48 -34152560.33 -34152560.18 0.0520 0.0162  
 Venus -98218-10-01 16:04 J -34152428.03 -34152427.83 -34152427.63 0.0525 0.0134  
 Mercury -98213-10-09 23:59 J -34150592.64 -34150592.50 -34150592.36 0.0510 0.0088

Mercury -98212-01-07 13:25 J -34150503.04 -34150502.94 -34150502.84 0.0507 0.0384

Earth -98209-03-17 03:35 J -34149338.58 -34149338.35 -34149338.11 0.0486 0.0120

Moon -98209-03-17 04:32 J -34149338.55 -34149338.31 -34149338.07 0.0486 0.0137 \*

Mercury -98207-12-10 07:25 J -34148340.20 -34148340.19 -34148340.16 0.0515 0.0508

Mercury -98206-03-10 05:01 J -34148250.45 -34148250.29 -34148250.14 0.0518 0.0035

Venus -98206-06-06 07:11 J -34148162.35 -34148162.20 -34148162.03 0.0522 0.0328

Mercury -98201-07-29 01:54 J -34146282.55 -34146282.42 -34146282.29 0.0511 0.0212

Mercury -98201-10-26 14:52 J -34146193.01 -34146192.88 -34146192.75 0.0508 0.0258

Venus -98200-04-11 19:40 J -34146025.79 -34146025.68 -34146025.56 0.0501 0.0404

Moon -98197-03-21 12:56 J -34144951.04 -34144950.96 -34144950.86 0.0487 0.0446

Earth -98197-03-21 15:49 J -34144950.90 -34144950.84 -34144950.77 0.0487 0.0467 \*

Mercury -98195-12-27 05:16 J -34143940.44 -34143940.28 -34143940.13 0.0517 0.0102

Mercury -98194-03-27 01:11 J -34143850.53 -34143850.45 -34143850.36 0.0521 0.0428

Earth -98192-09-15 02:37 J -34142947.50 -34142947.39 -34142947.27 0.0542 0.0464

Moon -98192-09-15 03:20 J -34142947.44 -34142947.36 -34142947.27 0.0542 0.0495 \*

Mercury -98189-05-17 04:18 J -34141972.43 -34141972.32 -34141972.21 0.0512 0.0327

Mercury -98189-08-14 17:01 J -34141882.93 -34141882.79 -34141882.64 0.0509 0.0141

Venus -98189-12-15 22:04 J -34141759.78 -34141759.58 -34141759.38 0.0504 0.0011

Mercury -98183-10-15 04:18 J -34139630.45 -34139630.32 -34139630.18 0.0516 0.0249

Mercury -98182-01-13 00:56 J -34139540.59 -34139540.46 -34139540.33 0.0520 0.0285

Venus -98182-06-09 05:59 J -34139393.38 -34139393.25 -34139393.11 0.0526 0.0392

Earth -98180-09-20 00:28 J -34138559.70 -34138559.48 -34138559.25 0.0543 0.0012

Moon -98180-09-20 02:08 J -34138559.64 -34138559.41 -34138559.18 0.0543 0.0007 \*

Mercury -98177-03-05 07:11 J -34137662.27 -34137662.20 -34137662.12 0.0514 0.0437

Mercury -98177-06-02 19:54 J -34137572.82 -34137572.67 -34137572.52 0.0510 0.0029

Venus -98177-08-21 00:56 J -34137493.59 -34137493.46 -34137493.33 0.0507 0.0383

Mercury -98177-08-31 09:35 J -34137483.11 -34137483.10 -34137483.08 0.0506 0.0503

Mercury -98171-08-03 04:32 J -34135320.41 -34135320.31 -34135320.20 0.0515 0.0384

Mercury -98171-11-01 01:40 J -34135230.58 -34135230.43 -34135230.28 0.0519 0.0155

Venus -98170-02-11 20:37 J -34135127.84 -34135127.64 -34135127.43 0.0524 0.0076

Moon -98168-09-24 22:47 J -34134171.64 -34134171.55 -34134171.46 0.0542 0.0491  
 Earth -98168-09-25 01:54 J -34134171.54 -34134171.42 -34134171.30 0.0542 0.0455 \*  
 Mercury -98165-03-21 22:32 J -34133262.71 -34133262.56 -34133262.42 0.0510 0.0086  
 Mercury -98165-06-19 11:44 J -34133173.10 -34133173.01 -34133172.91 0.0507 0.0387  
 Mercury -98159-05-22 05:01 J -34131010.29 -34131010.29 -34131010.28 0.0515 0.0514  
 Mercury -98159-08-20 02:37 J -34130920.55 -34130920.39 -34130920.23 0.0519 0.0028  
 Mercury -98153-01-09 00:56 J -34128952.59 -34128952.46 -34128952.33 0.0511 0.0201  
 Mercury -98153-04-07 13:54 J -34128863.04 -34128862.92 -34128862.79 0.0508 0.0269  
 Venus -98153-08-23 09:49 J -34128725.27 -34128725.09 -34128724.92 0.0502 0.0249  
 Mercury -98147-06-08 03:35 J -34126610.51 -34126610.35 -34126610.20 0.0518 0.0100  
 Mercury -98147-09-05 23:30 J -34126520.60 -34126520.52 -34126520.43 0.0521 0.0431  
 Mercury -98142-10-28 02:52 J -34124642.49 -34124642.38 -34124642.27 0.0512 0.0324  
 Mercury -98141-01-25 15:35 J -34124552.99 -34124552.85 -34124552.71 0.0509 0.0143  
 Venus -98141-04-28 10:04 J -34124459.27 -34124459.08 -34124458.88 0.0505 0.0157  
 Earth -98138-03-12 20:37 J -34123410.84 -34123410.64 -34123410.44 0.0485 0.0273  
 Moon -98138-03-12 21:06 J -34123410.83 -34123410.62 -34123410.40 0.0485 0.0247 \*  
 Mercury -98135-03-27 03:49 J -34122300.48 -34122300.34 -34122300.20 0.0516 0.0235  
 Mercury -98135-06-25 00:13 J -34122210.61 -34122210.49 -34122210.36 0.0520 0.0299  
 Venus -98135-10-20 15:35 J -34122093.04 -34122092.85 -34122092.66 0.0525 0.0207  
 Mercury -98130-08-16 05:30 J -34120332.34 -34120332.27 -34120332.20 0.0513 0.0438  
 Mercury -98130-11-13 17:59 J -34120242.90 -34120242.75 -34120242.60 0.0510 0.0026  
 Mercury -98129-02-11 07:40 J -34120153.20 -34120153.18 -34120153.16 0.0506 0.0500  
 Moon -98126-03-17 05:16 J -34119023.51 -34119023.28 -34119023.05 0.0485 0.0082  
 Earth -98126-03-17 07:40 J -34119023.42 -34119023.18 -34119022.94 0.0485 0.0071 \*  
 Mercury -98123-01-13 02:52 J -34117990.49 -34117990.38 -34117990.28 0.0515 0.0382  
 Mercury -98123-04-12 23:44 J -34117900.66 -34117900.51 -34117900.36 0.0519 0.0155  
 Venus -98123-06-25 02:52 J -34117827.55 -34117827.38 -34117827.20 0.0522 0.0275  
 Mars -98119-02-17 07:25 J -34116494.46 -34116494.19 -34116493.91 0.0534 0.0141  
 Mercury -98118-09-01 20:52 J -34115932.78 -34115932.63 -34115932.49 0.0511 0.0085  
 Mercury -98118-11-30 10:04 J -34115843.17 -34115843.08 -34115842.98 0.0507 0.0388



Venus -98117-04-30 19:54 J -34115690.73 -34115690.67 -34115690.61 0.0501 0.0477  
 Earth -98114-03-21 20:23 J -34114635.77 -34114635.65 -34114635.52 0.0486 0.0418  
 Moon -98114-03-22 00:13 J -34114635.63 -34114635.49 -34114635.34 0.0486 0.0391 \*  
 Mercury -98111-01-30 00:28 J -34113590.64 -34113590.48 -34113590.32 0.0518 0.0024  
 Earth -98109-09-14 05:16 J -34112632.31 -34112632.28 -34112632.25 0.0543 0.0536  
 Mercury -98106-06-20 23:30 J -34111622.65 -34111622.52 -34111622.39 0.0512 0.0197  
 Mercury -98106-09-18 12:28 J -34111533.10 -34111532.98 -34111532.85 0.0508 0.0273  
 Venus -98105-01-04 22:32 J -34111424.76 -34111424.56 -34111424.37 0.0503 0.0087  
 Mars -98101-01-23 08:37 J -34109945.21 -34109945.14 -34109945.04 0.0493 0.0468  
 Mercury -98100-11-18 01:11 J -34109280.60 -34109280.45 -34109280.29 0.0518 0.0105  
 Mercury -98099-02-15 21:20 J -34109190.69 -34109190.61 -34109190.52 0.0521 0.0427  
 Venus -98099-06-28 07:11 J -34109058.28 -34109058.20 -34109058.11 0.0527 0.0477  
 Moon -98097-09-19 05:01 J -34108244.51 -34108244.29 -34108244.07 0.0543 0.0061  
 Earth -98097-09-19 07:54 J -34108244.40 -34108244.17 -34108243.95 0.0543 0.0067 \*  
 Mercury -98094-04-09 02:08 J -34107312.52 -34107312.41 -34107312.30 0.0512 0.0311  
 Mercury -98094-07-07 14:52 J -34107223.02 -34107222.88 -34107222.74 0.0509 0.0156  
 Venus -98094-09-10 00:28 J -34107158.64 -34107158.48 -34107158.32 0.0506 0.0312  
 Mercury -98088-09-06 02:08 J -34104970.55 -34104970.41 -34104970.27 0.0517 0.0232  
 Mercury -98088-12-04 22:32 J -34104880.68 -34104880.56 -34104880.43 0.0520 0.0304  
 Venus -98087-03-02 22:47 J -34104792.76 -34104792.55 -34104792.35 0.0524 0.0012  
 Earth -98085-09-24 05:59 J -34103856.40 -34103856.25 -34103856.09 0.0542 0.0386  
 Moon -98085-09-24 09:49 J -34103856.23 -34103856.09 -34103855.95 0.0542 0.0422 \*  
 Mercury -98082-01-26 04:04 J -34103002.40 -34103002.33 -34103002.25 0.0513 0.0433  
 Mercury -98082-04-25 16:47 J -34102912.95 -34102912.80 -34102912.66 0.0510 0.0035  
 Mercury -98082-07-24 06:13 J -34102823.24 -34102823.24 -34102823.23 0.0506 0.0505  
 Mercury -98076-06-25 02:23 J -34100660.51 -34100660.40 -34100660.29 0.0515 0.0367  
 Mercury -98076-09-22 23:16 J -34100570.67 -34100570.53 -34100570.38 0.0519 0.0172  
 Venus -98076-11-05 13:11 J -34100527.04 -34100526.95 -34100526.84 0.0521 0.0453  
 Mercury -98070-02-11 19:11 J -34098602.85 -34098602.70 -34098602.56 0.0511 0.0085  
 Mercury -98070-05-12 08:23 J -34098513.24 -34098513.15 -34098513.05 0.0507 0.0387

Venus -98070-09-12 07:40 J -34098390.34 -34098390.18 -34098390.02 0.0502 0.0310

Mars -98066-10-27 12:56 J -34096884.22 -34096883.96 -34096883.70 0.0494 0.0125

Mercury -98064-04-13 01:25 J -34096350.45 -34096350.44 -34096350.43 0.0514 0.0513

Mercury -98064-07-11 22:47 J -34096260.71 -34096260.55 -34096260.39 0.0518 0.0027

Mercury -98059-11-30 21:49 J -34094292.72 -34094292.59 -34094292.45 0.0512 0.0196

Mercury -98058-02-28 11:01 J -34094203.16 -34094203.04 -34094202.92 0.0508 0.0275

Venus -98058-05-18 10:47 J -34094124.25 -34094124.05 -34094123.85 0.0505 0.0080

Moon -98055-03-12 01:54 J -34093095.61 -34093095.42 -34093095.23 0.0485 0.0284

Earth -98055-03-12 04:04 J -34093095.51 -34093095.33 -34093095.14 0.0485 0.0311 \*

Mercury -98052-04-29 23:16 J -34091950.68 -34091950.53 -34091950.37 0.0517 0.0106

Mercury -98052-07-28 19:25 J -34091860.78 -34091860.69 -34091860.60 0.0521 0.0425

Venus -98052-11-08 12:42 J -34091758.15 -34091757.97 -34091757.80 0.0525 0.0270

Mercury -98047-09-19 00:42 J -34089982.58 -34089982.47 -34089982.35 0.0513 0.0306

Mercury -98047-12-17 13:25 J -34089893.07 -34089892.94 -34089892.80 0.0509 0.0162

Venus -98046-01-21 12:56 J -34089858.02 -34089857.96 -34089857.90 0.0507 0.0478

Earth -98043-03-16 14:52 J -34088708.12 -34088707.88 -34088707.64 0.0485 0.0028

Moon -98043-03-16 18:28 J -34088707.97 -34088707.73 -34088707.48 0.0485 0.0035 \*

Mercury -98040-02-15 23:59 J -34087640.64 -34087640.50 -34087640.36 0.0516 0.0235

Mercury -98040-05-16 20:37 J -34087550.76 -34087550.64 -34087550.51 0.0520 0.0300

Venus -98040-07-14 04:18 J -34087492.51 -34087492.32 -34087492.13 0.0523 0.0191

Mercury -98035-07-08 03:35 J -34085672.43 -34085672.35 -34085672.27 0.0513 0.0418

Mercury -98035-10-05 16:03 J -34085582.98 -34085582.83 -34085582.69 0.0510 0.0046

Moon -98031-03-20 23:15 J -34084320.69 -34084320.53 -34084320.36 0.0486 0.0345

Earth -98031-03-21 03:35 J -34084320.50 -34084320.35 -34084320.20 0.0486 0.0374 \*

Mercury -98029-12-05 00:42 J -34083330.58 -34083330.47 -34083330.35 0.0516 0.0363

Mercury -98028-03-04 21:49 J -34083240.74 -34083240.59 -34083240.44 0.0519 0.0176

Mercury -98023-07-24 17:59 J -34081272.89 -34081272.75 -34081272.61 0.0511 0.0077

Mercury -98023-10-22 07:11 J -34081183.29 -34081183.20 -34081183.10 0.0507 0.0395

Venus -98022-01-23 20:37 J -34081089.83 -34081089.64 -34081089.44 0.0503 0.0151

Mercury -98017-09-23 00:56 J -34079020.49 -34079020.46 -34079020.42 0.0514 0.0496

Mercury -98017-12-21 22:32 J -34078930.72 -34078930.56 -34078930.41 0.0518 0.0046

Earth -98014-09-19 10:32 J -34077929.27 -34077929.06 -34077928.84 0.0543 0.0140

Moon -98014-09-19 14:23 J -34077929.12 -34077928.90 -34077928.68 0.0543 0.0125 \*

Mercury -98011-05-12 20:23 J -34076962.78 -34076962.65 -34076962.51 0.0512 0.0193

Mercury -98011-08-10 09:35 J -34076873.23 -34076873.10 -34076872.98 0.0508 0.0277

Venus -98011-09-28 22:47 J -34076823.72 -34076823.55 -34076823.37 0.0506 0.0249

Mercury -98005-10-09 21:49 J -34074620.74 -34074620.59 -34074620.43 0.0517 0.0100

Mercury -98004-01-07 17:59 J -34074530.84 -34074530.75 -34074530.67 0.0521 0.0429

Venus -98004-03-21 19:39 J -34074457.88 -34074457.68 -34074457.47 0.0524 0.0075

Moon -98002-09-24 02:37 J -34073541.56 -34073541.39 -34073541.21 0.0543 0.0340

Earth -98002-09-24 06:27 J -34073541.41 -34073541.23 -34073541.04 0.0543 0.0306 \*

Mars -98001-08-05 12:42 J -34073225.08 -34073224.97 -34073224.85 0.0536 0.0491

# 98TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 98th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-97999-02-28 23:15 J	-34072652.64	-34072652.53	-34072652.41	0.0513	0.0304		
Mercury	-97999-05-29 11:59 J	-34072563.13	-34072563.00	-34072562.86	0.0509	0.0165		
Mercury	-97993-07-28 22:18 J	-34070310.71	-34070310.57	-34070310.43	0.0516	0.0233		
Mercury	-97993-10-26 18:42 J	-34070220.84	-34070220.72	-34070220.59	0.0520	0.0301		
Venus	-97993-11-24 10:47 J	-34070192.18	-34070192.05	-34070191.91	0.0521	0.0389		
Mercury	-97988-12-18 02:08 J	-34068342.49	-34068342.41	-34068342.32	0.0514	0.0413		

Mercury -97987-03-17 14:37 J -34068253.03 -34068252.89 -34068252.74 0.0510 0.0053

Venus -97987-10-01 09:06 J -34068055.24 -34068055.12 -34068054.99 0.0502 0.0392

Mercury -97981-05-16 22:47 J -34066000.66 -34066000.55 -34066000.44 0.0515 0.0363

Mercury -97981-08-14 19:54 J -34065910.82 -34065910.67 -34065910.53 0.0519 0.0174

Mercury -97975-01-03 17:15 J -34063942.92 -34063942.78 -34063942.63 0.0511 0.0064

Mercury -97975-04-03 06:42 J -34063853.31 -34063853.22 -34063853.13 0.0507 0.0409

Venus -97975-06-06 11:44 J -34063789.21 -34063789.01 -34063788.81 0.0504 0.0009

Earth -97972-03-11 11:59 J -34062780.16 -34062780.00 -34062779.83 0.0485 0.0351

Moon -97972-03-11 15:49 J -34062780.02 -34062779.84 -34062779.66 0.0485 0.0319 \*

Mercury -97969-03-04 23:30 J -34061690.56 -34061690.52 -34061690.48 0.0515 0.0492

Mercury -97969-06-02 21:06 J -34061600.78 -34061600.62 -34061600.47 0.0518 0.0051

Venus -97969-11-27 16:03 J -34061422.98 -34061422.83 -34061422.68 0.0526 0.0365

Mars -97965-05-13 23:01 J -34060159.69 -34060159.54 -34060159.38 0.0533 0.0445

Mercury -97964-10-22 19:25 J -34059632.82 -34059632.69 -34059632.55 0.0511 0.0183

Mercury -97963-01-20 08:23 J -34059543.27 -34059543.15 -34059543.02 0.0508 0.0286

Venus -97963-02-09 11:59 J -34059523.11 -34059523.00 -34059522.88 0.0507 0.0410

Moon -97960-03-15 19:25 J -34058392.93 -34058392.69 -34058392.45 0.0485 0.0011

Earth -97960-03-15 23:30 J -34058392.76 -34058392.52 -34058392.28 0.0485 0.0009 \*

Mercury -97957-03-21 21:35 J -34057290.76 -34057290.60 -34057290.44 0.0517 0.0082

Mercury -97957-06-19 17:44 J -34057200.84 -34057200.76 -34057200.68 0.0521 0.0447

Venus -97957-08-02 06:27 J -34057157.43 -34057157.23 -34057157.02 0.0523 0.0104

Mercury -97952-08-10 22:03 J -34055322.70 -34055322.58 -34055322.46 0.0513 0.0298

Mercury -97952-11-08 10:47 J -34055233.19 -34055233.05 -34055232.91 0.0509 0.0169

Earth -97948-03-20 11:44 J -34054005.17 -34054005.01 -34054004.83 0.0486 0.0340

Moon -97948-03-20 15:49 J -34054005.02 -34054004.84 -34054004.66 0.0486 0.0311 \*

Mars -97947-04-18 12:56 J -34053611.18 -34053610.96 -34053610.72 0.0493 0.0247

Mercury -97945-01-08 20:51 J -34052980.77 -34052980.63 -34052980.48 0.0516 0.0226

Mercury -97945-04-07 17:30 J -34052890.89 -34052890.77 -34052890.65 0.0520 0.0307

Mercury -97940-05-30 00:42 J -34051012.55 -34051012.47 -34051012.38 0.0514 0.0410

Mercury -97940-08-27 13:25 J -34050923.09 -34050922.94 -34050922.80 0.0510 0.0058

Venus -97939-02-11 21:49 J -34050754.76 -34050754.59 -34050754.40 0.0503 0.0232  
 Mercury -97934-10-27 21:20 J -34048670.73 -34048670.61 -34048670.50 0.0515 0.0359  
 Mercury -97933-01-25 18:13 J -34048580.89 -34048580.74 -34048580.59 0.0519 0.0177  
 Moon -97931-09-18 09:20 J -34047614.32 -34047614.11 -34047613.90 0.0543 0.0200  
 Earth -97931-09-18 13:11 J -34047614.15 -34047613.95 -34047613.74 0.0543 0.0213 \*  
 Mercury -97928-06-15 16:03 J -34046612.97 -34046612.83 -34046612.69 0.0511 0.0057  
 Mercury -97928-09-13 05:30 J -34046523.36 -34046523.27 -34046523.19 0.0507 0.0416  
 Venus -97928-10-18 00:27 J -34046488.66 -34046488.48 -34046488.28 0.0506 0.0165  
 Mercury -97922-08-15 21:35 J -34044360.64 -34044360.60 -34044360.55 0.0514 0.0491  
 Mercury -97922-11-13 19:11 J -34044270.86 -34044270.70 -34044270.55 0.0518 0.0051  
 Venus -97921-04-09 21:49 J -34044122.78 -34044122.59 -34044122.39 0.0525 0.0163  
 Earth -97919-09-23 16:18 J -34043226.01 -34043225.82 -34043225.62 0.0543 0.0258  
 Moon -97919-09-23 19:25 J -34043225.87 -34043225.69 -34043225.50 0.0543 0.0289 \*  
 Mercury -97916-04-03 18:42 J -34042302.85 -34042302.72 -34042302.58 0.0512 0.0170  
 Mercury -97916-07-02 07:54 J -34042213.29 -34042213.17 -34042213.05 0.0508 0.0300  
 Mars -97911-01-20 20:23 J -34040549.83 -34040549.65 -34040549.45 0.0495 0.0346  
 Mercury -97910-09-01 20:08 J -34039960.82 -34039960.66 -34039960.51 0.0517 0.0077  
 Mercury -97910-11-30 16:18 J -34039870.89 -34039870.82 -34039870.75 0.0521 0.0453  
 Venus -97910-12-14 14:08 J -34039857.08 -34039856.91 -34039856.74 0.0522 0.0296  
 Mercury -97904-01-20 21:06 J -34037992.74 -34037992.62 -34037992.50 0.0513 0.0288  
 Mercury -97904-04-20 09:49 J -34037903.23 -34037903.09 -34037902.96 0.0509 0.0179  
 Venus -97904-10-20 08:37 J -34037720.21 -34037720.14 -34037720.06 0.0502 0.0462  
 Mercury -97898-06-20 20:37 J -34035650.78 -34035650.64 -34035650.49 0.0516 0.0208  
 Mercury -97898-09-18 17:15 J -34035560.90 -34035560.78 -34035560.66 0.0520 0.0325  
 Mercury -97893-11-08 23:44 J -34033682.60 -34033682.51 -34033682.42 0.0514 0.0403  
 Mercury -97892-02-06 12:13 J -34033593.14 -34033592.99 -34033592.85 0.0510 0.0063  
 Venus -97892-06-25 11:01 J -34033454.24 -34033454.04 -34033453.84 0.0504 0.0068  
 Moon -97889-03-10 17:44 J -34032464.92 -34032464.76 -34032464.59 0.0485 0.0351  
 Earth -97889-03-10 22:03 J -34032464.73 -34032464.58 -34032464.43 0.0485 0.0380 \*  
 Mercury -97886-04-08 20:08 J -34031340.78 -34031340.66 -34031340.55 0.0515 0.0350

Mercury -97886-07-07 17:01 J -34031250.93 -34031250.79 -34031250.64 0.0519 0.0185

Venus -97886-12-17 14:08 J -34031088.02 -34031087.91 -34031087.79 0.0525 0.0435

Mercury -97881-11-25 14:37 J -34029283.03 -34029282.89 -34029282.75 0.0511 0.0053

Mercury -97880-02-23 04:03 J -34029193.41 -34029193.33 -34029193.25 0.0508 0.0420

Venus -97880-02-28 12:42 J -34029188.11 -34029187.97 -34029187.81 0.0507 0.0332

Earth -97877-03-15 10:18 J -34028077.31 -34028077.07 -34028076.83 0.0485 0.0038

Moon -97877-03-15 14:08 J -34028077.14 -34028076.91 -34028076.67 0.0485 0.0041 \*

Mercury -97874-01-25 20:08 J -34027030.71 -34027030.66 -34027030.61 0.0514 0.0484

Mercury -97874-04-25 17:30 J -34026940.92 -34026940.77 -34026940.61 0.0518 0.0055

Venus -97874-08-22 04:47 J -34026822.51 -34026822.30 -34026822.10 0.0523 0.0034

Mercury -97869-09-13 17:30 J -34024972.91 -34024972.77 -34024972.64 0.0512 0.0165

Mercury -97869-12-12 06:27 J -34024883.34 -34024883.23 -34024883.11 0.0508 0.0306

Moon -97865-03-19 17:44 J -34023689.96 -34023689.76 -34023689.55 0.0485 0.0270

Earth -97865-03-19 20:37 J -34023689.82 -34023689.64 -34023689.44 0.0485 0.0300 \*

Mercury -97862-02-11 18:13 J -34022630.90 -34022630.74 -34022630.58 0.0517 0.0077

Venus -97862-04-26 20:23 J -34022556.71 -34022556.65 -34022556.58 0.0520 0.0492

Mercury -97862-05-12 14:23 J -34022540.97 -34022540.90 -34022540.82 0.0521 0.0452

Mercury -97857-07-02 20:23 J -34020662.77 -34020662.65 -34020662.53 0.0513 0.0276

Mercury -97857-09-30 09:06 J -34020573.26 -34020573.12 -34020572.99 0.0509 0.0192

Venus -97856-03-02 23:15 J -34020419.69 -34020419.53 -34020419.37 0.0503 0.0312

Mercury -97851-11-30 19:11 J -34018320.85 -34018320.70 -34018320.56 0.0516 0.0204

Mercury -97850-02-28 15:49 J -34018230.96 -34018230.84 -34018230.72 0.0520 0.0330

Earth -97848-09-17 22:47 J -34017298.75 -34017298.55 -34017298.36 0.0543 0.0260

Moon -97848-09-18 02:08 J -34017298.61 -34017298.41 -34017298.21 0.0543 0.0238 \*

Mars -97847-10-31 11:44 J -34016890.28 -34016890.01 -34016889.74 0.0535 0.0165

Mercury -97845-04-20 22:47 J -34016352.64 -34016352.55 -34016352.46 0.0514 0.0393

Mercury -97845-07-19 11:01 J -34016263.18 -34016263.04 -34016262.89 0.0510 0.0073

Venus -97845-11-06 00:27 J -34016153.68 -34016153.48 -34016153.28 0.0505 0.0092

Mercury -97839-09-18 19:39 J -34014010.80 -34014010.68 -34014010.56 0.0515 0.0335

Mercury -97839-12-17 16:32 J -34013920.95 -34013920.81 -34013920.66 0.0519 0.0203

Venus -97838-04-30 00:56 J -34013787.64 -34013787.46 -34013787.28 0.0525 0.0255  
 Moon -97836-09-22 20:23 J -34012910.86 -34012910.65 -34012910.44 0.0543 0.0218  
 Earth -97836-09-22 22:18 J -34012910.78 -34012910.57 -34012910.36 0.0543 0.0195 \*  
 Mercury -97833-02-08 01:25 J -34012042.46 -34012042.44 -34012042.42 0.0515 0.0507  
 Mercury -97833-05-07 13:39 J -34011953.08 -34011952.93 -34011952.79 0.0511 0.0048  
 Venus -97833-07-12 01:39 J -34011887.46 -34011887.43 -34011887.38 0.0508 0.0497  
 Mercury -97833-08-05 02:51 J -34011863.46 -34011863.38 -34011863.30 0.0507 0.0427  
 Mercury -97827-07-07 18:56 J -34009700.76 -34009700.71 -34009700.64 0.0514 0.0475  
 Mercury -97827-10-05 16:32 J -34009610.97 -34009610.81 -34009610.66 0.0517 0.0063  
 Venus -97826-01-02 13:11 J -34009522.14 -34009521.95 -34009521.77 0.0521 0.0222  
 Mercury -97821-02-24 15:49 J -34007642.97 -34007642.84 -34007642.70 0.0512 0.0162  
 Mercury -97821-05-24 05:01 J -34007553.40 -34007553.29 -34007553.17 0.0509 0.0310  
 Mercury -97815-07-24 16:47 J -34005300.95 -34005300.80 -34005300.64 0.0517 0.0072  
 Mercury -97815-10-22 12:56 J -34005211.03 -34005210.96 -34005210.89 0.0520 0.0457  
 Mercury -97810-12-13 18:42 J -34003332.84 -34003332.72 -34003332.59 0.0513 0.0273  
 Mercury -97809-03-12 07:39 J -34003243.32 -34003243.18 -34003243.05 0.0509 0.0196  
 Venus -97809-07-14 11:59 J -34003119.19 -34003119.00 -34003118.81 0.0504 0.0149  
 Earth -97806-03-11 06:56 J -34002149.32 -34002149.21 -34002149.08 0.0485 0.0418  
 Moon -97806-03-11 10:47 J -34002149.18 -34002149.05 -34002148.90 0.0485 0.0390 \*  
 Mercury -97803-05-12 17:15 J -34000990.93 -34000990.78 -34000990.63 0.0516 0.0203  
 Mercury -97803-08-10 13:54 J -34000901.04 -34000900.92 -34000900.80 0.0520 0.0329  
 Venus -97802-01-05 15:35 J -34000752.86 -34000752.85 -34000752.82 0.0526 0.0521  
 Mercury -97798-10-01 21:49 J -33999022.68 -33999022.59 -33999022.50 0.0514 0.0383  
 Mercury -97798-12-30 10:18 J -33998933.22 -33998933.07 -33998932.93 0.0510 0.0083  
 Venus -97797-03-19 14:23 J -33998853.08 -33998852.90 -33998852.73 0.0507 0.0250  
 Moon -97794-03-15 15:20 J -33997762.10 -33997761.86 -33997761.61 0.0485 0.0087  
 Earth -97794-03-15 18:27 J -33997761.97 -33997761.73 -33997761.49 0.0485 0.0079 \*  
 Mars -97793-07-12 20:37 J -33997276.91 -33997276.64 -33997276.38 0.0493 0.0028  
 Mercury -97791-02-28 17:59 J -33996680.87 -33996680.75 -33996680.63 0.0515 0.0331  
 Mercury -97791-05-29 15:06 J -33996591.01 -33996590.87 -33996590.73 0.0519 0.0205

Venus -97791-09-10 07:39 J -33996487.38 -33996487.18 -33996486.97 0.0524 0.0058  
 Mercury -97786-07-21 00:13 J -33994712.52 -33994712.49 -33994712.45 0.0515 0.0498  
 Mercury -97786-10-18 12:27 J -33994623.12 -33994622.98 -33994622.84 0.0511 0.0036  
 Mercury -97785-01-16 01:39 J -33994533.50 -33994533.43 -33994533.35 0.0507 0.0435  
 Earth -97782-03-20 05:44 J -33993374.46 -33993374.26 -33993374.06 0.0485 0.0263  
 Moon -97782-03-20 06:42 J -33993374.42 -33993374.22 -33993374.01 0.0485 0.0238 \*  
 Mercury -97780-12-17 18:13 J -33992370.80 -33992370.74 -33992370.66 0.0514 0.0463  
 Mercury -97779-03-17 15:49 J -33992280.99 -33992280.84 -33992280.68 0.0518 0.0078  
 Venus -97779-05-15 23:15 J -33992221.66 -33992221.53 -33992221.40 0.0521 0.0402  
 Mercury -97774-08-06 14:51 J -33990313.01 -33990312.88 -33990312.74 0.0512 0.0153  
 Mercury -97774-11-04 03:49 J -33990223.45 -33990223.34 -33990223.22 0.0508 0.0318  
 Venus -97773-03-21 22:18 J -33990084.69 -33990084.57 -33990084.43 0.0503 0.0381  
 Mercury -97767-01-03 15:49 J -33987971.00 -33987970.84 -33987970.69 0.0516 0.0062  
 Mercury -97767-04-03 11:44 J -33987881.07 -33987881.01 -33987880.94 0.0520 0.0466  
 Moon -97765-09-16 18:27 J -33986983.91 -33986983.73 -33986983.54 0.0543 0.0328  
 Earth -97765-09-16 21:20 J -33986983.79 -33986983.61 -33986983.44 0.0543 0.0350 \*  
 Mercury -97762-05-25 17:15 J -33986002.90 -33986002.78 -33986002.66 0.0513 0.0271  
 Mercury -97762-08-23 05:59 J -33985913.38 -33985913.25 -33985913.11 0.0510 0.0199  
 Venus -97762-11-26 00:13 J -33985818.70 -33985818.49 -33985818.29 0.0506 0.0021  
 Mercury -97756-10-22 16:03 J -33983660.98 -33983660.83 -33983660.69 0.0515 0.0196  
 Mercury -97755-01-20 12:27 J -33983571.10 -33983570.98 -33983570.86 0.0519 0.0335  
 Venus -97755-05-18 22:47 J -33983452.70 -33983452.55 -33983452.38 0.0524 0.0324  
 Earth -97753-09-21 21:49 J -33982595.81 -33982595.59 -33982595.36 0.0543 0.0111  
 Moon -97753-09-21 22:18 J -33982595.78 -33982595.57 -33982595.36 0.0543 0.0128 \*  
 Mercury -97750-03-13 20:08 J -33981692.75 -33981692.66 -33981692.57 0.0514 0.0382  
 Mercury -97750-06-11 08:37 J -33981603.28 -33981603.14 -33981603.00 0.0511 0.0084  
 Venus -97750-08-01 01:54 J -33981552.53 -33981552.42 -33981552.31 0.0508 0.0421  
 Mercury -97744-08-10 16:03 J -33979350.95 -33979350.83 -33979350.71 0.0515 0.0331  
 Mercury -97744-11-08 13:11 J -33979261.10 -33979260.95 -33979260.81 0.0519 0.0205  
 Venus -97743-01-21 13:39 J -33979187.13 -33979186.93 -33979186.73 0.0522 0.0143



Mercury -97739-12-30 23:01 J -33977382.57 -33977382.54 -33977382.49 0.0515 0.0491

Mercury -97738-03-30 11:30 J -33977293.17 -33977293.02 -33977292.88 0.0511 0.0033

Mercury -97738-06-28 00:42 J -33977203.54 -33977203.47 -33977203.40 0.0507 0.0444

Mercury -97732-05-29 16:32 J -33975040.88 -33975040.81 -33975040.74 0.0514 0.0461

Mercury -97732-08-27 14:08 J -33974951.07 -33974950.91 -33974950.76 0.0518 0.0078

Mercury -97726-01-16 13:39 J -33972983.07 -33972982.93 -33972982.79 0.0512 0.0146

Mercury -97726-04-16 02:37 J -33972893.50 -33972893.39 -33972893.27 0.0508 0.0324

Venus -97726-08-03 11:30 J -33972784.20 -33972784.02 -33972783.84 0.0504 0.0220

Moon -97723-03-10 11:59 J -33971834.11 -33971834.00 -33971833.89 0.0485 0.0431

Earth -97723-03-10 15:06 J -33971833.94 -33971833.87 -33971833.79 0.0485 0.0456 \*

Mercury -97720-06-15 14:51 J -33970641.04 -33970640.88 -33970640.72 0.0517 0.0050

Mercury -97720-09-13 11:01 J -33970551.10 -33970551.04 -33970550.98 0.0521 0.0477

Mercury -97715-11-04 16:18 J -33968672.95 -33968672.82 -33968672.70 0.0513 0.0262

Mercury -97714-02-02 05:01 J -33968583.43 -33968583.29 -33968583.16 0.0509 0.0206

Venus -97714-04-08 12:56 J -33968518.14 -33968517.96 -33968517.77 0.0507 0.0184

Earth -97711-03-15 03:20 J -33967446.59 -33967446.36 -33967446.12 0.0485 0.0114

Moon -97711-03-15 04:32 J -33967446.53 -33967446.31 -33967446.08 0.0485 0.0129 \*

Mercury -97708-04-03 14:51 J -33966331.03 -33966330.88 -33966330.73 0.0515 0.0187

Mercury -97708-07-02 11:15 J -33966241.14 -33966241.03 -33966240.91 0.0519 0.0343

Venus -97708-09-29 06:56 J -33966152.41 -33966152.21 -33966152.01 0.0523 0.0133

Mercury -97703-08-23 18:27 J -33964362.82 -33964362.73 -33964362.64 0.0515 0.0381

Mercury -97703-11-21 06:56 J -33964273.35 -33964273.21 -33964273.07 0.0511 0.0085

Earth -97699-03-19 15:20 J -33963059.07 -33963058.86 -33963058.64 0.0485 0.0228

Moon -97699-03-19 16:18 J -33963059.04 -33963058.82 -33963058.58 0.0485 0.0206 \*

Mercury -97696-01-20 14:51 J -33962021.00 -33962020.88 -33962020.76 0.0514 0.0323

Mercury -97696-04-20 11:44 J -33961931.15 -33961931.01 -33961930.87 0.0518 0.0211

Venus -97696-06-03 21:35 J -33961886.76 -33961886.60 -33961886.44 0.0520 0.0332

Mars -97692-01-24 08:51 J -33960556.41 -33960556.13 -33960555.85 0.0536 0.0086

Mercury -97691-06-11 21:20 J -33960052.65 -33960052.61 -33960052.57 0.0515 0.0493

Mercury -97691-09-09 09:35 J -33959963.25 -33959963.10 -33959962.96 0.0512 0.0029

Mercury -97691-12-07 23:01 J -33959873.61 -33959873.54 -33959873.47 0.0508 0.0444

Venus -97690-04-10 21:35 J -33959749.67 -33959749.60 -33959749.50 0.0503 0.0453

Mercury -97685-11-08 14:37 J -33957710.96 -33957710.89 -33957710.82 0.0514 0.0461

Mercury -97684-02-06 11:59 J -33957621.15 -33957621.00 -33957620.84 0.0518 0.0078

Earth -97682-09-17 03:06 J -33956668.51 -33956668.37 -33956668.22 0.0544 0.0412

Moon -97682-09-17 04:03 J -33956668.48 -33956668.33 -33956668.17 0.0544 0.0385 \*

Mercury -97679-06-28 12:27 J -33955653.12 -33955652.98 -33955652.84 0.0512 0.0141

Mercury -97679-09-26 01:25 J -33955563.55 -33955563.44 -33955563.33 0.0509 0.0330

Venus -97679-12-15 00:27 J -33955483.68 -33955483.48 -33955483.28 0.0505 0.0058

Mars -97674-01-02 17:01 J -33954003.93 -33954003.79 -33954003.64 0.0491 0.0410

Mercury -97673-11-25 12:56 J -33953311.12 -33953310.96 -33953310.80 0.0517 0.0051

Mercury -97672-02-23 09:06 J -33953221.18 -33953221.12 -33953221.06 0.0521 0.0476

Venus -97672-06-07 00:13 J -33953117.61 -33953117.49 -33953117.36 0.0525 0.0409

Earth -97670-09-22 05:59 J -33952280.48 -33952280.25 -33952280.03 0.0543 0.0057

Moon -97670-09-22 07:25 J -33952280.43 -33952280.19 -33952279.96 0.0543 0.0067 \*

Mercury -97667-04-16 14:51 J -33951343.00 -33951342.88 -33951342.76 0.0513 0.0257

Mercury -97667-07-15 03:35 J -33951253.48 -33951253.35 -33951253.22 0.0509 0.0210

Venus -97667-08-20 01:11 J -33951217.59 -33951217.45 -33951217.30 0.0508 0.0351

Mercury -97661-09-13 13:39 J -33949001.08 -33949000.93 -33949000.78 0.0516 0.0181

Mercury -97661-12-12 10:03 J -33948911.19 -33948911.08 -33948910.96 0.0520 0.0352

Venus -97660-02-09 15:35 J -33948852.05 -33948851.85 -33948851.64 0.0522 0.0056

Moon -97658-09-27 02:37 J -33947892.49 -33947892.39 -33947892.29 0.0542 0.0477

Earth -97658-09-27 05:15 J -33947892.35 -33947892.28 -33947892.20 0.0542 0.0509 \*

Mercury -97655-02-02 17:30 J -33947032.87 -33947032.77 -33947032.68 0.0514 0.0373

Mercury -97655-05-03 05:44 J -33946943.40 -33946943.26 -33946943.11 0.0510 0.0093

Mercury -97649-07-02 13:25 J -33944691.06 -33944690.94 -33944690.81 0.0514 0.0316

Mercury -97649-09-30 10:32 J -33944601.20 -33944601.06 -33944600.92 0.0518 0.0217

Mercury -97644-11-21 19:25 J -33942722.72 -33942722.69 -33942722.65 0.0516 0.0494

Mercury -97643-02-19 07:39 J -33942633.32 -33942633.18 -33942633.03 0.0512 0.0032

Mercury -97643-05-19 21:06 J -33942543.69 -33942543.62 -33942543.55 0.0508 0.0443

Venus -97643-08-22 09:06 J -33942449.28 -33942449.12 -33942448.95 0.0504 0.0284  
 Moon -97640-03-10 01:11 J -33941518.48 -33941518.45 -33941518.41 0.0485 0.0478  
 Mars -97639-10-07 00:56 J -33940942.70 -33940942.46 -33940942.21 0.0493 0.0190  
 Mercury -97637-04-20 13:25 J -33940381.01 -33940380.94 -33940380.87 0.0513 0.0453  
 Mercury -97637-07-19 10:47 J -33940291.20 -33940291.05 -33940290.89 0.0517 0.0083  
 Mercury -97632-12-08 10:18 J -33938323.20 -33938323.07 -33938322.93 0.0513 0.0145  
 Mercury -97631-03-07 23:30 J -33938233.63 -33938233.52 -33938233.41 0.0509 0.0327  
 Venus -97631-04-27 11:15 J -33938183.23 -33938183.03 -33938182.84 0.0507 0.0118  
 Earth -97628-03-14 08:37 J -33937131.36 -33937131.14 -33937130.91 0.0485 0.0163  
 Moon -97628-03-14 09:20 J -33937131.34 -33937131.11 -33937130.87 0.0485 0.0184 \*  
 Mercury -97625-05-07 10:47 J -33935981.21 -33935981.05 -33935980.89 0.0516 0.0054  
 Mercury -97625-08-05 06:56 J -33935891.27 -33935891.21 -33935891.15 0.0520 0.0473  
 Venus -97625-10-18 05:30 J -33935817.46 -33935817.27 -33935817.08 0.0523 0.0202  
 Mercury -97620-09-26 13:25 J -33934013.07 -33934012.94 -33934012.82 0.0513 0.0255  
 Mercury -97620-12-25 02:08 J -33933923.55 -33933923.41 -33933923.28 0.0510 0.0214  
 Moon -97616-03-18 17:30 J -33932743.99 -33932743.77 -33932743.55 0.0485 0.0156  
 Earth -97616-03-18 19:54 J -33932743.89 -33932743.67 -33932743.44 0.0485 0.0175 \*  
 Mercury -97613-02-24 11:15 J -33931671.17 -33931671.03 -33931670.88 0.0516 0.0185  
 Mercury -97613-05-24 08:08 J -33931581.28 -33931581.16 -33931581.05 0.0520 0.0348  
 Venus -97613-06-22 21:20 J -33931551.79 -33931551.61 -33931551.43 0.0521 0.0259  
 Mercury -97608-07-15 15:49 J -33929702.93 -33929702.84 -33929702.74 0.0514 0.0370  
 Mercury -97608-10-13 04:18 J -33929613.46 -33929613.32 -33929613.18 0.0510 0.0095  
 Mercury -97602-12-13 11:59 J -33927361.13 -33927361.00 -33927360.88 0.0515 0.0313  
 Mercury -97601-03-12 09:06 J -33927271.26 -33927271.12 -33927270.98 0.0519 0.0222  
 Earth -97599-09-16 07:11 J -33926353.30 -33926353.20 -33926353.09 0.0543 0.0480  
 Moon -97599-09-16 07:54 J -33926353.30 -33926353.17 -33926353.03 0.0543 0.0447 \*  
 Mercury -97596-05-03 18:27 J -33925392.77 -33925392.73 -33925392.68 0.0515 0.0485  
 Mercury -97596-08-01 06:42 J -33925303.37 -33925303.22 -33925303.08 0.0511 0.0027  
 Mercury -97596-10-29 19:54 J -33925213.74 -33925213.67 -33925213.60 0.0508 0.0449  
 Venus -97595-01-02 22:03 J -33925148.78 -33925148.58 -33925148.39 0.0505 0.0119

Mercury -97590-10-01 11:59 J -33923051.08 -33923051.00 -33923050.93 0.0513 0.0448  
 Mercury -97590-12-30 09:20 J -33922961.26 -33922961.11 -33922960.95 0.0517 0.0089  
 Venus -97589-06-25 23:01 J -33922782.61 -33922782.54 -33922782.45 0.0525 0.0482  
 Moon -97587-09-20 23:59 J -33921965.72 -33921965.50 -33921965.28 0.0543 0.0036  
 Earth -97587-09-21 02:23 J -33921965.62 -33921965.40 -33921965.17 0.0543 0.0043 \*  
 Mercury -97584-05-20 08:23 J -33920993.28 -33920993.15 -33920993.01 0.0513 0.0148  
 Mercury -97584-08-17 21:35 J -33920903.72 -33920903.60 -33920903.49 0.0509 0.0324  
 Venus -97584-09-07 21:49 J -33920882.75 -33920882.59 -33920882.42 0.0508 0.0295  
 Mercury -97578-10-18 09:35 J -33918651.26 -33918651.10 -33918650.95 0.0516 0.0048  
 Mercury -97577-01-16 05:44 J -33918561.32 -33918561.26 -33918561.21 0.0520 0.0478  
 Venus -97577-02-29 13:11 J -33918517.16 -33918516.95 -33918516.75 0.0522 0.0011  
 Earth -97575-09-26 00:56 J -33917577.60 -33917577.46 -33917577.30 0.0543 0.0407  
 Moon -97575-09-26 04:32 J -33917577.47 -33917577.31 -33917577.14 0.0543 0.0374 \*  
 Mercury -97572-03-08 11:01 J -33916683.16 -33916683.04 -33916682.91 0.0514 0.0262  
 Mercury -97572-06-05 23:44 J -33916593.64 -33916593.51 -33916593.37 0.0510 0.0209  
 Mercury -97566-08-06 09:06 J -33914341.26 -33914341.12 -33914340.97 0.0515 0.0188  
 Venus -97566-11-04 02:51 J -33914251.47 -33914251.38 -33914251.28 0.0519 0.0460  
 Mercury -97566-11-04 05:44 J -33914251.37 -33914251.26 -33914251.14 0.0519 0.0343 \*  
 Mercury -97561-12-25 14:08 J -33912373.01 -33912372.91 -33912372.81 0.0515 0.0371  
 Mercury -97560-03-25 02:37 J -33912283.53 -33912283.39 -33912283.25 0.0511 0.0095  
 Venus -97560-09-10 08:23 J -33912114.29 -33912114.15 -33912114.01 0.0504 0.0352  
 Mercury -97554-05-25 09:35 J -33910031.22 -33910031.10 -33910030.97 0.0514 0.0319  
 Mercury -97554-08-23 06:42 J -33909941.36 -33909941.22 -33909941.08 0.0518 0.0216  
 Mercury -97549-10-13 16:47 J -33908062.84 -33908062.80 -33908062.75 0.0515 0.0484  
 Mercury -97548-01-11 05:01 J -33907973.44 -33907973.29 -33907973.15 0.0511 0.0024  
 Mercury -97548-04-10 18:13 J -33907883.81 -33907883.74 -33907883.67 0.0508 0.0449  
 Venus -97548-05-16 09:35 J -33907848.29 -33907848.10 -33907847.90 0.0506 0.0053  
 Moon -97545-03-13 11:01 J -33906816.24 -33906816.04 -33906815.83 0.0485 0.0241  
 Earth -97545-03-13 13:25 J -33906816.15 -33906815.94 -33906815.72 0.0485 0.0213 \*  
 Mercury -97542-03-13 09:49 J -33905721.16 -33905721.09 -33905721.01 0.0514 0.0450

Mercury -97542-06-11 07:39 J -33905631.34 -33905631.18 -33905631.03 0.0517 0.0089

Venus -97542-11-07 06:13 J -33905482.41 -33905482.24 -33905482.07 0.0524 0.0282

Mars -97538-04-20 12:13 J -33904222.20 -33904221.99 -33904221.77 0.0535 0.0352

Mercury -97537-10-30 07:25 J -33903663.33 -33903663.19 -33903663.06 0.0512 0.0141

Venus -97536-01-19 10:18 J -33903582.14 -33903582.07 -33903581.98 0.0509 0.0464

Mercury -97536-01-27 20:23 J -33903573.76 -33903573.65 -33903573.54 0.0509 0.0330

Earth -97533-03-18 01:11 J -33902428.68 -33902428.45 -33902428.21 0.0485 0.0127

Moon -97533-03-18 05:01 J -33902428.53 -33902428.29 -33902428.05 0.0485 0.0113 \*

Mercury -97530-03-30 07:54 J -33901321.33 -33901321.17 -33901321.01 0.0516 0.0044

Mercury -97530-06-28 04:03 J -33901231.38 -33901231.33 -33901231.27 0.0520 0.0481

Venus -97530-07-12 20:37 J -33901216.83 -33901216.64 -33901216.45 0.0520 0.0186

Mercury -97525-08-18 09:06 J -33899353.24 -33899353.12 -33899353.00 0.0514 0.0265

Mercury -97525-11-15 21:49 J -33899263.72 -33899263.59 -33899263.46 0.0510 0.0204

Earth -97521-03-22 12:56 J -33898041.03 -33898040.96 -33898040.90 0.0486 0.0466

Mars -97520-03-28 14:23 J -33897670.14 -33897669.90 -33897669.66 0.0492 0.0215

Mercury -97518-01-16 07:54 J -33897011.32 -33897011.17 -33897011.02 0.0515 0.0180

Mercury -97518-04-16 04:32 J -33896921.42 -33896921.31 -33896921.20 0.0519 0.0349

Mercury -97513-06-06 11:44 J -33895043.10 -33895043.01 -33895042.91 0.0515 0.0379

Mercury -97513-09-04 00:13 J -33894953.63 -33894953.49 -33894953.35 0.0511 0.0087

Venus -97512-01-21 18:13 J -33894813.93 -33894813.74 -33894813.55 0.0505 0.0173

Mercury -97507-11-04 07:11 J -33892701.32 -33892701.20 -33892701.07 0.0514 0.0324

Mercury -97506-02-02 04:18 J -33892611.46 -33892611.32 -33892611.17 0.0518 0.0210

Earth -97504-09-20 03:20 J -33891650.58 -33891650.36 -33891650.14 0.0544 0.0123

Moon -97504-09-20 06:27 J -33891650.45 -33891650.23 -33891650.00 0.0544 0.0119 \*

Mercury -97501-03-25 14:51 J -33890732.92 -33890732.88 -33890732.83 0.0516 0.0488

Mercury -97501-06-23 03:06 J -33890643.52 -33890643.37 -33890643.23 0.0512 0.0025

Mercury -97501-09-20 16:18 J -33890553.88 -33890553.82 -33890553.75 0.0508 0.0448

Venus -97501-09-26 20:37 J -33890547.82 -33890547.64 -33890547.46 0.0508 0.0228

Mercury -97495-08-23 07:25 J -33888391.26 -33888391.19 -33888391.12 0.0513 0.0456

Mercury -97495-11-21 05:01 J -33888301.44 -33888301.29 -33888301.13 0.0517 0.0081

Venus -97494-03-20 10:47 J -33888182.25 -33888182.05 -33888181.84 0.0522 0.0072  
 Moon -97492-09-25 01:54 J -33887262.60 -33887262.42 -33887262.23 0.0543 0.0307  
 Earth -97492-09-25 05:44 J -33887262.43 -33887262.26 -33887262.08 0.0543 0.0342 \*  
 Mercury -97489-04-11 05:30 J -33886333.41 -33886333.27 -33886333.13 0.0513 0.0141  
 Mercury -97489-07-09 18:27 J -33886243.84 -33886243.73 -33886243.62 0.0509 0.0329  
 Mars -97485-12-30 14:08 J -33884609.08 -33884608.91 -33884608.72 0.0493 0.0361  
 Mercury -97483-09-09 05:44 J -33883991.41 -33883991.26 -33883991.10 0.0516 0.0048  
 Venus -97483-11-23 02:51 J -33883916.52 -33883916.38 -33883916.24 0.0520 0.0386  
 Mercury -97483-12-08 02:08 J -33883901.47 -33883901.41 -33883901.35 0.0520 0.0480  
 Mercury -97477-01-29 07:54 J -33882023.29 -33882023.17 -33882023.04 0.0513 0.0258  
 Mercury -97477-04-27 20:37 J -33881933.77 -33881933.64 -33881933.51 0.0510 0.0210  
 Venus -97477-09-29 05:01 J -33881779.40 -33881779.29 -33881779.17 0.0504 0.0409  
 Mercury -97471-06-28 06:13 J -33879681.39 -33879681.24 -33879681.09 0.0515 0.0179  
 Mercury -97471-09-26 02:51 J -33879591.49 -33879591.38 -33879591.27 0.0519 0.0351  
 Mercury -97466-11-17 09:49 J -33877713.18 -33877713.09 -33877712.99 0.0515 0.0382  
 Mercury -97465-02-14 22:18 J -33877623.72 -33877623.57 -33877623.43 0.0511 0.0084  
 Venus -97465-06-04 04:47 J -33877513.50 -33877513.30 -33877513.10 0.0507 0.0004  
 Earth -97462-03-13 17:59 J -33876500.94 -33876500.75 -33876500.54 0.0485 0.0264  
 Moon -97462-03-13 21:35 J -33876500.79 -33876500.60 -33876500.40 0.0485 0.0293 \*  
 Mercury -97459-04-16 05:59 J -33875371.37 -33875371.25 -33875371.12 0.0514 0.0316  
 Mercury -97459-07-15 03:06 J -33875281.51 -33875281.37 -33875281.23 0.0518 0.0217  
 Venus -97459-11-26 03:06 J -33875147.52 -33875147.37 -33875147.21 0.0523 0.0344  
 Mercury -97454-09-05 12:27 J -33873403.01 -33873402.98 -33873402.94 0.0516 0.0497  
 Mercury -97454-12-04 00:42 J -33873313.62 -33873313.47 -33873313.33 0.0512 0.0034  
 Venus -97453-02-08 05:44 J -33873247.37 -33873247.26 -33873247.14 0.0509 0.0415  
 Mercury -97453-03-02 13:54 J -33873223.99 -33873223.92 -33873223.85 0.0508 0.0439  
 Moon -97450-03-17 23:01 J -33872113.77 -33872113.54 -33872113.30 0.0485 0.0053  
 Earth -97450-03-18 03:06 J -33872113.60 -33872113.37 -33872113.13 0.0485 0.0069 \*  
 Mercury -97447-02-02 05:01 J -33871061.35 -33871061.29 -33871061.22 0.0513 0.0462  
 Mercury -97447-05-03 02:37 J -33870971.54 -33870971.39 -33870971.23 0.0517 0.0077

Venus -97447-07-31 15:49 J -33870882.04 -33870881.84 -33870881.64 0.0521 0.0136  
 Mercury -97442-09-22 03:35 J -33869003.49 -33869003.35 -33869003.21 0.0513 0.0144  
 Mercury -97442-12-20 16:32 J -33868913.92 -33868913.81 -33868913.70 0.0509 0.0326  
 Earth -97438-03-22 14:08 J -33867726.03 -33867725.91 -33867725.77 0.0485 0.0405  
 Moon -97438-03-22 17:59 J -33867725.85 -33867725.75 -33867725.63 0.0485 0.0431 \*  
 Mercury -97435-02-19 03:20 J -33866661.52 -33866661.36 -33866661.21 0.0516 0.0057  
 Mercury -97435-05-19 23:30 J -33866571.58 -33866571.52 -33866571.45 0.0520 0.0471  
 Mercury -97430-07-11 06:13 J -33864693.36 -33864693.24 -33864693.12 0.0514 0.0259  
 Mercury -97430-10-08 18:42 J -33864603.85 -33864603.72 -33864603.58 0.0510 0.0210  
 Venus -97429-02-10 16:18 J -33864478.99 -33864478.82 -33864478.64 0.0505 0.0237  
 Mercury -97424-12-08 03:49 J -33862351.49 -33862351.34 -33862351.19 0.0515 0.0185  
 Mercury -97423-03-08 00:42 J -33862261.59 -33862261.47 -33862261.36 0.0519 0.0346  
 Moon -97421-09-19 02:37 J -33861335.60 -33861335.39 -33861335.18 0.0543 0.0195  
 Earth -97421-09-19 06:27 J -33861335.44 -33861335.23 -33861335.02 0.0543 0.0195 \*  
 Mars -97420-10-06 05:15 J -33860953.50 -33860953.28 -33860953.05 0.0537 0.0330  
 Mercury -97418-04-29 08:51 J -33860383.23 -33860383.13 -33860383.04 0.0515 0.0375  
 Mercury -97418-07-27 21:06 J -33860293.76 -33860293.62 -33860293.48 0.0511 0.0090  
 Venus -97418-10-16 17:30 J -33860212.96 -33860212.77 -33860212.58 0.0507 0.0171  
 Mercury -97412-09-26 04:03 J -33858041.45 -33858041.33 -33858041.20 0.0514 0.0316  
 Mercury -97412-12-25 01:25 J -33857951.58 -33857951.44 -33857951.30 0.0518 0.0218  
 Venus -97411-04-08 10:03 J -33857847.27 -33857847.08 -33857846.88 0.0522 0.0145  
 Earth -97409-09-24 02:37 J -33856947.59 -33856947.39 -33856947.18 0.0543 0.0245  
 Moon -97409-09-24 06:13 J -33856947.45 -33856947.24 -33856947.04 0.0543 0.0213 \*  
 Mercury -97406-02-15 10:32 J -33856073.09 -33856073.06 -33856073.02 0.0516 0.0499  
 Mercury -97406-05-15 22:47 J -33855983.70 -33855983.55 -33855983.41 0.0512 0.0038  
 Mercury -97406-08-13 11:59 J -33855894.08 -33855894.00 -33855893.93 0.0508 0.0436  
 Mercury -97400-07-15 04:03 J -33853731.41 -33853731.33 -33853731.26 0.0513 0.0453  
 Mercury -97400-10-13 01:39 J -33853641.59 -33853641.43 -33853641.28 0.0517 0.0083  
 Venus -97400-12-12 00:13 J -33853581.65 -33853581.49 -33853581.33 0.0519 0.0324  
 Mercury -97394-03-04 01:11 J -33851673.59 -33851673.45 -33851673.31 0.0513 0.0153

Mercury -97394-06-01 14:08 J -33851584.03 -33851583.91 -33851583.80 0.0509 0.0317

Venus -97394-10-19 00:27 J -33851444.56 -33851444.48 -33851444.39 0.0504 0.0458

Mercury -97388-08-01 00:56 J -33849331.62 -33849331.46 -33849331.30 0.0516 0.0062

Mercury -97388-10-29 21:20 J -33849241.68 -33849241.61 -33849241.55 0.0520 0.0465

Mercury -97383-12-21 04:03 J -33847363.45 -33847363.33 -33847363.20 0.0514 0.0264

Mercury -97382-03-20 16:47 J -33847273.93 -33847273.80 -33847273.66 0.0510 0.0205

Venus -97382-06-24 03:20 J -33847178.56 -33847178.36 -33847178.16 0.0506 0.0061

Moon -97379-03-12 16:32 J -33846185.97 -33846185.81 -33846185.64 0.0485 0.0351

Earth -97379-03-12 20:37 J -33846185.81 -33846185.64 -33846185.45 0.0485 0.0318 \*

Mercury -97376-05-20 01:11 J -33845021.59 -33845021.45 -33845021.30 0.0515 0.0194

Mercury -97376-08-17 22:03 J -33844931.70 -33844931.58 -33844931.46 0.0519 0.0337

Venus -97376-12-14 23:30 J -33844812.65 -33844812.52 -33844812.39 0.0524 0.0399

Mercury -97371-10-09 06:56 J -33843053.30 -33843053.21 -33843053.11 0.0515 0.0376

Mercury -97370-01-06 19:11 J -33842963.84 -33842963.70 -33842963.55 0.0511 0.0090

Venus -97370-02-27 04:18 J -33842912.46 -33842912.32 -33842912.17 0.0509 0.0348

Earth -97367-03-17 06:27 J -33841798.47 -33841798.23 -33841797.99 0.0485 0.0015

Moon -97367-03-17 10:18 J -33841798.30 -33841798.07 -33841797.83 0.0485 0.0010 \*

Mars -97366-06-21 21:49 J -33841336.85 -33841336.59 -33841336.32 0.0492 0.0057

Mercury -97364-03-08 01:39 J -33840711.55 -33840711.43 -33840711.30 0.0514 0.0323

Mercury -97364-06-05 23:01 J -33840621.68 -33840621.54 -33840621.40 0.0518 0.0211

Venus -97364-08-19 15:06 J -33840547.07 -33840546.87 -33840546.66 0.0521 0.0063

Mercury -97359-07-28 09:35 J -33838743.14 -33838743.10 -33838743.06 0.0516 0.0490

Mercury -97359-10-25 21:35 J -33838653.74 -33838653.60 -33838653.45 0.0512 0.0029

Mercury -97358-01-23 10:47 J -33838564.12 -33838564.05 -33838563.98 0.0508 0.0442

Moon -97355-03-21 14:51 J -33837411.04 -33837410.88 -33837410.73 0.0485 0.0375

Earth -97355-03-21 17:59 J -33837410.91 -33837410.75 -33837410.58 0.0485 0.0351 \*

Mercury -97353-12-25 02:08 J -33836401.48 -33836401.41 -33836401.34 0.0513 0.0453

Mercury -97352-03-24 23:44 J -33836311.66 -33836311.51 -33836311.35 0.0517 0.0084

Mercury -97347-08-13 23:15 J -33834343.66 -33834343.53 -33834343.39 0.0513 0.0155

Mercury -97347-11-11 12:13 J -33834254.10 -33834253.99 -33834253.88 0.0509 0.0315



Venus -97346-03-01 11:30 J -33834144.19 -33834144.02 -33834143.86 0.0505 0.0284  
 Mercury -97340-01-10 23:59 J -33832001.66 -33832001.50 -33832001.35 0.0516 0.0054  
 Mercury -97340-04-10 20:08 J -33831911.72 -33831911.66 -33831911.59 0.0520 0.0474  
 Earth -97338-09-19 01:54 J -33831020.61 -33831020.42 -33831020.23 0.0543 0.0295  
 Moon -97338-09-19 05:30 J -33831020.45 -33831020.27 -33831020.07 0.0543 0.0298 \*  
 Mercury -97335-06-02 01:54 J -33830033.54 -33830033.42 -33830033.30 0.0514 0.0271  
 Mercury -97335-08-30 14:23 J -33829944.03 -33829943.90 -33829943.76 0.0510 0.0197  
 Venus -97335-11-04 12:56 J -33829878.16 -33829877.96 -33829877.77 0.0508 0.0124  
 Mercury -97329-10-29 23:01 J -33827691.69 -33827691.54 -33827691.39 0.0515 0.0198  
 Mercury -97328-01-27 19:54 J -33827601.79 -33827601.67 -33827601.55 0.0519 0.0332  
 Venus -97328-04-27 04:32 J -33827512.50 -33827512.31 -33827512.11 0.0522 0.0192  
 Moon -97326-09-23 22:18 J -33826632.79 -33826632.57 -33826632.34 0.0543 0.0123  
 Earth -97326-09-24 00:56 J -33826632.67 -33826632.46 -33826632.24 0.0543 0.0157 \*  
 Mercury -97323-03-21 05:01 J -33825723.39 -33825723.29 -33825723.20 0.0515 0.0380  
 Mercury -97323-06-18 17:15 J -33825633.92 -33825633.78 -33825633.64 0.0511 0.0086  
 Mercury -97317-08-17 23:15 J -33823381.65 -33823381.53 -33823381.41 0.0514 0.0331  
 Mercury -97317-11-15 20:23 J -33823291.79 -33823291.65 -33823291.50 0.0518 0.0204  
 Venus -97317-12-30 19:54 J -33823246.84 -33823246.67 -33823246.49 0.0520 0.0272  
 Mercury -97311-01-07 07:54 J -33821413.21 -33821413.17 -33821413.13 0.0516 0.0491  
 Mercury -97311-04-06 19:54 J -33821323.81 -33821323.67 -33821323.53 0.0512 0.0029  
 Mercury -97311-07-05 09:06 J -33821234.19 -33821234.12 -33821234.05 0.0508 0.0442  
 Mercury -97305-06-05 23:30 J -33819071.59 -33819071.52 -33819071.45 0.0513 0.0461  
 Mercury -97305-09-03 21:20 J -33818981.77 -33818981.61 -33818981.45 0.0517 0.0076  
 Mercury -97299-01-23 22:18 J -33817013.70 -33817013.57 -33817013.43 0.0513 0.0146  
 Mercury -97299-04-23 11:15 J -33816924.14 -33816924.03 -33816923.92 0.0509 0.0324  
 Venus -97299-07-13 00:42 J -33816843.66 -33816843.47 -33816843.27 0.0506 0.0122  
 Earth -97296-03-12 00:27 J -33815870.62 -33815870.48 -33815870.32 0.0485 0.0370  
 Moon -97296-03-12 04:47 J -33815870.43 -33815870.30 -33815870.17 0.0485 0.0400 \*  
 Mercury -97293-06-22 22:03 J -33814671.74 -33814671.58 -33814671.42 0.0516 0.0052  
 Mercury -97293-09-20 18:27 J -33814581.79 -33814581.73 -33814581.67 0.0520 0.0475

Venus -97292-01-02 23:30 J -33814477.60 -33814477.52 -33814477.43 0.0524 0.0478

Mercury -97288-11-12 00:13 J -33812703.61 -33812703.49 -33812703.37 0.0514 0.0270

Mercury -97287-02-09 12:42 J -33812614.10 -33812613.97 -33812613.83 0.0510 0.0197

Venus -97287-03-17 23:59 J -33812577.66 -33812577.50 -33812577.34 0.0509 0.0299

Moon -97284-03-16 07:25 J -33811483.44 -33811483.19 -33811482.95 0.0485 0.0044

Earth -97284-03-16 10:47 J -33811483.29 -33811483.05 -33811482.81 0.0485 0.0038 \*

Mercury -97281-04-10 22:03 J -33810361.73 -33810361.58 -33810361.43 0.0515 0.0187

Mercury -97281-07-09 18:56 J -33810271.82 -33810271.71 -33810271.59 0.0519 0.0343

Venus -97281-09-07 13:39 J -33810212.14 -33810211.93 -33810211.72 0.0521 0.0005

Mercury -97276-08-31 02:51 J -33808393.47 -33808393.38 -33808393.29 0.0515 0.0385

Mercury -97276-11-28 15:06 J -33808304.01 -33808303.87 -33808303.73 0.0511 0.0080

Earth -97272-03-20 20:37 J -33807095.83 -33807095.64 -33807095.45 0.0485 0.0298

Moon -97272-03-20 22:18 J -33807095.74 -33807095.57 -33807095.40 0.0485 0.0326 \*

Mercury -97269-01-28 21:06 J -33806051.74 -33806051.62 -33806051.50 0.0514 0.0333

Mercury -97269-04-27 18:27 J -33805961.88 -33805961.73 -33805961.59 0.0517 0.0200

Venus -97269-05-13 01:54 J -33805946.50 -33805946.42 -33805946.33 0.0518 0.0471

Mars -97266-12-30 10:47 J -33804620.32 -33804620.05 -33804619.78 0.0537 0.0128

Mercury -97264-06-19 05:59 J -33804083.29 -33804083.25 -33804083.21 0.0516 0.0494

Mercury -97264-09-16 17:59 J -33803993.89 -33803993.75 -33803993.61 0.0512 0.0032

Mercury -97264-12-15 07:11 J -33803904.27 -33803904.20 -33803904.13 0.0509 0.0440

Venus -97263-03-20 10:32 J -33803809.20 -33803809.06 -33803808.92 0.0505 0.0353

Mercury -97258-11-16 21:06 J -33801741.68 -33801741.62 -33801741.55 0.0513 0.0467

Mercury -97257-02-14 18:56 J -33801651.87 -33801651.71 -33801651.55 0.0517 0.0070

Moon -97255-09-17 23:59 J -33800705.66 -33800705.50 -33800705.33 0.0544 0.0379

Earth -97255-09-18 03:20 J -33800705.52 -33800705.36 -33800705.19 0.0544 0.0370 \*

Mercury -97252-07-05 20:37 J -33799683.77 -33799683.64 -33799683.50 0.0513 0.0145

Mercury -97252-10-03 09:35 J -33799594.21 -33799594.10 -33799593.99 0.0509 0.0325

Venus -97252-11-23 12:27 J -33799543.18 -33799542.98 -33799542.78 0.0507 0.0050

Mars -97248-12-11 06:56 J -33798064.28 -33798064.21 -33798064.12 0.0490 0.0467

Mercury -97246-12-03 19:39 J -33797341.84 -33797341.68 -33797341.52 0.0516 0.0058

Mercury -97245-03-02 16:03 J -33797251.89 -33797251.83 -33797251.76 0.0520 0.0469

Venus -97245-05-16 04:47 J -33797177.48 -33797177.30 -33797177.13 0.0523 0.0269

Earth -97243-09-23 06:13 J -33796317.46 -33796317.24 -33796317.01 0.0543 0.0094

Moon -97243-09-23 07:25 J -33796317.40 -33796317.19 -33796316.97 0.0543 0.0066 \*

Mercury -97240-04-23 23:15 J -33795373.65 -33795373.53 -33795373.40 0.0514 0.0260

Mercury -97240-07-22 11:44 J -33795284.14 -33795284.01 -33795283.87 0.0510 0.0208

Venus -97240-07-29 13:11 J -33795277.02 -33795276.95 -33795276.86 0.0510 0.0463

Mercury -97234-09-21 20:23 J -33793031.80 -33793031.65 -33793031.50 0.0515 0.0186

Mercury -97234-12-20 17:15 J -33792941.89 -33792941.78 -33792941.66 0.0519 0.0345

Venus -97233-01-19 20:37 J -33792911.83 -33792911.64 -33792911.44 0.0520 0.0192

Earth -97231-09-28 04:47 J -33791929.32 -33791929.30 -33791929.27 0.0542 0.0538

Mercury -97228-02-10 01:25 J -33791063.53 -33791063.44 -33791063.35 0.0515 0.0382

Mercury -97228-05-10 13:39 J -33790974.08 -33790973.93 -33790973.79 0.0511 0.0082

Mercury -97222-07-10 20:23 J -33788721.78 -33788721.65 -33788721.53 0.0514 0.0320

Mercury -97222-10-08 17:44 J -33788631.90 -33788631.76 -33788631.62 0.0518 0.0213

Mercury -97217-11-29 04:03 J -33786753.36 -33786753.33 -33786753.29 0.0516 0.0497

Mercury -97216-02-26 16:03 J -33786663.97 -33786663.83 -33786663.69 0.0512 0.0035

Mercury -97216-05-27 05:01 J -33786574.36 -33786574.29 -33786574.21 0.0509 0.0437

Venus -97216-07-31 21:06 J -33786508.80 -33786508.62 -33786508.43 0.0506 0.0177

Moon -97213-03-11 01:54 J -33785555.52 -33785555.42 -33785555.33 0.0485 0.0445

Earth -97213-03-11 05:15 J -33785555.40 -33785555.28 -33785555.15 0.0485 0.0415 \*

Mars -97212-09-14 12:27 J -33785003.24 -33785002.98 -33785002.72 0.0492 0.0124

Mercury -97210-04-28 19:11 J -33784411.76 -33784411.70 -33784411.63 0.0513 0.0466

Mercury -97210-07-27 17:01 J -33784321.95 -33784321.79 -33784321.63 0.0516 0.0069

Mercury -97205-12-15 18:56 J -33782353.85 -33782353.71 -33782353.57 0.0514 0.0146

Mercury -97204-03-15 07:39 J -33782264.29 -33782264.18 -33782264.06 0.0510 0.0325

Venus -97204-04-05 23:30 J -33782242.70 -33782242.52 -33782242.34 0.0509 0.0227

Earth -97201-03-15 16:18 J -33781168.05 -33781167.82 -33781167.58 0.0484 0.0082

Moon -97201-03-15 18:13 J -33781167.97 -33781167.74 -33781167.51 0.0484 0.0077 \*

Mercury -97198-05-15 17:30 J -33780011.93 -33780011.77 -33780011.62 0.0516 0.0063

Mercury -97198-08-13 13:54 J -33779921.98 -33779921.92 -33779921.85 0.0519 0.0464

Venus -97198-09-27 09:49 J -33779877.29 -33779877.09 -33779876.88 0.0521 0.0062

Mercury -97193-10-03 21:49 J -33778043.71 -33778043.59 -33778043.47 0.0514 0.0257

Mercury -97192-01-01 10:18 J -33777954.20 -33777954.07 -33777953.93 0.0510 0.0210

Earth -97189-03-20 02:23 J -33776780.60 -33776780.40 -33776780.19 0.0485 0.0250

Moon -97189-03-20 02:23 J -33776780.60 -33776780.40 -33776780.19 0.0485 0.0278 \*

Mercury -97186-03-03 17:59 J -33775701.90 -33775701.75 -33775701.60 0.0515 0.0191

Mercury -97186-06-01 15:06 J -33775611.99 -33775611.87 -33775611.76 0.0519 0.0340

Venus -97186-06-02 02:23 J -33775611.54 -33775611.40 -33775611.27 0.0519 0.0394

Mercury -97181-07-23 00:42 J -33773733.57 -33773733.47 -33773733.38 0.0515 0.0370

Mercury -97181-10-20 12:56 J -33773644.11 -33773643.96 -33773643.82 0.0511 0.0095

Venus -97180-04-08 09:35 J -33773474.20 -33773474.10 -33773473.99 0.0504 0.0422

Mercury -97175-12-20 18:42 J -33771391.85 -33771391.72 -33771391.60 0.0514 0.0319

Mercury -97174-03-20 16:03 J -33771301.97 -33771301.83 -33771301.69 0.0518 0.0216

Earth -97172-09-17 07:25 J -33770390.32 -33770390.19 -33770390.06 0.0543 0.0435

Moon -97172-09-17 09:06 J -33770390.23 -33770390.12 -33770389.99 0.0543 0.0454 \*

Mercury -97169-05-11 02:51 J -33769423.42 -33769423.38 -33769423.34 0.0516 0.0491

Mercury -97169-08-08 14:37 J -33769334.03 -33769333.89 -33769333.74 0.0512 0.0034

Mercury -97169-11-06 03:49 J -33769244.41 -33769244.34 -33769244.27 0.0508 0.0441

Venus -97169-12-12 09:35 J -33769208.30 -33769208.10 -33769207.90 0.0507 0.0009

Mercury -97163-10-08 18:27 J -33767081.80 -33767081.73 -33767081.65 0.0513 0.0453

Mercury -97162-01-06 16:32 J -33766991.97 -33766991.81 -33766991.66 0.0517 0.0084

Venus -97162-06-05 05:01 J -33766842.45 -33766842.29 -33766842.14 0.0523 0.0347

Earth -97160-09-22 06:56 J -33766002.44 -33766002.21 -33766001.98 0.0543 0.0014

Moon -97160-09-22 07:11 J -33766002.44 -33766002.20 -33766001.97 0.0543 0.0015 \*

Mercury -97157-05-27 17:15 J -33765023.92 -33765023.78 -33765023.64 0.0513 0.0146

Venus -97157-08-17 10:32 J -33764942.18 -33764942.06 -33764941.94 0.0510 0.0405

Mercury -97157-08-25 05:59 J -33764934.36 -33764934.25 -33764934.13 0.0510 0.0323

Mercury -97151-10-25 15:49 J -33762682.00 -33762681.84 -33762681.69 0.0515 0.0061

Mercury -97150-01-23 12:13 J -33762592.05 -33762591.99 -33762591.92 0.0519 0.0466

Venus -97150-02-07 16:47 J -33762577.00 -33762576.80 -33762576.60 0.0520 0.0135  
 Moon -97148-09-27 01:54 J -33761614.52 -33761614.42 -33761614.31 0.0543 0.0473  
 Earth -97148-09-27 03:35 J -33761614.46 -33761614.35 -33761614.22 0.0543 0.0455 \*  
 Mercury -97145-03-15 20:08 J -33760713.78 -33760713.66 -33760713.54 0.0515 0.0257  
 Mercury -97145-06-13 08:37 J -33760624.27 -33760624.14 -33760624.00 0.0511 0.0211  
 Mercury -97139-08-13 16:03 J -33758371.98 -33758371.83 -33758371.68 0.0514 0.0192  
 Mercury -97139-11-11 12:56 J -33758282.08 -33758281.96 -33758281.84 0.0518 0.0338  
 Mercury -97133-01-02 23:01 J -33756403.63 -33756403.54 -33756403.44 0.0515 0.0368  
 Mercury -97133-04-01 11:15 J -33756314.17 -33756314.03 -33756313.88 0.0511 0.0099  
 Venus -97133-08-19 22:03 J -33756173.75 -33756173.58 -33756173.41 0.0506 0.0257  
 Earth -97130-03-11 12:42 J -33755240.04 -33755239.97 -33755239.89 0.0484 0.0456  
 Moon -97130-03-11 14:51 J -33755239.90 -33755239.88 -33755239.86 0.0484 0.0481 \*  
 Mercury -97127-06-01 16:18 J -33754061.94 -33754061.82 -33754061.69 0.0514 0.0322  
 Mercury -97127-08-30 13:54 J -33753972.06 -33753971.92 -33753971.78 0.0518 0.0212  
 Mercury -97122-10-22 02:08 J -33752093.46 -33752093.41 -33752093.36 0.0516 0.0478  
 Mercury -97121-01-19 14:08 J -33752004.06 -33752003.91 -33752003.77 0.0512 0.0023  
 Mercury -97121-04-18 03:06 J -33751914.43 -33751914.37 -33751914.31 0.0508 0.0454  
 Venus -97121-04-24 23:44 J -33751907.70 -33751907.51 -33751907.31 0.0508 0.0151  
 Moon -97118-03-15 23:15 J -33750852.77 -33750852.53 -33750852.28 0.0485 0.0111  
 Earth -97118-03-15 23:15 J -33750852.76 -33750852.53 -33750852.29 0.0485 0.0124 \*  
 Mercury -97115-03-20 16:47 J -33749751.87 -33749751.80 -33749751.72 0.0513 0.0450  
 Mercury -97115-06-18 14:51 J -33749662.04 -33749661.88 -33749661.72 0.0517 0.0087  
 Venus -97115-10-16 12:13 J -33749542.19 -33749541.99 -33749541.79 0.0522 0.0151  
 Mars -97111-03-25 18:42 J -33748285.98 -33748285.72 -33748285.44 0.0536 0.0157  
 Mercury -97110-11-07 16:03 J -33747693.97 -33747693.83 -33747693.69 0.0513 0.0139  
 Mercury -97109-02-05 04:47 J -33747604.41 -33747604.30 -33747604.19 0.0509 0.0330  
 Moon -97106-03-20 07:54 J -33746465.37 -33746465.17 -33746464.97 0.0485 0.0238  
 Earth -97106-03-20 09:35 J -33746465.31 -33746465.10 -33746464.88 0.0485 0.0210 \*  
 Mercury -97103-04-06 15:20 J -33745352.02 -33745351.86 -33745351.70 0.0516 0.0044  
 Venus -97103-06-21 03:35 J -33745276.51 -33745276.35 -33745276.18 0.0519 0.0312

Mercury -97103-07-05 11:44 J -33745262.06 -33745262.01 -33745261.95 0.0519 0.0482

Mercury -97098-08-26 18:42 J -33743383.84 -33743383.72 -33743383.60 0.0514 0.0254

Mercury -97098-11-24 07:11 J -33743294.33 -33743294.20 -33743294.07 0.0510 0.0213

Venus -97097-04-27 07:39 J -33743139.23 -33743139.18 -33743139.12 0.0504 0.0485

Mars -97093-03-06 06:27 J -33741730.45 -33741730.23 -33741729.99 0.0490 0.0258

Mercury -97091-01-23 14:23 J -33741042.04 -33741041.90 -33741041.74 0.0514 0.0188

Mercury -97091-04-23 11:30 J -33740952.14 -33740952.02 -33740951.90 0.0518 0.0342

Earth -97089-09-16 05:15 J -33740075.33 -33740075.28 -33740075.21 0.0544 0.0523

Mercury -97086-06-14 21:35 J -33739073.70 -33739073.60 -33739073.50 0.0516 0.0366

Mercury -97086-09-12 09:49 J -33738984.23 -33738984.09 -33738983.95 0.0512 0.0100

Venus -97085-01-01 10:03 J -33738873.27 -33738873.08 -33738872.88 0.0507 0.0088

Mercury -97080-11-11 14:37 J -33736732.01 -33736731.89 -33736731.76 0.0513 0.0320

Mercury -97079-02-09 11:59 J -33736642.14 -33736642.00 -33736641.85 0.0517 0.0213

Venus -97079-06-24 02:08 J -33736507.53 -33736507.41 -33736507.28 0.0523 0.0411

Moon -97077-09-21 07:11 J -33735687.41 -33735687.20 -33735686.98 0.0544 0.0086

Earth -97077-09-21 08:37 J -33735687.37 -33735687.14 -33735686.92 0.0544 0.0060 \*

Mercury -97074-04-03 00:42 J -33734763.52 -33734763.47 -33734763.42 0.0516 0.0475

Mercury -97074-07-01 12:42 J -33734674.12 -33734673.97 -33734673.83 0.0513 0.0015

Venus -97074-09-06 11:59 J -33734607.15 -33734607.00 -33734606.84 0.0510 0.0321

Mercury -97074-09-29 01:39 J -33734584.49 -33734584.43 -33734584.36 0.0509 0.0459

Mercury -97068-08-30 14:51 J -33732421.95 -33732421.88 -33732421.80 0.0513 0.0451

Mercury -97068-11-28 12:56 J -33732332.12 -33732331.96 -33732331.81 0.0517 0.0087

Venus -97067-02-26 18:13 J -33732241.95 -33732241.74 -33732241.53 0.0521 0.0051

Earth -97065-09-26 12:13 J -33731299.13 -33731298.99 -33731298.83 0.0544 0.0404

Moon -97065-09-26 15:20 J -33731299.00 -33731298.86 -33731298.72 0.0544 0.0427 \*

Mercury -97062-04-19 15:20 J -33730364.00 -33730363.86 -33730363.72 0.0513 0.0126

Mercury -97062-07-18 04:18 J -33730274.43 -33730274.32 -33730274.22 0.0509 0.0344

Mars -97058-12-09 15:49 J -33728669.03 -33728668.84 -33728668.64 0.0492 0.0336

Mercury -97056-09-16 13:39 J -33728022.08 -33728021.93 -33728021.77 0.0516 0.0042

Venus -97056-11-01 11:15 J -33727976.07 -33727976.03 -33727975.98 0.0518 0.0502

Mercury -97056-12-15 10:18 J -33727932.12 -33727932.07 -33727932.02 0.0520 0.0486

Mercury -97050-02-05 17:44 J -33726053.89 -33726053.76 -33726053.64 0.0514 0.0245

Mercury -97050-05-06 06:13 J -33725964.37 -33725964.24 -33725964.11 0.0510 0.0222

Venus -97050-09-08 20:51 J -33725838.78 -33725838.63 -33725838.47 0.0505 0.0325

Mercury -97044-07-05 14:08 J -33723712.06 -33723711.91 -33723711.76 0.0515 0.0170

Mercury -97044-10-03 11:01 J -33723622.15 -33723622.04 -33723621.92 0.0518 0.0359

Mercury -97039-11-24 20:23 J -33721743.75 -33721743.65 -33721743.55 0.0515 0.0360

Mercury -97038-02-22 08:37 J -33721654.29 -33721654.14 -33721654.00 0.0511 0.0105

Venus -97038-05-14 22:32 J -33721572.76 -33721572.56 -33721572.36 0.0508 0.0084

Moon -97035-03-15 06:13 J -33720537.46 -33720537.24 -33720537.02 0.0485 0.0137

Earth -97035-03-15 07:54 J -33720537.39 -33720537.17 -33720536.94 0.0485 0.0157 \*

Mercury -97032-04-23 13:25 J -33719402.07 -33719401.94 -33719401.81 0.0513 0.0312

Mercury -97032-07-22 10:47 J -33719312.19 -33719312.05 -33719311.91 0.0517 0.0219

Venus -97032-11-04 10:03 J -33719207.27 -33719207.08 -33719206.89 0.0522 0.0218

Mercury -97027-09-12 23:01 J -33717433.59 -33717433.54 -33717433.48 0.0517 0.0473

Mercury -97027-12-11 11:15 J -33717344.18 -33717344.03 -33717343.89 0.0513 0.0018

Venus -97026-01-17 23:44 J -33717306.56 -33717306.51 -33717306.46 0.0511 0.0496

Mercury -97026-03-11 00:13 J -33717254.55 -33717254.49 -33717254.43 0.0509 0.0463

Earth -97023-03-19 19:39 J -33716149.90 -33716149.68 -33716149.45 0.0484 0.0179

Moon -97023-03-19 23:01 J -33716149.77 -33716149.54 -33716149.32 0.0484 0.0205 \*

Mercury -97020-02-09 13:25 J -33715092.02 -33715091.94 -33715091.86 0.0512 0.0445

Mercury -97020-05-10 11:15 J -33715002.19 -33715002.03 -33715001.87 0.0516 0.0089

Venus -97020-07-10 01:25 J -33714941.62 -33714941.44 -33714941.25 0.0519 0.0245

Mercury -97015-09-29 14:08 J -33713034.05 -33713033.91 -33713033.77 0.0514 0.0121

Mercury -97015-12-28 02:51 J -33712944.49 -33712944.38 -33712944.27 0.0510 0.0349

Mercury -97008-02-26 11:44 J -33710692.17 -33710692.01 -33710691.85 0.0515 0.0041

Mercury -97008-05-27 08:23 J -33710602.20 -33710602.15 -33710602.10 0.0519 0.0485

Mercury -97003-07-18 17:01 J -33708723.92 -33708723.79 -33708723.67 0.0514 0.0233

Mercury -97003-10-16 05:30 J -33708634.40 -33708634.27 -33708634.14 0.0511 0.0235

Venus -97002-01-20 11:30 J -33708538.21 -33708538.02 -33708537.83 0.0507 0.0169

# 97TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 97th millennium BCE.**

PLANET	MAX-	C	START	MAX	END	SUNRAD	DEPTH	S
	TRANSIT							
	TIME							
Mercury	-96997-12-15 12:42 J	-33706382.13	-33706381.97	-33706381.82	0.0515	0.0167		
Mercury	-96996-03-15 09:35 J	-33706292.21	-33706292.10	-33706291.99	0.0519	0.0364		
Venus	-96996-07-13 05:30 J	-33706172.32	-33706172.27	-33706172.22	0.0524	0.0506		
Earth	-96994-09-21 17:15 J	-33705372.00	-33705371.78	-33705371.55	0.0544	0.0109		
Moon	-96994-09-21 20:08 J	-33705371.89	-33705371.66	-33705371.43	0.0544	0.0127	*	
Mars	-96993-09-11 11:59 J	-33705016.13	-33705016.00	-33705015.84	0.0538	0.0457		
Mercury	-96991-05-06 19:25 J	-33704413.79	-33704413.69	-33704413.59	0.0515	0.0350		
Mercury	-96991-08-04 07:25 J	-33704324.33	-33704324.19	-33704324.04	0.0511	0.0115		
Venus	-96991-09-25 11:44 J	-33704272.18	-33704272.01	-33704271.83	0.0509	0.0248		
Mercury	-96985-10-03 12:56 J	-33702072.09	-33702071.96	-33702071.83	0.0514	0.0296		
Mercury	-96984-01-01 10:18 J	-33701982.20	-33701982.07	-33701981.93	0.0517	0.0237		
Venus	-96984-03-17 20:51 J	-33701906.83	-33701906.63	-33701906.42	0.0521	0.0041		
Moon	-96982-09-26 14:08 J	-33700984.07	-33700983.91	-33700983.75	0.0543	0.0367		
Earth	-96982-09-26 17:44 J	-33700983.94	-33700983.76	-33700983.59	0.0543	0.0341	*	
Mercury	-96979-02-22 22:03 J	-33700103.64	-33700103.58	-33700103.52	0.0516	0.0464		
Mercury	-96979-05-23 10:03 J	-33700014.23	-33700014.08	-33700013.94	0.0512	0.0005		
Mercury	-96979-08-20 23:01 J	-33699924.59	-33699924.54	-33699924.48	0.0509	0.0468		
Mercury	-96973-07-22 12:13 J	-33697762.07	-33697761.99	-33697761.91	0.0512	0.0436		



Mercury -96973-10-20 10:03 J -33697672.23 -33697672.08 -33697671.92 0.0516 0.0098

Venus -96973-11-20 10:18 J -33697641.18 -33697641.07 -33697640.96 0.0517 0.0430

Mercury -96967-03-11 12:27 J -33695704.11 -33695703.98 -33695703.84 0.0514 0.0119

Mercury -96967-06-09 01:25 J -33695614.54 -33695614.44 -33695614.33 0.0510 0.0353

Venus -96967-09-27 21:49 J -33695503.71 -33695503.59 -33695503.47 0.0506 0.0405

Mercury -96961-08-08 10:18 J -33693362.22 -33693362.07 -33693361.91 0.0515 0.0037

Mercury -96961-11-06 06:56 J -33693272.26 -33693272.21 -33693272.16 0.0519 0.0489

Mars -96957-06-19 01:39 J -33691951.58 -33691951.43 -33691951.26 0.0537 0.0442

Mercury -96956-12-28 15:35 J -33691393.98 -33691393.85 -33691393.72 0.0515 0.0229

Mercury -96955-03-28 04:03 J -33691304.46 -33691304.33 -33691304.20 0.0511 0.0240

Venus -96955-06-02 23:59 J -33691237.70 -33691237.50 -33691237.30 0.0508 0.0001

Earth -96952-03-14 17:30 J -33690221.99 -33690221.77 -33690221.55 0.0484 0.0192

Moon -96952-03-14 20:51 J -33690221.86 -33690221.63 -33690221.40 0.0484 0.0165 \*

Mercury -96949-05-27 10:47 J -33689052.20 -33689052.05 -33689051.90 0.0514 0.0165

Mercury -96949-08-25 07:54 J -33688962.28 -33688962.17 -33688962.06 0.0518 0.0364

Venus -96949-11-23 11:44 J -33688872.18 -33688872.01 -33688871.84 0.0522 0.0305

Mercury -96944-10-16 18:27 J -33687083.83 -33687083.73 -33687083.62 0.0516 0.0339

Mercury -96943-01-14 06:42 J -33686994.36 -33686994.22 -33686994.08 0.0512 0.0127

Venus -96943-02-06 01:25 J -33686971.55 -33686971.44 -33686971.32 0.0511 0.0411

Moon -96940-03-19 00:42 J -33685834.69 -33685834.47 -33685834.25 0.0484 0.0164

Earth -96940-03-19 04:32 J -33685834.54 -33685834.31 -33685834.08 0.0484 0.0140 \*

Mars -96939-05-31 13:54 J -33685396.19 -33685395.92 -33685395.65 0.0490 0.0036

Mercury -96937-03-15 11:15 J -33684742.16 -33684742.03 -33684741.89 0.0514 0.0293

Mercury -96937-06-13 08:51 J -33684652.27 -33684652.13 -33684651.99 0.0517 0.0240

Venus -96937-07-29 04:32 J -33684606.51 -33684606.31 -33684606.11 0.0519 0.0154

Mercury -96932-08-04 21:06 J -33682773.68 -33682773.62 -33682773.55 0.0516 0.0455

Mercury -96932-11-02 09:06 J -33682684.27 -33682684.12 -33682683.98 0.0512 0.0010

Mercury -96931-01-30 22:03 J -33682594.63 -33682594.58 -33682594.53 0.0509 0.0478

Earth -96928-03-23 14:51 J -33681446.92 -33681446.88 -33681446.83 0.0485 0.0475

Moon -96928-03-23 18:42 J -33681446.79 -33681446.72 -33681446.64 0.0485 0.0459

Mercury -96925-01-02 11:44 J -33680432.10 -33680432.01 -33680431.92 0.0513 0.0422

Mercury -96925-04-01 09:35 J -33680342.25 -33680342.10 -33680341.94 0.0516 0.0113

Mercury -96920-08-21 11:30 J -33678374.16 -33678374.02 -33678373.88 0.0514 0.0110

Mercury -96920-11-19 00:13 J -33678284.59 -33678284.49 -33678284.38 0.0510 0.0361

Venus -96919-02-08 10:47 J -33678203.22 -33678203.05 -33678202.87 0.0506 0.0240

Mercury -96913-01-19 09:20 J -33676032.27 -33676032.11 -33676031.95 0.0515 0.0025

Mercury -96913-04-18 05:44 J -33675942.30 -33675942.26 -33675942.22 0.0519 0.0498

Moon -96911-09-20 12:56 J -33675057.16 -33675056.96 -33675056.75 0.0544 0.0214

Earth -96911-09-20 16:18 J -33675057.03 -33675056.82 -33675056.61 0.0544 0.0195 \*

Mercury -96908-06-09 14:08 J -33674064.04 -33674063.91 -33674063.79 0.0515 0.0226

Mercury -96908-09-07 02:37 J -33673974.52 -33673974.39 -33673974.26 0.0511 0.0243

Venus -96908-10-14 11:44 J -33673937.19 -33673937.01 -33673936.82 0.0510 0.0172

Mercury -96902-11-07 09:35 J -33671722.26 -33671722.10 -33671721.95 0.0514 0.0158

Mercury -96901-02-05 06:27 J -33671632.34 -33671632.23 -33671632.12 0.0518 0.0369

Venus -96901-04-05 19:25 J -33671571.89 -33671571.69 -33671571.48 0.0520 0.0112

Earth -96899-09-25 17:59 J -33670668.94 -33670668.75 -33670668.55 0.0544 0.0261

Moon -96899-09-25 21:35 J -33670668.78 -33670668.60 -33670668.41 0.0544 0.0293 \*

Mercury -96896-03-28 17:01 J -33669753.89 -33669753.79 -33669753.68 0.0516 0.0337

Mercury -96896-06-26 05:15 J -33669664.42 -33669664.28 -33669664.14 0.0512 0.0130

Mercury -96890-08-26 09:35 J -33667412.23 -33667412.10 -33667411.97 0.0513 0.0291

Mercury -96890-11-24 06:56 J -33667322.34 -33667322.21 -33667322.07 0.0517 0.0241

Venus -96890-12-10 11:15 J -33667306.18 -33667306.03 -33667305.88 0.0518 0.0349

Mercury -96884-01-14 20:08 J -33665443.73 -33665443.66 -33665443.59 0.0517 0.0446

Mercury -96884-04-14 08:08 J -33665354.30 -33665354.16 -33665354.02 0.0513 0.0017

Mercury -96884-07-12 21:06 J -33665264.65 -33665264.62 -33665264.58 0.0509 0.0489

Venus -96884-10-16 23:15 J -33665168.58 -33665168.53 -33665168.48 0.0505 0.0487

Mercury -96878-06-14 10:03 J -33663102.17 -33663102.08 -33663101.99 0.0512 0.0419

Mercury -96878-09-12 07:54 J -33663012.32 -33663012.17 -33663012.01 0.0516 0.0117

Mercury -96872-01-31 10:32 J -33661044.20 -33661044.06 -33661043.92 0.0513 0.0100

Mercury -96872-04-30 23:15 J -33660954.63 -33660954.53 -33660954.43 0.0510 0.0369

Venus -96872-06-21 23:59 J -33660902.69 -33660902.50 -33660902.30 0.0508 0.0076  
 Moon -96869-03-13 22:47 J -33659906.77 -33659906.55 -33659906.33 0.0485 0.0200  
 Earth -96869-03-14 02:37 J -33659906.60 -33659906.39 -33659906.18 0.0485 0.0227 \*  
 Mercury -96866-07-01 08:37 J -33658702.30 -33658702.14 -33658701.98 0.0515 0.0013  
 Mercury -96866-09-29 05:15 J -33658612.30 -33658612.28 -33658612.26 0.0519 0.0512  
 Venus -96866-12-13 14:37 J -33658537.02 -33658536.89 -33658536.75 0.0522 0.0398  
 Mercury -96861-11-19 13:11 J -33656734.08 -33656733.95 -33656733.82 0.0515 0.0216  
 Mercury -96860-02-17 01:39 J -33656644.56 -33656644.43 -33656644.31 0.0511 0.0251  
 Venus -96860-02-25 00:56 J -33656636.61 -33656636.46 -33656636.32 0.0510 0.0340  
 Earth -96857-03-18 14:23 J -33655519.14 -33655518.90 -33655518.67 0.0485 0.0109  
 Moon -96857-03-18 18:13 J -33655518.97 -33655518.74 -33655518.51 0.0485 0.0128 \*  
 Mercury -96854-04-19 08:23 J -33654392.30 -33654392.15 -33654392.00 0.0514 0.0148  
 Mercury -96854-07-18 05:15 J -33654302.38 -33654302.28 -33654302.17 0.0518 0.0378  
 Venus -96854-08-18 04:03 J -33654271.53 -33654271.33 -33654271.12 0.0519 0.0076  
 Mercury -96849-09-07 15:20 J -33652423.96 -33652423.86 -33652423.75 0.0516 0.0335  
 Mercury -96849-12-06 03:49 J -33652334.48 -33652334.34 -33652334.20 0.0512 0.0132  
 Moon -96845-03-22 23:01 J -33651131.66 -33651131.54 -33651131.42 0.0485 0.0421  
 Earth -96845-03-23 01:54 J -33651131.50 -33651131.42 -33651131.32 0.0485 0.0445 \*  
 Mercury -96842-02-05 08:23 J -33650082.28 -33650082.15 -33650082.01 0.0513 0.0282  
 Mercury -96842-05-06 05:44 J -33649992.39 -33649992.26 -33649992.12 0.0517 0.0248  
 Mars -96839-12-06 14:37 J -33648682.15 -33648681.89 -33648681.62 0.0539 0.0195  
 Mercury -96837-06-26 18:27 J -33648113.80 -33648113.73 -33648113.66 0.0517 0.0445  
 Mercury -96837-09-24 06:27 J -33648024.37 -33648024.23 -33648024.08 0.0513 0.0021  
 Mercury -96837-12-22 19:39 J -33647934.72 -33647934.68 -33647934.64 0.0509 0.0491  
 Venus -96836-02-27 11:01 J -33647868.19 -33647868.04 -33647867.88 0.0507 0.0319  
 Mercury -96831-11-24 08:23 J -33645772.25 -33645772.15 -33645772.06 0.0512 0.0417  
 Mercury -96830-02-22 06:13 J -33645682.40 -33645682.24 -33645682.09 0.0516 0.0117  
 Earth -96828-09-19 23:30 J -33644741.72 -33644741.52 -33644741.32 0.0544 0.0250  
 Moon -96828-09-20 03:20 J -33644741.56 -33644741.36 -33644741.16 0.0544 0.0256 \*  
 Mercury -96825-07-13 09:20 J -33643714.25 -33643714.11 -33643713.96 0.0514 0.0094

Mercury -96825-10-10 22:18 J -33643624.67 -33643624.57 -33643624.47 0.0510 0.0377

Venus -96825-11-02 13:11 J -33643602.14 -33643601.95 -33643601.75 0.0509 0.0090

Mars -96821-11-20 10:47 J -33642123.18 -33642123.05 -33642122.90 0.0489 0.0411

Mercury -96819-12-11 06:56 J -33641372.37 -33641372.21 -33641372.05 0.0515 0.0010

Mercury -96818-03-11 03:35 J -33641282.37 -33641282.35 -33641282.33 0.0519 0.0514

Venus -96818-04-25 21:35 J -33641236.79 -33641236.60 -33641236.41 0.0521 0.0200

Moon -96816-09-25 00:27 J -33640353.68 -33640353.48 -33640353.27 0.0544 0.0246

Earth -96816-09-25 03:20 J -33640353.56 -33640353.36 -33640353.15 0.0544 0.0214 \*

Mercury -96813-05-01 11:59 J -33639404.13 -33639404.00 -33639403.87 0.0515 0.0209

Venus -96813-07-08 13:11 J -33639335.95 -33639335.95 -33639335.93 0.0512 0.0510

Mercury -96813-07-30 00:27 J -33639314.61 -33639314.48 -33639314.36 0.0511 0.0258

Mercury -96807-09-29 07:25 J -33637062.34 -33637062.19 -33637062.03 0.0514 0.0138

Mercury -96807-12-28 04:32 J -33636972.41 -33636972.31 -33636972.21 0.0518 0.0390

Venus -96807-12-29 13:54 J -33636971.10 -33636970.92 -33636970.74 0.0518 0.0259

Mercury -96801-02-18 14:37 J -33635094.00 -33635093.89 -33635093.78 0.0516 0.0325

Mercury -96801-05-18 02:51 J -33635004.52 -33635004.38 -33635004.24 0.0512 0.0141

Mercury -96795-07-18 07:25 J -33632752.33 -33632752.19 -33632752.06 0.0513 0.0273

Mercury -96795-10-16 04:47 J -33632662.44 -33632662.30 -33632662.17 0.0517 0.0257

Mercury -96790-12-07 17:01 J -33630783.86 -33630783.79 -33630783.72 0.0517 0.0445

Mercury -96789-03-06 04:47 J -33630694.44 -33630694.30 -33630694.15 0.0513 0.0024

Mercury -96789-06-03 17:59 J -33630604.78 -33630604.75 -33630604.71 0.0510 0.0492

Venus -96789-07-10 22:47 J -33630567.74 -33630567.55 -33630567.36 0.0508 0.0146

Earth -96786-03-14 13:11 J -33629591.15 -33629590.95 -33629590.75 0.0485 0.0259

Moon -96786-03-14 17:15 J -33629590.99 -33629590.78 -33629590.57 0.0485 0.0228 \*

Mars -96785-08-24 23:01 J -33629061.78 -33629061.54 -33629061.29 0.0490 0.0195

Mercury -96783-05-06 07:11 J -33628442.30 -33628442.20 -33628442.10 0.0512 0.0408

Mercury -96783-08-04 05:01 J -33628352.45 -33628352.29 -33628352.14 0.0515 0.0125

Venus -96782-01-01 12:56 J -33628202.05 -33628201.96 -33628201.87 0.0522 0.0468

Mercury -96778-12-24 07:39 J -33626384.32 -33626384.18 -33626384.04 0.0514 0.0094

Venus -96777-03-15 23:59 J -33626301.67 -33626301.50 -33626301.33 0.0511 0.0268

Mercury -96777-03-22 20:23 J -33626294.74 -33626294.65 -33626294.55 0.0510 0.0377

Moon -96774-03-18 18:56 J -33625203.95 -33625203.71 -33625203.47 0.0484 0.0078

Earth -96774-03-18 22:03 J -33625203.81 -33625203.58 -33625203.34 0.0484 0.0068 \*

Mercury -96771-05-23 05:01 J -33624042.45 -33624042.29 -33624042.13 0.0515 0.0010

Mercury -96771-08-21 01:25 J -33623952.45 -33623952.44 -33623952.41 0.0519 0.0513

Venus -96771-09-06 03:49 J -33623936.55 -33623936.34 -33623936.13 0.0519 0.0004

Mercury -96766-10-12 10:32 J -33622074.18 -33622074.06 -33622073.92 0.0515 0.0205

Mercury -96765-01-09 23:15 J -33621984.66 -33621984.53 -33621984.41 0.0511 0.0264

Earth -96762-03-23 08:37 J -33620816.27 -33620816.14 -33620816.00 0.0484 0.0400

Moon -96762-03-23 10:03 J -33620816.22 -33620816.08 -33620815.93 0.0484 0.0374 \*

Mercury -96759-03-11 05:30 J -33619732.42 -33619732.27 -33619732.11 0.0514 0.0139

Venus -96759-05-11 20:37 J -33619670.73 -33619670.64 -33619670.54 0.0517 0.0455

Mercury -96759-06-09 02:37 J -33619642.49 -33619642.39 -33619642.29 0.0518 0.0389

Mercury -96754-07-31 13:11 J -33617764.05 -33617763.95 -33617763.83 0.0516 0.0320

Mercury -96754-10-29 01:25 J -33617674.58 -33617674.44 -33617674.30 0.0512 0.0146

Venus -96753-03-18 10:47 J -33617533.18 -33617533.05 -33617532.92 0.0506 0.0390

Mercury -96748-12-28 05:59 J -33615422.38 -33615422.25 -33615422.11 0.0513 0.0267

Mercury -96747-03-28 03:35 J -33615332.49 -33615332.35 -33615332.22 0.0517 0.0264

Moon -96745-09-19 01:39 J -33614426.61 -33614426.43 -33614426.23 0.0544 0.0312

Earth -96745-09-19 05:01 J -33614426.47 -33614426.29 -33614426.10 0.0544 0.0311 \*

Mercury -96742-05-19 15:49 J -33613453.91 -33613453.84 -33613453.76 0.0517 0.0435

Mercury -96742-08-17 03:49 J -33613364.48 -33613364.34 -33613364.19 0.0513 0.0031

Mercury -96742-11-14 17:01 J -33613274.82 -33613274.79 -33613274.77 0.0509 0.0500

Venus -96742-11-22 11:44 J -33613267.21 -33613267.01 -33613266.81 0.0509 0.0024

Mercury -96736-10-16 05:44 J -33611112.35 -33611112.26 -33611112.15 0.0512 0.0401

Mercury -96735-01-14 03:49 J -33611022.50 -33611022.34 -33611022.19 0.0515 0.0132

Venus -96735-05-14 21:20 J -33610901.78 -33610901.61 -33610901.43 0.0521 0.0277

Earth -96733-09-24 00:42 J -33610038.69 -33610038.47 -33610038.24 0.0543 0.0120

Moon -96733-09-24 02:37 J -33610038.60 -33610038.39 -33610038.18 0.0543 0.0155 \*

Mercury -96730-06-05 05:59 J -33609054.39 -33609054.25 -33609054.11 0.0514 0.0095

Venus -96730-07-28 10:47 J -33609001.14 -33609001.05 -33609000.95 0.0512 0.0449  
 Mercury -96730-09-02 18:42 J -33608964.82 -33608964.72 -33608964.62 0.0511 0.0377  
 Mercury -96724-11-02 03:49 J -33606712.50 -33606712.34 -33606712.18 0.0514 0.0004  
 Venus -96723-01-17 12:13 J -33606636.18 -33606635.99 -33606635.79 0.0518 0.0190  
 Mercury -96718-03-24 08:37 J -33604744.27 -33604744.14 -33604744.01 0.0515 0.0208  
 Mercury -96718-06-21 21:06 J -33604654.74 -33604654.62 -33604654.49 0.0512 0.0261  
 Mercury -96712-08-21 03:35 J -33602402.50 -33602402.35 -33602402.19 0.0514 0.0139  
 Mercury -96712-11-19 00:42 J -33602312.57 -33602312.47 -33602312.37 0.0518 0.0387  
 Mercury -96706-01-10 11:44 J -33600434.12 -33600434.01 -33600433.90 0.0516 0.0318  
 Mercury -96706-04-09 23:59 J -33600344.64 -33600344.50 -33600344.36 0.0512 0.0149  
 Venus -96706-07-30 22:47 J -33600232.72 -33600232.55 -33600232.36 0.0508 0.0222  
 Moon -96703-03-13 15:49 J -33599276.03 -33599275.84 -33599275.63 0.0484 0.0276  
 Earth -96703-03-13 19:25 J -33599275.88 -33599275.69 -33599275.50 0.0484 0.0304 \*  
 Mercury -96700-06-09 04:03 J -33598092.47 -33598092.33 -33598092.20 0.0513 0.0269  
 Mercury -96700-09-07 01:25 J -33598002.57 -33598002.44 -33598002.30 0.0517 0.0262  
 Mercury -96695-10-29 14:37 J -33596123.97 -33596123.89 -33596123.82 0.0517 0.0431  
 Mercury -96694-01-27 02:23 J -33596034.54 -33596034.40 -33596034.25 0.0513 0.0033  
 Venus -96694-04-04 23:30 J -33595966.70 -33595966.52 -33595966.33 0.0510 0.0196  
 Mercury -96694-04-26 15:20 J -33595944.87 -33595944.86 -33595944.83 0.0509 0.0503  
 Earth -96691-03-18 04:18 J -33594888.56 -33594888.32 -33594888.07 0.0484 0.0025  
 Moon -96691-03-18 05:59 J -33594888.48 -33594888.25 -33594888.01 0.0484 0.0026 \*  
 Mercury -96688-03-28 04:18 J -33593782.42 -33593782.32 -33593782.22 0.0512 0.0398  
 Mercury -96688-06-26 02:08 J -33593692.56 -33593692.41 -33593692.25 0.0516 0.0137  
 Venus -96688-09-25 05:15 J -33593601.48 -33593601.28 -33593601.07 0.0520 0.0084  
 Mars -96684-03-02 02:08 J -33592347.68 -33592347.41 -33592347.13 0.0538 0.0095  
 Mercury -96683-11-15 05:01 J -33591724.44 -33591724.29 -33591724.15 0.0514 0.0087  
 Mercury -96682-02-12 17:30 J -33591634.86 -33591634.77 -33591634.67 0.0510 0.0384  
 Moon -96679-03-22 15:49 J -33590501.01 -33590500.84 -33590500.64 0.0485 0.0328  
 Earth -96679-03-22 15:49 J -33590501.00 -33590500.84 -33590500.68 0.0485 0.0358 \*  
 Mercury -96676-04-14 02:23 J -33589382.56 -33589382.40 -33589382.24 0.0514 0.0014

Venus -96676-05-30 20:37 J -33589335.78 -33589335.64 -33589335.50 0.0516 0.0378

Mercury -96671-09-03 06:56 J -33587414.34 -33587414.21 -33587414.08 0.0515 0.0211

Mercury -96671-12-01 19:25 J -33587324.82 -33587324.69 -33587324.57 0.0512 0.0259

Venus -96670-04-07 07:39 J -33587198.27 -33587198.18 -33587198.09 0.0506 0.0449

Mars -96666-02-14 15:06 J -33585789.12 -33585788.87 -33585788.62 0.0489 0.0197

Mercury -96664-01-31 02:23 J -33585072.55 -33585072.40 -33585072.24 0.0513 0.0131

Mercury -96664-04-30 23:15 J -33584982.62 -33584982.53 -33584982.42 0.0517 0.0394

Earth -96662-09-19 00:27 J -33584111.63 -33584111.48 -33584111.33 0.0543 0.0411

Moon -96662-09-19 02:51 J -33584111.53 -33584111.38 -33584111.24 0.0543 0.0403 \*

Mercury -96659-06-22 09:35 J -33583104.21 -33583104.10 -33583103.99 0.0517 0.0324

Mercury -96659-09-19 21:49 J -33583014.73 -33583014.59 -33583014.45 0.0513 0.0143

Venus -96659-12-11 08:51 J -33582932.33 -33582932.13 -33582931.93 0.0509 0.0039

Mercury -96653-11-19 01:54 J -33580762.56 -33580762.42 -33580762.29 0.0513 0.0271

Mercury -96652-02-16 23:15 J -33580672.66 -33580672.53 -33580672.39 0.0516 0.0258

Venus -96652-06-02 18:42 J -33580566.87 -33580566.72 -33580566.56 0.0521 0.0340

Moon -96650-09-24 02:51 J -33579723.62 -33579723.38 -33579723.15 0.0544 0.0081

Earth -96650-09-24 03:20 J -33579723.59 -33579723.36 -33579723.13 0.0544 0.0048 \*

Mercury -96647-04-10 12:42 J -33578794.04 -33578793.97 -33578793.89 0.0517 0.0433

Mercury -96647-07-09 00:42 J -33578704.61 -33578704.47 -33578704.33 0.0513 0.0031

Venus -96647-08-16 10:32 J -33578666.19 -33578666.06 -33578665.93 0.0512 0.0376

Mercury -96647-10-06 13:39 J -33578614.94 -33578614.93 -33578614.91 0.0510 0.0503

Mercury -96641-09-07 01:54 J -33576452.51 -33576452.42 -33576452.32 0.0512 0.0403

Mercury -96641-12-05 23:59 J -33576362.65 -33576362.50 -33576362.35 0.0516 0.0131

Venus -96640-02-05 11:01 J -33576301.24 -33576301.04 -33576300.84 0.0518 0.0121

Moon -96638-09-29 05:30 J -33575335.35 -33575335.27 -33575335.19 0.0544 0.0503

Earth -96638-09-29 06:42 J -33575335.30 -33575335.22 -33575335.14 0.0544 0.0507 \*

Mercury -96635-04-27 03:20 J -33574394.50 -33574394.36 -33574394.22 0.0514 0.0085

Mercury -96635-07-25 15:49 J -33574304.93 -33574304.84 -33574304.74 0.0510 0.0386

Mars -96631-11-18 18:42 J -33572727.89 -33572727.72 -33572727.56 0.0491 0.0383

Mercury -96629-09-24 00:42 J -33572052.63 -33572052.47 -33572052.31 0.0515 0.0010

Mercury -96623-02-13 05:44 J -33570084.39 -33570084.26 -33570084.13 0.0515 0.0202

Mercury -96623-05-13 18:13 J -33569994.86 -33569994.74 -33569994.62 0.0511 0.0266

Venus -96623-08-18 20:23 J -33569897.82 -33569897.65 -33569897.48 0.0507 0.0282

Earth -96620-03-13 00:56 J -33568960.62 -33568960.46 -33568960.29 0.0485 0.0350

Moon -96620-03-13 02:51 J -33568960.55 -33568960.38 -33568960.21 0.0485 0.0324 \*

Mercury -96617-07-13 00:56 J -33567742.62 -33567742.46 -33567742.31 0.0513 0.0128

Mercury -96617-10-10 21:49 J -33567652.68 -33567652.59 -33567652.49 0.0517 0.0398

Mercury -96612-12-02 07:39 J -33565774.29 -33565774.18 -33565774.07 0.0516 0.0327

Mercury -96611-03-01 19:54 J -33565684.81 -33565684.67 -33565684.53 0.0513 0.0140

Venus -96611-04-23 19:11 J -33565631.89 -33565631.70 -33565631.51 0.0510 0.0145

Moon -96608-03-17 10:47 J -33564573.30 -33564573.05 -33564572.80 0.0485 0.0030

Earth -96608-03-17 10:47 J -33564573.29 -33564573.05 -33564572.81 0.0485 0.0022 \*

Mercury -96605-05-01 00:42 J -33563432.61 -33563432.47 -33563432.33 0.0512 0.0263

Mercury -96605-07-29 22:03 J -33563342.71 -33563342.58 -33563342.44 0.0516 0.0265

Venus -96605-10-14 03:06 J -33563266.57 -33563266.37 -33563266.17 0.0519 0.0148

Mercury -96600-09-20 10:32 J -33561464.13 -33561464.06 -33561463.99 0.0518 0.0441

Mercury -96600-12-18 22:32 J -33561374.71 -33561374.56 -33561374.42 0.0514 0.0028

Mercury -96599-03-18 11:30 J -33561285.05 -33561285.02 -33561284.99 0.0510 0.0496

Moon -96596-03-21 17:44 J -33560185.95 -33560185.76 -33560185.56 0.0484 0.0274

Earth -96596-03-21 19:11 J -33560185.88 -33560185.70 -33560185.50 0.0484 0.0305 \*

Mercury -96593-02-17 23:44 J -33559122.60 -33559122.51 -33559122.41 0.0511 0.0406

Mercury -96593-05-17 21:49 J -33559032.75 -33559032.59 -33559032.44 0.0515 0.0126

Venus -96593-06-18 17:01 J -33559000.95 -33559000.79 -33559000.63 0.0517 0.0323

Mercury -96588-10-07 01:25 J -33557064.58 -33557064.44 -33557064.30 0.0515 0.0088

Mercury -96587-01-04 14:08 J -33556975.00 -33556974.91 -33556974.81 0.0511 0.0383

Mercury -96581-03-05 22:18 J -33554722.73 -33554722.57 -33554722.41 0.0515 0.0012

Moon -96579-09-18 03:06 J -33553796.49 -33553796.37 -33553796.25 0.0544 0.0462

Earth -96579-09-18 04:03 J -33553796.43 -33553796.33 -33553796.22 0.0544 0.0476 \*

Mercury -96576-07-26 04:03 J -33552754.46 -33552754.33 -33552754.20 0.0515 0.0202

Mercury -96576-10-23 16:32 J -33552664.94 -33552664.81 -33552664.69 0.0511 0.0265



Venus -96576-12-30 07:25 J -33552597.38 -33552597.19 -33552596.99 0.0508 0.0106  
 Mercury -96570-12-23 22:47 J -33550412.71 -33550412.55 -33550412.40 0.0514 0.0131  
 Mercury -96569-03-22 19:54 J -33550322.77 -33550322.67 -33550322.57 0.0518 0.0395  
 Venus -96569-06-21 18:56 J -33550231.83 -33550231.71 -33550231.58 0.0522 0.0419  
 Moon -96567-09-23 05:59 J -33549408.47 -33549408.25 -33549408.03 0.0544 0.0011  
 Earth -96567-09-23 06:42 J -33549408.45 -33549408.22 -33549407.99 0.0544 0.0021 \*  
 Mercury -96564-05-14 06:42 J -33548444.33 -33548444.22 -33548444.11 0.0516 0.0318  
 Mercury -96564-08-11 18:42 J -33548354.85 -33548354.72 -33548354.58 0.0512 0.0147  
 Venus -96564-09-04 07:54 J -33548331.33 -33548331.17 -33548331.02 0.0511 0.0316  
 Mercury -96558-10-11 23:01 J -33546102.68 -33546102.54 -33546102.40 0.0512 0.0262  
 Mercury -96557-01-09 20:23 J -33546012.78 -33546012.65 -33546012.51 0.0516 0.0268  
 Venus -96557-02-25 10:32 J -33545966.26 -33545966.06 -33545965.85 0.0518 0.0047  
 Earth -96555-09-28 03:06 J -33545020.51 -33545020.37 -33545020.22 0.0543 0.0411  
 Moon -96555-09-28 05:44 J -33545020.41 -33545020.26 -33545020.10 0.0543 0.0400 \*  
 Mercury -96552-03-02 08:37 J -33544134.21 -33544134.14 -33544134.07 0.0517 0.0443  
 Mercury -96552-05-30 20:23 J -33544044.79 -33544044.65 -33544044.50 0.0514 0.0024  
 Mercury -96552-08-28 09:20 J -33543955.14 -33543955.11 -33543955.07 0.0510 0.0492  
 Mercury -96546-07-30 22:32 J -33541792.66 -33541792.56 -33541792.46 0.0511 0.0398  
 Mercury -96546-10-28 20:37 J -33541702.80 -33541702.64 -33541702.49 0.0515 0.0134  
 Venus -96546-10-31 01:54 J -33541700.45 -33541700.42 -33541700.39 0.0515 0.0507  
 Mercury -96540-03-18 23:01 J -33539734.68 -33539734.54 -33539734.40 0.0515 0.0097  
 Mercury -96540-06-16 11:44 J -33539645.11 -33539645.01 -33539644.91 0.0511 0.0374  
 Venus -96540-09-06 15:49 J -33539562.99 -33539562.84 -33539562.68 0.0508 0.0333  
 Moon -96537-03-12 03:35 J -33538645.50 -33538645.35 -33538645.19 0.0485 0.0378  
 Earth -96537-03-12 03:49 J -33538645.47 -33538645.34 -33538645.20 0.0485 0.0402 \*  
 Mercury -96534-08-16 19:54 J -33537392.83 -33537392.67 -33537392.51 0.0514 0.0008  
 Mercury -96534-11-14 16:32 J -33537302.82 -33537302.81 -33537302.79 0.0518 0.0513  
 Mars -96530-05-26 09:06 J -33536014.35 -33536014.12 -33536013.88 0.0538 0.0298  
 Mercury -96528-01-05 02:08 J -33535424.54 -33535424.41 -33535424.28 0.0516 0.0207  
 Mercury -96528-04-04 14:23 J -33535335.02 -33535334.90 -33535334.77 0.0512 0.0262

Venus -96528-05-12 17:59 J -33535296.95 -33535296.75 -33535296.55 0.0510 0.0077  
 Moon -96525-03-16 12:13 J -33534258.22 -33534257.99 -33534257.76 0.0484 0.0088  
 Earth -96525-03-16 13:39 J -33534258.16 -33534257.93 -33534257.69 0.0484 0.0075 \*  
 Mercury -96522-06-04 20:08 J -33533082.81 -33533082.66 -33533082.50 0.0513 0.0139  
 Mercury -96522-09-02 17:15 J -33532992.88 -33532992.78 -33532992.67 0.0517 0.0387  
 Venus -96522-11-02 23:44 J -33532931.69 -33532931.51 -33532931.32 0.0520 0.0207  
 Mercury -96517-10-24 04:47 J -33531114.41 -33531114.30 -33531114.19 0.0516 0.0320  
 Venus -96516-01-15 18:13 J -33531030.78 -33531030.74 -33531030.69 0.0513 0.0499  
 Mercury -96516-01-21 17:01 J -33531024.93 -33531024.79 -33531024.65 0.0512 0.0145  
 Earth -96513-03-20 22:47 J -33529870.76 -33529870.55 -33529870.35 0.0484 0.0251  
 Moon -96513-03-21 01:25 J -33529870.65 -33529870.44 -33529870.21 0.0484 0.0221 \*  
 Mars -96512-05-10 01:25 J -33529455.71 -33529455.44 -33529455.17 0.0489 0.0031  
 Mercury -96510-03-23 20:37 J -33528772.78 -33528772.64 -33528772.51 0.0513 0.0268  
 Mercury -96510-06-21 18:13 J -33528682.88 -33528682.74 -33528682.61 0.0516 0.0262  
 Venus -96510-07-08 16:32 J -33528665.99 -33528665.81 -33528665.63 0.0517 0.0250  
 Mercury -96505-08-12 07:25 J -33526804.26 -33526804.19 -33526804.11 0.0517 0.0436  
 Mercury -96505-11-09 19:25 J -33526714.84 -33526714.69 -33526714.55 0.0513 0.0029  
 Mercury -96504-02-07 08:23 J -33526625.18 -33526625.15 -33526625.13 0.0510 0.0498  
 Mercury -96498-01-09 20:51 J -33524462.73 -33524462.63 -33524462.53 0.0511 0.0398  
 Mercury -96498-04-09 18:42 J -33524372.87 -33524372.72 -33524372.56 0.0515 0.0135  
 Mercury -96493-08-28 21:06 J -33522404.76 -33522404.62 -33522404.48 0.0515 0.0100  
 Mercury -96493-11-26 09:49 J -33522315.19 -33522315.09 -33522314.99 0.0511 0.0370  
 Venus -96492-01-18 02:23 J -33522262.59 -33522262.40 -33522262.21 0.0509 0.0152  
 Mercury -96486-01-26 18:42 J -33520062.88 -33520062.72 -33520062.56 0.0514 0.0010  
 Venus -96486-07-11 16:32 J -33519896.88 -33519896.81 -33519896.73 0.0521 0.0481  
 Earth -96484-09-22 01:11 J -33519093.67 -33519093.45 -33519093.23 0.0543 0.0123  
 Moon -96484-09-22 03:06 J -33519093.60 -33519093.37 -33519093.14 0.0543 0.0091 \*  
 Mercury -96481-06-16 23:44 J -33518094.64 -33518094.51 -33518094.38 0.0516 0.0216  
 Mercury -96481-09-14 11:59 J -33518005.12 -33518005.00 -33518004.87 0.0512 0.0253  
 Venus -96481-09-23 02:51 J -33517996.55 -33517996.38 -33517996.21 0.0512 0.0269

Mercury -96475-11-14 17:59 J -33515752.91 -33515752.75 -33515752.60 0.0513 0.0144  
 Mercury -96474-02-12 15:06 J -33515662.98 -33515662.87 -33515662.77 0.0517 0.0381  
 Venus -96474-03-16 05:15 J -33515631.48 -33515631.28 -33515631.07 0.0518 0.0012  
 Moon -96472-09-26 22:18 J -33514705.75 -33514705.57 -33514705.39 0.0544 0.0309  
 Earth -96472-09-27 01:25 J -33514705.62 -33514705.44 -33514705.26 0.0544 0.0325 \*  
 Mercury -96469-04-05 02:51 J -33513784.49 -33513784.38 -33513784.27 0.0517 0.0326  
 Mercury -96469-07-03 14:51 J -33513695.02 -33513694.88 -33513694.74 0.0513 0.0141  
 Mercury -96463-09-02 17:59 J -33511442.89 -33511442.75 -33511442.61 0.0512 0.0276  
 Venus -96463-11-18 21:35 J -33511365.69 -33511365.60 -33511365.50 0.0516 0.0456  
 Mercury -96463-12-01 15:35 J -33511352.98 -33511352.85 -33511352.71 0.0516 0.0253  
 Mercury -96457-01-23 05:44 J -33509474.33 -33509474.26 -33509474.19 0.0517 0.0437  
 Mercury -96457-04-21 17:30 J -33509384.91 -33509384.77 -33509384.62 0.0514 0.0026  
 Mercury -96457-07-20 06:27 J -33509295.26 -33509295.23 -33509295.20 0.0510 0.0496  
 Venus -96457-09-25 14:23 J -33509228.02 -33509227.90 -33509227.77 0.0507 0.0400  
 Moon -96454-03-12 06:13 J -33508330.34 -33508330.24 -33508330.14 0.0485 0.0434  
 Earth -96454-03-12 07:39 J -33508330.26 -33508330.18 -33508330.09 0.0485 0.0453 \*  
 Mercury -96451-06-21 18:13 J -33507132.84 -33507132.74 -33507132.64 0.0512 0.0406  
 Mercury -96451-09-19 16:18 J -33507042.97 -33507042.82 -33507042.66 0.0515 0.0127  
 Mercury -96445-02-08 20:08 J -33505074.80 -33505074.66 -33505074.52 0.0514 0.0092  
 Mercury -96445-05-08 08:37 J -33504985.23 -33504985.14 -33504985.04 0.0511 0.0378  
 Venus -96445-05-31 15:06 J -33504962.07 -33504961.87 -33504961.67 0.0510 0.0020  
 Earth -96442-03-16 17:15 J -33503943.01 -33503942.78 -33503942.55 0.0485 0.0127  
 Moon -96442-03-16 20:08 J -33503942.90 -33503942.66 -33503942.43 0.0485 0.0143 \*  
 Mercury -96439-07-08 17:01 J -33502732.95 -33502732.79 -33502732.63 0.0514 0.0014  
 Venus -96439-11-21 23:30 J -33502596.69 -33502596.52 -33502596.34 0.0520 0.0282  
 Mercury -96434-11-27 21:49 J -33500764.71 -33500764.59 -33500764.46 0.0516 0.0218  
 Venus -96433-02-04 12:56 J -33500696.04 -33500695.96 -33500695.86 0.0513 0.0454  
 Mercury -96433-02-25 10:18 J -33500675.20 -33500675.07 -33500674.95 0.0512 0.0250  
 Moon -96430-03-20 23:01 J -33499555.76 -33499555.54 -33499555.31 0.0485 0.0170  
 Earth -96430-03-21 02:37 J -33499555.61 -33499555.39 -33499555.17 0.0485 0.0199 \*

Mercury -96427-04-26 16:47 J -33498422.95 -33498422.80 -33498422.64 0.0513 0.0135

Mercury -96427-07-25 13:54 J -33498333.02 -33498332.92 -33498332.81 0.0517 0.0390

Venus -96427-07-27 14:23 J -33498331.09 -33498330.90 -33498330.70 0.0517 0.0186

Mercury -96422-09-16 00:27 J -33496454.58 -33496454.48 -33496454.37 0.0517 0.0334

Mercury -96422-12-14 12:27 J -33496365.11 -33496364.98 -33496364.84 0.0513 0.0133

Mercury -96415-02-12 15:49 J -33494112.98 -33494112.84 -33494112.71 0.0512 0.0280

Mercury -96415-05-13 13:25 J -33494023.08 -33494022.94 -33494022.80 0.0516 0.0249

Mars -96412-11-11 09:20 J -33492745.30 -33492745.11 -33492744.91 0.0540 0.0384

Mercury -96410-07-05 03:35 J -33492144.42 -33492144.35 -33492144.27 0.0518 0.0443

Mercury -96410-10-02 15:35 J -33492055.00 -33492054.85 -33492054.71 0.0514 0.0024

Mercury -96410-12-31 04:18 J -33491965.35 -33491965.32 -33491965.28 0.0510 0.0493

Venus -96409-02-07 00:56 J -33491927.64 -33491927.46 -33491927.28 0.0509 0.0219

Mercury -96404-12-01 15:35 J -33489802.94 -33489802.85 -33489802.75 0.0511 0.0413

Mercury -96403-03-01 13:39 J -33489713.08 -33489712.93 -33489712.77 0.0515 0.0121

Moon -96401-09-20 23:01 J -33488778.74 -33488778.54 -33488778.32 0.0544 0.0172

Earth -96401-09-21 01:54 J -33488778.63 -33488778.42 -33488778.20 0.0544 0.0199 \*

Mercury -96398-07-21 18:13 J -33487744.88 -33487744.74 -33487744.60 0.0515 0.0093

Venus -96398-10-13 01:54 J -33487661.60 -33487661.42 -33487661.23 0.0511 0.0198

Mercury -96398-10-19 06:42 J -33487655.31 -33487655.22 -33487655.12 0.0511 0.0377

Mars -96394-10-30 05:15 J -33486183.37 -33486183.28 -33486183.16 0.0488 0.0449

Mercury -96392-12-18 14:23 J -33485403.06 -33485402.90 -33485402.74 0.0514 0.0009

Mercury -96391-03-18 11:15 J -33485313.05 -33485313.03 -33485313.02 0.0518 0.0514

Venus -96391-04-04 04:47 J -33485296.51 -33485296.30 -33485296.10 0.0519 0.0075

Earth -96389-09-26 05:15 J -33484390.48 -33484390.28 -33484390.08 0.0544 0.0258

Moon -96389-09-26 09:06 J -33484390.33 -33484390.12 -33484389.92 0.0544 0.0235 \*

Mercury -96386-05-09 20:51 J -33483434.76 -33483434.63 -33483434.50 0.0516 0.0208

Mercury -96386-08-07 09:06 J -33483345.24 -33483345.12 -33483344.99 0.0512 0.0259

Mercury -96380-10-06 14:51 J -33481093.03 -33481092.88 -33481092.72 0.0513 0.0136

Venus -96380-12-07 21:35 J -33481030.74 -33481030.60 -33481030.46 0.0516 0.0381

Mercury -96379-01-04 12:13 J -33481003.09 -33481002.99 -33481002.89 0.0517 0.0390

Mars -96376-08-18 22:47 J -33479680.61 -33479680.55 -33479680.47 0.0538 0.0520  
 Mercury -96374-02-25 22:47 J -33479124.65 -33479124.55 -33479124.44 0.0517 0.0333  
 Mercury -96374-05-26 10:47 J -33479035.19 -33479035.05 -33479034.91 0.0513 0.0133  
 Venus -96374-10-15 09:49 J -33478893.18 -33478893.09 -33478893.00 0.0507 0.0448  
 Moon -96371-03-11 14:23 J -33478014.91 -33478014.90 -33478014.88 0.0485 0.0483  
 Mercury -96368-07-25 14:37 J -33476783.02 -33476782.89 -33476782.75 0.0512 0.0271  
 Mercury -96368-10-23 12:27 J -33476693.12 -33476692.98 -33476692.84 0.0516 0.0259  
 Mercury -96363-12-15 01:25 J -33474814.50 -33474814.44 -33474814.37 0.0518 0.0449  
 Mercury -96362-03-14 13:25 J -33474725.09 -33474724.94 -33474724.80 0.0514 0.0019  
 Mercury -96362-06-12 02:08 J -33474635.45 -33474635.41 -33474635.36 0.0510 0.0485  
 Venus -96362-06-20 10:32 J -33474627.26 -33474627.06 -33474626.86 0.0510 0.0032  
 Moon -96359-03-15 17:01 J -33473628.01 -33473627.79 -33473627.58 0.0485 0.0197  
 Earth -96359-03-15 20:23 J -33473627.87 -33473627.65 -33473627.42 0.0485 0.0177 \*  
 Mars -96358-08-03 13:25 J -33473122.20 -33473121.94 -33473121.68 0.0489 0.0145  
 Mercury -96356-05-13 13:25 J -33472473.03 -33472472.94 -33472472.84 0.0511 0.0415  
 Mercury -96356-08-11 11:44 J -33472383.17 -33472383.01 -33472382.86 0.0515 0.0117  
 Venus -96356-12-10 17:59 J -33472261.90 -33472261.75 -33472261.58 0.0520 0.0330  
 Mercury -96351-12-31 16:18 J -33470414.96 -33470414.82 -33470414.68 0.0515 0.0097  
 Venus -96350-02-23 11:44 J -33470361.13 -33470361.01 -33470360.87 0.0513 0.0385  
 Mercury -96350-03-31 04:47 J -33470325.39 -33470325.30 -33470325.20 0.0511 0.0373  
 Earth -96347-03-20 06:56 J -33469240.44 -33469240.21 -33469239.98 0.0484 0.0151  
 Moon -96347-03-20 10:47 J -33469240.28 -33469240.05 -33469239.82 0.0484 0.0128 \*  
 Mercury -96344-05-30 11:59 J -33468073.16 -33468073.00 -33468072.84 0.0514 0.0015  
 Venus -96344-08-15 09:49 J -33467996.29 -33467996.09 -33467995.89 0.0517 0.0133  
 Mercury -96344-08-28 08:51 J -33467983.16 -33467983.13 -33467983.10 0.0518 0.0507  
 Mercury -96339-10-19 19:11 J -33466104.83 -33466104.70 -33466104.57 0.0516 0.0209  
 Mercury -96338-01-17 07:25 J -33466015.31 -33466015.19 -33466015.06 0.0512 0.0258  
 Earth -96335-03-24 16:03 J -33464852.87 -33464852.83 -33464852.78 0.0484 0.0474  
 Mercury -96332-03-18 12:27 J -33463763.14 -33463762.98 -33463762.83 0.0513 0.0143  
 Mercury -96332-06-16 09:49 J -33463673.20 -33463673.09 -33463672.99 0.0517 0.0384

Mercury -96327-08-07 21:49 J -33461794.69 -33461794.59 -33461794.47 0.0517 0.0324

Mercury -96327-11-05 09:49 J -33461705.22 -33461705.09 -33461704.95 0.0513 0.0143

Venus -96326-02-25 23:01 J -33461592.70 -33461592.54 -33461592.37 0.0508 0.0285

Mercury -96320-01-04 12:56 J -33459453.10 -33459452.96 -33459452.83 0.0512 0.0270

Mercury -96320-04-04 10:32 J -33459363.19 -33459363.06 -33459362.92 0.0516 0.0260

Earth -96318-09-21 03:35 J -33458463.54 -33458463.35 -33458463.15 0.0543 0.0270

Moon -96318-09-21 07:25 J -33458463.40 -33458463.19 -33458462.99 0.0543 0.0247 \*

Mercury -96315-05-26 23:59 J -33457484.56 -33457484.50 -33457484.42 0.0518 0.0446

Mercury -96315-08-24 11:44 J -33457395.15 -33457395.01 -33457394.86 0.0514 0.0019

Venus -96315-10-31 21:49 J -33457326.78 -33457326.59 -33457326.39 0.0511 0.0146

Mercury -96315-11-22 00:42 J -33457305.51 -33457305.47 -33457305.43 0.0510 0.0486

Mercury -96309-10-23 12:42 J -33455143.07 -33455142.97 -33455142.87 0.0511 0.0404

Mercury -96308-01-21 10:47 J -33455053.20 -33455053.05 -33455052.89 0.0515 0.0129

Venus -96308-04-23 03:49 J -33454961.53 -33454961.34 -33454961.14 0.0519 0.0146

Moon -96306-09-26 00:13 J -33454075.71 -33454075.49 -33454075.27 0.0543 0.0143

Earth -96306-09-26 03:35 J -33454075.56 -33454075.35 -33454075.13 0.0543 0.0172 \*

Mercury -96303-06-12 14:23 J -33453085.04 -33453084.90 -33453084.76 0.0515 0.0101

Mercury -96303-09-10 02:51 J -33452995.48 -33452995.38 -33452995.28 0.0511 0.0368

Mercury -96297-11-09 10:03 J -33450743.24 -33450743.08 -33450742.92 0.0514 0.0017

Venus -96297-12-26 16:47 J -33450695.96 -33450695.80 -33450695.64 0.0516 0.0329

Mercury -96296-02-07 06:56 J -33450653.24 -33450653.21 -33450653.18 0.0518 0.0506

Mercury -96291-03-31 17:15 J -33448774.91 -33448774.78 -33448774.65 0.0516 0.0212

Mercury -96291-06-29 05:30 J -33448685.39 -33448685.27 -33448685.14 0.0512 0.0257

Mercury -96285-08-28 10:03 J -33446433.23 -33446433.08 -33446432.92 0.0513 0.0147

Mercury -96285-11-26 07:25 J -33446343.29 -33446343.19 -33446343.08 0.0517 0.0379

Mercury -96279-01-17 20:23 J -33444464.76 -33444464.65 -33444464.54 0.0517 0.0322

Mercury -96279-04-17 08:23 J -33444375.29 -33444375.15 -33444375.01 0.0513 0.0143

Venus -96279-07-09 10:32 J -33444292.25 -33444292.06 -33444291.86 0.0509 0.0110

Earth -96276-03-15 02:23 J -33443312.61 -33443312.40 -33443312.18 0.0484 0.0221

Moon -96276-03-15 06:27 J -33443312.44 -33443312.23 -33443312.03 0.0484 0.0244 \*

Mercury -96273-06-16 10:18 J -33442123.20 -33442123.07 -33442122.93 0.0512 0.0276  
 Mercury -96273-09-14 08:08 J -33442033.29 -33442033.16 -33442033.02 0.0516 0.0254  
 Venus -96273-12-29 17:59 J -33441926.87 -33441926.75 -33441926.62 0.0521 0.0408  
 Mercury -96268-11-05 23:15 J -33440154.60 -33440154.53 -33440154.46 0.0518 0.0434  
 Mercury -96267-02-03 11:01 J -33440065.19 -33440065.04 -33440064.90 0.0514 0.0029  
 Venus -96267-03-14 11:15 J -33440026.19 -33440026.03 -33440025.87 0.0512 0.0312  
 Mercury -96267-05-03 23:44 J -33439975.54 -33439975.51 -33439975.48 0.0510 0.0497  
 Moon -96264-03-19 09:06 J -33438925.36 -33438925.12 -33438924.88 0.0484 0.0083  
 Earth -96264-03-19 12:27 J -33438925.21 -33438924.98 -33438924.74 0.0484 0.0104 \*  
 Mercury -96261-04-04 10:47 J -33437813.15 -33437813.05 -33437812.95 0.0511 0.0403  
 Mercury -96261-07-03 09:06 J -33437723.27 -33437723.12 -33437722.97 0.0515 0.0129  
 Venus -96261-09-03 11:01 J -33437661.25 -33437661.04 -33437660.83 0.0518 0.0051  
 Mars -96257-02-05 10:03 J -33436411.35 -33436411.08 -33436410.81 0.0539 0.0124  
 Mercury -96256-11-22 12:56 J -33435755.10 -33435754.96 -33435754.82 0.0515 0.0096  
 Mercury -96255-02-20 01:25 J -33435665.54 -33435665.44 -33435665.34 0.0511 0.0372  
 Earth -96252-03-23 21:49 J -33434537.70 -33434537.59 -33434537.48 0.0485 0.0430  
 Moon -96252-03-23 23:44 J -33434537.58 -33434537.51 -33434537.42 0.0485 0.0453 \*  
 Mercury -96249-04-21 09:20 J -33433413.27 -33433413.11 -33433412.95 0.0514 0.0002  
 Venus -96249-05-09 03:06 J -33433395.39 -33433395.37 -33433395.33 0.0515 0.0507  
 Mercury -96244-09-10 15:35 J -33431444.98 -33431444.85 -33431444.72 0.0516 0.0212  
 Mercury -96244-12-09 03:49 J -33431355.46 -33431355.34 -33431355.21 0.0512 0.0254  
 Venus -96243-03-16 19:54 J -33431257.82 -33431257.67 -33431257.52 0.0508 0.0342  
 Mars -96239-01-22 23:44 J -33429849.74 -33429849.51 -33429849.27 0.0488 0.0252  
 Mercury -96237-02-08 08:23 J -33429103.30 -33429103.15 -33429103.00 0.0513 0.0145  
 Mercury -96237-05-08 05:44 J -33429013.36 -33429013.26 -33429013.16 0.0516 0.0380  
 Moon -96235-09-19 20:37 J -33428148.81 -33428148.64 -33428148.46 0.0544 0.0343  
 Earth -96235-09-20 00:13 J -33428148.65 -33428148.49 -33428148.31 0.0544 0.0361 \*  
 Mercury -96232-06-29 18:27 J -33427134.83 -33427134.73 -33427134.62 0.0517 0.0324  
 Mercury -96232-09-27 06:27 J -33427045.36 -33427045.23 -33427045.09 0.0513 0.0143  
 Venus -96232-11-19 21:35 J -33426991.80 -33426991.60 -33426991.40 0.0511 0.0071

Mercury -96226-11-27 08:23 J -33424793.28 -33424793.15 -33424793.01 0.0512 0.0277

Mercury -96225-02-25 06:13 J -33424703.38 -33424703.24 -33424703.10 0.0516 0.0251

Venus -96225-05-12 00:13 J -33424626.68 -33424626.49 -33424626.30 0.0519 0.0205

Earth -96223-09-25 03:49 J -33423760.56 -33423760.34 -33423760.11 0.0544 0.0096

Moon -96223-09-25 06:42 J -33423760.44 -33423760.22 -33423760.00 0.0544 0.0065 \*

Mercury -96220-04-17 21:35 J -33422824.67 -33422824.60 -33422824.52 0.0518 0.0433

Mercury -96220-07-16 09:20 J -33422735.25 -33422735.11 -33422734.96 0.0514 0.0032

Venus -96220-07-25 22:18 J -33422725.61 -33422725.57 -33422725.51 0.0514 0.0492

Mercury -96220-10-13 22:18 J -33422645.60 -33422645.57 -33422645.55 0.0510 0.0500

Mercury -96214-09-15 08:37 J -33420483.24 -33420483.14 -33420483.05 0.0511 0.0407

Mercury -96214-12-14 06:42 J -33420393.37 -33420393.22 -33420393.06 0.0515 0.0126

Venus -96213-01-15 16:47 J -33420360.97 -33420360.80 -33420360.61 0.0516 0.0253

Moon -96211-09-30 06:56 J -33419372.25 -33419372.21 -33419372.15 0.0544 0.0531

Mercury -96208-05-04 12:13 J -33418425.13 -33418424.99 -33418424.85 0.0515 0.0084

Mercury -96208-08-02 00:42 J -33418335.56 -33418335.47 -33418335.37 0.0511 0.0384

Mars -96204-10-27 11:15 J -33416788.21 -33416788.03 -33416787.83 0.0489 0.0345

Mercury -96202-10-02 07:39 J -33416083.34 -33416083.18 -33416083.02 0.0514 0.0005

Mercury -96196-02-20 14:23 J -33414115.03 -33414114.90 -33414114.77 0.0516 0.0205

Mercury -96196-05-21 02:37 J -33414025.51 -33414025.39 -33414025.27 0.0512 0.0261

Venus -96196-07-28 08:23 J -33413957.33 -33413957.15 -33413956.96 0.0509 0.0173

Moon -96193-03-14 05:44 J -33412997.46 -33412997.26 -33412997.07 0.0485 0.0288

Earth -96193-03-14 09:06 J -33412997.31 -33412997.12 -33412996.91 0.0485 0.0262 \*

Mercury -96190-07-21 07:54 J -33411773.33 -33411773.17 -33411773.02 0.0513 0.0131

Mercury -96190-10-19 05:15 J -33411683.38 -33411683.28 -33411683.18 0.0517 0.0395

Venus -96189-01-18 18:56 J -33411591.77 -33411591.71 -33411591.64 0.0521 0.0490

Mercury -96185-12-09 17:01 J -33409804.89 -33409804.79 -33409804.68 0.0517 0.0321

Mercury -96184-03-09 05:01 J -33409715.43 -33409715.29 -33409715.15 0.0513 0.0144

Venus -96184-04-02 08:51 J -33409691.30 -33409691.13 -33409690.96 0.0512 0.0251

Earth -96181-03-18 19:25 J -33408609.93 -33408609.69 -33408609.45 0.0484 0.0066

Moon -96181-03-18 21:35 J -33408609.83 -33408609.60 -33408609.37 0.0484 0.0055 \*



Mercury -96178-05-09 06:56 J -33407463.35 -33407463.21 -33407463.07 0.0511 0.0272

Mercury -96178-08-07 04:47 J -33407373.44 -33407373.30 -33407373.17 0.0515 0.0256

Venus -96178-09-23 07:54 J -33407326.38 -33407326.17 -33407325.96 0.0517 0.0011

Mercury -96173-09-27 19:54 J -33405494.74 -33405494.67 -33405494.59 0.0518 0.0433

Mercury -96173-12-26 07:54 J -33405405.32 -33405405.17 -33405405.03 0.0515 0.0034

Mercury -96172-03-25 20:37 J -33405315.66 -33405315.64 -33405315.61 0.0511 0.0502

Moon -96169-03-23 05:44 J -33404222.37 -33404222.26 -33404222.13 0.0484 0.0419

Earth -96169-03-23 06:27 J -33404222.36 -33404222.23 -33404222.09 0.0484 0.0395 \*

Mercury -96166-02-25 06:42 J -33403153.31 -33403153.22 -33403153.12 0.0511 0.0405

Mercury -96166-05-26 05:01 J -33403063.44 -33403063.29 -33403063.13 0.0514 0.0126

Venus -96166-05-29 00:13 J -33403060.59 -33403060.49 -33403060.38 0.0515 0.0444

Mercury -96161-10-14 10:47 J -33401095.19 -33401095.05 -33401094.91 0.0515 0.0082

Mercury -96160-01-11 23:15 J -33401005.62 -33401005.53 -33401005.44 0.0511 0.0388

Venus -96160-04-04 20:51 J -33400922.73 -33400922.63 -33400922.51 0.0508 0.0425

Mercury -96154-03-14 05:30 J -33398753.43 -33398753.27 -33398753.11 0.0514 0.0002

Earth -96152-09-19 07:25 J -33397833.33 -33397833.19 -33397833.04 0.0544 0.0414

Moon -96152-09-19 10:32 J -33397833.21 -33397833.06 -33397832.91 0.0544 0.0404 \*

Mercury -96149-08-02 13:39 J -33396785.06 -33396784.93 -33396784.80 0.0516 0.0193

Mercury -96149-10-31 01:54 J -33396695.54 -33396695.42 -33396695.30 0.0512 0.0273

Venus -96149-12-08 22:32 J -33396656.76 -33396656.56 -33396656.36 0.0510 0.0012

Mercury -96143-12-31 06:13 J -33394443.40 -33394443.24 -33394443.08 0.0513 0.0128

Mercury -96142-03-31 03:35 J -33394353.45 -33394353.35 -33394353.25 0.0517 0.0398

Venus -96142-06-01 02:37 J -33394291.56 -33394291.39 -33394291.22 0.0520 0.0294

Moon -96140-09-24 09:49 J -33393445.33 -33393445.09 -33393444.86 0.0544 0.0012

Earth -96140-09-24 11:15 J -33393445.25 -33393445.03 -33393444.80 0.0544 0.0046 \*

Mercury -96137-05-21 16:03 J -33392474.94 -33392474.83 -33392474.72 0.0517 0.0312

Venus -96137-08-13 21:20 J -33392390.72 -33392390.61 -33392390.49 0.0513 0.0422

Mercury -96137-08-19 04:03 J -33392385.47 -33392385.33 -33392385.20 0.0513 0.0152

Mercury -96131-10-19 06:13 J -33390133.37 -33390133.24 -33390133.09 0.0512 0.0258

Mercury -96130-01-17 04:18 J -33390043.46 -33390043.32 -33390043.19 0.0516 0.0271

Venus -96130-02-03 18:42 J -33390025.91 -33390025.72 -33390025.52 0.0517 0.0166  
 Moon -96128-09-29 11:30 J -33389057.12 -33389057.02 -33389056.91 0.0544 0.0474  
 Earth -96128-09-29 11:44 J -33389057.10 -33389057.01 -33389056.90 0.0544 0.0486 \*  
 Mercury -96125-03-09 18:42 J -33388164.79 -33388164.72 -33388164.64 0.0518 0.0427  
 Mercury -96125-06-07 06:27 J -33388075.37 -33388075.23 -33388075.09 0.0514 0.0035  
 Mercury -96125-09-04 19:11 J -33387985.71 -33387985.70 -33387985.68 0.0510 0.0505  
 Mercury -96119-08-07 05:30 J -33385823.37 -33385823.27 -33385823.17 0.0510 0.0398  
 Mercury -96119-11-05 03:35 J -33385733.50 -33385733.35 -33385733.19 0.0514 0.0133  
 Mercury -96113-03-26 09:06 J -33383765.26 -33383765.12 -33383764.98 0.0516 0.0080  
 Mercury -96113-06-23 21:35 J -33383675.69 -33383675.60 -33383675.50 0.0512 0.0391  
 Venus -96113-08-16 08:37 J -33383622.31 -33383622.14 -33383621.96 0.0509 0.0253  
 Earth -96110-03-14 19:54 J -33382681.86 -33382681.67 -33382681.48 0.0485 0.0291  
 Moon -96110-03-14 22:03 J -33382681.75 -33382681.58 -33382681.41 0.0485 0.0319 \*  
 Mercury -96107-08-24 04:03 J -33381423.50 -33381423.33 -33381423.17 0.0513 0.0014  
 Mars -96103-05-01 12:27 J -33380077.24 -33380076.98 -33380076.71 0.0540 0.0145  
 Mercury -96101-01-13 12:13 J -33379455.12 -33379454.99 -33379454.86 0.0516 0.0190  
 Mercury -96101-04-12 00:27 J -33379365.60 -33379365.48 -33379365.36 0.0513 0.0278  
 Venus -96101-04-21 10:18 J -33379356.26 -33379356.07 -33379355.88 0.0512 0.0166  
 Moon -96098-03-19 04:03 J -33378294.58 -33378294.33 -33378294.08 0.0484 0.0025  
 Earth -96098-03-19 04:32 J -33378294.54 -33378294.31 -33378294.07 0.0484 0.0032 \*  
 Mercury -96095-06-12 04:18 J -33377113.48 -33377113.32 -33377113.17 0.0513 0.0128  
 Mercury -96095-09-10 01:39 J -33377023.53 -33377023.43 -33377023.33 0.0517 0.0397  
 Venus -96095-10-12 09:06 J -33376991.33 -33376991.12 -33376990.92 0.0518 0.0094  
 Mercury -96090-11-01 15:20 J -33375144.98 -33375144.86 -33375144.75 0.0517 0.0301  
 Mercury -96089-01-30 03:20 J -33375055.50 -33375055.36 -33375055.23 0.0513 0.0165  
 Moon -96086-03-23 13:54 J -33373907.05 -33373906.92 -33373906.77 0.0484 0.0385  
 Earth -96086-03-23 14:51 J -33373907.04 -33373906.88 -33373906.71 0.0484 0.0356 \*  
 Mars -96085-04-18 03:49 J -33373515.61 -33373515.34 -33373515.06 0.0488 0.0036  
 Mercury -96083-03-31 04:47 J -33372803.44 -33372803.30 -33372803.16 0.0512 0.0254  
 Venus -96083-06-17 02:37 J -33372725.53 -33372725.39 -33372725.24 0.0515 0.0357

Mercury -96083-06-29 02:37 J -33372713.52 -33372713.39 -33372713.25 0.0516 0.0275

Mercury -96078-08-20 17:44 J -33370834.84 -33370834.76 -33370834.67 0.0518 0.0418

Mercury -96078-11-18 05:30 J -33370745.41 -33370745.27 -33370745.13 0.0514 0.0044

Venus -96077-04-23 20:23 J -33370587.68 -33370587.65 -33370587.60 0.0507 0.0497

Mercury -96071-01-17 05:01 J -33368493.40 -33368493.29 -33368493.19 0.0511 0.0383

Mercury -96071-04-17 03:20 J -33368403.52 -33368403.36 -33368403.21 0.0515 0.0148

Moon -96069-09-18 10:32 J -33367518.17 -33367518.06 -33367517.93 0.0543 0.0466

Earth -96069-09-18 12:42 J -33367518.08 -33367517.97 -33367517.86 0.0543 0.0472 \*

Mercury -96066-09-06 08:08 J -33366435.30 -33366435.16 -33366435.02 0.0515 0.0073

Mercury -96066-12-04 20:37 J -33366345.73 -33366345.64 -33366345.55 0.0511 0.0396

Venus -96066-12-28 21:20 J -33366321.81 -33366321.61 -33366321.41 0.0510 0.0080

Mercury -96059-02-03 02:51 J -33364093.54 -33364093.38 -33364093.22 0.0513 0.0015

Venus -96059-06-20 01:11 J -33363956.59 -33363956.45 -33363956.30 0.0519 0.0367

Earth -96057-09-23 09:35 J -33363130.33 -33363130.10 -33363129.87 0.0544 0.0042

Moon -96057-09-23 10:03 J -33363130.30 -33363130.08 -33363129.87 0.0544 0.0076 \*

Mercury -96054-06-25 10:47 J -33362125.18 -33362125.05 -33362124.92 0.0517 0.0188

Venus -96054-09-02 21:35 J -33362055.75 -33362055.60 -33362055.45 0.0514 0.0345

Mercury -96054-09-22 23:01 J -33362035.66 -33362035.54 -33362035.42 0.0513 0.0280

Mercury -96048-11-22 02:51 J -33359783.54 -33359783.38 -33359783.22 0.0512 0.0121

Mercury -96047-02-20 00:13 J -33359693.59 -33359693.49 -33359693.39 0.0516 0.0402

Venus -96047-02-22 17:15 J -33359690.99 -33359690.78 -33359690.58 0.0516 0.0096

Earth -96045-09-28 12:13 J -33358742.14 -33358741.99 -33358741.84 0.0544 0.0407

Moon -96045-09-28 13:54 J -33358742.07 -33358741.92 -33358741.75 0.0544 0.0402 \*

Mercury -96042-04-13 13:39 J -33357815.04 -33357814.93 -33357814.81 0.0518 0.0299

Mercury -96042-07-12 01:39 J -33357725.56 -33357725.43 -33357725.29 0.0514 0.0169

Mercury -96036-09-10 02:51 J -33355473.52 -33355473.38 -33355473.24 0.0512 0.0253

Mercury -96036-12-09 00:42 J -33355383.60 -33355383.47 -33355383.33 0.0515 0.0275

Mercury -96030-01-30 17:01 J -33353504.88 -33353504.79 -33353504.71 0.0518 0.0408

Mercury -96030-04-30 04:47 J -33353415.45 -33353415.30 -33353415.16 0.0514 0.0057

Venus -96030-09-05 10:32 J -33353287.21 -33353287.06 -33353286.91 0.0509 0.0336

Moon -96027-03-14 04:32 J -33352366.48 -33352366.31 -33352366.14 0.0484 0.0353  
 Earth -96027-03-14 05:01 J -33352366.46 -33352366.29 -33352366.11 0.0484 0.0326 \*  
 Mercury -96024-06-29 03:20 J -33351163.47 -33351163.36 -33351163.25 0.0511 0.0380  
 Mercury -96024-09-27 01:39 J -33351073.58 -33351073.43 -33351073.28 0.0515 0.0151  
 Mercury -96018-02-16 07:11 J -33349105.34 -33349105.20 -33349105.06 0.0515 0.0063  
 Venus -96018-05-11 10:32 J -33349021.26 -33349021.06 -33349020.87 0.0511 0.0089  
 Mercury -96018-05-16 19:39 J -33349015.77 -33349015.68 -33349015.59 0.0511 0.0406  
 Moon -96015-03-18 12:42 J -33347979.20 -33347978.97 -33347978.74 0.0484 0.0003  
 Earth -96015-03-18 13:39 J -33347979.17 -33347978.93 -33347978.69 0.0484 0.0004 \*  
 Mercury -96012-04-17 03:20 J -33346853.36 -33346853.36 -33346853.35 0.0510 0.0509  
 Mercury -96012-07-16 02:08 J -33346763.57 -33346763.41 -33346763.25 0.0514 0.0027  
 Venus -96012-10-31 11:59 J -33346656.19 -33346656.00 -33346655.81 0.0518 0.0187  
 Mercury -96007-12-05 09:49 J -33344795.22 -33344795.09 -33344794.96 0.0516 0.0179  
 Mercury -96006-03-04 22:03 J -33344705.70 -33344705.58 -33344705.46 0.0512 0.0288  
 Earth -96003-03-23 00:42 J -33343591.65 -33343591.47 -33343591.29 0.0484 0.0325  
 Moon -96003-03-23 02:51 J -33343591.54 -33343591.38 -33343591.20 0.0484 0.0355 \*

# 96TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 96th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-96000-05-04 01:54 J	-33342453.58	-33342453.42	-33342453.27	0.0512	0.0113		
Venus	-96000-07-06 02:23 J	-33342390.57	-33342390.40	-33342390.22	0.0515	0.0280		

Mercury -96000-08-01 23:15 J -33342363.63 -33342363.53 -33342363.44 0.0516 0.0410

Mercury -95995-09-23 12:13 J -33340485.10 -33340484.99 -33340484.87 0.0518 0.0296

Mercury -95995-12-22 00:13 J -33340395.62 -33340395.49 -33340395.35 0.0514 0.0171

Mercury -95988-02-20 01:39 J -33338143.57 -33338143.43 -33338143.28 0.0511 0.0244

Mercury -95988-05-20 23:30 J -33338053.65 -33338053.52 -33338053.39 0.0515 0.0282

Mars -95985-10-18 09:20 J -33336807.23 -33336807.11 -33336806.98 0.0541 0.0481

Mercury -95983-07-12 15:20 J -33336174.94 -33336174.86 -33336174.77 0.0519 0.0406

Mercury -95983-10-10 03:06 J -33336085.51 -33336085.37 -33336085.22 0.0515 0.0059

Venus -95982-01-16 22:18 J -33335986.76 -33335986.57 -33335986.38 0.0511 0.0162

Mercury -95977-12-09 01:39 J -33333833.54 -33333833.43 -33333833.32 0.0510 0.0378

Mercury -95976-03-08 23:59 J -33333743.66 -33333743.50 -33333743.35 0.0514 0.0153

Venus -95976-07-09 02:08 J -33333621.50 -33333621.41 -33333621.30 0.0520 0.0450

Earth -95974-09-23 17:30 J -33332815.00 -33332814.77 -33332814.55 0.0544 0.0094

Moon -95974-09-23 18:42 J -33332814.95 -33332814.72 -33332814.49 0.0544 0.0126 \*

Mercury -95971-04-30 18:42 J -33331864.73 -33331864.72 -33331864.70 0.0519 0.0514

Mercury -95971-07-29 06:13 J -33331775.38 -33331775.24 -33331775.10 0.0516 0.0054

Venus -95971-09-21 23:30 J -33331720.69 -33331720.52 -33331720.34 0.0513 0.0258

Mercury -95971-10-26 18:42 J -33331685.80 -33331685.72 -33331685.64 0.0512 0.0416

Mars -95967-10-08 21:06 J -33330242.75 -33330242.62 -33330242.46 0.0487 0.0410

Mercury -95965-09-27 01:54 J -33329523.44 -33329523.42 -33329523.40 0.0510 0.0505

Mercury -95965-12-26 00:42 J -33329433.63 -33329433.47 -33329433.31 0.0514 0.0029

Venus -95964-03-13 19:39 J -33329355.89 -33329355.68 -33329355.47 0.0517 0.0008

Moon -95962-09-28 18:56 J -33328426.87 -33328426.71 -33328426.54 0.0544 0.0368

Earth -95962-09-28 22:03 J -33328426.74 -33328426.58 -33328426.41 0.0544 0.0364 \*

Mercury -95959-05-17 08:51 J -33327465.27 -33327465.13 -33327465.00 0.0516 0.0171

Mercury -95959-08-14 20:51 J -33327375.74 -33327375.63 -33327375.51 0.0512 0.0297

Mercury -95953-10-14 01:11 J -33325123.61 -33325123.45 -33325123.29 0.0513 0.0100

Venus -95953-11-16 12:56 J -33325090.05 -33325089.96 -33325089.87 0.0514 0.0458

Mercury -95952-01-11 22:32 J -33325033.65 -33325033.56 -33325033.47 0.0517 0.0424

Mars -95949-07-26 06:27 J -33323742.37 -33323742.23 -33323742.08 0.0539 0.0455

Mercury -95947-03-05 11:30 J -33323155.14 -33323155.02 -33323154.90 0.0517 0.0285

Mercury -95947-06-02 23:30 J -33323065.66 -33323065.52 -33323065.39 0.0513 0.0180

Venus -95947-09-24 09:49 J -33322952.20 -33322952.09 -33322951.97 0.0509 0.0409

Moon -95944-03-13 13:39 J -33322051.06 -33322050.93 -33322050.79 0.0485 0.0385

Earth -95944-03-13 14:51 J -33322051.04 -33322050.88 -33322050.71 0.0485 0.0357 \*

Mercury -95941-08-02 00:42 J -33320813.61 -33320813.47 -33320813.33 0.0511 0.0234

Mercury -95941-10-30 22:32 J -33320723.69 -33320723.56 -33320723.43 0.0515 0.0291

Mercury -95936-12-22 13:54 J -33318845.01 -33318844.92 -33318844.83 0.0519 0.0404

Mercury -95935-03-22 01:39 J -33318755.57 -33318755.43 -33318755.29 0.0515 0.0060

Venus -95935-05-30 09:49 J -33318686.29 -33318686.09 -33318685.89 0.0512 0.0016

Earth -95932-03-18 01:25 J -33317663.68 -33317663.44 -33317663.20 0.0485 0.0033

Moon -95932-03-18 03:49 J -33317663.58 -33317663.34 -33317663.09 0.0485 0.0024 \*

Mars -95931-07-13 13:54 J -33317181.16 -33317180.92 -33317180.67 0.0488 0.0203

Mercury -95929-05-21 00:27 J -33316503.59 -33316503.48 -33316503.36 0.0510 0.0367

Mercury -95929-08-18 22:47 J -33316413.70 -33316413.55 -33316413.40 0.0514 0.0161

Venus -95929-11-19 10:47 J -33316321.22 -33316321.05 -33316320.87 0.0518 0.0260

Mercury -95924-10-10 17:01 J -33314534.80 -33314534.79 -33314534.77 0.0520 0.0514

Mercury -95923-01-08 04:32 J -33314445.45 -33314445.31 -33314445.17 0.0516 0.0053

Venus -95923-02-02 10:18 J -33314420.17 -33314420.07 -33314419.97 0.0515 0.0441

Mercury -95923-04-07 17:01 J -33314355.87 -33314355.79 -33314355.70 0.0512 0.0418

Moon -95920-03-22 06:42 J -33313276.39 -33313276.22 -33313276.04 0.0484 0.0318

Earth -95920-03-22 10:03 J -33313276.27 -33313276.08 -33313275.89 0.0484 0.0289 \*

Mercury -95917-03-08 23:59 J -33312193.52 -33312193.50 -33312193.47 0.0509 0.0503

Mercury -95917-06-06 22:47 J -33312103.71 -33312103.55 -33312103.39 0.0513 0.0030

Venus -95917-07-25 02:51 J -33312055.57 -33312055.38 -33312055.19 0.0515 0.0202

Mercury -95912-10-27 07:39 J -33310135.31 -33310135.18 -33310135.05 0.0517 0.0163

Mercury -95911-01-24 19:54 J -33310045.78 -33310045.67 -33310045.55 0.0513 0.0305

Mercury -95905-03-25 23:15 J -33307793.68 -33307793.53 -33307793.37 0.0512 0.0099

Mercury -95905-06-23 20:51 J -33307703.72 -33307703.63 -33307703.54 0.0516 0.0426

Mercury -95900-08-15 10:18 J -33305825.19 -33305825.07 -33305824.95 0.0517 0.0278

Mercury -95900-11-12 22:18 J -33305735.70 -33305735.57 -33305735.44 0.0513 0.0187

Venus -95899-02-04 22:32 J -33305651.73 -33305651.56 -33305651.38 0.0510 0.0240

Mercury -95893-01-12 23:44 J -33303483.65 -33303483.51 -33303483.36 0.0512 0.0225

Mercury -95893-04-11 21:35 J -33303393.72 -33303393.60 -33303393.47 0.0515 0.0302

Moon -95891-09-22 21:20 J -33302499.82 -33302499.61 -33302499.40 0.0544 0.0182

Earth -95891-09-22 23:59 J -33302499.72 -33302499.50 -33302499.28 0.0544 0.0149 \*

Mercury -95888-06-03 12:56 J -33301515.04 -33301514.96 -33301514.86 0.0518 0.0394

Mercury -95888-09-01 00:42 J -33301425.61 -33301425.47 -33301425.32 0.0515 0.0071

Venus -95888-10-10 22:47 J -33301385.73 -33301385.55 -33301385.36 0.0513 0.0186

Mercury -95882-10-31 23:30 J -33299173.64 -33299173.52 -33299173.41 0.0510 0.0358

Mercury -95881-01-29 21:35 J -33299083.75 -33299083.60 -33299083.45 0.0514 0.0170

Venus -95881-04-01 19:54 J -33299020.87 -33299020.67 -33299020.46 0.0517 0.0075

Earth -95879-09-27 20:23 J -33298111.84 -33298111.65 -33298111.45 0.0544 0.0276

Moon -95879-09-28 00:13 J -33298111.68 -33298111.49 -33298111.30 0.0544 0.0291 \*

Mercury -95876-03-22 15:20 J -33297204.87 -33297204.86 -33297204.84 0.0520 0.0513

Mercury -95876-06-20 02:51 J -33297115.52 -33297115.38 -33297115.24 0.0516 0.0053

Mercury -95876-09-17 15:20 J -33297025.93 -33297025.86 -33297025.77 0.0512 0.0420

Mercury -95870-08-19 23:01 J -33294863.57 -33294863.54 -33294863.50 0.0509 0.0492

Mercury -95870-11-17 21:49 J -33294773.75 -33294773.59 -33294773.43 0.0513 0.0039

Venus -95870-12-06 12:13 J -33294755.12 -33294754.99 -33294754.85 0.0514 0.0384

Mercury -95864-04-08 05:44 J -33292805.39 -33292805.26 -33292805.12 0.0517 0.0165

Mercury -95864-07-06 18:13 J -33292715.86 -33292715.74 -33292715.63 0.0513 0.0305

Venus -95864-10-13 09:20 J -33292617.17 -33292617.11 -33292617.04 0.0509 0.0483

Earth -95861-03-12 23:44 J -33291735.64 -33291735.51 -33291735.36 0.0485 0.0393

Moon -95861-03-13 02:23 J -33291735.51 -33291735.40 -33291735.27 0.0485 0.0416 \*

Mercury -95858-09-05 21:35 J -33290463.76 -33290463.60 -33290463.44 0.0512 0.0097

Mercury -95858-12-04 18:56 J -33290373.80 -33290373.71 -33290373.62 0.0516 0.0425

Mercury -95852-01-25 09:06 J -33288495.24 -33288495.12 -33288495.00 0.0518 0.0274

Mercury -95852-04-24 21:06 J -33288405.76 -33288405.62 -33288405.49 0.0514 0.0193

Venus -95852-06-18 11:01 J -33288351.24 -33288351.04 -33288350.84 0.0512 0.0067

Moon -95849-03-17 05:59 J -33287348.48 -33287348.25 -33287348.02 0.0484 0.0060  
 Earth -95849-03-17 09:20 J -33287348.35 -33287348.11 -33287347.87 0.0484 0.0071 \*  
 Mercury -95846-06-24 21:49 J -33286153.73 -33286153.59 -33286153.44 0.0511 0.0225  
 Mercury -95846-09-22 19:39 J -33286063.80 -33286063.68 -33286063.55 0.0515 0.0302  
 Venus -95846-12-09 11:59 J -33285986.15 -33285986.00 -33285985.84 0.0519 0.0343  
 Mercury -95841-11-13 11:44 J -33284185.10 -33284185.01 -33284184.91 0.0518 0.0388  
 Mercury -95840-02-10 23:30 J -33284095.66 -33284095.52 -33284095.38 0.0515 0.0076  
 Venus -95840-02-21 10:47 J -33284085.19 -33284085.05 -33284084.91 0.0514 0.0362  
 Earth -95837-03-21 17:59 J -33282960.95 -33282960.75 -33282960.54 0.0484 0.0250  
 Moon -95837-03-21 21:35 J -33282960.78 -33282960.60 -33282960.39 0.0484 0.0279 \*  
 Mercury -95834-04-12 22:03 J -33281843.69 -33281843.58 -33281843.46 0.0510 0.0352  
 Mercury -95834-07-11 20:37 J -33281753.79 -33281753.64 -33281753.49 0.0514 0.0178  
 Venus -95834-08-14 05:01 J -33281720.49 -33281720.29 -33281720.08 0.0516 0.0114  
 Mars -95830-01-13 01:39 J -33280472.69 -33280472.43 -33280472.17 0.0541 0.0177  
 Mercury -95829-09-01 14:37 J -33279874.92 -33279874.89 -33279874.85 0.0519 0.0502  
 Mercury -95829-11-30 02:08 J -33279785.55 -33279785.41 -33279785.27 0.0516 0.0042  
 Mercury -95828-02-27 14:37 J -33279695.97 -33279695.89 -33279695.81 0.0512 0.0428  
 Mercury -95822-01-29 21:49 J -33277533.63 -33277533.59 -33277533.54 0.0509 0.0484  
 Mercury -95822-04-29 20:37 J -33277443.80 -33277443.64 -33277443.48 0.0513 0.0046  
 Mercury -95817-09-18 04:03 J -33275475.46 -33275475.33 -33275475.19 0.0517 0.0165  
 Mercury -95817-12-16 16:32 J -33275385.93 -33275385.81 -33275385.70 0.0513 0.0304  
 Venus -95816-02-23 20:23 J -33275316.81 -33275316.65 -33275316.49 0.0510 0.0304  
 Mars -95812-01-02 05:15 J -33273908.53 -33273908.28 -33273908.02 0.0487 0.0180  
 Mercury -95810-02-15 20:37 J -33273133.80 -33273133.64 -33273133.48 0.0512 0.0088  
 Mercury -95810-05-16 17:44 J -33273043.84 -33273043.76 -33273043.67 0.0516 0.0434  
 Earth -95808-09-21 20:37 J -33272184.84 -33272184.64 -33272184.43 0.0543 0.0242  
 Moon -95808-09-22 00:13 J -33272184.69 -33272184.49 -33272184.29 0.0543 0.0269 \*  
 Mercury -95805-07-07 07:11 J -33271165.32 -33271165.20 -33271165.09 0.0518 0.0278  
 Mercury -95805-10-04 19:11 J -33271075.84 -33271075.70 -33271075.57 0.0514 0.0190  
 Venus -95805-10-29 21:06 J -33271050.81 -33271050.62 -33271050.42 0.0513 0.0120



Mercury -95799-12-04 19:54 J -33268823.81 -33268823.67 -33268823.52 0.0511 0.0225  
 Mercury -95798-03-04 17:59 J -33268733.88 -33268733.75 -33268733.63 0.0515 0.0301  
 Venus -95798-04-21 18:42 J -33268685.91 -33268685.72 -33268685.52 0.0517 0.0143  
 Moon -95796-09-26 20:51 J -33267796.83 -33267796.63 -33267796.42 0.0544 0.0229  
 Earth -95796-09-27 00:42 J -33267796.68 -33267796.47 -33267796.26 0.0544 0.0212 \*  
 Mercury -95793-04-25 10:18 J -33266855.16 -33266855.07 -33266854.98 0.0519 0.0386  
 Mercury -95793-07-23 22:03 J -33266765.72 -33266765.58 -33266765.44 0.0515 0.0078  
 Mercury -95787-09-22 20:08 J -33264513.77 -33264513.66 -33264513.54 0.0510 0.0354  
 Mercury -95787-12-21 18:27 J -33264423.88 -33264423.73 -33264423.58 0.0514 0.0175  
 Venus -95787-12-25 11:59 J -33264420.16 -33264420.00 -33264419.83 0.0514 0.0311  
 Mercury -95781-02-12 13:11 J -33262544.98 -33262544.95 -33262544.91 0.0520 0.0499  
 Mercury -95781-05-12 00:42 J -33262455.61 -33262455.47 -33262455.33 0.0516 0.0038  
 Mercury -95781-08-09 13:11 J -33262366.03 -33262365.95 -33262365.87 0.0512 0.0431  
 Moon -95778-03-13 03:20 J -33261420.42 -33261420.36 -33261420.27 0.0485 0.0458  
 Earth -95778-03-13 06:56 J -33261420.31 -33261420.21 -33261420.10 0.0485 0.0434 \*  
 Mars -95777-10-06 13:39 J -33260847.07 -33260846.93 -33260846.78 0.0488 0.0409  
 Mercury -95775-07-11 20:23 J -33260203.70 -33260203.65 -33260203.60 0.0509 0.0482  
 Mercury -95775-10-09 19:11 J -33260113.86 -33260113.70 -33260113.54 0.0513 0.0051  
 Mercury -95769-02-29 03:20 J -33258145.50 -33258145.36 -33258145.23 0.0517 0.0155  
 Mercury -95769-05-28 15:35 J -33258055.97 -33258055.85 -33258055.74 0.0513 0.0313  
 Venus -95769-07-07 09:20 J -33258016.30 -33258016.11 -33258015.91 0.0511 0.0135  
 Earth -95766-03-17 16:32 J -33257033.04 -33257032.81 -33257032.57 0.0485 0.0112  
 Moon -95766-03-17 20:23 J -33257032.88 -33257032.65 -33257032.41 0.0485 0.0092 \*  
 Mercury -95763-07-28 19:11 J -33255803.86 -33255803.70 -33255803.54 0.0512 0.0081  
 Mercury -95763-10-26 16:32 J -33255713.89 -33255713.81 -33255713.73 0.0516 0.0439  
 Venus -95763-12-28 12:13 J -33255651.11 -33255650.99 -33255650.87 0.0518 0.0421  
 Mercury -95758-12-18 05:15 J -33253835.40 -33253835.28 -33253835.16 0.0518 0.0279  
 Venus -95757-03-12 07:11 J -33253750.35 -33253750.20 -33253750.03 0.0515 0.0307  
 Mercury -95757-03-16 17:15 J -33253745.91 -33253745.78 -33253745.65 0.0514 0.0187  
 Moon -95754-03-21 23:15 J -33252645.75 -33252645.53 -33252645.32 0.0485 0.0234

Earth -95754-03-22 02:23 J -33252645.61 -33252645.40 -33252645.18 0.0485 0.0212 \*  
 Mercury -95751-05-16 18:56 J -33251493.86 -33251493.71 -33251493.56 0.0511 0.0215  
 Mercury -95751-08-14 16:47 J -33251403.93 -33251403.80 -33251403.67 0.0514 0.0309  
 Venus -95751-09-02 03:49 J -33251385.55 -33251385.34 -33251385.14 0.0515 0.0045  
 Mercury -95746-10-06 08:08 J -33249525.25 -33249525.16 -33249525.07 0.0519 0.0393  
 Mercury -95745-01-03 19:54 J -33249435.81 -33249435.67 -33249435.53 0.0515 0.0072  
 Mercury -95739-03-04 18:13 J -33247183.86 -33247183.74 -33247183.63 0.0510 0.0355  
 Venus -95739-05-07 18:56 J -33247119.74 -33247119.71 -33247119.67 0.0513 0.0506  
 Mercury -95739-06-02 16:32 J -33247093.96 -33247093.81 -33247093.66 0.0514 0.0173  
 Mercury -95734-07-25 11:30 J -33245215.05 -33245215.02 -33245214.98 0.0520 0.0500  
 Mercury -95734-10-22 23:01 J -33245125.68 -33245125.54 -33245125.40 0.0516 0.0040  
 Mercury -95733-01-20 11:30 J -33245036.10 -33245036.02 -33245035.94 0.0512 0.0431  
 Venus -95733-03-14 20:08 J -33244981.79 -33244981.66 -33244981.52 0.0510 0.0379  
 Mercury -95728-12-21 17:59 J -33242873.79 -33242873.75 -33242873.70 0.0509 0.0485  
 Mercury -95727-03-21 16:47 J -33242783.96 -33242783.80 -33242783.63 0.0513 0.0048  
 Moon -95725-09-20 22:18 J -33241869.75 -33241869.57 -33241869.39 0.0544 0.0326  
 Earth -95725-09-21 02:08 J -33241869.60 -33241869.41 -33241869.22 0.0544 0.0299 \*  
 Mercury -95722-08-11 01:39 J -33240815.56 -33240815.43 -33240815.29 0.0517 0.0154  
 Mercury -95722-11-08 13:54 J -33240726.03 -33240725.92 -33240725.81 0.0513 0.0314  
 Venus -95722-11-18 20:37 J -33240715.84 -33240715.64 -33240715.44 0.0512 0.0046  
 Mercury -95715-01-07 17:15 J -33238473.94 -33238473.78 -33238473.62 0.0512 0.0082  
 Mercury -95715-04-07 14:51 J -33238383.96 -33238383.88 -33238383.80 0.0516 0.0441  
 Venus -95715-05-10 19:39 J -33238350.86 -33238350.68 -33238350.49 0.0517 0.0225  
 Earth -95713-09-26 05:15 J -33237481.49 -33237481.28 -33237481.06 0.0544 0.0149  
 Moon -95713-09-26 08:23 J -33237481.36 -33237481.15 -33237480.94 0.0544 0.0173 \*  
 Mercury -95710-05-30 04:18 J -33236505.44 -33236505.32 -33236505.20 0.0518 0.0270  
 Venus -95710-07-24 19:54 J -33236449.73 -33236449.67 -33236449.59 0.0515 0.0480  
 Mercury -95710-08-27 16:18 J -33236415.95 -33236415.82 -33236415.69 0.0514 0.0196  
 Mercury -95704-10-26 17:30 J -33234163.92 -33234163.77 -33234163.62 0.0511 0.0211  
 Venus -95703-01-13 11:59 J -33234085.18 -33234085.00 -33234084.81 0.0514 0.0234

Mercury -95703-01-24 15:20 J -33234073.99 -33234073.86 -33234073.74 0.0515 0.0313  
 Mercury -95698-03-18 06:27 J -33232195.32 -33232195.23 -33232195.14 0.0519 0.0395  
 Mercury -95698-06-15 17:59 J -33232105.89 -33232105.75 -33232105.61 0.0515 0.0070  
 Earth -95695-03-12 13:25 J -33231104.97 -33231104.94 -33231104.89 0.0485 0.0477  
 Mercury -95692-08-14 17:01 J -33229853.91 -33229853.79 -33229853.67 0.0510 0.0346  
 Mercury -95692-11-12 15:20 J -33229764.01 -33229763.86 -33229763.71 0.0513 0.0181  
 Mercury -95686-01-04 09:20 J -33227885.14 -33227885.11 -33227885.09 0.0520 0.0508  
 Mercury -95686-04-03 20:37 J -33227795.78 -33227795.64 -33227795.49 0.0516 0.0049  
 Mercury -95686-07-02 09:20 J -33227706.19 -33227706.11 -33227706.03 0.0513 0.0424  
 Venus -95686-07-27 05:30 J -33227681.45 -33227681.27 -33227681.08 0.0511 0.0190  
 Moon -95683-03-16 18:13 J -33226717.97 -33226717.74 -33226717.51 0.0485 0.0135  
 Earth -95683-03-16 21:35 J -33226717.82 -33226717.60 -33226717.37 0.0485 0.0158 \*  
 Mercury -95680-06-02 15:49 J -33225543.88 -33225543.84 -33225543.79 0.0509 0.0488  
 Mercury -95680-08-31 14:51 J -33225454.04 -33225453.88 -33225453.72 0.0513 0.0044  
 Venus -95679-01-16 08:37 J -33225316.21 -33225316.14 -33225316.06 0.0519 0.0480  
 Mars -95676-04-07 13:25 J -33224139.22 -33224138.94 -33224138.67 0.0541 0.0040  
 Mercury -95674-01-20 23:44 J -33223485.64 -33223485.51 -33223485.37 0.0517 0.0157  
 Venus -95674-04-01 06:42 J -33223415.40 -33223415.22 -33223415.04 0.0514 0.0234  
 Mercury -95674-04-20 11:59 J -33223396.11 -33223396.00 -33223395.88 0.0513 0.0312  
 Earth -95671-03-21 06:56 J -33222330.43 -33222330.21 -33222329.98 0.0484 0.0163  
 Moon -95671-03-21 09:06 J -33222330.33 -33222330.12 -33222329.90 0.0484 0.0183 \*  
 Mercury -95668-06-19 14:51 J -33221144.03 -33221143.88 -33221143.72 0.0512 0.0088  
 Mercury -95668-09-17 12:27 J -33221054.06 -33221053.98 -33221053.90 0.0516 0.0434  
 Venus -95668-09-21 01:25 J -33221050.65 -33221050.44 -33221050.24 0.0516 0.0020  
 Mercury -95663-11-09 02:37 J -33219175.51 -33219175.39 -33219175.27 0.0518 0.0270  
 Mercury -95662-02-06 14:37 J -33219086.02 -33219085.89 -33219085.76 0.0514 0.0196  
 Moon -95659-03-25 14:23 J -33217942.96 -33217942.90 -33217942.82 0.0484 0.0462  
 Earth -95659-03-25 15:20 J -33217942.87 -33217942.86 -33217942.83 0.0484 0.0482 \*  
 Mars -95658-03-28 19:54 J -33217574.94 -33217574.67 -33217574.39 0.0487 0.0005  
 Mercury -95656-04-07 15:20 J -33216834.01 -33216833.86 -33216833.72 0.0511 0.0215

Venus -95656-05-26 18:56 J -33216784.82 -33216784.71 -33216784.60 0.0513 0.0431

Mercury -95656-07-06 13:11 J -33216744.07 -33216743.95 -33216743.82 0.0515 0.0311

Mercury -95651-08-28 05:30 J -33214865.36 -33214865.27 -33214865.18 0.0519 0.0385

Mercury -95651-11-25 17:01 J -33214775.93 -33214775.79 -33214775.65 0.0515 0.0078

Venus -95650-04-03 17:44 J -33214646.86 -33214646.76 -33214646.66 0.0509 0.0440

Mercury -95644-01-24 15:20 J -33212523.98 -33212523.86 -33212523.74 0.0510 0.0344

Mercury -95644-04-24 13:39 J -33212434.08 -33212433.93 -33212433.78 0.0514 0.0183

Earth -95642-09-20 23:44 J -33211554.67 -33211554.51 -33211554.35 0.0543 0.0385

Moon -95642-09-21 03:06 J -33211554.51 -33211554.37 -33211554.22 0.0543 0.0408 \*

Mercury -95639-06-16 07:25 J -33210555.21 -33210555.19 -33210555.16 0.0520 0.0510

Mercury -95639-09-13 18:56 J -33210465.86 -33210465.71 -33210465.57 0.0516 0.0052

Venus -95639-12-07 15:49 J -33210381.04 -33210380.84 -33210380.64 0.0513 0.0009

Mercury -95639-12-12 07:11 J -33210376.28 -33210376.20 -33210376.11 0.0513 0.0420

Mercury -95633-11-12 14:51 J -33208213.93 -33208213.88 -33208213.83 0.0509 0.0479

Mercury -95632-02-10 13:39 J -33208124.09 -33208123.93 -33208123.77 0.0512 0.0051

Venus -95632-05-29 17:44 J -33208015.93 -33208015.76 -33208015.59 0.0517 0.0290

Moon -95630-09-25 21:35 J -33207166.83 -33207166.60 -33207166.36 0.0543 0.0072

Earth -95630-09-26 00:13 J -33207166.72 -33207166.49 -33207166.27 0.0543 0.0050 \*

Mercury -95627-07-02 21:35 J -33206155.74 -33206155.60 -33206155.47 0.0517 0.0167

Venus -95627-08-12 15:06 J -33206114.97 -33206114.87 -33206114.76 0.0516 0.0433

Mercury -95627-09-30 09:35 J -33206066.21 -33206066.10 -33206065.98 0.0514 0.0303

Mercury -95621-11-29 12:42 J -33203814.13 -33203813.97 -33203813.81 0.0511 0.0091

Venus -95620-02-01 07:39 J -33203750.37 -33203750.18 -33203749.99 0.0514 0.0182

Mercury -95620-02-27 10:18 J -33203724.16 -33203724.07 -33203723.99 0.0515 0.0429

Earth -95618-10-01 01:25 J -33202778.53 -33202778.44 -33202778.35 0.0544 0.0492

Moon -95618-10-01 01:39 J -33202778.49 -33202778.43 -33202778.36 0.0544 0.0518 \*

Mercury -95615-04-21 00:42 J -33201845.59 -33201845.47 -33201845.35 0.0518 0.0275

Mercury -95615-07-19 12:27 J -33201756.11 -33201755.98 -33201755.84 0.0515 0.0192

Mercury -95609-09-17 12:42 J -33199504.11 -33199503.97 -33199503.82 0.0511 0.0222

Mercury -95609-12-16 10:47 J -33199414.18 -33199414.05 -33199413.92 0.0515 0.0303

Mercury -95603-02-07 03:35 J -33197535.44 -33197535.35 -33197535.26 0.0519 0.0387  
 Mercury -95603-05-07 15:20 J -33197446.00 -33197445.86 -33197445.72 0.0515 0.0077  
 Venus -95603-08-15 04:18 J -33197346.49 -33197346.32 -33197346.14 0.0511 0.0259  
 Earth -95600-03-16 01:39 J -33196402.64 -33196402.43 -33196402.21 0.0485 0.0208  
 Moon -95600-03-16 04:03 J -33196402.54 -33196402.33 -33196402.12 0.0485 0.0180 \*  
 Mercury -95597-07-06 12:56 J -33195194.08 -33195193.96 -33195193.84 0.0510 0.0350  
 Mercury -95597-10-04 11:15 J -33195104.18 -33195104.03 -33195103.88 0.0514 0.0178  
 Mercury -95592-11-26 06:27 J -33193225.26 -33193225.23 -33193225.20 0.0520 0.0501  
 Mercury -95591-02-23 17:44 J -33193135.90 -33193135.76 -33193135.62 0.0516 0.0042  
 Venus -95591-04-20 04:18 J -33193080.51 -33193080.32 -33193080.13 0.0514 0.0172  
 Mercury -95591-05-24 06:13 J -33193046.32 -33193046.24 -33193046.16 0.0512 0.0427  
 Moon -95588-03-20 10:18 J -33192015.31 -33192015.07 -33192014.83 0.0485 0.0128  
 Earth -95588-03-20 11:01 J -33192015.27 -33192015.04 -33192014.80 0.0485 0.0114 \*  
 Mercury -95585-04-24 12:56 J -33190884.01 -33190883.96 -33190883.91 0.0509 0.0479  
 Mercury -95585-07-23 11:44 J -33190794.17 -33190794.01 -33190793.85 0.0513 0.0052  
 Venus -95585-10-10 01:11 J -33190715.66 -33190715.45 -33190715.25 0.0516 0.0093  
 Mercury -95580-12-12 19:39 J -33188825.81 -33188825.68 -33188825.55 0.0517 0.0168  
 Mercury -95579-03-12 07:39 J -33188736.29 -33188736.18 -33188736.06 0.0513 0.0300  
 Moon -95576-03-24 19:25 J -33187627.80 -33187627.69 -33187627.56 0.0485 0.0412  
 Earth -95576-03-24 19:54 J -33187627.77 -33187627.67 -33187627.56 0.0485 0.0433 \*  
 Mercury -95573-05-11 11:44 J -33186484.17 -33186484.01 -33186483.85 0.0511 0.0084  
 Venus -95573-06-14 17:01 J -33186449.93 -33186449.79 -33186449.64 0.0513 0.0366  
 Mercury -95573-08-09 09:06 J -33186394.20 -33186394.12 -33186394.04 0.0515 0.0437  
 Mercury -95568-09-30 22:18 J -33184515.69 -33184515.57 -33184515.45 0.0518 0.0285  
 Mercury -95568-12-29 10:18 J -33184426.21 -33184426.07 -33184425.94 0.0515 0.0182  
 Venus -95567-04-22 12:42 J -33184312.02 -33184311.97 -33184311.91 0.0510 0.0488  
 Mercury -95561-02-28 10:32 J -33182174.21 -33182174.06 -33182173.91 0.0510 0.0226  
 Mercury -95561-05-28 08:37 J -33182084.27 -33182084.14 -33182084.02 0.0514 0.0298  
 Moon -95559-09-19 17:15 J -33181239.87 -33181239.78 -33181239.69 0.0543 0.0496  
 Earth -95559-09-19 20:08 J -33181239.77 -33181239.66 -33181239.55 0.0543 0.0473 \*

Mercury -95556-07-20 01:25 J -33180205.52 -33180205.44 -33180205.35 0.0520 0.0394

Mercury -95556-10-17 13:11 J -33180116.09 -33180115.95 -33180115.81 0.0516 0.0070

Venus -95556-12-26 14:08 J -33180046.10 -33180045.91 -33180045.71 0.0513 0.0071

Mercury -95550-12-17 10:18 J -33177864.18 -33177864.07 -33177863.95 0.0510 0.0358

Mercury -95549-03-16 08:51 J -33177774.28 -33177774.13 -33177773.98 0.0513 0.0170

Venus -95549-06-17 13:25 J -33177681.08 -33177680.94 -33177680.78 0.0517 0.0346

Earth -95547-09-25 00:56 J -33176851.69 -33176851.46 -33176851.23 0.0544 0.0022

Moon -95547-09-25 02:08 J -33176851.63 -33176851.41 -33176851.19 0.0544 0.0011 \*

Mercury -95544-05-08 04:32 J -33175895.34 -33175895.31 -33175895.27 0.0520 0.0504

Mercury -95544-08-05 16:03 J -33175805.98 -33175805.83 -33175805.69 0.0516 0.0046

Venus -95544-08-31 14:23 J -33175780.04 -33175779.90 -33175779.76 0.0515 0.0360

Mercury -95544-11-03 04:18 J -33175716.40 -33175716.32 -33175716.24 0.0512 0.0425

Mars -95540-09-16 18:42 J -33174302.85 -33174302.72 -33174302.57 0.0486 0.0418

Mercury -95538-10-05 10:18 J -33173554.11 -33173554.07 -33173554.02 0.0509 0.0487

Mercury -95537-01-03 09:20 J -33173464.27 -33173464.11 -33173463.95 0.0513 0.0044

Venus -95537-02-21 06:42 J -33173415.42 -33173415.22 -33173415.02 0.0515 0.0111

Earth -95535-09-30 04:32 J -33172463.44 -33172463.31 -33172463.16 0.0544 0.0425

Moon -95535-09-30 05:59 J -33172463.38 -33172463.25 -33172463.11 0.0544 0.0440 \*

Mercury -95532-05-24 18:42 J -33171495.86 -33171495.72 -33171495.59 0.0517 0.0160

Mercury -95532-08-22 06:42 J -33171406.33 -33171406.22 -33171406.11 0.0513 0.0307

Mercury -95526-10-22 09:49 J -33169154.25 -33169154.09 -33169153.93 0.0512 0.0085

Mercury -95525-01-20 07:11 J -33169064.28 -33169064.20 -33169064.11 0.0515 0.0437

Mars -95522-07-02 01:25 J -33167805.68 -33167805.44 -33167805.19 0.0540 0.0257

Mercury -95520-03-12 20:37 J -33167185.76 -33167185.64 -33167185.53 0.0518 0.0286

Mercury -95520-06-10 08:23 J -33167096.28 -33167096.15 -33167096.02 0.0514 0.0179

Venus -95520-09-02 23:15 J -33167011.69 -33167011.53 -33167011.37 0.0511 0.0305

Moon -95517-03-15 04:18 J -33166087.53 -33166087.32 -33166087.10 0.0485 0.0228

Earth -95517-03-15 05:15 J -33166087.48 -33166087.28 -33166087.07 0.0485 0.0258 \*

Mercury -95514-08-10 09:20 J -33164844.25 -33164844.11 -33164843.96 0.0510 0.0218

Mercury -95514-11-08 07:25 J -33164754.32 -33164754.19 -33164754.06 0.0514 0.0306

Mercury -95509-12-29 23:15 J -33162875.62 -33162875.53 -33162875.44 0.0519 0.0402  
 Mercury -95508-03-29 10:47 J -33162786.19 -33162786.05 -33162785.91 0.0516 0.0062  
 Venus -95508-05-08 23:01 J -33162745.73 -33162745.54 -33162745.35 0.0514 0.0126  
 Moon -95505-03-19 13:25 J -33161700.17 -33161699.94 -33161699.72 0.0485 0.0075  
 Earth -95505-03-19 13:39 J -33161700.16 -33161699.93 -33161699.69 0.0485 0.0063 \*  
 Mars -95504-06-21 06:13 J -33161241.49 -33161241.24 -33161240.98 0.0487 0.0180  
 Mercury -95502-05-29 08:08 J -33160534.27 -33160534.16 -33160534.05 0.0509 0.0361  
 Mercury -95502-08-27 06:42 J -33160444.37 -33160444.22 -33160444.07 0.0513 0.0166  
 Venus -95502-10-29 19:39 J -33160380.88 -33160380.68 -33160380.48 0.0516 0.0142  
 Mercury -95497-10-18 02:23 J -33158565.42 -33158565.40 -33158565.37 0.0521 0.0511  
 Mercury -95496-01-15 13:54 J -33158476.06 -33158475.92 -33158475.78 0.0517 0.0050  
 Mercury -95496-04-15 02:08 J -33158386.49 -33158386.41 -33158386.32 0.0513 0.0420  
 Earth -95493-03-23 23:30 J -33157312.66 -33157312.52 -33157312.37 0.0484 0.0383  
 Moon -95493-03-24 01:25 J -33157312.60 -33157312.44 -33157312.27 0.0484 0.0358 \*  
 Mercury -95490-03-17 07:54 J -33156224.21 -33156224.17 -33156224.14 0.0508 0.0494  
 Mercury -95490-06-15 06:42 J -33156134.38 -33156134.22 -33156134.06 0.0512 0.0037  
 Venus -95490-07-04 12:27 J -33156115.14 -33156114.98 -33156114.82 0.0513 0.0315  
 Mercury -95485-11-03 16:47 J -33154165.93 -33154165.80 -33154165.67 0.0517 0.0162  
 Mercury -95484-02-01 04:47 J -33154076.41 -33154076.30 -33154076.18 0.0514 0.0305  
 Mercury -95478-04-03 07:11 J -33151824.36 -33151824.20 -33151824.05 0.0512 0.0093  
 Mercury -95478-07-02 04:47 J -33151734.39 -33151734.30 -33151734.21 0.0515 0.0429  
 Earth -95476-09-18 23:15 J -33150924.55 -33150924.53 -33150924.50 0.0543 0.0538  
 Mercury -95473-08-22 19:25 J -33149855.80 -33149855.69 -33149855.57 0.0518 0.0278  
 Mercury -95473-11-20 07:25 J -33149766.33 -33149766.19 -33149766.06 0.0514 0.0188  
 Venus -95472-01-14 11:59 J -33149711.19 -33149711.00 -33149710.81 0.0512 0.0134  
 Mercury -95466-01-20 07:25 J -33147514.34 -33147514.19 -33147514.04 0.0511 0.0219  
 Mercury -95466-04-20 05:30 J -33147424.39 -33147424.27 -33147424.14 0.0514 0.0306  
 Venus -95466-07-07 13:39 J -33147346.05 -33147345.93 -33147345.82 0.0518 0.0421  
 Earth -95464-09-24 00:56 J -33146536.68 -33146536.46 -33146536.23 0.0543 0.0099  
 Moon -95464-09-24 01:25 J -33146536.68 -33146536.44 -33146536.21 0.0543 0.0071 \*

Mercury -95461-06-10 21:35 J -33145545.68 -33145545.60 -33145545.51 0.0519 0.0401

Mercury -95461-09-08 09:06 J -33145456.26 -33145456.12 -33145455.98 0.0515 0.0062

Venus -95461-09-19 09:20 J -33145445.26 -33145445.11 -33145444.94 0.0515 0.0312

Mercury -95455-11-08 06:56 J -33143204.32 -33143204.21 -33143204.09 0.0509 0.0353

Mercury -95454-02-06 05:44 J -33143114.41 -33143114.26 -33143114.11 0.0513 0.0175

Venus -95454-03-12 05:15 J -33143080.48 -33143080.28 -33143080.07 0.0515 0.0045

Moon -95452-09-28 22:32 J -33142148.73 -33142148.56 -33142148.39 0.0543 0.0345

Earth -95452-09-29 01:11 J -33142148.63 -33142148.45 -33142148.27 0.0543 0.0334 \*

Mercury -95449-03-30 00:27 J -33141235.49 -33141235.48 -33141235.47 0.0520 0.0516

Mercury -95449-06-27 11:44 J -33141146.15 -33141146.01 -33141145.87 0.0517 0.0057

Mercury -95449-09-24 23:59 J -33141056.58 -33141056.50 -33141056.41 0.0513 0.0412

Mercury -95443-08-27 05:30 J -33138894.29 -33138894.27 -33138894.23 0.0508 0.0497

Venus -95443-11-14 19:11 J -33138814.70 -33138814.70 -33138814.67 0.0512 0.0510

Mercury -95443-11-25 04:32 J -33138804.47 -33138804.31 -33138804.15 0.0512 0.0035

Mercury -95437-04-15 14:37 J -33136836.02 -33136835.89 -33136835.75 0.0518 0.0168

Mercury -95437-07-14 02:51 J -33136746.50 -33136746.38 -33136746.27 0.0514 0.0300

Venus -95437-09-21 21:49 J -33136676.72 -33136676.59 -33136676.45 0.0511 0.0374

Moon -95434-03-15 10:03 J -33135772.27 -33135772.08 -33135771.89 0.0485 0.0272

Earth -95434-03-15 10:32 J -33135772.24 -33135772.06 -33135771.87 0.0485 0.0301 \*

Mercury -95431-09-13 04:32 J -33134494.46 -33134494.31 -33134494.15 0.0511 0.0099

Mercury -95431-12-12 02:23 J -33134404.49 -33134404.40 -33134404.31 0.0515 0.0423

Mercury -95425-02-02 17:44 J -33132525.88 -33132525.76 -33132525.64 0.0519 0.0279

Mercury -95425-05-02 05:30 J -33132436.40 -33132436.27 -33132436.13 0.0515 0.0187

Venus -95425-05-27 22:32 J -33132410.76 -33132410.56 -33132410.36 0.0514 0.0051

Earth -95422-03-19 18:27 J -33131384.97 -33131384.73 -33131384.49 0.0485 0.0014

Moon -95422-03-19 20:23 J -33131384.90 -33131384.65 -33131384.40 0.0485 0.0021 \*

Mercury -95419-07-02 04:47 J -33130184.44 -33130184.30 -33130184.15 0.0510 0.0227

Mercury -95419-09-30 02:51 J -33130094.50 -33130094.38 -33130094.25 0.0514 0.0299

Venus -95419-11-17 18:56 J -33130045.90 -33130045.71 -33130045.53 0.0517 0.0214

Mercury -95414-11-21 20:37 J -33128215.73 -33128215.64 -33128215.55 0.0519 0.0392



Venus -95413-01-31 21:49 J -33128144.64 -33128144.59 -33128144.52 0.0516 0.0488  
 Mercury -95413-02-19 08:08 J -33128126.30 -33128126.16 -33128126.02 0.0515 0.0071  
 Moon -95410-03-24 00:42 J -33126997.64 -33126997.47 -33126997.28 0.0484 0.0306  
 Earth -95410-03-24 03:49 J -33126997.51 -33126997.34 -33126997.16 0.0484 0.0333 \*  
 Mercury -95407-04-20 05:01 J -33125874.40 -33125874.29 -33125874.17 0.0510 0.0354  
 Mercury -95407-07-19 03:35 J -33125784.50 -33125784.35 -33125784.19 0.0513 0.0175  
 Venus -95407-07-23 12:27 J -33125780.16 -33125779.98 -33125779.79 0.0514 0.0240  
 Mars -95404-12-18 16:32 J -33124536.00 -33124535.81 -33124535.62 0.0541 0.0391  
 Mercury -95402-09-09 23:01 J -33123905.56 -33123905.54 -33123905.52 0.0520 0.0514  
 Mercury -95402-12-08 10:03 J -33123816.22 -33123816.08 -33123815.94 0.0516 0.0056  
 Mercury -95401-03-06 22:18 J -33123726.65 -33123726.57 -33123726.48 0.0513 0.0414  
 Mercury -95395-02-06 04:47 J -33121564.35 -33121564.30 -33121564.26 0.0508 0.0486  
 Mercury -95395-05-07 03:49 J -33121474.50 -33121474.34 -33121474.18 0.0512 0.0044  
 Mercury -95390-09-26 12:42 J -33119506.10 -33119505.97 -33119505.84 0.0518 0.0172  
 Mercury -95390-12-25 00:42 J -33119416.58 -33119416.47 -33119416.35 0.0514 0.0295  
 Venus -95389-02-03 07:39 J -33119376.37 -33119376.18 -33119376.00 0.0512 0.0185  
 Mars -95386-12-11 07:39 J -33117969.42 -33117969.18 -33117968.93 0.0486 0.0231  
 Mercury -95383-02-23 02:37 J -33117164.55 -33117164.39 -33117164.23 0.0511 0.0099  
 Mercury -95383-05-24 00:27 J -33117074.57 -33117074.48 -33117074.39 0.0515 0.0421  
 Venus -95383-07-26 08:23 J -33117011.22 -33117011.15 -33117011.06 0.0518 0.0473  
 Moon -95381-09-22 18:27 J -33116221.94 -33116221.73 -33116221.52 0.0543 0.0163  
 Earth -95381-09-22 20:08 J -33116221.87 -33116221.66 -33116221.44 0.0543 0.0192 \*  
 Mercury -95378-07-15 15:49 J -33115195.96 -33115195.84 -33115195.72 0.0519 0.0283  
 Venus -95378-10-09 08:23 J -33115110.33 -33115110.15 -33115109.98 0.0515 0.0241  
 Mercury -95378-10-13 03:35 J -33115106.48 -33115106.35 -33115106.22 0.0515 0.0183  
 Mercury -95372-12-12 02:37 J -33112854.54 -33112854.39 -33112854.25 0.0510 0.0230  
 Mercury -95371-03-12 00:42 J -33112764.60 -33112764.47 -33112764.34 0.0514 0.0294  
 Venus -95371-03-31 00:56 J -33112745.67 -33112745.46 -33112745.25 0.0515 0.0012  
 Earth -95369-09-28 00:13 J -33111833.68 -33111833.49 -33111833.28 0.0544 0.0257  
 Moon -95369-09-28 04:03 J -33111833.53 -33111833.33 -33111833.13 0.0544 0.0262 \*

Mars -95368-09-24 19:25 J -33111471.78 -33111471.69 -33111471.58 0.0541 0.0499  
 Mercury -95366-05-03 18:56 J -33110885.80 -33110885.71 -33110885.62 0.0520 0.0393  
 Mercury -95366-08-01 06:27 J -33110796.37 -33110796.23 -33110796.09 0.0516 0.0070  
 Mercury -95360-09-30 02:23 J -33108544.51 -33108544.40 -33108544.28 0.0509 0.0361  
 Venus -95360-12-03 18:27 J -33108479.83 -33108479.73 -33108479.62 0.0512 0.0439  
 Mercury -95360-12-29 01:11 J -33108454.60 -33108454.45 -33108454.30 0.0513 0.0168  
 Mercury -95354-02-19 22:03 J -33106575.61 -33106575.58 -33106575.55 0.0521 0.0504  
 Mercury -95354-05-20 09:20 J -33106486.25 -33106486.11 -33106485.97 0.0517 0.0046  
 Mercury -95354-08-17 21:35 J -33106396.68 -33106396.60 -33106396.52 0.0513 0.0424  
 Venus -95354-10-11 20:51 J -33106341.72 -33106341.63 -33106341.53 0.0510 0.0445  
 Earth -95351-03-14 16:03 J -33105456.99 -33105456.83 -33105456.66 0.0485 0.0347  
 Moon -95351-03-14 17:59 J -33105456.93 -33105456.75 -33105456.56 0.0485 0.0315 \*  
 Mars -95350-09-14 22:47 J -33104907.72 -33104907.55 -33104907.36 0.0487 0.0369  
 Mercury -95348-07-19 02:51 J -33104234.43 -33104234.38 -33104234.34 0.0509 0.0487  
 Mercury -95348-10-17 01:54 J -33104144.58 -33104144.42 -33104144.26 0.0512 0.0044  
 Mercury -95342-03-08 11:30 J -33102176.16 -33102176.02 -33102175.89 0.0517 0.0168  
 Mercury -95342-06-05 23:30 J -33102086.64 -33102086.52 -33102086.41 0.0514 0.0299  
 Venus -95342-06-16 19:11 J -33102075.90 -33102075.70 -33102075.50 0.0513 0.0012  
 Moon -95339-03-18 20:37 J -33101069.88 -33101069.64 -33101069.41 0.0485 0.0032  
 Earth -95339-03-18 23:30 J -33101069.76 -33101069.52 -33101069.28 0.0485 0.0031 \*  
 Mercury -95336-08-05 01:54 J -33099834.58 -33099834.42 -33099834.26 0.0511 0.0087  
 Mercury -95336-11-02 23:44 J -33099744.60 -33099744.51 -33099744.43 0.0515 0.0433  
 Venus -95336-12-06 18:42 J -33099710.89 -33099710.72 -33099710.54 0.0517 0.0290  
 Mercury -95331-12-25 14:08 J -33097866.03 -33097865.91 -33097865.80 0.0519 0.0284  
 Venus -95330-02-19 18:27 J -33097809.84 -33097809.73 -33097809.62 0.0516 0.0431  
 Mercury -95330-03-25 01:54 J -33097776.56 -33097776.42 -33097776.29 0.0515 0.0181  
 Earth -95327-03-23 08:51 J -33096682.32 -33096682.13 -33096681.94 0.0485 0.0291  
 Moon -95327-03-23 12:42 J -33096682.17 -33096681.97 -33096681.77 0.0485 0.0262 \*  
 Mercury -95324-05-24 00:42 J -33095524.61 -33095524.47 -33095524.32 0.0510 0.0229  
 Venus -95324-08-11 08:37 J -33095445.34 -33095445.14 -33095444.95 0.0513 0.0182

Mercury -95324-08-21 23:01 J -33095434.67 -33095434.54 -33095434.41 0.0514 0.0295

Mercury -95319-10-13 17:01 J -33093555.87 -33093555.79 -33093555.70 0.0520 0.0396

Mercury -95318-01-11 04:32 J -33093466.45 -33093466.31 -33093466.17 0.0516 0.0069

Mercury -95312-03-12 00:27 J -33091214.59 -33091214.48 -33091214.36 0.0509 0.0361

Mercury -95312-06-09 23:15 J -33091124.68 -33091124.53 -33091124.38 0.0513 0.0166

Mercury -95307-08-01 20:23 J -33089245.68 -33089245.65 -33089245.62 0.0521 0.0504

Mercury -95307-10-30 07:39 J -33089156.32 -33089156.18 -33089156.04 0.0517 0.0044

Mercury -95306-01-27 19:54 J -33089066.75 -33089066.67 -33089066.59 0.0513 0.0425

Venus -95306-02-22 08:08 J -33089041.33 -33089041.16 -33089040.99 0.0512 0.0266

Mercury -95301-12-29 00:27 J -33086904.52 -33086904.48 -33086904.44 0.0508 0.0491

Mercury -95300-03-28 23:30 J -33086814.68 -33086814.52 -33086814.36 0.0512 0.0039

Earth -95298-09-23 01:54 J -33085906.63 -33085906.42 -33085906.22 0.0543 0.0249

Moon -95298-09-23 05:01 J -33085906.50 -33085906.29 -33085906.07 0.0543 0.0214 \*

Mercury -95295-08-18 10:32 J -33084846.19 -33084846.06 -33084845.93 0.0518 0.0157

Venus -95295-10-28 08:23 J -33084775.33 -33084775.15 -33084774.96 0.0515 0.0164

Mercury -95295-11-15 22:32 J -33084756.67 -33084756.56 -33084756.44 0.0514 0.0310

Mercury -95288-01-14 23:59 J -33082504.66 -33082504.50 -33082504.34 0.0511 0.0087

Mercury -95288-04-14 21:49 J -33082414.67 -33082414.59 -33082414.50 0.0515 0.0435

Venus -95288-04-19 02:23 J -33082410.61 -33082410.40 -33082410.20 0.0515 0.0094

Moon -95286-09-28 01:39 J -33081518.63 -33081518.43 -33081518.21 0.0543 0.0201

Earth -95286-09-28 05:44 J -33081518.47 -33081518.26 -33081518.04 0.0543 0.0200 \*

Mercury -95283-06-06 12:56 J -33080536.08 -33080535.96 -33080535.84 0.0519 0.0277

Mercury -95283-09-04 00:27 J -33080446.61 -33080446.48 -33080446.34 0.0515 0.0188

Mercury -95277-11-02 23:59 J -33078194.64 -33078194.50 -33078194.35 0.0510 0.0217

Venus -95277-12-22 19:11 J -33078144.84 -33078144.70 -33078144.55 0.0512 0.0360

Mercury -95276-01-31 22:18 J -33078104.70 -33078104.57 -33078104.44 0.0514 0.0308

Mercury -95271-03-25 15:35 J -33076225.94 -33076225.85 -33076225.76 0.0520 0.0393

Mercury -95271-06-23 03:06 J -33076136.51 -33076136.37 -33076136.23 0.0516 0.0069

Venus -95271-10-30 18:13 J -33076006.76 -33076006.74 -33076006.72 0.0510 0.0505

Moon -95268-03-13 19:39 J -33075141.83 -33075141.68 -33075141.52 0.0485 0.0358

Earth -95268-03-13 22:47 J -33075141.69 -33075141.55 -33075141.41 0.0485 0.0385 \*  
 Mercury -95265-08-21 23:01 J -33073884.66 -33073884.54 -33073884.42 0.0509 0.0356  
 Mercury -95265-11-19 21:35 J -33073794.75 -33073794.60 -33073794.45 0.0513 0.0169  
 Mercury -95259-01-11 18:42 J -33071915.75 -33071915.72 -33071915.69 0.0521 0.0505  
 Mercury -95259-04-11 05:59 J -33071826.39 -33071826.25 -33071826.11 0.0517 0.0046  
 Venus -95259-07-05 18:42 J -33071740.91 -33071740.72 -33071740.52 0.0514 0.0084  
 Mercury -95259-07-09 18:13 J -33071736.82 -33071736.74 -33071736.66 0.0513 0.0425  
 Earth -95256-03-18 08:51 J -33070754.37 -33070754.13 -33070753.90 0.0485 0.0064  
 Moon -95256-03-18 12:27 J -33070754.21 -33070753.98 -33070753.74 0.0485 0.0073 \*  
 Mercury -95253-06-09 22:47 J -33069574.60 -33069574.55 -33069574.51 0.0508 0.0488  
 Mercury -95253-09-07 21:49 J -33069484.75 -33069484.59 -33069484.43 0.0512 0.0042  
 Venus -95253-12-25 15:35 J -33069376.00 -33069375.85 -33069375.70 0.0516 0.0351  
 Mars -95249-03-13 12:13 J -33068202.25 -33068201.99 -33068201.72 0.0542 0.0147  
 Mercury -95247-01-28 08:51 J -33067516.26 -33067516.13 -33067515.99 0.0518 0.0156  
 Venus -95247-03-10 19:11 J -33067474.84 -33067474.70 -33067474.55 0.0516 0.0348  
 Mercury -95247-04-27 21:06 J -33067426.74 -33067426.62 -33067426.51 0.0514 0.0312  
 Moon -95244-03-22 13:39 J -33066367.15 -33066366.93 -33066366.72 0.0484 0.0221  
 Earth -95244-03-22 17:15 J -33066366.98 -33066366.78 -33066366.57 0.0484 0.0252 \*  
 Mercury -95241-06-26 21:49 J -33065174.75 -33065174.59 -33065174.43 0.0511 0.0090  
 Venus -95241-08-30 08:37 J -33065110.34 -33065110.14 -33065109.94 0.0514 0.0105  
 Mercury -95241-09-24 19:39 J -33065084.76 -33065084.68 -33065084.59 0.0515 0.0431  
 Mercury -95236-11-16 11:59 J -33063206.12 -33063206.00 -33063205.88 0.0519 0.0267  
 Mercury -95235-02-13 23:44 J -33063116.64 -33063116.51 -33063116.38 0.0515 0.0198  
 Mars -95231-03-06 07:39 J -33061635.45 -33061635.18 -33061634.90 0.0486 0.0025  
 Mercury -95229-04-14 22:18 J -33060864.72 -33060864.57 -33060864.42 0.0510 0.0214  
 Mercury -95229-07-13 20:37 J -33060774.77 -33060774.64 -33060774.51 0.0514 0.0310  
 Mercury -95224-09-04 14:37 J -33058895.98 -33058895.89 -33058895.80 0.0520 0.0385  
 Mercury -95224-12-03 02:08 J -33058806.55 -33058806.41 -33058806.27 0.0516 0.0078  
 Venus -95223-03-13 06:42 J -33058706.37 -33058706.22 -33058706.07 0.0511 0.0335  
 Mercury -95217-02-01 22:18 J -33056554.69 -33056554.57 -33056554.45 0.0509 0.0343

Mercury -95217-05-01 21:06 J -33056464.77 -33056464.62 -33056464.47 0.0513 0.0184

Moon -95215-09-22 01:39 J -33055591.62 -33055591.43 -33055591.24 0.0543 0.0277

Earth -95215-09-22 05:30 J -33055591.46 -33055591.27 -33055591.08 0.0543 0.0310 \*

Mercury -95212-06-23 17:15 J -33054585.81 -33054585.78 -33054585.74 0.0521 0.0500

Mercury -95212-09-21 04:32 J -33054496.45 -33054496.31 -33054496.17 0.0517 0.0042

Venus -95212-11-16 06:27 J -33054440.42 -33054440.23 -33054440.03 0.0514 0.0098

Mercury -95212-12-19 16:47 J -33054406.87 -33054406.80 -33054406.72 0.0513 0.0428

Mercury -95206-11-20 21:20 J -33052244.66 -33052244.61 -33052244.56 0.0508 0.0482

Mercury -95205-02-18 20:23 J -33052154.81 -33052154.65 -33052154.49 0.0512 0.0046

Venus -95205-05-07 23:59 J -33052075.69 -33052075.50 -33052075.30 0.0515 0.0162

Earth -95203-09-27 02:51 J -33051203.60 -33051203.38 -33051203.16 0.0544 0.0112

Moon -95203-09-27 06:42 J -33051203.44 -33051203.22 -33051203.00 0.0544 0.0111 \*

Mercury -95200-07-10 07:25 J -33050186.33 -33050186.19 -33050186.06 0.0518 0.0155

Mercury -95200-10-07 19:25 J -33050096.80 -33050096.69 -33050096.58 0.0514 0.0313

Mercury -95194-12-07 20:23 J -33047844.81 -33047844.65 -33047844.49 0.0511 0.0084

Venus -95193-01-11 17:01 J -33047809.96 -33047809.79 -33047809.62 0.0512 0.0293

Mercury -95193-03-06 17:59 J -33047754.82 -33047754.75 -33047754.66 0.0514 0.0435

Moon -95191-10-02 03:35 J -33046815.41 -33046815.35 -33046815.28 0.0544 0.0519

Mercury -95188-04-28 10:32 J -33045876.18 -33045876.06 -33045875.94 0.0519 0.0265

Mercury -95188-07-26 22:18 J -33045786.70 -33045786.57 -33045786.44 0.0515 0.0201

Earth -95185-03-13 08:23 J -33044826.26 -33044826.15 -33044826.02 0.0485 0.0418

Moon -95185-03-13 12:13 J -33044826.12 -33044825.99 -33044825.85 0.0485 0.0394 \*

Mercury -95182-09-25 20:23 J -33043534.80 -33043534.65 -33043534.50 0.0510 0.0215

Mercury -95182-12-24 18:42 J -33043444.85 -33043444.72 -33043444.60 0.0514 0.0309

Mercury -95176-02-14 13:39 J -33041566.02 -33041565.93 -33041565.83 0.0520 0.0375

Mercury -95176-05-15 01:11 J -33041476.59 -33041476.45 -33041476.31 0.0516 0.0088

Venus -95176-07-24 20:08 J -33041405.84 -33041405.66 -33041405.47 0.0513 0.0168

Moon -95173-03-17 13:54 J -33040439.15 -33040438.92 -33040438.68 0.0485 0.0117

Earth -95173-03-17 17:30 J -33040439.00 -33040438.77 -33040438.53 0.0485 0.0100 \*

Mercury -95170-07-14 20:37 J -33039224.76 -33039224.64 -33039224.51 0.0509 0.0341

Mercury -95170-10-12 19:25 J -33039134.84 -33039134.69 -33039134.54 0.0513 0.0186  
 Venus -95169-01-14 17:44 J -33039040.86 -33039040.76 -33039040.65 0.0517 0.0441  
 Mercury -95165-12-03 16:18 J -33037255.86 -33037255.82 -33037255.77 0.0521 0.0491  
 Mercury -95164-03-03 03:35 J -33037166.49 -33037166.35 -33037166.21 0.0517 0.0032  
 Venus -95164-03-29 18:56 J -33037139.88 -33037139.71 -33037139.54 0.0516 0.0273  
 Mercury -95164-05-31 15:49 J -33037076.91 -33037076.84 -33037076.76 0.0513 0.0437  
 Earth -95161-03-22 01:25 J -33036051.65 -33036051.44 -33036051.22 0.0485 0.0216  
 Moon -95161-03-22 04:03 J -33036051.54 -33036051.33 -33036051.11 0.0485 0.0190 \*  
 Mercury -95158-05-02 20:37 J -33034914.70 -33034914.64 -33034914.58 0.0508 0.0469  
 Mercury -95158-07-31 19:54 J -33034824.83 -33034824.67 -33034824.51 0.0512 0.0061  
 Venus -95158-09-19 10:47 J -33034775.25 -33034775.05 -33034774.84 0.0514 0.0019  
 Mercury -95153-12-20 06:13 J -33032856.37 -33032856.24 -33032856.10 0.0518 0.0148  
 Mercury -95152-03-19 18:13 J -33032766.85 -33032766.74 -33032766.62 0.0514 0.0320  
 Mercury -95146-05-19 19:11 J -33030514.86 -33030514.70 -33030514.54 0.0510 0.0076  
 Venus -95146-05-25 02:23 J -33030509.47 -33030509.40 -33030509.32 0.0511 0.0474  
 Mercury -95146-08-17 17:01 J -33030424.87 -33030424.79 -33030424.71 0.0514 0.0442  
 Mercury -95141-10-08 08:51 J -33028546.25 -33028546.13 -33028546.01 0.0520 0.0264  
 Mercury -95140-01-05 20:37 J -33028456.77 -33028456.64 -33028456.50 0.0516 0.0204  
 Venus -95140-04-01 06:42 J -33028371.34 -33028371.22 -33028371.11 0.0512 0.0413  
 Mercury -95134-03-07 19:11 J -33026204.85 -33026204.70 -33026204.55 0.0509 0.0208  
 Mercury -95134-06-05 17:15 J -33026114.90 -33026114.78 -33026114.65 0.0513 0.0314  
 Earth -95132-09-21 04:03 J -33025276.49 -33025276.33 -33025276.17 0.0543 0.0392  
 Moon -95132-09-21 07:54 J -33025276.34 -33025276.17 -33025276.00 0.0543 0.0357 \*  
 Mercury -95129-07-27 12:13 J -33024236.09 -33024235.99 -33024235.90 0.0520 0.0373  
 Mercury -95129-10-24 23:44 J -33024146.65 -33024146.51 -33024146.37 0.0516 0.0091  
 Venus -95129-12-05 07:39 J -33024105.38 -33024105.18 -33024104.98 0.0515 0.0016  
 Mercury -95123-12-24 18:56 J -33021894.83 -33021894.71 -33021894.59 0.0509 0.0339  
 Mercury -95122-03-24 17:30 J -33021804.92 -33021804.77 -33021804.62 0.0513 0.0187  
 Venus -95122-05-28 00:42 J -33021740.64 -33021740.47 -33021740.28 0.0516 0.0244  
 Moon -95120-09-26 07:11 J -33020888.43 -33020888.20 -33020887.96 0.0544 0.0056

Earth -95120-09-26 10:32 J -33020888.29 -33020888.06 -33020887.84 0.0544 0.0062 \*  
 Mercury -95117-05-15 15:35 J -33019925.90 -33019925.85 -33019925.80 0.0521 0.0482  
 Venus -95117-08-10 07:54 J -33019839.27 -33019839.17 -33019839.07 0.0517 0.0448  
 Mercury -95117-08-13 02:51 J -33019836.53 -33019836.38 -33019836.24 0.0517 0.0025  
 Mercury -95117-11-10 14:51 J -33019746.94 -33019746.88 -33019746.80 0.0513 0.0449  
 Mars -95113-08-25 18:56 J -33018362.85 -33018362.71 -33018362.55 0.0485 0.0406  
 Mercury -95111-10-12 18:56 J -33017584.77 -33017584.71 -33017584.64 0.0508 0.0466  
 Mercury -95110-01-10 18:13 J -33017494.90 -33017494.74 -33017494.58 0.0512 0.0063  
 Venus -95110-01-30 18:56 J -33017474.89 -33017474.71 -33017474.52 0.0513 0.0207  
 Earth -95108-10-01 15:20 J -33016499.92 -33016499.86 -33016499.77 0.0544 0.0512  
 Moon -95108-10-01 16:32 J -33016499.91 -33016499.81 -33016499.71 0.0544 0.0483 \*  
 Mercury -95105-06-01 05:15 J -33015526.41 -33015526.28 -33015526.14 0.0518 0.0139  
 Mercury -95105-08-29 17:15 J -33015436.89 -33015436.78 -33015436.67 0.0514 0.0328  
 Moon -95102-03-13 13:39 J -33014511.03 -33014510.93 -33014510.82 0.0486 0.0434  
 Earth -95102-03-13 17:15 J -33014510.86 -33014510.78 -33014510.69 0.0486 0.0451 \*  
 Mercury -95099-10-29 18:27 J -33013184.89 -33013184.73 -33013184.57 0.0511 0.0064  
 Mercury -95098-01-27 16:18 J -33013094.89 -33013094.82 -33013094.74 0.0515 0.0456  
 Mars -95095-06-08 04:32 J -33011867.57 -33011867.31 -33011867.04 0.0542 0.0158  
 Mercury -95093-03-20 08:08 J -33011216.28 -33011216.16 -33011216.04 0.0519 0.0254  
 Mercury -95093-06-17 19:54 J -33011126.80 -33011126.67 -33011126.54 0.0515 0.0212  
 Venus -95093-08-12 19:25 J -33011070.86 -33011070.69 -33011070.51 0.0513 0.0240  
 Earth -95090-03-18 02:51 J -33010123.60 -33010123.38 -33010123.14 0.0485 0.0132  
 Moon -95090-03-18 05:30 J -33010123.49 -33010123.27 -33010123.05 0.0485 0.0155 \*  
 Mercury -95087-08-17 17:59 J -33008874.90 -33008874.75 -33008874.60 0.0509 0.0198  
 Mercury -95087-11-15 16:03 J -33008784.95 -33008784.83 -33008784.70 0.0513 0.0323  
 Mercury -95081-01-07 10:47 J -33006906.15 -33006906.05 -33006905.96 0.0521 0.0372  
 Mercury -95081-04-05 22:18 J -33006816.71 -33006816.57 -33006816.43 0.0517 0.0094  
 Venus -95081-04-17 18:27 J -33006804.91 -33006804.73 -33006804.54 0.0516 0.0198  
 Moon -95078-03-22 11:59 J -33005736.24 -33005736.00 -33005735.77 0.0485 0.0164  
 Earth -95078-03-22 13:25 J -33005736.16 -33005735.94 -33005735.72 0.0485 0.0189 \*

Mars -95077-05-30 16:32 J -33005301.05 -33005300.81 -33005300.55 0.0486 0.0216  
 Mercury -95075-06-05 17:44 J -33004564.88 -33004564.76 -33004564.63 0.0508 0.0330  
 Mercury -95075-09-03 16:18 J -33004474.96 -33004474.82 -33004474.67 0.0512 0.0195  
 Venus -95075-10-08 09:49 J -33004440.29 -33004440.09 -33004439.88 0.0514 0.0057  
 Mercury -95070-10-26 13:54 J -33002595.97 -33002595.92 -33002595.87 0.0522 0.0481  
 Mercury -95069-01-24 01:11 J -33002506.59 -33002506.45 -33002506.31 0.0518 0.0020  
 Mercury -95069-04-22 13:25 J -33002417.00 -33002416.94 -33002416.87 0.0514 0.0451  
 Mercury -95063-03-24 17:15 J -33000254.84 -33000254.78 -33000254.71 0.0508 0.0463  
 Venus -95063-06-13 02:51 J -33000174.50 -33000174.38 -33000174.24 0.0511 0.0397  
 Mercury -95063-06-22 16:32 J -33000164.97 -33000164.81 -33000164.65 0.0512 0.0066  
 Mercury -95058-11-12 04:18 J -32998196.45 -32998196.32 -32998196.18 0.0518 0.0130  
 Mercury -95057-02-09 16:18 J -32998106.92 -32998106.82 -32998106.71 0.0514 0.0338  
 Venus -95057-04-20 08:37 J -32998036.18 -32998036.14 -32998036.10 0.0511 0.0499  
 Mercury -95051-04-10 17:01 J -32995854.95 -32995854.79 -32995854.63 0.0511 0.0061  
 Mercury -95051-07-09 14:37 J -32995764.95 -32995764.89 -32995764.81 0.0515 0.0459  
 Moon -95049-09-20 10:03 J -32994961.24 -32994961.08 -32994960.92 0.0543 0.0400  
 Earth -95049-09-20 13:25 J -32994961.07 -32994960.94 -32994960.80 0.0543 0.0433 \*  
 Mercury -95046-08-31 07:11 J -32993886.32 -32993886.20 -32993886.08 0.0519 0.0245  
 Mercury -95046-11-28 18:42 J -32993796.84 -32993796.72 -32993796.59 0.0515 0.0221  
 Venus -95046-12-25 08:08 J -32993770.35 -32993770.16 -32993769.96 0.0514 0.0068  
 Mercury -95039-01-27 17:15 J -32991544.93 -32991544.78 -32991544.63 0.0510 0.0187  
 Mercury -95039-04-27 15:35 J -32991454.97 -32991454.85 -32991454.73 0.0514 0.0336  
 Venus -95039-06-16 03:49 J -32991405.49 -32991405.34 -32991405.18 0.0516 0.0337  
 Earth -95037-09-25 17:01 J -32990573.01 -32990572.79 -32990572.56 0.0543 0.0012  
 Moon -95037-09-25 18:42 J -32990572.94 -32990572.72 -32990572.50 0.0543 0.0009 \*  
 Mercury -95034-06-19 09:49 J -32989576.18 -32989576.09 -32989575.99 0.0520 0.0360  
 Venus -95034-08-30 07:25 J -32989504.33 -32989504.19 -32989504.05 0.0517 0.0373  
 Mercury -95034-09-16 21:20 J -32989486.75 -32989486.61 -32989486.47 0.0516 0.0103  
 Mercury -95028-11-15 16:47 J -32987234.93 -32987234.80 -32987234.67 0.0508 0.0320  
 Mercury -95027-02-13 15:20 J -32987145.01 -32987144.86 -32987144.71 0.0512 0.0204



Venus	-95027-02-18 19:39 J	-32987139.88	-32987139.68	-32987139.48	0.0512	0.0126
Earth	-95025-09-30 14:08 J	-32986185.05	-32986184.91	-32986184.77	0.0544	0.0427
Moon	-95025-09-30 14:37 J	-32986185.04	-32986184.89	-32986184.72	0.0544	0.0400 *
Mercury	-95022-04-07 12:27 J	-32985266.03	-32985265.98	-32985265.93	0.0522	0.0479
Mercury	-95022-07-05 23:44 J	-32985176.65	-32985176.51	-32985176.37	0.0518	0.0020
Mercury	-95022-10-03 11:59 J	-32985087.06	-32985087.00	-32985086.93	0.0514	0.0452
Earth	-95019-03-13 05:01 J	-32984195.32	-32984195.29	-32984195.25	0.0486	0.0478
Moon	-95019-03-13 07:25 J	-32984195.24	-32984195.19	-32984195.13	0.0486	0.0470
Mercury	-95016-09-03 16:18 J	-32982924.89	-32982924.82	-32982924.74	0.0507	0.0452
Mercury	-95016-12-02 15:20 J	-32982835.02	-32982834.86	-32982834.70	0.0511	0.0074
Mercury	-95010-04-24 02:37 J	-32980866.52	-32980866.39	-32980866.25	0.0519	0.0130
Mercury	-95010-07-22 14:51 J	-32980776.99	-32980776.88	-32980776.78	0.0515	0.0339
Venus	-95010-09-01 19:39 J	-32980735.83	-32980735.68	-32980735.52	0.0513	0.0319
Moon	-95007-03-17 11:59 J	-32979808.22	-32979808.00	-32979807.77	0.0485	0.0189
Earth	-95007-03-17 13:11 J	-32979808.17	-32979807.95	-32979807.72	0.0485	0.0163 *
Mercury	-95004-09-20 15:06 J	-32978525.03	-32978524.87	-32978524.70	0.0510	0.0060
Mercury	-95004-12-19 12:56 J	-32978435.02	-32978434.96	-32978434.89	0.0514	0.0459

# 95TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 95th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-94998-02-10 05:59 J	-32976556.37	-32976556.25	-32976556.13	0.0520	0.0239		

Venus -94998-05-07 20:37 J -32976469.84 -32976469.64 -32976469.45 0.0516 0.0110  
 Mercury -94998-05-10 17:44 J -32976466.89 -32976466.76 -32976466.63 0.0516 0.0227  
 Earth -94995-03-21 22:18 J -32975420.79 -32975420.57 -32975420.34 0.0484 0.0155  
 Moon -94995-03-21 22:18 J -32975420.79 -32975420.57 -32975420.35 0.0484 0.0135 \*  
 Mercury -94992-07-09 15:35 J -32974215.00 -32974214.85 -32974214.70 0.0510 0.0184  
 Mercury -94992-10-07 13:54 J -32974125.04 -32974124.92 -32974124.80 0.0514 0.0338  
 Venus -94992-10-27 11:30 J -32974105.21 -32974105.02 -32974104.81 0.0514 0.0142  
 Mercury -94987-11-29 08:51 J -32972246.23 -32972246.13 -32972246.03 0.0520 0.0353  
 Mercury -94986-02-26 20:23 J -32972156.79 -32972156.65 -32972156.52 0.0516 0.0111  
 Earth -94983-03-26 06:42 J -32971033.28 -32971033.22 -32971033.16 0.0484 0.0467  
 Mercury -94980-04-27 15:49 J -32969904.97 -32969904.84 -32969904.71 0.0509 0.0311  
 Venus -94980-07-02 05:44 J -32969839.43 -32969839.26 -32969839.10 0.0512 0.0307  
 Mercury -94980-07-26 14:23 J -32969815.04 -32969814.90 -32969814.75 0.0513 0.0214  
 Mars -94977-11-25 12:27 J -32968597.12 -32968596.98 -32968596.82 0.0543 0.0452  
 Mercury -94975-09-17 11:44 J -32967936.07 -32967936.01 -32967935.95 0.0521 0.0467  
 Mercury -94975-12-15 23:01 J -32967846.68 -32967846.54 -32967846.40 0.0517 0.0014  
 Mercury -94974-03-15 11:15 J -32967757.09 -32967757.03 -32967756.97 0.0513 0.0462  
 Mercury -94968-02-13 15:20 J -32965594.94 -32965594.86 -32965594.78 0.0507 0.0443  
 Mercury -94968-05-14 14:23 J -32965505.06 -32965504.90 -32965504.74 0.0511 0.0083  
 Earth -94966-09-20 11:59 J -32964646.06 -32964646.00 -32964645.92 0.0542 0.0514  
 Moon -94966-09-20 14:37 J -32964645.98 -32964645.89 -32964645.79 0.0542 0.0484 \*  
 Mercury -94963-10-04 01:11 J -32963536.59 -32963536.45 -32963536.32 0.0519 0.0129  
 Mercury -94962-01-01 13:11 J -32963447.06 -32963446.95 -32963446.84 0.0515 0.0340  
 Venus -94962-01-13 06:42 J -32963435.41 -32963435.22 -32963435.03 0.0514 0.0136  
 Mars -94959-11-20 06:42 J -32962028.48 -32962028.22 -32962027.96 0.0486 0.0165  
 Mercury -94956-03-02 14:08 J -32961195.07 -32961194.91 -32961194.74 0.0510 0.0050  
 Mercury -94956-05-31 11:59 J -32961105.06 -32961105.00 -32961104.94 0.0514 0.0468  
 Venus -94956-07-05 03:06 J -32961070.49 -32961070.37 -32961070.24 0.0515 0.0411  
 Moon -94954-09-25 14:37 J -32960258.12 -32960257.89 -32960257.65 0.0543 0.0094  
 Earth -94954-09-25 14:51 J -32960258.10 -32960257.88 -32960257.65 0.0543 0.0077 \*

Mercury -94951-07-23 04:03 J -32959226.45 -32959226.33 -32959226.20 0.0520 0.0242

Venus -94951-09-18 06:42 J -32959169.38 -32959169.22 -32959169.06 0.0517 0.0301

Mercury -94951-10-20 16:03 J -32959136.96 -32959136.83 -32959136.71 0.0516 0.0226

Mercury -94945-12-19 13:54 J -32956885.08 -32956884.92 -32956884.77 0.0509 0.0183

Venus -94944-03-09 19:11 J -32956804.90 -32956804.70 -32956804.49 0.0513 0.0053

Mercury -94944-03-19 11:59 J -32956795.12 -32956795.00 -32956794.88 0.0513 0.0338

Moon -94942-09-30 17:30 J -32955869.94 -32955869.77 -32955869.60 0.0544 0.0348

Earth -94942-09-30 19:54 J -32955869.84 -32955869.67 -32955869.51 0.0544 0.0370 \*

Mars -94941-09-01 10:32 J -32955533.23 -32955533.06 -32955532.89 0.0542 0.0425

Mercury -94939-05-11 07:25 J -32954916.29 -32954916.19 -32954916.08 0.0521 0.0350

Mercury -94939-08-08 18:56 J -32954826.85 -32954826.71 -32954826.57 0.0517 0.0116

Mercury -94933-10-07 13:54 J -32952575.05 -32952574.92 -32952574.79 0.0509 0.0310

Venus -94933-11-12 13:39 J -32952538.97 -32952538.93 -32952538.88 0.0510 0.0497

Mercury -94932-01-05 12:42 J -32952485.12 -32952484.97 -32952484.83 0.0512 0.0215

Mercury -94927-02-27 10:32 J -32950606.12 -32950606.06 -32950606.00 0.0521 0.0461

Mercury -94927-05-27 21:49 J -32950516.73 -32950516.59 -32950516.45 0.0517 0.0012

Mercury -94927-08-25 09:49 J -32950427.14 -32950427.09 -32950427.03 0.0513 0.0469

Venus -94927-09-20 20:08 J -32950400.78 -32950400.66 -32950400.53 0.0512 0.0399

Moon -94924-03-16 21:20 J -32949492.81 -32949492.61 -32949492.41 0.0485 0.0229

Earth -94924-03-16 21:35 J -32949492.81 -32949492.60 -32949492.38 0.0485 0.0199 \*

Mars -94923-08-24 21:35 J -32948966.72 -32948966.60 -32948966.48 0.0487 0.0436

Mercury -94921-07-26 13:54 J -32948265.00 -32948264.92 -32948264.83 0.0508 0.0437

Mercury -94921-10-24 13:11 J -32948175.11 -32948174.95 -32948174.79 0.0512 0.0090

Mercury -94915-03-16 00:27 J -32946206.62 -32946206.48 -32946206.34 0.0518 0.0117

Venus -94915-05-26 19:54 J -32946134.87 -32946134.67 -32946134.47 0.0515 0.0037

Mercury -94915-06-13 12:27 J -32946117.09 -32946116.98 -32946116.88 0.0514 0.0350

Earth -94912-03-21 07:11 J -32945105.43 -32945105.20 -32945104.97 0.0485 0.0118

Moon -94912-03-21 09:06 J -32945105.36 -32945105.12 -32945104.88 0.0485 0.0106 \*

Mercury -94909-08-12 13:11 J -32943865.11 -32943864.95 -32943864.79 0.0510 0.0041

Mercury -94909-11-10 10:47 J -32943775.10 -32943775.05 -32943774.99 0.0514 0.0476

Venus -94909-11-15 12:27 J -32943770.16 -32943769.98 -32943769.79 0.0514 0.0224  
 Mercury -94903-01-02 02:37 J -32941896.52 -32941896.39 -32941896.27 0.0520 0.0241  
 Venus -94903-01-29 16:47 J -32941868.86 -32941868.80 -32941868.74 0.0519 0.0491  
 Mercury -94903-04-01 14:23 J -32941807.03 -32941806.90 -32941806.77 0.0516 0.0226  
 Moon -94900-03-25 13:25 J -32940718.00 -32940717.94 -32940717.86 0.0485 0.0461  
 Earth -94900-03-25 16:47 J -32940717.90 -32940717.80 -32940717.69 0.0485 0.0435 \*  
 Mercury -94897-05-31 12:56 J -32939555.12 -32939554.96 -32939554.81 0.0509 0.0172  
 Venus -94897-07-21 05:15 J -32939504.46 -32939504.28 -32939504.09 0.0511 0.0233  
 Mercury -94897-08-29 11:01 J -32939465.15 -32939465.04 -32939464.92 0.0513 0.0348  
 Mercury -94892-10-21 05:30 J -32937586.37 -32937586.27 -32937586.17 0.0521 0.0354  
 Mercury -94891-01-18 17:01 J -32937496.93 -32937496.79 -32937496.65 0.0517 0.0112  
 Mercury -94885-03-19 12:13 J -32935245.12 -32935244.99 -32935244.86 0.0508 0.0309  
 Mercury -94885-06-17 10:47 J -32935155.19 -32935155.05 -32935154.90 0.0512 0.0215  
 Mercury -94880-08-09 08:51 J -32933276.19 -32933276.13 -32933276.06 0.0522 0.0461  
 Mercury -94880-11-06 20:08 J -32933186.80 -32933186.66 -32933186.52 0.0518 0.0012  
 Venus -94879-02-01 07:39 J -32933100.36 -32933100.18 -32933100.00 0.0514 0.0218  
 Mercury -94879-02-04 08:23 J -32933097.20 -32933097.15 -32933097.09 0.0514 0.0471  
 Mercury -94873-01-06 11:59 J -32930935.08 -32930935.00 -32930934.91 0.0507 0.0438  
 Mercury -94873-04-05 11:15 J -32930845.19 -32930845.03 -32930844.87 0.0511 0.0089  
 Venus -94873-07-24 03:06 J -32930735.42 -32930735.37 -32930735.29 0.0516 0.0488  
 Moon -94871-09-24 20:08 J -32929942.87 -32929942.66 -32929942.44 0.0543 0.0153  
 Earth -94871-09-24 21:49 J -32929942.81 -32929942.59 -32929942.36 0.0543 0.0127 \*  
 Mercury -94868-08-25 23:01 J -32928876.68 -32928876.54 -32928876.40 0.0518 0.0113  
 Venus -94868-10-07 07:11 J -32928834.38 -32928834.20 -32928834.02 0.0517 0.0220  
 Mercury -94868-11-23 11:01 J -32928787.14 -32928787.04 -32928786.94 0.0515 0.0354  
 Mercury -94861-01-23 11:30 J -32926535.18 -32926535.02 -32926534.85 0.0510 0.0038  
 Venus -94861-03-28 21:06 J -32926469.83 -32926469.62 -32926469.41 0.0513 0.0034  
 Mercury -94861-04-22 09:20 J -32926445.16 -32926445.11 -32926445.05 0.0514 0.0481  
 Earth -94859-09-30 01:39 J -32925554.61 -32925554.43 -32925554.24 0.0544 0.0315  
 Moon -94859-09-30 05:30 J -32925554.46 -32925554.27 -32925554.08 0.0544 0.0298 \*

Mercury -94856-06-14 01:54 J -32924566.55 -32924566.42 -32924566.30 0.0519 0.0230

Mercury -94856-09-11 13:25 J -32924477.06 -32924476.94 -32924476.81 0.0516 0.0237

Mercury -94850-11-11 11:30 J -32922225.17 -32922225.02 -32922224.86 0.0509 0.0166

Venus -94850-12-02 14:37 J -32922204.00 -32922203.89 -32922203.77 0.0510 0.0416

Mercury -94849-02-09 09:49 J -32922135.20 -32922135.09 -32922134.98 0.0513 0.0354

Mercury -94844-04-02 03:49 J -32920256.44 -32920256.34 -32920256.24 0.0521 0.0354

Mercury -94844-06-30 15:20 J -32920167.00 -32920166.86 -32920166.72 0.0517 0.0111

Venus -94844-10-09 17:15 J -32920065.87 -32920065.78 -32920065.69 0.0513 0.0458

Earth -94841-03-16 05:59 J -32919177.45 -32919177.25 -32919177.03 0.0486 0.0236

Moon -94841-03-16 07:54 J -32919177.37 -32919177.17 -32919176.96 0.0486 0.0264 \*

Mercury -94838-08-30 11:15 J -32917915.16 -32917915.03 -32917914.90 0.0508 0.0298

Mercury -94838-11-28 09:49 J -32917825.23 -32917825.09 -32917824.95 0.0512 0.0224

Mercury -94832-01-19 06:56 J -32915946.27 -32915946.21 -32915946.15 0.0522 0.0467

Mercury -94832-04-18 18:13 J -32915856.88 -32915856.74 -32915856.60 0.0518 0.0013

Venus -94832-06-14 17:01 J -32915799.99 -32915799.79 -32915799.59 0.0516 0.0024

Mercury -94832-07-17 06:27 J -32915767.29 -32915767.23 -32915767.17 0.0514 0.0465

Moon -94829-03-20 11:01 J -32914790.27 -32914790.04 -32914789.81 0.0485 0.0073

Earth -94829-03-20 14:08 J -32914790.15 -32914789.91 -32914789.68 0.0485 0.0078 \*

Mercury -94826-06-18 10:03 J -32913605.16 -32913605.08 -32913604.99 0.0507 0.0437

Mercury -94826-09-16 09:20 J -32913515.27 -32913515.11 -32913514.95 0.0511 0.0088

Venus -94826-12-05 10:32 J -32913435.23 -32913435.06 -32913434.89 0.0514 0.0289

Mars -94822-02-19 07:11 J -32912263.45 -32912263.20 -32912262.95 0.0543 0.0220

Mercury -94820-02-04 21:20 J -32911546.75 -32911546.61 -32911546.47 0.0519 0.0115

Venus -94820-02-17 17:15 J -32911533.90 -32911533.78 -32911533.66 0.0518 0.0413

Mercury -94820-05-05 09:20 J -32911457.21 -32911457.11 -32911457.01 0.0515 0.0354

Earth -94817-03-24 23:15 J -32910402.67 -32910402.53 -32910402.39 0.0484 0.0393

Moon -94817-03-25 03:06 J -32910402.48 -32910402.37 -32910402.25 0.0484 0.0424 \*

Mercury -94814-07-05 09:35 J -32909205.27 -32909205.10 -32909204.94 0.0510 0.0040

Venus -94814-08-10 04:03 J -32909169.53 -32909169.33 -32909169.13 0.0512 0.0165

Mercury -94814-10-03 07:25 J -32909115.25 -32909115.19 -32909115.14 0.0514 0.0477

Mercury -94809-11-24 00:13 J -32907236.61 -32907236.49 -32907236.36 0.0520 0.0228

Mercury -94808-02-21 11:59 J -32907147.13 -32907147.00 -32907146.87 0.0516 0.0238

Mars -94804-02-13 04:47 J -32905694.57 -32905694.30 -32905694.02 0.0486 0.0038

Mercury -94802-04-23 09:35 J -32904895.25 -32904895.10 -32904894.94 0.0509 0.0167

Mercury -94802-07-22 07:54 J -32904805.28 -32904805.17 -32904805.05 0.0513 0.0355

Mercury -94797-09-12 03:06 J -32902926.47 -32902926.37 -32902926.27 0.0521 0.0343

Mercury -94797-12-10 14:23 J -32902837.03 -32902836.90 -32902836.76 0.0517 0.0122

Venus -94796-02-20 05:59 J -32902765.41 -32902765.25 -32902765.08 0.0514 0.0286

Mercury -94790-02-09 09:49 J -32900585.23 -32900585.09 -32900584.96 0.0508 0.0294

Mercury -94790-05-10 08:23 J -32900495.29 -32900495.15 -32900495.01 0.0512 0.0228

Earth -94788-09-23 20:08 J -32899627.87 -32899627.66 -32899627.45 0.0542 0.0208

Moon -94788-09-23 23:01 J -32899627.74 -32899627.54 -32899627.32 0.0542 0.0238 \*

Mercury -94785-07-01 05:15 J -32898616.34 -32898616.28 -32898616.22 0.0522 0.0468

Mercury -94785-09-28 16:18 J -32898526.96 -32898526.82 -32898526.68 0.0518 0.0011

Venus -94785-10-26 03:06 J -32898499.56 -32898499.37 -32898499.18 0.0517 0.0168

Mercury -94785-12-27 04:32 J -32898437.37 -32898437.31 -32898437.25 0.0514 0.0463

Mercury -94779-11-28 09:06 J -32896275.20 -32896275.12 -32896275.03 0.0507 0.0428

Mercury -94778-02-26 08:23 J -32896185.31 -32896185.15 -32896185.00 0.0511 0.0098

Venus -94778-04-17 20:08 J -32896134.87 -32896134.66 -32896134.46 0.0513 0.0104

Moon -94776-09-28 17:30 J -32895239.98 -32895239.77 -32895239.56 0.0543 0.0201

Earth -94776-09-28 21:35 J -32895239.81 -32895239.60 -32895239.40 0.0543 0.0221 \*

Mercury -94773-07-17 19:11 J -32894216.84 -32894216.70 -32894216.57 0.0519 0.0123

Mercury -94773-10-15 07:11 J -32894127.31 -32894127.20 -32894127.10 0.0515 0.0346

Mercury -94767-12-15 07:25 J -32891875.35 -32891875.19 -32891875.03 0.0510 0.0041

Venus -94767-12-21 11:15 J -32891869.17 -32891869.03 -32891868.88 0.0510 0.0359

Mercury -94766-03-15 05:15 J -32891785.34 -32891785.28 -32891785.22 0.0514 0.0474

Mercury -94761-05-05 22:18 J -32889906.69 -32889906.57 -32889906.44 0.0520 0.0232

Mercury -94761-08-03 10:03 J -32889817.21 -32889817.08 -32889816.95 0.0516 0.0235

Moon -94758-03-16 09:06 J -32888862.29 -32888862.12 -32888861.93 0.0486 0.0307

Earth -94758-03-16 12:13 J -32888862.18 -32888861.99 -32888861.79 0.0486 0.0277 \*

Mercury -94755-10-03 07:25 J -32887565.34 -32887565.19 -32887565.03 0.0509 0.0170

Mercury -94754-01-01 05:44 J -32887475.37 -32887475.26 -32887475.14 0.0513 0.0350

Mercury -94749-02-23 01:25 J -32885596.54 -32885596.44 -32885596.34 0.0521 0.0344

Mercury -94749-05-22 12:42 J -32885507.10 -32885506.97 -32885506.83 0.0517 0.0121

Venus -94749-07-03 16:32 J -32885465.00 -32885464.81 -32885464.61 0.0515 0.0100

Earth -94746-03-20 19:25 J -32884474.93 -32884474.69 -32884474.45 0.0485 0.0033

Moon -94746-03-20 23:15 J -32884474.77 -32884474.53 -32884474.29 0.0485 0.0039 \*

Mercury -94743-07-22 07:25 J -32883255.32 -32883255.19 -32883255.05 0.0508 0.0298

Mercury -94743-10-20 06:13 J -32883165.38 -32883165.24 -32883165.09 0.0512 0.0226

Venus -94743-12-24 10:32 J -32883100.20 -32883100.06 -32883099.91 0.0515 0.0367

Mercury -94738-12-12 04:18 J -32881286.38 -32881286.32 -32881286.26 0.0522 0.0458

Venus -94737-03-08 15:20 J -32881199.00 -32881198.86 -32881198.71 0.0518 0.0346

Mercury -94737-03-10 15:20 J -32881197.00 -32881196.86 -32881196.71 0.0518 0.0015

Mercury -94737-06-08 03:35 J -32881107.40 -32881107.35 -32881107.29 0.0514 0.0471

Moon -94734-03-25 00:56 J -32880087.61 -32880087.46 -32880087.31 0.0485 0.0377

Earth -94734-03-25 04:47 J -32880087.46 -32880087.30 -32880087.13 0.0485 0.0347 \*

Mercury -94731-05-10 07:25 J -32878945.28 -32878945.19 -32878945.10 0.0507 0.0426

Mercury -94731-08-08 06:42 J -32878855.38 -32878855.22 -32878855.06 0.0511 0.0100

Venus -94731-08-29 04:03 J -32878834.53 -32878834.33 -32878834.12 0.0512 0.0089

Mercury -94726-12-28 17:15 J -32876886.91 -32876886.78 -32876886.64 0.0519 0.0125

Mercury -94725-03-27 05:15 J -32876797.39 -32876797.28 -32876797.17 0.0515 0.0343

Mercury -94719-05-27 06:27 J -32874545.40 -32874545.23 -32874545.07 0.0510 0.0034

Mercury -94719-08-25 04:03 J -32874455.37 -32874455.33 -32874455.27 0.0514 0.0483

Mercury -94714-10-16 20:08 J -32872576.79 -32872576.66 -32872576.54 0.0520 0.0241

Mercury -94713-01-14 07:39 J -32872487.30 -32872487.18 -32872487.05 0.0516 0.0226

Venus -94713-03-11 01:25 J -32872430.59 -32872430.44 -32872430.29 0.0514 0.0336

Mercury -94707-03-15 05:15 J -32870235.43 -32870235.28 -32870235.12 0.0509 0.0173

Mercury -94707-06-13 03:35 J -32870145.46 -32870145.35 -32870145.23 0.0513 0.0346

Moon -94705-09-22 14:23 J -32869313.08 -32869312.90 -32869312.72 0.0543 0.0323

Earth -94705-09-22 17:59 J -32869312.94 -32869312.75 -32869312.55 0.0543 0.0289 \*

Mercury -94702-08-04 23:15 J -32868266.63 -32868266.53 -32868266.42 0.0521 0.0350

Mercury -94702-11-02 10:47 J -32868177.19 -32868177.05 -32868176.91 0.0517 0.0115

Venus -94702-11-15 02:08 J -32868164.61 -32868164.41 -32868164.22 0.0517 0.0097

Mercury -94695-01-01 05:01 J -32865925.42 -32865925.29 -32865925.15 0.0508 0.0304

Mercury -94695-04-01 03:49 J -32865835.48 -32865835.34 -32865835.19 0.0512 0.0219

Venus -94695-05-06 16:47 J -32865800.00 -32865799.80 -32865799.61 0.0513 0.0162

Earth -94693-09-27 23:15 J -32864924.75 -32864924.53 -32864924.31 0.0543 0.0155

Moon -94693-09-28 03:20 J -32864924.58 -32864924.36 -32864924.14 0.0543 0.0142 \*

Mercury -94690-05-24 02:23 J -32863956.46 -32863956.40 -32863956.33 0.0522 0.0461

Mercury -94690-08-21 13:39 J -32863867.07 -32863866.93 -32863866.79 0.0518 0.0001

Mercury -94690-11-19 01:54 J -32863777.48 -32863777.42 -32863777.37 0.0514 0.0469

Mars -94686-08-05 01:11 J -32862422.61 -32862422.45 -32862422.27 0.0485 0.0382

Mercury -94684-10-20 05:01 J -32861615.38 -32861615.29 -32861615.21 0.0507 0.0432

Venus -94683-01-09 10:32 J -32861534.23 -32861534.06 -32861533.88 0.0511 0.0287

Mercury -94683-01-18 04:18 J -32861525.48 -32861525.32 -32861525.16 0.0511 0.0094

Mercury -94678-06-09 16:18 J -32859556.95 -32859556.82 -32859556.68 0.0519 0.0116

Mercury -94678-09-07 04:18 J -32859467.43 -32859467.32 -32859467.22 0.0515 0.0351

Earth -94675-03-15 16:18 J -32858546.98 -32858546.82 -32858546.63 0.0486 0.0326

Moon -94675-03-15 20:08 J -32858546.81 -32858546.66 -32858546.49 0.0486 0.0351 \*

Mercury -94672-11-06 04:32 J -32857215.47 -32857215.31 -32857215.15 0.0510 0.0033

Mercury -94671-02-04 02:23 J -32857125.45 -32857125.40 -32857125.34 0.0514 0.0483

Mars -94668-05-14 23:15 J -32855929.80 -32855929.53 -32855929.26 0.0542 0.0005

Mercury -94666-03-28 18:13 J -32855246.86 -32855246.74 -32855246.61 0.0520 0.0243

Mercury -94666-06-26 05:59 J -32855157.38 -32855157.25 -32855157.12 0.0516 0.0223

Venus -94666-07-23 11:30 J -32855130.22 -32855130.02 -32855129.83 0.0515 0.0146

Moon -94663-03-19 20:08 J -32854159.90 -32854159.66 -32854159.42 0.0486 0.0008

Earth -94663-03-19 23:44 J -32854159.74 -32854159.51 -32854159.27 0.0486 0.0017 \*

Mercury -94660-08-25 04:03 J -32852905.48 -32852905.33 -32852905.17 0.0509 0.0166

Mercury -94660-11-23 02:37 J -32852815.51 -32852815.39 -32852815.28 0.0513 0.0354

Venus -94659-01-12 08:51 J -32852765.24 -32852765.13 -32852765.02 0.0515 0.0433



Mercury -94654-01-14 21:06 J -32850936.72 -32850936.62 -32850936.52 0.0521 0.0359  
 Venus -94654-03-28 10:03 J -32850864.24 -32850864.08 -32850863.92 0.0518 0.0300  
 Mercury -94654-04-14 08:23 J -32850847.29 -32850847.15 -32850847.01 0.0517 0.0106  
 Earth -94651-03-24 07:54 J -32849772.36 -32849772.17 -32849771.98 0.0485 0.0298  
 Moon -94651-03-24 10:47 J -32849772.21 -32849772.05 -32849771.88 0.0485 0.0331 \*  
 Mars -94650-05-09 18:27 J -32849360.97 -32849360.73 -32849360.48 0.0486 0.0226  
 Mercury -94648-06-13 02:51 J -32848595.51 -32848595.38 -32848595.25 0.0508 0.0307  
 Mercury -94648-09-11 01:39 J -32848505.58 -32848505.43 -32848505.28 0.0511 0.0215  
 Venus -94648-09-16 23:15 J -32848499.74 -32848499.53 -32848499.32 0.0512 0.0037  
 Mercury -94643-11-03 00:13 J -32846626.54 -32846626.49 -32846626.42 0.0522 0.0468  
 Mercury -94642-01-31 11:30 J -32846537.16 -32846537.02 -32846536.88 0.0518 0.0006  
 Mercury -94642-04-30 23:44 J -32846447.57 -32846447.51 -32846447.45 0.0514 0.0463  
 Mercury -94636-04-01 02:23 J -32844285.47 -32844285.40 -32844285.31 0.0507 0.0439  
 Venus -94636-05-22 17:01 J -32844233.84 -32844233.79 -32844233.73 0.0509 0.0485  
 Mercury -94636-06-30 01:39 J -32844195.59 -32844195.43 -32844195.27 0.0511 0.0088  
 Mercury -94631-11-19 14:23 J -32842227.03 -32842226.90 -32842226.76 0.0519 0.0120  
 Mercury -94630-02-17 02:23 J -32842137.50 -32842137.40 -32842137.30 0.0515 0.0348  
 Venus -94630-03-31 00:27 J -32842095.60 -32842095.48 -32842095.36 0.0513 0.0408  
 Mercury -94624-04-18 01:54 J -32839885.58 -32839885.42 -32839885.25 0.0510 0.0041  
 Mercury -94624-07-16 23:59 J -32839795.56 -32839795.50 -32839795.44 0.0514 0.0476  
 Earth -94622-09-22 20:51 J -32838997.80 -32838997.63 -32838997.45 0.0542 0.0353  
 Moon -94622-09-23 00:56 J -32838997.61 -32838997.46 -32838997.30 0.0542 0.0387 \*  
 Mercury -94619-09-07 17:15 J -32837916.90 -32837916.78 -32837916.65 0.0520 0.0234  
 Venus -94619-12-03 23:44 J -32837829.71 -32837829.51 -32837829.31 0.0516 0.0033  
 Mercury -94619-12-06 04:47 J -32837827.42 -32837827.30 -32837827.17 0.0516 0.0232  
 Mercury -94612-02-04 02:08 J -32835575.56 -32835575.41 -32835575.25 0.0509 0.0167  
 Mercury -94612-05-05 00:27 J -32835485.59 -32835485.48 -32835485.36 0.0513 0.0354  
 Venus -94612-05-25 16:18 J -32835465.00 -32835464.82 -32835464.63 0.0514 0.0237  
 Moon -94610-09-27 18:56 J -32834609.94 -32834609.71 -32834609.48 0.0542 0.0063  
 Earth -94610-09-27 22:32 J -32834609.79 -32834609.56 -32834609.33 0.0542 0.0077 \*

Mercury -94607-06-26 19:11 J -32833606.79 -32833606.70 -32833606.59 0.0521 0.0360

Venus -94607-08-08 19:54 J -32833563.73 -32833563.67 -32833563.61 0.0519 0.0493

Mercury -94607-09-24 06:42 J -32833517.36 -32833517.22 -32833517.08 0.0517 0.0103

Mercury -94601-11-23 01:39 J -32831265.56 -32831265.43 -32831265.29 0.0508 0.0299

Venus -94600-01-28 09:06 J -32831199.31 -32831199.12 -32831198.93 0.0511 0.0220

Mercury -94600-02-21 00:27 J -32831175.62 -32831175.48 -32831175.33 0.0512 0.0224

Earth -94598-10-02 22:47 J -32830221.63 -32830221.55 -32830221.46 0.0543 0.0500

Moon -94598-10-03 00:27 J -32830221.52 -32830221.48 -32830221.44 0.0543 0.0532 \*

Mercury -94595-04-14 22:03 J -32829296.63 -32829296.58 -32829296.52 0.0522 0.0475

Mercury -94595-07-13 09:20 J -32829207.26 -32829207.11 -32829206.97 0.0518 0.0022

Mercury -94595-10-10 21:20 J -32829117.67 -32829117.61 -32829117.54 0.0514 0.0454

Moon -94592-03-14 15:35 J -32828231.98 -32828231.85 -32828231.71 0.0486 0.0398

Earth -94592-03-14 19:25 J -32828231.84 -32828231.69 -32828231.54 0.0486 0.0373 \*

Mercury -94589-09-11 00:13 J -32826955.57 -32826955.49 -32826955.41 0.0507 0.0442

Mercury -94589-12-09 23:30 J -32826865.68 -32826865.52 -32826865.36 0.0510 0.0083

Mercury -94583-05-01 12:13 J -32824897.12 -32824896.99 -32824896.85 0.0520 0.0127

Mercury -94583-07-30 00:13 J -32824807.60 -32824807.49 -32824807.38 0.0516 0.0342

Venus -94583-08-11 09:35 J -32824795.28 -32824795.10 -32824794.91 0.0515 0.0214

Earth -94580-03-19 04:32 J -32823844.55 -32823844.31 -32823844.08 0.0485 0.0060

Moon -94580-03-19 07:25 J -32823844.42 -32823844.19 -32823843.96 0.0485 0.0044 \*

Mercury -94577-09-27 23:30 J -32822555.68 -32822555.52 -32822555.36 0.0510 0.0047

Mercury -94577-12-26 21:35 J -32822465.66 -32822465.60 -32822465.54 0.0513 0.0469

Venus -94576-01-31 04:18 J -32822430.39 -32822430.32 -32822430.26 0.0515 0.0486

Mercury -94571-02-17 15:20 J -32820586.98 -32820586.86 -32820586.73 0.0520 0.0237

Venus -94571-04-16 09:20 J -32820529.28 -32820529.11 -32820528.93 0.0518 0.0226

Mercury -94571-05-18 03:06 J -32820497.50 -32820497.37 -32820497.25 0.0516 0.0228

Moon -94568-03-23 10:03 J -32819457.28 -32819457.08 -32819456.88 0.0485 0.0277

Earth -94568-03-23 11:59 J -32819457.20 -32819457.00 -32819456.79 0.0485 0.0249 \*

Mercury -94565-07-16 23:30 J -32818245.67 -32818245.52 -32818245.36 0.0509 0.0175

Venus -94565-10-05 21:49 J -32818164.79 -32818164.59 -32818164.38 0.0512 0.0033

Mercury -94565-10-14 22:03 J -32818155.70 -32818155.58 -32818155.46 0.0513 0.0345  
 Mercury -94560-12-06 18:13 J -32816276.84 -32816276.74 -32816276.63 0.0521 0.0352  
 Mercury -94559-03-06 05:44 J -32816187.40 -32816187.26 -32816187.13 0.0517 0.0112  
 Mercury -94553-05-04 23:44 J -32813935.64 -32813935.51 -32813935.38 0.0508 0.0301  
 Venus -94553-06-10 16:32 J -32813898.92 -32813898.81 -32813898.68 0.0509 0.0414  
 Mercury -94553-08-02 22:32 J -32813845.70 -32813845.56 -32813845.41 0.0512 0.0222  
 Mercury -94548-09-24 20:23 J -32811966.70 -32811966.65 -32811966.59 0.0522 0.0475  
 Mercury -94548-12-23 07:39 J -32811877.32 -32811877.18 -32811877.04 0.0518 0.0019  
 Mercury -94547-03-22 19:39 J -32811787.75 -32811787.68 -32811787.61 0.0514 0.0453  
 Venus -94547-04-18 19:25 J -32811760.78 -32811760.69 -32811760.60 0.0513 0.0456  
 Mercury -94541-02-21 23:01 J -32809625.62 -32809625.54 -32809625.45 0.0507 0.0434  
 Mercury -94541-05-21 22:32 J -32809535.72 -32809535.56 -32809535.40 0.0511 0.0091  
 Moon -94539-09-21 13:39 J -32808683.04 -32808682.93 -32808682.81 0.0541 0.0471  
 Earth -94539-09-21 17:30 J -32808682.89 -32808682.77 -32808682.63 0.0541 0.0436 \*  
 Mercury -94536-10-11 10:18 J -32807567.21 -32807567.07 -32807566.94 0.0519 0.0134  
 Venus -94536-12-22 18:27 J -32807494.93 -32807494.73 -32807494.53 0.0516 0.0017  
 Mercury -94535-01-08 22:03 J -32807477.69 -32807477.58 -32807477.47 0.0515 0.0334  
 Mars -94532-10-28 12:27 J -32806089.23 -32806088.98 -32806088.72 0.0485 0.0197  
 Mercury -94529-03-09 21:20 J -32805225.77 -32805225.61 -32805225.45 0.0509 0.0050  
 Mercury -94529-06-07 19:25 J -32805135.76 -32805135.69 -32805135.63 0.0513 0.0465  
 Venus -94529-06-13 11:01 J -32805130.21 -32805130.04 -32805129.87 0.0513 0.0286  
 Earth -94527-09-26 17:01 J -32804295.02 -32804294.79 -32804294.56 0.0543 0.0015  
 Moon -94527-09-26 19:39 J -32804294.91 -32804294.68 -32804294.46 0.0543 0.0023 \*  
 Mercury -94524-07-30 13:11 J -32803257.07 -32803256.95 -32803256.82 0.0521 0.0244  
 Venus -94524-08-27 17:59 J -32803228.86 -32803228.75 -32803228.63 0.0519 0.0426  
 Mercury -94524-10-28 00:56 J -32803167.59 -32803167.46 -32803167.33 0.0517 0.0222  
 Mercury -94518-12-27 21:06 J -32800915.77 -32800915.62 -32800915.47 0.0508 0.0180  
 Venus -94517-02-17 04:18 J -32800864.52 -32800864.32 -32800864.13 0.0511 0.0169  
 Mercury -94517-03-26 19:39 J -32800825.80 -32800825.68 -32800825.56 0.0512 0.0339  
 Earth -94515-10-01 21:20 J -32799906.75 -32799906.61 -32799906.46 0.0544 0.0423

Moon -94515-10-01 21:06 J -32799906.74 -32799906.62 -32799906.48 0.0544 0.0453 \*  
 Mars -94514-08-08 15:06 J -32799596.11 -32799595.87 -32799595.62 0.0543 0.0232  
 Mercury -94512-05-18 16:32 J -32798946.91 -32798946.81 -32798946.71 0.0521 0.0354  
 Mercury -94512-08-16 03:49 J -32798857.48 -32798857.34 -32798857.20 0.0517 0.0109  
 Earth -94509-03-14 00:27 J -32797916.59 -32797916.48 -32797916.35 0.0486 0.0418  
 Moon -94509-03-14 03:20 J -32797916.45 -32797916.36 -32797916.26 0.0486 0.0438 \*  
 Mercury -94506-10-15 20:51 J -32796605.75 -32796605.63 -32796605.49 0.0508 0.0310  
 Mercury -94505-01-13 19:54 J -32796515.81 -32796515.67 -32796515.52 0.0512 0.0214  
 Mercury -94500-03-06 19:25 J -32794636.74 -32794636.69 -32794636.63 0.0522 0.0467  
 Mercury -94500-06-04 06:27 J -32794547.37 -32794547.23 -32794547.08 0.0518 0.0017  
 Venus -94500-08-30 08:08 J -32794460.33 -32794460.16 -32794459.99 0.0514 0.0282  
 Mercury -94500-09-01 18:42 J -32794457.78 -32794457.72 -32794457.66 0.0514 0.0461  
 Moon -94497-03-18 06:42 J -32793529.46 -32793529.22 -32793528.97 0.0486 0.0092  
 Earth -94497-03-18 08:51 J -32793529.36 -32793529.13 -32793528.90 0.0486 0.0109 \*  
 Mars -94496-08-02 08:23 J -32793027.30 -32793027.15 -32793027.00 0.0486 0.0409  
 Mercury -94494-08-03 21:06 J -32792295.70 -32792295.62 -32792295.54 0.0507 0.0436  
 Mercury -94494-11-01 20:23 J -32792205.81 -32792205.65 -32792205.49 0.0511 0.0091  
 Mercury -94488-03-23 08:37 J -32790237.27 -32790237.14 -32790237.00 0.0519 0.0131  
 Venus -94488-05-05 05:15 J -32790194.47 -32790194.28 -32790194.09 0.0517 0.0172  
 Mercury -94488-06-20 20:23 J -32790147.76 -32790147.65 -32790147.54 0.0515 0.0335  
 Earth -94485-03-22 15:35 J -32789142.06 -32789141.85 -32789141.63 0.0485 0.0201  
 Moon -94485-03-22 16:03 J -32789142.03 -32789141.83 -32789141.62 0.0485 0.0228 \*  
 Mercury -94482-08-20 20:23 J -32787895.81 -32787895.65 -32787895.49 0.0510 0.0041  
 Venus -94482-10-25 21:06 J -32787829.83 -32787829.62 -32787829.42 0.0512 0.0103  
 Mercury -94482-11-18 18:27 J -32787805.79 -32787805.73 -32787805.67 0.0513 0.0475  
 Mercury -94476-01-09 11:15 J -32785927.15 -32785927.03 -32785926.90 0.0520 0.0248  
 Mercury -94476-04-08 22:47 J -32785837.68 -32785837.55 -32785837.42 0.0516 0.0217  
 Mercury -94470-06-08 19:11 J -32783585.86 -32783585.70 -32783585.55 0.0508 0.0182  
 Venus -94470-06-30 11:44 J -32783564.15 -32783564.01 -32783563.86 0.0509 0.0361  
 Mercury -94470-09-06 17:30 J -32783495.89 -32783495.77 -32783495.65 0.0512 0.0337

Mercury -94465-10-28 14:23 J -32781617.00 -32781616.90 -32781616.80 0.0522 0.0360

Mercury -94464-01-26 01:39 J -32781527.56 -32781527.43 -32781527.29 0.0518 0.0105

Mercury -94458-03-27 18:42 J -32779275.85 -32779275.72 -32779275.59 0.0507 0.0313

Mercury -94458-06-25 17:44 J -32779185.91 -32779185.76 -32779185.61 0.0511 0.0209

Earth -94456-09-20 14:37 J -32778367.96 -32778367.89 -32778367.83 0.0542 0.0518

Mercury -94453-08-16 17:44 J -32777306.82 -32777306.76 -32777306.70 0.0523 0.0469

Mercury -94453-11-14 04:47 J -32777217.44 -32777217.30 -32777217.16 0.0519 0.0008

Venus -94452-01-10 18:13 J -32777159.94 -32777159.74 -32777159.54 0.0516 0.0093

Mercury -94452-02-11 16:47 J -32777127.86 -32777127.80 -32777127.73 0.0515 0.0460

Mercury -94446-01-13 18:27 J -32774965.81 -32774965.73 -32774965.65 0.0507 0.0443

Mercury -94446-04-13 17:59 J -32774875.91 -32774875.75 -32774875.59 0.0510 0.0083

Venus -94446-07-03 09:49 J -32774795.23 -32774795.09 -32774794.94 0.0514 0.0358

Moon -94444-09-25 19:54 J -32773979.91 -32773979.67 -32773979.43 0.0543 0.0074

Earth -94444-09-25 20:51 J -32773979.85 -32773979.63 -32773979.40 0.0543 0.0076 \*

Mercury -94441-09-02 07:39 J -32772907.31 -32772907.18 -32772907.04 0.0519 0.0122

Venus -94441-09-15 17:30 J -32772893.91 -32772893.77 -32772893.62 0.0519 0.0351

Mercury -94441-11-30 19:25 J -32772817.79 -32772817.69 -32772817.58 0.0515 0.0345

Mercury -94434-01-30 18:27 J -32770565.90 -32770565.73 -32770565.57 0.0510 0.0044

Venus -94434-03-08 04:32 J -32770529.52 -32770529.31 -32770529.11 0.0511 0.0093

Mercury -94434-04-30 16:32 J -32770475.87 -32770475.81 -32770475.75 0.0513 0.0474

Moon -94432-09-30 23:01 J -32769591.68 -32769591.54 -32769591.38 0.0543 0.0393

Earth -94432-10-01 00:42 J -32769591.64 -32769591.47 -32769591.30 0.0543 0.0360 \*

Mercury -94429-06-21 10:03 J -32768597.20 -32768597.08 -32768596.96 0.0520 0.0244

Mercury -94429-09-18 21:35 J -32768507.73 -32768507.60 -32768507.48 0.0516 0.0220

Moon -94426-03-14 02:51 J -32767601.41 -32767601.38 -32767601.34 0.0487 0.0481

Earth -94426-03-14 04:32 J -32767601.36 -32767601.31 -32767601.23 0.0487 0.0465 \*

Mercury -94423-11-18 18:13 J -32766255.90 -32766255.74 -32766255.59 0.0509 0.0172

Mercury -94422-02-16 16:47 J -32766165.92 -32766165.80 -32766165.68 0.0512 0.0348

Mercury -94417-04-09 12:42 J -32764287.07 -32764286.97 -32764286.87 0.0521 0.0360

Mercury -94417-07-07 23:59 J -32764197.64 -32764197.50 -32764197.36 0.0518 0.0102

Venus -94417-09-18 04:03 J -32764125.48 -32764125.33 -32764125.18 0.0514 0.0337

Earth -94414-03-18 13:25 J -32763214.16 -32763213.94 -32763213.71 0.0486 0.0152

Moon -94414-03-18 13:54 J -32763214.14 -32763213.92 -32763213.70 0.0486 0.0132 \*

Mercury -94411-09-06 16:47 J -32761945.92 -32761945.80 -32761945.66 0.0507 0.0312

Mercury -94411-12-05 15:49 J -32761855.98 -32761855.84 -32761855.69 0.0511 0.0210

Mercury -94405-01-27 15:49 J -32759976.90 -32759976.84 -32759976.78 0.0523 0.0473

Mercury -94405-04-26 02:51 J -32759887.52 -32759887.38 -32759887.24 0.0519 0.0012

Venus -94405-05-24 03:49 J -32759859.53 -32759859.34 -32759859.14 0.0518 0.0101

Mercury -94405-07-24 14:51 J -32759797.94 -32759797.88 -32759797.81 0.0515 0.0457

Earth -94402-03-22 23:15 J -32758826.76 -32758826.53 -32758826.31 0.0485 0.0163

Moon -94402-03-23 00:27 J -32758826.70 -32758826.48 -32758826.24 0.0485 0.0184 \*

Mercury -94399-06-25 16:18 J -32757635.89 -32757635.82 -32757635.73 0.0506 0.0444

Mercury -94399-09-23 15:49 J -32757546.00 -32757545.84 -32757545.68 0.0510 0.0081

Venus -94399-11-13 17:01 J -32757494.99 -32757494.79 -32757494.59 0.0512 0.0159

Mars -94395-01-25 12:13 J -32756326.16 -32756325.99 -32756325.81 0.0544 0.0414

Mercury -94393-02-13 05:59 J -32755577.39 -32755577.25 -32755577.11 0.0520 0.0123

Mercury -94393-05-12 17:44 J -32755487.86 -32755487.76 -32755487.65 0.0516 0.0344

Moon -94390-03-27 04:03 J -32754439.40 -32754439.33 -32754439.24 0.0485 0.0454

Earth -94390-03-27 07:11 J -32754439.25 -32754439.20 -32754439.15 0.0485 0.0472 \*

Mercury -94387-07-12 15:49 J -32753236.00 -32753235.84 -32753235.67 0.0509 0.0049

Venus -94387-07-19 11:01 J -32753229.21 -32753229.04 -32753228.87 0.0510 0.0291

Mercury -94387-10-10 14:08 J -32753145.97 -32753145.91 -32753145.85 0.0513 0.0469

Mercury -94382-12-02 09:06 J -32751267.25 -32751267.12 -32751267.00 0.0521 0.0235

Mercury -94381-02-29 20:37 J -32751177.77 -32751177.64 -32751177.52 0.0517 0.0230

Mars -94377-01-22 07:39 J -32749755.46 -32749755.18 -32749754.90 0.0485 0.0003

Mercury -94375-04-30 16:18 J -32748925.98 -32748925.82 -32748925.67 0.0509 0.0172

Mercury -94375-07-29 14:51 J -32748836.00 -32748835.88 -32748835.76 0.0512 0.0348

Mercury -94370-09-20 11:30 J -32746957.12 -32746957.02 -32746956.92 0.0521 0.0354

Mercury -94370-12-18 22:47 J -32746867.69 -32746867.55 -32746867.41 0.0517 0.0108

Venus -94369-01-30 15:49 J -32746825.03 -32746824.84 -32746824.65 0.0516 0.0157

Mercury -94363-02-16 16:03 J -32744615.96 -32744615.83 -32744615.70 0.0508 0.0301  
 Mercury -94363-05-17 15:06 J -32744526.01 -32744525.87 -32744525.72 0.0511 0.0222  
 Venus -94363-07-22 10:18 J -32744460.17 -32744460.07 -32744459.95 0.0514 0.0438  
 Moon -94361-09-24 21:35 J -32743664.81 -32743664.60 -32743664.38 0.0542 0.0133  
 Earth -94361-09-24 22:18 J -32743664.79 -32743664.57 -32743664.34 0.0542 0.0143 \*  
 Mars -94360-11-01 13:39 J -32743262.05 -32743261.93 -32743261.81 0.0542 0.0480  
 Mercury -94358-07-09 14:23 J -32742646.96 -32742646.90 -32742646.84 0.0522 0.0470  
 Venus -94358-10-05 14:37 J -32742559.06 -32742558.89 -32742558.73 0.0519 0.0291  
 Mercury -94358-10-07 01:25 J -32742557.58 -32742557.44 -32742557.30 0.0519 0.0015  
 Mercury -94357-01-04 13:11 J -32742468.01 -32742467.95 -32742467.88 0.0515 0.0458  
 Mercury -94352-12-05 14:51 J -32740305.96 -32740305.88 -32740305.80 0.0506 0.0440  
 Mercury -94351-03-05 14:08 J -32740216.07 -32740215.91 -32740215.74 0.0510 0.0085  
 Venus -94351-03-27 01:25 J -32740194.65 -32740194.44 -32740194.23 0.0511 0.0030  
 Earth -94349-09-29 20:23 J -32739276.85 -32739276.65 -32739276.45 0.0543 0.0270  
 Moon -94349-09-29 23:01 J -32739276.73 -32739276.54 -32739276.34 0.0543 0.0303 \*  
 Mercury -94346-07-26 04:03 J -32738247.46 -32738247.33 -32738247.19 0.0520 0.0126  
 Mercury -94346-10-23 16:03 J -32738157.94 -32738157.83 -32738157.73 0.0516 0.0343  
 Venus -94340-11-29 19:25 J -32735928.76 -32735928.69 -32735928.62 0.0508 0.0477  
 Mercury -94340-12-22 14:08 J -32735906.07 -32735905.91 -32735905.75 0.0509 0.0045  
 Mercury -94339-03-22 12:13 J -32735816.05 -32735815.99 -32735815.92 0.0513 0.0469  
 Mercury -94334-05-14 07:25 J -32733937.31 -32733937.19 -32733937.07 0.0521 0.0235  
 Mercury -94334-08-11 18:56 J -32733847.84 -32733847.71 -32733847.58 0.0517 0.0230  
 Venus -94334-10-08 04:47 J -32733790.41 -32733790.30 -32733790.18 0.0514 0.0419  
 Earth -94331-03-17 22:03 J -32732898.80 -32732898.58 -32732898.36 0.0486 0.0187  
 Moon -94331-03-17 23:30 J -32732898.76 -32732898.52 -32732898.29 0.0486 0.0162 \*  
 Mercury -94328-10-10 13:54 J -32731596.07 -32731595.92 -32731595.76 0.0508 0.0176  
 Mercury -94327-01-08 12:42 J -32731506.09 -32731505.97 -32731505.85 0.0512 0.0344  
 Mercury -94322-03-02 10:32 J -32729627.16 -32729627.06 -32729626.95 0.0522 0.0346  
 Mercury -94322-05-30 21:49 J -32729537.73 -32729537.59 -32729537.45 0.0518 0.0117  
 Venus -94322-06-13 04:47 J -32729524.50 -32729524.30 -32729524.10 0.0517 0.0019

Moon -94319-03-22 03:35 J -32728511.57 -32728511.35 -32728511.12 0.0485 0.0138  
 Earth -94319-03-22 06:42 J -32728511.45 -32728511.22 -32728510.99 0.0485 0.0124 \*  
 Mercury -94316-07-29 14:08 J -32727286.04 -32727285.91 -32727285.77 0.0508 0.0300  
 Mercury -94316-10-27 13:25 J -32727196.09 -32727195.94 -32727195.80 0.0511 0.0223  
 Venus -94316-12-02 18:13 J -32727159.92 -32727159.74 -32727159.55 0.0513 0.0243  
 Mercury -94311-12-19 13:11 J -32725317.01 -32725316.95 -32725316.88 0.0522 0.0463  
 Venus -94310-02-16 02:08 J -32725258.48 -32725258.41 -32725258.33 0.0520 0.0474  
 Mercury -94310-03-19 00:13 J -32725227.63 -32725227.49 -32725227.35 0.0518 0.0005  
 Mercury -94310-06-16 12:13 J -32725138.05 -32725137.99 -32725137.93 0.0515 0.0464  
 Earth -94307-03-26 13:39 J -32724124.02 -32724123.93 -32724123.81 0.0485 0.0433  
 Moon -94307-03-26 17:44 J -32724123.88 -32724123.76 -32724123.63 0.0485 0.0408 \*  
 Mercury -94304-05-17 13:54 J -32722976.00 -32722975.92 -32722975.83 0.0507 0.0429  
 Venus -94304-08-07 12:13 J -32722894.18 -32722893.99 -32722893.80 0.0510 0.0208  
 Mercury -94304-08-15 13:39 J -32722886.09 -32722885.93 -32722885.77 0.0510 0.0097  
 Mercury -94298-01-05 02:51 J -32720917.51 -32720917.38 -32720917.24 0.0520 0.0120  
 Mercury -94298-04-04 14:37 J -32720827.99 -32720827.89 -32720827.78 0.0516 0.0346  
 Mercury -94292-06-03 12:42 J -32718576.13 -32718575.97 -32718575.80 0.0509 0.0040  
 Mercury -94292-09-01 10:47 J -32718486.10 -32718486.05 -32718485.99 0.0513 0.0474  
 Mercury -94287-10-24 05:44 J -32716607.38 -32716607.26 -32716607.14 0.0521 0.0236  
 Mercury -94286-01-21 17:15 J -32716517.91 -32716517.78 -32716517.65 0.0517 0.0230  
 Venus -94286-02-18 15:06 J -32716490.04 -32716489.87 -32716489.69 0.0516 0.0233  
 Mercury -94280-03-22 12:27 J -32714266.13 -32714265.98 -32714265.82 0.0508 0.0170  
 Mercury -94280-06-20 11:01 J -32714176.15 -32714176.04 -32714175.92 0.0512 0.0348  
 Venus -94280-08-10 07:54 J -32714125.21 -32714125.17 -32714125.13 0.0514 0.0502  
 Earth -94278-09-24 20:08 J -32713349.87 -32713349.66 -32713349.45 0.0542 0.0225  
 Moon -94278-09-24 22:18 J -32713349.79 -32713349.57 -32713349.35 0.0542 0.0207 \*  
 Mercury -94275-08-12 08:51 J -32712297.23 -32712297.13 -32712297.02 0.0522 0.0346  
 Venus -94275-10-24 15:06 J -32712224.05 -32712223.87 -32712223.68 0.0519 0.0209  
 Mercury -94275-11-09 20:23 J -32712207.79 -32712207.65 -32712207.52 0.0518 0.0119  
 Mercury -94268-01-08 12:13 J -32709956.12 -32709955.99 -32709955.86 0.0507 0.0301



Mercury -94268-04-08 11:15 J -32709866.17 -32709866.03 -32709865.88 0.0511 0.0221  
 Venus -94268-04-15 01:25 J -32709859.64 -32709859.44 -32709859.23 0.0511 0.0048  
 Moon -94266-09-29 23:15 J -32708961.73 -32708961.53 -32708961.33 0.0543 0.0250  
 Earth -94266-09-30 02:51 J -32708961.59 -32708961.38 -32708961.17 0.0543 0.0218 \*  
 Mercury -94263-05-31 12:13 J -32707987.05 -32707986.99 -32707986.92 0.0523 0.0454  
 Mercury -94263-08-28 23:15 J -32707897.67 -32707897.53 -32707897.39 0.0519 0.0013  
 Mercury -94263-11-26 11:15 J -32707808.08 -32707808.03 -32707807.97 0.0515 0.0475  
 Mars -94259-07-13 09:35 J -32706483.25 -32706483.10 -32706482.93 0.0484 0.0398  
 Mercury -94257-10-27 12:13 J -32705646.07 -32705645.99 -32705645.90 0.0506 0.0427  
 Venus -94257-12-18 20:37 J -32705593.77 -32705593.64 -32705593.51 0.0509 0.0396  
 Mercury -94256-01-25 11:44 J -32705556.16 -32705556.01 -32705555.85 0.0510 0.0100  
 Mercury -94251-06-17 01:54 J -32703587.56 -32703587.42 -32703587.28 0.0520 0.0111  
 Mercury -94251-09-14 13:39 J -32703498.03 -32703497.93 -32703497.83 0.0516 0.0354  
 Venus -94251-10-27 04:03 J -32703455.37 -32703455.33 -32703455.27 0.0514 0.0494  
 Moon -94248-03-17 03:06 J -32702583.58 -32702583.37 -32702583.16 0.0486 0.0198  
 Earth -94248-03-17 05:59 J -32702583.46 -32702583.25 -32702583.04 0.0486 0.0224 \*  
 Mercury -94245-11-13 11:59 J -32701246.16 -32701246.00 -32701245.83 0.0509 0.0029  
 Mercury -94244-02-11 10:18 J -32701156.12 -32701156.07 -32701156.02 0.0513 0.0487  
 Mars -94241-04-20 23:15 J -32699991.79 -32699991.53 -32699991.27 0.0543 0.0129  
 Mercury -94239-04-05 04:47 J -32699277.43 -32699277.30 -32699277.18 0.0521 0.0228  
 Venus -94239-07-02 03:20 J -32699189.56 -32699189.36 -32699189.16 0.0517 0.0052  
 Mercury -94239-07-03 16:03 J -32699187.95 -32699187.83 -32699187.70 0.0517 0.0238  
 Earth -94236-03-21 14:51 J -32698196.11 -32698195.88 -32698195.64 0.0486 0.0091  
 Moon -94236-03-21 18:56 J -32698195.95 -32698195.71 -32698195.48 0.0486 0.0097 \*  
 Mercury -94233-09-01 11:15 J -32696936.18 -32696936.03 -32696935.87 0.0508 0.0163  
 Mercury -94233-11-30 09:49 J -32696846.20 -32696846.09 -32696845.97 0.0512 0.0354  
 Venus -94233-12-21 17:01 J -32696824.95 -32696824.79 -32696824.62 0.0512 0.0316  
 Mercury -94227-01-22 07:25 J -32694967.29 -32694967.19 -32694967.09 0.0522 0.0345  
 Venus -94227-03-07 01:11 J -32694923.57 -32694923.45 -32694923.32 0.0520 0.0401  
 Mercury -94227-04-21 18:42 J -32694877.86 -32694877.72 -32694877.58 0.0518 0.0119

Moon -94224-03-25 21:06 J -32693808.76 -32693808.62 -32693808.46 0.0485 0.0375  
 Earth -94224-03-26 01:25 J -32693808.57 -32693808.44 -32693808.31 0.0485 0.0404 \*  
 Mars -94223-04-17 12:13 J -32693421.22 -32693420.99 -32693420.74 0.0485 0.0233  
 Mercury -94221-06-20 11:01 J -32692626.17 -32692626.04 -32692625.91 0.0507 0.0293  
 Venus -94221-08-26 10:47 J -32692559.25 -32692559.05 -32692558.85 0.0510 0.0138  
 Mercury -94221-09-18 10:03 J -32692536.23 -32692536.08 -32692535.94 0.0511 0.0227  
 Mercury -94216-11-10 10:47 J -32690657.12 -32690657.05 -32690656.99 0.0523 0.0454  
 Mercury -94215-02-07 21:49 J -32690567.73 -32690567.59 -32690567.45 0.0519 0.0010  
 Mercury -94215-05-08 09:49 J -32690478.14 -32690478.09 -32690478.04 0.0515 0.0477  
 Mercury -94209-04-08 10:32 J -32688316.15 -32688316.06 -32688315.97 0.0506 0.0425  
 Mercury -94209-07-07 10:03 J -32688226.24 -32688226.08 -32688225.92 0.0510 0.0099  
 Mercury -94204-11-27 00:56 J -32686257.60 -32686257.46 -32686257.32 0.0520 0.0103  
 Mercury -94203-02-24 12:42 J -32686168.07 -32686167.97 -32686167.87 0.0516 0.0364  
 Venus -94203-03-09 17:01 J -32686154.94 -32686154.79 -32686154.63 0.0515 0.0321  
 Mercury -94197-04-25 10:32 J -32683916.23 -32683916.06 -32683915.90 0.0509 0.0028  
 Mercury -94197-07-24 08:37 J -32683826.18 -32683826.14 -32683826.09 0.0513 0.0490  
 Moon -94195-09-24 01:54 J -32683034.62 -32683034.42 -32683034.22 0.0542 0.0245  
 Earth -94195-09-24 05:15 J -32683034.48 -32683034.28 -32683034.08 0.0542 0.0266 \*  
 Mercury -94192-09-15 03:49 J -32681947.47 -32681947.34 -32681947.22 0.0521 0.0219  
 Venus -94192-11-12 15:49 J -32681889.04 -32681888.84 -32681888.65 0.0518 0.0127  
 Mercury -94192-12-13 15:06 J -32681857.99 -32681857.87 -32681857.74 0.0517 0.0246  
 Mercury -94185-02-12 10:32 J -32679606.22 -32679606.06 -32679605.90 0.0508 0.0151  
 Venus -94185-05-04 04:03 J -32679524.53 -32679524.33 -32679524.13 0.0512 0.0137  
 Mercury -94185-05-12 09:06 J -32679516.22 -32679516.12 -32679516.00 0.0512 0.0368  
 Earth -94183-09-29 09:06 J -32678646.34 -32678646.12 -32678645.91 0.0543 0.0166  
 Moon -94183-09-29 12:56 J -32678646.17 -32678645.96 -32678645.74 0.0543 0.0196 \*  
 Mercury -94180-07-04 06:42 J -32677637.33 -32677637.22 -32677637.12 0.0522 0.0334  
 Mercury -94180-10-01 17:44 J -32677547.89 -32677547.76 -32677547.62 0.0518 0.0129  
 Mercury -94174-12-01 09:49 J -32675296.22 -32675296.09 -32675295.95 0.0507 0.0284  
 Venus -94173-01-07 20:37 J -32675258.80 -32675258.64 -32675258.47 0.0508 0.0318

Mercury -94173-02-29 08:51 J -32675206.27 -32675206.13 -32675205.98 0.0511 0.0236

Mercury -94168-04-22 09:06 J -32673327.18 -32673327.12 -32673327.05 0.0523 0.0453

Mercury -94168-07-20 20:23 J -32673237.80 -32673237.65 -32673237.51 0.0519 0.0020

Mercury -94168-10-18 08:23 J -32673148.20 -32673148.15 -32673148.10 0.0516 0.0479

Earth -94165-03-16 17:44 J -32672267.96 -32672267.76 -32672267.55 0.0487 0.0251

Moon -94165-03-16 21:35 J -32672267.81 -32672267.60 -32672267.38 0.0487 0.0220 \*

Mercury -94162-09-19 09:20 J -32670986.20 -32670986.11 -32670986.01 0.0506 0.0415

Mercury -94162-12-18 08:51 J -32670896.29 -32670896.13 -32670895.97 0.0509 0.0108

Mercury -94156-05-08 23:15 J -32668927.66 -32668927.53 -32668927.39 0.0520 0.0104

Venus -94156-07-21 03:49 J -32668854.53 -32668854.34 -32668854.15 0.0517 0.0134

Mercury -94156-08-06 11:15 J -32668838.13 -32668838.03 -32668837.93 0.0516 0.0366

Moon -94153-03-20 22:03 J -32667880.82 -32667880.58 -32667880.34 0.0486 0.0062

Earth -94153-03-21 01:54 J -32667880.65 -32667880.42 -32667880.18 0.0486 0.0062 \*

Mercury -94150-10-06 08:37 J -32666586.30 -32666586.14 -32666585.97 0.0509 0.0025

Mercury -94149-01-04 06:42 J -32666496.25 -32666496.22 -32666496.17 0.0513 0.0491

Venus -94149-01-10 17:30 J -32666489.89 -32666489.77 -32666489.63 0.0513 0.0395

Mercury -94144-02-25 02:37 J -32664617.51 -32664617.39 -32664617.26 0.0521 0.0212

Venus -94144-03-26 03:35 J -32664588.50 -32664588.35 -32664588.19 0.0520 0.0310

Mercury -94144-05-25 14:08 J -32664528.03 -32664527.91 -32664527.78 0.0517 0.0254

Earth -94141-03-25 10:47 J -32663493.19 -32663493.05 -32663492.89 0.0485 0.0371

Moon -94141-03-25 14:08 J -32663493.07 -32663492.91 -32663492.74 0.0485 0.0343 \*

Mercury -94138-07-25 08:51 J -32662276.28 -32662276.13 -32662275.97 0.0508 0.0148

Venus -94138-09-15 12:27 J -32662224.19 -32662223.98 -32662223.78 0.0510 0.0054

Mercury -94138-10-23 07:39 J -32662186.29 -32662186.18 -32662186.07 0.0512 0.0370

Mercury -94133-12-14 05:30 J -32660307.37 -32660307.27 -32660307.16 0.0522 0.0326

Mercury -94132-03-13 16:47 J -32660217.93 -32660217.80 -32660217.66 0.0518 0.0137

Mercury -94126-05-13 09:06 J -32657966.26 -32657966.12 -32657965.98 0.0507 0.0274

Venus -94126-05-21 07:25 J -32657958.23 -32657958.19 -32657958.14 0.0508 0.0494

Mercury -94126-08-11 08:08 J -32657876.30 -32657876.16 -32657876.02 0.0511 0.0247

Mercury -94121-10-02 08:37 J -32655997.22 -32655997.14 -32655997.07 0.0523 0.0440

Mercury -94121-12-30 19:25 J -32655907.83 -32655907.69 -32655907.55 0.0519 0.0025

Venus -94120-03-28 16:32 J -32655819.93 -32655819.81 -32655819.68 0.0515 0.0396

Mercury -94120-03-30 07:25 J -32655818.23 -32655818.19 -32655818.14 0.0515 0.0489

Mercury -94114-03-01 08:23 J -32653656.24 -32653656.15 -32653656.05 0.0506 0.0405

Mercury -94114-05-30 07:54 J -32653566.33 -32653566.17 -32653566.01 0.0509 0.0117

Earth -94112-09-23 03:49 J -32652719.51 -32652719.34 -32652719.16 0.0541 0.0344

Moon -94112-09-23 07:39 J -32652719.36 -32652719.18 -32652718.99 0.0541 0.0317 \*

Mercury -94109-10-18 21:49 J -32651597.73 -32651597.59 -32651597.45 0.0521 0.0101

Venus -94109-12-01 14:37 J -32651554.09 -32651553.89 -32651553.69 0.0519 0.0055

Mercury -94108-01-16 09:35 J -32651508.19 -32651508.10 -32651508.00 0.0517 0.0368

Mars -94105-10-06 20:51 J -32650148.90 -32650148.63 -32650148.36 0.0485 0.0151

Mercury -94102-03-18 07:39 J -32649256.34 -32649256.18 -32649256.01 0.0508 0.0017

Venus -94102-05-24 03:35 J -32649189.54 -32649189.35 -32649189.16 0.0511 0.0212

Mercury -94102-06-16 05:44 J -32649166.29 -32649166.26 -32649166.22 0.0512 0.0499

Moon -94100-09-28 03:35 J -32648331.58 -32648331.35 -32648331.12 0.0542 0.0109

Earth -94100-09-28 07:25 J -32648331.42 -32648331.19 -32648330.97 0.0542 0.0084 \*

Venus -94097-08-06 13:25 J -32647287.98 -32647287.94 -32647287.89 0.0522 0.0506

Mercury -94097-08-07 00:56 J -32647287.58 -32647287.46 -32647287.33 0.0522 0.0213

Mercury -94097-11-04 12:27 J -32647198.10 -32647197.98 -32647197.85 0.0518 0.0255

Mercury -94090-01-04 07:11 J -32644946.35 -32644946.20 -32644946.04 0.0508 0.0146

Venus -94090-01-26 20:51 J -32644923.81 -32644923.63 -32644923.45 0.0509 0.0241

Mercury -94090-04-04 05:59 J -32644856.36 -32644856.25 -32644856.14 0.0512 0.0371

Earth -94088-10-03 12:42 J -32643943.02 -32643942.97 -32643942.90 0.0544 0.0524

Moon -94088-10-03 14:51 J -32643942.96 -32643942.88 -32643942.79 0.0544 0.0500 \*

Mars -94087-07-16 05:30 J -32643657.53 -32643657.27 -32643657.01 0.0544 0.0138

Mercury -94085-05-26 04:18 J -32642977.42 -32642977.32 -32642977.21 0.0522 0.0321

Mercury -94085-08-23 15:35 J -32642887.98 -32642887.85 -32642887.71 0.0518 0.0145

Moon -94082-03-16 23:59 J -32641952.70 -32641952.50 -32641952.29 0.0486 0.0252

Earth -94082-03-17 04:03 J -32641952.53 -32641952.33 -32641952.14 0.0486 0.0281 \*

Mercury -94079-10-23 07:25 J -32640636.33 -32640636.19 -32640636.05 0.0507 0.0271

Mercury -94078-01-21 06:27 J -32640546.37 -32640546.23 -32640546.09 0.0511 0.0249

Mercury -94073-03-14 07:25 J -32638667.26 -32638667.19 -32638667.11 0.0523 0.0433

Mercury -94073-06-11 18:27 J -32638577.87 -32638577.73 -32638577.59 0.0519 0.0028

Venus -94073-08-09 05:01 J -32638519.47 -32638519.29 -32638519.11 0.0516 0.0218

Mercury -94073-09-09 06:27 J -32638488.26 -32638488.23 -32638488.19 0.0515 0.0496

Earth -94070-03-21 11:01 J -32637565.28 -32637565.04 -32637564.80 0.0486 0.0027

Moon -94070-03-21 14:23 J -32637565.14 -32637564.90 -32637564.67 0.0486 0.0024 \*

Mars -94069-07-11 17:59 J -32637086.82 -32637086.75 -32637086.66 0.0485 0.0462

Mercury -94067-08-11 07:25 J -32636326.29 -32636326.19 -32636326.09 0.0506 0.0397

Mercury -94067-11-09 06:56 J -32636236.37 -32636236.21 -32636236.05 0.0510 0.0126

Venus -94066-01-29 20:23 J -32636154.71 -32636154.65 -32636154.58 0.0513 0.0488

Mercury -94061-03-30 21:06 J -32634267.75 -32634267.62 -32634267.48 0.0520 0.0090

Venus -94061-04-14 03:35 J -32634253.53 -32634253.35 -32634253.17 0.0519 0.0232

Mercury -94061-06-28 08:51 J -32634178.22 -32634178.13 -32634178.03 0.0516 0.0379

Moon -94058-03-25 18:13 J -32633177.92 -32633177.74 -32633177.54 0.0485 0.0308

Earth -94058-03-25 20:23 J -32633177.81 -32633177.65 -32633177.47 0.0485 0.0339 \*

Mercury -94055-08-28 06:42 J -32631926.38 -32631926.22 -32631926.05 0.0508 0.0006

Venus -94055-10-04 13:39 J -32631889.14 -32631888.93 -32631888.73 0.0510 0.0032

Mercury -94055-11-26 04:47 J -32631836.31 -32631836.30 -32631836.28 0.0512 0.0508

Mercury -94049-01-17 23:30 J -32629957.65 -32629957.52 -32629957.39 0.0522 0.0211

Mercury -94049-04-16 11:01 J -32629868.16 -32629868.04 -32629867.92 0.0518 0.0256

Venus -94043-06-09 07:39 J -32627623.29 -32627623.18 -32627623.06 0.0507 0.0416

Mercury -94043-06-16 06:27 J -32627616.39 -32627616.23 -32627616.07 0.0507 0.0133

Mercury -94043-09-14 05:01 J -32627526.40 -32627526.29 -32627526.18 0.0511 0.0381

Mercury -94038-11-06 02:37 J -32625647.50 -32625647.39 -32625647.28 0.0523 0.0323

Mercury -94037-02-03 13:54 J -32625558.05 -32625557.92 -32625557.78 0.0519 0.0142

Venus -94037-04-16 16:03 J -32625484.91 -32625484.83 -32625484.75 0.0516 0.0470

Mercury -94031-04-04 05:44 J -32623306.40 -32623306.26 -32623306.12 0.0507 0.0268

Mercury -94031-07-03 04:47 J -32623216.44 -32623216.30 -32623216.16 0.0510 0.0251

Moon -94029-09-22 04:47 J -32622404.47 -32622404.30 -32622404.14 0.0542 0.0375

Earth	-94029-09-22 08:37 J	-32622404.29	-32622404.14	-32622403.98	0.0542	0.0400	*
Mercury	-94026-08-25 05:59 J	-32621337.32	-32621337.25	-32621337.17	0.0523	0.0431	
Mercury	-94026-11-22 17:01 J	-32621247.93	-32621247.79	-32621247.64	0.0520	0.0037	
Venus	-94026-12-21 16:32 J	-32621219.01	-32621218.81	-32621218.62	0.0518	0.0035	
Mercury	-94025-02-20 05:15 J	-32621158.31	-32621158.28	-32621158.25	0.0516	0.0501	
Mercury	-94019-01-21 05:44 J	-32618996.36	-32618996.26	-32618996.16	0.0506	0.0395	
Mercury	-94019-04-21 05:15 J	-32618906.44	-32618906.28	-32618906.12	0.0510	0.0128	
Venus	-94019-06-12 04:18 J	-32618854.48	-32618854.32	-32618854.14	0.0512	0.0294	
Earth	-94017-09-27 15:35 J	-32618016.07	-32618015.85	-32618015.62	0.0543	0.0042	
Moon	-94017-09-27 18:13 J	-32618015.96	-32618015.74	-32618015.51	0.0543	0.0060	*
Venus	-94014-08-26 14:51 J	-32616952.99	-32616952.88	-32616952.76	0.0521	0.0419	
Mercury	-94014-09-10 20:08 J	-32616937.80	-32616937.66	-32616937.53	0.0520	0.0084	
Mercury	-94014-12-09 07:39 J	-32616848.27	-32616848.18	-32616848.08	0.0516	0.0385	
Mercury	-94007-02-07 05:30 J	-32614596.43	-32614596.27	-32614596.11	0.0509	0.0004	
Venus	-94007-02-14 23:15 J	-32614588.73	-32614588.53	-32614588.33	0.0509	0.0153	
Moon	-94005-10-02 19:39 J	-32613627.81	-32613627.68	-32613627.54	0.0543	0.0441	
Earth	-94005-10-02 20:08 J	-32613627.77	-32613627.66	-32613627.55	0.0543	0.0473	*
Mercury	-94002-06-29 22:47 J	-32612627.67	-32612627.55	-32612627.42	0.0521	0.0198	
Mercury	-94002-09-27 10:18 J	-32612538.19	-32612538.07	-32612537.95	0.0517	0.0267	

# 94TH MILLENNIUM BCE

This is a list of transits visible from Jupiter in the 94th millennium BCE.

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
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Earth -93999-03-16 12:27 J -32611637.15 -32611636.98 -32611636.79 0.0487 0.0315  
 Moon -93999-03-16 15:35 J -32611637.03 -32611636.85 -32611636.66 0.0487 0.0289 \*  
 Mercury -93996-11-26 05:15 J -32610286.44 -32610286.28 -32610286.12 0.0507 0.0126  
 Mercury -93995-02-24 03:49 J -32610196.44 -32610196.34 -32610196.23 0.0511 0.0390  
 Mercury -93990-04-18 00:56 J -32608317.56 -32608317.46 -32608317.35 0.0523 0.0323  
 Mercury -93990-07-16 12:13 J -32608228.12 -32608227.99 -32608227.85 0.0519 0.0144  
 Venus -93990-08-29 02:37 J -32608184.56 -32608184.39 -32608184.22 0.0517 0.0282  
 Moon -93987-03-20 19:11 J -32607249.94 -32607249.70 -32607249.45 0.0486 0.0015  
 Earth -93987-03-20 21:20 J -32607249.85 -32607249.61 -32607249.37 0.0486 0.0005 \*  
 Mercury -93984-09-14 05:01 J -32605976.43 -32605976.29 -32605976.15 0.0506 0.0256  
 Mercury -93984-12-13 03:49 J -32605886.47 -32605886.34 -32605886.20 0.0510 0.0262  
 Mercury -93978-02-04 04:03 J -32604007.40 -32604007.33 -32604007.25 0.0524 0.0435  
 Venus -93978-05-04 01:39 J -32603918.61 -32603918.43 -32603918.24 0.0520 0.0166  
 Mercury -93978-05-04 15:20 J -32603918.00 -32603917.86 -32603917.72 0.0520 0.0031  
 Mercury -93978-08-02 03:20 J -32603828.39 -32603828.36 -32603828.33 0.0516 0.0498  
 Earth -93975-03-25 05:15 J -32602862.46 -32602862.28 -32602862.09 0.0485 0.0306  
 Moon -93975-03-25 05:44 J -32602862.45 -32602862.26 -32602862.08 0.0485 0.0280 \*  
 Mercury -93972-07-03 03:49 J -32601666.44 -32601666.34 -32601666.23 0.0506 0.0393  
 Mercury -93972-10-01 03:20 J -32601576.51 -32601576.36 -32601576.20 0.0509 0.0130  
 Venus -93972-10-23 12:42 J -32601554.18 -32601553.97 -32601553.77 0.0510 0.0101  
 Mars -93968-01-02 15:06 J -32600386.99 -32600386.87 -32600386.74 0.0544 0.0477  
 Mercury -93966-02-20 18:27 J -32599607.87 -32599607.73 -32599607.59 0.0521 0.0082  
 Mercury -93966-05-21 06:13 J -32599518.33 -32599518.24 -32599518.14 0.0517 0.0387  
 Venus -93960-06-28 07:25 J -32597288.34 -32597288.19 -32597288.03 0.0508 0.0343  
 Mercury -93960-07-20 03:35 J -32597266.51 -32597266.35 -32597266.18 0.0509 0.0009  
 Mercury -93955-12-09 21:35 J -32595297.73 -32595297.60 -32595297.47 0.0521 0.0194  
 Mercury -93954-03-09 09:06 J -32595208.24 -32595208.12 -32595208.00 0.0517 0.0271  
 Mars -93951-12-31 23:30 J -32593814.80 -32593814.52 -32593814.24 0.0485 0.0069  
 Mercury -93948-05-08 03:49 J -32592956.50 -32592956.34 -32592956.18 0.0508 0.0122

Mercury -93948-08-06 02:23 J -32592866.50 -32592866.40 -32592866.29 0.0512 0.0395

Earth -93946-09-22 15:06 J -32592088.99 -32592088.87 -32592088.73 0.0541 0.0449

Moon -93946-09-22 18:27 J -32592088.87 -32592088.73 -32592088.58 0.0541 0.0419 \*

Mercury -93943-09-28 00:27 J -32590987.59 -32590987.48 -32590987.37 0.0522 0.0309

Mercury -93943-12-26 11:44 J -32590898.15 -32590898.01 -32590897.88 0.0518 0.0155

Venus -93942-01-09 15:49 J -32590884.04 -32590883.84 -32590883.65 0.0518 0.0107

Mercury -93936-02-24 03:35 J -32588646.49 -32588646.35 -32588646.20 0.0506 0.0250

Mercury -93936-05-25 02:37 J -32588556.52 -32588556.39 -32588556.25 0.0510 0.0269

Venus -93936-07-01 05:44 J -32588519.40 -32588519.26 -32588519.12 0.0512 0.0376

Moon -93934-09-27 13:25 J -32587701.17 -32587700.94 -32587700.70 0.0542 0.0027

Earth -93934-09-27 14:51 J -32587701.11 -32587700.88 -32587700.65 0.0542 0.0035 \*

Mars -93933-10-09 05:01 J -32587323.47 -32587323.29 -32587323.09 0.0543 0.0385

Mercury -93931-07-17 02:37 J -32586677.46 -32586677.39 -32586677.32 0.0524 0.0434

Venus -93931-09-14 11:44 J -32586618.15 -32586618.01 -32586617.87 0.0521 0.0361

Mercury -93931-10-14 13:39 J -32586588.07 -32586587.93 -32586587.79 0.0520 0.0029

Mercury -93930-01-12 01:39 J -32586498.46 -32586498.43 -32586498.39 0.0516 0.0497

Mercury -93925-12-13 03:06 J -32584336.47 -32584336.37 -32584336.26 0.0505 0.0381

Venus -93924-03-05 23:01 J -32584253.74 -32584253.54 -32584253.33 0.0509 0.0079

Mercury -93924-03-13 02:37 J -32584246.55 -32584246.39 -32584246.23 0.0509 0.0139

Moon -93922-10-02 16:03 J -32583313.00 -32583312.83 -32583312.67 0.0543 0.0355

Earth -93922-10-02 16:47 J -32583312.95 -32583312.80 -32583312.64 0.0543 0.0387 \*

Mercury -93919-08-02 16:32 J -32582277.95 -32582277.81 -32582277.67 0.0521 0.0087

Mercury -93919-10-31 04:18 J -32582188.41 -32582188.32 -32582188.23 0.0517 0.0381

Moon -93916-03-15 18:13 J -32581321.91 -32581321.74 -32581321.55 0.0487 0.0326

Earth -93916-03-15 20:23 J -32581321.81 -32581321.65 -32581321.49 0.0487 0.0350 \*

Mercury -93913-12-30 01:54 J -32579936.59 -32579936.42 -32579936.26 0.0508 0.0008

Mercury -93907-05-21 19:54 J -32577967.80 -32577967.67 -32577967.54 0.0522 0.0196

Mercury -93907-08-19 07:11 J -32577878.31 -32577878.20 -32577878.07 0.0518 0.0271

Venus -93907-09-17 03:20 J -32577849.50 -32577849.36 -32577849.22 0.0517 0.0363

Earth -93904-03-20 05:01 J -32576934.52 -32576934.29 -32576934.05 0.0486 0.0041



Moon -93904-03-20 05:15 J -32576934.50 -32576934.28 -32576934.05 0.0486 0.0056 \*  
 Mercury -93901-10-18 01:54 J -32575626.58 -32575626.42 -32575626.26 0.0507 0.0124  
 Mercury -93900-01-16 00:27 J -32575536.58 -32575536.48 -32575536.38 0.0511 0.0392  
 Mercury -93895-03-09 22:47 J -32573657.65 -32573657.55 -32573657.43 0.0522 0.0309  
 Venus -93895-05-23 02:23 J -32573583.59 -32573583.40 -32573583.20 0.0519 0.0084  
 Mercury -93895-06-07 10:03 J -32573568.21 -32573568.08 -32573567.94 0.0518 0.0156  
 Earth -93892-03-24 12:13 J -32572547.18 -32572546.99 -32572546.79 0.0485 0.0264  
 Moon -93892-03-24 13:54 J -32572547.13 -32572546.92 -32572546.70 0.0485 0.0242 \*  
 Mercury -93889-08-06 01:54 J -32571316.57 -32571316.42 -32571316.28 0.0507 0.0250  
 Mercury -93889-11-04 00:56 J -32571226.60 -32571226.46 -32571226.32 0.0511 0.0269  
 Venus -93889-11-11 13:54 J -32571219.12 -32571218.92 -32571218.73 0.0511 0.0183  
 Mercury -93884-12-27 01:54 J -32569347.50 -32569347.42 -32569347.34 0.0523 0.0422  
 Mercury -93883-03-26 12:56 J -32569258.10 -32569257.96 -32569257.82 0.0519 0.0042  
 Mercury -93883-06-24 00:42 J -32569168.49 -32569168.47 -32569168.44 0.0515 0.0507  
 Mercury -93877-05-25 01:39 J -32567006.54 -32567006.43 -32567006.32 0.0505 0.0377  
 Venus -93877-07-17 08:23 J -32566953.32 -32566953.15 -32566952.97 0.0508 0.0264  
 Mercury -93877-08-23 01:11 J -32566916.61 -32566916.45 -32566916.29 0.0509 0.0144  
 Mercury -93871-01-12 14:51 J -32564948.02 -32564947.88 -32564947.75 0.0521 0.0089  
 Mercury -93871-04-12 02:23 J -32564858.49 -32564858.40 -32564858.30 0.0517 0.0380  
 Mercury -93865-06-11 00:56 J -32562606.63 -32562606.46 -32562606.30 0.0508 0.0014  
 Moon -93863-09-21 09:35 J -32561774.19 -32561774.10 -32561774.01 0.0540 0.0499  
 Earth -93863-09-21 11:44 J -32561774.04 -32561774.01 -32561773.96 0.0540 0.0530 \*  
 Mercury -93860-10-31 17:44 J -32560637.89 -32560637.76 -32560637.64 0.0522 0.0204  
 Venus -93859-01-28 11:59 J -32560549.19 -32560549.00 -32560548.81 0.0518 0.0162  
 Mercury -93859-01-29 05:15 J -32560548.41 -32560548.28 -32560548.16 0.0518 0.0263  
 Mercury -93853-03-29 23:44 J -32558296.66 -32558296.51 -32558296.34 0.0507 0.0125  
 Mercury -93853-06-27 22:32 J -32558206.66 -32558206.56 -32558206.46 0.0511 0.0390  
 Venus -93853-07-20 02:37 J -32558184.49 -32558184.39 -32558184.27 0.0512 0.0437  
 Moon -93851-09-26 14:23 J -32557386.11 -32557385.90 -32557385.68 0.0542 0.0104  
 Earth -93851-09-26 14:37 J -32557386.11 -32557385.89 -32557385.66 0.0542 0.0106 \*

Mercury -93848-08-19 20:51 J -32556327.73 -32556327.63 -32556327.51 0.0523 0.0313

Venus -93848-10-03 11:44 J -32556283.18 -32556283.01 -32556282.84 0.0521 0.0284

Mercury -93848-11-17 08:08 J -32556238.29 -32556238.16 -32556238.02 0.0519 0.0153

Mercury -93841-01-16 23:30 J -32553986.66 -32553986.52 -32553986.37 0.0506 0.0254

Venus -93841-03-24 20:51 J -32553918.83 -32553918.63 -32553918.42 0.0509 0.0019

Mercury -93841-04-15 22:47 J -32553896.69 -32553896.55 -32553896.41 0.0510 0.0265

Earth -93839-10-01 20:23 J -32552997.82 -32552997.65 -32552997.46 0.0543 0.0329

Moon -93839-10-01 22:47 J -32552997.74 -32552997.55 -32552997.35 0.0543 0.0294 \*

Mercury -93836-06-08 00:13 J -32552017.57 -32552017.49 -32552017.41 0.0524 0.0423

Mercury -93836-09-05 11:15 J -32551928.17 -32551928.03 -32551927.89 0.0520 0.0040

Mercury -93836-12-03 23:15 J -32551838.56 -32551838.53 -32551838.51 0.0516 0.0507

Earth -93833-03-15 02:23 J -32551006.53 -32551006.40 -32551006.25 0.0487 0.0393

Moon -93833-03-15 02:51 J -32551006.52 -32551006.38 -32551006.23 0.0487 0.0375 \*

Mars -93832-06-21 17:30 J -32550542.96 -32550542.77 -32550542.57 0.0484 0.0347

Mercury -93830-11-04 23:30 J -32549676.63 -32549676.52 -32549676.41 0.0506 0.0380

Venus -93830-11-28 16:03 J -32549652.92 -32549652.83 -32549652.74 0.0507 0.0456

Mercury -93829-02-02 23:01 J -32549586.69 -32549586.54 -32549586.38 0.0509 0.0141

Mercury -93824-06-24 13:54 J -32547618.05 -32547617.92 -32547617.78 0.0521 0.0079

Mercury -93824-09-22 01:39 J -32547528.52 -32547528.43 -32547528.34 0.0517 0.0389

Venus -93824-10-06 01:39 J -32547514.53 -32547514.43 -32547514.32 0.0516 0.0431

Earth -93821-03-19 10:47 J -32546619.28 -32546619.05 -32546618.82 0.0487 0.0084

Moon -93821-03-19 12:27 J -32546619.22 -32546618.98 -32546618.74 0.0487 0.0105 \*

Mercury -93818-11-21 23:15 J -32545276.69 -32545276.53 -32545276.37 0.0508 0.0016

Mars -93814-03-29 11:01 J -32544053.27 -32544053.04 -32544052.80 0.0543 0.0242

Mercury -93812-04-12 15:49 J -32543307.96 -32543307.84 -32543307.71 0.0522 0.0206

Venus -93812-06-10 21:49 J -32543248.79 -32543248.59 -32543248.39 0.0519 0.0034

Mercury -93812-07-11 03:20 J -32543218.48 -32543218.36 -32543218.24 0.0518 0.0261

Moon -93809-03-23 14:51 J -32542232.09 -32542231.88 -32542231.67 0.0486 0.0202

Earth -93809-03-23 17:59 J -32542231.96 -32542231.75 -32542231.54 0.0486 0.0222 \*

Mercury -93806-09-09 22:47 J -32540966.71 -32540966.55 -32540966.38 0.0507 0.0116

Venus -93806-12-01 12:42 J -32540884.14 -32540883.97 -32540883.78 0.0511 0.0254  
 Mercury -93806-12-08 21:20 J -32540876.70 -32540876.61 -32540876.50 0.0511 0.0399  
 Mercury -93800-01-29 18:42 J -32538997.82 -32538997.72 -32538997.61 0.0523 0.0321  
 Venus -93800-02-13 19:25 J -32538982.75 -32538982.69 -32538982.62 0.0522 0.0493  
 Mercury -93800-04-29 05:59 J -32538908.38 -32538908.25 -32538908.11 0.0519 0.0143  
 Mars -93796-03-26 17:59 J -32537480.98 -32537480.75 -32537480.52 0.0485 0.0276  
 Mercury -93794-06-28 21:35 J -32536656.74 -32536656.60 -32536656.46 0.0506 0.0255  
 Venus -93794-08-06 04:32 J -32536618.50 -32536618.31 -32536618.12 0.0508 0.0208  
 Mercury -93794-09-26 20:37 J -32536566.77 -32536566.64 -32536566.50 0.0510 0.0263  
 Mercury -93789-11-17 22:03 J -32534687.65 -32534687.58 -32534687.50 0.0524 0.0430  
 Mercury -93788-02-15 09:06 J -32534598.26 -32534598.12 -32534597.98 0.0520 0.0034  
 Mercury -93788-05-15 21:06 J -32534508.65 -32534508.62 -32534508.59 0.0516 0.0502  
 Mercury -93782-04-16 21:06 J -32532346.72 -32532346.62 -32532346.51 0.0505 0.0385  
 Mercury -93782-07-15 20:51 J -32532256.79 -32532256.63 -32532256.48 0.0509 0.0137  
 Mercury -93777-12-04 12:13 J -32530288.13 -32530287.99 -32530287.85 0.0521 0.0080  
 Venus -93776-02-16 11:30 J -32530214.19 -32530214.02 -32530213.84 0.0517 0.0239  
 Mercury -93776-03-03 23:59 J -32530198.60 -32530198.50 -32530198.41 0.0517 0.0387  
 Mercury -93770-05-03 20:51 J -32527946.79 -32527946.63 -32527946.47 0.0508 0.0010  
 Venus -93770-08-09 02:08 J -32527849.41 -32527849.41 -32527849.39 0.0513 0.0512  
 Earth -93768-09-25 18:27 J -32527070.94 -32527070.73 -32527070.51 0.0541 0.0165  
 Moon -93768-09-25 20:08 J -32527070.88 -32527070.66 -32527070.43 0.0541 0.0168 \*  
 Mercury -93765-09-22 15:06 J -32525978.00 -32525977.87 -32525977.74 0.0522 0.0196  
 Venus -93765-10-22 10:03 J -32525948.26 -32525948.08 -32525947.90 0.0520 0.0215  
 Mercury -93765-12-21 02:23 J -32525888.52 -32525888.40 -32525888.28 0.0518 0.0270  
 Mercury -93758-02-19 21:06 J -32523636.78 -32523636.62 -32523636.46 0.0507 0.0115  
 Venus -93758-04-13 21:06 J -32523583.83 -32523583.62 -32523583.42 0.0509 0.0061  
 Mercury -93758-05-20 19:39 J -32523546.77 -32523546.68 -32523546.58 0.0511 0.0399  
 Moon -93756-09-30 17:01 J -32522683.00 -32522682.79 -32522682.59 0.0542 0.0219  
 Earth -93756-09-30 19:54 J -32522682.87 -32522682.67 -32522682.46 0.0542 0.0255 \*  
 Mercury -93753-07-11 17:01 J -32521667.89 -32521667.79 -32521667.68 0.0523 0.0322

Mercury -93753-10-09 04:18 J -32521578.46 -32521578.32 -32521578.19 0.0519 0.0142

Earth -93750-03-15 06:27 J -32520691.33 -32520691.23 -32520691.13 0.0488 0.0438

Moon -93750-03-15 07:54 J -32520691.29 -32520691.17 -32520691.05 0.0488 0.0426 \*

Mercury -93747-12-08 20:23 J -32519326.79 -32519326.65 -32519326.50 0.0506 0.0247

Venus -93747-12-17 14:51 J -32519318.01 -32519317.88 -32519317.74 0.0506 0.0388

Mercury -93746-03-08 19:39 J -32519236.82 -32519236.68 -32519236.54 0.0510 0.0271

Mercury -93741-04-29 19:54 J -32517357.74 -32517357.67 -32517357.60 0.0524 0.0438

Mercury -93741-07-28 06:56 J -32517268.35 -32517268.21 -32517268.07 0.0520 0.0026

Venus -93741-10-24 20:23 J -32517179.72 -32517179.65 -32517179.57 0.0516 0.0478

Mercury -93741-10-25 18:42 J -32517178.75 -32517178.72 -32517178.67 0.0516 0.0492

Moon -93738-03-19 11:30 J -32516304.24 -32516304.02 -32516303.80 0.0487 0.0157

Earth -93738-03-19 14:23 J -32516304.12 -32516303.90 -32516303.67 0.0487 0.0130 \*

Mercury -93735-09-26 18:56 J -32515016.81 -32515016.71 -32515016.60 0.0505 0.0387

Mercury -93735-12-25 18:27 J -32514926.88 -32514926.73 -32514926.57 0.0509 0.0134

Mercury -93729-05-16 10:03 J -32512958.22 -32512958.08 -32512957.94 0.0521 0.0087

Venus -93729-06-29 20:23 J -32512913.85 -32512913.65 -32512913.46 0.0519 0.0038

Mercury -93729-08-13 21:49 J -32512868.69 -32512868.59 -32512868.50 0.0517 0.0381

Earth -93726-03-23 23:01 J -32511916.75 -32511916.54 -32511916.31 0.0486 0.0180

Moon -93726-03-24 03:06 J -32511916.59 -32511916.37 -32511916.14 0.0486 0.0164 \*

Mercury -93723-10-13 18:27 J -32510616.89 -32510616.73 -32510616.57 0.0508 0.0004

Venus -93723-12-20 08:51 J -32510549.30 -32510549.13 -32510548.97 0.0511 0.0308

Mercury -93717-03-04 13:11 J -32508648.08 -32508647.95 -32508647.82 0.0522 0.0199

Venus -93717-03-04 18:56 J -32508647.82 -32508647.71 -32508647.59 0.0522 0.0416 \*

Mercury -93717-06-02 00:27 J -32508558.60 -32508558.48 -32508558.35 0.0518 0.0267

Earth -93714-03-28 06:27 J -32507529.25 -32507529.23 -32507529.19 0.0485 0.0481

Mercury -93711-08-01 18:27 J -32506306.89 -32506306.73 -32506306.57 0.0507 0.0123

Venus -93711-08-25 03:06 J -32506283.56 -32506283.37 -32506283.16 0.0508 0.0141

Mercury -93711-10-30 17:15 J -32506216.88 -32506216.78 -32506216.68 0.0511 0.0392

Mercury -93706-12-22 16:03 J -32504337.94 -32504337.83 -32504337.72 0.0523 0.0313

Mercury -93705-03-21 03:20 J -32504248.50 -32504248.36 -32504248.23 0.0519 0.0150

Mercury -93699-05-20 18:27 J -32501996.87 -32501996.73 -32501996.58 0.0506 0.0248

Mercury -93699-08-18 17:44 J -32501906.90 -32501906.76 -32501906.62 0.0510 0.0270

Mercury -93694-10-10 18:13 J -32500027.81 -32500027.74 -32500027.66 0.0524 0.0438

Mercury -93693-01-08 05:01 J -32499938.43 -32499938.29 -32499938.15 0.0520 0.0028

Venus -93693-03-07 06:13 J -32499879.40 -32499879.24 -32499879.07 0.0517 0.0286

Mercury -93693-04-06 17:01 J -32499848.83 -32499848.79 -32499848.75 0.0516 0.0490

Mercury -93687-03-08 17:44 J -32497686.86 -32497686.76 -32497686.64 0.0505 0.0380

Mercury -93687-06-06 17:30 J -32497596.93 -32497596.77 -32497596.61 0.0509 0.0140

Moon -93685-09-24 12:13 J -32496756.19 -32496755.99 -32496755.79 0.0540 0.0253

Earth -93685-09-24 14:51 J -32496756.09 -32496755.88 -32496755.68 0.0540 0.0247 \*

Mercury -93682-10-27 07:54 J -32495628.31 -32495628.17 -32495628.04 0.0521 0.0097

Venus -93682-11-11 04:18 J -32495613.50 -32495613.32 -32495613.13 0.0520 0.0171

Mercury -93681-01-24 19:25 J -32495538.79 -32495538.69 -32495538.59 0.0517 0.0371

Mars -93678-09-15 05:01 J -32494209.56 -32494209.29 -32494209.02 0.0484 0.0155

Mercury -93675-03-25 16:18 J -32493286.99 -32493286.82 -32493286.66 0.0508 0.0002

Venus -93675-05-02 16:03 J -32493249.03 -32493248.83 -32493248.63 0.0509 0.0111

Mercury -93675-06-23 14:37 J -32493196.89 -32493196.89 -32493196.89 0.0512 0.0511

Earth -93673-09-29 14:51 J -32492368.10 -32492367.88 -32492367.66 0.0542 0.0166

Moon -93673-09-29 18:27 J -32492367.96 -32492367.73 -32492367.51 0.0542 0.0133 \*

Mercury -93670-08-15 11:01 J -32491318.17 -32491318.04 -32491317.92 0.0522 0.0207

Mercury -93670-11-12 22:18 J -32491228.69 -32491228.57 -32491228.44 0.0518 0.0260

Moon -93667-03-14 09:20 J -32490376.15 -32490376.11 -32490376.07 0.0488 0.0478

Earth -93667-03-14 11:59 J -32490376.03 -32490376.00 -32490375.95 0.0488 0.0479

Venus -93663-01-05 10:03 J -32488983.23 -32488983.08 -32488982.92 0.0507 0.0336

Mercury -93663-01-11 16:03 J -32488976.99 -32488976.83 -32488976.67 0.0507 0.0129

Mercury -93663-04-11 14:37 J -32488886.99 -32488886.89 -32488886.78 0.0511 0.0386

Mars -93660-06-22 03:06 J -32487719.63 -32487719.37 -32487719.10 0.0544 0.0017

Mercury -93658-06-03 14:08 J -32487008.02 -32487007.91 -32487007.80 0.0523 0.0317

Mercury -93658-09-01 01:25 J -32486918.58 -32486918.44 -32486918.31 0.0519 0.0147

Earth -93655-03-18 19:11 J -32485988.91 -32485988.70 -32485988.47 0.0487 0.0176

Moon -93655-03-18 23:15 J -32485988.75 -32485988.53 -32485988.32 0.0487 0.0205 \*  
 Mercury -93652-10-30 15:49 J -32484666.99 -32484666.84 -32484666.70 0.0506 0.0257  
 Mercury -93651-01-28 15:06 J -32484577.01 -32484576.87 -32484576.73 0.0510 0.0261  
 Mercury -93646-03-22 17:15 J -32482697.86 -32482697.78 -32482697.70 0.0524 0.0430  
 Mercury -93646-06-20 04:03 J -32482608.47 -32482608.33 -32482608.19 0.0520 0.0031  
 Venus -93646-07-19 18:27 J -32482578.92 -32482578.73 -32482578.53 0.0519 0.0106  
 Mercury -93646-09-17 16:03 J -32482518.87 -32482518.83 -32482518.80 0.0516 0.0497  
 Moon -93643-03-22 23:01 J -32481601.77 -32481601.54 -32481601.30 0.0486 0.0114  
 Earth -93643-03-23 03:06 J -32481601.59 -32481601.37 -32481601.14 0.0486 0.0131 \*  
 Mars -93642-06-20 05:59 J -32481147.33 -32481147.25 -32481147.16 0.0485 0.0461  
 Mercury -93640-08-18 15:35 J -32480356.95 -32480356.85 -32480356.74 0.0505 0.0383  
 Mercury -93640-11-16 15:20 J -32480267.01 -32480266.86 -32480266.70 0.0509 0.0139  
 Venus -93639-01-08 08:08 J -32480214.29 -32480214.16 -32480214.01 0.0511 0.0383  
 Venus -93634-03-24 14:08 J -32478313.05 -32478312.91 -32478312.77 0.0522 0.0366  
 Mercury -93634-04-08 06:13 J -32478298.38 -32478298.24 -32478298.11 0.0521 0.0096  
 Mercury -93634-07-06 17:44 J -32478208.86 -32478208.76 -32478208.66 0.0517 0.0370  
 Earth -93631-03-27 09:35 J -32477214.20 -32477214.10 -32477213.99 0.0486 0.0432  
 Moon -93631-03-27 13:11 J -32477214.02 -32477213.95 -32477213.87 0.0486 0.0456 \*  
 Mercury -93628-09-04 15:06 J -32475957.03 -32475956.87 -32475956.70 0.0508 0.0012  
 Venus -93628-09-13 01:54 J -32475948.63 -32475948.42 -32475948.21 0.0508 0.0071  
 Mercury -93622-01-25 08:51 J -32473988.26 -32473988.13 -32473988.01 0.0522 0.0214  
 Mercury -93622-04-24 20:08 J -32473898.78 -32473898.66 -32473898.54 0.0518 0.0251  
 Mercury -93616-06-23 13:54 J -32471647.08 -32471646.92 -32471646.76 0.0507 0.0132  
 Mercury -93616-09-21 12:42 J -32471557.08 -32471556.97 -32471556.87 0.0510 0.0382  
 Mercury -93611-11-13 11:59 J -32469678.11 -32469678.00 -32469677.89 0.0523 0.0325  
 Mercury -93610-02-10 23:01 J -32469588.67 -32469588.54 -32469588.40 0.0520 0.0140  
 Venus -93610-03-27 04:18 J -32469544.46 -32469544.32 -32469544.17 0.0518 0.0354  
 Mercury -93604-04-11 13:25 J -32467337.08 -32467336.94 -32467336.80 0.0506 0.0262  
 Mercury -93604-07-10 12:42 J -32467247.11 -32467246.97 -32467246.83 0.0510 0.0256  
 Earth -93602-09-24 11:15 J -32466441.21 -32466441.03 -32466440.84 0.0541 0.0328

Moon -93602-09-24 14:37 J -32466441.07 -32466440.89 -32466440.70 0.0541 0.0334 \*  
 Mercury -93599-09-01 15:20 J -32465367.93 -32465367.86 -32465367.79 0.0524 0.0435  
 Mercury -93599-11-30 02:08 J -32465278.55 -32465278.41 -32465278.27 0.0520 0.0028  
 Venus -93599-11-30 03:49 J -32465278.54 -32465278.34 -32465278.14 0.0520 0.0094 \*  
 Mercury -93598-02-27 13:54 J -32465188.95 -32465188.92 -32465188.87 0.0516 0.0495  
 Mercury -93592-01-28 12:56 J -32463027.06 -32463026.96 -32463026.85 0.0505 0.0391  
 Mercury -93592-04-28 12:42 J -32462937.13 -32462936.97 -32462936.81 0.0509 0.0130  
 Venus -93592-05-21 14:08 J -32462914.10 -32462913.91 -32462913.71 0.0510 0.0178  
 Moon -93590-09-29 13:54 J -32462053.15 -32462052.92 -32462052.69 0.0542 0.0070  
 Earth -93590-09-29 17:44 J -32462052.99 -32462052.76 -32462052.54 0.0542 0.0104 \*  
 Mercury -93587-09-18 05:01 J -32460968.42 -32460968.29 -32460968.15 0.0521 0.0089  
 Mercury -93587-12-16 16:47 J -32460878.90 -32460878.80 -32460878.71 0.0517 0.0378  
 Venus -93580-01-24 09:35 J -32458648.28 -32458648.10 -32458647.92 0.0507 0.0265  
 Mercury -93580-02-14 12:56 J -32458627.12 -32458626.96 -32458626.79 0.0508 0.0014  
 Earth -93578-10-04 21:06 J -32457664.66 -32457664.62 -32457664.57 0.0542 0.0528  
 Mercury -93575-07-07 07:25 J -32456658.32 -32456658.19 -32456658.07 0.0522 0.0212  
 Mercury -93575-10-04 18:42 J -32456568.85 -32456568.72 -32456568.60 0.0518 0.0252  
 Moon -93572-03-17 18:13 J -32455673.94 -32455673.74 -32455673.54 0.0488 0.0257  
 Earth -93572-03-17 22:18 J -32455673.78 -32455673.57 -32455673.36 0.0488 0.0224 \*  
 Mercury -93569-12-03 12:42 J -32454317.13 -32454316.97 -32454316.81 0.0507 0.0124  
 Mercury -93568-03-03 11:44 J -32454227.12 -32454227.01 -32454226.91 0.0511 0.0391  
 Mercury -93563-04-25 10:03 J -32452348.18 -32452348.08 -32452347.97 0.0523 0.0329  
 Mercury -93563-07-23 21:06 J -32452258.75 -32452258.62 -32452258.48 0.0519 0.0133  
 Venus -93563-08-07 13:25 J -32452244.13 -32452243.94 -32452243.75 0.0519 0.0154  
 Earth -93560-03-22 06:27 J -32451286.47 -32451286.23 -32451286.00 0.0487 0.0083  
 Moon -93560-03-22 10:03 J -32451286.31 -32451286.08 -32451285.85 0.0487 0.0074 \*  
 Mercury -93557-09-21 11:15 J -32450007.17 -32450007.03 -32450006.89 0.0506 0.0263  
 Mercury -93557-12-20 10:32 J -32449917.20 -32449917.06 -32449916.92 0.0509 0.0254  
 Venus -93556-01-27 03:20 J -32449879.47 -32449879.36 -32449879.25 0.0511 0.0434  
 Mercury -93551-02-11 13:11 J -32448038.02 -32448037.95 -32448037.88 0.0525 0.0441

Venus -93551-04-12 11:59 J -32447978.16 -32447978.00 -32447977.83 0.0522 0.0299

Mercury -93551-05-11 23:59 J -32447948.63 -32447948.50 -32447948.36 0.0521 0.0026

Mercury -93551-08-09 11:59 J -32447859.04 -32447859.00 -32447858.96 0.0517 0.0488

Moon -93548-03-26 13:25 J -32446899.07 -32446898.94 -32446898.81 0.0486 0.0413

Earth -93548-03-26 15:49 J -32446898.98 -32446898.84 -32446898.70 0.0486 0.0391 \*

Mercury -93545-07-10 10:47 J -32445697.15 -32445697.05 -32445696.95 0.0505 0.0394

Venus -93545-10-01 21:06 J -32445613.82 -32445613.62 -32445613.41 0.0508 0.0021

Mercury -93545-10-08 10:32 J -32445607.22 -32445607.06 -32445606.90 0.0508 0.0126

Mercury -93539-02-28 03:20 J -32443638.50 -32443638.36 -32443638.23 0.0521 0.0093

Mercury -93539-05-28 14:51 J -32443548.98 -32443548.88 -32443548.78 0.0517 0.0375

Venus -93533-06-06 16:03 J -32441347.91 -32441347.83 -32441347.75 0.0506 0.0461

Mercury -93533-07-27 10:18 J -32441297.23 -32441297.07 -32441296.90 0.0508 0.0015

Mercury -93533-10-25 08:51 J -32441207.14 -32441207.13 -32441207.11 0.0512 0.0509

Mercury -93528-12-17 06:13 J -32439328.36 -32439328.24 -32439328.11 0.0522 0.0205

Mercury -93527-03-16 17:30 J -32439238.89 -32439238.77 -32439238.64 0.0518 0.0261

Venus -93527-04-15 03:20 J -32439209.46 -32439209.36 -32439209.24 0.0517 0.0427

Mars -93524-12-08 18:56 J -32437875.99 -32437875.71 -32437875.43 0.0484 0.0034

Mercury -93521-05-15 10:32 J -32436987.22 -32436987.06 -32436986.90 0.0507 0.0126

Mercury -93521-08-13 09:35 J -32436897.20 -32436897.10 -32436897.00 0.0511 0.0389

Moon -93519-09-23 11:01 J -32436126.19 -32436126.04 -32436125.89 0.0540 0.0396

Earth -93519-09-23 14:37 J -32436126.04 -32436125.89 -32436125.72 0.0540 0.0384 \*

Mercury -93516-10-05 08:37 J -32435018.24 -32435018.14 -32435018.03 0.0523 0.0326

Venus -93516-12-19 00:13 J -32434943.68 -32434943.49 -32434943.29 0.0520 0.0036

Mercury -93515-01-02 19:39 J -32434928.81 -32434928.68 -32434928.54 0.0519 0.0137

Mercury -93509-03-03 10:18 J -32432677.21 -32432677.07 -32432676.93 0.0506 0.0255

Mercury -93509-06-01 09:35 J -32432587.24 -32432587.10 -32432586.96 0.0510 0.0263

Venus -93509-06-09 13:39 J -32432579.11 -32432578.93 -32432578.75 0.0510 0.0252

Earth -93507-09-28 17:01 J -32431738.01 -32431737.79 -32431737.56 0.0541 0.0034

Moon -93507-09-28 20:23 J -32431737.88 -32431737.65 -32431737.43 0.0541 0.0009 \*

Mars -93506-09-15 19:25 J -32431385.93 -32431385.69 -32431385.44 0.0543 0.0210



Mercury -93504-07-24 11:30 J -32430708.09 -32430708.02 -32430707.95 0.0524 0.0442  
 Venus -93504-08-23 21:20 J -32430677.66 -32430677.61 -32430677.54 0.0523 0.0499  
 Mercury -93504-10-21 22:18 J -32430618.71 -32430618.57 -32430618.43 0.0520 0.0018  
 Mercury -93503-01-19 10:03 J -32430529.12 -32430529.08 -32430529.03 0.0516 0.0485  
 Mercury -93498-12-21 08:51 J -32428367.23 -32428367.13 -32428367.03 0.0505 0.0393  
 Venus -93497-02-13 05:30 J -32428313.46 -32428313.27 -32428313.08 0.0507 0.0208  
 Mercury -93497-03-20 08:37 J -32428277.30 -32428277.14 -32428276.98 0.0508 0.0126  
 Moon -93495-10-03 13:39 J -32427350.06 -32427349.93 -32427349.80 0.0542 0.0452  
 Earth -93495-10-03 15:20 J -32427349.99 -32427349.86 -32427349.72 0.0542 0.0436 \*  
 Mercury -93492-08-10 01:11 J -32426308.58 -32426308.45 -32426308.31 0.0522 0.0096  
 Mercury -93492-11-07 12:56 J -32426219.06 -32426218.96 -32426218.87 0.0518 0.0371  
 Earth -93489-03-17 05:44 J -32425358.45 -32425358.26 -32425358.05 0.0488 0.0261  
 Moon -93489-03-17 09:20 J -32425358.29 -32425358.11 -32425357.92 0.0488 0.0292 \*  
 Mercury -93485-01-07 08:23 J -32423967.32 -32423967.15 -32423966.99 0.0507 0.0004  
 Mercury -93485-04-06 06:56 J -32423877.23 -32423877.21 -32423877.20 0.0511 0.0507  
 Mercury -93480-05-29 04:32 J -32421998.44 -32421998.31 -32421998.19 0.0523 0.0207  
 Venus -93480-08-26 13:11 J -32421909.12 -32421908.95 -32421908.77 0.0519 0.0234  
 Mercury -93480-08-26 15:49 J -32421908.96 -32421908.84 -32421908.72 0.0519 0.0258 \*  
 Moon -93477-03-21 11:01 J -32420971.28 -32420971.04 -32420970.79 0.0487 0.0037  
 Earth -93477-03-21 13:39 J -32420971.17 -32420970.93 -32420970.69 0.0487 0.0043 \*  
 Mercury -93474-10-26 08:08 J -32419657.32 -32419657.16 -32419657.00 0.0507 0.0132  
 Mercury -93473-01-24 07:11 J -32419567.31 -32419567.20 -32419567.10 0.0511 0.0383  
 Venus -93473-02-16 02:08 J -32419544.44 -32419544.41 -32419544.38 0.0511 0.0505  
 Mercury -93468-03-17 07:39 J -32417688.29 -32417688.18 -32417688.07 0.0523 0.0318  
 Venus -93468-05-01 12:13 J -32417643.17 -32417642.99 -32417642.81 0.0521 0.0219  
 Mercury -93468-06-14 18:42 J -32417598.85 -32417598.72 -32417598.58 0.0519 0.0145  
 Earth -93465-03-25 21:35 J -32416583.75 -32416583.60 -32416583.43 0.0486 0.0348  
 Moon -93465-03-25 22:18 J -32416583.71 -32416583.57 -32416583.42 0.0486 0.0375 \*  
 Mercury -93462-08-14 08:08 J -32415347.30 -32415347.16 -32415347.01 0.0506 0.0257  
 Venus -93462-10-21 21:20 J -32415278.82 -32415278.61 -32415278.40 0.0509 0.0058

Mercury -93462-11-12 07:39 J -32415257.32 -32415257.18 -32415257.04 0.0510 0.0262  
 Mercury -93456-01-03 10:18 J -32413378.14 -32413378.07 -32413378.00 0.0524 0.0436  
 Mercury -93456-04-02 21:06 J -32413288.76 -32413288.62 -32413288.48 0.0520 0.0023  
 Mercury -93456-07-01 08:51 J -32413199.17 -32413199.13 -32413199.09 0.0516 0.0489  
 Mercury -93450-06-02 07:39 J -32411037.28 -32411037.18 -32411037.06 0.0505 0.0386  
 Venus -93450-06-26 16:03 J -32411012.96 -32411012.83 -32411012.69 0.0506 0.0385  
 Mercury -93450-08-31 07:39 J -32410947.34 -32410947.18 -32410947.02 0.0509 0.0136  
 Mercury -93444-01-19 23:44 J -32408978.65 -32408978.51 -32408978.37 0.0521 0.0095  
 Mercury -93444-04-19 11:15 J -32408889.13 -32408889.03 -32408888.93 0.0517 0.0371  
 Venus -93444-05-03 23:59 J -32408874.56 -32408874.50 -32408874.43 0.0517 0.0486  
 Mercury -93438-06-19 06:42 J -32406637.39 -32406637.22 -32406637.06 0.0507 0.0002  
 Mercury -93438-09-17 05:01 J -32406547.29 -32406547.29 -32406547.27 0.0511 0.0509  
 Earth -93436-09-22 09:06 J -32405811.23 -32405811.12 -32405811.01 0.0540 0.0473  
 Moon -93436-09-22 12:42 J -32405811.06 -32405810.97 -32405810.87 0.0540 0.0489 \*  
 Mercury -93433-11-08 02:37 J -32404668.52 -32404668.39 -32404668.26 0.0523 0.0210  
 Venus -93432-01-06 22:47 J -32404608.75 -32404608.55 -32404608.35 0.0520 0.0037  
 Mercury -93432-02-05 13:54 J -32404579.04 -32404578.92 -32404578.80 0.0519 0.0256  
 Mercury -93426-04-07 06:27 J -32402327.39 -32402327.23 -32402327.07 0.0506 0.0130  
 Venus -93426-06-29 10:03 J -32402244.24 -32402244.08 -32402243.91 0.0510 0.0312  
 Mercury -93426-07-06 05:15 J -32402237.38 -32402237.28 -32402237.17 0.0510 0.0383  
 Moon -93424-09-27 11:15 J -32401423.26 -32401423.03 -32401422.79 0.0541 0.0078  
 Earth -93424-09-27 13:39 J -32401423.16 -32401422.93 -32401422.70 0.0541 0.0051 \*  
 Mercury -93421-08-27 05:59 J -32400358.36 -32400358.25 -32400358.14 0.0524 0.0320  
 Venus -93421-09-11 21:35 J -32400342.71 -32400342.60 -32400342.48 0.0523 0.0419  
 Mercury -93421-11-24 17:01 J -32400268.92 -32400268.79 -32400268.66 0.0520 0.0144  
 Mercury -93414-01-24 05:59 J -32398017.39 -32398017.25 -32398017.11 0.0506 0.0260  
 Venus -93414-03-04 04:32 J -32397978.51 -32397978.31 -32397978.11 0.0507 0.0137  
 Mercury -93414-04-24 05:30 J -32397927.41 -32397927.27 -32397927.13 0.0509 0.0258  
 Earth -93412-10-02 20:08 J -32397034.82 -32397034.66 -32397034.50 0.0543 0.0380  
 Moon -93412-10-02 20:08 J -32397034.80 -32397034.66 -32397034.50 0.0543 0.0405 \*

Mercury -93409-06-15 09:20 J -32396048.19 -32396048.11 -32396048.04 0.0524 0.0429  
 Mercury -93409-09-12 20:08 J -32395958.80 -32395958.66 -32395958.52 0.0521 0.0032  
 Mercury -93409-12-11 07:54 J -32395869.20 -32395869.17 -32395869.14 0.0517 0.0498  
 Moon -93406-03-17 10:47 J -32395043.22 -32395043.05 -32395042.86 0.0488 0.0328  
 Earth -93406-03-17 13:25 J -32395043.12 -32395042.94 -32395042.75 0.0488 0.0298 \*  
 Mars -93405-05-29 09:49 J -32394604.25 -32394604.09 -32394603.91 0.0484 0.0385  
 Mercury -93403-11-12 05:59 J -32393707.36 -32393707.25 -32393707.14 0.0505 0.0385  
 Mercury -93402-02-10 05:44 J -32393617.41 -32393617.26 -32393617.10 0.0509 0.0136  
 Mercury -93397-07-01 22:32 J -32391648.69 -32391648.56 -32391648.42 0.0521 0.0089  
 Venus -93397-09-14 11:59 J -32391574.16 -32391574.00 -32391573.84 0.0518 0.0304  
 Mercury -93397-09-29 10:03 J -32391559.17 -32391559.08 -32391558.98 0.0517 0.0377  
 Earth -93394-03-21 19:39 J -32390655.92 -32390655.68 -32390655.44 0.0487 0.0005  
 Moon -93394-03-21 20:23 J -32390655.88 -32390655.65 -32390655.42 0.0487 0.0006 \*  
 Mercury -93391-11-29 05:44 J -32389307.42 -32389307.26 -32389307.09 0.0508 0.0017  
 Mars -93387-03-05 10:03 J -32388115.25 -32388115.08 -32388114.89 0.0544 0.0395  
 Mercury -93385-04-20 01:25 J -32387338.57 -32387338.44 -32387338.31 0.0522 0.0205  
 Venus -93385-05-20 09:49 J -32387308.27 -32387308.09 -32387307.89 0.0521 0.0154  
 Mercury -93385-07-18 12:42 J -32387249.09 -32387248.97 -32387248.85 0.0518 0.0259  
 Earth -93382-03-26 04:18 J -32386268.50 -32386268.32 -32386268.13 0.0486 0.0309  
 Moon -93382-03-26 05:30 J -32386268.44 -32386268.27 -32386268.08 0.0486 0.0336 \*  
 Mercury -93379-09-17 04:47 J -32384997.46 -32384997.30 -32384997.13 0.0506 0.0126  
 Venus -93379-11-09 19:25 J -32384943.89 -32384943.69 -32384943.49 0.0508 0.0126  
 Mercury -93379-12-16 03:49 J -32384907.44 -32384907.34 -32384907.24 0.0510 0.0387  
 Mercury -93373-02-07 04:03 J -32383028.43 -32383028.33 -32383028.22 0.0524 0.0322  
 Mercury -93373-05-06 15:20 J -32382939.00 -32382938.86 -32382938.73 0.0520 0.0143  
 Mars -93369-03-03 18:13 J -32381541.97 -32381541.74 -32381541.49 0.0484 0.0255  
 Mercury -93367-07-06 04:18 J -32380687.46 -32380687.32 -32380687.17 0.0505 0.0255  
 Venus -93367-07-15 13:54 J -32380678.08 -32380677.92 -32380677.76 0.0506 0.0320  
 Mercury -93367-10-04 03:49 J -32380597.48 -32380597.34 -32380597.20 0.0509 0.0261  
 Mercury -93362-11-26 07:25 J -32378718.26 -32378718.19 -32378718.11 0.0525 0.0431

Mercury -93361-02-23 18:27 J -32378628.87 -32378628.73 -32378628.59 0.0521 0.0031  
 Mercury -93361-05-23 06:13 J -32378539.27 -32378539.24 -32378539.20 0.0517 0.0499  
 Mercury -93355-04-24 03:49 J -32376377.44 -32376377.34 -32376377.23 0.0505 0.0386  
 Mercury -93355-07-23 03:49 J -32376287.50 -32376287.34 -32376287.18 0.0508 0.0134  
 Earth -93353-09-21 14:08 J -32375495.96 -32375495.91 -32375495.86 0.0540 0.0526  
 Mars -93352-12-09 21:35 J -32375051.74 -32375051.60 -32375051.46 0.0544 0.0465  
 Mercury -93350-12-12 21:35 J -32374318.74 -32374318.60 -32374318.46 0.0522 0.0080  
 Venus -93349-01-27 00:13 J -32374273.68 -32374273.49 -32374273.30 0.0520 0.0123  
 Mercury -93349-03-11 09:06 J -32374229.21 -32374229.12 -32374229.02 0.0518 0.0386  
 Mercury -93343-05-11 04:03 J -32371977.49 -32371977.33 -32371977.16 0.0508 0.0011  
 Venus -93343-07-18 11:15 J -32371909.15 -32371909.03 -32371908.89 0.0510 0.0395  
 Earth -93341-09-26 21:06 J -32371107.84 -32371107.62 -32371107.39 0.0541 0.0095  
 Moon -93341-09-26 21:49 J -32371107.80 -32371107.59 -32371107.37 0.0541 0.0115 \*  
 Mercury -93338-10-01 00:27 J -32370008.61 -32370008.48 -32370008.36 0.0522 0.0197  
 Venus -93338-10-01 21:35 J -32370007.75 -32370007.60 -32370007.45 0.0522 0.0340  
 Mercury -93338-12-29 11:30 J -32369919.14 -32369919.02 -32369918.90 0.0518 0.0267  
 Mercury -93331-02-27 04:03 J -32367667.49 -32367667.33 -32367667.17 0.0507 0.0114  
 Venus -93331-03-23 06:13 J -32367643.45 -32367643.24 -32367643.03 0.0508 0.0052  
 Mercury -93331-05-28 03:06 J -32367577.47 -32367577.37 -32367577.27 0.0510 0.0399  
 Earth -93329-10-02 00:56 J -32366719.64 -32366719.46 -32366719.28 0.0542 0.0325  
 Moon -93329-10-02 01:54 J -32366719.59 -32366719.42 -32366719.23 0.0542 0.0351 \*  
 Mercury -93326-07-20 03:06 J -32365698.47 -32365698.37 -32365698.25 0.0523 0.0314  
 Mercury -93326-10-17 14:08 J -32365609.04 -32365608.91 -32365608.77 0.0520 0.0150  
 Earth -93323-03-16 21:06 J -32364727.79 -32364727.62 -32364727.45 0.0488 0.0335  
 Moon -93323-03-16 21:49 J -32364727.74 -32364727.59 -32364727.44 0.0488 0.0360 \*  
 Venus -93320-11-25 23:59 J -32363377.53 -32363377.50 -32363377.47 0.0504 0.0498  
 Mercury -93320-12-16 03:06 J -32363357.51 -32363357.37 -32363357.22 0.0505 0.0248  
 Mercury -93319-03-16 02:37 J -32363267.53 -32363267.39 -32363267.25 0.0509 0.0268  
 Mercury -93314-05-08 05:59 J -32361388.33 -32361388.25 -32361388.17 0.0525 0.0431  
 Mercury -93314-08-05 16:47 J -32361298.94 -32361298.80 -32361298.66 0.0521 0.0031

Venus -93314-10-04 11:01 J -32361239.18 -32361239.04 -32361238.91 0.0519 0.0378

Mercury -93314-11-03 04:32 J -32361209.34 -32361209.31 -32361209.27 0.0517 0.0500

Earth -93311-03-21 06:42 J -32360340.46 -32360340.22 -32360339.98 0.0487 0.0026

Moon -93311-03-21 08:08 J -32360340.41 -32360340.16 -32360339.92 0.0487 0.0012 \*

Mercury -93308-10-04 02:37 J -32359047.50 -32359047.39 -32359047.28 0.0504 0.0378

Mercury -93307-01-02 02:23 J -32358957.55 -32358957.40 -32358957.24 0.0508 0.0141

Mercury -93302-05-24 19:54 J -32356988.80 -32356988.67 -32356988.53 0.0522 0.0082

Venus -93302-06-09 10:03 J -32356973.27 -32356973.08 -32356972.88 0.0521 0.0074

Mercury -93302-08-22 07:25 J -32356899.28 -32356899.19 -32356899.09 0.0518 0.0387

Moon -93299-03-25 11:59 J -32355953.18 -32355953.00 -32355952.82 0.0486 0.0306

Earth -93299-03-25 14:51 J -32355953.07 -32355952.88 -32355952.69 0.0486 0.0279 \*

Mercury -93296-10-21 02:08 J -32354647.57 -32354647.41 -32354647.24 0.0507 0.0015

Venus -93296-11-28 19:25 J -32354608.88 -32354608.69 -32354608.50 0.0509 0.0202

Mercury -93290-03-12 23:15 J -32352678.66 -32352678.53 -32352678.40 0.0523 0.0190

Mercury -93290-06-10 10:32 J -32352589.17 -32352589.06 -32352588.94 0.0519 0.0275

Venus -93284-08-03 15:06 J -32350343.05 -32350342.87 -32350342.69 0.0506 0.0239

Mercury -93284-08-09 02:23 J -32350337.56 -32350337.40 -32350337.24 0.0506 0.0112

Mercury -93284-11-07 01:25 J -32350247.54 -32350247.44 -32350247.34 0.0510 0.0401

Mercury -93279-12-30 02:08 J -32348368.52 -32348368.41 -32348368.29 0.0523 0.0305

Mercury -93278-03-29 13:11 J -32348279.08 -32348278.95 -32348278.81 0.0520 0.0158

Mercury -93272-05-28 02:23 J -32346027.55 -32346027.40 -32346027.25 0.0506 0.0237

Mercury -93272-08-26 01:39 J -32345937.56 -32345937.43 -32345937.29 0.0509 0.0280

Mercury -93267-10-18 05:15 J -32344058.36 -32344058.28 -32344058.20 0.0524 0.0419

Mercury -93266-01-15 16:03 J -32343968.97 -32343968.83 -32343968.69 0.0521 0.0043

Venus -93266-02-14 23:15 J -32343938.71 -32343938.53 -32343938.34 0.0519 0.0197

Mercury -93266-04-15 03:35 J -32343879.37 -32343879.35 -32343879.32 0.0517 0.0508

Mercury -93260-03-16 01:39 J -32341717.55 -32341717.43 -32341717.32 0.0504 0.0370

Mercury -93260-06-14 01:25 J -32341627.60 -32341627.44 -32341627.29 0.0508 0.0149

Venus -93260-08-06 11:01 J -32341574.11 -32341574.04 -32341573.95 0.0510 0.0472

Earth -93258-09-26 19:11 J -32340792.92 -32340792.70 -32340792.48 0.0540 0.0173

Moon -93258-09-26 19:25 J -32340792.91 -32340792.69 -32340792.46 0.0540 0.0191 \*  
 Venus -93255-10-20 20:08 J -32339672.83 -32339672.66 -32339672.49 0.0523 0.0269  
 Mercury -93255-11-03 18:27 J -32339658.87 -32339658.73 -32339658.59 0.0522 0.0079  
 Mercury -93254-02-01 05:59 J -32339569.34 -32339569.25 -32339569.16 0.0518 0.0388  
 Mars -93251-08-23 18:42 J -32338269.99 -32338269.72 -32338269.45 0.0484 0.0142  
 Mercury -93248-01-02 00:56 J -32337407.48 -32337407.46 -32337407.44 0.0503 0.0499  
 Mercury -93248-04-02 01:11 J -32337317.62 -32337317.45 -32337317.29 0.0507 0.0021  
 Venus -93248-04-11 05:30 J -32337308.47 -32337308.27 -32337308.06 0.0507 0.0024  
 Moon -93246-10-01 20:51 J -32336404.82 -32336404.63 -32336404.44 0.0542 0.0273  
 Earth -93246-10-01 23:01 J -32336404.74 -32336404.54 -32336404.33 0.0542 0.0245 \*  
 Mercury -93243-08-22 21:35 J -32335348.72 -32335348.60 -32335348.47 0.0523 0.0191  
 Mercury -93243-11-20 09:06 J -32335259.24 -32335259.12 -32335259.00 0.0519 0.0276  
 Earth -93240-03-16 08:08 J -32334412.31 -32334412.16 -32334412.00 0.0488 0.0361  
 Moon -93240-03-16 09:35 J -32334412.25 -32334412.10 -32334411.94 0.0488 0.0377 \*  
 Venus -93237-12-14 23:59 J -32333042.61 -32333042.50 -32333042.38 0.0505 0.0423  
 Mercury -93236-01-19 00:42 J -32333007.63 -32333007.47 -32333007.31 0.0506 0.0110  
 Mercury -93236-04-18 23:44 J -32332917.61 -32332917.51 -32332917.41 0.0510 0.0402  
 Mars -93233-05-29 14:51 J -32331781.14 -32331780.88 -32331780.63 0.0545 0.0140  
 Mercury -93231-06-11 01:11 J -32331038.56 -32331038.45 -32331038.34 0.0524 0.0299  
 Mercury -93231-09-08 12:13 J -32330949.12 -32330948.99 -32330948.86 0.0520 0.0165  
 Venus -93231-10-23 13:11 J -32330904.03 -32330903.95 -32330903.87 0.0518 0.0468  
 Moon -93228-03-20 14:08 J -32330025.14 -32330024.91 -32330024.68 0.0487 0.0035  
 Earth -93228-03-20 17:01 J -32330025.02 -32330024.79 -32330024.55 0.0487 0.0056 \*  
 Mercury -93225-11-07 00:42 J -32328697.62 -32328697.47 -32328697.32 0.0505 0.0235  
 Mercury -93224-02-05 00:13 J -32328607.63 -32328607.49 -32328607.36 0.0509 0.0282  
 Mercury -93219-03-30 04:18 J -32326728.41 -32326728.32 -32326728.24 0.0525 0.0412  
 Mercury -93219-06-27 14:51 J -32326639.01 -32326638.88 -32326638.74 0.0521 0.0052  
 Venus -93219-06-28 11:30 J -32326638.22 -32326638.02 -32326637.82 0.0521 0.0015  
 Mercury -93219-09-25 02:37 J -32326549.39 -32326549.39 -32326549.38 0.0517 0.0516  
 Earth -93216-03-24 23:44 J -32325637.72 -32325637.51 -32325637.31 0.0486 0.0245

Moon -93216-03-25 03:35 J -32325637.55 -32325637.35 -32325637.15 0.0486 0.0271 \*  
 Mercury -93213-08-26 00:42 J -32324387.59 -32324387.47 -32324387.36 0.0505 0.0360  
 Mercury -93213-11-24 00:27 J -32324297.63 -32324297.48 -32324297.32 0.0508 0.0159  
 Venus -93213-12-17 22:03 J -32324273.75 -32324273.58 -32324273.41 0.0509 0.0293  
 Mercury -93207-01-16 07:11 J -32322418.20 -32322418.20 -32322418.20 0.0526 0.0525  
 Venus -93207-03-03 08:51 J -32322372.23 -32322372.13 -32322372.03 0.0524 0.0450  
 Mercury -93207-04-15 17:44 J -32322328.90 -32322328.76 -32322328.62 0.0522 0.0068  
 Mercury -93207-07-14 05:15 J -32322239.37 -32322239.28 -32322239.19 0.0518 0.0399  
 Mercury -93201-06-13 23:44 J -32320077.54 -32320077.51 -32320077.47 0.0503 0.0491  
 Venus -93201-08-22 15:49 J -32320008.03 -32320007.84 -32320007.64 0.0506 0.0158  
 Mercury -93201-09-12 00:13 J -32319987.66 -32319987.49 -32319987.33 0.0507 0.0032  
 Mercury -93195-02-01 20:08 J -32318018.79 -32318018.66 -32318018.53 0.0523 0.0189  
 Mercury -93195-05-02 07:25 J -32317929.30 -32317929.19 -32317929.07 0.0519 0.0277  
 Mercury -93189-06-30 23:44 J -32315677.67 -32315677.51 -32315677.34 0.0506 0.0100  
 Mercury -93189-09-28 22:47 J -32315587.64 -32315587.55 -32315587.46 0.0509 0.0412  
 Mercury -93184-11-20 23:30 J -32313708.63 -32313708.52 -32313708.41 0.0524 0.0301  
 Mercury -93183-02-18 10:32 J -32313619.19 -32313619.06 -32313618.93 0.0520 0.0164  
 Venus -93183-03-05 23:01 J -32313603.70 -32313603.54 -32313603.36 0.0520 0.0275  
 Mercury -93177-04-18 23:01 J -32311367.68 -32311367.54 -32311367.39 0.0505 0.0232  
 Mercury -93177-07-17 22:32 J -32311277.69 -32311277.56 -32311277.42 0.0509 0.0284  
 Moon -93175-09-25 22:47 J -32310477.75 -32310477.55 -32310477.35 0.0540 0.0240  
 Earth -93175-09-26 00:27 J -32310477.69 -32310477.48 -32310477.27 0.0540 0.0225 \*  
 Mercury -93172-09-09 02:51 J -32309398.46 -32309398.38 -32309398.29 0.0525 0.0408  
 Venus -93172-11-08 22:32 J -32309337.74 -32309337.56 -32309337.37 0.0522 0.0178  
 Mercury -93172-12-07 13:54 J -32309309.06 -32309308.92 -32309308.79 0.0521 0.0056  
 Mercury -93165-02-05 23:01 J -32307057.66 -32307057.54 -32307057.42 0.0504 0.0357  
 Venus -93165-04-30 06:42 J -32306973.42 -32306973.22 -32306973.01 0.0508 0.0104  
 Mercury -93165-05-05 22:47 J -32306967.70 -32306967.55 -32306967.39 0.0508 0.0162  
 Earth -93163-10-01 07:54 J -32306089.38 -32306089.17 -32306088.96 0.0542 0.0206  
 Moon -93163-10-01 11:15 J -32306089.24 -32306089.03 -32306088.82 0.0542 0.0239 \*

Mercury -93160-06-28 06:13 J -32305088.26 -32305088.24 -32305088.22 0.0526 0.0518

Mercury -93160-09-25 16:47 J -32304998.94 -32304998.80 -32304998.66 0.0522 0.0061

Mercury -93160-12-24 04:18 J -32304909.41 -32304909.32 -32304909.24 0.0518 0.0406

Moon -93157-03-15 14:23 J -32304097.01 -32304096.90 -32304096.76 0.0489 0.0406

Earth -93157-03-15 17:30 J -32304096.90 -32304096.77 -32304096.63 0.0489 0.0394 \*

Mercury -93154-11-24 22:47 J -32302747.59 -32302747.55 -32302747.50 0.0504 0.0482

Venus -93153-01-04 02:23 J -32302707.55 -32302707.40 -32302707.24 0.0505 0.0336

Mercury -93153-02-22 23:01 J -32302657.70 -32302657.54 -32302657.37 0.0507 0.0039

Mercury -93148-07-14 19:39 J -32300688.81 -32300688.68 -32300688.55 0.0523 0.0176

Mercury -93148-10-12 06:56 J -32300599.33 -32300599.21 -32300599.10 0.0519 0.0289

Earth -93145-03-20 02:08 J -32299709.64 -32299709.41 -32299709.18 0.0488 0.0089

Moon -93145-03-20 06:13 J -32299709.48 -32299709.24 -32299709.01 0.0488 0.0061 \*

Mercury -93142-12-11 22:47 J -32298347.71 -32298347.55 -32298347.39 0.0506 0.0090

Mercury -93141-03-10 21:35 J -32298257.68 -32298257.60 -32298257.50 0.0510 0.0421

Mercury -93136-05-02 21:49 J -32296378.70 -32296378.59 -32296378.47 0.0524 0.0300

Venus -93136-07-17 09:35 J -32296303.30 -32296303.10 -32296302.90 0.0521 0.0081

Mercury -93136-07-31 09:06 J -32296289.26 -32296289.12 -32296288.99 0.0520 0.0166

Moon -93133-03-24 06:56 J -32295322.41 -32295322.21 -32295322.00 0.0487 0.0241

Earth -93133-03-24 11:01 J -32295322.25 -32295322.04 -32295321.83 0.0487 0.0218 \*

Mercury -93130-09-29 22:18 J -32294037.72 -32294037.57 -32294037.42 0.0505 0.0219

Mercury -93130-12-28 21:35 J -32293947.73 -32293947.60 -32293947.46 0.0508 0.0295

Venus -93129-01-06 22:03 J -32293938.72 -32293938.58 -32293938.43 0.0509 0.0369

Mercury -93124-02-19 01:11 J -32292068.53 -32292068.45 -32292068.37 0.0525 0.0411

Venus -93124-03-22 07:39 J -32292037.31 -32292037.18 -32292037.04 0.0524 0.0380

Mercury -93124-05-19 11:59 J -32291979.14 -32291979.00 -32291978.86 0.0522 0.0052

Mercury -93118-07-18 21:20 J -32289727.72 -32289727.61 -32289727.49 0.0504 0.0353

Venus -93118-09-11 15:35 J -32289673.05 -32289672.85 -32289672.64 0.0506 0.0085

Mercury -93118-10-16 21:20 J -32289637.77 -32289637.61 -32289637.46 0.0508 0.0164

Mercury -93113-12-08 04:47 J -32287758.32 -32287758.30 -32287758.28 0.0526 0.0517

Mercury -93112-03-07 15:20 J -32287669.00 -32287668.86 -32287668.72 0.0522 0.0058



Mercury -93112-06-05 02:51 J -32287579.46 -32287579.38 -32287579.29 0.0518 0.0410  
 Mercury -93106-05-06 21:06 J -32285417.66 -32285417.62 -32285417.57 0.0503 0.0480  
 Mercury -93106-08-04 21:20 J -32285327.77 -32285327.61 -32285327.44 0.0507 0.0042  
 Mercury -93101-12-24 18:27 J -32283358.86 -32283358.73 -32283358.60 0.0523 0.0170  
 Mercury -93100-03-24 05:44 J -32283269.38 -32283269.26 -32283269.15 0.0519 0.0295  
 Venus -93100-03-25 00:27 J -32283268.61 -32283268.48 -32283268.33 0.0519 0.0362  
 Mars -93097-11-17 01:11 J -32281935.72 -32281935.45 -32281935.17 0.0484 0.0092  
 Mercury -93094-05-23 21:35 J -32281017.77 -32281017.60 -32281017.44 0.0506 0.0084  
 Mercury -93094-08-21 20:37 J -32280927.73 -32280927.64 -32280927.56 0.0510 0.0428  
 Earth -93092-09-25 08:08 J -32280162.36 -32280162.16 -32280161.96 0.0540 0.0268  
 Moon -93092-09-25 11:01 J -32280162.23 -32280162.04 -32280161.83 0.0540 0.0273 \*  
 Mercury -93089-10-12 21:20 J -32279048.72 -32279048.61 -32279048.49 0.0524 0.0285  
 Venus -93089-11-27 22:47 J -32279002.74 -32279002.55 -32279002.35 0.0522 0.0097  
 Mercury -93088-01-10 08:23 J -32278959.28 -32278959.15 -32278959.02 0.0520 0.0178  
 Mercury -93082-03-11 21:20 J -32276707.76 -32276707.61 -32276707.46 0.0505 0.0211  
 Venus -93082-05-20 08:23 J -32276638.34 -32276638.15 -32276637.96 0.0508 0.0188  
 Mercury -93082-06-09 20:37 J -32276617.77 -32276617.64 -32276617.51 0.0509 0.0302  
 Moon -93080-09-30 04:03 J -32275774.54 -32275774.33 -32275774.11 0.0541 0.0166  
 Earth -93080-09-30 07:54 J -32275774.39 -32275774.17 -32275773.95 0.0541 0.0134 \*  
 Mars -93079-08-23 18:27 J -32275446.98 -32275446.73 -32275446.46 0.0544 0.0115  
 Mercury -93077-07-31 23:44 J -32274738.59 -32274738.51 -32274738.43 0.0525 0.0409  
 Mercury -93077-10-29 10:32 J -32274649.20 -32274649.06 -32274648.92 0.0522 0.0053  
 Earth -93074-03-16 03:06 J -32273781.47 -32273781.37 -32273781.24 0.0490 0.0425  
 Moon -93074-03-16 07:25 J -32273781.31 -32273781.19 -32273781.08 0.0490 0.0426 \*  
 Mercury -93071-12-28 20:37 J -32272397.76 -32272397.64 -32272397.51 0.0504 0.0341  
 Venus -93070-01-23 02:51 J -32272372.55 -32272372.38 -32272372.19 0.0505 0.0258  
 Mercury -93070-03-28 20:37 J -32272307.80 -32272307.64 -32272307.49 0.0507 0.0176  
 Mercury -93065-05-20 02:51 J -32270428.39 -32270428.38 -32270428.36 0.0526 0.0521  
 Mercury -93065-08-17 13:25 J -32270339.07 -32270338.94 -32270338.80 0.0523 0.0063  
 Mercury -93065-11-15 01:11 J -32270249.54 -32270249.45 -32270249.37 0.0519 0.0407

Moon -93062-03-20 07:39 J -32269394.41 -32269394.18 -32269393.95 0.0488 0.0090  
 Earth -93062-03-20 11:44 J -32269394.24 -32269394.01 -32269393.78 0.0488 0.0118 \*  
 Mercury -93059-10-16 19:25 J -32268087.73 -32268087.69 -32268087.63 0.0503 0.0476  
 Mercury -93058-01-14 19:54 J -32267997.84 -32267997.67 -32267997.51 0.0507 0.0044  
 Mercury -93053-06-05 17:01 J -32266028.92 -32266028.79 -32266028.66 0.0523 0.0171  
 Venus -93053-08-05 11:01 J -32265968.22 -32265968.04 -32265967.85 0.0521 0.0169  
 Mercury -93053-09-03 04:18 J -32265939.44 -32265939.32 -32265939.21 0.0520 0.0296  
 Earth -93050-03-24 20:23 J -32265006.87 -32265006.65 -32265006.43 0.0487 0.0187  
 Moon -93050-03-24 23:59 J -32265006.71 -32265006.50 -32265006.29 0.0487 0.0205 \*  
 Mercury -93047-11-02 19:39 J -32263687.84 -32263687.68 -32263687.51 0.0506 0.0084  
 Venus -93046-01-25 22:03 J -32263603.67 -32263603.58 -32263603.48 0.0509 0.0446  
 Mercury -93046-01-31 18:42 J -32263597.80 -32263597.72 -32263597.63 0.0510 0.0428  
 Mercury -93041-03-24 20:08 J -32261718.78 -32261718.66 -32261718.55 0.0524 0.0281  
 Venus -93041-04-10 09:20 J -32261702.27 -32261702.11 -32261701.94 0.0523 0.0291  
 Mercury -93041-06-22 07:11 J -32261629.33 -32261629.20 -32261629.07 0.0520 0.0182  
 Moon -93038-03-29 01:25 J -32260619.51 -32260619.44 -32260619.37 0.0486 0.0463  
 Earth -93038-03-29 03:35 J -32260619.36 -32260619.35 -32260619.33 0.0486 0.0485  
 Mercury -93035-08-21 19:39 J -32259377.83 -32259377.68 -32259377.52 0.0505 0.0208  
 Venus -93035-09-30 17:30 J -32259337.98 -32259337.77 -32259337.56 0.0507 0.0003  
 Mercury -93035-11-19 19:11 J -32259287.83 -32259287.70 -32259287.57 0.0509 0.0307  
 Mercury -93029-01-11 23:01 J -32257408.62 -32257408.54 -32257408.45 0.0525 0.0396  
 Mercury -93029-04-10 09:49 J -32257319.22 -32257319.09 -32257318.95 0.0521 0.0067  
 Venus -93023-06-05 13:11 J -32255072.05 -32255071.95 -32255071.84 0.0504 0.0436  
 Mercury -93023-06-09 19:25 J -32255067.81 -32255067.69 -32255067.56 0.0504 0.0334  
 Mercury -93023-09-07 19:11 J -32254977.85 -32254977.70 -32254977.54 0.0508 0.0183  
 Mercury -93018-10-31 01:25 J -32253098.46 -32253098.44 -32253098.42 0.0526 0.0520  
 Mercury -93017-01-28 11:59 J -32253009.14 -32253009.00 -32253008.86 0.0523 0.0061  
 Venus -93017-04-12 21:35 J -32252933.71 -32252933.60 -32252933.48 0.0519 0.0421  
 Mercury -93017-04-26 23:30 J -32252919.61 -32252919.52 -32252919.43 0.0519 0.0407  
 Mercury -93011-03-28 18:42 J -32250757.78 -32250757.72 -32250757.65 0.0503 0.0465

Mercury -93011-06-26 18:56 J -32250667.87 -32250667.71 -32250667.54 0.0506 0.0054

Moon -93009-09-24 02:23 J -32249847.57 -32249847.40 -32249847.22 0.0539 0.0347

Earth -93009-09-24 05:59 J -32249847.43 -32249847.25 -32249847.07 0.0539 0.0343 \*

Mercury -93006-11-16 14:51 J -32248699.01 -32248698.88 -32248698.75 0.0524 0.0176

Venus -93006-12-17 19:54 J -32248667.87 -32248667.67 -32248667.47 0.0522 0.0036

Mercury -93005-02-14 02:08 J -32248609.52 -32248609.41 -32248609.29 0.0520 0.0291

# 93RD MILLENNIUM BCE

This is a list of transits visible from Jupiter in the 93rd millennium BCE.

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-92999-04-14 17:59 J	-32246357.91	-32246357.75	-32246357.58	0.0506	0.0082		
Venus	-92999-06-08 06:42 J	-32246303.40	-32246303.22	-32246303.04	0.0508	0.0255		
Mercury	-92999-07-13 17:01 J	-32246267.87	-32246267.79	-32246267.70	0.0509	0.0428		
Earth	-92997-09-29 09:20 J	-32245459.33	-32245459.11	-32245458.88	0.0541	0.0073		
Moon	-92997-09-29 12:56 J	-32245459.18	-32245458.96	-32245458.74	0.0541	0.0106	*	
Venus	-92994-08-22 18:42 J	-32244401.79	-32244401.72	-32244401.66	0.0525	0.0496		
Mercury	-92994-09-04 18:27 J	-32244388.85	-32244388.73	-32244388.62	0.0525	0.0284		
Mercury	-92994-12-03 05:30 J	-32244299.40	-32244299.27	-32244299.14	0.0521	0.0181		
Moon	-92991-03-15 08:08 J	-32243466.23	-32243466.16	-32243466.07	0.0490	0.0457		
Earth	-92991-03-15 12:13 J	-32243466.07	-32243465.99	-32243465.90	0.0490	0.0455	*	
Mercury	-92987-01-31 17:44 J	-32242047.91	-32242047.76	-32242047.60	0.0505	0.0208		
Venus	-92987-02-11 01:54 J	-32242037.61	-32242037.42	-32242037.23	0.0505	0.0188		

Mercury -92987-05-01 17:15 J -32241957.91 -32241957.78 -32241957.65 0.0509 0.0306

Moon -92985-10-04 13:54 J -32241071.02 -32241070.92 -32241070.82 0.0542 0.0490

Earth -92985-10-04 16:03 J -32241070.92 -32241070.83 -32241070.74 0.0542 0.0497 \*

Mercury -92982-06-23 21:35 J -32240078.69 -32240078.60 -32240078.51 0.0525 0.0394

Mercury -92982-09-21 08:23 J -32239989.29 -32239989.15 -32239989.01 0.0521 0.0068

Earth -92979-03-19 19:11 J -32239078.92 -32239078.70 -32239078.47 0.0488 0.0156

Moon -92979-03-19 22:47 J -32239078.77 -32239078.55 -32239078.33 0.0488 0.0125 \*

Mars -92978-05-08 18:42 J -32238663.93 -32238663.72 -32238663.51 0.0484 0.0321

Mercury -92976-11-19 17:30 J -32237737.89 -32237737.77 -32237737.64 0.0504 0.0334

Mercury -92975-02-17 17:30 J -32237647.92 -32237647.77 -32237647.62 0.0508 0.0183

Mercury -92970-04-12 00:42 J -32235768.50 -32235768.47 -32235768.44 0.0526 0.0507

Mercury -92970-07-10 11:15 J -32235679.17 -32235679.03 -32235678.89 0.0522 0.0049

Venus -92970-08-25 10:32 J -32235633.24 -32235633.06 -32235632.88 0.0520 0.0244

Mercury -92970-10-07 22:47 J -32235589.63 -32235589.55 -32235589.47 0.0518 0.0418

Moon -92967-03-24 01:25 J -32234691.67 -32234691.44 -32234691.21 0.0487 0.0158

Earth -92967-03-24 03:35 J -32234691.57 -32234691.35 -32234691.12 0.0487 0.0148 \*

Mercury -92964-09-07 17:15 J -32233427.84 -32233427.78 -32233427.71 0.0503 0.0460

Mercury -92964-12-06 17:44 J -32233337.93 -32233337.76 -32233337.60 0.0507 0.0060

Mars -92960-02-10 15:06 J -32232175.99 -32232175.87 -32232175.74 0.0544 0.0479

Mercury -92958-04-28 13:25 J -32231369.07 -32231368.94 -32231368.81 0.0523 0.0176

Venus -92958-04-30 05:30 J -32231367.44 -32231367.27 -32231367.09 0.0523 0.0237

Mercury -92958-07-27 00:27 J -32231279.59 -32231279.48 -32231279.36 0.0520 0.0291

Moon -92955-03-28 11:15 J -32230304.13 -32230304.03 -32230303.92 0.0487 0.0425

Earth -92955-03-28 10:47 J -32230304.12 -32230304.05 -32230303.95 0.0487 0.0450 \*

Mercury -92952-09-24 17:15 J -32229027.95 -32229027.78 -32229027.62 0.0505 0.0071

Venus -92952-10-19 17:30 J -32229002.97 -32229002.77 -32229002.56 0.0506 0.0077

Mercury -92952-12-23 16:03 J -32228937.90 -32228937.83 -32228937.74 0.0509 0.0439

Mercury -92946-02-14 16:18 J -32227058.93 -32227058.82 -32227058.71 0.0525 0.0291

Mercury -92946-05-15 03:20 J -32226969.49 -32226969.36 -32226969.23 0.0521 0.0174

Mars -92942-02-11 04:32 J -32225601.52 -32225601.31 -32225601.10 0.0484 0.0320

Venus -92940-06-24 10:47 J -32224737.19 -32224737.05 -32224736.91 0.0504 0.0374

Mercury -92940-07-13 16:03 J -32224717.98 -32224717.83 -32224717.68 0.0505 0.0208

Mercury -92940-10-11 15:20 J -32224627.99 -32224627.86 -32224627.73 0.0508 0.0305

Mercury -92935-12-03 19:39 J -32222748.76 -32222748.68 -32222748.59 0.0526 0.0399

Mercury -92934-03-03 06:27 J -32222659.36 -32222659.23 -32222659.09 0.0522 0.0065

Venus -92934-05-02 21:35 J -32222598.64 -32222598.60 -32222598.54 0.0519 0.0501

Mercury -92928-05-01 15:35 J -32220407.97 -32220407.85 -32220407.73 0.0504 0.0336

Mercury -92928-07-30 15:20 J -32220318.01 -32220317.86 -32220317.70 0.0507 0.0181

Earth -92926-09-24 08:37 J -32219532.29 -32219532.14 -32219531.99 0.0539 0.0400

Moon -92926-09-24 12:13 J -32219532.14 -32219531.99 -32219531.83 0.0539 0.0391 \*

Mars -92925-11-17 03:06 J -32219112.55 -32219112.37 -32219112.18 0.0544 0.0387

Mercury -92923-09-21 23:01 J -32218438.57 -32218438.54 -32218438.50 0.0526 0.0508

Mercury -92923-12-20 09:35 J -32218349.23 -32218349.10 -32218348.96 0.0522 0.0051

Venus -92922-01-05 20:37 J -32218332.84 -32218332.64 -32218332.44 0.0522 0.0047

Mercury -92922-03-19 21:06 J -32218259.70 -32218259.62 -32218259.54 0.0518 0.0418

Mercury -92916-02-17 15:06 J -32216097.93 -32216097.87 -32216097.80 0.0503 0.0463

Mercury -92916-05-18 15:35 J -32216008.02 -32216007.85 -32216007.69 0.0507 0.0056

Venus -92916-06-27 06:56 J -32215968.36 -32215968.21 -32215968.05 0.0508 0.0334

Moon -92914-09-29 12:13 J -32215144.23 -32215143.99 -32215143.76 0.0540 0.0052

Earth -92914-09-29 14:51 J -32215144.11 -32215143.88 -32215143.65 0.0540 0.0022 \*

Venus -92911-09-10 17:59 J -32214066.87 -32214066.75 -32214066.63 0.0524 0.0421

Mercury -92911-10-08 12:27 J -32214039.11 -32214038.98 -32214038.84 0.0523 0.0166

Mercury -92910-01-05 23:44 J -32213949.62 -32213949.51 -32213949.39 0.0519 0.0301

Venus -92904-03-02 02:37 J -32211702.59 -32211702.39 -32211702.18 0.0505 0.0110

Mercury -92904-03-06 15:35 J -32211698.01 -32211697.85 -32211697.68 0.0506 0.0068

Mercury -92904-06-04 14:37 J -32211607.97 -32211607.89 -32211607.81 0.0509 0.0441

Earth -92902-10-04 15:49 J -32210755.98 -32210755.84 -32210755.70 0.0541 0.0427

Moon -92902-10-04 16:47 J -32210755.94 -32210755.80 -32210755.66 0.0541 0.0420 \*

Mercury -92899-07-27 14:37 J -32209729.00 -32209728.89 -32209728.78 0.0524 0.0291

Mercury -92899-10-25 01:39 J -32209639.56 -32209639.43 -32209639.30 0.0521 0.0172

Moon -92896-03-18 22:18 J -32208763.80 -32208763.57 -32208763.35 0.0489 0.0168  
 Earth -92896-03-19 00:27 J -32208763.69 -32208763.48 -32208763.26 0.0489 0.0197 \*  
 Mercury -92893-12-23 15:06 J -32207388.03 -32207387.87 -32207387.72 0.0505 0.0198  
 Mercury -92892-03-23 14:23 J -32207298.02 -32207297.90 -32207297.77 0.0508 0.0315  
 Mercury -92887-05-15 17:30 J -32205418.85 -32205418.77 -32205418.68 0.0526 0.0407  
 Mercury -92887-08-13 04:18 J -32205329.46 -32205329.32 -32205329.18 0.0522 0.0056  
 Venus -92887-09-13 05:59 J -32205298.41 -32205298.25 -32205298.09 0.0520 0.0294  
 Earth -92884-03-23 08:37 J -32204376.37 -32204376.14 -32204375.91 0.0488 0.0107  
 Moon -92884-03-23 08:51 J -32204376.35 -32204376.13 -32204375.90 0.0488 0.0109 \*  
 Mercury -92881-10-11 13:39 J -32203078.06 -32203077.93 -32203077.81 0.0504 0.0336  
 Mercury -92880-01-09 13:25 J -32202988.09 -32202987.94 -32202987.78 0.0507 0.0179  
 Mercury -92875-03-03 21:06 J -32201108.65 -32201108.62 -32201108.60 0.0527 0.0515  
 Venus -92875-05-19 04:47 J -32201032.48 -32201032.30 -32201032.10 0.0523 0.0162  
 Mercury -92875-06-01 07:39 J -32201019.32 -32201019.18 -32201019.04 0.0523 0.0055  
 Mercury -92875-08-29 19:11 J -32200929.79 -32200929.70 -32200929.62 0.0519 0.0412  
 Earth -92872-03-27 17:15 J -32199988.90 -32199988.78 -32199988.65 0.0487 0.0410  
 Moon -92872-03-27 18:42 J -32199988.86 -32199988.72 -32199988.56 0.0487 0.0381 \*  
 Mercury -92869-07-30 12:56 J -32198768.02 -32198767.96 -32198767.90 0.0503 0.0466  
 Mercury -92869-10-28 13:11 J -32198678.11 -32198677.95 -32198677.78 0.0506 0.0054  
 Venus -92869-11-07 14:37 J -32198668.09 -32198667.89 -32198667.69 0.0507 0.0137  
 Mercury -92863-03-20 10:47 J -32196709.18 -32196709.05 -32196708.92 0.0524 0.0167  
 Mercury -92863-06-17 22:03 J -32196619.70 -32196619.58 -32196619.47 0.0520 0.0298  
 Venus -92857-07-13 10:03 J -32194402.25 -32194402.08 -32194401.91 0.0504 0.0304  
 Mercury -92857-08-16 13:11 J -32194368.11 -32194367.95 -32194367.78 0.0506 0.0074  
 Mercury -92857-11-14 12:13 J -32194278.07 -32194277.99 -32194277.90 0.0509 0.0437  
 Mercury -92851-01-06 13:54 J -32192399.04 -32192398.92 -32192398.81 0.0524 0.0282  
 Mercury -92851-04-06 00:42 J -32192309.60 -32192309.47 -32192309.34 0.0520 0.0182  
 Mercury -92845-06-04 13:11 J -32190058.10 -32190057.95 -32190057.80 0.0505 0.0198  
 Mercury -92845-09-02 12:42 J -32189968.10 -32189967.97 -32189967.84 0.0508 0.0315  
 Moon -92843-09-23 06:13 J -32189217.36 -32189217.24 -32189217.11 0.0538 0.0448

Earth -92843-09-23 09:35 J -32189217.22 -32189217.10 -32189216.99 0.0538 0.0461 \*  
 Mercury -92840-10-25 15:49 J -32188088.92 -32188088.84 -32188088.75 0.0525 0.0408  
 Mercury -92839-01-23 02:37 J -32187999.53 -32187999.39 -32187999.25 0.0522 0.0054  
 Venus -92839-01-24 15:35 J -32187998.05 -32187997.85 -32187997.66 0.0522 0.0096  
 Mercury -92833-03-23 12:27 J -32185748.10 -32185747.98 -32185747.85 0.0504 0.0329  
 Mercury -92833-06-21 12:27 J -32185658.13 -32185657.98 -32185657.83 0.0507 0.0187  
 Venus -92833-07-16 06:13 J -32185633.37 -32185633.24 -32185633.12 0.0508 0.0403  
 Earth -92831-09-28 11:15 J -32184829.26 -32184829.03 -32184828.80 0.0539 0.0058  
 Moon -92831-09-28 12:42 J -32184829.19 -32184828.97 -32184828.74 0.0539 0.0027 \*  
 Mercury -92828-08-13 18:56 J -32183778.72 -32183778.71 -32183778.70 0.0527 0.0522  
 Venus -92828-09-29 12:27 J -32183732.11 -32183731.98 -32183731.84 0.0525 0.0374  
 Mercury -92828-11-11 05:15 J -32183689.41 -32183689.28 -32183689.14 0.0523 0.0067  
 Mercury -92827-02-08 16:47 J -32183599.88 -32183599.80 -32183599.71 0.0519 0.0403  
 Mars -92824-08-01 11:30 J -32182330.30 -32182330.02 -32182329.74 0.0484 0.0113  
 Mercury -92821-01-10 10:47 J -32181438.10 -32181438.05 -32181437.99 0.0503 0.0468  
 Venus -92821-03-20 22:32 J -32181367.77 -32181367.56 -32181367.35 0.0505 0.0055  
 Mercury -92821-04-09 11:15 J -32181348.20 -32181348.03 -32181347.87 0.0506 0.0050  
 Earth -92819-10-03 11:59 J -32180441.17 -32180441.00 -32180440.82 0.0541 0.0347  
 Moon -92819-10-03 12:13 J -32180441.17 -32180440.99 -32180440.80 0.0541 0.0335 \*  
 Mercury -92816-08-30 08:37 J -32179379.27 -32179379.14 -32179379.01 0.0524 0.0174  
 Mercury -92816-11-27 19:54 J -32179289.79 -32179289.67 -32179289.56 0.0520 0.0291  
 Earth -92813-03-18 06:42 J -32178448.42 -32178448.22 -32178448.01 0.0489 0.0236  
 Moon -92813-03-18 07:11 J -32178448.40 -32178448.20 -32178447.99 0.0489 0.0211 \*  
 Venus -92810-11-24 17:44 J -32177101.79 -32177101.76 -32177101.72 0.0503 0.0494  
 Mercury -92809-01-27 10:47 J -32177038.21 -32177038.05 -32177037.88 0.0505 0.0079  
 Mercury -92809-04-26 09:49 J -32176948.17 -32176948.09 -32176948.00 0.0509 0.0431  
 Mars -92806-05-07 12:13 J -32175842.22 -32175841.99 -32175841.76 0.0544 0.0247  
 Mercury -92804-06-18 11:59 J -32175069.12 -32175069.00 -32175068.89 0.0525 0.0285  
 Mercury -92804-09-15 22:47 J -32174979.68 -32174979.55 -32174979.41 0.0521 0.0179  
 Venus -92804-10-02 05:30 J -32174963.40 -32174963.27 -32174963.13 0.0520 0.0372

Earth -92801-03-22 13:54 J -32174061.15 -32174060.92 -32174060.69 0.0488 0.0064  
 Moon -92801-03-22 15:20 J -32174061.10 -32174060.86 -32174060.61 0.0488 0.0056 \*  
 Mercury -92798-11-15 10:32 J -32172728.21 -32172728.06 -32172727.91 0.0505 0.0206  
 Mercury -92797-02-13 10:03 J -32172638.20 -32172638.08 -32172637.95 0.0508 0.0308  
 Mercury -92792-04-06 15:06 J -32170758.96 -32170758.87 -32170758.79 0.0525 0.0399  
 Venus -92792-06-07 03:35 J -32170697.55 -32170697.35 -32170697.16 0.0523 0.0090  
 Mercury -92792-07-05 01:39 J -32170669.57 -32170669.43 -32170669.29 0.0522 0.0063  
 Moon -92789-03-26 18:56 J -32169673.87 -32169673.71 -32169673.54 0.0487 0.0333  
 Earth -92789-03-26 21:49 J -32169673.75 -32169673.59 -32169673.43 0.0487 0.0363 \*  
 Mercury -92786-09-03 10:18 J -32168418.19 -32168418.07 -32168417.94 0.0504 0.0331  
 Venus -92786-11-27 14:08 J -32168333.09 -32168332.91 -32168332.71 0.0507 0.0211  
 Mercury -92786-12-02 10:32 J -32168328.22 -32168328.06 -32168327.91 0.0507 0.0186  
 Mercury -92780-01-23 17:15 J -32166448.79 -32166448.78 -32166448.77 0.0526 0.0522  
 Mercury -92780-04-23 03:49 J -32166359.48 -32166359.34 -32166359.21 0.0523 0.0067  
 Mercury -92780-07-21 15:06 J -32166269.96 -32166269.87 -32166269.78 0.0519 0.0401  
 Mercury -92774-06-22 09:35 J -32164108.16 -32164108.10 -32164108.03 0.0503 0.0461  
 Venus -92774-08-02 08:51 J -32164067.31 -32164067.13 -32164066.94 0.0504 0.0235  
 Mercury -92774-09-20 10:03 J -32164018.24 -32164018.08 -32164017.91 0.0506 0.0058  
 Mercury -92768-02-09 06:27 J -32162049.36 -32162049.23 -32162049.10 0.0524 0.0183  
 Mercury -92768-05-09 17:30 J -32161959.88 -32161959.77 -32161959.65 0.0520 0.0283  
 Mercury -92762-07-09 08:37 J -32159708.30 -32159708.14 -32159707.97 0.0505 0.0082  
 Mercury -92762-10-07 07:54 J -32159618.26 -32159618.17 -32159618.09 0.0509 0.0428  
 Moon -92760-09-22 05:59 J -32158902.29 -32158902.25 -32158902.21 0.0538 0.0529  
 Mercury -92757-11-28 09:35 J -32157739.21 -32157739.10 -32157738.98 0.0525 0.0294  
 Venus -92756-02-12 13:39 J -32157663.12 -32157662.93 -32157662.74 0.0522 0.0165  
 Mercury -92756-02-25 20:37 J -32157649.77 -32157649.64 -32157649.51 0.0521 0.0170  
 Mercury -92750-04-27 08:08 J -32155398.31 -32155398.16 -32155398.01 0.0504 0.0211  
 Mercury -92750-07-26 07:39 J -32155308.31 -32155308.18 -32155308.05 0.0508 0.0302  
 Venus -92750-08-05 01:25 J -32155298.52 -32155298.44 -32155298.34 0.0508 0.0456  
 Moon -92748-09-27 08:08 J -32154514.40 -32154514.16 -32154513.93 0.0540 0.0103



Earth -92748-09-27 08:37 J -32154514.36 -32154514.14 -32154513.92 0.0540 0.0134 \*  
 Mercury -92745-09-16 12:56 J -32153429.04 -32153428.96 -32153428.87 0.0526 0.0404  
 Venus -92745-10-18 11:59 J -32153397.16 -32153397.00 -32153396.83 0.0524 0.0297  
 Mercury -92745-12-14 23:44 J -32153339.65 -32153339.51 -32153339.37 0.0522 0.0058  
 Mercury -92738-02-13 07:39 J -32151088.30 -32151088.18 -32151088.05 0.0504 0.0339  
 Venus -92738-04-09 20:37 J -32151032.85 -32151032.64 -32151032.43 0.0506 0.0011  
 Mercury -92738-05-14 07:39 J -32150998.33 -32150998.18 -32150998.02 0.0507 0.0178  
 Moon -92736-10-02 13:11 J -32150126.14 -32150125.95 -32150125.76 0.0541 0.0271  
 Earth -92736-10-02 14:51 J -32150126.07 -32150125.88 -32150125.69 0.0541 0.0287 \*  
 Mercury -92733-07-05 16:18 J -32149118.85 -32149118.82 -32149118.80 0.0527 0.0515  
 Mercury -92733-10-03 02:37 J -32149029.52 -32149029.39 -32149029.25 0.0523 0.0058  
 Mercury -92733-12-31 14:08 J -32148940.00 -32148939.91 -32148939.83 0.0519 0.0409  
 Earth -92730-03-18 10:47 J -32148133.24 -32148133.05 -32148132.85 0.0489 0.0283  
 Moon -92730-03-18 12:13 J -32148133.19 -32148132.99 -32148132.78 0.0489 0.0258 \*  
 Mercury -92727-12-02 07:25 J -32146778.25 -32146778.19 -32146778.12 0.0503 0.0464  
 Venus -92727-12-13 17:01 J -32146766.90 -32146766.79 -32146766.68 0.0503 0.0425  
 Mercury -92726-03-02 07:54 J -32146688.33 -32146688.17 -32146688.00 0.0506 0.0055  
 Mercury -92721-07-22 04:47 J -32144719.43 -32144719.30 -32144719.17 0.0524 0.0183  
 Mercury -92721-10-19 15:49 J -32144629.95 -32144629.84 -32144629.72 0.0520 0.0282  
 Venus -92721-10-21 00:42 J -32144628.58 -32144628.47 -32144628.35 0.0520 0.0421  
 Moon -92718-03-22 13:39 J -32143746.16 -32143745.93 -32143745.70 0.0489 0.0007  
 Earth -92718-03-22 16:32 J -32143746.05 -32143745.81 -32143745.58 0.0489 0.0017 \*  
 Mercury -92715-12-19 07:25 J -32142378.35 -32142378.19 -32142378.02 0.0505 0.0076  
 Mercury -92714-03-19 06:42 J -32142288.30 -32142288.22 -32142288.14 0.0509 0.0435  
 Mercury -92709-05-10 07:39 J -32140409.29 -32140409.18 -32140409.07 0.0525 0.0300  
 Venus -92709-06-25 21:49 J -32140362.79 -32140362.59 -32140362.39 0.0523 0.0044  
 Mercury -92709-08-07 18:27 J -32140319.86 -32140319.73 -32140319.60 0.0521 0.0163  
 Earth -92706-03-26 23:59 J -32139358.67 -32139358.50 -32139358.31 0.0488 0.0317  
 Moon -92706-03-27 03:49 J -32139358.53 -32139358.34 -32139358.14 0.0488 0.0285 \*  
 Mercury -92703-10-07 05:59 J -32138068.40 -32138068.25 -32138068.10 0.0504 0.0213

Venus -92703-12-16 09:20 J -32137998.29 -32137998.11 -32137997.93 0.0507 0.0262  
 Mercury -92702-01-05 05:30 J -32137978.40 -32137978.27 -32137978.13 0.0508 0.0300  
 Mercury -92697-02-27 10:47 J -32136099.13 -32136099.05 -32136098.96 0.0526 0.0412  
 Venus -92697-02-29 19:25 J -32136096.73 -32136096.69 -32136096.64 0.0526 0.0511  
 Mercury -92697-05-26 21:35 J -32136009.74 -32136009.60 -32136009.46 0.0522 0.0050  
 Mercury -92697-08-24 09:06 J -32135920.12 -32135920.12 -32135920.11 0.0518 0.0518  
 Mercury -92691-07-26 05:15 J -32133758.40 -32133758.28 -32133758.15 0.0503 0.0343  
 Venus -92691-08-21 04:03 J -32133732.52 -32133732.33 -32133732.13 0.0504 0.0183  
 Mercury -92691-10-24 05:15 J -32133668.43 -32133668.28 -32133668.12 0.0507 0.0173  
 Mercury -92686-12-16 14:08 J -32131788.92 -32131788.91 -32131788.89 0.0527 0.0521  
 Mercury -92685-03-15 00:42 J -32131699.61 -32131699.47 -32131699.33 0.0523 0.0062  
 Mercury -92685-06-12 12:13 J -32131610.08 -32131609.99 -32131609.91 0.0519 0.0405  
 Mercury -92679-05-14 04:47 J -32129448.36 -32129448.30 -32129448.25 0.0503 0.0473  
 Mercury -92679-08-12 05:15 J -32129358.45 -32129358.28 -32129358.12 0.0506 0.0046  
 Mercury -92673-01-02 03:49 J -32127389.47 -32127389.34 -32127389.21 0.0524 0.0175  
 Venus -92673-03-03 12:13 J -32127328.16 -32127327.99 -32127327.81 0.0521 0.0237  
 Mercury -92673-03-31 14:51 J -32127299.99 -32127299.88 -32127299.76 0.0520 0.0289  
 Mars -92670-10-25 23:59 J -32125996.78 -32125996.50 -32125996.22 0.0484 0.0076  
 Mercury -92667-05-31 05:15 J -32125048.44 -32125048.28 -32125048.11 0.0505 0.0078  
 Mercury -92667-08-29 04:32 J -32124958.39 -32124958.31 -32124958.22 0.0509 0.0432  
 Moon -92665-09-26 09:49 J -32124199.30 -32124199.09 -32124198.88 0.0539 0.0165  
 Earth -92665-09-26 10:47 J -32124199.27 -32124199.05 -32124198.84 0.0539 0.0191 \*  
 Mercury -92662-10-21 06:13 J -32123079.35 -32123079.24 -32123079.13 0.0525 0.0298  
 Venus -92662-11-07 07:54 J -32123062.35 -32123062.17 -32123061.99 0.0524 0.0242  
 Mercury -92661-01-18 17:01 J -32122989.92 -32122989.79 -32122989.66 0.0521 0.0164  
 Mercury -92655-03-19 04:47 J -32120738.45 -32120738.30 -32120738.14 0.0504 0.0207  
 Venus -92655-04-28 19:39 J -32120697.89 -32120697.68 -32120697.48 0.0506 0.0081  
 Mercury -92655-06-17 04:32 J -32120648.44 -32120648.31 -32120648.18 0.0508 0.0307  
 Earth -92653-10-01 12:56 J -32119811.17 -32119810.96 -32119810.75 0.0540 0.0214  
 Moon -92653-10-01 15:49 J -32119811.06 -32119810.84 -32119810.62 0.0540 0.0191 \*

Mars -92652-07-31 02:23 J -32119508.66 -32119508.40 -32119508.14 0.0544 0.0033  
 Mercury -92650-08-09 08:51 J -32118769.21 -32118769.13 -32118769.04 0.0526 0.0416  
 Mercury -92650-11-06 19:39 J -32118679.82 -32118679.68 -32118679.55 0.0522 0.0046  
 Mercury -92649-02-04 07:11 J -32118590.22 -32118590.20 -32118590.18 0.0518 0.0511  
 Moon -92647-03-17 10:47 J -32117818.23 -32117818.05 -32117817.87 0.0490 0.0310  
 Earth -92647-03-17 13:25 J -32117818.11 -32117817.94 -32117817.76 0.0490 0.0330 \*  
 Venus -92643-01-01 12:13 J -32116432.12 -32116431.99 -32116431.84 0.0503 0.0371  
 Mercury -92643-01-05 03:20 J -32116428.48 -32116428.36 -32116428.24 0.0503 0.0345  
 Mercury -92643-04-05 03:20 J -32116338.51 -32116338.36 -32116338.20 0.0507 0.0170  
 Mercury -92638-08-25 22:32 J -32114369.70 -32114369.56 -32114369.42 0.0523 0.0069  
 Venus -92638-11-09 22:18 J -32114293.63 -32114293.57 -32114293.50 0.0520 0.0490  
 Mercury -92638-11-23 10:03 J -32114280.17 -32114280.08 -32114279.99 0.0519 0.0398  
 Earth -92635-03-21 22:47 J -32113430.78 -32113430.55 -32113430.31 0.0489 0.0026  
 Moon -92635-03-22 02:37 J -32113430.63 -32113430.39 -32113430.15 0.0489 0.0042 \*  
 Mercury -92632-10-24 02:23 J -32112118.45 -32112118.40 -32112118.34 0.0502 0.0475  
 Mercury -92631-01-22 03:06 J -32112028.54 -32112028.37 -32112028.21 0.0506 0.0044  
 Mercury -92626-06-14 01:54 J -32110059.55 -32110059.42 -32110059.29 0.0524 0.0180  
 Venus -92626-07-15 21:20 J -32110027.81 -32110027.61 -32110027.42 0.0523 0.0035  
 Mercury -92626-09-11 12:56 J -32109970.08 -32109969.96 -32109969.84 0.0520 0.0285  
 Moon -92623-03-26 02:23 J -32109043.60 -32109043.40 -32109043.19 0.0487 0.0243  
 Earth -92623-03-26 06:13 J -32109043.43 -32109043.24 -32109043.04 0.0487 0.0274 \*  
 Mercury -92620-11-10 02:37 J -32107718.55 -32107718.39 -32107718.22 0.0505 0.0086  
 Venus -92619-01-04 07:11 J -32107663.35 -32107663.20 -32107663.04 0.0507 0.0328  
 Mercury -92619-02-08 01:54 J -32107628.51 -32107628.42 -32107628.33 0.0509 0.0424  
 Venus -92614-03-20 18:42 J -32105761.82 -32105761.72 -32105761.60 0.0525 0.0435  
 Mercury -92614-04-02 05:01 J -32105749.40 -32105749.29 -32105749.18 0.0525 0.0292  
 Mercury -92614-06-30 15:49 J -32105659.97 -32105659.84 -32105659.71 0.0521 0.0171  
 Mercury -92608-08-29 02:37 J -32103408.54 -32103408.39 -32103408.24 0.0504 0.0210  
 Venus -92608-09-09 03:06 J -32103397.57 -32103397.37 -32103397.16 0.0505 0.0113  
 Mercury -92608-11-27 02:23 J -32103318.53 -32103318.40 -32103318.27 0.0508 0.0304

Mercury -92602-01-19 07:25 J -32101439.27 -32101439.19 -32101439.10 0.0526 0.0413

Mercury -92602-04-18 18:13 J -32101349.88 -32101349.74 -32101349.60 0.0522 0.0048

Mercury -92602-07-17 05:44 J -32101260.28 -32101260.26 -32101260.25 0.0518 0.0513

Mercury -92596-06-17 02:08 J -32099098.53 -32099098.41 -32099098.29 0.0504 0.0338

Mercury -92596-09-15 02:08 J -32099008.56 -32099008.41 -32099008.25 0.0507 0.0179

Mercury -92590-02-04 20:51 J -32097039.77 -32097039.63 -32097039.49 0.0523 0.0071

Venus -92590-03-23 07:39 J -32096993.34 -32096993.18 -32096993.01 0.0521 0.0290

Mercury -92590-05-05 08:08 J -32096950.25 -32096950.16 -32096950.07 0.0519 0.0394

Mercury -92584-04-05 00:27 J -32094788.53 -32094788.48 -32094788.42 0.0502 0.0475

Mercury -92584-07-04 01:11 J -32094698.62 -32094698.45 -32094698.29 0.0506 0.0044

Earth -92582-09-26 04:03 J -32093884.53 -32093884.33 -32093884.13 0.0538 0.0281

Moon -92582-09-26 05:59 J -32093884.45 -32093884.25 -32093884.03 0.0538 0.0258 \*

Mercury -92579-11-23 23:44 J -32092729.64 -32092729.51 -32092729.38 0.0524 0.0186

Venus -92579-11-26 05:30 J -32092727.46 -32092727.27 -32092727.09 0.0524 0.0175

Mercury -92578-02-21 11:01 J -32092640.16 -32092640.04 -32092639.93 0.0521 0.0280

Mercury -92572-04-22 00:42 J -32090388.64 -32090388.47 -32090388.31 0.0505 0.0087

Venus -92572-05-17 15:20 J -32090363.06 -32090362.86 -32090362.66 0.0506 0.0136

Mercury -92572-07-20 23:44 J -32090298.59 -32090298.51 -32090298.41 0.0508 0.0422

Moon -92570-10-01 04:47 J -32089496.52 -32089496.30 -32089496.07 0.0540 0.0102

Earth -92570-10-01 08:23 J -32089496.37 -32089496.15 -32089495.92 0.0540 0.0130 \*

Mercury -92567-09-12 03:06 J -32088419.48 -32088419.37 -32088419.26 0.0525 0.0296

Mercury -92567-12-10 13:54 J -32088330.05 -32088329.92 -32088329.78 0.0521 0.0168

Earth -92564-03-16 20:51 J -32087502.78 -32087502.63 -32087502.47 0.0490 0.0367

Moon -92564-03-17 00:42 J -32087502.63 -32087502.47 -32087502.30 0.0490 0.0348 \*

Venus -92560-01-20 10:18 J -32086097.23 -32086097.07 -32086096.90 0.0503 0.0306

Mercury -92560-02-07 23:59 J -32086078.65 -32086078.50 -32086078.34 0.0504 0.0216

Mercury -92560-05-08 23:44 J -32085988.64 -32085988.51 -32085988.37 0.0508 0.0298

Moon -92558-10-06 18:27 J -32085107.76 -32085107.73 -32085107.69 0.0542 0.0533

Mercury -92555-07-01 06:27 J -32084109.31 -32084109.23 -32084109.14 0.0526 0.0406

Mercury -92555-09-28 17:01 J -32084019.93 -32084019.79 -32084019.65 0.0522 0.0055

Moon -92552-03-21 00:56 J -32083115.69 -32083115.46 -32083115.22 0.0489 0.0087  
 Earth -92552-03-21 05:01 J -32083115.52 -32083115.29 -32083115.05 0.0489 0.0066 \*  
 Mars -92551-04-15 03:35 J -32082725.54 -32082725.35 -32082725.16 0.0484 0.0365  
 Mercury -92549-11-26 23:59 J -32081768.62 -32081768.50 -32081768.38 0.0503 0.0340  
 Mercury -92548-02-25 00:13 J -32081678.65 -32081678.49 -32081678.34 0.0507 0.0176  
 Mercury -92543-04-19 09:06 J -32079799.12 -32079799.12 -32079799.10 0.0527 0.0524  
 Mercury -92543-07-17 19:39 J -32079709.82 -32079709.68 -32079709.55 0.0523 0.0068  
 Venus -92543-08-03 18:42 J -32079692.92 -32079692.72 -32079692.52 0.0522 0.0099  
 Mercury -92543-10-15 06:42 J -32079620.30 -32079620.22 -32079620.13 0.0519 0.0398  
 Earth -92540-03-25 10:32 J -32078728.26 -32078728.06 -32078727.85 0.0488 0.0229  
 Moon -92540-03-25 14:08 J -32078728.12 -32078727.91 -32078727.70 0.0488 0.0204 \*  
 Mercury -92537-09-14 23:30 J -32077458.58 -32077458.52 -32077458.46 0.0503 0.0468  
 Mercury -92537-12-13 23:59 J -32077368.66 -32077368.50 -32077368.33 0.0506 0.0051  
 Venus -92536-01-23 06:56 J -32077328.33 -32077328.21 -32077328.08 0.0508 0.0405  
 Venus -92531-04-08 15:20 J -32075427.00 -32075426.86 -32075426.72 0.0525 0.0375  
 Mercury -92531-05-05 22:18 J -32075399.70 -32075399.57 -32075399.44 0.0524 0.0184  
 Mercury -92531-08-03 09:20 J -32075310.23 -32075310.11 -32075309.99 0.0520 0.0280  
 Venus -92525-09-27 23:59 J -32073062.70 -32073062.50 -32073062.29 0.0504 0.0052  
 Mercury -92525-10-01 22:47 J -32073058.71 -32073058.55 -32073058.38 0.0505 0.0086  
 Mercury -92525-12-30 22:03 J -32072968.66 -32072968.58 -32072968.49 0.0508 0.0424  
 Mercury -92519-02-22 01:11 J -32071089.56 -32071089.45 -32071089.34 0.0526 0.0300  
 Mercury -92519-05-22 11:59 J -32071000.13 -32071000.00 -32070999.86 0.0522 0.0164  
 Mars -92515-01-18 17:30 J -32069663.00 -32069662.77 -32069662.53 0.0484 0.0285  
 Venus -92513-06-02 19:39 J -32068796.72 -32068796.68 -32068796.63 0.0502 0.0487  
 Mercury -92513-07-20 22:18 J -32068748.72 -32068748.57 -32068748.42 0.0504 0.0214  
 Mercury -92513-10-18 22:03 J -32068658.71 -32068658.58 -32068658.45 0.0507 0.0298  
 Mercury -92508-12-11 04:32 J -32066779.39 -32066779.31 -32066779.22 0.0526 0.0410  
 Mercury -92507-03-10 15:20 J -32066690.00 -32066689.86 -32066689.72 0.0523 0.0053  
 Venus -92507-04-11 07:25 J -32066658.32 -32066658.19 -32066658.04 0.0521 0.0369  
 Mercury -92501-05-08 21:35 J -32064438.72 -32064438.60 -32064438.47 0.0503 0.0344

Mercury -92501-08-06 21:49 J -32064348.74 -32064348.59 -32064348.43 0.0507 0.0171

Moon -92499-09-25 04:03 J -32063569.51 -32063569.33 -32063569.15 0.0538 0.0322

Earth -92499-09-25 07:11 J -32063569.37 -32063569.20 -32063569.01 0.0538 0.0338 \*

Mars -92498-10-24 23:30 J -32063174.76 -32063174.52 -32063174.27 0.0544 0.0201

Mercury -92496-09-29 08:08 J -32062469.18 -32062469.16 -32062469.14 0.0527 0.0518

Venus -92496-12-15 06:13 J -32062392.44 -32062392.24 -32062392.04 0.0524 0.0091

Mercury -92496-12-27 18:27 J -32062379.87 -32062379.73 -32062379.59 0.0523 0.0060

Mercury -92495-03-27 05:44 J -32062290.34 -32062290.26 -32062290.17 0.0519 0.0406

Mercury -92489-02-25 21:20 J -32060128.66 -32060128.61 -32060128.55 0.0502 0.0469

Mercury -92489-05-25 22:03 J -32060038.75 -32060038.58 -32060038.41 0.0506 0.0049

Venus -92489-06-05 15:20 J -32060028.05 -32060027.86 -32060027.67 0.0506 0.0212

Earth -92487-09-30 14:08 J -32059181.13 -32059180.91 -32059180.68 0.0540 0.0083

Moon -92487-09-30 17:59 J -32059180.98 -32059180.75 -32059180.52 0.0540 0.0052 \*

Mercury -92484-10-15 21:06 J -32058069.75 -32058069.62 -32058069.49 0.0524 0.0178

Mercury -92483-01-13 08:08 J -32057980.27 -32057980.16 -32057980.04 0.0520 0.0285

Moon -92481-03-15 22:18 J -32057187.70 -32057187.57 -32057187.43 0.0491 0.0394

Earth -92481-03-16 02:23 J -32057187.52 -32057187.40 -32057187.27 0.0491 0.0409 \*

Venus -92477-02-09 10:47 J -32055762.23 -32055762.05 -32055761.86 0.0504 0.0228

Mercury -92477-03-13 21:49 J -32055728.75 -32055728.59 -32055728.42 0.0505 0.0076

Mercury -92477-06-11 21:06 J -32055638.70 -32055638.62 -32055638.53 0.0509 0.0434

Moon -92475-10-05 14:37 J -32054793.00 -32054792.89 -32054792.77 0.0541 0.0471

Earth -92475-10-05 17:44 J -32054792.85 -32054792.76 -32054792.66 0.0541 0.0490 \*

Mercury -92472-08-03 23:59 J -32053759.61 -32053759.50 -32053759.39 0.0525 0.0295

Mercury -92472-11-01 10:47 J -32053670.18 -32053670.05 -32053669.92 0.0521 0.0167

Earth -92469-03-20 10:32 J -32052800.29 -32052800.06 -32052799.83 0.0489 0.0107

Moon -92469-03-20 14:08 J -32052800.13 -32052799.91 -32052799.68 0.0489 0.0129 \*

Mercury -92466-12-31 20:51 J -32051418.78 -32051418.63 -32051418.48 0.0504 0.0210

Mercury -92465-03-30 20:37 J -32051328.77 -32051328.64 -32051328.51 0.0507 0.0302

Mercury -92460-05-23 02:51 J -32049449.46 -32049449.38 -32049449.30 0.0527 0.0412

Mercury -92460-08-20 13:25 J -32049360.08 -32049359.94 -32049359.80 0.0523 0.0051

Venus -92460-08-22 16:47 J -32049357.98 -32049357.80 -32049357.61 0.0523 0.0169

Mercury -92460-11-18 01:11 J -32049270.46 -32049270.45 -32049270.45 0.0519 0.0517

Moon -92457-03-24 17:44 J -32048412.98 -32048412.76 -32048412.53 0.0488 0.0176

Earth -92457-03-24 20:08 J -32048412.87 -32048412.66 -32048412.44 0.0488 0.0197 \*

Mercury -92454-10-19 20:08 J -32047108.78 -32047108.66 -32047108.53 0.0503 0.0339

Mercury -92453-01-17 20:23 J -32047018.81 -32047018.65 -32047018.50 0.0506 0.0175

Venus -92453-02-12 04:32 J -32046993.39 -32046993.31 -32046993.24 0.0507 0.0468

Mercury -92448-03-11 06:13 J -32045139.25 -32045139.24 -32045139.22 0.0528 0.0521

Venus -92448-04-27 15:06 J -32045092.03 -32045091.87 -32045091.70 0.0526 0.0297

Mercury -92448-06-08 16:47 J -32045049.94 -32045049.80 -32045049.67 0.0524 0.0062

Mercury -92448-09-06 04:03 J -32044960.41 -32044960.33 -32044960.24 0.0520 0.0405

Mercury -92442-08-07 19:11 J -32042798.75 -32042798.70 -32042798.63 0.0502 0.0470

Venus -92442-10-17 23:15 J -32042727.74 -32042727.53 -32042727.32 0.0505 0.0020

Mercury -92442-11-05 19:54 J -32042708.83 -32042708.67 -32042708.50 0.0506 0.0048

Mercury -92436-03-27 20:08 J -32040739.79 -32040739.66 -32040739.53 0.0524 0.0172

Mercury -92436-06-25 07:11 J -32040650.32 -32040650.20 -32040650.09 0.0521 0.0293

Venus -92430-06-22 19:54 J -32038461.78 -32038461.67 -32038461.55 0.0502 0.0412

Mercury -92430-08-24 20:08 J -32038398.83 -32038398.66 -32038398.50 0.0505 0.0076

Mercury -92430-11-22 19:25 J -32038308.77 -32038308.69 -32038308.60 0.0509 0.0434

Mercury -92424-01-13 23:01 J -32036429.65 -32036429.54 -32036429.43 0.0525 0.0288

Mercury -92424-04-13 09:49 J -32036340.22 -32036340.09 -32036339.96 0.0521 0.0174

Venus -92424-04-30 07:11 J -32036323.30 -32036323.20 -32036323.09 0.0520 0.0446

Mercury -92418-06-12 19:54 J -32034088.83 -32034088.67 -32034088.52 0.0504 0.0201

Mercury -92418-09-10 19:39 J -32033998.81 -32033998.68 -32033998.55 0.0508 0.0312

Earth -92416-09-24 12:13 J -32033254.15 -32033253.99 -32033253.83 0.0538 0.0387

Moon -92416-09-24 16:03 J -32033253.99 -32033253.83 -32033253.67 0.0538 0.0378 \*

Mercury -92413-11-02 01:54 J -32032119.50 -32032119.42 -32032119.33 0.0526 0.0403

Venus -92412-01-03 04:32 J -32032057.50 -32032057.31 -32032057.11 0.0523 0.0022

Mercury -92412-01-30 12:27 J -32032030.12 -32032029.98 -32032029.84 0.0522 0.0057

Mercury -92406-03-31 18:56 J -32029778.84 -32029778.71 -32029778.59 0.0503 0.0333

Venus -92406-06-25 14:23 J -32029693.07 -32029692.90 -32029692.73 0.0506 0.0285  
 Mercury -92406-06-29 18:56 J -32029688.86 -32029688.71 -32029688.55 0.0506 0.0181  
 Moon -92404-09-29 07:11 J -32028866.43 -32028866.20 -32028865.96 0.0539 0.0032  
 Earth -92404-09-29 10:47 J -32028866.28 -32028866.05 -32028865.82 0.0539 0.0003 \*  
 Mercury -92401-08-21 04:32 J -32027809.32 -32027809.31 -32027809.29 0.0528 0.0522  
 Venus -92401-09-08 00:13 J -32027791.54 -32027791.49 -32027791.43 0.0527 0.0501  
 Mercury -92401-11-18 15:06 J -32027720.01 -32027719.87 -32027719.73 0.0524 0.0063  
 Mercury -92400-02-16 02:23 J -32027630.48 -32027630.40 -32027630.31 0.0520 0.0404  
 Earth -92398-03-16 12:42 J -32026872.07 -32026871.97 -32026871.86 0.0491 0.0439  
 Moon -92398-03-16 16:18 J -32026871.93 -32026871.82 -32026871.71 0.0491 0.0429 \*  
 Mars -92397-07-09 06:27 J -32026391.51 -32026391.23 -32026390.96 0.0484 0.0133  
 Mercury -92394-01-17 18:13 J -32025468.80 -32025468.74 -32025468.68 0.0502 0.0462  
 Venus -92394-02-28 09:35 J -32025427.30 -32025427.10 -32025426.90 0.0503 0.0158  
 Mercury -92394-04-17 18:42 J -32025378.88 -32025378.72 -32025378.55 0.0505 0.0054  
 Earth -92392-10-04 14:37 J -32024478.03 -32024477.89 -32024477.74 0.0541 0.0410  
 Moon -92392-10-04 16:47 J -32024477.95 -32024477.80 -32024477.65 0.0541 0.0398 \*  
 Mercury -92389-09-06 18:27 J -32023409.86 -32023409.73 -32023409.60 0.0525 0.0174  
 Mercury -92389-12-05 05:30 J -32023320.39 -32023320.27 -32023320.16 0.0521 0.0292  
 Moon -92386-03-20 18:42 J -32022484.95 -32022484.72 -32022484.49 0.0490 0.0160  
 Earth -92386-03-20 21:20 J -32022484.84 -32022484.61 -32022484.39 0.0490 0.0135 \*  
 Mercury -92382-02-03 18:13 J -32021068.91 -32021068.74 -32021068.58 0.0505 0.0075  
 Mercury -92382-05-04 17:30 J -32020978.85 -32020978.77 -32020978.68 0.0508 0.0433  
 Mars -92379-04-13 22:32 J -32019903.74 -32019903.56 -32019903.39 0.0544 0.0394  
 Mercury -92377-06-25 21:49 J -32019099.70 -32019099.59 -32019099.48 0.0526 0.0283  
 Venus -92377-09-10 18:56 J -32019022.89 -32019022.71 -32019022.54 0.0522 0.0259  
 Mercury -92377-09-23 08:37 J -32019010.27 -32019010.14 -32019010.01 0.0522 0.0181  
 Earth -92374-03-25 05:44 J -32018097.48 -32018097.26 -32018097.04 0.0488 0.0165  
 Moon -92374-03-25 06:13 J -32018097.45 -32018097.24 -32018097.02 0.0488 0.0155 \*  
 Mercury -92371-11-22 18:13 J -32016758.90 -32016758.74 -32016758.59 0.0504 0.0199  
 Mercury -92370-02-20 17:59 J -32016668.88 -32016668.75 -32016668.62 0.0508 0.0313



Mercury -92365-04-14 00:56 J -32014789.55 -32014789.46 -32014789.37 0.0526 0.0396

Venus -92365-05-16 16:03 J -32014757.01 -32014756.83 -32014756.65 0.0525 0.0211

Mercury -92365-07-12 11:30 J -32014700.16 -32014700.02 -32014699.88 0.0522 0.0065

Earth -92362-03-29 12:13 J -32013710.06 -32013709.99 -32013709.91 0.0487 0.0458

Moon -92362-03-29 13:11 J -32013709.98 -32013709.95 -32013709.92 0.0487 0.0483 \*

Mercury -92359-09-10 17:44 J -32012448.88 -32012448.76 -32012448.63 0.0503 0.0324

Venus -92359-11-06 01:11 J -32012392.65 -32012392.45 -32012392.25 0.0505 0.0107

Mercury -92359-12-09 17:59 J -32012358.90 -32012358.75 -32012358.59 0.0507 0.0192

Mercury -92353-02-01 03:49 J -32010479.36 -32010479.34 -32010479.30 0.0527 0.0510

Mercury -92353-04-30 14:23 J -32010390.04 -32010389.90 -32010389.77 0.0523 0.0054

Mercury -92353-07-29 01:25 J -32010300.52 -32010300.44 -32010300.35 0.0519 0.0414

Mercury -92347-06-29 16:47 J -32008138.86 -32008138.80 -32008138.72 0.0502 0.0455

Venus -92347-07-11 20:08 J -32008126.81 -32008126.66 -32008126.50 0.0502 0.0335

Mercury -92347-09-27 17:30 J -32008048.93 -32008048.77 -32008048.60 0.0505 0.0062

Mars -92343-01-17 19:39 J -32006840.83 -32006840.68 -32006840.51 0.0544 0.0433

Mercury -92341-02-17 16:47 J -32006079.93 -32006079.80 -32006079.67 0.0525 0.0173

Mercury -92341-05-17 03:49 J -32005990.45 -32005990.34 -32005990.22 0.0521 0.0293

Venus -92341-05-19 05:44 J -32005988.27 -32005988.26 -32005988.23 0.0521 0.0517

Mercury -92335-07-16 17:15 J -32003738.95 -32003738.78 -32003738.62 0.0504 0.0067

Mercury -92335-10-14 16:18 J -32003648.89 -32003648.82 -32003648.73 0.0508 0.0441

Moon -92333-09-23 06:13 J -32002939.36 -32002939.24 -32002939.12 0.0537 0.0455

Earth -92333-09-23 09:49 J -32002939.20 -32002939.09 -32002938.96 0.0537 0.0461 \*

Mercury -92330-12-06 20:08 J -32001769.77 -32001769.66 -32001769.55 0.0526 0.0284

Venus -92329-01-23 04:18 J -32001722.52 -32001722.32 -32001722.12 0.0524 0.0057

Mercury -92329-03-05 06:56 J -32001680.34 -32001680.21 -32001680.08 0.0522 0.0180

Mercury -92323-05-04 16:32 J -31999428.97 -31999428.81 -31999428.66 0.0504 0.0197

Venus -92323-07-14 14:08 J -31999358.05 -31999357.91 -31999357.76 0.0506 0.0360

Mercury -92323-08-02 16:18 J -31999338.95 -31999338.82 -31999338.69 0.0507 0.0314

Earth -92321-09-28 15:49 J -31998551.07 -31998550.84 -31998550.61 0.0539 0.0048

Moon -92321-09-28 18:27 J -31998550.96 -31998550.73 -31998550.51 0.0539 0.0082 \*

Mercury -92318-09-24 23:44 J -31997459.60 -31997459.51 -31997459.42 0.0527 0.0392

Venus -92318-09-28 02:51 J -31997456.51 -31997456.38 -31997456.26 0.0527 0.0408

Mercury -92318-12-23 10:18 J -31997370.21 -31997370.07 -31997369.93 0.0523 0.0070

Moon -92315-03-15 20:51 J -31996556.70 -31996556.63 -31996556.54 0.0491 0.0462

Earth -92315-03-15 23:30 J -31996556.59 -31996556.52 -31996556.44 0.0491 0.0465 \*

Mercury -92311-02-20 16:18 J -31995118.95 -31995118.82 -31995118.69 0.0503 0.0321

Venus -92311-03-19 10:32 J -31995092.27 -31995092.06 -31995091.86 0.0504 0.0079

Mercury -92311-05-21 16:32 J -31995028.96 -31995028.81 -31995028.66 0.0506 0.0193

Moon -92309-10-03 22:47 J -31994162.72 -31994162.55 -31994162.37 0.0541 0.0364

Earth -92309-10-03 23:15 J -31994162.69 -31994162.53 -31994162.36 0.0541 0.0372 \*

Mercury -92306-07-14 02:51 J -31993149.41 -31993149.38 -31993149.34 0.0527 0.0503

Mercury -92306-10-11 13:11 J -31993060.08 -31993059.95 -31993059.81 0.0523 0.0048

Mercury -92305-01-09 00:27 J -31992970.56 -31992970.48 -31992970.39 0.0520 0.0421

Earth -92303-03-20 05:59 J -31992169.47 -31992169.25 -31992169.02 0.0490 0.0169

Moon -92303-03-20 06:42 J -31992169.43 -31992169.22 -31992169.01 0.0490 0.0196 \*

Mercury -92300-12-09 15:49 J -31990808.91 -31990808.84 -31990808.76 0.0502 0.0446

Mercury -92299-03-09 16:32 J -31990718.97 -31990718.81 -31990718.64 0.0506 0.0071

Mercury -92294-07-30 16:18 J -31988749.95 -31988749.82 -31988749.69 0.0524 0.0161

Venus -92294-09-30 18:42 J -31988687.87 -31988687.72 -31988687.57 0.0522 0.0337

Mercury -92294-10-28 03:06 J -31988660.48 -31988660.37 -31988660.25 0.0521 0.0305

Earth -92291-03-24 14:37 J -31987782.11 -31987781.89 -31987781.66 0.0489 0.0132

Moon -92291-03-24 15:49 J -31987782.07 -31987781.84 -31987781.60 0.0489 0.0128 \*

Mercury -92288-12-26 16:03 J -31986408.99 -31986408.83 -31986408.66 0.0504 0.0058

Mercury -92287-03-26 15:20 J -31986318.93 -31986318.86 -31986318.78 0.0508 0.0449

Mercury -92282-05-18 18:42 J -31984439.84 -31984439.72 -31984439.61 0.0526 0.0283

Venus -92282-06-05 14:08 J -31984422.10 -31984421.91 -31984421.71 0.0525 0.0143

Mercury -92282-08-16 05:30 J -31984350.40 -31984350.27 -31984350.14 0.0522 0.0181

Moon -92279-03-28 21:20 J -31983394.68 -31983394.61 -31983394.53 0.0488 0.0462

Earth -92279-03-28 23:44 J -31983394.61 -31983394.51 -31983394.40 0.0488 0.0432 \*

Mercury -92276-10-14 15:35 J -31982099.00 -31982098.85 -31982098.69 0.0503 0.0185

Venus -92276-11-25 01:25 J -31982057.64 -31982057.44 -31982057.25 0.0505 0.0183  
 Mercury -92275-01-12 15:20 J -31982008.98 -31982008.86 -31982008.73 0.0507 0.0324  
 Mercury -92270-03-06 22:03 J -31980129.67 -31980129.58 -31980129.49 0.0527 0.0394  
 Mercury -92270-06-04 08:37 J -31980040.28 -31980040.14 -31980040.00 0.0523 0.0068  
 Venus -92264-07-30 20:08 J -31977791.84 -31977791.66 -31977791.48 0.0502 0.0261  
 Mercury -92264-08-02 14:37 J -31977789.02 -31977788.89 -31977788.75 0.0502 0.0317  
 Mercury -92264-10-31 14:51 J -31977699.03 -31977698.88 -31977698.73 0.0506 0.0196  
 Mercury -92259-12-24 01:39 J -31975819.47 -31975819.43 -31975819.39 0.0528 0.0500  
 Mercury -92258-03-23 11:59 J -31975730.14 -31975730.00 -31975729.86 0.0524 0.0042  
 Mercury -92258-06-20 23:15 J -31975640.60 -31975640.53 -31975640.45 0.0520 0.0426  
 Mercury -92252-05-21 14:23 J -31973478.98 -31973478.90 -31973478.82 0.0502 0.0442  
 Mercury -92252-08-19 15:06 J -31973389.04 -31973388.87 -31973388.71 0.0505 0.0074  
 Earth -92250-09-23 18:13 J -31972623.83 -31972623.74 -31972623.66 0.0537 0.0498  
 Moon -92250-09-23 21:06 J -31972623.70 -31972623.62 -31972623.54 0.0537 0.0499 \*  
 Mercury -92246-01-09 15:06 J -31971420.00 -31971419.87 -31971419.74 0.0525 0.0154  
 Venus -92246-02-11 06:13 J -31971387.43 -31971387.24 -31971387.05 0.0523 0.0148  
 Mercury -92246-04-09 02:08 J -31971330.52 -31971330.41 -31971330.30 0.0521 0.0311  
 Mars -92243-10-03 12:27 J -31970057.26 -31970056.98 -31970056.70 0.0484 0.0107  
 Mercury -92240-06-07 15:06 J -31969079.04 -31969078.87 -31969078.71 0.0505 0.0051  
 Venus -92240-08-02 16:47 J -31969022.89 -31969022.80 -31969022.70 0.0507 0.0450  
 Mercury -92240-09-05 14:23 J -31968988.97 -31968988.90 -31968988.83 0.0508 0.0458  
 Moon -92238-09-28 22:32 J -31968235.79 -31968235.56 -31968235.32 0.0539 0.0122  
 Earth -92238-09-28 23:59 J -31968235.73 -31968235.50 -31968235.27 0.0539 0.0089 \*  
 Venus -92235-10-17 03:20 J -31967121.52 -31967121.36 -31967121.20 0.0526 0.0325  
 Mercury -92235-10-28 18:13 J -31967109.86 -31967109.74 -31967109.63 0.0525 0.0268  
 Mercury -92234-01-26 05:01 J -31967020.42 -31967020.29 -31967020.16 0.0522 0.0195  
 Mercury -92228-03-26 14:37 J -31964769.05 -31964768.89 -31964768.73 0.0503 0.0177  
 Venus -92228-04-07 12:13 J -31964757.20 -31964756.99 -31964756.78 0.0504 0.0007  
 Mercury -92228-06-24 14:23 J -31964679.02 -31964678.90 -31964678.78 0.0507 0.0333  
 Moon -92226-10-03 22:18 J -31963847.75 -31963847.57 -31963847.38 0.0539 0.0305

Earth -92226-10-03 23:30 J -31963847.71 -31963847.52 -31963847.33 0.0539 0.0303 \*  
 Mars -92225-07-08 01:39 J -31963569.68 -31963569.43 -31963569.18 0.0544 0.0144  
 Mercury -92223-08-16 20:37 J -31962799.73 -31962799.64 -31962799.55 0.0527 0.0392  
 Mercury -92223-11-14 07:11 J -31962710.34 -31962710.20 -31962710.06 0.0523 0.0070  
 Earth -92220-03-19 16:47 J -31961854.02 -31961853.80 -31961853.59 0.0491 0.0196  
 Moon -92220-03-19 17:59 J -31961853.96 -31961853.75 -31961853.53 0.0491 0.0223 \*  
 Venus -92217-12-11 08:08 J -31960491.27 -31960491.16 -31960491.06 0.0501 0.0430  
 Mercury -92216-01-12 13:54 J -31960459.05 -31960458.92 -31960458.78 0.0502 0.0305  
 Mercury -92216-04-12 14:08 J -31960369.06 -31960368.91 -31960368.76 0.0506 0.0207  
 Mercury -92211-06-04 23:59 J -31958489.54 -31958489.50 -31958489.47 0.0528 0.0504  
 Mercury -92211-09-02 10:18 J -31958400.21 -31958400.07 -31958399.93 0.0524 0.0044  
 Venus -92211-10-19 17:44 J -31958352.88 -31958352.76 -31958352.64 0.0522 0.0409  
 Mercury -92211-11-30 21:35 J -31958310.68 -31958310.60 -31958310.52 0.0520 0.0424  
 Moon -92208-03-23 22:47 J -31957466.77 -31957466.55 -31957466.32 0.0489 0.0107  
 Earth -92208-03-24 01:25 J -31957466.67 -31957466.44 -31957466.21 0.0489 0.0106 \*  
 Mercury -92205-10-31 12:56 J -31956149.04 -31956148.96 -31956148.88 0.0501 0.0438  
 Mercury -92204-01-29 13:25 J -31956059.10 -31956058.94 -31956058.77 0.0505 0.0077  
 Mercury -92199-06-21 13:39 J -31954090.06 -31954089.93 -31954089.79 0.0525 0.0153  
 Venus -92199-06-24 16:32 J -31954087.01 -31954086.81 -31954086.61 0.0525 0.0051  
 Mercury -92199-09-19 00:56 J -31954000.57 -31954000.46 -31954000.35 0.0521 0.0314  
 Earth -92196-03-28 10:03 J -31953079.21 -31953079.08 -31953078.95 0.0488 0.0404  
 Moon -92196-03-28 13:25 J -31953079.04 -31953078.94 -31953078.83 0.0488 0.0435 \*  
 Mercury -92193-11-17 13:25 J -31951749.11 -31951748.94 -31951748.77 0.0504 0.0047  
 Venus -92193-12-14 01:54 J -31951722.59 -31951722.42 -31951722.24 0.0505 0.0263  
 Mercury -92192-02-15 12:42 J -31951659.03 -31951658.97 -31951658.90 0.0508 0.0460  
 Venus -92187-02-27 13:54 J -31949820.94 -31949820.92 -31949820.89 0.0527 0.0522  
 Mercury -92187-04-09 17:01 J -31949779.91 -31949779.79 -31949779.67 0.0526 0.0263  
 Mercury -92187-07-08 03:49 J -31949690.47 -31949690.34 -31949690.21 0.0522 0.0200  
 Venus -92181-08-18 22:18 J -31947456.77 -31947456.57 -31947456.37 0.0503 0.0174  
 Mercury -92181-09-05 13:11 J -31947439.10 -31947438.95 -31947438.79 0.0504 0.0171

Mercury -92181-12-04 12:56 J -31947349.07 -31947348.96 -31947348.83 0.0507 0.0341  
 Mercury -92175-01-26 20:08 J -31945469.75 -31945469.66 -31945469.57 0.0527 0.0377  
 Mercury -92175-04-26 06:42 J -31945380.36 -31945380.22 -31945380.08 0.0523 0.0084  
 Mercury -92169-06-24 12:56 J -31943129.09 -31943128.96 -31943128.82 0.0502 0.0297  
 Mercury -92169-09-22 12:56 J -31943039.10 -31943038.96 -31943038.80 0.0506 0.0216  
 Mercury -92164-11-14 22:32 J -31941159.60 -31941159.56 -31941159.52 0.0528 0.0501  
 Mercury -92163-02-12 08:51 J -31941070.27 -31941070.13 -31941069.99 0.0524 0.0042  
 Venus -92163-03-02 03:49 J -31941052.52 -31941052.34 -31941052.16 0.0523 0.0212  
 Mercury -92163-05-12 20:08 J -31940980.74 -31940980.66 -31940980.58 0.0520 0.0425  
 Mercury -92157-04-12 12:13 J -31938819.08 -31938818.99 -31938818.90 0.0501 0.0425  
 Mercury -92157-07-11 12:42 J -31938729.13 -31938728.97 -31938728.80 0.0505 0.0090  
 Earth -92155-09-27 22:32 J -31937920.78 -31937920.56 -31937920.34 0.0538 0.0158  
 Moon -92155-09-27 22:18 J -31937920.77 -31937920.57 -31937920.36 0.0538 0.0190 \*  
 Venus -92152-11-05 01:11 J -31936786.62 -31936786.45 -31936786.28 0.0526 0.0260  
 Mercury -92152-12-01 11:59 J -31936760.13 -31936760.00 -31936759.87 0.0525 0.0156  
 Mercury -92151-02-28 23:01 J -31936670.65 -31936670.54 -31936670.43 0.0521 0.0310  
 Venus -92145-04-26 11:30 J -31934422.22 -31934422.02 -31934421.81 0.0504 0.0078  
 Mercury -92145-04-29 11:59 J -31934419.17 -31934419.00 -31934418.84 0.0504 0.0045  
 Mercury -92145-07-28 11:15 J -31934329.10 -31934329.03 -31934328.97 0.0508 0.0462  
 Earth -92143-10-03 02:51 J -31933532.58 -31933532.38 -31933532.18 0.0540 0.0248  
 Moon -92143-10-03 05:44 J -31933532.47 -31933532.26 -31933532.06 0.0540 0.0261 \*  
 Mercury -92140-09-19 15:20 J -31932449.97 -31932449.86 -31932449.74 0.0526 0.0264  
 Mercury -92140-12-18 02:23 J -31932360.53 -31932360.40 -31932360.27 0.0522 0.0201  
 Moon -92137-03-19 00:27 J -31931538.68 -31931538.48 -31931538.29 0.0491 0.0251  
 Earth -92137-03-19 03:06 J -31931538.58 -31931538.37 -31931538.16 0.0491 0.0222 \*  
 Venus -92134-12-31 07:54 J -31930156.32 -31930156.17 -31930156.02 0.0501 0.0357  
 Mercury -92133-02-16 11:30 J -31930109.17 -31930109.02 -31930108.85 0.0503 0.0170  
 Mercury -92133-05-16 11:30 J -31930019.14 -31930019.02 -31930018.90 0.0507 0.0341  
 Mercury -92128-07-08 18:42 J -31928139.81 -31928139.72 -31928139.62 0.0527 0.0374  
 Mercury -92128-10-06 05:15 J -31928050.41 -31928050.28 -31928050.14 0.0523 0.0089

Venus -92128-11-07 19:25 J -31928017.74 -31928017.69 -31928017.63 0.0521 0.0498  
 Earth -92125-03-23 10:18 J -31927151.30 -31927151.07 -31927150.84 0.0489 0.0073  
 Moon -92125-03-23 13:54 J -31927151.16 -31927150.92 -31927150.68 0.0489 0.0081 \*  
 Mars -92124-03-24 01:54 J -31926785.64 -31926785.42 -31926785.19 0.0484 0.0309  
 Mercury -92122-12-05 11:15 J -31925799.16 -31925799.03 -31925798.89 0.0503 0.0294  
 Mercury -92121-03-04 11:30 J -31925709.16 -31925709.02 -31925708.87 0.0506 0.0220  
 Mercury -92116-04-26 22:03 J -31923829.63 -31923829.58 -31923829.53 0.0528 0.0487  
 Venus -92116-07-13 16:47 J -31923751.99 -31923751.80 -31923751.60 0.0524 0.0033  
 Mercury -92116-07-25 08:23 J -31923740.29 -31923740.15 -31923740.02 0.0524 0.0030  
 Mercury -92116-10-22 19:39 J -31923650.76 -31923650.68 -31923650.61 0.0520 0.0438  
 Moon -92113-03-27 14:51 J -31922764.01 -31922763.88 -31922763.74 0.0488 0.0399  
 Earth -92113-03-27 18:27 J -31922763.87 -31922763.73 -31922763.57 0.0488 0.0371 \*  
 Mercury -92110-09-23 11:01 J -31921489.13 -31921489.04 -31921488.95 0.0502 0.0419  
 Mercury -92110-12-22 11:30 J -31921399.18 -31921399.02 -31921398.85 0.0505 0.0097  
 Venus -92109-01-03 03:49 J -31921387.49 -31921387.34 -31921387.19 0.0505 0.0346  
 Venus -92104-03-18 10:32 J -31919486.14 -31919486.06 -31919485.96 0.0528 0.0464  
 Mercury -92104-05-13 10:32 J -31919430.20 -31919430.06 -31919429.93 0.0525 0.0155  
 Mercury -92104-08-10 21:20 J -31919340.71 -31919340.61 -31919340.49 0.0521 0.0312  
 Venus -92098-09-07 23:01 J -31917121.74 -31917121.54 -31917121.33 0.0503 0.0096  
 Mercury -92098-10-10 11:15 J -31917089.20 -31917089.03 -31917088.87 0.0504 0.0033  
 Mercury -92097-01-08 10:32 J -31916999.12 -31916999.06 -31916999.01 0.0508 0.0473  
 Mercury -92092-03-01 13:25 J -31915120.05 -31915119.94 -31915119.82 0.0526 0.0269  
 Mercury -92092-05-30 00:27 J -31915030.61 -31915030.48 -31915030.36 0.0523 0.0196  
 Mars -92089-12-27 20:51 J -31913722.82 -31913722.63 -31913722.43 0.0484 0.0355  
 Mercury -92086-07-29 10:03 J -31912779.24 -31912779.08 -31912778.92 0.0503 0.0166  
 Mercury -92086-10-27 09:49 J -31912689.21 -31912689.09 -31912688.97 0.0507 0.0343  
 Mercury -92081-12-18 17:01 J -31910809.88 -31910809.79 -31910809.69 0.0527 0.0377  
 Mercury -92080-03-18 03:35 J -31910720.48 -31910720.35 -31910720.21 0.0523 0.0087  
 Venus -92080-03-21 04:47 J -31910717.46 -31910717.30 -31910717.13 0.0523 0.0298  
 Mercury -92074-05-17 09:35 J -31908469.24 -31908469.10 -31908468.96 0.0502 0.0292

Mercury -92074-08-15 09:49 J -31908379.24 -31908379.09 -31908378.94 0.0506 0.0219  
 Earth -92072-09-27 03:35 J -31907605.57 -31907605.35 -31907605.14 0.0538 0.0206  
 Moon -92072-09-27 05:30 J -31907605.48 -31907605.27 -31907605.05 0.0538 0.0232 \*  
 Mars -92071-10-02 14:08 J -31907235.16 -31907234.91 -31907234.65 0.0544 0.0140  
 Mercury -92069-10-06 20:23 J -31906499.69 -31906499.65 -31906499.59 0.0528 0.0486  
 Venus -92069-11-24 02:51 J -31906451.56 -31906451.38 -31906451.19 0.0526 0.0169  
 Mercury -92068-01-04 06:56 J -31906410.35 -31906410.21 -31906410.08 0.0524 0.0028  
 Mercury -92068-04-03 18:13 J -31906320.81 -31906320.74 -31906320.67 0.0520 0.0440  
 Mercury -92062-03-05 09:06 J -31904159.21 -31904159.12 -31904159.02 0.0502 0.0418  
 Venus -92062-05-16 12:42 J -31904087.17 -31904086.97 -31904086.77 0.0505 0.0159  
 Mercury -92062-06-03 09:49 J -31904069.25 -31904069.09 -31904068.93 0.0505 0.0097  
 Moon -92060-10-02 05:59 J -31903217.45 -31903217.25 -31903217.04 0.0539 0.0222  
 Earth -92060-10-02 09:49 J -31903217.30 -31903217.09 -31903216.87 0.0539 0.0202 \*  
 Mercury -92057-10-23 09:49 J -31902100.22 -31902100.09 -31902099.96 0.0525 0.0141  
 Mercury -92056-01-20 20:51 J -31902010.74 -31902010.63 -31902010.52 0.0521 0.0323  
 Earth -92054-03-19 10:32 J -31901223.25 -31901223.06 -31901222.86 0.0491 0.0259  
 Moon -92054-03-19 14:23 J -31901223.09 -31901222.90 -31901222.71 0.0491 0.0283 \*  
 Venus -92050-01-19 09:06 J -31899821.29 -31899821.12 -31899820.94 0.0502 0.0276  
 Mercury -92050-03-22 09:49 J -31899759.26 -31899759.09 -31899758.92 0.0504 0.0027  
 Mercury -92050-06-20 09:06 J -31899669.17 -31899669.12 -31899669.06 0.0508 0.0478  
 Mercury -92045-08-11 11:59 J -31897790.11 -31897790.00 -31897789.88 0.0526 0.0268  
 Mercury -92045-11-08 22:47 J -31897700.68 -31897700.55 -31897700.42 0.0522 0.0195  
 Moon -92042-03-23 13:39 J -31896836.16 -31896835.93 -31896835.70 0.0490 0.0047  
 Earth -92042-03-23 17:30 J -31896836.00 -31896835.77 -31896835.53 0.0490 0.0037 \*  
 Mercury -92038-01-08 09:20 J -31895449.27 -31895449.11 -31895448.95 0.0503 0.0155  
 Mercury -92038-04-08 08:51 J -31895359.24 -31895359.13 -31895359.01 0.0507 0.0354  
 Mercury -92033-05-30 15:06 J -31893479.96 -31893479.87 -31893479.78 0.0527 0.0383  
 Venus -92033-08-01 13:11 J -31893417.15 -31893416.95 -31893416.76 0.0525 0.0088  
 Mercury -92033-08-28 01:39 J -31893390.57 -31893390.43 -31893390.29 0.0524 0.0079  
 Earth -92030-03-28 01:39 J -31892448.60 -31892448.43 -31892448.26 0.0489 0.0336

Moon	-92030-03-28 05:01 J	-31892448.45	-31892448.29	-31892448.14	0.0489	0.0364	*
Mercury	-92027-10-27 07:54 J	-31891139.31	-31891139.17	-31891139.03	0.0502	0.0291	
Venus	-92026-01-22 01:25 J	-31891052.55	-31891052.44	-31891052.32	0.0505	0.0411	
Mercury	-92026-01-25 08:08 J	-31891049.31	-31891049.16	-31891049.01	0.0506	0.0221	
Mercury	-92021-03-18 18:42 J	-31889169.77	-31889169.72	-31889169.68	0.0528	0.0490	
Venus	-92021-04-06 11:01 J	-31889151.17	-31889151.04	-31889150.90	0.0527	0.0382	
Mercury	-92021-06-16 05:01 J	-31889080.43	-31889080.29	-31889080.15	0.0525	0.0031	
Mercury	-92021-09-13 16:18 J	-31888990.89	-31888990.82	-31888990.74	0.0521	0.0436	
Mercury	-92015-08-15 07:11 J	-31886829.29	-31886829.20	-31886829.10	0.0501	0.0418	
Venus	-92015-09-26 21:06 J	-31886786.83	-31886786.62	-31886786.41	0.0503	0.0031	
Mercury	-92015-11-13 07:54 J	-31886739.33	-31886739.17	-31886739.01	0.0505	0.0095	
Mercury	-92009-04-04 08:08 J	-31884770.29	-31884770.16	-31884770.02	0.0525	0.0143	
Mercury	-92009-07-02 19:11 J	-31884680.80	-31884680.70	-31884680.59	0.0521	0.0323	
Venus	-92003-06-01 17:44 J	-31882520.84	-31882520.76	-31882520.68	0.0501	0.0462	
Mercury	-92003-09-01 07:39 J	-31882429.34	-31882429.18	-31882429.01	0.0504	0.0030	
Mercury	-92003-11-30 07:11 J	-31882339.25	-31882339.20	-31882339.15	0.0508	0.0477	

# 92ND MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 92nd millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-91997-01-22 11:15 J	-31880460.15	-31880460.03	-31880459.91	0.0526	0.0256		
Venus	-91997-04-09 04:18 J	-31880382.45	-31880382.32	-31880382.18	0.0523	0.0374		



Mercury -91997-04-20 22:03 J -31880370.71 -31880370.58 -31880370.45 0.0522 0.0207  
 Mercury -91991-06-20 07:39 J -31878119.34 -31878119.18 -31878119.02 0.0503 0.0152  
 Mercury -91991-09-18 07:25 J -31878029.30 -31878029.19 -31878029.07 0.0507 0.0356  
 Moon -91989-09-26 01:54 J -31877290.60 -31877290.42 -31877290.22 0.0536 0.0288  
 Earth -91989-09-26 05:15 J -31877290.48 -31877290.28 -31877290.08 0.0536 0.0262 \*  
 Mercury -91986-11-10 13:25 J -31876150.03 -31876149.94 -31876149.84 0.0527 0.0383  
 Venus -91986-12-13 22:47 J -31876116.75 -31876116.55 -31876116.36 0.0526 0.0116  
 Mercury -91985-02-07 23:59 J -31876060.63 -31876060.50 -31876060.36 0.0523 0.0079  
 Mercury -91979-04-08 06:56 J -31873809.35 -31873809.21 -31873809.07 0.0502 0.0281  
 Venus -91979-06-04 12:42 J -31873752.16 -31873751.97 -31873751.79 0.0504 0.0234  
 Mercury -91979-07-07 07:11 J -31873719.35 -31873719.20 -31873719.05 0.0506 0.0230  
 Earth -91977-10-01 07:11 J -31872902.42 -31872902.20 -31872901.97 0.0538 0.0131  
 Moon -91977-10-01 11:15 J -31872902.25 -31872902.03 -31872901.81 0.0538 0.0157 \*  
 Mercury -91974-08-29 16:32 J -31871839.85 -31871839.81 -31871839.77 0.0528 0.0497  
 Mercury -91974-11-27 02:51 J -31871750.52 -31871750.38 -31871750.24 0.0524 0.0038  
 Mercury -91973-02-24 14:08 J -31871660.99 -31871660.91 -31871660.83 0.0521 0.0428  
 Moon -91971-03-18 11:44 J -31870908.18 -31870908.01 -31870907.83 0.0492 0.0323  
 Earth -91971-03-18 15:35 J -31870908.03 -31870907.85 -31870907.66 0.0492 0.0298 \*  
 Mars -91970-06-17 23:59 J -31870451.78 -31870451.50 -31870451.21 0.0484 0.0080  
 Mercury -91967-01-25 05:15 J -31869499.37 -31869499.28 -31869499.18 0.0501 0.0418  
 Venus -91967-02-07 06:13 J -31869486.43 -31869486.24 -31869486.05 0.0502 0.0215  
 Mercury -91967-04-25 05:59 J -31869409.41 -31869409.25 -31869409.09 0.0505 0.0095  
 Earth -91965-10-06 08:51 J -31868514.17 -31868514.13 -31868514.08 0.0540 0.0526  
 Mercury -91962-09-15 06:13 J -31867440.37 -31867440.24 -31867440.11 0.0526 0.0148  
 Mercury -91962-12-13 17:15 J -31867350.89 -31867350.78 -31867350.67 0.0522 0.0317  
 Earth -91959-03-23 00:42 J -31866520.70 -31866520.47 -31866520.23 0.0490 0.0005  
 Moon -91959-03-23 04:03 J -31866520.56 -31866520.33 -31866520.10 0.0490 0.0022 \*  
 Mercury -91955-02-11 05:30 J -31865099.43 -31865099.27 -31865099.10 0.0504 0.0034  
 Mercury -91955-05-12 05:01 J -31865009.34 -31865009.29 -31865009.23 0.0507 0.0473  
 Mars -91952-03-22 11:30 J -31863964.15 -31863964.02 -31863963.88 0.0544 0.0461

Mercury -91950-07-04 09:35 J -31863130.22 -31863130.10 -31863129.98 0.0526 0.0259

Venus -91950-08-21 13:39 J -31863082.12 -31863081.93 -31863081.74 0.0524 0.0171

Mercury -91950-10-01 20:23 J -31863040.78 -31863040.65 -31863040.52 0.0522 0.0205

Moon -91947-03-27 05:44 J -31862133.44 -31862133.26 -31862133.07 0.0489 0.0318

Earth -91947-03-27 07:54 J -31862133.35 -31862133.17 -31862132.97 0.0489 0.0296 \*

Mercury -91944-11-30 05:15 J -31860789.44 -31860789.28 -31860789.12 0.0503 0.0157

Venus -91943-02-10 00:56 J -31860717.51 -31860717.46 -31860717.40 0.0506 0.0485

Mercury -91943-02-28 05:01 J -31860699.40 -31860699.29 -31860699.17 0.0507 0.0352

Mercury -91938-04-22 12:42 J -31858820.06 -31858819.97 -31858819.87 0.0527 0.0372

Venus -91938-04-26 10:32 J -31858816.22 -31858816.06 -31858815.90 0.0527 0.0305

Mercury -91938-07-20 23:15 J -31858730.67 -31858730.53 -31858730.40 0.0523 0.0089

Mercury -91932-09-18 05:01 J -31856479.42 -31856479.29 -31856479.15 0.0502 0.0281

Venus -91932-10-15 21:35 J -31856451.81 -31856451.60 -31856451.39 0.0503 0.0046

Mercury -91932-12-17 05:30 J -31856389.42 -31856389.27 -31856389.13 0.0506 0.0231

Mercury -91926-02-08 14:51 J -31854509.92 -31854509.88 -31854509.83 0.0528 0.0497

Mercury -91926-05-09 01:11 J -31854420.58 -31854420.45 -31854420.31 0.0524 0.0040

Mercury -91926-08-06 12:27 J -31854331.06 -31854330.98 -31854330.90 0.0520 0.0427

Venus -91920-06-20 17:15 J -31852185.91 -31852185.78 -31852185.65 0.0501 0.0390

Mercury -91920-07-07 04:18 J -31852169.41 -31852169.32 -31852169.22 0.0501 0.0410

Mercury -91920-10-05 05:01 J -31852079.45 -31852079.29 -31852079.13 0.0505 0.0104

Mars -91917-12-26 04:03 J -31850901.53 -31850901.33 -31850901.13 0.0543 0.0351

Mercury -91914-02-25 04:03 J -31850110.46 -31850110.33 -31850110.20 0.0525 0.0156

Venus -91914-04-28 23:01 J -31850047.65 -31850047.54 -31850047.42 0.0523 0.0422

Mercury -91914-05-25 15:06 J -31850020.98 -31850020.87 -31850020.76 0.0522 0.0308

Mercury -91908-07-24 03:35 J -31847769.52 -31847769.35 -31847769.18 0.0504 0.0033

Mercury -91908-10-22 03:06 J -31847679.43 -31847679.37 -31847679.31 0.0507 0.0471

Earth -91906-09-26 00:56 J -31846975.64 -31846975.46 -31846975.28 0.0536 0.0339

Moon -91906-09-26 04:47 J -31846975.46 -31846975.30 -31846975.12 0.0536 0.0360 \*

Mercury -91903-12-14 07:25 J -31845800.31 -31845800.19 -31845800.07 0.0527 0.0267

Venus -91902-01-01 21:20 J -31845781.81 -31845781.61 -31845781.41 0.0526 0.0043

Mercury -91902-03-13 18:13 J -31845710.87 -31845710.74 -31845710.61 0.0523 0.0197

Mercury -91896-05-12 03:06 J -31843459.53 -31843459.37 -31843459.21 0.0503 0.0161

Venus -91896-06-23 08:51 J -31843417.30 -31843417.13 -31843416.96 0.0504 0.0291

Mercury -91896-08-10 02:51 J -31843369.50 -31843369.38 -31843369.26 0.0506 0.0347

Moon -91894-10-01 02:23 J -31842587.63 -31842587.40 -31842587.17 0.0538 0.0086

Earth -91894-10-01 06:13 J -31842587.47 -31842587.24 -31842587.01 0.0538 0.0063 \*

Venus -91891-09-06 18:42 J -31841515.76 -31841515.72 -31841515.68 0.0528 0.0518

Mercury -91891-10-02 10:47 J -31841490.14 -31841490.05 -31841489.95 0.0527 0.0377

Mercury -91891-12-30 21:20 J -31841400.75 -31841400.61 -31841400.47 0.0524 0.0085

Earth -91888-03-17 21:49 J -31840592.76 -31840592.59 -31840592.42 0.0492 0.0338

Moon -91888-03-18 01:11 J -31840592.61 -31840592.45 -31840592.29 0.0492 0.0354 \*

Venus -91884-02-26 04:32 J -31839151.50 -31839151.31 -31839151.10 0.0502 0.0150

Mercury -91884-02-28 02:23 J -31839149.53 -31839149.40 -31839149.26 0.0502 0.0289

Mercury -91884-05-29 02:51 J -31839059.53 -31839059.38 -31839059.23 0.0506 0.0224

Earth -91882-10-06 12:13 J -31838199.09 -31838198.99 -31838198.87 0.0540 0.0471

Moon -91882-10-06 14:51 J -31838198.97 -31838198.88 -31838198.80 0.0540 0.0497 \*

Mercury -91879-07-21 13:54 J -31837179.96 -31837179.92 -31837179.87 0.0528 0.0489

Mercury -91879-10-19 00:13 J -31837090.62 -31837090.49 -31837090.35 0.0524 0.0033

Mercury -91878-01-16 11:30 J -31837001.09 -31837001.02 -31837000.94 0.0520 0.0435

Moon -91876-03-22 03:20 J -31836205.60 -31836205.36 -31836205.12 0.0491 0.0019

Earth -91876-03-22 05:30 J -31836205.50 -31836205.27 -31836205.03 0.0491 0.0043 \*

Mercury -91873-12-17 02:08 J -31834839.50 -31834839.41 -31834839.31 0.0501 0.0412

Mercury -91872-03-17 02:51 J -31834749.54 -31834749.38 -31834749.21 0.0505 0.0103

Mercury -91867-08-07 02:23 J -31832780.53 -31832780.40 -31832780.27 0.0525 0.0157

Venus -91867-09-09 08:37 J -31832747.32 -31832747.14 -31832746.96 0.0524 0.0221

Mercury -91867-11-04 13:25 J -31832691.05 -31832690.94 -31832690.83 0.0521 0.0307

Earth -91864-03-26 11:01 J -31831818.24 -31831818.04 -31831817.84 0.0490 0.0250

Moon -91864-03-26 11:44 J -31831818.20 -31831818.01 -31831817.82 0.0490 0.0270 \*

Mercury -91860-01-03 02:23 J -31830439.56 -31830439.40 -31830439.23 0.0504 0.0028

Mercury -91860-04-03 01:54 J -31830349.47 -31830349.42 -31830349.37 0.0507 0.0479

Venus -91855-05-15 04:47 J -31828481.47 -31828481.30 -31828481.12 0.0527 0.0259  
 Mercury -91855-05-26 05:15 J -31828470.39 -31828470.28 -31828470.16 0.0526 0.0274  
 Mercury -91855-08-23 16:03 J -31828380.96 -31828380.83 -31828380.70 0.0523 0.0189  
 Mercury -91849-10-22 00:56 J -31826129.62 -31826129.46 -31826129.30 0.0503 0.0163  
 Venus -91849-11-03 17:01 J -31826116.99 -31826116.79 -31826116.58 0.0503 0.0100  
 Mercury -91848-01-20 00:42 J -31826039.58 -31826039.47 -31826039.34 0.0506 0.0345  
 Mercury -91843-03-14 08:37 J -31824160.23 -31824160.14 -31824160.05 0.0528 0.0385  
 Mercury -91843-06-11 19:11 J -31824070.84 -31824070.70 -31824070.57 0.0524 0.0077  
 Venus -91837-07-09 12:56 J -31821851.11 -31821850.96 -31821850.81 0.0501 0.0337  
 Mercury -91837-08-10 00:13 J -31821819.63 -31821819.49 -31821819.35 0.0502 0.0292  
 Mercury -91837-11-08 00:27 J -31821729.63 -31821729.48 -31821729.33 0.0505 0.0219  
 Mercury -91832-12-31 11:59 J -31819850.04 -31819850.00 -31819849.95 0.0528 0.0494  
 Mercury -91831-03-30 22:18 J -31819760.71 -31819760.57 -31819760.43 0.0525 0.0036  
 Venus -91831-05-17 22:47 J -31819712.61 -31819712.55 -31819712.50 0.0523 0.0499  
 Mercury -91831-06-28 09:35 J -31819671.18 -31819671.10 -31819671.02 0.0521 0.0430  
 Mercury -91825-05-28 23:30 J -31817509.61 -31817509.52 -31817509.43 0.0501 0.0421  
 Mercury -91825-08-27 00:13 J -31817419.65 -31817419.49 -31817419.32 0.0505 0.0094  
 Moon -91823-09-24 23:30 J -31816660.67 -31816660.52 -31816660.38 0.0536 0.0417  
 Earth -91823-09-25 03:20 J -31816660.51 -31816660.36 -31816660.20 0.0536 0.0395 \*  
 Mercury -91819-01-17 01:25 J -31815450.57 -31815450.44 -31815450.31 0.0525 0.0149  
 Venus -91819-01-20 20:08 J -31815446.86 -31815446.66 -31815446.46 0.0525 0.0030  
 Mercury -91819-04-16 12:13 J -31815361.09 -31815360.99 -31815360.87 0.0522 0.0315  
 Mars -91816-09-10 12:42 J -31814118.25 -31814117.97 -31814117.68 0.0484 0.0118  
 Mercury -91813-06-15 00:13 J -31813109.65 -31813109.49 -31813109.32 0.0504 0.0031  
 Venus -91813-07-12 08:08 J -31813082.30 -31813082.16 -31813082.02 0.0505 0.0362  
 Mercury -91813-09-12 23:44 J -31813019.56 -31813019.51 -31813019.45 0.0508 0.0477  
 Earth -91811-09-30 07:54 J -31812272.40 -31812272.17 -31812271.94 0.0537 0.0009  
 Moon -91811-09-30 11:01 J -31812272.26 -31812272.04 -31812271.81 0.0537 0.0034 \*  
 Venus -91808-09-25 14:08 J -31811181.00 -31811180.91 -31811180.81 0.0528 0.0464  
 Mercury -91808-11-05 03:35 J -31811140.46 -31811140.35 -31811140.23 0.0526 0.0275

Mercury -91807-02-02 14:23 J -31811051.03 -31811050.90 -31811050.77 0.0522 0.0188

Moon -91805-03-16 21:06 J -31810277.76 -31810277.62 -31810277.47 0.0493 0.0398

Earth -91805-03-16 23:30 J -31810277.66 -31810277.52 -31810277.37 0.0493 0.0388 \*

Venus -91801-03-17 03:35 J -31808816.56 -31808816.35 -31808816.14 0.0502 0.0080

Mercury -91801-04-02 23:44 J -31808799.67 -31808799.51 -31808799.35 0.0503 0.0157

Mercury -91801-07-01 23:44 J -31808709.63 -31808709.51 -31808709.40 0.0506 0.0352

Moon -91799-10-05 08:51 J -31807884.28 -31807884.13 -31807883.98 0.0539 0.0417

Earth -91799-10-05 09:49 J -31807884.24 -31807884.09 -31807883.93 0.0539 0.0399 \*

Mars -91798-06-16 01:25 J -31807630.67 -31807630.44 -31807630.21 0.0543 0.0250

Mercury -91796-08-24 06:27 J -31806830.31 -31806830.23 -31806830.14 0.0527 0.0391

Mercury -91796-11-21 17:01 J -31806740.93 -31806740.79 -31806740.65 0.0524 0.0069

Earth -91793-03-21 07:39 J -31805890.42 -31805890.18 -31805889.95 0.0491 0.0091

Moon -91793-03-21 08:08 J -31805890.38 -31805890.16 -31805889.93 0.0491 0.0064 \*

Mercury -91789-01-20 22:03 J -31804489.72 -31804489.58 -31804489.44 0.0502 0.0294

Mercury -91789-04-19 22:18 J -31804399.71 -31804399.57 -31804399.42 0.0505 0.0217

Mercury -91784-06-12 09:49 J -31802520.13 -31802520.09 -31802520.05 0.0529 0.0503

Mercury -91784-09-09 20:08 J -31802430.80 -31802430.66 -31802430.52 0.0525 0.0044

Venus -91784-09-28 06:13 J -31802412.40 -31802412.24 -31802412.07 0.0524 0.0288

Mercury -91784-12-08 07:11 J -31802341.28 -31802341.20 -31802341.11 0.0521 0.0422

Earth -91781-03-25 17:01 J -31801503.01 -31801502.79 -31801502.58 0.0490 0.0209

Moon -91781-03-25 17:30 J -31801502.98 -31801502.77 -31801502.55 0.0490 0.0225 \*

Mercury -91778-11-08 21:06 J -31800179.70 -31800179.62 -31800179.53 0.0501 0.0424

Mercury -91777-02-06 22:03 J -31800089.75 -31800089.58 -31800089.42 0.0504 0.0090

Venus -91772-06-03 04:03 J -31798146.51 -31798146.33 -31798146.14 0.0527 0.0183

Mercury -91772-06-28 23:30 J -31798120.65 -31798120.52 -31798120.39 0.0526 0.0156

Mercury -91772-09-26 10:18 J -31798031.18 -31798031.07 -31798030.96 0.0522 0.0310

Moon -91769-03-29 22:18 J -31797115.59 -31797115.57 -31797115.52 0.0488 0.0482

Venus -91766-11-23 14:37 J -31795782.08 -31795781.89 -31795781.69 0.0504 0.0164

Mercury -91766-11-25 21:35 J -31795779.77 -31795779.60 -31795779.43 0.0504 0.0038

Mercury -91765-02-23 21:06 J -31795689.68 -31795689.62 -31795689.56 0.0507 0.0467

Mercury -91760-04-17 02:37 J -31793810.51 -31793810.39 -31793810.27 0.0526 0.0268

Mercury -91760-07-15 13:11 J -31793721.07 -31793720.95 -31793720.82 0.0523 0.0195

Venus -91754-07-29 11:30 J -31791516.19 -31791516.02 -31791515.84 0.0501 0.0270

Mercury -91754-09-13 21:20 J -31791469.77 -31791469.61 -31791469.45 0.0503 0.0161

Mercury -91754-12-12 21:20 J -31791379.72 -31791379.61 -31791379.49 0.0507 0.0348

Mercury -91748-02-03 05:01 J -31789500.38 -31789500.29 -31789500.20 0.0527 0.0390

Mercury -91748-05-03 15:20 J -31789410.99 -31789410.86 -31789410.72 0.0523 0.0072

Mercury -91742-07-02 20:37 J -31787159.77 -31787159.64 -31787159.50 0.0502 0.0289

Mercury -91742-09-30 21:06 J -31787069.76 -31787069.62 -31787069.47 0.0506 0.0223

Earth -91740-09-24 02:08 J -31786345.52 -31786345.41 -31786345.29 0.0535 0.0458

Moon -91740-09-24 05:44 J -31786345.35 -31786345.26 -31786345.15 0.0535 0.0476 \*

Mercury -91737-11-22 07:54 J -31785190.20 -31785190.17 -31785190.13 0.0528 0.0506

Venus -91736-02-08 14:37 J -31785112.08 -31785111.89 -31785111.69 0.0525 0.0079

Mercury -91736-02-19 18:13 J -31785100.88 -31785100.74 -31785100.61 0.0525 0.0049

Mercury -91736-05-20 05:15 J -31785011.36 -31785011.28 -31785011.20 0.0521 0.0416

Mercury -91730-04-20 18:56 J -31782849.79 -31782849.71 -31782849.62 0.0501 0.0426

Mercury -91730-07-19 19:54 J -31782759.84 -31782759.67 -31782759.51 0.0504 0.0087

Venus -91730-08-01 03:20 J -31782747.47 -31782747.36 -31782747.24 0.0505 0.0416

Moon -91728-09-28 22:32 J -31781957.80 -31781957.56 -31781957.32 0.0537 0.0057

Earth -91728-09-29 00:42 J -31781957.70 -31781957.47 -31781957.24 0.0537 0.0082 \*

Venus -91725-10-14 11:15 J -31780846.15 -31780846.03 -31780845.90 0.0528 0.0400

Mercury -91725-12-08 21:06 J -31780790.75 -31780790.62 -31780790.49 0.0526 0.0164

Mercury -91724-03-08 08:08 J -31780701.27 -31780701.16 -31780701.05 0.0522 0.0302

Earth -91722-03-17 05:44 J -31779962.36 -31779962.26 -31779962.13 0.0493 0.0428

Moon -91722-03-17 06:42 J -31779962.33 -31779962.22 -31779962.11 0.0493 0.0428 \*

Venus -91718-04-05 23:01 J -31778481.75 -31778481.54 -31778481.33 0.0502 0.0027

Mercury -91718-05-07 19:11 J -31778449.86 -31778449.70 -31778449.53 0.0503 0.0044

Mercury -91718-08-05 18:56 J -31778359.78 -31778359.71 -31778359.65 0.0507 0.0463

Moon -91716-10-04 04:32 J -31777569.48 -31777569.31 -31777569.13 0.0539 0.0331

Earth -91716-10-04 05:01 J -31777569.47 -31777569.29 -31777569.10 0.0539 0.0317 \*

Mercury -91713-09-27 00:27 J -31776480.59 -31776480.48 -31776480.36 0.0527 0.0274

Mercury -91713-12-25 11:15 J -31776391.16 -31776391.03 -31776390.90 0.0523 0.0189

Earth -91710-03-21 13:54 J -31775575.14 -31775574.92 -31775574.69 0.0491 0.0130

Moon -91710-03-21 14:51 J -31775575.12 -31775574.88 -31775574.64 0.0491 0.0099 \*

Venus -91707-12-09 18:56 J -31774215.78 -31774215.71 -31774215.63 0.0500 0.0461

Mercury -91706-02-23 18:42 J -31774139.88 -31774139.72 -31774139.56 0.0503 0.0169

Mercury -91706-05-24 18:42 J -31774049.84 -31774049.72 -31774049.60 0.0506 0.0339

Mercury -91701-07-16 03:49 J -31772170.43 -31772170.34 -31772170.24 0.0528 0.0385

Mercury -91701-10-13 14:23 J -31772081.04 -31772080.90 -31772080.77 0.0524 0.0076

Venus -91701-10-17 05:30 J -31772077.41 -31772077.27 -31772077.12 0.0524 0.0363

Moon -91698-03-25 19:54 J -31771187.88 -31771187.67 -31771187.46 0.0490 0.0178

Earth -91698-03-25 21:49 J -31771187.81 -31771187.59 -31771187.37 0.0490 0.0166 \*

Mars -91697-02-29 05:15 J -31770847.48 -31770847.28 -31770847.07 0.0485 0.0346

Mercury -91695-12-12 18:27 J -31769829.87 -31769829.73 -31769829.59 0.0502 0.0293

Mercury -91694-03-12 18:56 J -31769739.86 -31769739.71 -31769739.56 0.0506 0.0219

Mercury -91689-05-04 06:42 J -31767860.26 -31767860.22 -31767860.19 0.0528 0.0503

Venus -91689-06-22 00:42 J -31767811.66 -31767811.47 -31767811.27 0.0526 0.0122

Mercury -91689-08-01 16:47 J -31767770.94 -31767770.80 -31767770.66 0.0524 0.0047

Mercury -91689-10-30 03:49 J -31767681.42 -31767681.34 -31767681.26 0.0521 0.0417

Earth -91686-03-30 03:06 J -31766800.46 -31766800.37 -31766800.29 0.0489 0.0453

Moon -91686-03-30 06:13 J -31766800.35 -31766800.24 -31766800.13 0.0489 0.0428 \*

Mercury -91683-09-30 17:44 J -31765519.85 -31765519.76 -31765519.67 0.0501 0.0420

Venus -91683-12-12 13:54 J -31765447.10 -31765446.92 -31765446.74 0.0504 0.0235

Mercury -91683-12-29 18:42 J -31765429.89 -31765429.72 -31765429.56 0.0505 0.0094

Mercury -91677-05-20 19:25 J -31763460.82 -31763460.69 -31763460.56 0.0526 0.0165

Mercury -91677-08-18 06:13 J -31763371.35 -31763371.24 -31763371.12 0.0522 0.0299

Venus -91671-08-17 07:39 J -31761181.37 -31761181.18 -31761180.99 0.0501 0.0213

Mercury -91671-10-17 17:15 J -31761119.94 -31761119.78 -31761119.61 0.0503 0.0043

Mercury -91670-01-15 16:47 J -31761029.86 -31761029.80 -31761029.73 0.0507 0.0463

Mercury -91665-03-08 22:32 J -31759150.68 -31759150.56 -31759150.45 0.0527 0.0280

Mercury -91665-06-06 09:06 J -31759061.25 -31759061.12 -31759060.99 0.0523 0.0183

Mars -91662-12-05 00:27 J -31757784.69 -31757784.48 -31757784.25 0.0484 0.0318

Mercury -91659-08-05 16:32 J -31756809.96 -31756809.81 -31756809.65 0.0502 0.0171

Mercury -91659-11-03 16:32 J -31756719.92 -31756719.81 -31756719.68 0.0506 0.0338

Mercury -91654-12-27 01:54 J -31754840.51 -31754840.42 -31754840.33 0.0528 0.0390

Venus -91653-02-28 13:54 J -31754777.11 -31754776.92 -31754776.73 0.0525 0.0155

Mercury -91653-03-25 12:27 J -31754751.12 -31754750.98 -31754750.85 0.0524 0.0072

Mercury -91647-05-24 15:49 J -31752499.97 -31752499.84 -31752499.70 0.0502 0.0299

Venus -91647-08-20 01:11 J -31752412.51 -31752412.45 -31752412.38 0.0505 0.0480

Mercury -91647-08-22 16:18 J -31752409.97 -31752409.82 -31752409.67 0.0505 0.0212

Earth -91645-09-28 02:37 J -31751642.61 -31751642.39 -31751642.16 0.0537 0.0140

Moon -91645-09-28 03:20 J -31751642.58 -31751642.36 -31751642.14 0.0537 0.0112 \*

Mars -91644-09-08 18:13 J -31751297.00 -31751296.74 -31751296.49 0.0544 0.0036

Mercury -91642-10-15 05:15 J -31750530.32 -31750530.28 -31750530.23 0.0529 0.0500

Venus -91642-11-03 11:15 J -31750511.18 -31750511.03 -31750510.87 0.0528 0.0320

Mercury -91641-01-12 15:35 J -31750440.99 -31750440.85 -31750440.71 0.0525 0.0041

Mercury -91641-04-11 02:37 J -31750351.47 -31750351.39 -31750351.31 0.0521 0.0424

Earth -91639-03-16 12:13 J -31749647.06 -31749646.99 -31749646.91 0.0493 0.0466

Moon -91639-03-16 13:11 J -31749647.03 -31749646.95 -31749646.86 0.0493 0.0458 \*

Mercury -91635-03-12 15:35 J -31748189.94 -31748189.85 -31748189.76 0.0501 0.0424

Venus -91635-04-24 22:03 J -31748146.79 -31748146.58 -31748146.37 0.0503 0.0044

Mercury -91635-06-10 16:32 J -31748099.98 -31748099.81 -31748099.65 0.0504 0.0091

Earth -91633-10-03 09:20 J -31747254.31 -31747254.11 -31747253.91 0.0538 0.0267

Moon -91633-10-03 11:30 J -31747254.22 -31747254.02 -31747253.81 0.0538 0.0271 \*

Mercury -91630-10-31 18:13 J -31746130.87 -31746130.74 -31746130.61 0.0525 0.0161

Mercury -91629-01-29 05:01 J -31746041.40 -31746041.29 -31746041.18 0.0522 0.0302

Moon -91627-03-20 15:35 J -31745260.07 -31745259.85 -31745259.64 0.0492 0.0146

Earth -91627-03-20 17:30 J -31745259.99 -31745259.77 -31745259.55 0.0492 0.0176 \*

Venus -91624-12-28 18:13 J -31743880.86 -31743880.74 -31743880.61 0.0500 0.0390

Mercury -91623-03-29 16:03 J -31743789.99 -31743789.83 -31743789.66 0.0504 0.0036



Mercury -91623-06-27 15:49 J -31743699.90 -31743699.84 -31743699.78 0.0507 0.0470  
 Mercury -91618-08-19 21:06 J -31741820.74 -31741820.62 -31741820.51 0.0527 0.0278  
 Venus -91618-11-06 01:39 J -31741742.54 -31741742.43 -31741742.31 0.0523 0.0421  
 Mercury -91618-11-17 07:39 J -31741731.31 -31741731.18 -31741731.05 0.0523 0.0183  
 Earth -91615-03-25 01:39 J -31740872.66 -31740872.43 -31740872.20 0.0491 0.0120  
 Moon -91615-03-25 04:47 J -31740872.53 -31740872.30 -31740872.07 0.0491 0.0127 \*  
 Mercury -91611-01-15 14:51 J -31739480.04 -31739479.88 -31739479.72 0.0502 0.0169  
 Mercury -91611-04-15 14:51 J -31739390.00 -31739389.88 -31739389.76 0.0506 0.0338  
 Mercury -91606-06-07 23:59 J -31737510.59 -31737510.50 -31737510.41 0.0528 0.0395  
 Venus -91606-07-11 22:03 J -31737476.78 -31737476.58 -31737476.38 0.0527 0.0056  
 Mercury -91606-09-05 10:18 J -31737421.20 -31737421.07 -31737420.93 0.0524 0.0067  
 Moon -91603-03-29 07:25 J -31736485.33 -31736485.19 -31736485.05 0.0489 0.0390  
 Earth -91603-03-29 11:01 J -31736485.15 -31736485.04 -31736484.91 0.0489 0.0418 \*  
 Mercury -91600-11-03 14:08 J -31735170.05 -31735169.91 -31735169.77 0.0501 0.0298  
 Venus -91600-12-31 10:18 J -31735112.24 -31735112.07 -31735111.90 0.0503 0.0293  
 Mercury -91599-02-01 14:37 J -31735080.04 -31735079.89 -31735079.74 0.0505 0.0212  
 Mercury -91594-03-27 03:35 J -31733200.39 -31733200.35 -31733200.32 0.0529 0.0504  
 Mercury -91594-06-24 13:39 J -31733111.07 -31733110.93 -31733110.79 0.0525 0.0046  
 Mercury -91594-09-22 00:42 J -31733021.55 -31733021.47 -31733021.38 0.0521 0.0421  
 Mercury -91588-08-22 13:11 J -31730860.04 -31730859.95 -31730859.86 0.0501 0.0428  
 Venus -91588-09-05 05:44 J -31730846.46 -31730846.26 -31730846.06 0.0501 0.0148  
 Mercury -91588-11-20 14:08 J -31730770.08 -31730769.91 -31730769.75 0.0504 0.0085  
 Mercury -91582-04-12 17:01 J -31728800.92 -31728800.79 -31728800.66 0.0526 0.0156  
 Mercury -91582-07-11 03:49 J -31728711.45 -31728711.34 -31728711.23 0.0522 0.0308  
 Mercury -91576-09-08 14:08 J -31726460.08 -31726459.91 -31726459.74 0.0503 0.0037  
 Mercury -91576-12-07 13:54 J -31726369.98 -31726369.92 -31726369.86 0.0507 0.0468  
 Mercury -91570-01-29 19:54 J -31724490.79 -31724490.67 -31724490.56 0.0527 0.0273  
 Venus -91570-03-19 12:27 J -31724442.16 -31724441.98 -31724441.80 0.0525 0.0228  
 Mercury -91570-04-29 06:27 J -31724401.36 -31724401.23 -31724401.10 0.0523 0.0188  
 Mercury -91564-06-27 13:39 J -31722150.09 -31722149.93 -31722149.77 0.0503 0.0162

Mercury -91564-09-25 13:54 J -31722060.04 -31722059.92 -31722059.80 0.0506 0.0347  
 Earth -91562-09-28 05:44 J -31721327.47 -31721327.26 -31721327.04 0.0536 0.0193  
 Moon -91562-09-28 07:11 J -31721327.43 -31721327.20 -31721326.97 0.0536 0.0161 \*  
 Mercury -91559-11-17 22:47 J -31720180.64 -31720180.55 -31720180.46 0.0528 0.0389  
 Venus -91559-11-22 08:37 J -31720176.31 -31720176.14 -31720175.96 0.0527 0.0254  
 Mercury -91558-02-15 09:06 J -31720091.25 -31720091.12 -31720090.98 0.0524 0.0071  
 Mercury -91552-04-15 12:27 J -31717840.11 -31717839.98 -31717839.84 0.0501 0.0295  
 Venus -91552-05-13 19:54 J -31717811.88 -31717811.67 -31717811.47 0.0502 0.0109  
 Mercury -91552-07-14 12:56 J -31717750.11 -31717749.96 -31717749.81 0.0505 0.0215  
 Moon -91550-10-03 00:56 J -31716939.67 -31716939.46 -31716939.24 0.0538 0.0186  
 Earth -91550-10-03 04:03 J -31716939.54 -31716939.33 -31716939.10 0.0538 0.0185 \*  
 Mercury -91547-09-06 01:39 J -31715870.46 -31715870.43 -31715870.39 0.0529 0.0507  
 Mercury -91547-12-04 11:59 J -31715781.14 -31715781.00 -31715780.87 0.0525 0.0052  
 Mercury -91546-03-03 23:01 J -31715691.62 -31715691.54 -31715691.46 0.0522 0.0417  
 Earth -91544-03-20 02:23 J -31714944.61 -31714944.40 -31714944.18 0.0493 0.0209  
 Moon -91544-03-20 05:44 J -31714944.48 -31714944.26 -31714944.04 0.0493 0.0177 \*  
 Mars -91543-05-25 00:42 J -31714513.75 -31714513.47 -31714513.19 0.0485 0.0126  
 Venus -91540-01-16 15:49 J -31713545.99 -31713545.84 -31713545.68 0.0500 0.0326  
 Mercury -91540-02-01 11:30 J -31713530.10 -31713530.02 -31713529.92 0.0500 0.0424  
 Mercury -91540-05-02 12:27 J -31713440.14 -31713439.98 -31713439.81 0.0504 0.0090  
 Mercury -91535-09-22 15:06 J -31711471.00 -31711470.87 -31711470.74 0.0526 0.0161  
 Venus -91535-11-25 01:11 J -31711407.51 -31711407.45 -31711407.39 0.0524 0.0498  
 Mercury -91535-12-21 02:08 J -31711381.52 -31711381.41 -31711381.30 0.0523 0.0305  
 Moon -91532-03-24 07:25 J -31710557.42 -31710557.19 -31710556.96 0.0491 0.0089  
 Earth -91532-03-24 11:01 J -31710557.26 -31710557.04 -31710556.80 0.0491 0.0090 \*  
 Mercury -91528-02-18 11:59 J -31709130.17 -31709130.00 -31709129.83 0.0503 0.0039  
 Mercury -91528-05-19 11:44 J -31709040.08 -31709040.01 -31709039.95 0.0507 0.0465  
 Mercury -91523-07-11 18:42 J -31707160.84 -31707160.72 -31707160.61 0.0527 0.0269  
 Venus -91523-07-30 23:15 J -31707141.73 -31707141.53 -31707141.33 0.0526 0.0032  
 Mercury -91523-10-09 05:15 J -31707071.41 -31707071.28 -31707071.15 0.0523 0.0194

Earth -91520-03-28 19:25 J -31706169.84 -31706169.69 -31706169.55 0.0489 0.0384  
 Moon -91520-03-28 22:32 J -31706169.71 -31706169.56 -31706169.39 0.0489 0.0356 \*  
 Mercury -91517-12-07 11:44 J -31704820.17 -31704820.01 -31704819.85 0.0502 0.0162  
 Venus -91516-01-19 10:03 J -31704777.21 -31704777.08 -31704776.93 0.0504 0.0369  
 Mercury -91516-03-07 11:59 J -31704730.12 -31704730.00 -31704729.88 0.0506 0.0346  
 Venus -91511-04-04 19:11 J -31702875.79 -31702875.70 -31702875.59 0.0529 0.0453  
 Mercury -91511-04-29 21:35 J -31702850.69 -31702850.60 -31702850.50 0.0528 0.0384  
 Mercury -91511-07-28 08:08 J -31702761.30 -31702761.16 -31702761.03 0.0524 0.0077  
 Venus -91505-09-24 06:27 J -31700511.43 -31700511.23 -31700511.02 0.0502 0.0068  
 Mercury -91505-09-25 11:15 J -31700510.16 -31700510.03 -31700509.89 0.0502 0.0287  
 Mercury -91505-12-24 11:59 J -31700420.15 -31700420.00 -31700419.85 0.0505 0.0224  
 Mercury -91499-02-16 00:42 J -31698540.51 -31698540.47 -31698540.43 0.0529 0.0498  
 Mercury -91499-05-16 10:47 J -31698451.18 -31698451.05 -31698450.91 0.0525 0.0044  
 Mercury -91499-08-13 21:49 J -31698361.66 -31698361.59 -31698361.51 0.0521 0.0424  
 Mercury -91493-07-14 10:18 J -31696200.16 -31696200.07 -31696199.98 0.0500 0.0418  
 Mercury -91493-10-12 11:15 J -31696110.20 -31696110.03 -31696109.87 0.0504 0.0094  
 Mars -91490-12-03 10:18 J -31694963.32 -31694963.07 -31694962.83 0.0544 0.0176  
 Mercury -91487-03-04 13:25 J -31694141.07 -31694140.94 -31694140.81 0.0527 0.0162  
 Venus -91487-04-07 10:18 J -31694107.23 -31694107.07 -31694106.90 0.0525 0.0296  
 Mercury -91487-06-02 00:27 J -31694051.60 -31694051.48 -31694051.37 0.0523 0.0304  
 Mercury -91481-07-31 10:47 J -31691800.22 -31691800.05 -31691799.89 0.0503 0.0034  
 Mercury -91481-10-29 10:18 J -31691710.13 -31691710.07 -31691710.01 0.0506 0.0470  
 Moon -91479-09-26 23:44 J -31691012.71 -31691012.51 -31691012.31 0.0535 0.0237  
 Earth -91479-09-27 02:23 J -31691012.60 -31691012.40 -31691012.20 0.0535 0.0268 \*  
 Venus -91476-12-11 07:54 J -31689841.35 -31689841.17 -31689840.98 0.0528 0.0179  
 Mercury -91476-12-21 16:47 J -31689830.91 -31689830.80 -31689830.68 0.0528 0.0273  
 Mercury -91475-03-21 03:35 J -31689741.48 -31689741.35 -31689741.22 0.0524 0.0191  
 Mercury -91469-05-19 09:49 J -31687490.25 -31687490.09 -31687489.93 0.0502 0.0162  
 Venus -91469-06-01 19:11 J -31687476.90 -31687476.70 -31687476.51 0.0503 0.0181  
 Mercury -91469-08-17 10:03 J -31687400.20 -31687400.08 -31687399.96 0.0506 0.0345

Earth -91467-10-02 08:08 J -31686624.39 -31686624.16 -31686623.94 0.0538 0.0133  
 Moon -91467-10-02 11:59 J -31686624.22 -31686624.00 -31686623.77 0.0538 0.0130 \*  
 Mercury -91464-10-09 20:23 J -31685520.74 -31685520.65 -31685520.55 0.0528 0.0380  
 Mercury -91463-01-07 06:56 J -31685431.35 -31685431.21 -31685431.08 0.0524 0.0082  
 Moon -91461-03-19 08:37 J -31684629.35 -31684629.14 -31684628.93 0.0493 0.0211  
 Earth -91461-03-19 12:13 J -31684629.19 -31684628.99 -31684628.78 0.0493 0.0238 \*  
 Venus -91457-02-05 16:03 J -31683211.01 -31683210.83 -31683210.65 0.0500 0.0250  
 Mercury -91457-03-07 09:35 J -31683180.24 -31683180.10 -31683179.96 0.0501 0.0286  
 Mercury -91457-06-05 10:18 J -31683090.22 -31683090.07 -31683089.92 0.0505 0.0225  
 Moon -91455-10-07 11:44 J -31682236.09 -31682236.01 -31682235.93 0.0539 0.0503  
 Mercury -91452-07-28 23:44 J -31681210.56 -31681210.51 -31681210.47 0.0529 0.0492  
 Mercury -91452-10-26 09:49 J -31681121.23 -31681121.09 -31681120.95 0.0525 0.0034  
 Mercury -91451-01-23 20:51 J -31681031.71 -31681031.63 -31681031.55 0.0521 0.0430  
 Earth -91449-03-23 18:27 J -31680241.96 -31680241.73 -31680241.49 0.0491 0.0054  
 Moon -91449-03-23 22:03 J -31680241.81 -31680241.58 -31680241.35 0.0491 0.0044 \*  
 Mercury -91446-12-25 09:06 J -31678870.21 -31678870.12 -31678870.02 0.0501 0.0411  
 Mercury -91445-03-24 10:03 J -31678780.24 -31678780.08 -31678779.91 0.0504 0.0103  
 Mercury -91440-08-14 12:42 J -31676811.10 -31676810.97 -31676810.84 0.0526 0.0151  
 Venus -91440-08-18 22:32 J -31676806.75 -31676806.56 -31676806.36 0.0526 0.0108  
 Mercury -91440-11-11 23:30 J -31676721.63 -31676721.52 -31676721.41 0.0522 0.0313  
 Moon -91437-03-28 00:27 J -31675854.66 -31675854.48 -31675854.29 0.0490 0.0316  
 Earth -91437-03-28 03:06 J -31675854.53 -31675854.37 -31675854.20 0.0490 0.0347 \*  
 Mercury -91433-01-11 09:35 J -31674470.27 -31674470.10 -31674469.94 0.0503 0.0028  
 Venus -91433-02-08 10:03 J -31674442.17 -31674442.08 -31674441.98 0.0504 0.0445  
 Mercury -91433-04-10 09:06 J -31674380.17 -31674380.12 -31674380.06 0.0506 0.0477  
 Venus -91428-04-23 17:01 J -31672540.92 -31672540.79 -31672540.65 0.0529 0.0387  
 Mercury -91428-06-02 15:20 J -31672500.98 -31672500.86 -31672500.74 0.0528 0.0272  
 Mercury -91428-08-31 01:54 J -31672411.55 -31672411.42 -31672411.29 0.0524 0.0192  
 Venus -91422-10-14 06:13 J -31670176.45 -31670176.24 -31670176.03 0.0501 0.0006  
 Mercury -91422-10-30 08:51 J -31670160.29 -31670160.13 -31670159.97 0.0502 0.0153

Mercury -91421-01-28 08:51 J -31670070.24 -31670070.13 -31670070.01 0.0505 0.0354

Mercury -91416-03-21 18:42 J -31668190.81 -31668190.72 -31668190.63 0.0529 0.0383

Mercury -91416-06-19 05:15 J -31668101.42 -31668101.28 -31668101.15 0.0525 0.0080

Venus -91410-06-19 02:08 J -31665910.52 -31665910.41 -31665910.31 0.0499 0.0429

Mercury -91410-08-18 07:54 J -31665850.31 -31665850.17 -31665850.03 0.0501 0.0283

Mercury -91410-11-16 08:23 J -31665760.29 -31665760.15 -31665760.00 0.0505 0.0227

Mercury -91404-01-07 22:18 J -31663880.61 -31663880.57 -31663880.52 0.0529 0.0490

Mercury -91404-04-07 08:37 J -31663791.28 -31663791.14 -31663791.00 0.0526 0.0030

Venus -91404-04-26 12:27 J -31663772.10 -31663771.98 -31663771.84 0.0525 0.0388

Mercury -91404-07-05 19:39 J -31663701.75 -31663701.68 -31663701.60 0.0522 0.0436

Mercury -91398-06-06 07:25 J -31661540.28 -31661540.19 -31661540.09 0.0500 0.0408

Mercury -91398-09-04 08:37 J -31661450.31 -31661450.14 -31661449.98 0.0504 0.0105

Earth -91396-09-26 09:49 J -31660697.27 -31660697.09 -31660696.89 0.0535 0.0306

Moon -91396-09-26 13:39 J -31660697.13 -31660696.93 -31660696.72 0.0535 0.0271 \*

Venus -91393-12-30 09:49 J -31659506.29 -31659506.09 -31659505.90 0.0527 0.0088

Mercury -91392-01-24 11:44 J -31659481.14 -31659481.01 -31659480.88 0.0526 0.0144

Mercury -91392-04-23 22:32 J -31659391.67 -31659391.56 -31659391.45 0.0522 0.0320

Mars -91389-08-18 04:32 J -31658179.59 -31658179.31 -31658179.02 0.0485 0.0110

Venus -91386-06-21 20:51 J -31657141.80 -31657141.63 -31657141.45 0.0503 0.0268

Mercury -91386-06-23 08:23 J -31657140.32 -31657140.15 -31657139.98 0.0503 0.0018

Mercury -91386-09-21 08:08 J -31657050.20 -31657050.16 -31657050.11 0.0507 0.0486

Moon -91384-10-01 11:30 J -31656309.25 -31656309.02 -31656308.79 0.0537 0.0086

Earth -91384-10-01 15:35 J -31656309.08 -31656308.85 -31656308.62 0.0537 0.0092 \*

Mercury -91381-11-12 14:51 J -31655171.00 -31655170.88 -31655170.77 0.0527 0.0259

Mercury -91380-02-10 01:25 J -31655081.57 -31655081.44 -31655081.32 0.0523 0.0204

Earth -91378-03-19 20:23 J -31654313.84 -31654313.65 -31654313.45 0.0493 0.0273

Moon -91378-03-19 23:44 J -31654313.70 -31654313.51 -31654313.31 0.0493 0.0250 \*

Venus -91374-02-24 17:01 J -31652875.98 -31652875.79 -31652875.59 0.0500 0.0170

Mercury -91374-04-11 07:54 J -31652830.33 -31652830.17 -31652830.01 0.0502 0.0145

Mercury -91374-07-10 07:54 J -31652740.28 -31652740.17 -31652740.05 0.0505 0.0361

Earth -91372-10-06 14:37 J -31651920.99 -31651920.89 -31651920.77 0.0538 0.0471  
 Moon -91372-10-06 17:44 J -31651920.88 -31651920.76 -31651920.63 0.0538 0.0441 \*  
 Mars -91371-05-23 23:30 J -31651691.70 -31651691.52 -31651691.34 0.0543 0.0383  
 Mercury -91369-08-31 17:15 J -31650860.87 -31650860.78 -31650860.69 0.0529 0.0381  
 Mercury -91369-11-29 03:35 J -31650771.48 -31650771.35 -31650771.21 0.0525 0.0081  
 Moon -91366-03-24 02:51 J -31649926.62 -31649926.38 -31649926.14 0.0492 0.0009  
 Earth -91366-03-24 05:15 J -31649926.51 -31649926.28 -31649926.04 0.0492 0.0027 \*  
 Mercury -91362-01-28 07:11 J -31648520.34 -31648520.20 -31648520.06 0.0501 0.0272  
 Mercury -91362-04-28 07:39 J -31648430.33 -31648430.18 -31648430.03 0.0504 0.0236  
 Mercury -91357-06-19 20:37 J -31646550.68 -31646550.64 -31646550.59 0.0530 0.0492  
 Venus -91357-09-06 21:35 J -31646471.78 -31646471.60 -31646471.41 0.0526 0.0181  
 Mercury -91357-09-17 06:56 J -31646461.35 -31646461.21 -31646461.08 0.0526 0.0034  
 Mercury -91357-12-15 17:59 J -31646371.82 -31646371.75 -31646371.67 0.0522 0.0434  
 Earth -91354-03-28 14:08 J -31645539.08 -31645538.91 -31645538.73 0.0490 0.0323  
 Moon -91354-03-28 15:20 J -31645539.04 -31645538.86 -31645538.68 0.0490 0.0297 \*  
 Mercury -91351-11-16 05:59 J -31644210.35 -31644210.25 -31644210.15 0.0500 0.0403  
 Mercury -91350-02-14 06:56 J -31644120.37 -31644120.21 -31644120.04 0.0504 0.0108  
 Venus -91345-05-12 19:39 J -31642205.84 -31642205.68 -31642205.51 0.0529 0.0292  
 Mercury -91345-07-06 10:18 J -31642151.20 -31642151.07 -31642150.93 0.0527 0.0142  
 Mercury -91345-10-03 21:20 J -31642061.72 -31642061.61 -31642061.50 0.0523 0.0324  
 Venus -91339-11-02 06:56 J -31639841.42 -31639841.21 -31639841.01 0.0502 0.0085  
 Mercury -91339-12-03 06:56 J -31639810.38 -31639810.21 -31639810.04 0.0503 0.0017  
 Mercury -91338-03-03 06:27 J -31639720.26 -31639720.23 -31639720.18 0.0507 0.0488  
 Mars -91335-02-27 03:49 J -31638628.46 -31638628.34 -31638628.21 0.0544 0.0471  
 Mercury -91333-04-24 13:39 J -31637841.05 -31637840.93 -31637840.81 0.0527 0.0252  
 Mercury -91333-07-23 00:13 J -31637751.61 -31637751.49 -31637751.36 0.0523 0.0210  
 Venus -91327-07-08 04:03 J -31635575.48 -31635575.33 -31635575.18 0.0499 0.0345  
 Mercury -91327-09-21 06:42 J -31635500.38 -31635500.22 -31635500.06 0.0502 0.0138  
 Mercury -91327-12-20 06:56 J -31635410.33 -31635410.21 -31635410.10 0.0506 0.0369  
 Mercury -91321-02-11 16:47 J -31633530.89 -31633530.80 -31633530.70 0.0528 0.0366

Mercury -91321-05-11 03:06 J -31633441.50 -31633441.37 -31633441.23 0.0524 0.0095

Venus -91321-05-15 13:11 J -31633437.04 -31633436.95 -31633436.87 0.0524 0.0470

Mercury -91315-07-10 06:13 J -31631190.39 -31631190.24 -31631190.10 0.0501 0.0264

Mercury -91315-10-08 06:42 J -31631100.37 -31631100.22 -31631100.08 0.0504 0.0245

Moon -91313-09-25 07:11 J -31630382.38 -31630382.20 -31630382.01 0.0534 0.0329

Earth -91313-09-25 11:15 J -31630382.20 -31630382.03 -31630381.86 0.0534 0.0362 \*

Mercury -91310-11-30 19:11 J -31629220.74 -31629220.70 -31629220.65 0.0529 0.0490

Venus -91309-01-19 07:25 J -31629171.39 -31629171.19 -31629170.99 0.0528 0.0023

Mercury -91309-02-28 05:30 J -31629131.41 -31629131.27 -31629131.13 0.0526 0.0032

Mercury -91309-05-27 16:32 J -31629041.88 -31629041.81 -31629041.73 0.0522 0.0435

Mercury -91303-04-28 05:15 J -31626880.38 -31626880.28 -31626880.17 0.0500 0.0391

Venus -91303-07-10 21:49 J -31626806.74 -31626806.59 -31626806.44 0.0503 0.0347

Mercury -91303-07-27 06:13 J -31626790.40 -31626790.24 -31626790.07 0.0503 0.0120

Earth -91301-09-30 14:23 J -31625994.13 -31625993.90 -31625993.67 0.0536 0.0026

Moon -91301-09-30 17:59 J -31625993.98 -31625993.75 -31625993.52 0.0536 0.0017 \*

Venus -91298-09-24 03:49 J -31624905.39 -31624905.34 -31624905.28 0.0530 0.0507

Mercury -91298-12-17 08:37 J -31624821.27 -31624821.14 -31624821.01 0.0527 0.0144

Mercury -91297-03-15 19:25 J -31624731.79 -31624731.69 -31624731.58 0.0523 0.0322

Moon -91295-03-19 04:32 J -31623998.50 -31623998.31 -31623998.11 0.0494 0.0281

Earth -91295-03-19 06:56 J -31623998.39 -31623998.21 -31623998.02 0.0494 0.0297 \*

Venus -91291-03-15 17:01 J -31622540.99 -31622540.79 -31622540.58 0.0500 0.0096

Mercury -91291-05-15 05:30 J -31622480.44 -31622480.27 -31622480.10 0.0503 0.0013

Mercury -91291-08-13 05:01 J -31622390.32 -31622390.29 -31622390.25 0.0506 0.0491

Moon -91289-10-05 17:15 J -31621605.94 -31621605.78 -31621605.61 0.0538 0.0391

Earth -91289-10-05 18:56 J -31621605.85 -31621605.71 -31621605.56 0.0538 0.0421 \*

Mercury -91286-10-05 12:13 J -31620511.11 -31620510.99 -31620510.87 0.0528 0.0252

Mercury -91285-01-02 22:47 J -31620421.67 -31620421.55 -31620421.42 0.0524 0.0213

Earth -91283-03-23 16:18 J -31619611.05 -31619610.82 -31619610.59 0.0492 0.0002

Moon -91283-03-23 17:01 J -31619611.01 -31619610.79 -31619610.56 0.0492 0.0023 \*

Mercury -91279-03-03 05:01 J -31618170.45 -31618170.29 -31618170.12 0.0502 0.0135

Mercury -91279-06-01 05:15 J -31618080.39 -31618080.28 -31618080.17 0.0505 0.0371  
 Mercury -91274-07-24 15:35 J -31616200.94 -31616200.85 -31616200.75 0.0528 0.0362  
 Venus -91274-09-26 23:59 J -31616136.66 -31616136.50 -31616136.33 0.0526 0.0276  
 Mercury -91274-10-22 02:08 J -31616111.55 -31616111.41 -31616111.28 0.0525 0.0100  
 Earth -91271-03-27 23:30 J -31615223.71 -31615223.52 -31615223.33 0.0491 0.0292  
 Moon -91271-03-27 23:59 J -31615223.70 -31615223.50 -31615223.30 0.0491 0.0266 \*  
 Mars -91270-02-06 13:25 J -31614908.16 -31614907.94 -31614907.71 0.0485 0.0313  
 Mercury -91268-12-20 04:47 J -31613860.44 -31613860.30 -31613860.15 0.0501 0.0258  
 Mercury -91267-03-20 05:15 J -31613770.42 -31613770.28 -31613770.13 0.0505 0.0252  
 Mercury -91262-05-12 18:56 J -31611890.77 -31611890.71 -31611890.66 0.0529 0.0474  
 Venus -91262-06-01 20:37 J -31611870.82 -31611870.64 -31611870.46 0.0528 0.0206  
 Mercury -91262-08-10 05:01 J -31611801.43 -31611801.29 -31611801.15 0.0525 0.0016  
 Mercury -91262-11-07 16:03 J -31611711.90 -31611711.83 -31611711.76 0.0522 0.0449  
 Mercury -91256-10-08 04:18 J -31609550.43 -31609550.32 -31609550.21 0.0500 0.0383  
 Venus -91256-11-21 08:51 J -31609506.32 -31609506.13 -31609505.93 0.0502 0.0169  
 Mercury -91255-01-06 05:15 J -31609460.44 -31609460.28 -31609460.12 0.0503 0.0128  
 Mercury -91250-05-29 07:11 J -31607491.33 -31607491.20 -31607491.07 0.0527 0.0143  
 Mercury -91250-08-26 17:59 J -31607401.85 -31607401.75 -31607401.64 0.0523 0.0323  
 Venus -91244-07-27 05:30 J -31605240.45 -31605240.27 -31605240.09 0.0499 0.0264  
 Mercury -91244-10-25 04:47 J -31605150.47 -31605150.30 -31605150.13 0.0502 0.0004  
 Mercury -91243-01-23 04:32 J -31605060.33 -31605060.31 -31605060.30 0.0506 0.0502  
 Mercury -91238-03-17 10:32 J -31603181.18 -31603181.06 -31603180.95 0.0528 0.0256  
 Mercury -91238-06-14 21:06 J -31603091.75 -31603091.62 -31603091.49 0.0524 0.0208  
 Mars -91235-11-12 17:59 J -31601844.92 -31601844.75 -31601844.56 0.0485 0.0375  
 Mercury -91232-08-13 03:35 J -31600840.51 -31600840.35 -31600840.18 0.0502 0.0131  
 Mercury -91232-11-11 03:49 J -31600750.45 -31600750.34 -31600750.23 0.0505 0.0375  
 Earth -91230-09-25 14:08 J -31600067.05 -31600066.91 -31600066.76 0.0534 0.0412  
 Moon -91230-09-25 17:59 J -31600066.91 -31600066.75 -31600066.59 0.0534 0.0380 \*  
 Mercury -91226-01-03 14:08 J -31598871.01 -31598870.91 -31598870.82 0.0529 0.0363  
 Venus -91226-02-07 09:35 J -31598836.30 -31598836.10 -31598835.91 0.0527 0.0070



Mercury -91226-04-03 00:27 J -31598781.61 -31598781.48 -31598781.34 0.0525 0.0099

Mercury -91220-06-01 03:20 J -31596530.51 -31596530.36 -31596530.22 0.0501 0.0255

Venus -91220-07-29 22:03 J -31596471.69 -31596471.58 -31596471.47 0.0503 0.0422

Mercury -91220-08-30 03:49 J -31596440.48 -31596440.34 -31596440.20 0.0504 0.0253

Moon -91218-09-30 18:27 J -31595678.97 -31595678.73 -31595678.49 0.0536 0.0032

Earth -91218-09-30 20:51 J -31595678.86 -31595678.63 -31595678.40 0.0536 0.0016 \*

Mars -91217-08-17 15:35 J -31595357.11 -31595356.85 -31595356.60 0.0543 0.0098

Venus -91215-10-13 06:42 J -31594570.34 -31594570.22 -31594570.09 0.0530 0.0409

Mercury -91215-10-22 17:30 J -31594560.82 -31594560.77 -31594560.71 0.0529 0.0471

Mercury -91214-01-20 03:49 J -31594471.48 -31594471.34 -31594471.21 0.0526 0.0015

Mercury -91214-04-19 14:51 J -31594381.95 -31594381.88 -31594381.81 0.0522 0.0453

Earth -91212-03-18 16:18 J -31593682.99 -31593682.82 -31593682.64 0.0494 0.0327

Moon -91212-03-18 17:01 J -31593682.96 -31593682.79 -31593682.62 0.0494 0.0319 \*

Mercury -91208-03-20 02:51 J -31592220.49 -31592220.38 -31592220.27 0.0500 0.0380

Venus -91208-04-03 18:56 J -31592205.92 -31592205.71 -31592205.51 0.0501 0.0016

Mercury -91208-06-18 03:49 J -31592130.50 -31592130.34 -31592130.18 0.0504 0.0132

Moon -91206-10-06 02:37 J -31591290.55 -31591290.39 -31591290.22 0.0538 0.0361

Earth -91206-10-06 03:06 J -31591290.53 -31591290.37 -31591290.21 0.0538 0.0382 \*

Mercury -91203-11-08 06:42 J -31590161.35 -31590161.22 -31590161.08 0.0526 0.0129

Mercury -91202-02-05 17:30 J -31590071.87 -31590071.77 -31590071.66 0.0523 0.0338

Earth -91200-03-23 00:56 J -31589295.70 -31589295.46 -31589295.23 0.0492 0.0032

Moon -91200-03-23 01:25 J -31589295.68 -31589295.44 -31589295.20 0.0492 0.0058 \*

Venus -91197-12-07 16:32 J -31587939.91 -31587939.81 -31587939.71 0.0498 0.0438

Mercury -91196-04-06 03:35 J -31587820.52 -31587820.35 -31587820.18 0.0503 0.0011

Mercury -91191-08-27 09:06 J -31585851.24 -31585851.12 -31585851.00 0.0528 0.0254

Venus -91191-10-15 21:20 J -31585801.76 -31585801.61 -31585801.46 0.0526 0.0337

Mercury -91191-11-24 19:39 J -31585761.81 -31585761.68 -31585761.55 0.0524 0.0210

Moon -91188-03-27 06:13 J -31584908.43 -31584908.24 -31584908.04 0.0492 0.0243

Earth -91188-03-27 08:08 J -31584908.35 -31584908.16 -31584907.96 0.0492 0.0262 \*

Mercury -91184-01-23 03:06 J -31583510.54 -31583510.37 -31583510.21 0.0502 0.0118

Mercury -91184-04-23 03:06 J -31583420.47 -31583420.37 -31583420.26 0.0505 0.0386  
 Mercury -91179-06-15 12:13 J -31581541.08 -31581540.99 -31581540.89 0.0529 0.0367  
 Venus -91179-06-20 17:44 J -31581535.95 -31581535.76 -31581535.57 0.0529 0.0145  
 Mercury -91179-09-12 22:32 J -31581451.69 -31581451.56 -31581451.42 0.0525 0.0095  
 Mercury -91173-11-11 01:39 J -31579200.57 -31579200.43 -31579200.28 0.0501 0.0251  
 Venus -91173-12-10 07:54 J -31579171.35 -31579171.17 -31579170.98 0.0502 0.0240  
 Mercury -91172-02-09 02:23 J -31579110.55 -31579110.40 -31579110.26 0.0504 0.0256  
 Mercury -91167-04-03 15:49 J -31577230.89 -31577230.84 -31577230.78 0.0530 0.0474  
 Mercury -91167-07-02 02:08 J -31577141.55 -31577141.41 -31577141.28 0.0526 0.0018  
 Mercury -91167-09-29 13:11 J -31577052.02 -31577051.95 -31577051.88 0.0522 0.0452  
 Venus -91161-08-15 04:32 J -31574905.50 -31574905.31 -31574905.11 0.0499 0.0194  
 Mercury -91161-08-30 01:11 J -31574890.56 -31574890.45 -31574890.34 0.0500 0.0377  
 Mercury -91161-11-28 02:08 J -31574800.57 -31574800.41 -31574800.25 0.0503 0.0133  
 Mercury -91155-04-20 05:30 J -31572831.41 -31572831.27 -31572831.14 0.0527 0.0126  
 Mercury -91155-07-18 16:18 J -31572741.93 -31572741.82 -31572741.72 0.0523 0.0339  
 Mercury -91149-09-16 01:54 J -31570490.59 -31570490.42 -31570490.25 0.0503 0.0011  
 Moon -91147-09-24 18:27 J -31569751.87 -31569751.73 -31569751.58 0.0534 0.0423  
 Earth -91147-09-24 21:35 J -31569751.72 -31569751.60 -31569751.47 0.0534 0.0450 \*  
 Mercury -91143-02-06 08:37 J -31568521.26 -31568521.14 -31568521.02 0.0528 0.0240  
 Venus -91143-02-26 10:03 J -31568501.27 -31568501.08 -31568500.89 0.0527 0.0153  
 Mercury -91143-05-06 19:11 J -31568431.83 -31568431.70 -31568431.58 0.0524 0.0223  
 Mercury -91137-07-05 01:39 J -31566180.59 -31566180.43 -31566180.26 0.0502 0.0113  
 Mercury -91137-10-03 01:54 J -31566090.52 -31566090.42 -31566090.32 0.0505 0.0392  
 Earth -91135-09-29 23:44 J -31565363.74 -31565363.51 -31565363.28 0.0535 0.0065  
 Moon -91135-09-30 00:27 J -31565363.70 -31565363.48 -31565363.26 0.0535 0.0088 \*  
 Venus -91132-11-01 03:06 J -31564235.51 -31564235.37 -31564235.22 0.0530 0.0351  
 Mercury -91132-11-25 10:47 J -31564211.14 -31564211.05 -31564210.95 0.0529 0.0366  
 Mercury -91131-02-22 21:06 J -31564121.75 -31564121.62 -31564121.48 0.0525 0.0095  
 Earth -91129-03-17 22:47 J -31563367.70 -31563367.55 -31563367.39 0.0495 0.0362  
 Moon -91129-03-17 23:44 J -31563367.67 -31563367.51 -31563367.34 0.0495 0.0357 \*

Venus -91125-04-22 19:54 J -31561870.88 -31561870.67 -31561870.47 0.0501 0.0068

Mercury -91125-04-23 00:56 J -31561870.60 -31561870.46 -31561870.31 0.0501 0.0240 \*

Mercury -91125-07-22 01:39 J -31561780.57 -31561780.43 -31561780.29 0.0504 0.0267

Earth -91123-10-05 02:08 J -31560975.59 -31560975.41 -31560975.22 0.0536 0.0317

Moon -91123-10-05 04:03 J -31560975.53 -31560975.33 -31560975.13 0.0536 0.0298 \*

Mercury -91120-09-13 13:54 J -31559900.97 -31559900.92 -31559900.86 0.0530 0.0480

Mercury -91120-12-11 23:59 J -31559811.63 -31559811.50 -31559811.36 0.0526 0.0026

Mercury -91119-03-11 11:01 J -31559722.10 -31559722.04 -31559721.96 0.0522 0.0446

Moon -91117-03-22 05:44 J -31558980.48 -31558980.26 -31558980.04 0.0493 0.0093

Earth -91117-03-22 07:39 J -31558980.41 -31558980.18 -31558979.95 0.0493 0.0064 \*

Mars -91116-05-02 19:11 J -31558573.99 -31558573.70 -31558573.41 0.0485 0.0061

Venus -91114-12-27 14:51 J -31557605.02 -31557604.88 -31557604.74 0.0498 0.0372

Mercury -91113-02-09 23:30 J -31557560.63 -31557560.52 -31557560.41 0.0500 0.0374

Mercury -91113-05-10 00:27 J -31557470.64 -31557470.48 -31557470.32 0.0503 0.0135

Mercury -91108-09-30 03:35 J -31555501.48 -31555501.35 -31555501.22 0.0527 0.0130

Venus -91108-11-03 21:35 J -31555466.71 -31555466.60 -31555466.47 0.0526 0.0421

Mercury -91108-12-28 14:23 J -31555412.01 -31555411.90 -31555411.79 0.0523 0.0335

Earth -91105-03-26 17:15 J -31554592.99 -31554592.78 -31554592.57 0.0492 0.0232

Moon -91105-03-26 20:23 J -31554592.86 -31554592.65 -31554592.43 0.0492 0.0222 \*

Mercury -91101-02-26 23:59 J -31553160.67 -31553160.50 -31553160.33 0.0502 0.0013

Venus -91096-07-09 19:11 J -31551200.89 -31551200.70 -31551200.50 0.0528 0.0055

Mercury -91096-07-19 06:56 J -31551191.33 -31551191.21 -31551191.09 0.0528 0.0240

Mercury -91096-10-16 17:30 J -31551101.89 -31551101.77 -31551101.64 0.0524 0.0223

Mercury -91090-12-15 23:44 J -31548850.68 -31548850.51 -31548850.35 0.0502 0.0115

Venus -91090-12-30 08:08 J -31548836.31 -31548836.16 -31548835.99 0.0502 0.0317

Mercury -91089-03-14 23:59 J -31548760.61 -31548760.50 -31548760.40 0.0505 0.0391

Mercury -91084-05-07 10:03 J -31546881.17 -31546881.08 -31546880.98 0.0529 0.0353

Mercury -91084-08-04 20:37 J -31546791.78 -31546791.64 -31546791.51 0.0525 0.0109

Venus -91078-09-04 05:30 J -31544570.47 -31544570.27 -31544570.06 0.0500 0.0115

Mercury -91078-10-03 23:30 J -31544540.67 -31544540.52 -31544540.37 0.0501 0.0237

Mercury -91077-01-01 23:59 J -31544450.64 -31544450.50 -31544450.36 0.0504 0.0270

Mercury -91072-02-23 12:27 J -31542571.03 -31542570.98 -31542570.92 0.0529 0.0478

Mercury -91072-05-23 22:32 J -31542481.70 -31542481.56 -31542481.42 0.0526 0.0021

Mercury -91072-08-21 09:35 J -31542392.17 -31542392.10 -31542392.03 0.0522 0.0445

Mercury -91066-07-22 22:32 J -31540230.67 -31540230.56 -31540230.44 0.0500 0.0365

Mercury -91066-10-20 23:30 J -31540140.68 -31540140.52 -31540140.35 0.0503 0.0146

Earth -91064-09-23 21:06 J -31539436.68 -31539436.62 -31539436.55 0.0532 0.0506

Moon -91064-09-23 22:32 J -31539436.64 -31539436.56 -31539436.46 0.0532 0.0488 \*

Mars -91063-11-11 12:27 J -31539023.23 -31539022.98 -31539022.73 0.0543 0.0129

Mercury -91060-03-12 01:25 J -31538171.57 -31538171.44 -31538171.31 0.0527 0.0138

Venus -91060-03-17 05:30 J -31538166.45 -31538166.27 -31538166.09 0.0527 0.0206

Mercury -91060-06-09 12:13 J -31538082.09 -31538081.99 -31538081.88 0.0523 0.0328

Mercury -91054-08-08 22:18 J -31535830.74 -31535830.57 -31535830.40 0.0502 0.0011

Earth -91052-09-28 21:49 J -31535048.81 -31535048.59 -31535048.36 0.0535 0.0132

Moon -91052-09-28 22:47 J -31535048.78 -31535048.55 -31535048.31 0.0535 0.0159 \*

Venus -91049-11-20 02:51 J -31533900.55 -31533900.38 -31533900.21 0.0530 0.0273

Mercury -91049-12-29 05:01 J -31533861.41 -31533861.29 -31533861.17 0.0528 0.0247

Mercury -91048-03-28 15:35 J -31533771.98 -31533771.85 -31533771.73 0.0524 0.0217

Moon -91046-03-18 04:47 J -31533052.43 -31533052.30 -31533052.16 0.0495 0.0396

Earth -91046-03-18 07:11 J -31533052.34 -31533052.20 -31533052.06 0.0495 0.0394 \*

Venus -91042-05-12 17:15 J -31531535.98 -31531535.78 -31531535.58 0.0501 0.0130

Mercury -91042-05-27 21:35 J -31531520.76 -31531520.60 -31531520.43 0.0501 0.0116

Mercury -91042-08-25 21:49 J -31531430.69 -31531430.59 -31531430.48 0.0505 0.0388

Moon -91040-10-04 00:13 J -31530660.68 -31530660.49 -31530660.28 0.0537 0.0242

Earth -91040-10-04 03:20 J -31530660.56 -31530660.36 -31530660.16 0.0537 0.0259 \*

Mercury -91037-10-17 08:23 J -31529551.25 -31529551.15 -31529551.05 0.0529 0.0356

Mercury -91036-01-14 18:42 J -31529461.85 -31529461.72 -31529461.58 0.0525 0.0106

Earth -91034-03-22 15:06 J -31528665.10 -31528664.87 -31528664.64 0.0493 0.0100

Moon -91034-03-22 18:13 J -31528664.97 -31528664.74 -31528664.51 0.0493 0.0128 \*

Venus -91030-01-15 13:54 J -31527270.08 -31527269.92 -31527269.75 0.0499 0.0302

Mercury -91030-03-15 21:06 J -31527210.77 -31527210.62 -31527210.47 0.0501 0.0241

Mercury -91030-06-13 21:49 J -31527120.73 -31527120.59 -31527120.45 0.0504 0.0266

Mercury -91025-08-05 11:44 J -31525241.07 -31525241.01 -31525240.95 0.0530 0.0468

Mercury -91025-11-02 21:49 J -31525151.73 -31525151.59 -31525151.45 0.0526 0.0009

Venus -91025-11-22 21:20 J -31525131.67 -31525131.61 -31525131.55 0.0525 0.0497

Mercury -91024-01-31 08:51 J -31525062.20 -31525062.13 -31525062.07 0.0522 0.0455

Moon -91022-03-26 19:25 J -31524277.90 -31524277.69 -31524277.47 0.0492 0.0187

Earth -91022-03-26 23:15 J -31524277.74 -31524277.53 -31524277.31 0.0492 0.0192 \*

Mercury -91018-01-01 20:51 J -31522900.75 -31522900.63 -31522900.52 0.0500 0.0364

Mercury -91018-04-01 21:49 J -31522810.75 -31522810.59 -31522810.43 0.0503 0.0146

Venus -91013-07-28 14:51 J -31520866.07 -31520865.88 -31520865.68 0.0528 0.0010

Mercury -91013-08-21 23:59 J -31520841.63 -31520841.50 -31520841.37 0.0527 0.0137

Mercury -91013-11-19 10:47 J -31520752.16 -31520752.05 -31520751.95 0.0523 0.0327

Earth -91010-03-31 04:47 J -31519890.35 -31519890.30 -31519890.25 0.0491 0.0478

Mercury -91007-10-20 19:39 J -31518590.70 -31518590.68 -31518590.64 0.0499 0.0493

Venus -91006-01-18 08:08 J -31518501.29 -31518501.16 -31518501.03 0.0502 0.0391

Mercury -91006-01-18 21:20 J -31518500.78 -31518500.61 -31518500.44 0.0502 0.0021

Venus -91001-04-02 10:03 J -31516600.15 -31516600.08 -31516600.01 0.0531 0.0493

Mercury -91001-06-10 02:51 J -31516531.50 -31516531.38 -31516531.26 0.0528 0.0254

Mercury -91001-09-07 13:25 J -31516442.07 -31516441.94 -31516441.81 0.0524 0.0209

# 91ST MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 91st millennium BCE.**

PLANET	MAX- TRANSIT	C	START	MAX	END	SUNRAD	DEPTH	S
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TIME

Venus -90995-09-23 02:23 J -31514235.61 -31514235.40 -31514235.19 0.0500 0.0055

Mercury -90995-11-06 19:39 J -31514190.84 -31514190.68 -31514190.51 0.0501 0.0116

Mercury -90994-02-04 19:54 J -31514100.77 -31514100.67 -31514100.56 0.0505 0.0388

Mercury -90989-03-29 06:13 J -31512221.33 -31512221.24 -31512221.14 0.0529 0.0364

Mercury -90989-06-26 16:32 J -31512131.94 -31512131.81 -31512131.67 0.0525 0.0098

Venus -90983-05-28 23:01 J -31509969.58 -31509969.54 -31509969.49 0.0497 0.0484

Mercury -90983-08-25 18:56 J -31509880.86 -31509880.71 -31509880.56 0.0500 0.0243

Mercury -90983-11-23 19:39 J -31509790.82 -31509790.68 -31509790.54 0.0504 0.0263

Mercury -90977-01-16 09:49 J -31507911.15 -31507911.09 -31507911.03 0.0530 0.0472

Venus -90977-04-05 05:44 J -31507831.42 -31507831.26 -31507831.09 0.0527 0.0288

Mercury -90977-04-14 19:54 J -31507821.80 -31507821.67 -31507821.53 0.0526 0.0016

Mercury -90977-07-13 06:56 J -31507732.28 -31507732.21 -31507732.14 0.0522 0.0452

Mercury -90971-06-13 18:13 J -31505570.85 -31505570.74 -31505570.63 0.0500 0.0371

Mercury -90971-09-11 19:11 J -31505480.86 -31505480.70 -31505480.53 0.0503 0.0140

Moon -90969-09-27 23:01 J -31504733.75 -31504733.54 -31504733.33 0.0534 0.0215

Earth -90969-09-28 01:11 J -31504733.66 -31504733.45 -31504733.22 0.0534 0.0182 \*

Venus -90966-12-10 02:23 J -31503565.58 -31503565.40 -31503565.22 0.0529 0.0195

Mercury -90965-02-01 23:01 J -31503511.67 -31503511.54 -31503511.41 0.0527 0.0128

Mercury -90965-05-01 09:49 J -31503422.20 -31503422.09 -31503421.98 0.0523 0.0336

Earth -90963-03-17 11:59 J -31502737.10 -31502737.00 -31502736.88 0.0496 0.0435

Moon -90963-03-17 15:20 J -31502736.96 -31502736.86 -31502736.75 0.0496 0.0441 \*

Mars -90962-07-27 13:25 J -31502240.22 -31502239.94 -31502239.66 0.0485 0.0153

Mercury -90959-04-01 17:44 J -31501260.78 -31501260.76 -31501260.74 0.0499 0.0494

Venus -90959-05-31 16:47 J -31501200.98 -31501200.80 -31501200.60 0.0501 0.0204

Mercury -90959-06-30 19:11 J -31501170.86 -31501170.70 -31501170.53 0.0502 0.0022

Earth -90957-10-03 05:30 J -31500345.48 -31500345.27 -31500345.06 0.0536 0.0207

Moon -90957-10-03 09:06 J -31500345.33 -31500345.12 -31500344.90 0.0536 0.0195 \*

Mercury -90954-11-21 01:25 J -31499201.56 -31499201.44 -31499201.33 0.0528 0.0254

Mercury -90953-02-18 11:44 J -31499112.13 -31499112.01 -31499111.88 0.0524 0.0209

Moon -90951-03-21 13:39 J -31498350.14 -31498349.93 -31498349.71 0.0494 0.0177  
 Earth -90951-03-21 17:30 J -31498349.99 -31498349.77 -31498349.55 0.0494 0.0146 \*  
 Venus -90947-02-03 13:11 J -31496935.13 -31496934.95 -31496934.76 0.0499 0.0231  
 Mercury -90947-04-18 18:42 J -31496860.89 -31496860.72 -31496860.56 0.0501 0.0109  
 Mercury -90947-07-17 18:56 J -31496770.81 -31496770.71 -31496770.61 0.0505 0.0395  
 Mars -90944-05-01 21:06 J -31495751.76 -31495751.62 -31495751.47 0.0542 0.0442  
 Mercury -90942-09-09 04:18 J -31494891.42 -31494891.32 -31494891.23 0.0529 0.0370  
 Mercury -90942-12-07 14:37 J -31494802.03 -31494801.89 -31494801.76 0.0525 0.0091  
 Earth -90939-03-26 01:39 J -31493962.66 -31493962.43 -31493962.21 0.0493 0.0147  
 Moon -90939-03-26 05:01 J -31493962.51 -31493962.29 -31493962.07 0.0493 0.0151 \*  
 Mercury -90935-02-04 17:01 J -31492550.94 -31492550.79 -31492550.64 0.0500 0.0245  
 Mercury -90935-05-05 17:30 J -31492460.91 -31492460.77 -31492460.62 0.0504 0.0262  
 Mercury -90930-06-28 07:39 J -31490581.24 -31490581.18 -31490581.13 0.0530 0.0481  
 Venus -90930-08-17 12:56 J -31490531.16 -31490530.96 -31490530.77 0.0528 0.0070  
 Mercury -90930-09-25 17:44 J -31490491.90 -31490491.76 -31490491.62 0.0526 0.0023  
 Mercury -90930-12-24 04:47 J -31490402.37 -31490402.30 -31490402.23 0.0523 0.0443  
 Moon -90927-03-30 08:23 J -31489575.22 -31489575.15 -31489575.08 0.0491 0.0469  
 Earth -90927-03-30 11:01 J -31489575.13 -31489575.04 -31489574.93 0.0491 0.0440 \*  
 Mercury -90924-11-23 15:49 J -31488240.94 -31488240.84 -31488240.72 0.0500 0.0374  
 Venus -90923-02-06 03:49 J -31488166.43 -31488166.34 -31488166.24 0.0502 0.0446  
 Mercury -90923-02-21 17:01 J -31488150.95 -31488150.79 -31488150.63 0.0503 0.0136  
 Venus -90918-04-22 09:49 J -31486265.21 -31486265.09 -31486264.97 0.0531 0.0413  
 Mercury -90918-07-14 21:06 J -31486181.75 -31486181.62 -31486181.49 0.0527 0.0133  
 Mercury -90918-10-12 07:54 J -31486092.28 -31486092.17 -31486092.07 0.0523 0.0331  
 Venus -90912-10-11 23:59 J -31483900.71 -31483900.50 -31483900.29 0.0500 0.0013  
 Mercury -90912-12-10 16:32 J -31483840.98 -31483840.81 -31483840.64 0.0502 0.0011  
 Mars -90908-02-04 11:15 J -31482689.22 -31482689.03 -31482688.84 0.0543 0.0363  
 Mercury -90906-05-03 00:13 J -31481871.60 -31481871.49 -31481871.37 0.0528 0.0247  
 Mercury -90906-07-31 10:47 J -31481782.17 -31481782.05 -31481781.92 0.0524 0.0216  
 Venus -90900-06-16 21:49 J -31479634.70 -31479634.59 -31479634.47 0.0498 0.0416

Mercury -90900-09-28 16:18 J -31479530.98 -31479530.82 -31479530.65 0.0502 0.0113

Mercury -90900-12-27 16:47 J -31479440.90 -31479440.80 -31479440.70 0.0505 0.0392

Mercury -90894-02-19 02:37 J -31477561.48 -31477561.39 -31477561.29 0.0529 0.0370

Venus -90894-04-25 01:11 J -31477496.60 -31477496.45 -31477496.30 0.0526 0.0341

Mercury -90894-05-19 12:56 J -31477472.09 -31477471.96 -31477471.82 0.0525 0.0090

Mercury -90888-07-17 15:35 J -31475221.00 -31475220.85 -31475220.70 0.0501 0.0239

Mercury -90888-10-15 16:18 J -31475130.96 -31475130.82 -31475130.68 0.0504 0.0268

Earth -90886-09-27 23:59 J -31474418.70 -31474418.50 -31474418.28 0.0533 0.0243

Moon -90886-09-28 03:35 J -31474418.55 -31474418.35 -31474418.15 0.0533 0.0275 \*

Mercury -90883-12-08 05:44 J -31473251.31 -31473251.26 -31473251.21 0.0530 0.0486

Venus -90883-12-28 20:37 J -31473230.83 -31473230.64 -31473230.45 0.0529 0.0147

Mercury -90882-03-07 15:35 J -31473161.98 -31473161.85 -31473161.71 0.0526 0.0033

Mercury -90882-06-05 02:37 J -31473072.47 -31473072.39 -31473072.32 0.0522 0.0435

Earth -90880-03-16 13:11 J -31472421.98 -31472421.95 -31472421.89 0.0496 0.0485

Mercury -90876-05-05 13:54 J -31470911.03 -31470910.92 -31470910.81 0.0499 0.0375

Venus -90876-06-19 12:27 J -31470866.16 -31470865.98 -31470865.80 0.0501 0.0257

Mercury -90876-08-03 15:06 J -31470821.04 -31470820.87 -31470820.71 0.0503 0.0134

Moon -90874-10-02 18:56 J -31470030.93 -31470030.71 -31470030.48 0.0535 0.0110

Earth -90874-10-02 23:01 J -31470030.77 -31470030.54 -31470030.32 0.0535 0.0125 \*

Mercury -90871-12-24 18:42 J -31468851.85 -31468851.72 -31468851.58 0.0528 0.0144

Mercury -90870-03-24 05:30 J -31468762.38 -31468762.27 -31468762.16 0.0524 0.0322

Earth -90868-03-20 23:30 J -31468034.74 -31468034.52 -31468034.31 0.0495 0.0186

Moon -90868-03-21 02:51 J -31468034.59 -31468034.38 -31468034.17 0.0495 0.0213 \*

Venus -90864-02-22 08:37 J -31466600.33 -31466600.14 -31466599.94 0.0499 0.0178

Mercury -90864-05-22 14:23 J -31466511.07 -31466510.90 -31466510.73 0.0502 0.0010

Earth -90862-10-08 02:51 J -31465642.44 -31465642.38 -31465642.30 0.0537 0.0509

Mercury -90859-10-12 22:18 J -31464541.69 -31464541.57 -31464541.45 0.0528 0.0253

Mercury -90858-01-10 08:37 J -31464452.26 -31464452.14 -31464452.01 0.0525 0.0211

Moon -90856-03-25 05:01 J -31463647.52 -31463647.29 -31463647.06 0.0493 0.0114

Earth -90856-03-25 07:39 J -31463647.41 -31463647.18 -31463646.95 0.0493 0.0107 \*



Mercury -90852-03-10 13:39 J -31462201.10 -31462200.93 -31462200.77 0.0501 0.0121

Mercury -90852-06-08 13:54 J -31462111.02 -31462110.92 -31462110.81 0.0505 0.0383

Mercury -90847-08-01 01:25 J -31460231.53 -31460231.44 -31460231.34 0.0529 0.0365

Venus -90847-09-05 11:59 J -31460196.19 -31460196.00 -31460195.81 0.0528 0.0145

Mercury -90847-10-29 11:44 J -31460142.14 -31460142.01 -31460141.87 0.0525 0.0096

Earth -90844-03-29 15:35 J -31459259.98 -31459259.85 -31459259.71 0.0491 0.0395

Moon -90844-03-29 17:01 J -31459259.89 -31459259.79 -31459259.67 0.0491 0.0427 \*

Mars -90843-01-13 21:49 J -31458969.80 -31458969.59 -31458969.36 0.0486 0.0327

Mercury -90841-12-27 13:25 J -31457891.09 -31457890.94 -31457890.79 0.0501 0.0244

Mercury -90840-03-27 14:08 J -31457801.05 -31457800.91 -31457800.77 0.0504 0.0264

Venus -90835-05-11 05:59 J -31455930.40 -31455930.25 -31455930.10 0.0530 0.0354

Mercury -90835-05-20 04:18 J -31455921.37 -31455921.32 -31455921.27 0.0530 0.0485

Mercury -90835-08-17 14:08 J -31455832.05 -31455831.91 -31455831.77 0.0526 0.0029

Mercury -90835-11-15 00:56 J -31455742.53 -31455742.46 -31455742.38 0.0522 0.0435

Mercury -90829-10-15 12:27 J -31453581.09 -31453580.98 -31453580.87 0.0500 0.0371

Venus -90829-10-30 22:47 J -31453565.75 -31453565.55 -31453565.34 0.0500 0.0078

Mercury -90828-01-13 13:39 J -31453491.09 -31453490.93 -31453490.77 0.0503 0.0139

Mercury -90823-06-05 17:01 J -31451521.92 -31451521.79 -31451521.66 0.0527 0.0147

Mercury -90823-09-03 03:35 J -31451432.46 -31451432.35 -31451432.24 0.0523 0.0316

Venus -90817-07-05 17:44 J -31449299.90 -31449299.76 -31449299.62 0.0498 0.0361

Mercury -90817-11-01 12:13 J -31449181.16 -31449180.99 -31449180.82 0.0502 0.0004

Mercury -90816-01-30 12:13 J -31449091.00 -31449090.99 -31449090.98 0.0505 0.0504

Mercury -90811-03-24 20:08 J -31447211.78 -31447211.66 -31447211.55 0.0529 0.0262

Venus -90811-05-13 22:18 J -31447161.69 -31447161.57 -31447161.44 0.0526 0.0406

Mercury -90811-06-22 06:27 J -31447122.35 -31447122.23 -31447122.10 0.0525 0.0201

Mars -90808-10-19 23:15 J -31445906.72 -31445906.53 -31445906.32 0.0485 0.0353

Mercury -90805-08-20 11:30 J -31444871.19 -31444871.02 -31444870.86 0.0501 0.0124

Mercury -90805-11-18 11:44 J -31444781.12 -31444781.01 -31444780.90 0.0504 0.0380

Moon -90803-09-26 14:37 J -31444104.06 -31444103.89 -31444103.72 0.0533 0.0357

Earth -90803-09-26 18:27 J -31444103.92 -31444103.73 -31444103.55 0.0533 0.0322 \*

Mercury -90799-01-10 23:30 J -31442901.61 -31442901.52 -31442901.42 0.0529 0.0371

Venus -90799-01-16 19:25 J -31442895.88 -31442895.69 -31442895.49 0.0529 0.0073

Mercury -90799-04-10 09:49 J -31442812.23 -31442812.09 -31442811.96 0.0526 0.0090

Mercury -90793-06-08 10:32 J -31440561.21 -31440561.06 -31440560.91 0.0500 0.0252

Venus -90793-07-08 09:49 J -31440531.25 -31440531.09 -31440530.93 0.0501 0.0319

Mercury -90793-09-06 11:15 J -31440471.17 -31440471.03 -31440470.88 0.0504 0.0255

Earth -90791-10-01 23:59 J -31439715.73 -31439715.50 -31439715.27 0.0535 0.0066

Moon -90791-10-02 03:35 J -31439715.58 -31439715.35 -31439715.12 0.0535 0.0062 \*

Mars -90790-07-26 12:56 J -31439418.18 -31439417.96 -31439417.72 0.0543 0.0237

Mercury -90788-10-30 02:51 J -31438591.43 -31438591.38 -31438591.32 0.0530 0.0482

Mercury -90787-01-27 12:56 J -31438502.09 -31438501.96 -31438501.82 0.0526 0.0025

Mercury -90787-04-26 23:59 J -31438412.58 -31438412.50 -31438412.43 0.0523 0.0441

Moon -90785-03-20 01:54 J -31437719.62 -31437719.42 -31437719.21 0.0495 0.0253

Earth -90785-03-20 04:32 J -31437719.51 -31437719.31 -31437719.10 0.0495 0.0227 \*

Venus -90781-03-13 07:11 J -31436265.40 -31436265.20 -31436265.00 0.0499 0.0112

Mercury -90781-03-27 10:03 J -31436251.19 -31436251.08 -31436250.96 0.0500 0.0376

Mercury -90781-06-25 11:15 J -31436161.19 -31436161.03 -31436160.86 0.0503 0.0135

Moon -90779-10-07 03:49 J -31435327.44 -31435327.34 -31435327.24 0.0537 0.0488

Earth -90779-10-07 05:59 J -31435327.37 -31435327.25 -31435327.13 0.0537 0.0458 \*

Mercury -90776-11-15 15:35 J -31434191.98 -31434191.85 -31434191.72 0.0527 0.0145

Mercury -90775-02-13 02:08 J -31434102.52 -31434102.41 -31434102.30 0.0523 0.0317

Earth -90773-03-24 09:35 J -31433332.33 -31433332.10 -31433331.87 0.0493 0.0057

Moon -90773-03-24 11:15 J -31433332.26 -31433332.03 -31433331.81 0.0493 0.0070 \*

Mercury -90769-04-13 10:47 J -31431851.22 -31431851.05 -31431850.88 0.0502 0.0014

Mercury -90764-09-03 18:27 J -31429881.85 -31429881.73 -31429881.62 0.0528 0.0263

Venus -90764-09-24 07:11 J -31429861.38 -31429861.20 -31429861.01 0.0527 0.0198

Mercury -90764-12-02 04:47 J -31429792.43 -31429792.30 -31429792.17 0.0524 0.0198

Earth -90761-03-28 17:30 J -31428944.93 -31428944.77 -31428944.60 0.0492 0.0347

Moon -90761-03-28 17:30 J -31428944.93 -31428944.77 -31428944.61 0.0492 0.0374 \*

Mercury -90757-01-31 09:20 J -31427541.27 -31427541.11 -31427540.94 0.0501 0.0125

Mercury -90757-04-30 09:49 J -31427451.20 -31427451.09 -31427450.98 0.0504 0.0378

Mars -90754-04-30 16:18 J -31426355.84 -31426355.82 -31426355.79 0.0543 0.0539

Venus -90752-05-30 02:37 J -31425595.55 -31425595.39 -31425595.22 0.0530 0.0293

Mercury -90752-06-22 21:20 J -31425571.70 -31425571.61 -31425571.51 0.0530 0.0379

Mercury -90752-09-20 07:39 J -31425482.32 -31425482.18 -31425482.05 0.0526 0.0082

Mercury -90746-11-19 08:37 J -31423231.29 -31423231.14 -31423231.00 0.0500 0.0253

Venus -90746-11-19 18:42 J -31423230.92 -31423230.72 -31423230.52 0.0500 0.0132

Mercury -90745-02-17 09:20 J -31423141.25 -31423141.11 -31423140.97 0.0503 0.0253

Mercury -90740-04-11 00:56 J -31421261.51 -31421261.46 -31421261.41 0.0530 0.0488

Mercury -90740-07-09 11:01 J -31421172.18 -31421172.04 -31421171.91 0.0527 0.0032

Mercury -90740-10-06 21:49 J -31421082.66 -31421082.59 -31421082.51 0.0523 0.0435

Venus -90734-07-25 15:06 J -31418965.04 -31418964.87 -31418964.70 0.0498 0.0301

Mercury -90734-09-07 07:25 J -31418921.29 -31418921.19 -31418921.08 0.0499 0.0383

Mercury -90734-12-06 08:37 J -31418831.30 -31418831.14 -31418830.97 0.0503 0.0128

Mercury -90728-04-27 14:08 J -31416862.04 -31416861.91 -31416861.77 0.0527 0.0142

Venus -90728-06-01 22:03 J -31416826.65 -31416826.58 -31416826.50 0.0526 0.0484

Mercury -90728-07-26 00:56 J -31416772.57 -31416772.46 -31416772.35 0.0524 0.0322

Mercury -90722-09-24 08:37 J -31414521.31 -31414521.14 -31414520.97 0.0502 0.0005

Earth -90720-09-25 22:03 J -31413788.75 -31413788.58 -31413788.41 0.0532 0.0368

Moon -90720-09-26 01:54 J -31413788.57 -31413788.42 -31413788.26 0.0532 0.0401 \*

Venus -90716-02-04 17:15 J -31412560.98 -31412560.78 -31412560.59 0.0528 0.0012

Mercury -90716-02-13 17:01 J -31412551.91 -31412551.79 -31412551.67 0.0528 0.0260

Mercury -90716-05-14 03:20 J -31412462.48 -31412462.36 -31412462.23 0.0524 0.0201

Mercury -90710-07-13 08:08 J -31410211.33 -31410211.16 -31410211.00 0.0501 0.0120

Venus -90710-07-28 08:51 J -31410196.25 -31410196.13 -31410195.99 0.0502 0.0392

Mercury -90710-10-11 08:23 J -31410121.25 -31410121.15 -31410121.04 0.0505 0.0385

Moon -90708-09-30 22:32 J -31409400.80 -31409400.56 -31409400.32 0.0534 0.0009

Earth -90708-10-01 01:25 J -31409400.67 -31409400.44 -31409400.20 0.0534 0.0012 \*

Venus -90705-10-10 11:59 J -31408295.05 -31408295.00 -31408294.93 0.0531 0.0500

Mercury -90705-12-02 19:54 J -31408241.76 -31408241.67 -31408241.57 0.0529 0.0377

Mercury -90704-03-02 06:13 J -31408152.38 -31408152.24 -31408152.11 0.0525 0.0083

Earth -90702-03-20 07:11 J -31407404.39 -31407404.20 -31407404.01 0.0496 0.0275

Moon -90702-03-20 08:23 J -31407404.32 -31407404.15 -31407403.96 0.0496 0.0299 \*

Venus -90698-04-02 04:03 J -31405930.54 -31405930.33 -31405930.12 0.0499 0.0051

Mercury -90698-05-01 06:42 J -31405901.37 -31405901.22 -31405901.07 0.0500 0.0253

Mercury -90698-07-30 07:25 J -31405811.33 -31405811.19 -31405811.04 0.0503 0.0253

Earth -90696-10-05 23:15 J -31405012.69 -31405012.53 -31405012.36 0.0536 0.0374

Moon -90696-10-06 00:13 J -31405012.63 -31405012.49 -31405012.34 0.0536 0.0407 \*

Mercury -90693-09-20 23:01 J -31403931.59 -31403931.54 -31403931.50 0.0531 0.0494

Mercury -90693-12-19 08:51 J -31403842.26 -31403842.13 -31403841.99 0.0527 0.0037

Mercury -90692-03-18 19:54 J -31403752.75 -31403752.67 -31403752.60 0.0523 0.0430

Moon -90690-03-24 16:47 J -31403017.04 -31403016.80 -31403016.55 0.0494 0.0036

Earth -90690-03-24 17:01 J -31403017.03 -31403016.79 -31403016.56 0.0494 0.0021 \*

Mars -90689-04-08 10:03 J -31402636.36 -31402636.08 -31402635.78 0.0486 0.0120

Venus -90687-12-06 00:56 J -31401664.51 -31401664.46 -31401664.40 0.0497 0.0479

Mercury -90686-02-17 05:44 J -31401591.37 -31401591.26 -31401591.15 0.0499 0.0381

Mercury -90686-05-18 06:56 J -31401501.37 -31401501.21 -31401501.05 0.0502 0.0127

Mercury -90681-10-07 12:13 J -31399532.12 -31399531.99 -31399531.86 0.0528 0.0148

Venus -90681-10-13 05:59 J -31399526.42 -31399526.25 -31399526.08 0.0528 0.0272

Mercury -90680-01-04 23:01 J -31399442.65 -31399442.54 -31399442.43 0.0524 0.0317

Moon -90678-03-29 00:13 J -31398629.65 -31398629.49 -31398629.33 0.0492 0.0339

Earth -90678-03-29 01:39 J -31398629.61 -31398629.43 -31398629.25 0.0492 0.0313 \*

Mercury -90674-03-06 06:13 J -31397191.41 -31397191.24 -31397191.07 0.0502 0.0002

Mercury -90674-06-04 06:13 J -31397101.26 -31397101.24 -31397101.22 0.0505 0.0500

Venus -90669-06-18 03:06 J -31395260.55 -31395260.37 -31395260.19 0.0530 0.0210

Mercury -90669-07-26 15:49 J -31395221.96 -31395221.84 -31395221.73 0.0529 0.0257

Mercury -90669-10-24 02:08 J -31395132.53 -31395132.41 -31395132.28 0.0525 0.0205

Venus -90663-12-08 17:30 J -31392895.95 -31392895.77 -31392895.57 0.0501 0.0203

Mercury -90663-12-23 05:59 J -31392881.42 -31392881.25 -31392881.09 0.0501 0.0123

Mercury -90662-03-23 06:27 J -31392791.34 -31392791.23 -31392791.12 0.0505 0.0382

Mercury -90657-05-14 18:42 J -31390911.81 -31390911.72 -31390911.62 0.0529 0.0372

Mercury -90657-08-12 04:47 J -31390822.43 -31390822.30 -31390822.16 0.0525 0.0088

Venus -90651-08-13 14:37 J -31388630.08 -31388629.89 -31388629.71 0.0498 0.0228

Mercury -90651-10-11 05:15 J -31388571.43 -31388571.28 -31388571.13 0.0500 0.0248

Mercury -90650-01-09 06:13 J -31388481.38 -31388481.24 -31388481.10 0.0504 0.0260

Mercury -90645-03-02 21:49 J -31386601.64 -31386601.59 -31386601.54 0.0530 0.0488

Mercury -90645-05-31 07:39 J -31386512.31 -31386512.18 -31386512.04 0.0526 0.0032

Mercury -90645-08-28 18:27 J -31386422.80 -31386422.73 -31386422.65 0.0523 0.0432

Mercury -90639-07-30 04:03 J -31384261.44 -31384261.33 -31384261.22 0.0499 0.0379

Mercury -90639-10-28 05:15 J -31384171.44 -31384171.28 -31384171.12 0.0502 0.0129

Moon -90637-09-24 13:54 J -31383474.02 -31383473.92 -31383473.82 0.0531 0.0475

Earth -90637-09-24 17:30 J -31383473.90 -31383473.77 -31383473.64 0.0531 0.0442 \*

Mars -90636-10-19 00:42 J -31383084.73 -31383084.47 -31383084.22 0.0542 0.0046

Venus -90633-02-24 14:08 J -31382226.11 -31382225.91 -31382225.71 0.0529 0.0058

Mercury -90633-03-19 10:32 J -31382202.19 -31382202.06 -31382201.93 0.0528 0.0152

Mercury -90633-06-16 21:06 J -31382112.73 -31382112.62 -31382112.51 0.0524 0.0313

Mercury -90627-08-16 04:32 J -31379861.48 -31379861.31 -31379861.14 0.0501 0.0012

Venus -90627-08-16 06:13 J -31379861.32 -31379861.24 -31379861.15 0.0501 0.0452 \*

Mercury -90627-11-14 04:32 J -31379771.32 -31379771.31 -31379771.29 0.0505 0.0502

Earth -90625-09-29 20:37 J -31379085.87 -31379085.64 -31379085.41 0.0534 0.0067

Moon -90625-09-29 22:18 J -31379085.80 -31379085.57 -31379085.35 0.0534 0.0060 \*

Venus -90622-10-30 10:47 J -31377960.17 -31377960.05 -31377959.94 0.0532 0.0429

Mercury -90621-01-06 13:54 J -31377892.04 -31377891.92 -31377891.81 0.0529 0.0262

Mercury -90621-04-05 00:13 J -31377802.61 -31377802.49 -31377802.36 0.0525 0.0201

Earth -90619-03-19 16:18 J -31377089.00 -31377088.82 -31377088.63 0.0496 0.0305

Moon -90619-03-19 16:32 J -31377089.00 -31377088.81 -31377088.63 0.0496 0.0323 \*

Venus -90615-04-21 02:23 J -31375595.61 -31375595.40 -31375595.19 0.0499 0.0015

Mercury -90615-06-04 03:49 J -31375551.51 -31375551.34 -31375551.18 0.0501 0.0125

Mercury -90615-09-02 04:03 J -31375461.43 -31375461.33 -31375461.21 0.0504 0.0378

Earth -90613-10-05 02:08 J -31374697.60 -31374697.41 -31374697.23 0.0536 0.0320

Moon -90613-10-05 02:37 J -31374697.57 -31374697.39 -31374697.21 0.0536 0.0351 \*  
 Mercury -90610-10-25 17:15 J -31373581.87 -31373581.78 -31373581.68 0.0530 0.0371  
 Mercury -90609-01-23 03:35 J -31373492.48 -31373492.35 -31373492.21 0.0526 0.0090  
 Moon -90607-03-23 23:44 J -31372701.73 -31372701.51 -31372701.28 0.0494 0.0008  
 Earth -90607-03-24 01:11 J -31372701.68 -31372701.45 -31372701.21 0.0494 0.0016 \*  
 Venus -90604-12-25 00:13 J -31371329.61 -31371329.49 -31371329.37 0.0497 0.0409  
 Mercury -90603-03-23 03:20 J -31371241.51 -31371241.36 -31371241.21 0.0500 0.0248  
 Mercury -90603-06-21 04:18 J -31371151.46 -31371151.32 -31371151.18 0.0504 0.0258  
 Mercury -90598-08-13 20:37 J -31369271.69 -31369271.64 -31369271.59 0.0530 0.0483  
 Venus -90598-11-02 05:44 J -31369191.40 -31369191.26 -31369191.11 0.0527 0.0351  
 Mercury -90598-11-11 06:27 J -31369182.36 -31369182.23 -31369182.09 0.0526 0.0029  
 Mercury -90597-02-08 17:15 J -31369092.85 -31369092.78 -31369092.70 0.0523 0.0437  
 Earth -90595-03-28 07:25 J -31368314.38 -31368314.19 -31368313.99 0.0493 0.0272  
 Moon -90595-03-28 10:32 J -31368314.25 -31368314.06 -31368313.86 0.0493 0.0292 \*  
 Mercury -90591-01-09 02:37 J -31366931.50 -31366931.39 -31366931.27 0.0499 0.0373  
 Mercury -90591-04-09 04:03 J -31366841.49 -31366841.33 -31366841.17 0.0503 0.0136  
 Venus -90586-07-08 01:25 J -31364925.63 -31364925.44 -31364925.25 0.0530 0.0138  
 Mercury -90586-08-30 09:35 J -31364872.23 -31364872.10 -31364871.97 0.0527 0.0144  
 Mercury -90586-11-27 20:08 J -31364782.77 -31364782.66 -31364782.55 0.0524 0.0320  
 Venus -90580-12-27 16:32 J -31362560.99 -31362560.81 -31362560.64 0.0500 0.0272  
 Mercury -90579-01-26 03:06 J -31362531.54 -31362531.37 -31362531.20 0.0501 0.0010  
 Mercury -90574-06-18 12:13 J -31360562.11 -31360561.99 -31360561.88 0.0529 0.0264  
 Mercury -90574-09-15 22:32 J -31360472.69 -31360472.56 -31360472.43 0.0525 0.0199  
 Venus -90568-09-01 13:11 J -31358295.14 -31358294.95 -31358294.75 0.0498 0.0160  
 Mercury -90568-11-14 02:23 J -31358221.56 -31358221.40 -31358221.23 0.0500 0.0120  
 Mercury -90567-02-12 02:51 J -31358131.48 -31358131.38 -31358131.27 0.0504 0.0383  
 Mercury -90562-04-06 15:35 J -31356251.94 -31356251.85 -31356251.76 0.0530 0.0375  
 Mercury -90562-07-05 01:54 J -31356162.56 -31356162.42 -31356162.29 0.0526 0.0087  
 Mercury -90556-09-02 01:25 J -31353911.59 -31353911.44 -31353911.29 0.0500 0.0248  
 Mercury -90556-12-01 02:23 J -31353821.54 -31353821.40 -31353821.26 0.0503 0.0257

Earth -90554-09-24 20:08 J -31353158.75 -31353158.66 -31353158.57 0.0531 0.0492  
 Moon -90554-09-24 22:32 J -31353158.60 -31353158.56 -31353158.52 0.0531 0.0521 \*  
 Mercury -90550-01-23 19:11 J -31351941.75 -31351941.70 -31351941.64 0.0531 0.0482  
 Venus -90550-03-15 15:49 J -31351891.03 -31351890.84 -31351890.65 0.0529 0.0149  
 Mercury -90550-04-23 05:15 J -31351852.42 -31351852.28 -31351852.14 0.0527 0.0023  
 Mercury -90550-07-21 16:03 J -31351762.90 -31351762.83 -31351762.75 0.0523 0.0442  
 Mercury -90544-06-21 00:56 J -31349601.57 -31349601.46 -31349601.35 0.0499 0.0372  
 Mercury -90544-09-19 02:08 J -31349511.57 -31349511.41 -31349511.24 0.0503 0.0138  
 Moon -90542-09-30 02:51 J -31348770.61 -31348770.38 -31348770.13 0.0533 0.0092  
 Earth -90542-09-30 03:06 J -31348770.60 -31348770.37 -31348770.14 0.0533 0.0106 \*  
 Venus -90539-11-18 11:59 J -31347625.15 -31347625.00 -31347624.85 0.0531 0.0340  
 Mercury -90538-02-09 08:23 J -31347542.28 -31347542.15 -31347542.02 0.0528 0.0137  
 Mercury -90538-05-09 18:56 J -31347452.82 -31347452.71 -31347452.60 0.0524 0.0325  
 Moon -90536-03-18 22:03 J -31346773.74 -31346773.58 -31346773.43 0.0496 0.0356  
 Earth -90536-03-18 23:30 J -31346773.68 -31346773.52 -31346773.35 0.0496 0.0342 \*  
 Mars -90535-07-03 07:54 J -31346302.46 -31346302.17 -31346301.88 0.0486 0.0107  
 Mercury -90532-04-09 00:13 J -31345291.50 -31345291.49 -31345291.48 0.0499 0.0497  
 Venus -90532-05-10 03:20 J -31345260.56 -31345260.36 -31345260.15 0.0500 0.0096  
 Mercury -90532-07-08 01:54 J -31345201.59 -31345201.42 -31345201.25 0.0502 0.0018  
 Moon -90530-10-05 06:13 J -31344382.42 -31344382.24 -31344382.05 0.0535 0.0308  
 Earth -90530-10-05 08:08 J -31344382.36 -31344382.16 -31344381.96 0.0535 0.0276 \*  
 Mercury -90527-11-28 11:30 J -31343232.14 -31343232.02 -31343231.90 0.0528 0.0253  
 Mercury -90526-02-25 21:49 J -31343142.72 -31343142.59 -31343142.47 0.0525 0.0209  
 Earth -90524-03-23 07:54 J -31342386.40 -31342386.17 -31342385.93 0.0495 0.0051  
 Moon -90524-03-23 11:01 J -31342386.28 -31342386.04 -31342385.80 0.0495 0.0023 \*  
 Venus -90520-01-13 00:13 J -31340994.64 -31340994.49 -31340994.34 0.0497 0.0335  
 Mercury -90520-04-26 01:11 J -31340891.62 -31340891.45 -31340891.28 0.0500 0.0113  
 Mercury -90520-07-25 01:39 J -31340801.53 -31340801.43 -31340801.33 0.0504 0.0389  
 Mercury -90515-09-16 13:54 J -31338922.01 -31338921.92 -31338921.82 0.0530 0.0375  
 Venus -90515-11-21 03:20 J -31338856.47 -31338856.36 -31338856.24 0.0527 0.0417

Mercury -90515-12-15 00:13 J -31338832.62 -31338832.49 -31338832.36 0.0526 0.0086

Moon -90512-03-27 13:25 J -31337999.13 -31337998.94 -31337998.74 0.0493 0.0258

Earth -90512-03-27 17:15 J -31337998.98 -31337998.78 -31337998.57 0.0493 0.0244 \*

Mercury -90508-02-12 00:27 J -31336581.63 -31336581.48 -31336581.33 0.0499 0.0239

Mercury -90508-05-13 01:11 J -31336491.59 -31336491.45 -31336491.30 0.0503 0.0266

Mercury -90503-07-05 17:30 J -31334611.82 -31334611.77 -31334611.72 0.0531 0.0485

Venus -90503-07-27 00:13 J -31334590.69 -31334590.49 -31334590.30 0.0530 0.0066

Mercury -90503-10-03 03:35 J -31334522.49 -31334522.35 -31334522.22 0.0527 0.0031

Mercury -90503-12-31 14:23 J -31334432.97 -31334432.90 -31334432.83 0.0524 0.0439

Mercury -90497-11-30 23:15 J -31332271.64 -31332271.53 -31332271.41 0.0499 0.0370

Venus -90496-01-15 15:49 J -31332225.99 -31332225.84 -31332225.68 0.0500 0.0344

Mercury -90496-03-01 00:27 J -31332181.64 -31332181.48 -31332181.31 0.0502 0.0139

Mercury -90491-07-22 06:56 J -31330212.34 -31330212.21 -31330212.07 0.0528 0.0136

Mercury -90491-10-19 17:44 J -31330122.87 -31330122.76 -31330122.66 0.0524 0.0329

Mercury -90485-09-18 22:32 J -31327961.57 -31327961.56 -31327961.54 0.0498 0.0494

Venus -90485-09-20 13:25 J -31327960.15 -31327959.94 -31327959.74 0.0498 0.0085

Mercury -90485-12-18 00:27 J -31327871.65 -31327871.48 -31327871.31 0.0501 0.0020

Mars -90481-01-13 12:56 J -31326750.19 -31326749.96 -31326749.73 0.0543 0.0229

Mercury -90479-05-10 10:18 J -31325902.19 -31325902.07 -31325901.95 0.0529 0.0247

Mercury -90479-08-07 20:37 J -31325812.76 -31325812.64 -31325812.51 0.0525 0.0215

Mercury -90473-10-05 23:59 J -31323561.67 -31323561.50 -31323561.33 0.0501 0.0107

Mercury -90472-01-04 00:27 J -31323471.58 -31323471.48 -31323471.38 0.0504 0.0397

Earth -90471-09-24 03:35 J -31322843.37 -31322843.35 -31322843.32 0.0531 0.0527

Mercury -90467-02-26 13:25 J -31321592.03 -31321591.94 -31321591.84 0.0530 0.0361

Venus -90467-04-03 15:49 J -31321556.01 -31321555.84 -31321555.66 0.0528 0.0230

Mercury -90467-05-26 23:30 J -31321502.65 -31321502.52 -31321502.38 0.0526 0.0100

Mercury -90461-07-24 23:15 J -31319251.68 -31319251.53 -31319251.38 0.0500 0.0233

Mercury -90461-10-23 00:13 J -31319161.63 -31319161.49 -31319161.35 0.0503 0.0272

Moon -90459-09-29 02:08 J -31318455.63 -31318455.41 -31318455.19 0.0532 0.0146

Earth -90459-09-29 03:20 J -31318455.58 -31318455.36 -31318455.13 0.0532 0.0164 \*



Venus -90456-12-07 09:20 J -31317290.28 -31317290.11 -31317289.94 0.0531 0.0276  
 Mercury -90456-12-15 16:03 J -31317281.88 -31317281.83 -31317281.78 0.0531 0.0484  
 Mercury -90455-03-15 01:54 J -31317192.55 -31317192.42 -31317192.28 0.0527 0.0031  
 Mercury -90455-06-12 12:56 J -31317103.04 -31317102.96 -31317102.89 0.0524 0.0440  
 Earth -90453-03-18 08:51 J -31316458.28 -31316458.13 -31316457.98 0.0497 0.0370  
 Moon -90453-03-18 11:59 J -31316458.16 -31316458.00 -31316457.84 0.0497 0.0371 \*  
 Mercury -90449-05-12 22:32 J -31314941.68 -31314941.56 -31314941.44 0.0499 0.0359  
 Venus -90449-05-29 03:49 J -31314925.54 -31314925.34 -31314925.14 0.0499 0.0172  
 Mercury -90449-08-10 23:44 J -31314851.67 -31314851.51 -31314851.35 0.0502 0.0148  
 Earth -90447-10-04 06:27 J -31314067.44 -31314067.23 -31314067.02 0.0534 0.0211  
 Moon -90447-10-04 09:20 J -31314067.32 -31314067.11 -31314066.89 0.0534 0.0240 \*  
 Mercury -90443-01-01 05:15 J -31312882.41 -31312882.28 -31312882.15 0.0528 0.0138  
 Mercury -90443-03-31 15:49 J -31312792.94 -31312792.84 -31312792.73 0.0525 0.0327  
 Moon -90441-03-22 15:06 J -31312071.10 -31312070.87 -31312070.64 0.0495 0.0045  
 Earth -90441-03-22 18:42 J -31312070.95 -31312070.72 -31312070.49 0.0495 0.0074 \*  
 Venus -90437-02-01 23:59 J -31310659.68 -31310659.50 -31310659.32 0.0497 0.0261  
 Mercury -90437-02-29 21:06 J -31310631.64 -31310631.62 -31310631.59 0.0498 0.0489  
 Mercury -90437-05-29 22:47 J -31310541.72 -31310541.55 -31310541.38 0.0501 0.0021  
 Mercury -90432-10-20 08:51 J -31308572.25 -31308572.13 -31308572.01 0.0529 0.0246  
 Venus -90432-12-10 05:44 J -31308521.30 -31308521.26 -31308521.21 0.0527 0.0510  
 Mercury -90431-01-17 19:25 J -31308482.82 -31308482.69 -31308482.57 0.0526 0.0217  
 Earth -90429-03-27 04:18 J -31307683.53 -31307683.32 -31307683.11 0.0494 0.0220  
 Moon -90429-03-27 07:54 J -31307683.37 -31307683.17 -31307682.96 0.0494 0.0229 \*  
 Mercury -90425-03-17 22:32 J -31306231.73 -31306231.56 -31306231.39 0.0501 0.0103  
 Mercury -90425-06-15 23:01 J -31306141.64 -31306141.54 -31306141.44 0.0504 0.0399  
 Mercury -90420-08-08 12:27 J -31304262.08 -31304261.98 -31304261.88 0.0530 0.0356  
 Venus -90420-08-15 02:37 J -31304255.59 -31304255.39 -31304255.19 0.0529 0.0031  
 Mercury -90420-11-05 22:32 J -31304172.69 -31304172.56 -31304172.43 0.0526 0.0104  
 Moon -90417-03-31 08:23 J -31303296.21 -31303296.15 -31303296.09 0.0492 0.0475  
 Mars -90417-12-21 07:39 J -31303031.39 -31303031.18 -31303030.96 0.0486 0.0334

Mercury -90413-01-04 22:03 J -31301921.73 -31301921.58 -31301921.43 0.0500 0.0226

Venus -90413-02-04 17:30 J -31301890.87 -31301890.77 -31301890.65 0.0501 0.0431

Mercury -90413-04-03 23:01 J -31301831.68 -31301831.54 -31301831.40 0.0503 0.0279

Venus -90408-04-19 22:03 J -31299989.67 -31299989.58 -31299989.48 0.0532 0.0464

Mercury -90408-05-27 15:35 J -31299951.91 -31299951.85 -31299951.79 0.0531 0.0469

Mercury -90408-08-25 01:39 J -31299862.57 -31299862.43 -31299862.30 0.0527 0.0017

Mercury -90408-11-22 12:27 J -31299773.05 -31299772.98 -31299772.92 0.0523 0.0453

Venus -90402-10-10 14:51 J -31297625.09 -31297624.88 -31297624.67 0.0498 0.0009

Mercury -90402-10-23 21:20 J -31297611.73 -31297611.61 -31297611.49 0.0499 0.0351

Mercury -90401-01-21 22:47 J -31297521.71 -31297521.55 -31297521.39 0.0502 0.0156

Mercury -90396-06-13 03:49 J -31295552.47 -31295552.34 -31295552.21 0.0528 0.0137

Mercury -90396-09-10 14:37 J -31295463.00 -31295462.89 -31295462.79 0.0525 0.0328

Venus -90390-06-15 12:27 J -31293359.08 -31293358.98 -31293358.87 0.0496 0.0427

Mercury -90390-08-11 20:37 J -31293301.69 -31293301.64 -31293301.60 0.0498 0.0477

Mercury -90390-11-09 22:18 J -31293211.74 -31293211.57 -31293211.40 0.0501 0.0033

Mercury -90384-04-01 07:11 J -31291242.32 -31291242.20 -31291242.08 0.0529 0.0249

Venus -90384-04-22 14:08 J -31291221.07 -31291220.91 -31291220.74 0.0529 0.0299

Mercury -90384-06-29 17:30 J -31291152.89 -31291152.77 -31291152.64 0.0526 0.0215

Mars -90381-09-26 21:35 J -31289967.79 -31289967.60 -31289967.42 0.0486 0.0377

Mercury -90378-08-28 21:06 J -31288901.79 -31288901.62 -31288901.45 0.0500 0.0098

Mercury -90378-11-26 21:35 J -31288811.70 -31288811.60 -31288811.50 0.0504 0.0402

Earth -90376-09-28 06:56 J -31288140.42 -31288140.21 -31288140.00 0.0532 0.0211

Moon -90376-09-28 09:35 J -31288140.33 -31288140.10 -31288139.88 0.0532 0.0187 \*

Venus -90373-12-26 11:44 J -31286955.20 -31286955.01 -31286954.82 0.0531 0.0181

Mercury -90372-01-18 10:47 J -31286932.14 -31286932.05 -31286931.95 0.0530 0.0357

Mercury -90372-04-17 21:06 J -31286842.75 -31286842.62 -31286842.49 0.0527 0.0105

Moon -90370-03-18 16:32 J -31286142.95 -31286142.81 -31286142.66 0.0498 0.0387

Earth -90370-03-18 20:08 J -31286142.79 -31286142.66 -31286142.51 0.0498 0.0393 \*

Mercury -90366-06-16 20:37 J -31284591.79 -31284591.64 -31284591.49 0.0500 0.0222

Venus -90366-06-18 04:03 J -31284590.51 -31284590.33 -31284590.15 0.0500 0.0249

Mercury -90366-09-14 21:20 J -31284501.74 -31284501.61 -31284501.47 0.0503 0.0283

Moon -90364-10-03 10:03 J -31283752.30 -31283752.08 -31283751.87 0.0534 0.0198

Earth -90364-10-03 13:39 J -31283752.15 -31283751.93 -31283751.71 0.0534 0.0174 \*

Mars -90363-07-04 08:23 J -31283478.35 -31283478.15 -31283477.94 0.0542 0.0317

Mercury -90361-11-06 14:23 J -31282621.96 -31282621.90 -31282621.83 0.0531 0.0465

Mercury -90360-02-04 00:27 J -31282532.62 -31282532.48 -31282532.35 0.0527 0.0010

Mercury -90360-05-04 11:15 J -31282443.09 -31282443.03 -31282442.97 0.0523 0.0458

Earth -90358-03-23 04:32 J -31281755.54 -31281755.31 -31281755.09 0.0496 0.0103

Moon -90358-03-23 07:54 J -31281755.39 -31281755.17 -31281754.94 0.0496 0.0072 \*

Venus -90354-02-21 01:39 J -31280324.63 -31280324.43 -31280324.24 0.0498 0.0178

Mercury -90354-04-04 19:54 J -31280281.79 -31280281.67 -31280281.54 0.0499 0.0346

Mercury -90354-07-03 21:20 J -31280191.77 -31280191.61 -31280191.45 0.0502 0.0162

Moon -90352-10-08 23:01 J -31279363.56 -31279363.54 -31279363.52 0.0536 0.0533

Mercury -90349-11-23 03:35 J -31278222.48 -31278222.35 -31278222.22 0.0528 0.0121

Mercury -90348-02-20 14:08 J -31278133.01 -31278132.91 -31278132.81 0.0524 0.0342

Moon -90346-03-27 10:03 J -31277368.29 -31277368.08 -31277367.85 0.0494 0.0193

Earth -90346-03-27 13:11 J -31277368.16 -31277367.95 -31277367.73 0.0494 0.0188 \*

Mercury -90342-01-21 19:25 J -31275971.74 -31275971.69 -31275971.63 0.0498 0.0470

Mercury -90342-04-21 21:06 J -31275881.79 -31275881.62 -31275881.45 0.0501 0.0039

Venus -90337-09-02 23:59 J -31273920.69 -31273920.50 -31273920.30 0.0530 0.0094

Mercury -90337-09-11 05:44 J -31273912.37 -31273912.26 -31273912.14 0.0529 0.0247

Mercury -90337-12-09 16:18 J -31273822.95 -31273822.82 -31273822.70 0.0526 0.0216

Earth -90334-03-31 20:51 J -31272980.68 -31272980.63 -31272980.56 0.0493 0.0477

Moon -90334-03-31 22:47 J -31272980.64 -31272980.55 -31272980.46 0.0493 0.0451 \*

Mercury -90330-02-07 20:37 J -31271571.81 -31271571.64 -31271571.48 0.0500 0.0086

Mercury -90330-05-08 20:51 J -31271481.72 -31271481.63 -31271481.53 0.0503 0.0415

Mars -90327-04-08 11:59 J -31270416.13 -31270416.00 -31270415.86 0.0542 0.0458

Venus -90325-05-08 19:39 J -31269654.80 -31269654.68 -31269654.55 0.0532 0.0400

Mercury -90325-06-30 09:06 J -31269602.22 -31269602.12 -31269602.02 0.0530 0.0360

Mercury -90325-09-27 19:25 J -31269512.83 -31269512.69 -31269512.56 0.0527 0.0103

Venus -90319-10-29 14:51 J -31267290.09 -31267289.88 -31267289.68 0.0498 0.0072  
 Mercury -90319-11-26 19:11 J -31267261.85 -31267261.70 -31267261.54 0.0499 0.0217  
 Mercury -90318-02-24 20:08 J -31267171.80 -31267171.66 -31267171.52 0.0503 0.0287  
 Mercury -90313-04-18 12:56 J -31265292.02 -31265291.96 -31265291.90 0.0531 0.0466  
 Mercury -90313-07-16 22:47 J -31265202.68 -31265202.55 -31265202.41 0.0528 0.0012  
 Mercury -90313-10-14 09:35 J -31265113.16 -31265113.10 -31265113.03 0.0524 0.0459  
 Venus -90307-07-04 12:27 J -31263024.12 -31263023.98 -31263023.83 0.0496 0.0353  
 Mercury -90307-09-14 18:27 J -31262951.85 -31262951.73 -31262951.60 0.0499 0.0342  
 Mercury -90307-12-13 19:54 J -31262861.83 -31262861.67 -31262861.51 0.0502 0.0165  
 Mercury -90301-05-05 02:23 J -31260892.54 -31260892.40 -31260892.27 0.0528 0.0118  
 Venus -90301-05-11 17:01 J -31260885.92 -31260885.79 -31260885.66 0.0528 0.0395  
 Mercury -90301-08-02 12:56 J -31260803.06 -31260802.96 -31260802.86 0.0524 0.0346  
 Mercury -90295-07-03 17:59 J -31258641.81 -31258641.75 -31258641.70 0.0498 0.0467  
 Mercury -90295-10-01 19:39 J -31258551.85 -31258551.68 -31258551.51 0.0501 0.0043  
 Moon -90293-09-27 11:44 J -31257825.21 -31257825.01 -31257824.79 0.0532 0.0220  
 Earth -90293-09-27 15:20 J -31257825.07 -31257824.86 -31257824.65 0.0532 0.0244 \*  
 Venus -90289-01-15 12:56 J -31256620.15 -31256619.96 -31256619.76 0.0530 0.0094  
 Mercury -90289-02-22 05:30 J -31256582.39 -31256582.27 -31256582.15 0.0529 0.0231  
 Mercury -90289-05-21 15:49 J -31256492.96 -31256492.84 -31256492.72 0.0525 0.0231  
 Earth -90287-03-18 04:47 J -31255827.41 -31255827.30 -31255827.17 0.0498 0.0424  
 Moon -90287-03-18 08:23 J -31255827.28 -31255827.15 -31255827.02 0.0498 0.0408 \*  
 Venus -90283-07-07 06:13 J -31254255.40 -31254255.24 -31254255.09 0.0500 0.0334  
 Mercury -90283-07-20 19:25 J -31254241.86 -31254241.69 -31254241.52 0.0500 0.0079  
 Mercury -90283-10-18 19:39 J -31254151.76 -31254151.68 -31254151.58 0.0504 0.0422  
 Earth -90281-10-02 17:01 J -31253437.02 -31253436.79 -31253436.56 0.0533 0.0128  
 Moon -90281-10-02 20:37 J -31253436.86 -31253436.64 -31253436.41 0.0533 0.0146 \*  
 Mercury -90278-12-11 07:54 J -31252272.27 -31252272.17 -31252272.08 0.0530 0.0357  
 Mercury -90277-03-09 17:59 J -31252182.89 -31252182.75 -31252182.62 0.0527 0.0103  
 Moon -90275-03-22 09:20 J -31251440.35 -31251440.11 -31251439.88 0.0497 0.0103  
 Earth -90275-03-22 12:13 J -31251440.22 -31251439.99 -31251439.77 0.0497 0.0133 \*

Venus -90271-03-12 03:20 J -31249989.56 -31249989.36 -31249989.15 0.0497 0.0096

Mercury -90271-05-08 18:42 J -31249931.88 -31249931.72 -31249931.56 0.0499 0.0204

Mercury -90271-08-06 19:25 J -31249841.82 -31249841.69 -31249841.55 0.0503 0.0299

Moon -90269-10-07 17:01 J -31249048.90 -31249048.79 -31249048.68 0.0535 0.0467

Earth -90269-10-07 19:25 J -31249048.76 -31249048.69 -31249048.60 0.0535 0.0499 \*

Mercury -90266-09-29 11:01 J -31247962.10 -31247962.04 -31247961.98 0.0531 0.0470

Mercury -90266-12-27 21:06 J -31247872.76 -31247872.62 -31247872.49 0.0528 0.0018

Mercury -90265-03-26 07:54 J -31247783.24 -31247783.17 -31247783.10 0.0524 0.0454

Earth -90263-03-26 21:35 J -31247052.82 -31247052.60 -31247052.38 0.0495 0.0161

Moon -90263-03-26 23:15 J -31247052.75 -31247052.53 -31247052.32 0.0495 0.0161 \*

Mars -90262-03-17 17:30 J -31246697.07 -31246696.77 -31246696.48 0.0487 0.0065

Mercury -90259-02-24 17:15 J -31245621.91 -31245621.78 -31245621.66 0.0498 0.0337

Mercury -90259-05-25 18:27 J -31245531.89 -31245531.73 -31245531.57 0.0502 0.0169

Venus -90254-09-23 01:39 J -31243585.62 -31243585.43 -31243585.25 0.0530 0.0184

Mercury -90254-10-16 00:27 J -31243562.61 -31243562.48 -31243562.34 0.0529 0.0121

Mercury -90253-01-13 11:15 J -31243473.14 -31243473.03 -31243472.93 0.0525 0.0344

Moon -90251-03-31 07:25 J -31242665.30 -31242665.19 -31242665.06 0.0493 0.0422

Earth -90251-03-31 07:11 J -31242665.28 -31242665.20 -31242665.10 0.0493 0.0452 \*

Mercury -90248-12-13 16:18 J -31241311.88 -31241311.82 -31241311.76 0.0498 0.0462

Mercury -90247-03-13 17:59 J -31241221.92 -31241221.75 -31241221.58 0.0501 0.0046

Venus -90242-05-28 22:18 J -31239319.72 -31239319.57 -31239319.40 0.0532 0.0303

Mercury -90242-08-04 04:03 J -31239252.45 -31239252.33 -31239252.21 0.0529 0.0230

Mercury -90242-11-01 14:23 J -31239163.02 -31239162.90 -31239162.77 0.0526 0.0233

Venus -90236-11-17 15:49 J -31236955.04 -31236954.84 -31236954.64 0.0499 0.0152

Mercury -90236-12-30 17:30 J -31236911.93 -31236911.77 -31236911.60 0.0500 0.0079

Mercury -90235-03-30 17:59 J -31236821.83 -31236821.75 -31236821.65 0.0504 0.0424

Mercury -90230-05-23 07:11 J -31234942.29 -31234942.20 -31234942.09 0.0530 0.0343

Mercury -90230-08-20 17:30 J -31234852.90 -31234852.77 -31234852.64 0.0526 0.0118

Venus -90224-07-23 14:08 J -31232689.08 -31232688.91 -31232688.73 0.0497 0.0272

Mercury -90224-10-18 17:15 J -31232601.93 -31232601.78 -31232601.62 0.0499 0.0200

Mercury -90223-01-16 18:13 J -31232511.87 -31232511.74 -31232511.61 0.0503 0.0304

Mercury -90218-03-11 09:35 J -31230632.16 -31230632.10 -31230632.03 0.0531 0.0468

Venus -90218-05-31 13:39 J -31230551.02 -31230550.93 -31230550.82 0.0528 0.0456

Mercury -90218-06-08 19:39 J -31230542.82 -31230542.68 -31230542.55 0.0528 0.0011

Mercury -90218-09-06 06:27 J -31230453.30 -31230453.23 -31230453.16 0.0524 0.0455

Mercury -90212-08-06 16:32 J -31228291.94 -31228291.81 -31228291.68 0.0499 0.0325

Mercury -90212-11-04 17:44 J -31228201.91 -31228201.76 -31228201.60 0.0502 0.0181

Earth -90210-09-27 16:18 J -31227510.01 -31227509.82 -31227509.63 0.0530 0.0294

Moon -90210-09-27 19:54 J -31227509.86 -31227509.67 -31227509.46 0.0530 0.0264 \*

Mars -90209-09-27 08:51 J -31227144.38 -31227144.13 -31227143.88 0.0541 0.0081

Venus -90206-02-03 09:20 J -31226285.31 -31226285.11 -31226284.91 0.0531 0.0035

Mercury -90206-03-27 22:32 J -31226232.69 -31226232.56 -31226232.42 0.0529 0.0127

Mercury -90206-06-25 09:20 J -31226143.22 -31226143.11 -31226143.01 0.0525 0.0339

Moon -90204-03-17 08:37 J -31225512.25 -31225512.14 -31225512.03 0.0499 0.0437

Earth -90204-03-17 11:15 J -31225512.12 -31225512.03 -31225511.94 0.0499 0.0457 \*

Mercury -90200-05-25 14:51 J -31223981.94 -31223981.88 -31223981.81 0.0498 0.0458

Venus -90200-07-26 04:47 J -31223920.42 -31223920.30 -31223920.18 0.0500 0.0403

Mercury -90200-08-23 16:32 J -31223891.98 -31223891.81 -31223891.64 0.0501 0.0049

Moon -90198-10-02 14:23 J -31223122.14 -31223121.90 -31223121.66 0.0533 0.0082

Earth -90198-10-02 17:30 J -31223122.00 -31223121.77 -31223121.54 0.0533 0.0071 \*

Venus -90195-10-09 05:44 J -31222019.29 -31222019.26 -31222019.22 0.0533 0.0524

Mercury -90194-01-14 02:08 J -31221922.53 -31221922.41 -31221922.29 0.0530 0.0235

Mercury -90194-04-13 12:42 J -31221833.10 -31221832.97 -31221832.85 0.0526 0.0229

Earth -90192-03-21 21:49 J -31221124.81 -31221124.59 -31221124.37 0.0497 0.0160

Moon -90192-03-21 23:15 J -31221124.74 -31221124.53 -31221124.31 0.0497 0.0133 \*

Venus -90188-03-31 01:54 J -31219654.63 -31219654.42 -31219654.21 0.0497 0.0028

Mercury -90188-06-11 15:49 J -31219582.00 -31219581.84 -31219581.67 0.0500 0.0077

Mercury -90188-09-09 16:18 J -31219491.90 -31219491.82 -31219491.73 0.0503 0.0424

Earth -90186-10-07 22:47 J -31218733.67 -31218733.55 -31218733.42 0.0535 0.0450

Moon -90186-10-08 00:13 J -31218733.63 -31218733.49 -31218733.35 0.0535 0.0419 \*

Mercury -90183-11-02 05:44 J -31217612.36 -31217612.26 -31217612.16 0.0530 0.0343  
 Mercury -90182-01-30 15:49 J -31217522.97 -31217522.84 -31217522.70 0.0527 0.0119  
 Earth -90180-03-26 06:13 J -31216737.46 -31216737.24 -31216737.01 0.0495 0.0130  
 Moon -90180-03-26 06:27 J -31216737.46 -31216737.23 -31216736.99 0.0495 0.0121 \*  
 Venus -90177-12-03 23:44 J -31215388.59 -31215388.51 -31215388.43 0.0496 0.0452  
 Mercury -90176-03-30 15:20 J -31215272.02 -31215271.86 -31215271.70 0.0499 0.0201  
 Mercury -90176-06-28 16:18 J -31215181.95 -31215181.82 -31215181.69 0.0503 0.0303  
 Mercury -90171-08-21 09:06 J -31213302.18 -31213302.12 -31213302.05 0.0531 0.0455  
 Venus -90171-10-12 02:08 J -31213250.58 -31213250.41 -31213250.23 0.0529 0.0268  
 Mercury -90171-11-18 18:56 J -31213212.84 -31213212.71 -31213212.57 0.0527 0.0018  
 Mercury -90170-02-16 05:44 J -31213123.31 -31213123.26 -31213123.19 0.0524 0.0468  
 Moon -90168-03-30 12:42 J -31212350.10 -31212349.97 -31212349.82 0.0493 0.0391  
 Earth -90168-03-30 14:51 J -31212350.00 -31212349.88 -31212349.75 0.0493 0.0416 \*  
 Mercury -90164-01-16 14:51 J -31210962.01 -31210961.88 -31210961.74 0.0499 0.0323  
 Mercury -90164-04-16 16:18 J -31210871.98 -31210871.82 -31210871.66 0.0502 0.0184  
 Venus -90159-06-16 18:42 J -31208984.89 -31208984.72 -31208984.54 0.0531 0.0244  
 Mercury -90159-09-06 21:20 J -31208902.75 -31208902.61 -31208902.48 0.0528 0.0125  
 Mercury -90159-12-05 07:39 J -31208813.28 -31208813.18 -31208813.07 0.0525 0.0340  
 Mercury -90153-11-04 13:54 J -31206651.99 -31206651.92 -31206651.84 0.0498 0.0449  
 Venus -90153-12-06 16:47 J -31206619.99 -31206619.80 -31206619.62 0.0499 0.0231  
 Mercury -90152-02-02 15:49 J -31206562.01 -31206561.84 -31206561.67 0.0501 0.0060  
 Mercury -90147-06-26 00:13 J -31204592.61 -31204592.49 -31204592.37 0.0529 0.0240  
 Mercury -90147-09-23 10:32 J -31204503.18 -31204503.06 -31204502.93 0.0526 0.0222  
 Venus -90141-08-11 12:13 J -31202354.18 -31202353.99 -31202353.80 0.0496 0.0206  
 Mercury -90141-11-21 14:08 J -31202252.07 -31202251.91 -31202251.74 0.0500 0.0075  
 Mercury -90140-02-19 14:51 J -31202161.97 -31202161.88 -31202161.80 0.0503 0.0426  
 Mercury -90135-04-14 03:49 J -31200282.44 -31200282.34 -31200282.24 0.0531 0.0350  
 Mercury -90135-07-12 13:54 J -31200193.05 -31200192.92 -31200192.78 0.0527 0.0112  
 Mercury -90129-09-09 13:25 J -31197942.09 -31197941.94 -31197941.78 0.0499 0.0200  
 Mercury -90129-12-08 14:23 J -31197852.03 -31197851.90 -31197851.77 0.0502 0.0303

Moon -90127-09-26 13:25 J -31197195.12 -31197194.94 -31197194.74 0.0530 0.0318  
 Earth -90127-09-26 17:01 J -31197194.96 -31197194.79 -31197194.61 0.0530 0.0348 \*  
 Mercury -90123-01-31 07:25 J -31195972.26 -31195972.19 -31195972.13 0.0531 0.0458  
 Venus -90123-02-22 10:32 J -31195950.25 -31195950.06 -31195949.86 0.0530 0.0055  
 Mercury -90123-04-30 17:15 J -31195882.91 -31195882.78 -31195882.64 0.0528 0.0010  
 Mercury -90123-07-29 04:03 J -31195793.39 -31195793.33 -31195793.27 0.0524 0.0465  
 Earth -90121-03-16 19:25 J -31195196.73 -31195196.69 -31195196.64 0.0499 0.0488  
 Moon -90121-03-16 20:51 J -31195196.70 -31195196.63 -31195196.55 0.0499 0.0466 \*  
 Mercury -90117-06-28 12:42 J -31193632.10 -31193631.97 -31193631.84 0.0499 0.0326  
 Venus -90117-08-14 04:18 J -31193585.38 -31193585.32 -31193585.25 0.0500 0.0475  
 Mercury -90117-09-26 13:54 J -31193542.07 -31193541.92 -31193541.76 0.0502 0.0181  
 Earth -90115-10-01 22:32 J -31192806.79 -31192806.56 -31192806.32 0.0532 0.0030  
 Moon -90115-10-02 00:27 J -31192806.71 -31192806.48 -31192806.25 0.0532 0.0033 \*  
 Venus -90112-10-28 06:27 J -31191684.34 -31191684.23 -31191684.12 0.0533 0.0440  
 Mercury -90111-02-16 20:37 J -31191572.78 -31191572.64 -31191572.51 0.0528 0.0114  
 Mercury -90111-05-17 06:56 J -31191483.31 -31191483.21 -31191483.10 0.0525 0.0351  
 Moon -90109-03-21 04:32 J -31190809.53 -31190809.31 -31190809.08 0.0497 0.0173  
 Earth -90109-03-21 04:32 J -31190809.52 -31190809.31 -31190809.10 0.0497 0.0197 \*  
 Mars -90108-06-10 16:47 J -31190363.07 -31190362.80 -31190362.52 0.0486 0.0170  
 Mercury -90105-04-16 12:13 J -31189322.06 -31189321.99 -31189321.92 0.0498 0.0448  
 Venus -90105-04-19 02:23 J -31189319.60 -31189319.40 -31189319.19 0.0498 0.0049  
 Mercury -90105-07-15 13:54 J -31189232.09 -31189231.92 -31189231.75 0.0501 0.0061  
 Moon -90103-10-07 02:23 J -31188418.57 -31188418.40 -31188418.22 0.0534 0.0370  
 Earth -90103-10-07 02:23 J -31188418.55 -31188418.40 -31188418.25 0.0534 0.0405 \*  
 Mercury -90100-12-05 22:47 J -31187262.67 -31187262.55 -31187262.43 0.0529 0.0239  
 Mercury -90099-03-05 09:06 J -31187173.24 -31187173.12 -31187173.00 0.0526 0.0222  
 Moon -90097-03-25 08:08 J -31186422.38 -31186422.16 -31186421.93 0.0496 0.0073  
 Earth -90097-03-25 10:03 J -31186422.31 -31186422.08 -31186421.85 0.0496 0.0088 \*  
 Venus -90094-12-23 23:59 J -31185053.64 -31185053.50 -31185053.37 0.0496 0.0377  
 Mercury -90093-05-03 13:11 J -31184922.11 -31184921.95 -31184921.78 0.0500 0.0066



Mercury -90093-08-01 13:39 J -31184832.00 -31184831.93 -31184831.84 0.0503 0.0435

Mercury -90088-09-24 01:39 J -31182952.52 -31182952.43 -31182952.33 0.0530 0.0356

Venus -90088-10-30 21:06 J -31182915.77 -31182915.62 -31182915.45 0.0529 0.0319

Mercury -90088-12-22 11:59 J -31182863.14 -31182863.00 -31182862.87 0.0527 0.0105

Earth -90085-03-29 18:27 J -31182034.87 -31182034.73 -31182034.57 0.0494 0.0377

Moon -90085-03-29 22:03 J -31182034.74 -31182034.58 -31182034.41 0.0494 0.0352 \*

Mercury -90081-02-20 11:30 J -31180612.17 -31180612.02 -31180611.86 0.0499 0.0200

Mercury -90081-05-20 12:27 J -31180522.11 -31180521.98 -31180521.84 0.0502 0.0303

Venus -90076-07-05 17:30 J -31178649.95 -31178649.77 -31178649.58 0.0532 0.0170

Mercury -90076-07-13 05:15 J -31178642.34 -31178642.28 -31178642.22 0.0531 0.0466

Mercury -90076-10-10 15:06 J -31178553.00 -31178552.87 -31178552.73 0.0528 0.0017

Mercury -90075-01-08 01:54 J -31178463.48 -31178463.42 -31178463.35 0.0524 0.0458

Mercury -90070-12-09 10:47 J -31176302.18 -31176302.05 -31176301.92 0.0498 0.0327

Venus -90070-12-26 13:39 J -31176285.10 -31176284.93 -31176284.76 0.0499 0.0290

Mercury -90069-03-08 11:59 J -31176212.16 -31176212.00 -31176211.84 0.0502 0.0179

Mercury -90064-07-29 18:42 J -31174242.85 -31174242.72 -31174242.59 0.0529 0.0118

Mercury -90064-10-27 05:15 J -31174153.38 -31174153.28 -31174153.18 0.0525 0.0346

Venus -90058-08-31 10:32 J -31172019.26 -31172019.06 -31172018.86 0.0497 0.0141

Mercury -90058-09-27 09:35 J -31171992.16 -31171992.10 -31171992.03 0.0498 0.0454

Mercury -90058-12-26 11:30 J -31171902.19 -31171902.02 -31171901.85 0.0501 0.0054

Mars -90055-12-22 11:30 J -31170810.26 -31170810.02 -31170809.78 0.0542 0.0164

Mercury -90052-05-17 21:49 J -31169932.71 -31169932.59 -31169932.46 0.0529 0.0231

Mercury -90052-08-15 08:08 J -31169843.28 -31169843.16 -31169843.03 0.0526 0.0232

Mercury -90046-10-14 11:15 J -31167592.20 -31167592.03 -31167591.86 0.0500 0.0067

Mercury -90045-01-12 11:44 J -31167502.09 -31167502.01 -31167501.92 0.0504 0.0434

Earth -90044-09-25 20:37 J -31166879.79 -31166879.64 -31166879.47 0.0529 0.0390

Moon -90044-09-25 23:01 J -31166879.70 -31166879.54 -31166879.36 0.0529 0.0358 \*

Mercury -90040-03-06 00:13 J -31165622.58 -31165622.49 -31165622.39 0.0530 0.0355

Venus -90040-03-13 06:27 J -31165615.42 -31165615.23 -31165615.03 0.0530 0.0111

Mercury -90040-06-03 10:18 J -31165533.20 -31165533.07 -31165532.93 0.0527 0.0105

Mercury -90034-08-02 10:32 J -31163282.22 -31163282.06 -31163281.90 0.0499 0.0193

Mercury -90034-10-31 11:30 J -31163192.15 -31163192.02 -31163191.89 0.0503 0.0310

Moon -90032-09-30 21:49 J -31162491.83 -31162491.59 -31162491.35 0.0531 0.0027

Earth -90032-09-30 22:32 J -31162491.79 -31162491.56 -31162491.33 0.0531 0.0027 \*

Venus -90029-11-16 00:56 J -31161349.59 -31161349.46 -31161349.32 0.0532 0.0391

Mercury -90029-12-23 03:20 J -31161312.42 -31161312.36 -31161312.30 0.0531 0.0471

Mercury -90028-03-22 13:11 J -31161223.09 -31161222.95 -31161222.81 0.0528 0.0014

Mercury -90028-06-19 23:59 J -31161133.57 -31161133.50 -31161133.43 0.0524 0.0450

Moon -90026-03-21 04:32 J -31160494.50 -31160494.31 -31160494.11 0.0498 0.0227

Earth -90026-03-21 06:13 J -31160494.44 -31160494.24 -31160494.03 0.0498 0.0244 \*

Venus -90022-05-08 23:01 J -31158984.75 -31158984.54 -31158984.34 0.0498 0.0107

Mercury -90022-05-21 08:37 J -31158972.27 -31158972.14 -31158972.01 0.0498 0.0327

Mercury -90022-08-19 10:03 J -31158882.24 -31158882.08 -31158881.92 0.0501 0.0178

Moon -90020-10-05 20:23 J -31158103.83 -31158103.65 -31158103.46 0.0533 0.0298

Earth -90020-10-05 21:20 J -31158103.78 -31158103.61 -31158103.42 0.0533 0.0330 \*

Mercury -90016-01-08 16:32 J -31156912.94 -31156912.81 -31156912.68 0.0529 0.0127

Mercury -90016-04-08 03:06 J -31156823.48 -31156823.37 -31156823.27 0.0525 0.0338

Earth -90014-03-25 16:32 J -31156107.04 -31156106.81 -31156106.58 0.0496 0.0051

Moon -90014-03-25 19:54 J -31156106.91 -31156106.67 -31156106.43 0.0496 0.0028 \*

Venus -90010-01-11 20:08 J -31154718.82 -31154718.66 -31154718.50 0.0496 0.0321

Mercury -90010-03-09 07:25 J -31154662.25 -31154662.19 -31154662.12 0.0497 0.0456

Mercury -90010-06-07 09:20 J -31154572.28 -31154572.11 -31154571.94 0.0501 0.0052

Mercury -90005-10-27 19:54 J -31152602.79 -31152602.67 -31152602.55 0.0530 0.0236

Venus -90005-11-18 21:06 J -31152580.75 -31152580.62 -31152580.49 0.0529 0.0399

Mercury -90004-01-25 06:13 J -31152513.36 -31152513.24 -31152513.12 0.0526 0.0226

Moon -90002-03-29 21:20 J -31151719.79 -31151719.61 -31151719.43 0.0494 0.0313

Earth -90002-03-30 01:25 J -31151719.61 -31151719.44 -31151719.27 0.0494 0.0339 \*

# 90TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 90th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-89998-03-26 08:37 J	-31150262.31	-31150262.14	-31150261.97	0.0500	0.0075		
Mercury	-89998-06-24 09:20 J	-31150172.20	-31150172.11	-31150172.03	0.0503	0.0426		
Venus	-89993-07-24 17:15 J	-31148314.98	-31148314.78	-31148314.59	0.0531	0.0091		
Mercury	-89993-08-15 23:15 J	-31148292.63	-31148292.53	-31148292.43	0.0530	0.0348		
Mercury	-89993-11-13 09:20 J	-31148203.24	-31148203.11	-31148202.98	0.0527	0.0112		
Mars	-89990-11-28 18:27 J	-31147092.95	-31147092.73	-31147092.50	0.0487	0.0321		
Mercury	-89986-01-12 08:08 J	-31145952.31	-31145952.16	-31145952.00	0.0499	0.0197		
Venus	-89986-01-14 12:27 J	-31145950.11	-31145949.98	-31145949.83	0.0499	0.0361		
Mercury	-89986-04-12 09:20 J	-31145862.24	-31145862.11	-31145861.98	0.0503	0.0307		
Mercury	-89981-06-04 01:54 J	-31143982.48	-31143982.42	-31143982.36	0.0531	0.0470		
Mercury	-89981-09-01 11:44 J	-31143893.15	-31143893.01	-31143892.88	0.0527	0.0018		
Mercury	-89981-11-29 22:18 J	-31143803.64	-31143803.57	-31143803.50	0.0524	0.0450		
Venus	-89975-09-19 09:35 J	-31141684.31	-31141684.10	-31141683.89	0.0497	0.0070		
Mercury	-89975-10-31 07:25 J	-31141642.32	-31141642.19	-31141642.06	0.0499	0.0323		
Mercury	-89974-01-29 08:51 J	-31141552.29	-31141552.13	-31141551.98	0.0502	0.0184		
Mercury	-89969-06-20 14:23 J	-31139583.03	-31139582.90	-31139582.76	0.0529	0.0133		
Mercury	-89969-09-18 00:56 J	-31139493.57	-31139493.46	-31139493.35	0.0525	0.0330		
Mercury	-89963-08-19 05:30 J	-31137332.34	-31137332.27	-31137332.21	0.0497	0.0457		
Mercury	-89963-11-17 07:11 J	-31137242.37	-31137242.20	-31137242.03	0.0500	0.0051		
Moon	-89961-09-24 13:11 J	-31136565.08	-31136564.95	-31136564.81	0.0529	0.0430		
Earth	-89961-09-24 14:51 J	-31136564.99	-31136564.88	-31136564.77	0.0529	0.0464	*	

Venus -89957-04-01 03:35 J -31135280.53 -31135280.35 -31135280.16 0.0530 0.0177

Mercury -89957-04-08 17:44 J -31135272.88 -31135272.76 -31135272.64 0.0530 0.0246

Mercury -89957-07-07 04:03 J -31135183.46 -31135183.33 -31135183.21 0.0526 0.0217

Mars -89954-09-04 03:35 J -31134029.53 -31134029.35 -31134029.16 0.0487 0.0379

Mercury -89951-09-05 06:27 J -31132932.40 -31132932.23 -31132932.06 0.0500 0.0077

Mercury -89951-12-04 06:56 J -31132842.29 -31132842.21 -31132842.12 0.0503 0.0422

Moon -89949-09-29 17:30 J -31132177.00 -31132176.77 -31132176.55 0.0531 0.0102

Earth -89949-09-29 17:44 J -31132176.99 -31132176.76 -31132176.53 0.0531 0.0100 \*

Venus -89946-12-05 23:59 J -31131014.65 -31131014.50 -31131014.34 0.0533 0.0315

Mercury -89945-01-26 21:06 J -31130962.71 -31130962.62 -31130962.52 0.0531 0.0356

Mercury -89945-04-25 07:11 J -31130873.33 -31130873.20 -31130873.06 0.0527 0.0106

Earth -89943-03-20 12:42 J -31130179.16 -31130178.97 -31130178.77 0.0498 0.0280

Moon -89943-03-20 15:49 J -31130179.03 -31130178.84 -31130178.63 0.0498 0.0271 \*

Venus -89939-05-27 20:08 J -31128649.86 -31128649.66 -31128649.46 0.0498 0.0167

Mercury -89939-06-24 05:30 J -31128622.43 -31128622.27 -31128622.11 0.0499 0.0205

Mercury -89939-09-22 06:27 J -31128532.36 -31128532.23 -31128532.09 0.0502 0.0299

Earth -89937-10-04 23:01 J -31127788.74 -31127788.54 -31127788.34 0.0533 0.0275

Moon -89937-10-05 01:25 J -31127788.65 -31127788.44 -31127788.22 0.0533 0.0244 \*

Mars -89936-06-11 21:06 J -31127538.77 -31127538.62 -31127538.45 0.0541 0.0412

Mercury -89934-11-15 00:42 J -31126652.53 -31126652.47 -31126652.41 0.0531 0.0466

Mercury -89933-02-12 10:32 J -31126563.20 -31126563.06 -31126562.93 0.0528 0.0010

Mercury -89933-05-11 21:06 J -31126473.68 -31126473.62 -31126473.55 0.0524 0.0456

Moon -89931-03-24 17:44 J -31125791.99 -31125791.76 -31125791.53 0.0497 0.0019

Earth -89931-03-24 21:35 J -31125791.83 -31125791.60 -31125791.36 0.0497 0.0011 \*

Venus -89927-01-30 18:13 J -31124383.92 -31124383.74 -31124383.56 0.0496 0.0256

Mercury -89927-04-12 05:01 J -31124312.42 -31124312.29 -31124312.16 0.0498 0.0327

Mercury -89927-07-11 06:27 J -31124222.39 -31124222.23 -31124222.07 0.0502 0.0179

Mercury -89922-12-01 12:56 J -31122253.09 -31122252.96 -31122252.83 0.0528 0.0131

Venus -89922-12-08 17:01 J -31122245.89 -31122245.79 -31122245.69 0.0528 0.0456

Mercury -89921-02-28 23:30 J -31122163.63 -31122163.52 -31122163.42 0.0525 0.0331

Earth -89919-03-29 02:37 J -31121404.58 -31121404.39 -31121404.20 0.0495 0.0289  
 Moon -89919-03-29 06:27 J -31121404.42 -31121404.23 -31121404.03 0.0495 0.0268 \*  
 Mercury -89915-01-29 04:03 J -31120002.40 -31120002.33 -31120002.27 0.0498 0.0454  
 Mercury -89915-04-29 05:59 J -31119912.42 -31119912.25 -31119912.08 0.0501 0.0055  
 Venus -89910-08-13 11:44 J -31117980.20 -31117980.01 -31117979.81 0.0531 0.0040  
 Mercury -89910-09-19 15:49 J -31117942.95 -31117942.84 -31117942.72 0.0529 0.0249  
 Mercury -89910-12-18 02:08 J -31117853.54 -31117853.41 -31117853.29 0.0526 0.0212  
 Venus -89903-02-02 08:23 J -31115615.26 -31115615.15 -31115615.04 0.0499 0.0415  
 Mercury -89903-02-15 04:18 J -31115602.49 -31115602.32 -31115602.15 0.0500 0.0079  
 Mercury -89903-05-16 04:47 J -31115512.38 -31115512.30 -31115512.20 0.0503 0.0420  
 Mars -89900-03-16 16:47 J -31114476.99 -31114476.80 -31114476.60 0.0541 0.0338  
 Mercury -89898-07-08 18:56 J -31113632.80 -31113632.71 -31113632.61 0.0531 0.0364  
 Mercury -89898-10-06 05:01 J -31113543.42 -31113543.29 -31113543.15 0.0527 0.0096  
 Venus -89892-10-08 05:01 J -31111349.50 -31111349.29 -31111349.08 0.0497 0.0018  
 Mercury -89892-12-04 03:20 J -31111292.52 -31111292.36 -31111292.20 0.0499 0.0207  
 Mercury -89891-03-04 04:18 J -31111202.45 -31111202.32 -31111202.18 0.0502 0.0295  
 Mercury -89886-04-26 22:32 J -31109322.62 -31109322.56 -31109322.50 0.0532 0.0473  
 Mercury -89886-07-25 08:23 J -31109233.28 -31109233.15 -31109233.01 0.0528 0.0017  
 Mercury -89886-10-22 19:11 J -31109143.77 -31109143.70 -31109143.63 0.0525 0.0449  
 Venus -89880-06-13 02:23 J -31107083.49 -31107083.40 -31107083.31 0.0495 0.0443  
 Mercury -89880-09-22 02:08 J -31106982.53 -31106982.41 -31106982.28 0.0498 0.0336  
 Mercury -89880-12-21 03:49 J -31106892.50 -31106892.34 -31106892.18 0.0501 0.0170  
 Moon -89878-09-24 15:20 J -31106249.94 -31106249.86 -31106249.77 0.0528 0.0486  
 Earth -89878-09-24 15:06 J -31106249.91 -31106249.87 -31106249.82 0.0528 0.0517 \*  
 Venus -89874-04-21 03:06 J -31104945.54 -31104945.37 -31104945.20 0.0530 0.0254  
 Mercury -89874-05-13 11:44 J -31104923.14 -31104923.01 -31104922.88 0.0529 0.0128  
 Mercury -89874-08-10 22:18 J -31104833.68 -31104833.57 -31104833.47 0.0525 0.0335  
 Mercury -89868-07-11 01:25 J -31102672.50 -31102672.44 -31102672.37 0.0498 0.0459  
 Mercury -89868-10-09 03:35 J -31102582.52 -31102582.35 -31102582.18 0.0501 0.0050  
 Earth -89866-09-29 20:37 J -31101861.86 -31101861.64 -31101861.41 0.0530 0.0147

Moon -89866-09-29 22:32 J -31101861.79 -31101861.56 -31101861.32 0.0530 0.0152 \*  
 Venus -89863-12-24 21:06 J -31100679.79 -31100679.62 -31100679.44 0.0532 0.0249  
 Mercury -89862-03-01 14:23 J -31100613.02 -31100612.90 -31100612.78 0.0529 0.0248  
 Mercury -89862-05-30 00:42 J -31100523.60 -31100523.47 -31100523.35 0.0526 0.0213  
 Moon -89860-03-19 10:18 J -31099864.24 -31099864.07 -31099863.89 0.0499 0.0326  
 Earth -89860-03-19 14:08 J -31099864.08 -31099863.91 -31099863.73 0.0499 0.0330 \*  
 Venus -89856-06-15 18:42 J -31098314.90 -31098314.72 -31098314.53 0.0499 0.0236  
 Mercury -89856-07-28 02:51 J -31098272.55 -31098272.38 -31098272.21 0.0500 0.0076  
 Mercury -89856-10-26 03:35 J -31098182.44 -31098182.35 -31098182.26 0.0503 0.0425  
 Moon -89854-10-04 19:54 J -31097473.88 -31097473.67 -31097473.45 0.0532 0.0188  
 Earth -89854-10-04 23:30 J -31097473.73 -31097473.52 -31097473.31 0.0532 0.0219 \*  
 Mercury -89851-12-18 17:15 J -31096302.87 -31096302.78 -31096302.68 0.0530 0.0365  
 Mercury -89850-03-18 03:20 J -31096213.49 -31096213.36 -31096213.23 0.0527 0.0093  
 Earth -89848-03-23 22:32 J -31095476.79 -31095476.56 -31095476.33 0.0497 0.0042  
 Moon -89848-03-24 02:23 J -31095476.63 -31095476.40 -31095476.17 0.0497 0.0072 \*  
 Venus -89844-02-18 14:23 J -31094049.09 -31094048.90 -31094048.71 0.0496 0.0200  
 Mercury -89844-05-16 01:11 J -31093962.60 -31093962.45 -31093962.29 0.0499 0.0209  
 Mercury -89844-08-14 02:23 J -31093872.54 -31093872.40 -31093872.26 0.0502 0.0293  
 Mercury -89839-10-06 20:23 J -31091992.70 -31091992.65 -31091992.59 0.0532 0.0481  
 Venus -89839-12-27 13:39 J -31091910.96 -31091910.93 -31091910.89 0.0529 0.0518  
 Mercury -89838-01-04 06:13 J -31091903.37 -31091903.24 -31091903.10 0.0528 0.0024  
 Mercury -89838-04-03 16:47 J -31091813.87 -31091813.80 -31091813.72 0.0525 0.0441  
 Moon -89836-03-28 05:15 J -31091089.49 -31091089.28 -31091089.07 0.0496 0.0229  
 Earth -89836-03-28 08:37 J -31091089.34 -31091089.14 -31091088.93 0.0496 0.0250 \*  
 Mars -89835-02-21 02:08 J -31090759.70 -31090759.41 -31090759.12 0.0488 0.0120  
 Mercury -89832-03-03 23:59 J -31089652.62 -31089652.50 -31089652.37 0.0498 0.0337  
 Mercury -89832-06-02 01:39 J -31089562.59 -31089562.43 -31089562.27 0.0501 0.0168  
 Venus -89827-09-01 10:03 J -31087645.27 -31087645.08 -31087644.88 0.0531 0.0035  
 Mercury -89827-10-23 09:35 J -31087593.23 -31087593.10 -31087592.97 0.0529 0.0135  
 Mercury -89826-01-20 20:08 J -31087503.77 -31087503.66 -31087503.55 0.0526 0.0328

Mercury -89821-12-20 22:47 J -31085342.60 -31085342.55 -31085342.49 0.0497 0.0466

Venus -89820-02-21 05:15 J -31085280.33 -31085280.28 -31085280.21 0.0499 0.0476

Mercury -89820-03-21 00:56 J -31085252.63 -31085252.46 -31085252.29 0.0500 0.0043

Venus -89815-05-07 06:13 J -31083379.33 -31083379.24 -31083379.14 0.0534 0.0462

Mercury -89815-08-11 13:11 J -31083283.07 -31083282.95 -31083282.83 0.0530 0.0246

Mercury -89815-11-08 23:15 J -31083193.65 -31083193.53 -31083193.40 0.0526 0.0216

Venus -89809-10-27 03:20 J -31081014.57 -31081014.36 -31081014.15 0.0497 0.0048

Mercury -89808-01-07 00:27 J -31080942.65 -31080942.48 -31080942.31 0.0500 0.0080

Mercury -89808-04-07 01:11 J -31080852.53 -31080852.45 -31080852.35 0.0503 0.0420

Mercury -89803-05-30 16:03 J -31078972.93 -31078972.83 -31078972.73 0.0530 0.0363

Mercury -89803-08-28 01:54 J -31078883.55 -31078883.42 -31078883.28 0.0527 0.0096

Venus -89797-07-02 00:56 J -31076748.59 -31076748.46 -31076748.32 0.0495 0.0376

Mercury -89797-10-25 23:44 J -31076632.67 -31076632.51 -31076632.35 0.0499 0.0205

Mercury -89796-01-24 00:56 J -31076542.59 -31076542.46 -31076542.32 0.0502 0.0298

Mercury -89791-03-18 18:56 J -31074662.76 -31074662.71 -31074662.65 0.0531 0.0479

Venus -89791-05-09 23:01 J -31074610.69 -31074610.54 -31074610.38 0.0529 0.0312

Mercury -89791-06-16 04:47 J -31074573.43 -31074573.30 -31074573.16 0.0528 0.0023

Mercury -89791-09-13 15:20 J -31074483.93 -31074483.86 -31074483.78 0.0524 0.0440

Mercury -89785-08-13 22:03 J -31072322.70 -31072322.58 -31072322.45 0.0498 0.0338

Mercury -89785-11-11 23:44 J -31072232.67 -31072232.51 -31072232.35 0.0501 0.0168

Moon -89783-09-28 11:44 J -31071547.21 -31071547.01 -31071546.80 0.0529 0.0233

Earth -89783-09-28 14:37 J -31071547.10 -31071546.89 -31071546.68 0.0529 0.0222 \*

Mars -89782-09-05 05:30 J -31071205.50 -31071205.27 -31071205.04 0.0540 0.0236

Venus -89779-01-12 17:15 J -31070344.96 -31070344.78 -31070344.59 0.0532 0.0191

Mercury -89779-04-04 07:39 J -31070263.31 -31070263.18 -31070263.05 0.0529 0.0142

Mercury -89779-07-02 17:59 J -31070173.85 -31070173.75 -31070173.64 0.0526 0.0322

Earth -89777-03-18 20:08 J -31069548.80 -31069548.66 -31069548.49 0.0500 0.0369

Moon -89777-03-18 23:59 J -31069548.64 -31069548.50 -31069548.34 0.0500 0.0370 \*

Mercury -89773-06-01 21:06 J -31068012.68 -31068012.62 -31068012.56 0.0497 0.0465

Venus -89773-07-04 15:06 J -31067980.04 -31067979.87 -31067979.70 0.0498 0.0293

Mercury -89773-08-30 23:01 J -31067922.71 -31067922.54 -31067922.37 0.0500 0.0042  
 Earth -89771-10-03 17:15 J -31067159.01 -31067158.78 -31067158.56 0.0532 0.0141  
 Moon -89771-10-03 21:06 J -31067158.85 -31067158.62 -31067158.39 0.0532 0.0114 \*  
 Mercury -89767-01-21 11:01 J -31065953.16 -31065953.04 -31065952.92 0.0530 0.0253  
 Mercury -89767-04-20 21:20 J -31065863.74 -31065863.61 -31065863.49 0.0527 0.0209  
 Moon -89765-03-23 03:06 J -31065161.60 -31065161.37 -31065161.14 0.0498 0.0106  
 Earth -89765-03-23 06:27 J -31065161.46 -31065161.23 -31065161.00 0.0498 0.0074 \*  
 Venus -89761-03-09 11:59 J -31063714.21 -31063714.00 -31063713.80 0.0496 0.0139  
 Mercury -89761-06-18 22:03 J -31063612.75 -31063612.58 -31063612.41 0.0499 0.0086  
 Mercury -89761-09-16 22:47 J -31063522.64 -31063522.55 -31063522.45 0.0503 0.0414  
 Moon -89759-10-08 18:42 J -31062770.75 -31062770.72 -31062770.68 0.0534 0.0528  
 Earth -89759-10-08 22:03 J -31062770.63 -31062770.58 -31062770.51 0.0534 0.0514  
 Mercury -89756-11-09 14:37 J -31061642.99 -31061642.89 -31061642.79 0.0531 0.0362  
 Mercury -89755-02-07 00:42 J -31061553.61 -31061553.47 -31061553.34 0.0527 0.0098  
 Earth -89753-03-27 15:20 J -31060774.07 -31060773.86 -31060773.65 0.0496 0.0214  
 Moon -89753-03-27 17:15 J -31060773.98 -31060773.78 -31060773.57 0.0496 0.0203 \*  
 Mercury -89749-04-06 21:35 J -31059302.76 -31059302.60 -31059302.45 0.0499 0.0209  
 Mercury -89749-07-05 22:47 J -31059212.69 -31059212.55 -31059212.41 0.0502 0.0295  
 Mercury -89744-08-28 17:44 J -31057332.82 -31057332.76 -31057332.70 0.0531 0.0476  
 Venus -89744-09-20 08:51 J -31057310.32 -31057310.13 -31057309.93 0.0530 0.0108  
 Mercury -89744-11-26 03:35 J -31057243.49 -31057243.35 -31057243.22 0.0528 0.0025  
 Mercury -89743-02-23 13:54 J -31057153.98 -31057153.92 -31057153.84 0.0524 0.0443  
 Earth -89741-03-31 21:20 J -31056386.64 -31056386.61 -31056386.58 0.0494 0.0489  
 Mercury -89737-01-24 20:37 J -31054992.76 -31054992.64 -31054992.51 0.0498 0.0334  
 Mercury -89737-04-23 22:18 J -31054902.73 -31054902.57 -31054902.41 0.0501 0.0173  
 Venus -89732-05-26 03:35 J -31053044.48 -31053044.35 -31053044.22 0.0533 0.0396  
 Mercury -89732-09-14 06:27 J -31052933.36 -31052933.23 -31052933.10 0.0529 0.0137  
 Mercury -89732-12-12 16:47 J -31052843.91 -31052843.80 -31052843.69 0.0525 0.0325  
 Mercury -89726-11-12 19:11 J -31050682.76 -31050682.70 -31050682.64 0.0497 0.0464  
 Venus -89726-11-16 00:56 J -31050679.66 -31050679.46 -31050679.25 0.0497 0.0111



Mercury -89725-02-10 21:20 J -31050592.78 -31050592.61 -31050592.44 0.0500 0.0044

Mercury -89720-07-03 09:06 J -31048623.23 -31048623.12 -31048623.00 0.0530 0.0258

Mercury -89720-09-30 19:25 J -31048533.82 -31048533.69 -31048533.57 0.0527 0.0204

Venus -89714-07-21 22:32 J -31046413.72 -31046413.56 -31046413.40 0.0495 0.0314

Mercury -89714-11-29 20:23 J -31046282.82 -31046282.65 -31046282.48 0.0499 0.0083

Mercury -89713-02-27 21:06 J -31046192.71 -31046192.62 -31046192.52 0.0502 0.0416

Mercury -89708-04-21 12:42 J -31044313.07 -31044312.97 -31044312.88 0.0531 0.0368

Venus -89708-05-28 21:35 J -31044275.74 -31044275.60 -31044275.47 0.0530 0.0383

Mercury -89708-07-19 22:32 J -31044223.69 -31044223.56 -31044223.42 0.0528 0.0094

Mercury -89702-09-17 19:25 J -31041972.85 -31041972.69 -31041972.54 0.0499 0.0212

Mercury -89702-12-16 20:37 J -31041882.78 -31041882.64 -31041882.51 0.0502 0.0291

Earth -89700-09-27 15:49 J -31041232.04 -31041231.84 -31041231.64 0.0529 0.0273

Moon -89700-09-27 19:25 J -31041231.88 -31041231.69 -31041231.48 0.0529 0.0291 \*

Venus -89696-01-31 18:13 J -31040009.94 -31040009.74 -31040009.55 0.0532 0.0105

Mercury -89696-02-07 16:18 J -31040002.88 -31040002.82 -31040002.76 0.0532 0.0475

Mercury -89696-05-08 02:08 J -31039913.55 -31039913.41 -31039913.28 0.0529 0.0018

Mercury -89696-08-05 12:42 J -31039824.04 -31039823.97 -31039823.90 0.0525 0.0446

Moon -89694-03-19 01:25 J -31039233.58 -31039233.44 -31039233.30 0.0500 0.0403

Earth -89694-03-19 04:32 J -31039233.44 -31039233.31 -31039233.16 0.0500 0.0400 \*

Mercury -89690-07-06 18:42 J -31037662.85 -31037662.72 -31037662.59 0.0498 0.0335

Venus -89690-07-24 13:54 J -31037645.05 -31037644.92 -31037644.77 0.0499 0.0363

Mercury -89690-10-04 20:23 J -31037572.81 -31037572.65 -31037572.49 0.0501 0.0171

Moon -89688-10-02 18:27 J -31036843.96 -31036843.73 -31036843.49 0.0531 0.0073

Earth -89688-10-02 22:18 J -31036843.80 -31036843.57 -31036843.34 0.0531 0.0100 \*

Mercury -89684-02-24 05:15 J -31035603.41 -31035603.28 -31035603.15 0.0529 0.0133

Mercury -89684-05-24 15:35 J -31035513.96 -31035513.85 -31035513.74 0.0525 0.0329

Earth -89682-03-23 11:30 J -31034846.24 -31034846.02 -31034845.79 0.0498 0.0116

Moon -89682-03-23 13:39 J -31034846.14 -31034845.93 -31034845.71 0.0498 0.0145 \*

Mars -89681-05-16 16:32 J -31034426.10 -31034425.81 -31034425.51 0.0487 0.0093

Venus -89678-03-29 11:44 J -31033379.22 -31033379.01 -31033378.81 0.0497 0.0065

Mercury -89678-04-24 17:44 J -31033352.82 -31033352.76 -31033352.69 0.0497 0.0460

Mercury -89678-07-23 19:54 J -31033262.84 -31033262.67 -31033262.50 0.0501 0.0048

Earth -89676-10-08 02:23 J -31032455.50 -31032455.40 -31032455.28 0.0533 0.0467

Moon -89676-10-08 04:47 J -31032455.38 -31032455.30 -31032455.21 0.0533 0.0490 \*

Mercury -89673-12-13 08:08 J -31031293.27 -31031293.16 -31031293.04 0.0530 0.0250

Mercury -89672-03-12 18:27 J -31031203.86 -31031203.73 -31031203.61 0.0526 0.0212

Moon -89670-03-27 19:54 J -31030458.90 -31030458.67 -31030458.44 0.0496 0.0166

Earth -89670-03-27 20:08 J -31030458.88 -31030458.66 -31030458.44 0.0496 0.0171 \*

Venus -89667-12-02 09:20 J -31029113.14 -31029113.11 -31029113.09 0.0494 0.0488

Mercury -89666-05-11 18:56 J -31028952.88 -31028952.71 -31028952.54 0.0499 0.0081

Mercury -89666-08-09 19:39 J -31028862.77 -31028862.68 -31028862.59 0.0502 0.0418

Mercury -89661-10-01 10:47 J -31026983.14 -31026983.05 -31026982.95 0.0531 0.0372

Venus -89661-10-09 05:44 J -31026975.45 -31026975.26 -31026975.07 0.0531 0.0168

Mercury -89661-12-29 20:51 J -31026893.76 -31026893.63 -31026893.49 0.0528 0.0090

Moon -89658-04-01 03:49 J -31026071.36 -31026071.34 -31026071.29 0.0495 0.0488

Earth -89658-04-01 05:44 J -31026071.34 -31026071.26 -31026071.17 0.0495 0.0458 \*

Mercury -89654-02-27 17:59 J -31024642.90 -31024642.75 -31024642.59 0.0498 0.0206

Mercury -89654-05-28 19:11 J -31024552.83 -31024552.70 -31024552.56 0.0501 0.0296

Venus -89649-06-14 01:39 J -31022709.59 -31022709.43 -31022709.28 0.0534 0.0328

Mercury -89649-07-20 14:23 J -31022672.95 -31022672.90 -31022672.84 0.0532 0.0481

Mercury -89649-10-18 00:13 J -31022583.62 -31022583.49 -31022583.35 0.0529 0.0024

Mercury -89648-01-15 10:47 J -31022494.12 -31022494.05 -31022493.97 0.0525 0.0442

Venus -89643-12-04 23:44 J -31020344.71 -31020344.51 -31020344.32 0.0497 0.0179

Mercury -89643-12-16 16:47 J -31020332.93 -31020332.80 -31020332.67 0.0498 0.0335

Mercury -89642-03-16 18:27 J -31020242.89 -31020242.73 -31020242.57 0.0501 0.0169

Mercury -89637-08-06 03:49 J -31018273.47 -31018273.34 -31018273.21 0.0530 0.0132

Mercury -89637-11-03 14:08 J -31018184.01 -31018183.91 -31018183.80 0.0526 0.0332

Venus -89631-08-09 21:49 J -31016078.77 -31016078.59 -31016078.41 0.0495 0.0244

Mercury -89631-10-04 16:03 J -31016022.89 -31016022.83 -31016022.77 0.0497 0.0459

Mercury -89630-01-02 17:59 J -31015932.91 -31015932.75 -31015932.58 0.0500 0.0050

Mars -89628-11-29 12:42 J -31014871.22 -31014870.97 -31014870.71 0.0541 0.0018  
 Mercury -89625-05-25 07:11 J -31013963.32 -31013963.20 -31013963.09 0.0530 0.0245  
 Venus -89625-06-16 22:18 J -31013940.66 -31013940.57 -31013940.48 0.0529 0.0468  
 Mercury -89625-08-22 17:15 J -31013873.91 -31013873.78 -31013873.66 0.0526 0.0216  
 Mercury -89619-10-21 17:30 J -31011622.94 -31011622.77 -31011622.60 0.0500 0.0075  
 Mercury -89618-01-19 18:27 J -31011532.82 -31011532.73 -31011532.64 0.0503 0.0425  
 Moon -89617-09-26 18:13 J -31010916.92 -31010916.74 -31010916.56 0.0529 0.0336  
 Earth -89617-09-26 22:03 J -31010916.77 -31010916.58 -31010916.39 0.0529 0.0311 \*  
 Venus -89613-02-20 17:30 J -31009674.97 -31009674.77 -31009674.57 0.0532 0.0027  
 Mercury -89613-03-13 10:18 J -31009653.17 -31009653.07 -31009652.98 0.0531 0.0359  
 Mercury -89613-06-10 20:08 J -31009563.79 -31009563.66 -31009563.53 0.0527 0.0099  
 Earth -89611-03-18 10:18 J -31008918.17 -31008918.07 -31008917.95 0.0501 0.0439  
 Moon -89611-03-18 12:27 J -31008918.07 -31008917.98 -31008917.88 0.0501 0.0448 \*  
 Mercury -89607-08-09 16:32 J -31007312.96 -31007312.81 -31007312.65 0.0498 0.0202  
 Venus -89607-08-12 13:39 J -31007310.02 -31007309.93 -31007309.82 0.0498 0.0436  
 Mercury -89607-11-07 17:44 J -31007222.89 -31007222.76 -31007222.62 0.0502 0.0301  
 Earth -89605-10-01 20:51 J -31006528.86 -31006528.63 -31006528.39 0.0530 0.0041  
 Moon -89605-10-01 23:59 J -31006528.73 -31006528.50 -31006528.28 0.0530 0.0019 \*  
 Mercury -89602-12-31 12:42 J -31005343.02 -31005342.97 -31005342.91 0.0532 0.0482  
 Mercury -89601-03-29 22:32 J -31005253.69 -31005253.56 -31005253.42 0.0529 0.0029  
 Mercury -89601-06-27 09:20 J -31005164.19 -31005164.11 -31005164.04 0.0525 0.0440  
 Moon -89599-03-22 19:39 J -31004530.90 -31004530.68 -31004530.45 0.0499 0.0173  
 Earth -89599-03-22 19:54 J -31004530.88 -31004530.67 -31004530.44 0.0499 0.0146 \*  
 Venus -89595-04-17 11:30 J -31003044.23 -31003044.02 -31003043.81 0.0496 0.0009  
 Mercury -89595-05-28 15:49 J -31003002.97 -31003002.84 -31003002.71 0.0497 0.0327  
 Mercury -89595-08-26 17:15 J -31002912.93 -31002912.78 -31002912.62 0.0501 0.0177  
 Moon -89593-10-06 22:18 J -31002140.71 -31002140.57 -31002140.42 0.0532 0.0420  
 Earth -89593-10-06 23:44 J -31002140.66 -31002140.51 -31002140.36 0.0532 0.0400 \*  
 Mercury -89589-01-17 01:54 J -31000943.55 -31000943.42 -31000943.29 0.0530 0.0137  
 Mercury -89589-04-15 12:27 J -31000854.09 -31000853.98 -31000853.88 0.0526 0.0328

Moon -89587-03-27 04:32 J -31000143.53 -31000143.31 -31000143.10 0.0497 0.0153  
 Earth -89587-03-27 06:13 J -31000143.46 -31000143.24 -31000143.02 0.0497 0.0146 \*  
 Venus -89584-12-21 08:37 J -30998778.25 -30998778.14 -30998778.03 0.0494 0.0418  
 Mercury -89583-03-16 14:23 J -30998692.97 -30998692.90 -30998692.83 0.0497 0.0456  
 Mercury -89583-06-14 16:18 J -30998602.99 -30998602.82 -30998602.65 0.0500 0.0051  
 Venus -89578-10-29 07:39 J -30996640.35 -30996640.18 -30996640.00 0.0531 0.0261  
 Mercury -89578-11-05 05:44 J -30996633.38 -30996633.26 -30996633.14 0.0531 0.0244  
 Mercury -89577-02-02 15:49 J -30996543.96 -30996543.84 -30996543.71 0.0527 0.0218  
 Earth -89575-03-31 15:49 J -30995755.94 -30995755.84 -30995755.72 0.0495 0.0433  
 Moon -89575-03-31 19:11 J -30995755.78 -30995755.70 -30995755.61 0.0495 0.0463 \*  
 Mercury -89571-04-02 16:03 J -30994293.00 -30994292.83 -30994292.66 0.0499 0.0073  
 Mercury -89571-07-01 16:47 J -30994202.88 -30994202.80 -30994202.71 0.0503 0.0426  
 Venus -89566-07-04 03:35 J -30992374.52 -30992374.35 -30992374.17 0.0533 0.0234  
 Mercury -89566-08-24 09:06 J -30992323.22 -30992323.12 -30992323.02 0.0531 0.0354  
 Mercury -89566-11-21 18:56 J -30992233.84 -30992233.71 -30992233.57 0.0527 0.0106  
 Mars -89563-11-04 05:15 J -30991155.47 -30991155.28 -30991155.08 0.0488 0.0374  
 Venus -89560-12-24 00:42 J -30990009.64 -30990009.47 -30990009.29 0.0498 0.0260  
 Mercury -89559-01-19 15:20 J -30989983.02 -30989982.86 -30989982.70 0.0499 0.0196  
 Mercury -89559-04-19 16:32 J -30989892.94 -30989892.81 -30989892.67 0.0502 0.0307  
 Mercury -89554-06-12 12:13 J -30988013.04 -30988012.99 -30988012.92 0.0532 0.0468  
 Mercury -89554-09-09 22:03 J -30987923.71 -30987923.58 -30987923.44 0.0528 0.0012  
 Mercury -89554-12-08 08:37 J -30987834.21 -30987834.14 -30987834.07 0.0525 0.0452  
 Venus -89548-08-28 22:32 J -30985743.75 -30985743.56 -30985743.36 0.0495 0.0167  
 Mercury -89548-11-07 14:23 J -30985673.02 -30985672.90 -30985672.76 0.0498 0.0322  
 Mercury -89547-02-05 16:03 J -30985582.98 -30985582.83 -30985582.67 0.0501 0.0183  
 Mercury -89542-06-29 00:27 J -30983613.61 -30983613.48 -30983613.35 0.0530 0.0136  
 Mercury -89542-09-26 10:47 J -30983524.15 -30983524.05 -30983523.94 0.0526 0.0329  
 Mercury -89536-08-26 13:39 J -30981363.01 -30981362.93 -30981362.86 0.0497 0.0446  
 Mercury -89536-11-24 15:35 J -30981273.02 -30981272.85 -30981272.68 0.0500 0.0060  
 Earth -89534-09-26 21:20 J -30980601.77 -30980601.61 -30980601.44 0.0527 0.0365

Moon -89534-09-27 00:42 J -30980601.62 -30980601.47 -30980601.32 0.0527 0.0394 \*  
 Venus -89530-03-11 15:49 J -30979340.04 -30979339.84 -30979339.65 0.0532 0.0043  
 Mercury -89530-04-17 03:49 J -30979303.45 -30979303.34 -30979303.22 0.0531 0.0248  
 Mercury -89530-07-15 14:08 J -30979214.04 -30979213.91 -30979213.79 0.0527 0.0215  
 Moon -89528-03-17 19:54 J -30978602.74 -30978602.67 -30978602.60 0.0502 0.0476  
 Earth -89528-03-17 20:08 J -30978602.74 -30978602.66 -30978602.57 0.0502 0.0462 \*  
 Mars -89527-08-11 04:32 J -30978091.51 -30978091.31 -30978091.11 0.0487 0.0362  
 Mercury -89524-09-12 14:23 J -30976963.07 -30976962.90 -30976962.73 0.0499 0.0070  
 Mercury -89524-12-11 15:06 J -30976872.95 -30976872.87 -30976872.78 0.0502 0.0429  
 Moon -89522-10-01 22:18 J -30976213.81 -30976213.57 -30976213.32 0.0530 0.0029  
 Earth -89522-10-02 00:27 J -30976213.72 -30976213.48 -30976213.25 0.0530 0.0011 \*  
 Venus -89519-11-14 12:13 J -30975074.09 -30975073.99 -30975073.88 0.0535 0.0451  
 Mercury -89518-02-03 07:39 J -30974993.28 -30974993.18 -30974993.08 0.0532 0.0355  
 Mercury -89518-05-03 17:44 J -30974903.90 -30974903.76 -30974903.63 0.0528 0.0107  
 Moon -89516-03-22 05:30 J -30974215.47 -30974215.27 -30974215.06 0.0499 0.0192  
 Earth -89516-03-22 07:11 J -30974215.41 -30974215.20 -30974214.98 0.0499 0.0169 \*  
 Venus -89512-05-06 11:30 J -30972709.22 -30972709.02 -30972708.81 0.0496 0.0084  
 Mercury -89512-07-01 13:54 J -30972653.08 -30972652.92 -30972652.76 0.0498 0.0192  
 Mercury -89512-09-29 15:06 J -30972563.00 -30972562.87 -30972562.74 0.0502 0.0310  
 Earth -89510-10-07 06:42 J -30971825.39 -30971825.22 -30971825.05 0.0532 0.0364  
 Moon -89510-10-07 06:27 J -30971825.38 -30971825.23 -30971825.08 0.0532 0.0391 \*  
 Mars -89509-05-20 14:08 J -30971598.98 -30971598.91 -30971598.83 0.0540 0.0514  
 Mercury -89507-11-22 11:15 J -30970683.09 -30970683.03 -30970682.97 0.0532 0.0463  
 Mercury -89506-02-19 20:51 J -30970593.76 -30970593.63 -30970593.49 0.0529 0.0019  
 Mercury -89506-05-20 07:25 J -30970504.25 -30970504.19 -30970504.12 0.0525 0.0458  
 Earth -89504-03-26 15:20 J -30969828.08 -30969827.86 -30969827.63 0.0497 0.0116  
 Moon -89504-03-26 18:42 J -30969827.95 -30969827.72 -30969827.49 0.0497 0.0133 \*  
 Venus -89500-01-09 09:49 J -30968443.24 -30968443.09 -30968442.94 0.0495 0.0339  
 Mercury -89500-04-19 13:11 J -30968343.08 -30968342.95 -30968342.82 0.0498 0.0315  
 Mercury -89500-07-18 14:51 J -30968253.03 -30968252.88 -30968252.72 0.0501 0.0189

Venus -89495-11-17 08:37 J -30966305.29 -30966305.14 -30966304.99 0.0530 0.0346

Mercury -89495-12-09 00:13 J -30966283.62 -30966283.49 -30966283.36 0.0529 0.0121

Mercury -89494-03-08 10:32 J -30966194.17 -30966194.06 -30966193.96 0.0526 0.0342

Moon -89492-03-30 20:23 J -30965440.75 -30965440.65 -30965440.53 0.0496 0.0432

Earth -89492-03-31 00:27 J -30965440.61 -30965440.48 -30965440.34 0.0496 0.0400 \*

Mercury -89488-02-05 12:27 J -30964033.06 -30964032.98 -30964032.90 0.0497 0.0439

Mercury -89488-05-06 14:23 J -30963943.07 -30963942.90 -30963942.73 0.0500 0.0068

Venus -89483-07-23 01:11 J -30962039.64 -30962039.45 -30962039.26 0.0533 0.0169

Mercury -89483-09-27 02:23 J -30961973.51 -30961973.40 -30961973.28 0.0531 0.0247

Mercury -89483-12-25 12:42 J -30961884.09 -30961883.97 -30961883.85 0.0527 0.0216

Venus -89476-01-12 02:08 J -30959674.56 -30959674.41 -30959674.26 0.0497 0.0340

Mercury -89476-02-22 13:54 J -30959633.09 -30959632.92 -30959632.75 0.0499 0.0058

Mercury -89476-05-23 14:37 J -30959542.97 -30959542.89 -30959542.81 0.0502 0.0440

Mars -89473-02-23 11:01 J -30958537.27 -30958537.04 -30958536.81 0.0540 0.0236

Mercury -89471-07-16 05:44 J -30957663.35 -30957663.26 -30957663.16 0.0532 0.0359

Mercury -89471-10-13 15:49 J -30957573.97 -30957573.84 -30957573.70 0.0528 0.0103

Venus -89465-09-16 22:32 J -30955408.76 -30955408.56 -30955408.35 0.0495 0.0092

Mercury -89465-12-11 12:27 J -30955323.14 -30955322.98 -30955322.82 0.0498 0.0187

Mercury -89464-03-11 13:39 J -30955233.06 -30955232.93 -30955232.79 0.0501 0.0314

Mercury -89459-05-04 09:35 J -30953353.16 -30953353.10 -30953353.03 0.0533 0.0465

Mercury -89459-08-01 19:25 J -30953263.82 -30953263.69 -30953263.55 0.0529 0.0012

Mercury -89459-10-30 06:13 J -30953174.31 -30953174.24 -30953174.18 0.0525 0.0459

Mercury -89453-09-29 11:44 J -30951013.14 -30951013.01 -30951012.87 0.0497 0.0310

Mercury -89453-12-28 13:25 J -30950923.09 -30950922.94 -30950922.78 0.0501 0.0193

Moon -89451-09-26 01:11 J -30950286.58 -30950286.45 -30950286.30 0.0527 0.0431

Earth -89451-09-26 03:35 J -30950286.49 -30950286.35 -30950286.19 0.0527 0.0401 \*

Venus -89447-03-30 18:42 J -30949004.91 -30949004.72 -30949004.53 0.0532 0.0141

Mercury -89447-05-20 23:01 J -30948953.67 -30948953.54 -30948953.41 0.0530 0.0117

Mercury -89447-08-18 09:20 J -30948864.21 -30948864.11 -30948864.01 0.0526 0.0346

Earth -89445-03-17 06:27 J -30948287.28 -30948287.23 -30948287.18 0.0502 0.0488

Mercury -89441-07-18 11:01 J -30946703.12 -30946703.04 -30946702.96 0.0497 0.0434

Mercury -89441-10-16 13:11 J -30946613.12 -30946612.95 -30946612.78 0.0500 0.0072

Earth -89439-10-01 09:06 J -30945898.35 -30945898.12 -30945897.88 0.0530 0.0036

Moon -89439-10-01 09:20 J -30945898.33 -30945898.11 -30945897.88 0.0530 0.0052 \*

Venus -89436-12-03 13:54 J -30944739.06 -30944738.92 -30944738.77 0.0534 0.0359

Mercury -89435-03-09 02:08 J -30944643.53 -30944643.41 -30944643.29 0.0530 0.0230

Mercury -89435-06-06 12:13 J -30944554.11 -30944553.99 -30944553.86 0.0527 0.0232

Earth -89433-03-21 15:49 J -30943900.04 -30943899.84 -30943899.62 0.0500 0.0199

Moon -89433-03-21 19:11 J -30943899.91 -30943899.70 -30943899.48 0.0500 0.0216 \*

Venus -89429-05-25 13:25 J -30942374.13 -30942373.94 -30942373.74 0.0497 0.0166

Mercury -89429-08-04 12:42 J -30942303.14 -30942302.97 -30942302.80 0.0499 0.0050

Mercury -89429-11-02 13:25 J -30942213.01 -30942212.94 -30942212.86 0.0502 0.0448

Earth -89427-10-06 10:18 J -30941510.26 -30941510.07 -30941509.88 0.0531 0.0320

Moon -89427-10-06 12:27 J -30941510.16 -30941509.98 -30941509.80 0.0531 0.0349 \*

Mercury -89424-12-26 04:32 J -30940333.40 -30940333.31 -30940333.21 0.0532 0.0355

Mercury -89423-03-25 14:37 J -30940244.03 -30940243.89 -30940243.76 0.0528 0.0105

Moon -89421-03-25 19:54 J -30939512.89 -30939512.67 -30939512.44 0.0498 0.0108

Earth -89421-03-25 23:59 J -30939512.73 -30939512.50 -30939512.27 0.0498 0.0089 \*

Venus -89417-01-29 11:30 J -30938108.19 -30938108.02 -30938107.84 0.0494 0.0256

Mercury -89417-05-23 11:59 J -30937993.16 -30937993.00 -30937992.84 0.0498 0.0174

Mercury -89417-08-21 13:11 J -30937903.07 -30937902.95 -30937902.82 0.0501 0.0326

Mercury -89412-10-14 07:54 J -30936023.23 -30936023.17 -30936023.11 0.0533 0.0468

Venus -89412-12-06 06:27 J -30935970.35 -30935970.23 -30935970.11 0.0531 0.0412

Mercury -89411-01-11 17:44 J -30935933.90 -30935933.76 -30935933.62 0.0529 0.0010

Mercury -89411-04-11 04:18 J -30935844.38 -30935844.32 -30935844.25 0.0526 0.0455

Earth -89409-03-30 09:49 J -30935125.24 -30935125.09 -30935124.94 0.0496 0.0377

Moon -89409-03-30 13:54 J -30935125.05 -30935124.92 -30935124.79 0.0496 0.0407 \*

Mars -89408-01-28 19:11 J -30934820.99 -30934820.70 -30934820.40 0.0488 0.0093

Mercury -89405-03-11 10:32 J -30933683.19 -30933683.06 -30933682.92 0.0497 0.0304

Mercury -89405-06-09 12:13 J -30933593.15 -30933592.99 -30933592.84 0.0500 0.0198

Venus -89400-08-11 03:06 J -30931704.56 -30931704.37 -30931704.17 0.0533 0.0075  
 Mercury -89400-10-30 21:20 J -30931623.74 -30931623.61 -30931623.48 0.0530 0.0118  
 Mercury -89399-01-28 07:39 J -30931534.28 -30931534.18 -30931534.07 0.0526 0.0347  
 Mercury -89394-12-29 09:35 J -30929373.18 -30929373.10 -30929373.01 0.0497 0.0429  
 Venus -89393-02-01 01:54 J -30929339.53 -30929339.42 -30929339.30 0.0498 0.0416  
 Mercury -89393-03-28 11:44 J -30929283.18 -30929283.01 -30929282.84 0.0500 0.0076  
 Mercury -89388-08-19 00:56 J -30927313.58 -30927313.46 -30927313.34 0.0531 0.0227  
 Mercury -89388-11-16 11:01 J -30927224.16 -30927224.04 -30927223.91 0.0527 0.0235  
 Venus -89382-10-06 23:59 J -30925073.71 -30925073.50 -30925073.29 0.0496 0.0010  
 Mercury -89381-01-15 11:15 J -30924973.20 -30924973.03 -30924972.86 0.0499 0.0046  
 Mercury -89381-04-14 11:59 J -30924883.06 -30924883.00 -30924882.92 0.0502 0.0452  
 Mercury -89376-06-07 04:18 J -30923003.42 -30923003.32 -30923003.22 0.0531 0.0339  
 Mercury -89376-09-04 14:08 J -30922914.04 -30922913.91 -30922913.77 0.0528 0.0121  
 Venus -89370-06-11 23:01 J -30920807.64 -30920807.54 -30920807.43 0.0494 0.0427  
 Mercury -89370-11-03 10:47 J -30920663.21 -30920663.05 -30920662.88 0.0498 0.0168  
 Mercury -89369-02-01 11:59 J -30920573.12 -30920573.00 -30920572.87 0.0501 0.0333  
 Earth -89368-09-25 09:06 J -30919971.25 -30919971.12 -30919970.99 0.0526 0.0432  
 Moon -89368-09-25 10:03 J -30919971.18 -30919971.08 -30919970.98 0.0526 0.0465 \*  
 Mercury -89364-03-26 06:42 J -30918693.28 -30918693.22 -30918693.16 0.0532 0.0464  
 Venus -89364-04-18 16:03 J -30918670.01 -30918669.83 -30918669.65 0.0531 0.0205  
 Mercury -89364-06-23 16:32 J -30918603.95 -30918603.81 -30918603.68 0.0529 0.0020  
 Mercury -89364-09-21 02:51 J -30918514.44 -30918514.38 -30918514.31 0.0525 0.0458  
 Mercury -89358-08-22 10:03 J -30916353.22 -30916353.08 -30916352.94 0.0497 0.0292  
 Mercury -89358-11-20 11:30 J -30916263.17 -30916263.02 -30916262.86 0.0500 0.0211  
 Earth -89356-09-30 11:01 J -30915583.27 -30915583.04 -30915582.81 0.0528 0.0082  
 Moon -89356-09-30 12:13 J -30915583.23 -30915582.99 -30915582.75 0.0528 0.0089 \*  
 Mars -89355-08-14 17:59 J -30915264.96 -30915264.75 -30915264.53 0.0539 0.0274  
 Venus -89353-12-22 11:01 J -30914404.20 -30914404.04 -30914403.87 0.0534 0.0297  
 Mercury -89352-04-11 19:39 J -30914293.81 -30914293.68 -30914293.55 0.0530 0.0122  
 Mercury -89352-07-10 05:59 J -30914204.35 -30914204.25 -30914204.15 0.0527 0.0342



Moon -89350-03-21 19:39 J -30913584.88 -30913584.68 -30913584.48 0.0501 0.0244  
 Earth -89350-03-21 23:30 J -30913584.72 -30913584.52 -30913584.31 0.0501 0.0227 \*  
 Mercury -89346-06-10 08:23 J -30912043.24 -30912043.15 -30912043.06 0.0496 0.0423  
 Venus -89346-06-14 13:11 J -30912039.13 -30912038.95 -30912038.77 0.0497 0.0240  
 Mercury -89346-09-08 10:18 J -30911953.23 -30911953.07 -30911952.90 0.0499 0.0082  
 Moon -89344-10-05 08:51 J -30911195.31 -30911195.13 -30911194.93 0.0531 0.0303  
 Earth -89344-10-05 12:27 J -30911195.18 -30911194.98 -30911194.78 0.0531 0.0271 \*  
 Mercury -89340-01-28 23:15 J -30909983.65 -30909983.53 -30909983.41 0.0531 0.0230  
 Mercury -89340-04-28 09:20 J -30909894.23 -30909894.11 -30909893.98 0.0527 0.0233  
 Earth -89338-03-26 10:47 J -30909197.28 -30909197.05 -30909196.82 0.0499 0.0065  
 Moon -89338-03-26 14:37 J -30909197.12 -30909196.89 -30909196.66 0.0499 0.0090 \*  
 Venus -89334-02-17 11:01 J -30907773.23 -30907773.04 -30907772.84 0.0495 0.0183  
 Mercury -89334-06-27 09:49 J -30907643.26 -30907643.09 -30907642.92 0.0499 0.0042  
 Mercury -89334-09-25 10:32 J -30907553.12 -30907553.06 -30907552.99 0.0502 0.0455  
 Mercury -89329-11-17 02:51 J -30905673.48 -30905673.38 -30905673.28 0.0532 0.0338  
 Venus -89329-12-25 09:06 J -30905635.17 -30905635.12 -30905635.06 0.0530 0.0509  
 Mercury -89328-02-14 12:56 J -30905584.10 -30905583.96 -30905583.83 0.0528 0.0123  
 Moon -89326-03-30 16:18 J -30904809.97 -30904809.82 -30904809.66 0.0497 0.0374  
 Earth -89326-03-30 19:39 J -30904809.84 -30904809.68 -30904809.51 0.0497 0.0349 \*  
 Mercury -89322-04-15 09:06 J -30903333.28 -30903333.12 -30903332.96 0.0498 0.0166  
 Mercury -89322-07-14 10:18 J -30903243.19 -30903243.07 -30903242.94 0.0501 0.0335  
 Mars -89319-05-20 03:49 J -30902202.39 -30902202.34 -30902202.26 0.0541 0.0522  
 Venus -89317-08-30 04:47 J -30901369.49 -30901369.30 -30901369.10 0.0532 0.0017  
 Mercury -89317-09-05 06:13 J -30901363.30 -30901363.24 -30901363.17 0.0532 0.0449  
 Mercury -89317-12-03 16:03 J -30901273.97 -30901273.83 -30901273.70 0.0529 0.0009  
 Mercury -89316-03-03 02:37 J -30901184.45 -30901184.39 -30901184.33 0.0525 0.0472  
 Mercury -89310-02-01 08:37 J -30899023.28 -30899023.14 -30899023.00 0.0497 0.0287  
 Mercury -89310-05-02 10:18 J -30898933.22 -30898933.07 -30898932.91 0.0501 0.0216  
 Venus -89305-05-04 20:23 J -30897103.70 -30897103.65 -30897103.58 0.0535 0.0508  
 Mercury -89305-09-21 18:13 J -30896963.87 -30896963.74 -30896963.61 0.0530 0.0119

Mercury -89305-12-20 04:32 J -30896874.41 -30896874.31 -30896874.20 0.0526 0.0344

Venus -89299-10-26 01:39 J -30894738.63 -30894738.43 -30894738.22 0.0496 0.0073

Mercury -89299-11-20 07:39 J -30894713.27 -30894713.18 -30894713.08 0.0497 0.0411

Mercury -89298-02-18 09:49 J -30894623.26 -30894623.09 -30894622.92 0.0500 0.0093

Mercury -89293-07-10 21:20 J -30892653.73 -30892653.61 -30892653.49 0.0531 0.0234

Mercury -89293-10-08 07:25 J -30892564.31 -30892564.19 -30892564.06 0.0527 0.0229

Venus -89287-06-30 22:18 J -30890472.71 -30890472.57 -30890472.42 0.0494 0.0355

Mercury -89287-12-07 08:23 J -30890313.32 -30890313.15 -30890312.98 0.0499 0.0037

Mercury -89286-03-07 09:06 J -30890223.18 -30890223.12 -30890223.05 0.0502 0.0458

Earth -89285-09-24 09:49 J -30889656.17 -30889656.09 -30889655.99 0.0526 0.0482

Moon -89285-09-24 10:18 J -30889656.12 -30889656.07 -30889656.01 0.0526 0.0512 \*

Mercury -89281-04-29 00:56 J -30888343.56 -30888343.46 -30888343.35 0.0532 0.0343

Venus -89281-05-07 17:01 J -30888334.96 -30888334.79 -30888334.63 0.0532 0.0292

Mercury -89281-07-27 11:01 J -30888254.17 -30888254.04 -30888253.91 0.0528 0.0118

Mercury -89275-09-25 07:39 J -30886003.35 -30886003.18 -30886003.02 0.0498 0.0162

Mercury -89275-12-24 08:51 J -30885913.25 -30885913.13 -30885913.01 0.0501 0.0337

Moon -89273-09-29 11:15 J -30885268.25 -30885268.03 -30885267.81 0.0528 0.0128

Earth -89273-09-29 13:54 J -30885268.14 -30885267.92 -30885267.69 0.0528 0.0128 \*

Venus -89269-01-11 13:25 J -30884069.12 -30884068.94 -30884068.75 0.0534 0.0200

Mercury -89269-02-16 04:47 J -30884033.37 -30884033.30 -30884033.23 0.0533 0.0450

Mercury -89269-05-15 14:37 J -30883944.03 -30883943.89 -30883943.76 0.0529 0.0018

Mercury -89269-08-13 01:11 J -30883854.51 -30883854.45 -30883854.39 0.0525 0.0472

Earth -89267-03-21 09:06 J -30883269.32 -30883269.12 -30883268.92 0.0501 0.0254

Moon -89267-03-21 12:56 J -30883269.15 -30883268.96 -30883268.76 0.0501 0.0264 \*

Venus -89263-07-03 13:25 J -30881704.09 -30881703.94 -30881703.77 0.0497 0.0317

Mercury -89263-07-14 06:42 J -30881693.36 -30881693.22 -30881693.08 0.0497 0.0287

Mercury -89263-10-12 08:23 J -30881603.30 -30881603.15 -30881602.99 0.0501 0.0216

Earth -89261-10-04 19:11 J -30880879.91 -30880879.70 -30880879.49 0.0530 0.0236

Moon -89261-10-04 23:15 J -30880879.73 -30880879.53 -30880879.33 0.0531 0.0271 \*

Mercury -89257-03-03 17:44 J -30879633.89 -30879633.76 -30879633.63 0.0530 0.0105

Mercury -89257-06-01 04:03 J -30879544.43 -30879544.33 -30879544.23 0.0526 0.0357

Moon -89255-03-25 15:20 J -30878882.09 -30878881.86 -30878881.62 0.0499 0.0058

Earth -89255-03-25 18:42 J -30878881.95 -30878881.72 -30878881.49 0.0499 0.0033 \*

Mars -89254-04-25 01:54 J -30878486.70 -30878486.42 -30878486.13 0.0488 0.0164

Venus -89251-03-08 12:27 J -30877438.19 -30877437.98 -30877437.78 0.0495 0.0104

Mercury -89251-05-02 06:13 J -30877383.34 -30877383.24 -30877383.14 0.0497 0.0408

Mercury -89251-07-31 08:23 J -30877293.32 -30877293.15 -30877292.98 0.0500 0.0097

Mercury -89246-12-21 20:08 J -30875323.78 -30875323.66 -30875323.54 0.0531 0.0232

Mercury -89245-03-20 06:13 J -30875234.36 -30875234.24 -30875234.12 0.0527 0.0229

Earth -89243-03-30 00:42 J -30874494.64 -30874494.47 -30874494.29 0.0498 0.0314

Moon -89243-03-30 02:23 J -30874494.56 -30874494.40 -30874494.23 0.0498 0.0332 \*

Mercury -89239-05-19 07:39 J -30872983.35 -30872983.18 -30872983.01 0.0499 0.0027

Mercury -89239-08-17 08:23 J -30872893.20 -30872893.15 -30872893.09 0.0502 0.0469

Venus -89234-09-19 00:42 J -30871034.67 -30871034.47 -30871034.28 0.0532 0.0072

Mercury -89234-10-09 23:15 J -30871013.63 -30871013.53 -30871013.43 0.0532 0.0347

Mercury -89233-01-07 09:06 J -30870924.25 -30870924.12 -30870923.99 0.0528 0.0112

Mercury -89227-03-07 05:59 J -30868673.41 -30868673.25 -30868673.08 0.0498 0.0159

Mercury -89227-06-05 07:11 J -30868583.32 -30868583.20 -30868583.07 0.0501 0.0340

Venus -89222-05-24 20:23 J -30866768.77 -30866768.65 -30866768.53 0.0535 0.0426

Mercury -89222-07-29 02:37 J -30866703.45 -30866703.39 -30866703.32 0.0533 0.0457

Mercury -89222-10-26 12:27 J -30866614.11 -30866613.98 -30866613.84 0.0529 0.0011

Mercury -89221-01-23 23:01 J -30866524.60 -30866524.54 -30866524.47 0.0526 0.0467

Venus -89216-11-13 23:44 J -30864403.71 -30864403.51 -30864403.31 0.0496 0.0138

Mercury -89216-12-24 05:01 J -30864363.43 -30864363.29 -30864363.15 0.0497 0.0285

Mercury -89215-03-24 06:42 J -30864273.37 -30864273.22 -30864273.07 0.0500 0.0217

Mercury -89210-08-14 16:03 J -30862303.96 -30862303.83 -30862303.70 0.0530 0.0108

Mercury -89210-11-12 02:23 J -30862214.50 -30862214.40 -30862214.30 0.0526 0.0355

Venus -89204-07-19 21:35 J -30860137.76 -30860137.60 -30860137.42 0.0494 0.0285

Mercury -89204-10-12 03:49 J -30860053.43 -30860053.34 -30860053.24 0.0497 0.0412

Mercury -89203-01-10 06:13 J -30859963.41 -30859963.24 -30859963.08 0.0500 0.0094

Earth -89202-09-24 15:20 J -30859340.89 -30859340.86 -30859340.82 0.0525 0.0518  
 Mars -89201-11-08 03:35 J -30858930.60 -30858930.35 -30858930.10 0.0540 0.0017  
 Venus -89198-05-27 17:44 J -30857999.90 -30857999.76 -30857999.62 0.0531 0.0377  
 Mercury -89198-06-02 19:25 J -30857993.81 -30857993.69 -30857993.57 0.0531 0.0220  
 Mercury -89198-08-31 05:30 J -30857904.39 -30857904.27 -30857904.15 0.0527 0.0241  
 Mercury -89192-10-29 05:59 J -30855653.43 -30855653.25 -30855653.08 0.0499 0.0028  
 Mercury -89191-01-27 06:42 J -30855563.27 -30855563.22 -30855563.16 0.0502 0.0471  
 Earth -89190-09-29 18:56 J -30854952.93 -30854952.71 -30854952.48 0.0527 0.0163  
 Moon -89190-09-29 22:47 J -30854952.77 -30854952.55 -30854952.32 0.0527 0.0150 \*  
 Venus -89186-01-30 10:03 J -30853734.27 -30853734.08 -30853733.89 0.0533 0.0140  
 Mercury -89186-03-21 21:49 J -30853683.69 -30853683.59 -30853683.49 0.0531 0.0345  
 Mercury -89186-06-19 07:39 J -30853594.31 -30853594.18 -30853594.05 0.0528 0.0114  
 Moon -89184-03-20 08:51 J -30852954.32 -30852954.13 -30852953.94 0.0502 0.0306  
 Earth -89184-03-20 12:13 J -30852954.18 -30852953.99 -30852953.80 0.0502 0.0296 \*  
 Venus -89180-07-22 13:54 J -30851369.04 -30851368.92 -30851368.79 0.0497 0.0395  
 Mercury -89180-08-17 05:01 J -30851343.45 -30851343.29 -30851343.12 0.0498 0.0150  
 Mercury -89180-11-15 06:13 J -30851253.35 -30851253.24 -30851253.11 0.0501 0.0349  
 Moon -89178-10-04 16:47 J -30850565.02 -30850564.80 -30850564.59 0.0529 0.0221  
 Earth -89178-10-04 20:37 J -30850564.86 -30850564.64 -30850564.42 0.0529 0.0187 \*  
 Mercury -89174-01-08 00:56 J -30849373.52 -30849373.46 -30849373.40 0.0532 0.0461  
 Mercury -89174-04-07 10:32 J -30849284.19 -30849284.06 -30849283.92 0.0529 0.0009  
 Mercury -89174-07-05 21:06 J -30849194.68 -30849194.62 -30849194.55 0.0526 0.0459  
 Earth -89172-03-24 21:49 J -30848566.83 -30848566.59 -30848566.36 0.0500 0.0013  
 Moon -89172-03-24 23:30 J -30848566.74 -30848566.52 -30848566.30 0.0500 0.0019 \*  
 Venus -89168-03-27 10:03 J -30847103.29 -30847103.08 -30847102.87 0.0495 0.0040  
 Mercury -89168-06-05 03:20 J -30847033.50 -30847033.36 -30847033.22 0.0497 0.0283  
 Mercury -89168-09-03 05:01 J -30846943.44 -30846943.29 -30846943.14 0.0500 0.0218  
 Moon -89166-10-09 22:32 J -30846176.56 -30846176.56 -30846176.54 0.0531 0.0530  
 Mercury -89162-01-24 13:54 J -30844974.05 -30844973.92 -30844973.79 0.0530 0.0116  
 Mercury -89162-04-24 00:13 J -30844884.59 -30844884.49 -30844884.38 0.0527 0.0348

Earth -89160-03-29 08:37 J -30844179.33 -30844179.14 -30844178.95 0.0498 0.0281  
 Moon -89160-03-29 08:37 J -30844179.32 -30844179.14 -30844178.93 0.0498 0.0289 \*  
 Venus -89157-11-30 08:08 J -30842837.23 -30842837.16 -30842837.08 0.0493 0.0459  
 Mercury -89156-03-24 02:08 J -30842723.50 -30842723.41 -30842723.31 0.0496 0.0410  
 Mercury -89156-06-22 04:18 J -30842633.49 -30842633.32 -30842633.15 0.0499 0.0094  
 Venus -89151-10-08 01:25 J -30840699.63 -30840699.44 -30840699.25 0.0532 0.0159  
 Mercury -89151-11-12 17:30 J -30840663.89 -30840663.77 -30840663.65 0.0531 0.0225  
 Mercury -89150-02-10 03:35 J -30840574.47 -30840574.35 -30840574.22 0.0528 0.0237  
 Mercury -89144-04-10 03:20 J -30838323.53 -30838323.36 -30838323.18 0.0499 0.0034  
 Mercury -89144-07-09 04:18 J -30838233.38 -30838233.32 -30838233.26 0.0502 0.0465  
 Venus -89139-06-12 20:51 J -30836433.78 -30836433.63 -30836433.48 0.0534 0.0342  
 Mercury -89139-08-31 20:51 J -30836353.73 -30836353.63 -30836353.52 0.0532 0.0337  
 Mercury -89139-11-29 06:56 J -30836264.35 -30836264.21 -30836264.08 0.0528 0.0124  
 Mars -89136-10-12 00:27 J -30835216.69 -30835216.48 -30835216.25 0.0489 0.0332  
 Venus -89133-12-02 23:44 J -30834068.70 -30834068.51 -30834068.32 0.0496 0.0212  
 Mercury -89132-01-27 03:06 J -30834013.54 -30834013.37 -30834013.21 0.0498 0.0152  
 Mercury -89132-04-27 04:18 J -30833923.43 -30833923.32 -30833923.19 0.0501 0.0348  
 Mercury -89127-06-19 23:30 J -30832043.58 -30832043.52 -30832043.45 0.0532 0.0459  
 Mercury -89127-09-17 09:06 J -30831954.25 -30831954.12 -30831953.98 0.0529 0.0007  
 Mercury -89127-12-15 19:39 J -30831864.75 -30831864.68 -30831864.62 0.0525 0.0459  
 Venus -89121-08-07 21:35 J -30829802.79 -30829802.60 -30829802.41 0.0494 0.0212  
 Mercury -89121-11-15 02:08 J -30829703.55 -30829703.41 -30829703.27 0.0497 0.0277  
 Mercury -89120-02-13 03:49 J -30829613.49 -30829613.34 -30829613.19 0.0500 0.0226  
 Venus -89115-06-15 12:27 J -30827665.09 -30827664.98 -30827664.86 0.0531 0.0428  
 Mercury -89115-07-06 11:59 J -30827644.13 -30827644.00 -30827643.87 0.0530 0.0122  
 Mercury -89115-10-03 22:18 J -30827554.67 -30827554.57 -30827554.47 0.0526 0.0341  
 Mercury -89109-09-03 00:13 J -30825393.59 -30825393.49 -30825393.39 0.0496 0.0410  
 Mercury -89109-12-02 02:23 J -30825303.57 -30825303.40 -30825303.23 0.0499 0.0094  
 Moon -89107-09-28 11:01 J -30824638.26 -30824638.04 -30824637.83 0.0526 0.0217  
 Earth -89107-09-28 15:06 J -30824638.08 -30824637.87 -30824637.66 0.0526 0.0229 \*

Venus -89103-02-18 07:54 J -30823399.37 -30823399.17 -30823398.98 0.0534 0.0070  
 Mercury -89103-04-24 15:20 J -30823333.98 -30823333.86 -30823333.74 0.0531 0.0234  
 Mercury -89103-07-23 01:25 J -30823244.56 -30823244.44 -30823244.32 0.0528 0.0228  
 Earth -89101-03-19 18:27 J -30822638.89 -30822638.73 -30822638.55 0.0503 0.0333  
 Moon -89101-03-19 20:23 J -30822638.81 -30822638.65 -30822638.48 0.0503 0.0334 \*  
 Mars -89100-07-18 18:42 J -30822152.89 -30822152.72 -30822152.54 0.0488 0.0392  
 Venus -89097-08-10 10:32 J -30821034.14 -30821034.06 -30821033.97 0.0497 0.0451  
 Mercury -89097-09-20 01:25 J -30820993.61 -30820993.44 -30820993.27 0.0498 0.0032  
 Mercury -89097-12-19 02:23 J -30820903.46 -30820903.40 -30820903.34 0.0502 0.0463  
 Earth -89095-10-03 17:30 J -30820249.99 -30820249.77 -30820249.54 0.0529 0.0123  
 Moon -89095-10-03 20:51 J -30820249.85 -30820249.63 -30820249.41 0.0529 0.0157 \*  
 Mercury -89091-02-10 18:56 J -30819023.81 -30819023.71 -30819023.61 0.0532 0.0343  
 Mercury -89091-05-11 04:47 J -30818934.43 -30818934.30 -30818934.16 0.0529 0.0117  
 Moon -89089-03-24 05:01 J -30818251.53 -30818251.29 -30818251.05 0.0500 0.0015  
 Earth -89089-03-24 05:01 J -30818251.52 -30818251.29 -30818251.06 0.0500 0.0042 \*  
 Venus -89085-04-15 07:54 J -30816768.38 -30816768.17 -30816767.96 0.0495 0.0024  
 Mercury -89085-07-09 00:27 J -30816683.64 -30816683.48 -30816683.32 0.0498 0.0159  
 Mercury -89085-10-07 01:39 J -30816593.55 -30816593.43 -30816593.30 0.0501 0.0341  
 Moon -89083-10-08 20:37 J -30815861.74 -30815861.64 -30815861.52 0.0531 0.0476  
 Earth -89083-10-08 22:18 J -30815861.65 -30815861.57 -30815861.47 0.0531 0.0485 \*  
 Mercury -89080-11-29 22:18 J -30814713.63 -30814713.57 -30814713.50 0.0533 0.0454  
 Mercury -89079-02-27 08:08 J -30814624.30 -30814624.16 -30814624.03 0.0529 0.0004  
 Mercury -89079-05-27 18:42 J -30814534.78 -30814534.72 -30814534.66 0.0526 0.0467  
 Moon -89077-03-28 11:59 J -30813864.19 -30813864.00 -30813863.80 0.0498 0.0245  
 Earth -89077-03-28 14:08 J -30813864.12 -30813863.91 -30813863.71 0.0498 0.0243 \*  
 Venus -89074-12-20 06:42 J -30812502.33 -30812502.22 -30812502.08 0.0493 0.0394  
 Mercury -89073-04-26 23:59 J -30812373.65 -30812373.50 -30812373.36 0.0497 0.0281  
 Mercury -89073-07-26 01:39 J -30812283.58 -30812283.43 -30812283.28 0.0500 0.0222  
 Venus -89068-10-26 21:49 J -30810364.77 -30810364.59 -30810364.41 0.0532 0.0218  
 Mercury -89068-12-16 10:32 J -30810314.19 -30810314.06 -30810313.93 0.0530 0.0120

Mercury -89067-03-15 20:51 J -30810224.74 -30810224.63 -30810224.53 0.0526 0.0341

Moon -89065-04-01 22:18 J -30809476.62 -30809476.57 -30809476.52 0.0497 0.0485

Mercury -89061-02-13 22:47 J -30808063.65 -30808063.55 -30808063.45 0.0497 0.0406

Mercury -89061-05-14 00:56 J -30807973.62 -30807973.46 -30807973.29 0.0500 0.0099

Venus -89056-07-01 15:35 J -30806099.01 -30806098.85 -30806098.68 0.0534 0.0291

Mercury -89056-10-04 13:25 J -30806004.05 -30806003.94 -30806003.82 0.0531 0.0238

Mercury -89055-01-01 23:30 J -30805914.64 -30805914.52 -30805914.40 0.0527 0.0222

Venus -89050-12-22 19:54 J -30803733.84 -30803733.67 -30803733.49 0.0496 0.0269

Mercury -89049-03-01 23:30 J -30803663.70 -30803663.52 -30803663.35 0.0498 0.0037

Mercury -89049-05-31 00:13 J -30803573.55 -30803573.49 -30803573.42 0.0502 0.0462

Mars -89046-02-01 12:56 J -30802597.20 -30802596.96 -30802596.72 0.0539 0.0166

Mercury -89044-07-23 16:47 J -30801693.90 -30801693.80 -30801693.70 0.0532 0.0352

Mercury -89044-10-21 02:37 J -30801604.52 -30801604.39 -30801604.26 0.0529 0.0107

Venus -89038-08-27 17:30 J -30799467.97 -30799467.77 -30799467.57 0.0494 0.0157

Mercury -89038-12-19 22:18 J -30799353.73 -30799353.57 -30799353.41 0.0498 0.0161

Mercury -89037-03-18 23:44 J -30799263.64 -30799263.51 -30799263.39 0.0501 0.0338

Mercury -89032-05-11 20:23 J -30797383.71 -30797383.65 -30797383.59 0.0533 0.0461

Venus -89032-07-04 11:44 J -30797330.07 -30797330.01 -30797329.95 0.0531 0.0504

Mercury -89032-08-09 05:59 J -30797294.38 -30797294.25 -30797294.11 0.0530 0.0012

Mercury -89032-11-06 16:32 J -30797204.87 -30797204.81 -30797204.74 0.0526 0.0460

Mercury -89026-10-07 21:06 J -30795043.76 -30795043.62 -30795043.48 0.0497 0.0289

Mercury -89025-01-05 23:01 J -30794953.70 -30794953.54 -30794953.39 0.0500 0.0214

Earth -89024-09-27 16:03 J -30794323.03 -30794322.83 -30794322.63 0.0526 0.0279

Moon -89024-09-27 19:39 J -30794322.88 -30794322.68 -30794322.48 0.0526 0.0261 \*

Venus -89020-03-09 07:25 J -30793064.38 -30793064.19 -30793063.99 0.0533 0.0013

Mercury -89020-05-28 09:20 J -30792984.24 -30792984.11 -30792983.98 0.0530 0.0116

Mercury -89020-08-25 19:39 J -30792894.78 -30792894.68 -30792894.58 0.0527 0.0346

Moon -89018-03-19 23:44 J -30792323.67 -30792323.51 -30792323.34 0.0503 0.0362

Earth -89018-03-19 23:59 J -30792323.65 -30792323.50 -30792323.34 0.0503 0.0371 \*

Mercury -89014-07-26 20:23 J -30790733.74 -30790733.65 -30790733.55 0.0496 0.0411

Mercury -89014-10-24 22:47 J -30790643.72 -30790643.55 -30790643.39 0.0500 0.0094

Moon -89012-10-02 18:27 J -30789934.97 -30789934.73 -30789934.49 0.0528 0.0110

Earth -89012-10-02 20:51 J -30789934.86 -30789934.63 -30789934.40 0.0528 0.0080 \*

Venus -89009-11-12 00:13 J -30788798.54 -30788798.49 -30788798.42 0.0535 0.0505

Mercury -89008-03-16 11:59 J -30788674.12 -30788674.00 -30788673.88 0.0531 0.0237

Mercury -89008-06-13 22:03 J -30788584.70 -30788584.58 -30788584.46 0.0527 0.0222

Moon -89006-03-24 04:03 J -30787936.55 -30787936.33 -30787936.11 0.0501 0.0065

Earth -89006-03-24 05:44 J -30787936.48 -30787936.26 -30787936.03 0.0501 0.0093 \*

Venus -89002-05-05 06:27 J -30786433.43 -30786433.23 -30786433.02 0.0496 0.0092

Mercury -89002-08-12 21:49 J -30786333.76 -30786333.59 -30786333.42 0.0499 0.0031

Mercury -89002-11-10 23:01 J -30786243.60 -30786243.54 -30786243.48 0.0502 0.0466

# 89TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 89th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Earth	-89000-10-07 22:47 J	-30785546.68	-30785546.55	-30785546.41	0.0530	0.0431		
Moon	-89000-10-07 22:47 J	-30785546.68	-30785546.55	-30785546.41	0.0530	0.0417	*	
Mercury	-88996-01-02 15:06 J	-30784363.97	-30784363.87	-30784363.78	0.0532	0.0355		
Mercury	-88996-04-02 00:42 J	-30784274.60	-30784274.47	-30784274.33	0.0528	0.0104		
Earth	-88994-03-28 14:23 J	-30783549.12	-30783548.90	-30783548.69	0.0499	0.0191		
Moon	-88994-03-28 17:30 J	-30783548.99	-30783548.77	-30783548.55	0.0499	0.0189	*	
Venus	-88990-01-08 02:51 J	-30782167.52	-30782167.38	-30782167.22	0.0493	0.0338		



Mercury -88990-05-31 20:08 J -30782023.82 -30782023.66 -30782023.49 0.0498 0.0163  
 Mercury -88990-08-29 21:35 J -30781933.72 -30781933.60 -30781933.47 0.0501 0.0336  
 Mercury -88985-10-21 18:13 J -30780053.80 -30780053.74 -30780053.68 0.0533 0.0470  
 Venus -88985-11-14 18:13 J -30780029.91 -30780029.74 -30780029.57 0.0532 0.0279  
 Mercury -88984-01-19 03:49 J -30779964.48 -30779964.34 -30779964.21 0.0530 0.0014  
 Mercury -88984-04-18 14:23 J -30779874.97 -30779874.90 -30779874.83 0.0526 0.0450  
 Moon -88982-04-01 21:20 J -30779161.71 -30779161.61 -30779161.51 0.0497 0.0445  
 Earth -88982-04-02 00:56 J -30779161.52 -30779161.46 -30779161.39 0.0497 0.0477 \*  
 Mars -88981-01-05 08:37 J -30778883.43 -30778883.14 -30778882.85 0.0490 0.0127  
 Mercury -88978-03-19 18:56 J -30777713.85 -30777713.71 -30777713.57 0.0497 0.0291  
 Mercury -88978-06-17 20:51 J -30777623.78 -30777623.63 -30777623.48 0.0500 0.0211  
 Venus -88973-07-20 13:54 J -30775764.10 -30775763.92 -30775763.74 0.0535 0.0219  
 Mercury -88973-11-07 07:11 J -30775654.33 -30775654.20 -30775654.07 0.0531 0.0125  
 Mercury -88972-02-04 17:30 J -30775564.87 -30775564.77 -30775564.67 0.0527 0.0338  
 Mercury -88966-01-05 17:30 J -30773403.85 -30773403.77 -30773403.67 0.0496 0.0420  
 Venus -88966-01-10 16:47 J -30773398.96 -30773398.80 -30773398.64 0.0496 0.0327  
 Mercury -88966-04-05 19:54 J -30773313.84 -30773313.67 -30773313.50 0.0499 0.0085  
 Mercury -88961-08-26 10:47 J -30771344.17 -30771344.05 -30771343.93 0.0531 0.0235  
 Mercury -88961-11-23 20:51 J -30771254.76 -30771254.63 -30771254.51 0.0528 0.0226  
 Venus -88955-09-15 15:06 J -30769133.07 -30769132.87 -30769132.66 0.0494 0.0095  
 Mercury -88954-01-22 19:25 J -30769003.86 -30769003.69 -30769003.52 0.0499 0.0037  
 Mercury -88954-04-22 20:37 J -30768913.70 -30768913.64 -30768913.58 0.0502 0.0461  
 Mercury -88949-06-14 13:39 J -30767034.03 -30767033.93 -30767033.84 0.0532 0.0354  
 Mercury -88949-09-11 23:15 J -30766944.66 -30766944.53 -30766944.40 0.0528 0.0104  
 Mercury -88943-11-10 18:27 J -30764693.89 -30764693.73 -30764693.56 0.0498 0.0161  
 Mercury -88942-02-08 20:08 J -30764603.78 -30764603.66 -30764603.54 0.0501 0.0339  
 Moon -88941-09-26 14:08 J -30764008.10 -30764007.91 -30764007.71 0.0525 0.0310  
 Earth -88941-09-26 17:15 J -30764007.96 -30764007.78 -30764007.59 0.0525 0.0328 \*  
 Venus -88937-03-28 02:37 J -30762729.58 -30762729.39 -30762729.19 0.0533 0.0065  
 Mercury -88937-04-02 16:32 J -30762723.87 -30762723.81 -30762723.75 0.0532 0.0470

Mercury -88937-07-01 02:08 J -30762634.54 -30762634.41 -30762634.28 0.0529 0.0015

Mercury -88937-09-28 12:27 J -30762545.05 -30762544.98 -30762544.91 0.0526 0.0447

Moon -88935-03-18 22:32 J -30762008.69 -30762008.56 -30762008.43 0.0504 0.0410

Earth -88935-03-18 23:59 J -30762008.62 -30762008.50 -30762008.37 0.0504 0.0425 \*

Mercury -88931-08-29 16:47 J -30760383.93 -30760383.80 -30760383.66 0.0497 0.0293

Mercury -88931-11-27 18:42 J -30760293.87 -30760293.72 -30760293.56 0.0500 0.0209

Earth -88929-10-01 14:23 J -30759620.13 -30759619.90 -30759619.66 0.0527 0.0006

Moon -88929-10-01 15:20 J -30759620.08 -30759619.86 -30759619.63 0.0527 0.0035 \*

Mars -88928-07-23 07:11 J -30759325.36 -30759325.20 -30759325.02 0.0538 0.0390

Venus -88926-12-01 20:08 J -30758463.76 -30758463.66 -30758463.55 0.0535 0.0449

Mercury -88925-04-19 05:01 J -30758324.42 -30758324.29 -30758324.16 0.0531 0.0133

Mercury -88925-07-17 15:20 J -30758234.97 -30758234.86 -30758234.75 0.0527 0.0329

Earth -88923-03-23 11:01 J -30757621.27 -30757621.04 -30757620.82 0.0502 0.0133

Moon -88923-03-23 14:08 J -30757621.14 -30757620.91 -30757620.68 0.0502 0.0104 \*

Venus -88919-05-24 02:23 J -30756098.60 -30756098.40 -30756098.20 0.0495 0.0145

Mercury -88919-06-17 15:35 J -30756073.94 -30756073.85 -30756073.76 0.0496 0.0420

Mercury -88919-09-15 17:59 J -30755983.92 -30755983.75 -30755983.59 0.0499 0.0084

Earth -88917-10-06 16:18 J -30755231.99 -30755231.82 -30755231.64 0.0530 0.0355

Moon -88917-10-06 17:59 J -30755231.93 -30755231.75 -30755231.55 0.0530 0.0334 \*

Mercury -88913-02-06 08:37 J -30754014.26 -30754014.14 -30754014.02 0.0532 0.0244

Mercury -88913-05-05 18:42 J -30753924.85 -30753924.72 -30753924.60 0.0528 0.0218

Moon -88911-03-27 17:30 J -30753233.98 -30753233.77 -30753233.55 0.0500 0.0152

Earth -88911-03-27 21:20 J -30753233.83 -30753233.61 -30753233.39 0.0500 0.0157 \*

Venus -88907-01-26 23:44 J -30751832.68 -30751832.51 -30751832.34 0.0493 0.0280

Mercury -88907-07-04 16:47 J -30751673.97 -30751673.80 -30751673.63 0.0498 0.0044

Mercury -88907-10-02 17:44 J -30751583.82 -30751583.76 -30751583.68 0.0502 0.0453

Mercury -88902-11-25 12:13 J -30749704.09 -30749703.99 -30749703.89 0.0532 0.0353

Venus -88902-12-04 17:44 J -30749694.90 -30749694.76 -30749694.61 0.0532 0.0358

Mercury -88901-02-22 22:03 J -30749614.72 -30749614.58 -30749614.45 0.0529 0.0107

Earth -88899-04-01 06:27 J -30748846.34 -30748846.23 -30748846.12 0.0497 0.0438

Moon -88899-04-01 10:03 J -30748846.20 -30748846.08 -30748845.94 0.0497 0.0409 \*  
 Mercury -88895-04-22 16:18 J -30747363.99 -30747363.82 -30747363.66 0.0498 0.0166  
 Mercury -88895-07-21 17:44 J -30747273.88 -30747273.76 -30747273.63 0.0501 0.0334  
 Mars -88892-04-27 12:27 J -30746263.16 -30746262.98 -30746262.81 0.0539 0.0390  
 Venus -88890-08-09 11:44 J -30745429.19 -30745429.01 -30745428.81 0.0534 0.0149  
 Mercury -88890-09-13 15:06 J -30745393.93 -30745393.87 -30745393.80 0.0532 0.0469  
 Mercury -88890-12-12 00:42 J -30745304.60 -30745304.47 -30745304.33 0.0529 0.0015  
 Mercury -88889-03-10 11:01 J -30745215.11 -30745215.04 -30745214.97 0.0526 0.0448  
 Venus -88883-01-29 15:06 J -30743063.99 -30743063.87 -30743063.74 0.0497 0.0395  
 Mercury -88883-02-08 15:06 J -30743054.01 -30743053.87 -30743053.73 0.0497 0.0291  
 Mercury -88883-05-09 17:15 J -30742963.94 -30742963.78 -30742963.63 0.0500 0.0212  
 Mercury -88878-09-30 03:35 J -30740994.48 -30740994.35 -30740994.22 0.0530 0.0132  
 Mercury -88878-12-28 13:39 J -30740905.03 -30740904.93 -30740904.82 0.0527 0.0330  
 Venus -88872-10-04 11:59 J -30738798.21 -30738798.00 -30738797.79 0.0494 0.0037  
 Mercury -88872-11-27 13:39 J -30738744.02 -30738743.93 -30738743.84 0.0496 0.0422  
 Mercury -88871-02-25 15:49 J -30738654.01 -30738653.84 -30738653.67 0.0499 0.0082  
 Mercury -88866-07-19 06:27 J -30736684.34 -30736684.23 -30736684.11 0.0532 0.0251  
 Mercury -88866-10-16 16:32 J -30736594.94 -30736594.81 -30736594.69 0.0528 0.0210  
 Venus -88860-06-09 10:18 J -30734532.15 -30734532.07 -30734532.00 0.0492 0.0455  
 Mercury -88860-12-14 14:51 J -30734344.05 -30734343.88 -30734343.71 0.0498 0.0045  
 Mercury -88859-03-14 16:03 J -30734253.90 -30734253.83 -30734253.76 0.0501 0.0451  
 Earth -88858-09-26 11:15 J -30733693.18 -30733693.03 -30733692.87 0.0524 0.0396  
 Moon -88858-09-26 13:11 J -30733693.10 -30733692.95 -30733692.79 0.0524 0.0378 \*  
 Venus -88854-04-17 00:27 J -30732394.67 -30732394.48 -30732394.29 0.0533 0.0132  
 Mercury -88854-05-07 10:03 J -30732374.18 -30732374.08 -30732373.99 0.0533 0.0362  
 Mercury -88854-08-04 19:54 J -30732284.81 -30732284.67 -30732284.54 0.0529 0.0098  
 Earth -88852-03-18 06:56 J -30731693.30 -30731693.21 -30731693.11 0.0504 0.0458  
 Moon -88852-03-18 10:03 J -30731693.19 -30731693.08 -30731692.95 0.0504 0.0433 \*  
 Mercury -88848-10-02 13:39 J -30730034.09 -30730033.93 -30730033.77 0.0497 0.0172  
 Mercury -88848-12-31 15:06 J -30729943.99 -30729943.87 -30729943.74 0.0501 0.0328

Earth -88846-10-01 14:23 J -30729305.14 -30729304.90 -30729304.67 0.0527 0.0048  
 Moon -88846-10-01 15:06 J -30729305.12 -30729304.87 -30729304.63 0.0527 0.0028 \*  
 Venus -88843-12-20 20:23 J -30728128.79 -30728128.65 -30728128.51 0.0535 0.0367  
 Mercury -88842-02-23 13:39 J -30728063.99 -30728063.93 -30728063.87 0.0533 0.0470  
 Mercury -88842-05-23 23:15 J -30727974.66 -30727974.53 -30727974.39 0.0530 0.0014  
 Mercury -88842-08-21 09:35 J -30727885.16 -30727885.10 -30727885.03 0.0526 0.0450  
 Moon -88840-03-22 13:54 J -30727306.14 -30727305.92 -30727305.70 0.0502 0.0140  
 Earth -88840-03-22 17:30 J -30727305.98 -30727305.77 -30727305.55 0.0502 0.0168 \*  
 Venus -88836-06-12 00:27 J -30725763.67 -30725763.48 -30725763.29 0.0496 0.0210  
 Mercury -88836-07-21 12:56 J -30725724.10 -30725723.96 -30725723.82 0.0497 0.0295  
 Mercury -88836-10-19 14:51 J -30725634.03 -30725633.88 -30725633.72 0.0500 0.0208  
 Moon -88834-10-06 16:47 J -30724916.99 -30724916.80 -30724916.60 0.0529 0.0285  
 Earth -88834-10-06 19:54 J -30724916.86 -30724916.67 -30724916.48 0.0529 0.0312 \*  
 Mercury -88830-03-12 02:23 J -30723664.53 -30723664.40 -30723664.27 0.0530 0.0130  
 Mercury -88830-06-09 12:27 J -30723575.09 -30723574.98 -30723574.88 0.0527 0.0331  
 Earth -88828-03-27 00:13 J -30722918.71 -30722918.49 -30722918.26 0.0500 0.0111  
 Moon -88828-03-27 04:03 J -30722918.55 -30722918.33 -30722918.10 0.0500 0.0102 \*  
 Mars -88827-03-30 15:49 J -30722550.14 -30722549.84 -30722549.54 0.0489 0.0072  
 Venus -88824-02-14 22:18 J -30721497.76 -30721497.57 -30721497.38 0.0494 0.0213  
 Mercury -88824-05-09 11:44 J -30721414.09 -30721414.01 -30721413.91 0.0496 0.0421  
 Mercury -88824-08-07 14:23 J -30721324.07 -30721323.90 -30721323.73 0.0499 0.0085  
 Venus -88819-12-23 14:37 J -30719360.00 -30719359.89 -30719359.77 0.0531 0.0421  
 Mercury -88819-12-29 05:15 J -30719354.39 -30719354.28 -30719354.16 0.0531 0.0246  
 Mercury -88818-03-28 15:20 J -30719264.99 -30719264.86 -30719264.74 0.0528 0.0214  
 Moon -88816-03-31 05:44 J -30718531.42 -30718531.26 -30718531.10 0.0498 0.0360  
 Earth -88816-03-31 08:51 J -30718531.27 -30718531.13 -30718530.98 0.0498 0.0391 \*  
 Mercury -88812-05-26 12:56 J -30717014.13 -30717013.96 -30717013.78 0.0498 0.0046  
 Mercury -88812-08-24 14:08 J -30716923.98 -30716923.91 -30716923.84 0.0501 0.0452  
 Venus -88807-08-28 07:39 J -30715094.37 -30715094.18 -30715093.98 0.0534 0.0093  
 Mercury -88807-10-17 08:08 J -30715044.26 -30715044.16 -30715044.07 0.0532 0.0367

Mercury -88806-01-14 17:59 J -30714954.89 -30714954.75 -30714954.62 0.0529 0.0093

Venus -88800-02-17 12:27 J -30712729.06 -30712728.98 -30712728.90 0.0496 0.0455

Mercury -88800-03-14 11:59 J -30712704.16 -30712704.00 -30712703.83 0.0497 0.0170

Mercury -88800-06-12 13:25 J -30712614.06 -30712613.94 -30712613.81 0.0500 0.0329

Mercury -88795-08-05 11:44 J -30710734.07 -30710734.01 -30710733.96 0.0533 0.0477

Mercury -88795-11-02 21:20 J -30710644.75 -30710644.61 -30710644.48 0.0530 0.0024

Mercury -88794-01-31 07:39 J -30710555.25 -30710555.18 -30710555.11 0.0527 0.0443

Venus -88789-10-23 09:35 J -30708463.31 -30708463.10 -30708462.89 0.0494 0.0026

Mercury -88789-12-31 10:47 J -30708394.19 -30708394.05 -30708393.91 0.0497 0.0298

Mercury -88788-03-31 12:42 J -30708304.13 -30708303.97 -30708303.82 0.0500 0.0203

Mercury -88783-08-22 00:56 J -30706334.59 -30706334.46 -30706334.33 0.0531 0.0131

Mercury -88783-11-19 11:01 J -30706245.14 -30706245.04 -30706244.93 0.0527 0.0332

Venus -88777-06-28 08:23 J -30704197.27 -30704197.15 -30704197.02 0.0493 0.0390

Mercury -88777-10-19 09:49 J -30704084.18 -30704084.09 -30704084.00 0.0496 0.0422

Mercury -88776-01-17 12:13 J -30703994.16 -30703993.99 -30703993.82 0.0499 0.0083

Moon -88775-09-25 14:37 J -30703378.03 -30703377.89 -30703377.73 0.0524 0.0412

Earth -88775-09-25 15:06 J -30703378.00 -30703377.87 -30703377.74 0.0524 0.0436 \*

Mars -88774-10-17 09:35 J -30702991.34 -30702991.10 -30702990.86 0.0538 0.0162

Venus -88771-05-06 00:13 J -30702059.67 -30702059.49 -30702059.30 0.0532 0.0213

Mercury -88771-06-10 04:03 J -30702024.45 -30702024.33 -30702024.21 0.0531 0.0243

Mercury -88771-09-07 13:54 J -30701935.04 -30701934.92 -30701934.79 0.0528 0.0216

Moon -88769-03-17 08:08 J -30701378.23 -30701378.16 -30701378.08 0.0504 0.0474

Earth -88769-03-17 11:44 J -30701378.03 -30701378.01 -30701377.97 0.0504 0.0498

Mercury -88765-11-05 11:30 J -30699684.19 -30699684.02 -30699683.85 0.0498 0.0041

Mercury -88764-02-03 12:42 J -30699594.03 -30699593.97 -30699593.90 0.0502 0.0456

Moon -88763-09-30 16:18 J -30698990.05 -30698989.82 -30698989.60 0.0527 0.0077

Earth -88763-09-30 18:27 J -30698989.96 -30698989.73 -30698989.49 0.0527 0.0091 \*

Venus -88759-01-08 18:42 J -30697793.89 -30697793.72 -30697793.56 0.0535 0.0295

Mercury -88759-03-29 07:11 J -30697714.30 -30697714.20 -30697714.10 0.0532 0.0359

Mercury -88759-06-26 16:47 J -30697624.93 -30697624.80 -30697624.66 0.0529 0.0100

Earth -88757-03-21 21:06 J -30696990.83 -30696990.62 -30696990.41 0.0503 0.0212  
 Moon -88757-03-22 01:11 J -30696990.67 -30696990.45 -30696990.24 0.0503 0.0186 \*  
 Venus -88753-06-30 22:47 J -30695428.72 -30695428.55 -30695428.38 0.0496 0.0275  
 Mercury -88753-08-24 10:18 J -30695374.23 -30695374.07 -30695373.90 0.0497 0.0169  
 Mercury -88753-11-22 11:59 J -30695284.13 -30695284.00 -30695283.87 0.0500 0.0330  
 Earth -88751-10-05 16:47 J -30694602.01 -30694601.80 -30694601.60 0.0528 0.0248  
 Moon -88751-10-05 20:37 J -30694601.86 -30694601.64 -30694601.42 0.0528 0.0218 \*  
 Mercury -88747-01-15 09:49 J -30693404.14 -30693404.09 -30693404.03 0.0533 0.0481  
 Mercury -88747-04-14 19:25 J -30693314.82 -30693314.69 -30693314.55 0.0530 0.0026  
 Mercury -88747-07-13 05:44 J -30693225.33 -30693225.26 -30693225.18 0.0527 0.0440  
 Moon -88745-03-26 03:49 J -30692603.57 -30692603.34 -30692603.10 0.0501 0.0063  
 Earth -88745-03-26 07:11 J -30692603.43 -30692603.20 -30692602.97 0.0501 0.0077 \*  
 Venus -88741-03-05 20:51 J -30691162.83 -30691162.63 -30691162.43 0.0493 0.0147  
 Mercury -88741-06-12 09:20 J -30691064.25 -30691064.11 -30691063.97 0.0496 0.0293  
 Mercury -88741-09-10 11:15 J -30690974.18 -30690974.03 -30690973.87 0.0499 0.0208  
 Venus -88735-01-11 12:27 J -30689025.05 -30689024.98 -30689024.90 0.0532 0.0489  
 Mercury -88735-01-31 22:47 J -30689004.68 -30689004.55 -30689004.42 0.0531 0.0137  
 Mercury -88735-05-01 09:06 J -30688915.23 -30688915.12 -30688915.01 0.0528 0.0327  
 Earth -88733-03-30 17:44 J -30688215.92 -30688215.76 -30688215.60 0.0499 0.0364  
 Moon -88733-03-30 19:25 J -30688215.85 -30688215.69 -30688215.52 0.0499 0.0341 \*  
 Mercury -88729-03-31 07:54 J -30686754.26 -30686754.17 -30686754.08 0.0496 0.0423  
 Mercury -88729-06-29 10:18 J -30686664.24 -30686664.07 -30686663.90 0.0499 0.0081  
 Venus -88724-09-16 08:51 J -30684759.33 -30684759.13 -30684758.93 0.0534 0.0004  
 Mercury -88724-11-20 02:37 J -30684694.51 -30684694.39 -30684694.28 0.0532 0.0244  
 Mercury -88723-02-17 12:27 J -30684605.10 -30684604.98 -30684604.85 0.0528 0.0217  
 Mercury -88717-04-17 09:35 J -30682354.27 -30682354.10 -30682353.92 0.0498 0.0043  
 Mercury -88717-07-16 10:47 J -30682264.11 -30682264.05 -30682263.98 0.0501 0.0455  
 Venus -88712-05-22 03:49 J -30680493.39 -30680493.34 -30680493.27 0.0536 0.0508  
 Mercury -88712-09-08 05:59 J -30680384.35 -30680384.25 -30680384.15 0.0532 0.0355  
 Mercury -88712-12-06 15:35 J -30680294.98 -30680294.85 -30680294.71 0.0529 0.0104

Mars -88709-09-16 14:37 J -30679280.03 -30679279.89 -30679279.73 0.0491 0.0428  
 Venus -88706-11-12 09:35 J -30678128.31 -30678128.10 -30678127.90 0.0495 0.0100  
 Mercury -88705-02-04 08:51 J -30678044.29 -30678044.13 -30678043.96 0.0498 0.0164  
 Mercury -88705-05-04 10:32 J -30677954.18 -30677954.06 -30677953.93 0.0501 0.0336  
 Mercury -88700-06-27 09:20 J -30676074.17 -30676074.11 -30676074.05 0.0533 0.0469  
 Mercury -88700-09-24 18:42 J -30675984.85 -30675984.72 -30675984.58 0.0530 0.0015  
 Mercury -88700-12-23 05:01 J -30675895.36 -30675895.29 -30675895.22 0.0526 0.0448  
 Venus -88694-07-18 07:54 J -30673862.33 -30673862.17 -30673862.01 0.0493 0.0320  
 Mercury -88694-11-23 07:54 J -30673734.31 -30673734.17 -30673734.03 0.0496 0.0290  
 Mercury -88693-02-21 09:49 J -30673644.24 -30673644.09 -30673643.93 0.0499 0.0211  
 Moon -88692-09-24 13:25 J -30673063.04 -30673062.94 -30673062.83 0.0523 0.0459  
 Earth -88692-09-24 15:06 J -30673062.96 -30673062.87 -30673062.79 0.0523 0.0484 \*  
 Venus -88688-05-24 21:06 J -30671724.79 -30671724.62 -30671724.45 0.0533 0.0273  
 Mercury -88688-07-13 21:20 J -30671674.74 -30671674.61 -30671674.48 0.0531 0.0138  
 Mercury -88688-10-11 07:25 J -30671585.30 -30671585.19 -30671585.08 0.0528 0.0325  
 Moon -88686-03-17 22:18 J -30671062.59 -30671062.57 -30671062.54 0.0506 0.0502  
 Mercury -88682-09-11 06:56 J -30669424.31 -30669424.21 -30669424.12 0.0496 0.0415  
 Mercury -88682-12-10 09:06 J -30669334.29 -30669334.12 -30669333.95 0.0498 0.0088  
 Earth -88680-09-29 16:18 J -30668675.04 -30668674.82 -30668674.59 0.0525 0.0146  
 Moon -88680-09-29 19:54 J -30668674.90 -30668674.67 -30668674.43 0.0525 0.0136 \*  
 Venus -88676-01-27 16:03 J -30667459.01 -30667458.83 -30667458.65 0.0535 0.0230  
 Mercury -88676-05-02 00:42 J -30667364.59 -30667364.47 -30667364.35 0.0532 0.0250  
 Mercury -88676-07-30 10:32 J -30667275.18 -30667275.06 -30667274.93 0.0529 0.0213  
 Moon -88674-03-22 02:37 J -30666675.60 -30666675.39 -30666675.17 0.0504 0.0218  
 Earth -88674-03-22 06:13 J -30666675.45 -30666675.24 -30666675.04 0.0504 0.0238 \*  
 Mars -88673-06-23 21:35 J -30666215.81 -30666215.60 -30666215.37 0.0489 0.0331  
 Venus -88670-07-20 21:49 J -30665093.74 -30665093.59 -30665093.44 0.0495 0.0345  
 Mercury -88670-09-28 07:54 J -30665024.34 -30665024.17 -30665023.99 0.0498 0.0041  
 Mercury -88670-12-27 09:06 J -30664934.18 -30664934.12 -30664934.05 0.0501 0.0455  
 Moon -88668-10-04 14:51 J -30664287.10 -30664286.88 -30664286.66 0.0528 0.0169

Earth -88668-10-04 18:56 J -30664286.93 -30664286.71 -30664286.49 0.0528 0.0201 \*  
 Mercury -88664-02-18 04:32 J -30663054.41 -30663054.31 -30663054.22 0.0533 0.0357  
 Mercury -88664-05-18 14:08 J -30662965.04 -30662964.91 -30662964.77 0.0529 0.0104  
 Earth -88662-03-26 17:15 J -30662288.01 -30662287.78 -30662287.55 0.0501 0.0052  
 Moon -88662-03-26 18:56 J -30662287.93 -30662287.71 -30662287.48 0.0501 0.0032 \*  
 Venus -88658-03-25 20:23 J -30660827.86 -30660827.65 -30660827.44 0.0494 0.0076  
 Mercury -88658-07-17 07:11 J -30660714.36 -30660714.20 -30660714.03 0.0497 0.0163  
 Mercury -88658-10-15 08:51 J -30660624.25 -30660624.13 -30660624.00 0.0500 0.0337  
 Mercury -88653-12-07 07:54 J -30658744.23 -30658744.17 -30658744.10 0.0533 0.0466  
 Mercury -88652-03-06 17:30 J -30658654.90 -30658654.77 -30658654.63 0.0530 0.0015  
 Mercury -88652-06-04 03:49 J -30658565.40 -30658565.34 -30658565.27 0.0526 0.0453  
 Moon -88650-03-31 01:25 J -30657900.63 -30657900.44 -30657900.25 0.0499 0.0309  
 Earth -88650-03-31 01:25 J -30657900.61 -30657900.44 -30657900.26 0.0499 0.0331 \*  
 Venus -88647-11-28 19:11 J -30656561.71 -30656561.70 -30656561.70 0.0492 0.0491  
 Mercury -88646-05-05 06:27 J -30656404.37 -30656404.23 -30656404.09 0.0497 0.0286  
 Mercury -88646-08-03 08:23 J -30656314.30 -30656314.15 -30656313.99 0.0500 0.0217  
 Venus -88641-10-05 09:20 J -30654424.31 -30654424.11 -30654423.92 0.0533 0.0080  
 Mercury -88641-12-23 20:37 J -30654344.77 -30654344.64 -30654344.51 0.0531 0.0126  
 Mercury -88640-03-23 06:42 J -30654255.32 -30654255.22 -30654255.11 0.0527 0.0338  
 Mercury -88634-02-21 05:30 J -30652094.37 -30652094.27 -30652094.17 0.0496 0.0410  
 Mercury -88634-05-22 07:54 J -30652004.34 -30652004.17 -30652004.00 0.0499 0.0093  
 Venus -88629-06-10 00:56 J -30650158.56 -30650158.46 -30650158.35 0.0536 0.0447  
 Mercury -88629-10-11 23:15 J -30650034.65 -30650034.53 -30650034.41 0.0532 0.0249  
 Mercury -88628-01-09 09:06 J -30649945.24 -30649945.12 -30649944.99 0.0529 0.0212  
 Venus -88623-12-01 10:18 J -30647793.27 -30647793.07 -30647792.88 0.0495 0.0176  
 Mercury -88622-03-10 07:11 J -30647694.37 -30647694.20 -30647694.03 0.0498 0.0030  
 Mercury -88622-06-08 08:23 J -30647604.21 -30647604.15 -30647604.09 0.0501 0.0464  
 Mars -88619-01-10 02:37 J -30646657.64 -30646657.39 -30646657.14 0.0538 0.0041  
 Mercury -88617-07-31 02:37 J -30645724.48 -30645724.39 -30645724.29 0.0533 0.0361  
 Mercury -88617-10-28 12:27 J -30645635.11 -30645634.98 -30645634.85 0.0530 0.0098



Venus -88611-08-06 07:39 J -30643527.36 -30643527.18 -30643527.00 0.0493 0.0248  
 Mercury -88611-12-27 05:44 J -30643384.42 -30643384.26 -30643384.09 0.0497 0.0159  
 Mercury -88610-03-27 07:25 J -30643294.31 -30643294.19 -30643294.07 0.0500 0.0339  
 Moon -88609-09-23 20:37 J -30642747.71 -30642747.64 -30642747.55 0.0523 0.0493  
 Mercury -88605-05-19 06:27 J -30641414.29 -30641414.23 -30641414.17 0.0534 0.0467  
 Venus -88605-06-12 23:01 J -30641389.68 -30641389.54 -30641389.39 0.0533 0.0367  
 Mercury -88605-08-16 16:03 J -30641324.96 -30641324.83 -30641324.70 0.0530 0.0010  
 Mercury -88605-11-14 02:23 J -30641235.46 -30641235.40 -30641235.33 0.0527 0.0454  
 Mercury -88599-10-15 05:01 J -30639074.43 -30639074.29 -30639074.15 0.0496 0.0281  
 Mercury -88598-01-13 06:56 J -30638984.36 -30638984.21 -30638984.05 0.0499 0.0220  
 Moon -88597-09-28 18:13 J -30638359.96 -30638359.74 -30638359.52 0.0525 0.0174  
 Earth -88597-09-28 22:18 J -30638359.79 -30638359.57 -30638359.34 0.0525 0.0181 \*  
 Venus -88593-02-16 18:56 J -30637123.90 -30637123.71 -30637123.52 0.0535 0.0131  
 Mercury -88593-06-04 19:39 J -30637014.81 -30637014.68 -30637014.55 0.0531 0.0121  
 Mercury -88593-09-02 05:44 J -30636925.36 -30636925.26 -30636925.16 0.0527 0.0341  
 Earth -88591-03-21 15:06 J -30636360.06 -30636359.87 -30636359.67 0.0504 0.0266  
 Moon -88591-03-21 17:15 J -30636359.98 -30636359.78 -30636359.59 0.0504 0.0256 \*  
 Mercury -88587-08-03 04:03 J -30634764.43 -30634764.33 -30634764.23 0.0496 0.0406  
 Venus -88587-08-08 22:47 J -30634758.65 -30634758.55 -30634758.44 0.0496 0.0425  
 Mercury -88587-11-01 06:27 J -30634674.40 -30634674.23 -30634674.06 0.0499 0.0098  
 Earth -88585-10-04 02:51 J -30633971.60 -30633971.38 -30633971.16 0.0528 0.0170  
 Moon -88585-10-04 06:42 J -30633971.45 -30633971.22 -30633971.00 0.0528 0.0139 \*  
 Mercury -88581-03-23 22:47 J -30632704.67 -30632704.55 -30632704.43 0.0532 0.0234  
 Mercury -88581-06-21 08:51 J -30632615.26 -30632615.13 -30632615.01 0.0528 0.0227  
 Moon -88579-03-26 01:11 J -30631972.69 -30631972.45 -30631972.20 0.0502 0.0012  
 Earth -88579-03-26 01:25 J -30631972.68 -30631972.44 -30631972.21 0.0502 0.0023 \*  
 Venus -88575-04-13 21:49 J -30630492.80 -30630492.59 -30630492.38 0.0494 0.0007  
 Mercury -88575-08-20 05:59 J -30630364.42 -30630364.25 -30630364.08 0.0498 0.0024  
 Mercury -88575-11-18 07:11 J -30630274.26 -30630274.20 -30630274.15 0.0501 0.0470  
 Moon -88573-10-09 00:56 J -30629583.52 -30629583.46 -30629583.38 0.0529 0.0503

Earth -88573-10-09 03:20 J -30629583.41 -30629583.36 -30629583.30 0.0529 0.0513 \*  
 Mercury -88569-01-11 01:11 J -30628394.54 -30628394.45 -30628394.35 0.0533 0.0360  
 Mercury -88569-04-09 11:01 J -30628305.17 -30628305.04 -30628304.91 0.0530 0.0100  
 Moon -88567-03-30 08:23 J -30627585.33 -30627585.15 -30627584.97 0.0500 0.0288  
 Earth -88567-03-30 09:49 J -30627585.27 -30627585.09 -30627584.91 0.0500 0.0304 \*  
 Venus -88564-12-17 20:37 J -30626226.75 -30626226.64 -30626226.52 0.0492 0.0411  
 Mercury -88563-06-08 05:15 J -30626054.45 -30626054.28 -30626054.12 0.0497 0.0147  
 Mercury -88563-09-06 06:42 J -30625964.34 -30625964.22 -30625964.10 0.0500 0.0350  
 Venus -88558-10-25 06:56 J -30624089.40 -30624089.21 -30624089.02 0.0534 0.0146  
 Mercury -88558-10-30 04:47 J -30624084.36 -30624084.30 -30624084.24 0.0534 0.0471  
 Mercury -88557-01-27 14:23 J -30623995.04 -30623994.90 -30623994.77 0.0531 0.0017  
 Mercury -88557-04-26 00:42 J -30623905.54 -30623905.47 -30623905.40 0.0527 0.0450  
 Mars -88555-12-12 03:06 J -30622945.66 -30622945.37 -30622945.08 0.0491 0.0145  
 Mercury -88551-03-27 03:35 J -30621744.49 -30621744.35 -30621744.20 0.0496 0.0276  
 Mercury -88551-06-25 05:44 J -30621654.41 -30621654.26 -30621654.11 0.0499 0.0224  
 Venus -88546-06-30 02:51 J -30619823.52 -30619823.38 -30619823.23 0.0536 0.0353  
 Mercury -88546-11-15 17:59 J -30619684.88 -30619684.75 -30619684.62 0.0531 0.0122  
 Mercury -88545-02-13 04:03 J -30619595.43 -30619595.33 -30619595.22 0.0528 0.0342  
 Venus -88540-12-20 10:18 J -30617458.25 -30617458.07 -30617457.89 0.0495 0.0252  
 Mercury -88539-01-13 02:51 J -30617434.48 -30617434.38 -30617434.28 0.0495 0.0400  
 Mercury -88539-04-13 05:15 J -30617344.45 -30617344.28 -30617344.12 0.0498 0.0104  
 Mercury -88534-09-03 21:35 J -30615374.72 -30615374.60 -30615374.48 0.0532 0.0231  
 Mercury -88534-12-02 07:39 J -30615285.30 -30615285.18 -30615285.06 0.0528 0.0230  
 Venus -88528-08-25 08:37 J -30613192.33 -30613192.14 -30613191.94 0.0493 0.0169  
 Mercury -88527-01-30 04:32 J -30613034.48 -30613034.31 -30613034.14 0.0498 0.0019  
 Mercury -88527-04-30 05:44 J -30612944.31 -30612944.26 -30612944.21 0.0501 0.0476  
 Moon -88526-09-23 22:32 J -30612432.58 -30612432.56 -30612432.53 0.0522 0.0518  
 Mercury -88522-06-23 00:56 J -30611064.56 -30611064.46 -30611064.36 0.0533 0.0343  
 Venus -88522-07-03 00:42 J -30611054.57 -30611054.47 -30611054.37 0.0532 0.0456  
 Mercury -88522-09-20 10:47 J -30610975.18 -30610975.05 -30610974.92 0.0529 0.0116

Mercury -88516-11-18 04:03 J -30608724.50 -30608724.33 -30608724.16 0.0497 0.0140

Mercury -88515-02-16 05:30 J -30608634.38 -30608634.27 -30608634.15 0.0500 0.0357

Earth -88514-09-29 03:35 J -30608044.56 -30608044.35 -30608044.13 0.0524 0.0212

Moon -88514-09-29 07:39 J -30608044.39 -30608044.18 -30608043.96 0.0524 0.0209 \*

Venus -88510-03-07 16:18 J -30606789.01 -30606788.82 -30606788.62 0.0535 0.0067

Mercury -88510-04-11 03:35 J -30606754.41 -30606754.35 -30606754.29 0.0534 0.0468

Mercury -88510-07-09 12:56 J -30606665.09 -30606664.96 -30606664.82 0.0530 0.0021

Mercury -88510-10-06 23:30 J -30606575.59 -30606575.52 -30606575.46 0.0527 0.0452

Moon -88508-03-20 22:18 J -30606044.76 -30606044.57 -30606044.37 0.0505 0.0294

Earth -88508-03-20 22:18 J -30606044.75 -30606044.57 -30606044.38 0.0505 0.0295 \*

Mercury -88504-09-06 03:06 J -30604414.51 -30604414.37 -30604414.22 0.0496 0.0264

Mercury -88504-12-05 05:15 J -30604324.43 -30604324.28 -30604324.13 0.0499 0.0236

Moon -88502-10-04 02:08 J -30603656.64 -30603656.41 -30603656.17 0.0526 0.0096

Earth -88502-10-04 05:15 J -30603656.51 -30603656.28 -30603656.05 0.0526 0.0128 \*

Mars -88501-07-01 14:51 J -30603385.01 -30603384.88 -30603384.74 0.0536 0.0449

Mercury -88498-04-27 16:18 J -30602354.95 -30602354.82 -30602354.69 0.0531 0.0125

Mercury -88498-07-26 02:23 J -30602265.50 -30602265.40 -30602265.29 0.0528 0.0338

Moon -88496-03-25 08:23 J -30601657.38 -30601657.15 -30601656.93 0.0503 0.0037

Earth -88496-03-25 09:49 J -30601657.32 -30601657.09 -30601656.86 0.0503 0.0007 \*

Venus -88492-05-02 22:03 J -30600157.79 -30600157.58 -30600157.38 0.0494 0.0081

Mercury -88492-06-25 01:25 J -30600104.54 -30600104.44 -30600104.33 0.0495 0.0394

Mercury -88492-09-23 03:49 J -30600014.50 -30600014.34 -30600014.17 0.0498 0.0109

Earth -88490-10-09 06:27 J -30599268.33 -30599268.23 -30599268.12 0.0529 0.0469

Moon -88490-10-09 06:56 J -30599268.31 -30599268.21 -30599268.11 0.0529 0.0472 \*

Mercury -88486-02-13 19:54 J -30598044.78 -30598044.67 -30598044.55 0.0532 0.0233

Mercury -88486-05-14 05:59 J -30597955.37 -30597955.25 -30597955.13 0.0529 0.0229

Earth -88484-03-29 21:20 J -30597269.80 -30597269.61 -30597269.42 0.0501 0.0283

Moon -88484-03-30 00:13 J -30597269.69 -30597269.49 -30597269.29 0.0500 0.0272 \*

Venus -88480-01-05 20:37 J -30595891.79 -30595891.64 -30595891.48 0.0492 0.0336

Mercury -88480-07-12 03:20 J -30595704.54 -30595704.36 -30595704.19 0.0498 0.0016

Mercury -88480-10-10 04:32 J -30595614.36 -30595614.31 -30595614.27 0.0501 0.0480  
 Venus -88475-11-13 10:18 J -30593754.25 -30593754.07 -30593753.90 0.0533 0.0247  
 Mercury -88475-12-02 23:44 J -30593734.61 -30593734.51 -30593734.41 0.0533 0.0340  
 Mercury -88474-03-02 09:35 J -30593645.24 -30593645.10 -30593644.97 0.0529 0.0120  
 Mercury -88468-04-30 02:23 J -30591394.56 -30591394.40 -30591394.23 0.0497 0.0137  
 Mercury -88468-07-29 04:03 J -30591304.44 -30591304.33 -30591304.21 0.0500 0.0361  
 Mars -88465-04-05 18:56 J -30590322.91 -30590322.71 -30590322.51 0.0538 0.0321  
 Venus -88463-07-19 05:15 J -30589488.45 -30589488.28 -30589488.11 0.0536 0.0258  
 Mercury -88463-09-21 03:06 J -30589424.43 -30589424.37 -30589424.30 0.0533 0.0451  
 Mercury -88463-12-19 12:42 J -30589335.10 -30589334.97 -30589334.83 0.0530 0.0009  
 Mercury -88462-03-18 23:01 J -30589245.60 -30589245.54 -30589245.48 0.0527 0.0468  
 Venus -88456-01-08 12:13 J -30587123.14 -30587122.99 -30587122.83 0.0495 0.0335  
 Mercury -88456-02-16 01:54 J -30587084.56 -30587084.42 -30587084.27 0.0496 0.0258  
 Mercury -88456-05-17 03:49 J -30586994.48 -30586994.34 -30586994.18 0.0499 0.0244  
 Mercury -88451-10-07 15:06 J -30585025.00 -30585024.87 -30585024.74 0.0531 0.0122  
 Mercury -88450-01-05 01:11 J -30584935.55 -30584935.45 -30584935.35 0.0528 0.0340  
 Venus -88445-09-13 11:01 J -30582857.25 -30582857.04 -30582856.83 0.0493 0.0084  
 Mercury -88445-12-05 00:56 J -30582774.56 -30582774.46 -30582774.34 0.0495 0.0381  
 Mercury -88444-03-05 03:20 J -30582684.52 -30582684.36 -30582684.19 0.0498 0.0122  
 Venus -88439-07-21 21:49 J -30580719.63 -30580719.59 -30580719.55 0.0532 0.0519  
 Mercury -88439-07-26 18:13 J -30580714.86 -30580714.74 -30580714.62 0.0532 0.0236  
 Mercury -88439-10-24 04:18 J -30580625.44 -30580625.32 -30580625.20 0.0529 0.0225  
 Mercury -88433-12-22 02:08 J -30578374.59 -30578374.41 -30578374.24 0.0497 0.0013  
 Mercury -88432-03-22 03:06 J -30578284.40 -30578284.37 -30578284.33 0.0501 0.0485  
 Moon -88431-09-28 02:51 J -30577729.59 -30577729.38 -30577729.17 0.0523 0.0255  
 Earth -88431-09-28 06:13 J -30577729.44 -30577729.24 -30577729.03 0.0523 0.0256 \*  
 Venus -88427-03-26 17:59 J -30576453.95 -30576453.75 -30576453.55 0.0535 0.0026  
 Mercury -88427-05-14 22:03 J -30576404.68 -30576404.58 -30576404.48 0.0533 0.0343  
 Mercury -88427-08-12 07:54 J -30576315.31 -30576315.17 -30576315.04 0.0530 0.0117  
 Moon -88425-03-20 07:54 J -30575729.34 -30575729.17 -30575729.00 0.0505 0.0326

Earth -88425-03-20 09:35 J -30575729.28 -30575729.10 -30575728.92 0.0505 0.0317 \*  
 Mercury -88421-10-10 01:11 J -30574064.62 -30574064.45 -30574064.28 0.0497 0.0131  
 Mercury -88420-01-08 02:37 J -30573974.50 -30573974.39 -30573974.27 0.0500 0.0366  
 Earth -88419-10-03 10:03 J -30573341.32 -30573341.08 -30573340.85 0.0526 0.0089  
 Moon -88419-10-03 11:01 J -30573341.26 -30573341.04 -30573340.81 0.0526 0.0061 \*  
 Venus -88416-11-29 13:54 J -30572188.01 -30572187.92 -30572187.83 0.0537 0.0476  
 Mercury -88415-03-03 01:39 J -30572094.49 -30572094.43 -30572094.35 0.0534 0.0451  
 Mercury -88415-05-31 11:15 J -30572005.16 -30572005.03 -30572004.89 0.0530 0.0020  
 Mercury -88415-08-28 21:49 J -30571915.65 -30571915.59 -30571915.53 0.0527 0.0470  
 Earth -88413-03-24 20:23 J -30571341.88 -30571341.65 -30571341.42 0.0503 0.0028  
 Moon -88413-03-24 23:15 J -30571341.76 -30571341.53 -30571341.29 0.0503 0.0060 \*  
 Venus -88409-05-21 22:47 J -30569822.74 -30569822.55 -30569822.35 0.0494 0.0159  
 Mercury -88409-07-29 00:13 J -30569754.63 -30569754.49 -30569754.34 0.0496 0.0255  
 Mercury -88409-10-27 02:23 J -30569664.55 -30569664.40 -30569664.25 0.0499 0.0245  
 Earth -88407-10-08 14:51 J -30568953.00 -30568952.88 -30568952.75 0.0528 0.0439  
 Moon -88407-10-08 16:32 J -30568952.93 -30568952.81 -30568952.68 0.0528 0.0451 \*  
 Mercury -88403-03-19 14:37 J -30567695.02 -30567694.89 -30567694.75 0.0531 0.0107  
 Mercury -88403-06-17 00:56 J -30567605.56 -30567605.46 -30567605.36 0.0528 0.0356  
 Moon -88401-03-29 02:51 J -30566954.58 -30566954.38 -30566954.18 0.0501 0.0248  
 Earth -88401-03-29 06:13 J -30566954.43 -30566954.24 -30566954.03 0.0501 0.0255 \*  
 Mars -88400-03-07 13:11 J -30566611.24 -30566610.95 -30566610.65 0.0491 0.0127  
 Venus -88397-01-25 22:18 J -30565556.74 -30565556.57 -30565556.38 0.0492 0.0255  
 Mercury -88397-05-16 23:44 J -30565444.62 -30565444.51 -30565444.40 0.0496 0.0375  
 Mercury -88397-08-15 02:08 J -30565354.57 -30565354.41 -30565354.24 0.0498 0.0127  
 Venus -88392-12-02 07:39 J -30563419.34 -30563419.18 -30563419.02 0.0533 0.0312  
 Mercury -88391-01-05 17:01 J -30563384.91 -30563384.79 -30563384.67 0.0532 0.0232  
 Mercury -88391-04-05 02:51 J -30563295.50 -30563295.38 -30563295.25 0.0529 0.0229  
 Mercury -88385-06-03 01:25 J -30561044.61 -30561044.44 -30561044.26 0.0498 0.0008  
 Mercury -88385-09-01 02:37 J -30560954.40 -30560954.39 -30560954.37 0.0501 0.0497  
 Venus -88380-08-07 01:54 J -30559153.60 -30559153.42 -30559153.24 0.0536 0.0196

Mercury -88380-10-24 20:23 J -30559074.75 -30559074.65 -30559074.55 0.0533 0.0347

Mercury -88379-01-22 05:59 J -30558985.38 -30558985.25 -30558985.12 0.0530 0.0113

Venus -88373-01-28 11:44 J -30556788.12 -30556788.01 -30556787.89 0.0495 0.0409

Mercury -88373-03-21 23:59 J -30556734.67 -30556734.50 -30556734.33 0.0497 0.0126

Mercury -88373-06-20 01:25 J -30556644.55 -30556644.44 -30556644.32 0.0500 0.0370

Mercury -88368-08-12 23:59 J -30554764.57 -30554764.50 -30554764.43 0.0534 0.0455

Mercury -88368-11-10 09:35 J -30554675.24 -30554675.10 -30554674.97 0.0531 0.0005

Mercury -88367-02-07 19:54 J -30554585.73 -30554585.67 -30554585.61 0.0527 0.0466

Venus -88362-10-03 10:03 J -30552522.29 -30552522.08 -30552521.87 0.0493 0.0016

Mercury -88361-01-08 23:01 J -30552424.69 -30552424.54 -30552424.39 0.0496 0.0250

Mercury -88361-04-08 00:56 J -30552334.61 -30552334.46 -30552334.31 0.0499 0.0249

Mercury -88356-08-29 13:11 J -30550365.08 -30550364.95 -30550364.82 0.0531 0.0106

Mercury -88356-11-26 23:15 J -30550275.63 -30550275.53 -30550275.43 0.0528 0.0356

Venus -88350-06-08 08:37 J -30548256.23 -30548256.14 -30548256.03 0.0492 0.0430

Mercury -88350-10-27 21:49 J -30548114.70 -30548114.59 -30548114.48 0.0496 0.0375

Mercury -88349-01-26 00:13 J -30548024.65 -30548024.49 -30548024.32 0.0498 0.0127

Earth -88348-09-27 13:25 J -30547414.14 -30547413.94 -30547413.74 0.0523 0.0284

Moon -88348-09-27 15:20 J -30547414.05 -30547413.86 -30547413.67 0.0523 0.0294 \*

Mars -88347-09-26 04:03 J -30547050.57 -30547050.33 -30547050.10 0.0537 0.0184

Venus -88344-04-14 19:54 J -30546118.86 -30546118.67 -30546118.48 0.0534 0.0118

Mercury -88344-06-17 16:32 J -30546054.93 -30546054.81 -30546054.69 0.0532 0.0218

Mercury -88344-09-15 02:37 J -30545965.51 -30545965.39 -30545965.27 0.0529 0.0243

Earth -88342-03-20 17:59 J -30545413.91 -30545413.75 -30545413.58 0.0506 0.0345

Moon -88342-03-20 21:06 J -30545413.78 -30545413.62 -30545413.45 0.0506 0.0358 \*

Mercury -88338-11-13 23:59 J -30543714.67 -30543714.50 -30543714.33 0.0498 0.0009

Earth -88336-10-02 16:32 J -30543026.05 -30543025.81 -30543025.58 0.0525 0.0060

Moon -88336-10-02 17:30 J -30543026.02 -30543025.77 -30543025.53 0.0525 0.0035 \*

Venus -88333-12-18 11:15 J -30541853.15 -30541853.03 -30541852.90 0.0536 0.0409

Mercury -88332-04-05 18:56 J -30541744.81 -30541744.71 -30541744.60 0.0533 0.0344

Mercury -88332-07-04 04:47 J -30541655.43 -30541655.30 -30541655.17 0.0529 0.0115

Moon -88330-03-24 21:20 J -30541026.84 -30541026.61 -30541026.39 0.0504 0.0098  
 Earth -88330-03-25 00:42 J -30541026.69 -30541026.47 -30541026.24 0.0504 0.0066 \*  
 Venus -88326-06-11 00:27 J -30539487.66 -30539487.48 -30539487.30 0.0494 0.0242  
 Mercury -88326-09-01 23:15 J -30539404.70 -30539404.53 -30539404.36 0.0497 0.0115  
 Mercury -88326-12-01 00:42 J -30539314.57 -30539314.47 -30539314.36 0.0500 0.0382  
 Moon -88324-10-07 15:06 J -30538638.01 -30538637.87 -30538637.73 0.0527 0.0414  
 Earth -88324-10-07 17:59 J -30538637.90 -30538637.75 -30538637.60 0.0527 0.0397 \*  
 Mercury -88320-01-22 22:18 J -30537434.64 -30537434.57 -30537434.51 0.0534 0.0458  
 Mercury -88320-04-22 07:39 J -30537345.31 -30537345.18 -30537345.04 0.0531 0.0016  
 Mercury -88320-07-20 17:59 J -30537255.81 -30537255.75 -30537255.68 0.0527 0.0461  
 Earth -88318-03-29 11:01 J -30536639.24 -30536639.04 -30536638.83 0.0502 0.0219  
 Moon -88318-03-29 14:37 J -30536639.09 -30536638.89 -30536638.68 0.0502 0.0223 \*  
 Venus -88314-02-13 21:20 J -30535221.80 -30535221.61 -30535221.41 0.0492 0.0184  
 Mercury -88314-06-20 21:20 J -30535094.75 -30535094.61 -30535094.45 0.0496 0.0246  
 Mercury -88314-09-18 23:30 J -30535004.67 -30535004.52 -30535004.37 0.0499 0.0253  
 Venus -88309-12-21 07:39 J -30533084.31 -30533084.18 -30533084.04 0.0533 0.0396  
 Mercury -88308-02-08 11:15 J -30533035.16 -30533035.03 -30533034.90 0.0532 0.0112  
 Mercury -88308-05-08 21:20 J -30532945.71 -30532945.61 -30532945.51 0.0528 0.0351  
 Mercury -88302-04-08 20:23 J -30530784.77 -30530784.65 -30530784.54 0.0495 0.0371  
 Mercury -88302-07-07 22:47 J -30530694.72 -30530694.55 -30530694.39 0.0498 0.0130  
 Venus -88297-08-26 03:49 J -30528818.54 -30528818.34 -30528818.15 0.0535 0.0103  
 Mercury -88297-11-27 14:51 J -30528725.00 -30528724.88 -30528724.76 0.0532 0.0221  
 Mercury -88296-02-25 00:56 J -30528635.58 -30528635.46 -30528635.34 0.0529 0.0240  
 Venus -88290-02-16 11:30 J -30526453.06 -30526453.02 -30526452.97 0.0495 0.0482  
 Mercury -88290-04-25 21:49 J -30526384.76 -30526384.59 -30526384.41 0.0498 0.0012  
 Mercury -88290-07-24 23:15 J -30526294.54 -30526294.53 -30526294.52 0.0501 0.0499  
 Mercury -88285-09-15 18:27 J -30524414.83 -30524414.73 -30524414.63 0.0533 0.0332  
 Mercury -88285-12-14 04:03 J -30524325.46 -30524325.33 -30524325.20 0.0530 0.0127  
 Mars -88282-08-25 09:06 J -30523341.31 -30523341.12 -30523340.91 0.0492 0.0371  
 Venus -88279-10-22 10:47 J -30522187.26 -30522187.05 -30522186.84 0.0494 0.0064

Mercury -88278-02-11 21:35 J -30522074.77 -30522074.60 -30522074.43 0.0497 0.0114

Mercury -88278-05-12 23:15 J -30521984.64 -30521984.53 -30521984.43 0.0500 0.0383

Mercury -88273-07-04 20:51 J -30520104.69 -30520104.63 -30520104.56 0.0533 0.0455

Mercury -88273-10-02 06:27 J -30520015.37 -30520015.23 -30520015.10 0.0530 0.0004

Mercury -88273-12-30 16:32 J -30519925.87 -30519925.81 -30519925.74 0.0527 0.0463

Venus -88267-06-27 09:35 J -30517921.24 -30517921.10 -30517920.95 0.0492 0.0351

Mercury -88267-11-30 20:37 J -30517764.80 -30517764.64 -30517764.49 0.0496 0.0237

Mercury -88266-02-28 22:32 J -30517674.70 -30517674.56 -30517674.41 0.0499 0.0262

Moon -88265-09-26 17:01 J -30517098.98 -30517098.79 -30517098.60 0.0522 0.0336

Earth -88265-09-26 17:01 J -30517098.97 -30517098.79 -30517098.60 0.0522 0.0320 \*

Venus -88261-05-03 15:35 J -30515784.04 -30515783.85 -30515783.67 0.0534 0.0174

Mercury -88261-07-21 09:20 J -30515705.24 -30515705.11 -30515704.98 0.0531 0.0118

Mercury -88261-10-18 19:25 J -30515615.79 -30515615.69 -30515615.58 0.0528 0.0345

Moon -88259-03-19 16:32 J -30515098.93 -30515098.81 -30515098.66 0.0507 0.0406

Earth -88259-03-19 20:23 J -30515098.79 -30515098.65 -30515098.50 0.0507 0.0389 \*

Mercury -88255-09-18 18:42 J -30513454.84 -30513454.72 -30513454.60 0.0495 0.0369

Mercury -88255-12-17 21:06 J -30513364.79 -30513364.62 -30513364.45 0.0498 0.0132

Moon -88253-10-01 12:42 J -30512711.20 -30512710.97 -30512710.74 0.0524 0.0023

Earth -88253-10-01 14:51 J -30512711.11 -30512710.88 -30512710.64 0.0524 0.0008 \*

Venus -88249-01-07 10:18 J -30511518.23 -30511518.07 -30511517.92 0.0536 0.0332

Mercury -88249-05-09 12:56 J -30511395.08 -30511394.96 -30511394.84 0.0532 0.0228

Mercury -88249-08-06 22:47 J -30511305.67 -30511305.55 -30511305.43 0.0529 0.0233

Earth -88247-03-24 08:37 J -30510711.36 -30510711.14 -30510710.91 0.0504 0.0097

Moon -88247-03-24 12:27 J -30510711.20 -30510710.98 -30510710.76 0.0504 0.0124 \*

Mars -88246-06-01 12:13 J -30510277.17 -30510276.99 -30510276.79 0.0491 0.0379

Venus -88243-06-29 21:49 J -30509152.75 -30509152.59 -30509152.42 0.0494 0.0305

Mercury -88243-10-05 20:08 J -30509054.83 -30509054.66 -30509054.49 0.0497 0.0008

Mercury -88242-01-03 21:20 J -30508964.61 -30508964.61 -30508964.60 0.0500 0.0500

Earth -88241-10-06 17:15 J -30508322.95 -30508322.78 -30508322.60 0.0527 0.0343

Moon -88241-10-06 20:51 J -30508322.79 -30508322.63 -30508322.45 0.0527 0.0364 \*



Mercury -88237-02-26 16:32 J -30507084.91 -30507084.81 -30507084.71 0.0533 0.0336

Mercury -88237-05-26 02:23 J -30506995.53 -30506995.40 -30506995.27 0.0530 0.0123

Moon -88235-03-28 16:32 J -30506324.02 -30506323.81 -30506323.58 0.0502 0.0199

Earth -88235-03-28 19:39 J -30506323.89 -30506323.68 -30506323.46 0.0502 0.0189 \*

Venus -88231-03-04 19:54 J -30504886.87 -30504886.67 -30504886.46 0.0493 0.0118

Mercury -88231-07-24 19:11 J -30504744.87 -30504744.70 -30504744.53 0.0497 0.0118

Mercury -88231-10-22 20:51 J -30504654.74 -30504654.63 -30504654.52 0.0500 0.0379

Mercury -88226-12-15 20:08 J -30502774.73 -30502774.66 -30502774.59 0.0534 0.0446

Venus -88225-01-10 08:23 J -30502749.23 -30502749.15 -30502749.06 0.0533 0.0481

Mercury -88225-03-14 05:30 J -30502685.40 -30502685.27 -30502685.13 0.0530 0.0021

Mercury -88225-06-11 15:49 J -30502595.89 -30502595.84 -30502595.78 0.0527 0.0473

Earth -88223-04-02 05:15 J -30501936.35 -30501936.28 -30501936.19 0.0500 0.0468

Moon -88223-04-02 06:56 J -30501936.22 -30501936.21 -30501936.20 0.0500 0.0498 \*

Mercury -88219-05-12 18:27 J -30500434.88 -30500434.73 -30500434.57 0.0496 0.0239

Mercury -88219-08-10 20:37 J -30500344.78 -30500344.64 -30500344.49 0.0499 0.0262

Venus -88214-09-15 00:42 J -30498483.67 -30498483.47 -30498483.28 0.0535 0.0039

Mercury -88213-01-01 08:08 J -30498375.29 -30498375.16 -30498375.03 0.0531 0.0115

Mercury -88213-03-30 17:59 J -30498285.85 -30498285.75 -30498285.64 0.0528 0.0346

Mercury -88207-02-28 17:30 J -30496124.89 -30496124.77 -30496124.65 0.0496 0.0363

Mercury -88207-05-29 19:54 J -30496034.83 -30496034.67 -30496034.50 0.0498 0.0140

Mercury -88202-10-20 11:01 J -30494065.16 -30494065.04 -30494064.92 0.0532 0.0232

Mercury -88201-01-17 20:51 J -30493975.75 -30493975.63 -30493975.51 0.0529 0.0228

Venus -88196-11-10 08:08 J -30491852.36 -30491852.16 -30491851.95 0.0493 0.0127

Mercury -88195-03-17 18:13 J -30491724.91 -30491724.74 -30491724.56 0.0497 0.0015

Mercury -88195-06-15 19:39 J -30491634.68 -30491634.68 -30491634.68 0.0500 0.0500

Mars -88193-12-19 18:13 J -30490716.99 -30490716.74 -30490716.49 0.0536 0.0016

Mercury -88190-08-08 14:23 J -30489755.00 -30489754.90 -30489754.80 0.0533 0.0345

Mercury -88190-11-06 00:13 J -30489665.63 -30489665.49 -30489665.36 0.0530 0.0115

Venus -88184-07-16 06:27 J -30487586.39 -30487586.23 -30487586.06 0.0492 0.0292

Mercury -88183-01-03 17:15 J -30487414.95 -30487414.78 -30487414.61 0.0497 0.0118

Mercury -88183-04-03 18:56 J -30487324.82 -30487324.71 -30487324.60 0.0500 0.0378  
 Moon -88182-09-26 13:11 J -30486784.10 -30486783.95 -30486783.81 0.0521 0.0402  
 Earth -88182-09-26 14:37 J -30486784.05 -30486783.89 -30486783.73 0.0522 0.0378 \*  
 Venus -88178-05-23 15:35 J -30485449.02 -30485448.85 -30485448.68 0.0534 0.0256  
 Mercury -88178-05-27 18:13 J -30485444.81 -30485444.74 -30485444.67 0.0534 0.0453  
 Mercury -88178-08-25 03:35 J -30485355.48 -30485355.35 -30485355.21 0.0531 0.0012  
 Mercury -88178-11-22 13:54 J -30485265.98 -30485265.92 -30485265.86 0.0527 0.0466  
 Earth -88176-03-19 04:03 J -30484783.45 -30484783.33 -30484783.20 0.0507 0.0419  
 Moon -88176-03-19 07:54 J -30484783.28 -30484783.17 -30484783.06 0.0507 0.0439 \*  
 Mercury -88172-10-22 16:03 J -30483104.98 -30483104.83 -30483104.68 0.0496 0.0244  
 Mercury -88171-01-20 18:13 J -30483014.89 -30483014.74 -30483014.60 0.0499 0.0255  
 Earth -88170-10-01 17:30 J -30482396.00 -30482395.77 -30482395.53 0.0524 0.0040  
 Moon -88170-10-01 20:51 J -30482395.87 -30482395.63 -30482395.39 0.0524 0.0063 \*  
 Venus -88166-01-26 10:47 J -30481183.23 -30481183.05 -30481182.88 0.0536 0.0248  
 Mercury -88166-06-13 07:11 J -30481045.34 -30481045.20 -30481045.07 0.0531 0.0109  
 Mercury -88166-09-10 17:01 J -30480955.88 -30480955.79 -30480955.69 0.0528 0.0354  
 Moon -88164-03-23 11:44 J -30480396.23 -30480396.01 -30480395.78 0.0505 0.0156  
 Earth -88164-03-23 14:51 J -30480396.10 -30480395.88 -30480395.66 0.0505 0.0132 \*  
 Venus -88160-07-18 20:51 J -30478817.76 -30478817.63 -30478817.49 0.0495 0.0375  
 Mercury -88160-08-10 15:20 J -30478794.98 -30478794.86 -30478794.74 0.0495 0.0366  
 Mercury -88160-11-08 17:44 J -30478704.92 -30478704.76 -30478704.59 0.0498 0.0137  
 Moon -88158-10-06 17:44 J -30478007.94 -30478007.76 -30478007.58 0.0526 0.0326  
 Earth -88158-10-06 21:49 J -30478007.78 -30478007.59 -30478007.40 0.0526 0.0306 \*  
 Mercury -88154-04-01 09:35 J -30476735.22 -30476735.10 -30476734.98 0.0532 0.0231  
 Mercury -88154-06-29 19:25 J -30476645.81 -30476645.69 -30476645.57 0.0529 0.0228  
 Earth -88152-03-27 20:37 J -30476008.85 -30476008.64 -30476008.41 0.0503 0.0142  
 Moon -88152-03-27 22:32 J -30476008.77 -30476008.56 -30476008.35 0.0503 0.0160 \*  
 Venus -88148-03-23 19:11 J -30474551.91 -30474551.70 -30474551.49 0.0493 0.0047  
 Mercury -88148-05-29 13:54 J -30474484.93 -30474484.92 -30474484.90 0.0495 0.0491  
 Mercury -88148-08-27 17:01 J -30474394.96 -30474394.79 -30474394.62 0.0498 0.0014

Mercury -88142-01-18 12:42 J -30472425.07 -30472424.97 -30472424.87 0.0533 0.0348

Venus -88142-01-29 03:20 J -30472414.36 -30472414.36 -30472414.35 0.0532 0.0532

Mercury -88142-04-17 22:18 J -30472335.70 -30472335.57 -30472335.44 0.0530 0.0109

Moon -88140-04-01 05:30 J -30471621.37 -30471621.27 -30471621.16 0.0501 0.0446

Earth -88140-04-01 05:59 J -30471621.37 -30471621.25 -30471621.12 0.0501 0.0419 \*

Venus -88137-11-26 16:32 J -30470285.86 -30470285.81 -30470285.74 0.0491 0.0468

Mercury -88136-06-15 15:20 J -30470085.03 -30470084.86 -30470084.70 0.0497 0.0119

Mercury -88136-09-13 17:01 J -30469994.90 -30469994.79 -30469994.68 0.0499 0.0377

Venus -88131-10-03 21:49 J -30468148.79 -30468148.59 -30468148.40 0.0535 0.0027

Mercury -88131-11-06 16:03 J -30468114.90 -30468114.83 -30468114.77 0.0534 0.0462

Mercury -88130-02-04 01:25 J -30468025.57 -30468025.44 -30468025.30 0.0531 0.0007

Mercury -88130-05-04 11:44 J -30467936.08 -30467936.01 -30467935.94 0.0527 0.0457

Mars -88128-11-17 19:54 J -30467007.95 -30467007.67 -30467007.37 0.0492 0.0154

Mercury -88124-04-03 13:54 J -30465775.07 -30465774.92 -30465774.77 0.0496 0.0246

Mercury -88124-07-02 16:03 J -30465684.98 -30465684.83 -30465684.68 0.0499 0.0253

Venus -88119-06-08 16:47 J -30463882.88 -30463882.80 -30463882.71 0.0537 0.0481

Mercury -88119-11-23 05:01 J -30463715.42 -30463715.29 -30463715.16 0.0532 0.0116

Mercury -88118-02-20 15:06 J -30463625.97 -30463625.87 -30463625.77 0.0528 0.0346

Venus -88113-11-29 05:30 J -30461517.46 -30461517.27 -30461517.08 0.0494 0.0187

Mercury -88112-01-20 12:27 J -30461465.09 -30461464.98 -30461464.86 0.0495 0.0374

Mercury -88112-04-20 15:06 J -30461375.03 -30461374.87 -30461374.70 0.0498 0.0128

Mercury -88107-09-11 08:23 J -30459405.27 -30459405.15 -30459405.03 0.0532 0.0227

Mercury -88107-12-09 18:13 J -30459315.86 -30459315.74 -30459315.62 0.0529 0.0233

Venus -88101-08-04 04:32 J -30457251.49 -30457251.31 -30457251.12 0.0492 0.0229

Mercury -88100-02-06 14:37 J -30457065.06 -30457064.89 -30457064.72 0.0498 0.0009

Earth -88099-09-25 18:13 J -30456468.88 -30456468.74 -30456468.60 0.0521 0.0414

Moon -88099-09-25 21:06 J -30456468.74 -30456468.62 -30456468.49 0.0521 0.0442 \*

Venus -88095-06-11 12:13 J -30455114.14 -30455113.99 -30455113.82 0.0533 0.0321

Mercury -88095-06-30 11:15 J -30455095.13 -30455095.03 -30455094.93 0.0533 0.0347

Mercury -88095-09-27 20:51 J -30455005.76 -30455005.63 -30455005.50 0.0529 0.0110

Moon -88093-03-18 01:25 J -30454468.50 -30454468.44 -30454468.39 0.0508 0.0492  
 Earth -88093-03-18 04:47 J -30454468.39 -30454468.30 -30454468.22 0.0508 0.0469 \*  
 Mercury -88089-11-25 13:39 J -30452755.10 -30452754.93 -30452754.76 0.0497 0.0116  
 Mercury -88088-02-23 15:20 J -30452664.96 -30452664.86 -30452664.75 0.0500 0.0381  
 Moon -88087-09-30 15:35 J -30452081.08 -30452080.85 -30452080.62 0.0523 0.0109  
 Earth -88087-09-30 19:25 J -30452080.92 -30452080.69 -30452080.46 0.0523 0.0085 \*  
 Venus -88083-02-14 05:44 J -30450848.44 -30450848.26 -30450848.07 0.0535 0.0194  
 Mercury -88083-04-18 14:23 J -30450784.97 -30450784.90 -30450784.84 0.0533 0.0463  
 Mercury -88083-07-16 23:44 J -30450695.65 -30450695.51 -30450695.38 0.0530 0.0012  
 Mercury -88083-10-14 09:49 J -30450606.16 -30450606.09 -30450606.02 0.0527 0.0452  
 Earth -88081-03-22 14:08 J -30450081.12 -30450080.91 -30450080.69 0.0506 0.0186  
 Moon -88081-03-22 16:03 J -30450081.03 -30450080.83 -30450080.63 0.0506 0.0203 \*  
 Venus -88077-08-06 17:15 J -30448482.88 -30448482.78 -30448482.68 0.0495 0.0430  
 Mercury -88077-09-13 11:44 J -30448445.16 -30448445.01 -30448444.85 0.0496 0.0248  
 Mercury -88077-12-12 13:54 J -30448355.06 -30448354.92 -30448354.77 0.0499 0.0251  
 Earth -88075-10-05 15:49 J -30447693.04 -30447692.84 -30447692.62 0.0525 0.0236  
 Moon -88075-10-05 19:39 J -30447692.88 -30447692.68 -30447692.47 0.0525 0.0261 \*  
 Mars -88074-06-10 18:56 J -30447444.76 -30447444.71 -30447444.64 0.0534 0.0516  
 Mercury -88071-05-05 02:37 J -30446385.51 -30446385.39 -30446385.26 0.0532 0.0127  
 Mercury -88071-08-02 12:42 J -30446296.07 -30446295.97 -30446295.86 0.0528 0.0336  
 Moon -88069-03-27 01:39 J -30445693.66 -30445693.43 -30445693.20 0.0504 0.0124  
 Earth -88069-03-27 01:54 J -30445693.64 -30445693.42 -30445693.19 0.0504 0.0102 \*  
 Venus -88065-04-11 15:20 J -30444217.07 -30444216.86 -30444216.65 0.0493 0.0008  
 Mercury -88065-07-02 10:32 J -30444135.17 -30444135.06 -30444134.95 0.0495 0.0375  
 Mercury -88065-09-30 12:56 J -30444045.12 -30444044.96 -30444044.79 0.0498 0.0127  
 Mercury -88059-02-21 06:13 J -30442075.35 -30442075.24 -30442075.12 0.0533 0.0236  
 Mercury -88059-05-21 16:03 J -30441985.95 -30441985.83 -30441985.70 0.0529 0.0224  
 Moon -88057-03-31 11:30 J -30441306.14 -30441306.02 -30441305.89 0.0501 0.0412  
 Earth -88057-03-31 12:42 J -30441306.12 -30441305.97 -30441305.82 0.0501 0.0385 \*  
 Venus -88054-12-16 13:25 J -30439951.05 -30439950.94 -30439950.83 0.0491 0.0412

Mercury -88053-07-19 11:59 J -30439735.18 -30439735.00 -30439734.83 0.0497 0.0010

Mercury -88053-10-17 13:11 J -30439644.97 -30439644.95 -30439644.92 0.0500 0.0493

Venus -88048-10-22 21:20 J -30437813.80 -30437813.61 -30437813.41 0.0535 0.0106

Mercury -88048-12-10 09:49 J -30437765.19 -30437765.09 -30437764.99 0.0533 0.0346

Mercury -88047-03-09 19:25 J -30437675.82 -30437675.69 -30437675.55 0.0530 0.0113

Mercury -88041-05-07 11:15 J -30435425.20 -30435425.03 -30435424.86 0.0497 0.0122

Mercury -88041-08-05 12:56 J -30435335.06 -30435334.96 -30435334.84 0.0500 0.0376

Mars -88038-03-15 17:15 J -30434383.00 -30434382.78 -30434382.55 0.0537 0.0235

Venus -88036-06-27 14:23 J -30433548.02 -30433547.90 -30433547.77 0.0536 0.0411

Mercury -88036-09-28 12:56 J -30433455.03 -30433454.96 -30433454.90 0.0533 0.0462

Mercury -88036-12-26 22:18 J -30433365.71 -30433365.57 -30433365.44 0.0530 0.0015

Mercury -88035-03-26 08:23 J -30433276.22 -30433276.15 -30433276.08 0.0527 0.0452

Venus -88030-12-19 03:35 J -30431182.53 -30431182.35 -30431182.17 0.0494 0.0253

Mercury -88029-02-24 10:03 J -30431115.23 -30431115.08 -30431114.93 0.0496 0.0247

Mercury -88029-05-24 12:27 J -30431025.13 -30431024.98 -30431024.84 0.0499 0.0254

Mercury -88024-10-15 01:11 J -30429055.58 -30429055.45 -30429055.32 0.0531 0.0126

Mercury -88023-01-12 11:01 J -30428966.14 -30428966.04 -30428965.93 0.0528 0.0333

Venus -88018-08-24 00:56 J -30426916.66 -30426916.46 -30426916.27 0.0492 0.0173

Mercury -88018-12-13 08:23 J -30426805.26 -30426805.15 -30426805.04 0.0495 0.0378

Mercury -88017-03-12 11:01 J -30426715.21 -30426715.04 -30426714.88 0.0498 0.0124

Moon -88016-09-24 09:06 J -30426154.15 -30426154.12 -30426154.06 0.0520 0.0508

Earth -88016-09-24 12:56 J -30426154.05 -30426153.96 -30426153.87 0.0520 0.0477

Venus -88012-06-30 08:08 J -30424779.30 -30424779.16 -30424779.02 0.0534 0.0376

Mercury -88012-08-03 04:03 J -30424745.44 -30424745.33 -30424745.21 0.0533 0.0245

Mercury -88012-10-31 13:54 J -30424656.04 -30424655.92 -30424655.80 0.0529 0.0215

Mercury -88006-12-30 09:49 J -30422405.26 -30422405.09 -30422404.92 0.0497 0.0004

Mercury -88005-03-29 11:15 J -30422315.06 -30422315.03 -30422315.00 0.0500 0.0490

Earth -88004-09-29 13:25 J -30421766.17 -30421765.94 -30421765.71 0.0522 0.0152

Moon -88004-09-29 17:15 J -30421766.00 -30421765.78 -30421765.55 0.0522 0.0172 \*

# 88TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 88th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Venus	-88000-03-05 03:20 J	-30420513.55	-30420513.36	-30420513.17	0.0536	0.0128		
Mercury	-88000-05-22 07:39 J	-30420435.28	-30420435.18	-30420435.08	0.0534	0.0355		
Mercury	-88000-08-19 17:15 J	-30420345.91	-30420345.78	-30420345.65	0.0530	0.0103		
Moon	-87998-03-22 20:23 J	-30419765.86	-30419765.65	-30419765.43	0.0506	0.0231		
Earth	-87998-03-22 20:37 J	-30419765.84	-30419765.64	-30419765.43	0.0506	0.0220	*	
Venus	-87994-08-26 13:54 J	-30418147.95	-30418147.92	-30418147.89	0.0495	0.0487		
Mercury	-87994-10-18 08:37 J	-30418095.31	-30418095.14	-30418094.97	0.0496	0.0130		
Mercury	-87993-01-16 10:18 J	-30418005.18	-30418005.07	-30418004.95	0.0499	0.0367		
Moon	-87992-10-04 12:27 J	-30417378.20	-30417377.98	-30417377.75	0.0525	0.0208		
Earth	-87992-10-04 15:35 J	-30417378.07	-30417377.85	-30417377.63	0.0525	0.0184	*	
Mercury	-87988-03-10 11:15 J	-30416125.09	-30416125.03	-30416124.96	0.0534	0.0464		
Mercury	-87988-06-07 20:51 J	-30416035.77	-30416035.63	-30416035.50	0.0531	0.0017		
Mercury	-87988-09-05 06:56 J	-30415946.28	-30415946.21	-30415946.14	0.0528	0.0454		
Moon	-87986-03-27 06:42 J	-30415378.44	-30415378.22	-30415378.00	0.0504	0.0091		
Earth	-87986-03-27 07:39 J	-30415378.41	-30415378.18	-30415377.95	0.0504	0.0065	*	
Venus	-87982-05-01 12:42 J	-30413882.17	-30413881.97	-30413881.76	0.0493	0.0070		
Mercury	-87982-08-06 07:39 J	-30413785.33	-30413785.18	-30413785.03	0.0496	0.0252		
Mercury	-87982-11-04 10:03 J	-30413695.23	-30413695.08	-30413694.93	0.0499	0.0248		
Mercury	-87976-03-26 23:44 J	-30411725.64	-30411725.51	-30411725.38	0.0531	0.0126		

Mercury -87976-06-24 09:35 J -30411636.20 -30411636.10 -30411635.99 0.0528 0.0334

Earth -87974-03-31 14:08 J -30410991.08 -30410990.91 -30410990.74 0.0502 0.0336

Moon -87974-03-31 16:32 J -30410990.98 -30410990.81 -30410990.65 0.0502 0.0358 \*

Mars -87973-02-10 23:01 J -30410674.85 -30410674.54 -30410674.24 0.0492 0.0040

Venus -87970-01-04 11:01 J -30409616.18 -30409616.04 -30409615.89 0.0492 0.0349

Mercury -87970-05-25 06:27 J -30409475.34 -30409475.23 -30409475.12 0.0495 0.0378

Mercury -87970-08-23 09:06 J -30409385.28 -30409385.12 -30409384.95 0.0498 0.0126

Venus -87965-11-10 17:15 J -30407478.96 -30407478.78 -30407478.59 0.0534 0.0165

Mercury -87964-01-13 02:37 J -30407415.50 -30407415.39 -30407415.27 0.0532 0.0244

Mercury -87964-04-12 12:27 J -30407326.10 -30407325.98 -30407325.86 0.0529 0.0215

Mercury -87958-06-11 07:39 J -30405075.35 -30405075.18 -30405075.00 0.0497 0.0013

Mercury -87958-09-09 09:06 J -30404985.15 -30404985.12 -30404985.08 0.0500 0.0488

Venus -87953-07-16 09:49 J -30403213.24 -30403213.09 -30403212.95 0.0537 0.0359

Mercury -87953-11-01 05:30 J -30403105.36 -30403105.27 -30403105.17 0.0534 0.0364

Mercury -87952-01-29 15:06 J -30403016.00 -30403015.87 -30403015.73 0.0530 0.0096

Venus -87946-01-07 00:13 J -30400847.66 -30400847.49 -30400847.33 0.0494 0.0308

Mercury -87946-03-30 06:42 J -30400765.39 -30400765.22 -30400765.05 0.0496 0.0130

Mercury -87946-06-28 08:23 J -30400675.26 -30400675.15 -30400675.03 0.0499 0.0366

Mercury -87941-08-20 09:06 J -30398795.17 -30398795.12 -30398795.06 0.0534 0.0474

Mercury -87941-11-17 18:42 J -30398705.86 -30398705.72 -30398705.59 0.0531 0.0022

Mercury -87940-02-15 04:47 J -30398616.37 -30398616.30 -30398616.23 0.0528 0.0445

Venus -87935-09-11 21:49 J -30396581.80 -30396581.59 -30396581.39 0.0492 0.0115

Mercury -87934-01-16 05:01 J -30396455.43 -30396455.29 -30396455.13 0.0496 0.0259

Mercury -87934-04-16 07:25 J -30396365.34 -30396365.19 -30396365.04 0.0498 0.0241

Venus -87929-07-19 07:54 J -30394444.27 -30394444.17 -30394444.07 0.0534 0.0457

Mercury -87929-09-05 22:03 J -30394395.70 -30394395.58 -30394395.45 0.0532 0.0128

Mercury -87929-12-04 08:08 J -30394306.26 -30394306.16 -30394306.05 0.0529 0.0334

Mercury -87923-11-04 04:18 J -30392145.43 -30392145.32 -30392145.21 0.0495 0.0381

Mercury -87922-02-02 06:56 J -30392055.38 -30392055.21 -30392055.04 0.0498 0.0120

Moon -87921-09-28 12:27 J -30391451.20 -30391450.98 -30391450.76 0.0522 0.0210

Earth -87921-09-28 16:03 J -30391451.05 -30391450.83 -30391450.61 0.0522 0.0194 \*  
 Mars -87920-09-03 17:30 J -30391110.97 -30391110.77 -30391110.56 0.0535 0.0305  
 Venus -87917-03-24 02:08 J -30390178.60 -30390178.41 -30390178.21 0.0535 0.0052  
 Mercury -87917-06-25 01:25 J -30390085.56 -30390085.44 -30390085.33 0.0532 0.0242  
 Mercury -87917-09-22 11:01 J -30389996.16 -30389996.04 -30389995.92 0.0529 0.0216  
 Moon -87915-03-21 22:18 J -30389450.75 -30389450.57 -30389450.38 0.0506 0.0275  
 Earth -87915-03-21 23:30 J -30389450.72 -30389450.52 -30389450.33 0.0506 0.0265 \*  
 Mercury -87911-11-21 05:59 J -30387745.42 -30387745.25 -30387745.07 0.0497 0.0008  
 Mercury -87910-02-19 07:39 J -30387655.21 -30387655.18 -30387655.15 0.0500 0.0491  
 Earth -87909-10-03 18:27 J -30387062.96 -30387062.73 -30387062.51 0.0524 0.0139  
 Moon -87909-10-03 19:54 J -30387062.88 -30387062.67 -30387062.45 0.0524 0.0170 \*  
 Mercury -87905-04-13 04:32 J -30385775.41 -30385775.31 -30385775.22 0.0533 0.0358  
 Mercury -87905-07-11 13:54 J -30385686.05 -30385685.92 -30385685.79 0.0530 0.0099  
 Earth -87903-03-26 09:06 J -30385063.35 -30385063.12 -30385062.89 0.0504 0.0016  
 Moon -87903-03-26 11:15 J -30385063.26 -30385063.03 -30385062.79 0.0504 0.0045 \*  
 Venus -87899-05-20 10:03 J -30383547.28 -30383547.08 -30383546.88 0.0493 0.0128  
 Mercury -87899-09-09 04:32 J -30383435.47 -30383435.31 -30383435.14 0.0496 0.0132  
 Mercury -87899-12-08 06:27 J -30383345.34 -30383345.23 -30383345.11 0.0499 0.0365  
 Earth -87897-10-08 15:49 J -30382674.95 -30382674.84 -30382674.73 0.0526 0.0462  
 Moon -87897-10-08 16:03 J -30382674.92 -30382674.83 -30382674.71 0.0526 0.0471 \*  
 Mercury -87893-01-31 07:11 J -30381465.25 -30381465.20 -30381465.14 0.0534 0.0479  
 Mercury -87893-04-29 16:32 J -30381375.94 -30381375.81 -30381375.67 0.0531 0.0030  
 Mercury -87893-07-28 02:51 J -30381286.45 -30381286.38 -30381286.31 0.0528 0.0439  
 Moon -87891-03-30 16:18 J -30380676.00 -30380675.82 -30380675.64 0.0503 0.0316  
 Earth -87891-03-30 19:25 J -30380675.87 -30380675.69 -30380675.50 0.0503 0.0300 \*  
 Venus -87887-01-23 08:37 J -30379281.30 -30379281.14 -30379280.97 0.0491 0.0289  
 Mercury -87887-06-28 03:20 J -30379125.50 -30379125.36 -30379125.20 0.0495 0.0257  
 Mercury -87887-09-26 05:44 J -30379035.41 -30379035.26 -30379035.11 0.0498 0.0242  
 Mars -87884-06-07 23:30 J -30378049.68 -30378049.52 -30378049.35 0.0537 0.0393  
 Venus -87882-11-30 14:37 J -30377144.07 -30377143.89 -30377143.71 0.0535 0.0228



Mercury -87881-02-16 20:08 J -30377065.79 -30377065.66 -30377065.53 0.0532 0.0136

Mercury -87881-05-16 05:59 J -30376976.35 -30376976.25 -30376976.14 0.0529 0.0326

Mercury -87875-04-16 01:54 J -30374815.53 -30374815.42 -30374815.31 0.0495 0.0386

Mercury -87875-07-15 04:32 J -30374725.48 -30374725.31 -30374725.14 0.0498 0.0116

Venus -87870-08-05 10:03 J -30372878.25 -30372878.08 -30372877.91 0.0537 0.0275

Mercury -87870-12-05 23:44 J -30372755.63 -30372755.51 -30372755.39 0.0533 0.0244

Mercury -87869-03-04 09:35 J -30372666.23 -30372666.10 -30372665.98 0.0530 0.0216

Venus -87863-01-25 22:03 J -30370512.71 -30370512.58 -30370512.44 0.0494 0.0372

Mercury -87863-05-03 03:49 J -30370415.51 -30370415.34 -30370415.16 0.0497 0.0014

Mercury -87863-08-01 05:30 J -30370325.30 -30370325.27 -30370325.24 0.0500 0.0487

Mercury -87858-09-24 03:06 J -30368445.47 -30368445.37 -30368445.27 0.0533 0.0356

Mercury -87858-12-22 12:42 J -30368356.10 -30368355.97 -30368355.84 0.0530 0.0101

Venus -87852-09-30 20:23 J -30366246.86 -30366246.65 -30366246.44 0.0493 0.0048

Mercury -87851-02-19 02:51 J -30366105.54 -30366105.38 -30366105.21 0.0497 0.0130

Mercury -87851-05-20 05:01 J -30366015.41 -30366015.29 -30366015.18 0.0500 0.0368

Mercury -87846-07-13 06:13 J -30364135.29 -30364135.24 -30364135.17 0.0534 0.0471

Venus -87846-08-08 05:44 J -30364109.28 -30364109.26 -30364109.22 0.0533 0.0525

Mercury -87846-10-10 15:35 J -30364045.98 -30364045.85 -30364045.71 0.0531 0.0020

Mercury -87845-01-08 01:39 J -30363956.50 -30363956.43 -30363956.35 0.0527 0.0444

Venus -87840-06-05 19:11 J -30361980.76 -30361980.70 -30361980.63 0.0491 0.0464

Mercury -87840-12-08 01:39 J -30361795.58 -30361795.43 -30361795.28 0.0495 0.0257

Mercury -87839-03-08 04:03 J -30361705.48 -30361705.33 -30361705.18 0.0498 0.0242

Earth -87838-09-28 13:54 J -30361136.13 -30361135.92 -30361135.71 0.0521 0.0246

Moon -87838-09-28 16:18 J -30361136.02 -30361135.82 -30361135.62 0.0521 0.0253 \*

Venus -87834-04-12 22:03 J -30359843.78 -30359843.58 -30359843.38 0.0536 0.0004

Mercury -87834-07-29 18:13 J -30359735.87 -30359735.74 -30359735.61 0.0532 0.0140

Mercury -87834-10-27 04:03 J -30359646.43 -30359646.33 -30359646.22 0.0529 0.0322

Earth -87832-03-21 04:32 J -30359135.49 -30359135.31 -30359135.13 0.0508 0.0302

Moon -87832-03-21 06:42 J -30359135.40 -30359135.22 -30359135.02 0.0508 0.0305 \*

Mercury -87828-09-26 00:27 J -30357485.59 -30357485.48 -30357485.37 0.0495 0.0381

Mercury -87828-12-25 03:06 J -30357395.53 -30357395.37 -30357395.20 0.0497 0.0120

Moon -87826-10-03 14:23 J -30356748.14 -30356747.90 -30356747.66 0.0523 0.0111

Earth -87826-10-03 14:37 J -30356748.13 -30356747.89 -30356747.66 0.0523 0.0080 \*

Venus -87823-12-16 16:18 J -30355577.88 -30355577.82 -30355577.75 0.0538 0.0509

Mercury -87822-05-17 21:49 J -30355425.71 -30355425.59 -30355425.48 0.0533 0.0252

Mercury -87822-08-15 07:25 J -30355336.31 -30355336.19 -30355336.06 0.0530 0.0209

Moon -87820-03-25 13:25 J -30354748.17 -30354747.94 -30354747.71 0.0505 0.0016

Earth -87820-03-25 16:32 J -30354748.04 -30354747.81 -30354747.57 0.0505 0.0017 \*

Mars -87819-05-06 22:03 J -30354340.83 -30354340.58 -30354340.33 0.0492 0.0284

Venus -87816-06-08 08:08 J -30353212.35 -30353212.16 -30353211.97 0.0493 0.0192

Mercury -87816-10-13 01:54 J -30353085.59 -30353085.42 -30353085.25 0.0497 0.0008

Mercury -87815-01-11 03:20 J -30352995.39 -30352995.36 -30352995.32 0.0500 0.0484

Moon -87814-10-08 14:37 J -30352360.02 -30352359.89 -30352359.75 0.0526 0.0421

Earth -87814-10-08 16:18 J -30352359.96 -30352359.82 -30352359.67 0.0526 0.0414 \*

Mercury -87810-03-06 01:25 J -30351115.53 -30351115.44 -30351115.34 0.0534 0.0359

Mercury -87810-06-03 11:01 J -30351026.17 -30351026.04 -30351025.91 0.0531 0.0099

Earth -87808-03-30 04:03 J -30350360.52 -30350360.33 -30350360.14 0.0503 0.0271

Moon -87808-03-30 07:39 J -30350360.37 -30350360.18 -30350359.98 0.0503 0.0278 \*

Venus -87804-02-11 06:56 J -30348946.39 -30348946.21 -30348946.02 0.0491 0.0223

Mercury -87804-08-01 01:11 J -30348775.62 -30348775.45 -30348775.29 0.0496 0.0130

Mercury -87804-10-30 03:06 J -30348685.49 -30348685.37 -30348685.26 0.0499 0.0366

Venus -87799-12-19 15:20 J -30346809.02 -30346808.86 -30346808.70 0.0534 0.0315

Mercury -87799-12-23 05:01 J -30346805.35 -30346805.29 -30346805.23 0.0534 0.0469

Mercury -87798-03-22 14:23 J -30346716.03 -30346715.90 -30346715.77 0.0531 0.0014

Mercury -87798-06-20 00:27 J -30346626.55 -30346626.48 -30346626.41 0.0528 0.0447

Mercury -87792-05-19 23:59 J -30344465.65 -30344465.50 -30344465.35 0.0496 0.0254

Mercury -87792-08-18 02:23 J -30344375.54 -30344375.40 -30344375.25 0.0499 0.0246

Venus -87787-08-24 09:20 J -30342543.29 -30342543.11 -30342542.93 0.0536 0.0197

Mercury -87786-01-08 17:30 J -30342405.90 -30342405.77 -30342405.64 0.0532 0.0130

Mercury -87786-04-08 03:20 J -30342316.46 -30342316.36 -30342316.25 0.0528 0.0331

Venus -87780-02-13 21:06 J -30340177.71 -30340177.62 -30340177.52 0.0494 0.0441

Mercury -87780-03-07 22:47 J -30340155.66 -30340155.55 -30340155.43 0.0495 0.0380

Mercury -87780-06-06 01:39 J -30340065.60 -30340065.43 -30340065.26 0.0497 0.0121

Mercury -87775-10-27 20:08 J -30338095.78 -30338095.66 -30338095.54 0.0533 0.0254

Mercury -87774-01-25 05:44 J -30338006.38 -30338006.26 -30338006.13 0.0530 0.0207

Venus -87769-10-19 19:54 J -30335911.88 -30335911.67 -30335911.46 0.0492 0.0023

Mercury -87768-03-25 00:42 J -30335755.64 -30335755.47 -30335755.29 0.0497 0.0007

Mercury -87768-06-23 02:08 J -30335665.43 -30335665.41 -30335665.37 0.0500 0.0490

Mars -87766-11-28 06:13 J -30334777.48 -30334777.24 -30334777.00 0.0535 0.0122

Mercury -87763-08-15 23:30 J -30333785.61 -30333785.52 -30333785.42 0.0534 0.0366

Mercury -87763-11-13 09:06 J -30333696.25 -30333696.12 -30333695.99 0.0531 0.0094

Venus -87757-06-24 18:13 J -30331645.87 -30331645.74 -30331645.62 0.0490 0.0395

Mercury -87756-01-10 23:15 J -30331445.69 -30331445.53 -30331445.36 0.0496 0.0130

Mercury -87756-04-11 01:11 J -30331355.56 -30331355.45 -30331355.33 0.0499 0.0366

Moon -87755-09-27 14:23 J -30330821.10 -30330820.90 -30330820.69 0.0520 0.0288

Earth -87755-09-27 15:20 J -30330821.05 -30330820.86 -30330820.66 0.0520 0.0290 \*

Venus -87751-05-01 23:15 J -30329508.72 -30329508.53 -30329508.33 0.0536 0.0093

Mercury -87751-06-04 03:20 J -30329475.41 -30329475.36 -30329475.30 0.0535 0.0472

Mercury -87751-09-01 12:56 J -30329386.10 -30329385.96 -30329385.83 0.0532 0.0024

Mercury -87751-11-29 23:01 J -30329296.61 -30329296.54 -30329296.47 0.0528 0.0447

Moon -87749-03-20 11:01 J -30328820.21 -30328820.04 -30328819.87 0.0508 0.0326

Earth -87749-03-20 14:08 J -30328820.08 -30328819.91 -30328819.73 0.0508 0.0327 \*

Mercury -87745-10-29 22:18 J -30327135.71 -30327135.57 -30327135.41 0.0495 0.0252

Mercury -87744-01-28 00:42 J -30327045.61 -30327045.47 -30327045.32 0.0498 0.0247

Moon -87743-10-02 17:59 J -30326432.97 -30326432.75 -30326432.52 0.0523 0.0077

Earth -87743-10-02 19:25 J -30326432.93 -30326432.69 -30326432.46 0.0523 0.0045 \*

Venus -87739-01-04 18:27 J -30325242.85 -30325242.73 -30325242.60 0.0537 0.0414

Mercury -87739-06-20 16:18 J -30325075.95 -30325075.82 -30325075.69 0.0532 0.0126

Mercury -87739-09-18 02:08 J -30324986.51 -30324986.41 -30324986.30 0.0529 0.0334

Earth -87737-03-25 00:13 J -30324432.72 -30324432.49 -30324432.26 0.0506 0.0044

Moon -87737-03-25 03:49 J -30324432.57 -30324432.34 -30324432.11 0.0506 0.0014 \*  
 Venus -87733-06-27 08:08 J -30322877.34 -30322877.16 -30322876.99 0.0493 0.0267  
 Mercury -87733-08-17 21:06 J -30322825.72 -30322825.62 -30322825.50 0.0495 0.0377  
 Mercury -87733-11-16 00:13 J -30322735.66 -30322735.49 -30322735.33 0.0498 0.0126  
 Earth -87731-10-07 22:47 J -30322044.70 -30322044.55 -30322044.38 0.0525 0.0381  
 Moon -87731-10-08 01:54 J -30322044.58 -30322044.42 -30322044.25 0.0525 0.0380 \*  
 Mercury -87727-04-08 19:39 J -30320765.80 -30320765.68 -30320765.57 0.0533 0.0241  
 Mercury -87727-07-07 05:15 J -30320676.40 -30320676.28 -30320676.16 0.0529 0.0218  
 Moon -87725-03-29 07:11 J -30320045.41 -30320045.20 -30320044.99 0.0504 0.0236  
 Earth -87725-03-29 10:18 J -30320045.27 -30320045.07 -30320044.86 0.0504 0.0236 \*  
 Venus -87721-03-02 07:11 J -30318611.40 -30318611.20 -30318611.00 0.0492 0.0150  
 Mercury -87721-09-03 23:15 J -30318425.70 -30318425.53 -30318425.35 0.0497 0.0012  
 Mercury -87721-12-03 00:42 J -30318335.48 -30318335.47 -30318335.44 0.0500 0.0495  
 Venus -87715-01-07 11:59 J -30316474.13 -30316474.00 -30316473.85 0.0534 0.0376  
 Mercury -87715-01-25 22:03 J -30316455.67 -30316455.58 -30316455.48 0.0534 0.0365  
 Mercury -87715-04-25 07:39 J -30316366.31 -30316366.18 -30316366.05 0.0531 0.0093  
 Moon -87713-04-02 21:49 J -30315657.64 -30315657.59 -30315657.53 0.0502 0.0484  
 Mercury -87709-06-22 22:32 J -30314115.73 -30314115.56 -30314115.39 0.0496 0.0121  
 Mercury -87709-09-21 00:13 J -30314025.59 -30314025.49 -30314025.37 0.0499 0.0375  
 Venus -87704-09-12 06:27 J -30312208.42 -30312208.23 -30312208.03 0.0537 0.0135  
 Mercury -87704-11-14 01:39 J -30312145.49 -30312145.43 -30312145.37 0.0535 0.0477  
 Mercury -87703-02-11 11:01 J -30312056.17 -30312056.04 -30312055.91 0.0532 0.0021  
 Mercury -87703-05-11 21:06 J -30311966.69 -30311966.62 -30311966.54 0.0528 0.0442  
 Mars -87701-10-23 16:32 J -30311071.08 -30311070.81 -30311070.54 0.0494 0.0221  
 Mercury -87697-04-10 20:51 J -30309805.78 -30309805.63 -30309805.48 0.0495 0.0249  
 Mercury -87697-07-09 23:15 J -30309715.68 -30309715.53 -30309715.38 0.0498 0.0249  
 Mercury -87692-11-30 14:37 J -30307746.02 -30307745.89 -30307745.76 0.0533 0.0129  
 Mercury -87691-02-28 00:42 J -30307656.58 -30307656.47 -30307656.37 0.0529 0.0333  
 Venus -87686-11-08 19:39 J -30305576.89 -30305576.68 -30305576.48 0.0492 0.0095  
 Mercury -87685-01-28 19:54 J -30305495.78 -30305495.67 -30305495.55 0.0495 0.0372

Mercury -87685-04-27 22:32 J -30305405.72 -30305405.56 -30305405.39 0.0497 0.0130

Mercury -87680-09-18 18:27 J -30303435.85 -30303435.73 -30303435.61 0.0533 0.0238

Mercury -87680-12-17 04:03 J -30303346.45 -30303346.33 -30303346.21 0.0530 0.0222

Venus -87674-07-14 18:27 J -30301310.88 -30301310.73 -30301310.57 0.0491 0.0321

Mercury -87673-02-14 21:49 J -30301095.76 -30301095.59 -30301095.41 0.0497 0.0012

Mercury -87673-05-14 23:30 J -30301005.52 -30301005.52 -30301005.51 0.0500 0.0499

Moon -87672-09-26 22:18 J -30300505.75 -30300505.57 -30300505.38 0.0520 0.0309

Earth -87672-09-26 23:01 J -30300505.72 -30300505.54 -30300505.35 0.0520 0.0316 \*

Venus -87668-05-21 00:42 J -30299173.66 -30299173.47 -30299173.29 0.0535 0.0182

Mercury -87668-07-07 21:49 J -30299125.69 -30299125.59 -30299125.49 0.0534 0.0350

Mercury -87668-10-05 07:11 J -30299036.33 -30299036.20 -30299036.06 0.0530 0.0108

Earth -87666-03-20 21:49 J -30298504.76 -30298504.59 -30298504.43 0.0508 0.0357

Moon -87666-03-21 01:25 J -30298504.61 -30298504.44 -30298504.27 0.0508 0.0345 \*

Mercury -87662-12-03 21:06 J -30296785.78 -30296785.62 -30296785.45 0.0496 0.0116

Mercury -87661-03-02 23:15 J -30296695.64 -30296695.53 -30296695.42 0.0499 0.0380

Earth -87660-10-01 23:15 J -30296117.77 -30296117.53 -30296117.30 0.0522 0.0013

Moon -87660-10-02 01:39 J -30296117.67 -30296117.43 -30296117.18 0.0522 0.0044 \*

Venus -87656-01-23 15:35 J -30294907.99 -30294907.85 -30294907.70 0.0537 0.0351

Mercury -87656-04-26 00:13 J -30294815.54 -30294815.49 -30294815.43 0.0535 0.0475

Mercury -87656-07-24 09:35 J -30294726.23 -30294726.10 -30294725.96 0.0532 0.0023

Mercury -87656-10-21 19:39 J -30294636.75 -30294636.68 -30294636.60 0.0528 0.0444

Moon -87654-03-25 03:35 J -30294117.58 -30294117.35 -30294117.11 0.0507 0.0045

Earth -87654-03-25 06:42 J -30294117.44 -30294117.22 -30294116.99 0.0507 0.0075 \*

Venus -87650-07-17 09:35 J -30292542.25 -30292542.10 -30292541.95 0.0493 0.0347

Mercury -87650-09-21 20:23 J -30292475.81 -30292475.65 -30292475.50 0.0495 0.0238

Mercury -87650-12-20 22:32 J -30292385.70 -30292385.56 -30292385.41 0.0498 0.0260

Moon -87648-10-06 20:37 J -30291729.81 -30291729.64 -30291729.46 0.0524 0.0333

Earth -87648-10-07 00:13 J -30291729.67 -30291729.49 -30291729.31 0.0524 0.0337 \*

Mercury -87644-05-12 12:56 J -30290416.09 -30290415.96 -30290415.83 0.0533 0.0133

Mercury -87644-08-09 23:01 J -30290326.65 -30290326.54 -30290326.44 0.0529 0.0330

Earth -87642-03-29 18:42 J -30289729.93 -30289729.72 -30289729.51 0.0505 0.0212  
 Moon -87642-03-29 20:51 J -30289729.84 -30289729.63 -30289729.43 0.0505 0.0207 \*  
 Venus -87638-03-22 07:25 J -30288276.40 -30288276.19 -30288275.98 0.0491 0.0075  
 Mercury -87638-07-10 18:27 J -30288165.84 -30288165.73 -30288165.60 0.0494 0.0367  
 Mercury -87638-10-08 21:20 J -30288075.78 -30288075.61 -30288075.44 0.0497 0.0134  
 Venus -87632-01-26 13:54 J -30286139.00 -30286138.92 -30286138.82 0.0535 0.0469  
 Mercury -87632-02-28 16:47 J -30286105.92 -30286105.80 -30286105.68 0.0533 0.0240  
 Mercury -87632-05-29 02:37 J -30286016.52 -30286016.39 -30286016.27 0.0530 0.0221  
 Moon -87630-04-03 05:44 J -30285342.34 -30285342.26 -30285342.16 0.0502 0.0460  
 Earth -87630-04-03 06:42 J -30285342.26 -30285342.22 -30285342.17 0.0502 0.0493 \*  
 Venus -87627-11-25 06:56 J -30284010.24 -30284010.21 -30284010.18 0.0490 0.0485  
 Mercury -87626-04-28 17:30 J -30283855.79 -30283855.77 -30283855.75 0.0494 0.0490  
 Mercury -87626-07-27 20:37 J -30283765.81 -30283765.64 -30283765.47 0.0497 0.0012  
 Venus -87621-10-01 09:49 J -30281873.28 -30281873.09 -30281872.89 0.0536 0.0034  
 Mercury -87621-12-17 20:37 J -30281795.74 -30281795.64 -30281795.54 0.0534 0.0347  
 Mercury -87620-03-17 05:59 J -30281706.38 -30281706.25 -30281706.12 0.0531 0.0112  
 Mercury -87614-05-15 19:39 J -30279455.85 -30279455.68 -30279455.51 0.0496 0.0111  
 Mercury -87614-08-13 21:35 J -30279365.70 -30279365.60 -30279365.48 0.0499 0.0385  
 Mars -87611-02-21 20:23 J -30278442.89 -30278442.65 -30278442.41 0.0535 0.0144  
 Mercury -87609-10-05 23:59 J -30277485.56 -30277485.50 -30277485.43 0.0534 0.0458  
 Mercury -87608-01-03 09:20 J -30277396.24 -30277396.11 -30277395.98 0.0531 0.0003  
 Mercury -87608-04-02 19:25 J -30277306.75 -30277306.69 -30277306.62 0.0528 0.0458  
 Venus -87603-11-27 21:20 J -30275241.81 -30275241.61 -30275241.41 0.0493 0.0176  
 Mercury -87602-03-03 18:56 J -30275145.86 -30275145.71 -30275145.55 0.0495 0.0232  
 Mercury -87602-06-01 21:20 J -30275055.75 -30275055.61 -30275055.46 0.0498 0.0267  
 Mercury -87597-10-22 11:44 J -30273086.14 -30273086.01 -30273085.88 0.0532 0.0129  
 Mercury -87596-01-19 21:35 J -30272996.70 -30272996.60 -30272996.49 0.0529 0.0332  
 Venus -87591-08-02 20:37 J -30270975.82 -30270975.64 -30270975.45 0.0491 0.0237  
 Mercury -87591-12-20 17:59 J -30270835.87 -30270835.75 -30270835.62 0.0494 0.0354  
 Mercury -87590-03-20 20:51 J -30270745.80 -30270745.63 -30270745.47 0.0497 0.0146

Earth -87589-09-26 03:06 J -30270190.55 -30270190.37 -30270190.20 0.0519 0.0347  
 Moon -87589-09-26 05:15 J -30270190.46 -30270190.28 -30270190.09 0.0519 0.0332 \*  
 Venus -87585-06-08 22:03 J -30268838.76 -30268838.58 -30268838.41 0.0535 0.0247  
 Mercury -87585-08-10 15:06 J -30268775.99 -30268775.87 -30268775.75 0.0533 0.0243  
 Mercury -87585-11-08 00:42 J -30268686.59 -30268686.47 -30268686.34 0.0530 0.0218  
 Moon -87583-03-20 01:39 J -30268189.59 -30268189.43 -30268189.27 0.0510 0.0367  
 Earth -87583-03-20 04:47 J -30268189.45 -30268189.30 -30268189.15 0.0510 0.0385 \*  
 Mercury -87579-10-08 16:18 J -30266525.85 -30266525.82 -30266525.78 0.0494 0.0483  
 Mercury -87578-01-06 19:25 J -30266435.86 -30266435.69 -30266435.52 0.0496 0.0018  
 Moon -87577-09-30 23:15 J -30265802.77 -30265802.53 -30265802.30 0.0521 0.0009  
 Earth -87577-10-01 02:37 J -30265802.63 -30265802.39 -30265802.16 0.0521 0.0031 \*  
 Venus -87573-02-12 17:30 J -30264572.95 -30264572.77 -30264572.60 0.0538 0.0258  
 Mercury -87573-05-29 18:56 J -30264465.81 -30264465.71 -30264465.61 0.0534 0.0350  
 Mercury -87573-08-27 04:18 J -30264376.45 -30264376.32 -30264376.18 0.0531 0.0110  
 Earth -87571-03-24 18:13 J -30263801.97 -30263801.74 -30263801.52 0.0507 0.0094  
 Moon -87571-03-24 20:08 J -30263801.88 -30263801.66 -30263801.44 0.0507 0.0068 \*  
 Venus -87567-08-05 09:35 J -30262207.20 -30262207.10 -30262206.99 0.0493 0.0422  
 Mercury -87567-10-25 18:27 J -30262125.90 -30262125.73 -30262125.56 0.0496 0.0105  
 Mercury -87566-01-23 20:37 J -30262035.75 -30262035.64 -30262035.54 0.0499 0.0390  
 Earth -87565-10-06 05:44 J -30261414.45 -30261414.26 -30261414.07 0.0524 0.0302  
 Moon -87565-10-06 09:35 J -30261414.30 -30261414.10 -30261413.91 0.0524 0.0289 \*  
 Mercury -87561-03-17 22:47 J -30260155.62 -30260155.55 -30260155.48 0.0535 0.0456  
 Mercury -87561-06-15 08:08 J -30260066.30 -30260066.16 -30260066.03 0.0532 0.0008  
 Mercury -87561-09-12 18:13 J -30259976.80 -30259976.74 -30259976.68 0.0528 0.0462  
 Moon -87559-03-29 04:47 J -30259414.52 -30259414.30 -30259414.07 0.0505 0.0178  
 Earth -87559-03-29 05:30 J -30259414.48 -30259414.27 -30259414.05 0.0505 0.0190 \*  
 Venus -87555-04-10 08:23 J -30257941.36 -30257941.15 -30257940.94 0.0492 0.0006  
 Mercury -87555-08-13 17:30 J -30257815.92 -30257815.77 -30257815.61 0.0495 0.0228  
 Mercury -87555-11-11 19:54 J -30257725.81 -30257725.67 -30257725.52 0.0498 0.0270  
 Mercury -87549-04-03 11:30 J -30255756.15 -30255756.02 -30255755.89 0.0532 0.0113

Mercury -87549-07-01 21:20 J -30255666.71 -30255666.61 -30255666.51 0.0529 0.0348

Moon -87547-04-02 15:06 J -30255026.97 -30255026.87 -30255026.76 0.0503 0.0438

Earth -87547-04-02 16:03 J -30255026.91 -30255026.83 -30255026.75 0.0503 0.0466 \*

Mars -87546-01-18 05:15 J -30254736.59 -30254736.28 -30254735.98 0.0493 0.0060

Venus -87544-12-14 08:37 J -30253675.25 -30253675.14 -30253675.02 0.0490 0.0405

Mercury -87543-06-01 16:47 J -30253505.92 -30253505.80 -30253505.67 0.0495 0.0348

Mercury -87543-08-30 19:39 J -30253415.84 -30253415.68 -30253415.52 0.0497 0.0152

Venus -87538-10-21 07:39 J -30251538.38 -30251538.18 -30251537.98 0.0536 0.0036

Mercury -87537-01-21 13:54 J -30251446.04 -30251445.92 -30251445.80 0.0533 0.0239

Mercury -87537-04-19 23:30 J -30251356.64 -30251356.52 -30251356.39 0.0530 0.0221

Mercury -87531-03-20 15:49 J -30249195.89 -30249195.84 -30249195.79 0.0494 0.0470

Mercury -87531-06-18 18:56 J -30249105.88 -30249105.71 -30249105.54 0.0496 0.0031

Venus -87526-06-26 01:11 J -30247272.53 -30247272.45 -30247272.36 0.0538 0.0482

Mercury -87526-11-09 17:15 J -30247135.88 -30247135.78 -30247135.68 0.0534 0.0352

Mercury -87525-02-07 02:51 J -30247046.52 -30247046.38 -30247046.25 0.0531 0.0107

Venus -87520-12-16 21:35 J -30244906.78 -30244906.60 -30244906.42 0.0492 0.0253

Mercury -87519-04-06 17:30 J -30244795.94 -30244795.77 -30244795.60 0.0496 0.0098

Mercury -87519-07-05 19:25 J -30244705.79 -30244705.69 -30244705.59 0.0498 0.0396

Mercury -87514-08-28 20:51 J -30242825.69 -30242825.63 -30242825.56 0.0535 0.0460

Mercury -87514-11-26 06:27 J -30242736.37 -30242736.23 -30242736.10 0.0532 0.0013

Mercury -87513-02-23 16:32 J -30242646.87 -30242646.81 -30242646.74 0.0529 0.0459

Venus -87508-08-21 20:37 J -30240640.84 -30240640.64 -30240640.44 0.0491 0.0163

Mercury -87507-01-23 16:18 J -30240485.97 -30240485.82 -30240485.66 0.0495 0.0221

Mercury -87507-04-23 18:42 J -30240395.86 -30240395.72 -30240395.58 0.0498 0.0276

Moon -87506-09-26 04:47 J -30239875.46 -30239875.30 -30239875.14 0.0519 0.0367

Earth -87506-09-26 07:39 J -30239875.33 -30239875.18 -30239875.01 0.0519 0.0382 \*

Venus -87502-06-29 01:25 J -30238503.59 -30238503.44 -30238503.30 0.0535 0.0349

Mercury -87502-09-14 10:03 J -30238426.21 -30238426.08 -30238425.95 0.0533 0.0112

Mercury -87502-12-12 19:54 J -30238336.76 -30238336.67 -30238336.56 0.0529 0.0350

Earth -87500-03-19 15:49 J -30237873.97 -30237873.84 -30237873.70 0.0510 0.0405



Moon -87500-03-19 17:44 J -30237873.90 -30237873.76 -30237873.61 0.0510 0.0380 \*  
 Mercury -87496-11-11 15:06 J -30236175.99 -30236175.87 -30236175.74 0.0495 0.0346  
 Mercury -87495-02-09 17:59 J -30236085.91 -30236085.75 -30236085.58 0.0497 0.0155  
 Earth -87494-10-01 11:01 J -30235487.28 -30235487.04 -30235486.81 0.0521 0.0054  
 Moon -87494-10-01 14:51 J -30235487.12 -30235486.88 -30235486.65 0.0521 0.0027 \*  
 Mars -87493-08-13 13:11 J -30235170.14 -30235169.95 -30235169.75 0.0534 0.0335  
 Venus -87490-03-03 19:54 J -30234237.85 -30234237.67 -30234237.48 0.0537 0.0160  
 Mercury -87490-07-03 13:39 J -30234116.05 -30234115.93 -30234115.81 0.0533 0.0223  
 Mercury -87490-09-30 23:15 J -30234026.65 -30234026.53 -30234026.41 0.0530 0.0236  
 Moon -87488-03-24 02:51 J -30233486.61 -30233486.38 -30233486.14 0.0508 0.0097  
 Earth -87488-03-24 03:35 J -30233486.58 -30233486.35 -30233486.13 0.0508 0.0119 \*  
 Mercury -87484-08-30 14:23 J -30231865.95 -30231865.90 -30231865.84 0.0494 0.0466  
 Mercury -87484-11-28 17:44 J -30231775.94 -30231775.76 -30231775.59 0.0497 0.0037  
 Moon -87482-10-06 10:03 J -30231099.29 -30231099.08 -30231098.87 0.0523 0.0256  
 Earth -87482-10-06 13:11 J -30231099.15 -30231098.95 -30231098.75 0.0523 0.0278 \*  
 Mercury -87478-04-21 16:03 J -30229805.93 -30229805.83 -30229805.73 0.0534 0.0348  
 Mercury -87478-07-20 01:25 J -30229716.57 -30229716.44 -30229716.30 0.0531 0.0111  
 Moon -87476-03-28 10:18 J -30229099.28 -30229099.07 -30229098.86 0.0506 0.0142  
 Earth -87476-03-28 11:01 J -30229099.25 -30229099.04 -30229098.82 0.0506 0.0157 \*  
 Venus -87472-04-29 10:47 J -30227606.26 -30227606.05 -30227605.84 0.0492 0.0090  
 Mercury -87472-09-16 16:47 J -30227465.97 -30227465.80 -30227465.62 0.0496 0.0086  
 Mercury -87472-12-15 18:42 J -30227375.81 -30227375.72 -30227375.62 0.0499 0.0409  
 Mercury -87466-02-07 19:25 J -30225495.76 -30225495.69 -30225495.63 0.0535 0.0462  
 Mercury -87466-05-08 04:47 J -30225406.44 -30225406.30 -30225406.17 0.0532 0.0018  
 Mercury -87466-08-05 14:51 J -30225316.95 -30225316.88 -30225316.82 0.0529 0.0456  
 Earth -87464-04-01 21:49 J -30224711.69 -30224711.59 -30224711.46 0.0504 0.0437  
 Moon -87464-04-02 00:42 J -30224711.60 -30224711.47 -30224711.33 0.0504 0.0411 \*  
 Venus -87460-01-02 08:37 J -30223340.29 -30223340.14 -30223339.98 0.0490 0.0329  
 Mercury -87460-07-05 15:06 J -30223156.02 -30223155.87 -30223155.71 0.0495 0.0215  
 Mercury -87460-10-03 17:30 J -30223065.91 -30223065.77 -30223065.63 0.0498 0.0282

Mars -87457-05-17 21:35 J -30222108.77 -30222108.60 -30222108.41 0.0535 0.0373  
 Venus -87455-11-09 08:37 J -30221203.33 -30221203.14 -30221202.95 0.0536 0.0124  
 Mercury -87454-02-24 08:23 J -30221096.28 -30221096.15 -30221096.02 0.0533 0.0116  
 Mercury -87454-05-24 18:13 J -30221006.84 -30221006.74 -30221006.64 0.0530 0.0346  
 Mercury -87448-04-23 13:54 J -30218846.04 -30218845.92 -30218845.79 0.0494 0.0339  
 Mercury -87448-07-22 16:47 J -30218755.97 -30218755.80 -30218755.64 0.0497 0.0160  
 Venus -87443-07-15 04:03 J -30216937.46 -30216937.33 -30216937.19 0.0538 0.0382  
 Mercury -87443-12-13 11:59 J -30216786.12 -30216786.00 -30216785.88 0.0533 0.0224  
 Mercury -87442-03-12 21:49 J -30216696.71 -30216696.59 -30216696.47 0.0530 0.0236  
 Venus -87436-01-04 22:03 J -30214571.73 -30214571.58 -30214571.42 0.0493 0.0329  
 Mercury -87436-02-09 12:42 J -30214536.03 -30214535.97 -30214535.91 0.0494 0.0464  
 Mercury -87436-05-10 15:49 J -30214446.01 -30214445.84 -30214445.66 0.0497 0.0038  
 Mercury -87431-10-01 15:35 J -30212475.95 -30212475.85 -30212475.75 0.0534 0.0334  
 Mercury -87431-12-30 01:11 J -30212386.58 -30212386.45 -30212386.32 0.0531 0.0124  
 Mars -87428-07-07 00:13 J -30211466.62 -30211466.49 -30211466.35 0.0495 0.0442  
 Venus -87425-09-09 22:03 J -30210305.79 -30210305.58 -30210305.38 0.0491 0.0083  
 Mercury -87424-02-26 15:20 J -30210136.03 -30210135.86 -30210135.68 0.0496 0.0082  
 Mercury -87424-05-27 17:15 J -30210045.87 -30210045.78 -30210045.68 0.0499 0.0413  
 Earth -87423-09-25 15:49 J -30209559.99 -30209559.84 -30209559.69 0.0518 0.0401  
 Moon -87423-09-25 19:39 J -30209559.84 -30209559.68 -30209559.52 0.0518 0.0377 \*  
 Venus -87419-07-17 22:47 J -30208168.67 -30208168.55 -30208168.42 0.0535 0.0416  
 Mercury -87419-07-20 18:13 J -30208165.81 -30208165.74 -30208165.67 0.0534 0.0457  
 Mercury -87419-10-18 03:35 J -30208076.49 -30208076.35 -30208076.22 0.0532 0.0017  
 Mercury -87418-01-15 13:25 J -30207987.00 -30207986.94 -30207986.87 0.0528 0.0459  
 Moon -87417-03-18 18:56 J -30207558.84 -30207558.71 -30207558.57 0.0511 0.0414  
 Earth -87417-03-18 19:39 J -30207558.79 -30207558.68 -30207558.57 0.0511 0.0443 \*  
 Mercury -87413-12-15 14:23 J -30205826.05 -30205825.90 -30205825.74 0.0495 0.0204  
 Mercury -87412-03-15 16:47 J -30205735.93 -30205735.80 -30205735.66 0.0498 0.0293  
 Moon -87411-09-30 12:42 J -30205172.20 -30205171.97 -30205171.73 0.0520 0.0064  
 Earth -87411-09-30 16:18 J -30205172.05 -30205171.82 -30205171.59 0.0520 0.0084 \*

Venus -87407-03-22 16:32 J -30203903.00 -30203902.81 -30203902.62 0.0537 0.0098

Mercury -87407-08-06 06:42 J -30203766.35 -30203766.22 -30203766.09 0.0532 0.0119

Mercury -87407-11-03 16:32 J -30203676.91 -30203676.81 -30203676.71 0.0529 0.0342

Moon -87405-03-23 06:27 J -30203171.45 -30203171.23 -30203171.02 0.0509 0.0138

Earth -87405-03-23 07:11 J -30203171.42 -30203171.20 -30203170.98 0.0509 0.0157 \*

Mercury -87401-10-03 12:42 J -30201516.10 -30201515.97 -30201515.84 0.0494 0.0334

Mercury -87400-01-01 15:20 J -30201426.02 -30201425.86 -30201425.69 0.0497 0.0165

Earth -87399-10-05 13:54 J -30200784.13 -30200783.92 -30200783.71 0.0522 0.0230

Moon -87399-10-05 15:49 J -30200784.05 -30200783.84 -30200783.63 0.0522 0.0206 \*

Mercury -87395-05-25 10:03 J -30199456.19 -30199456.08 -30199455.96 0.0534 0.0230

Mercury -87395-08-22 19:54 J -30199366.79 -30199366.67 -30199366.55 0.0530 0.0231

Earth -87393-03-27 20:23 J -30198783.87 -30198783.65 -30198783.42 0.0506 0.0131

Moon -87393-03-27 23:01 J -30198783.77 -30198783.54 -30198783.31 0.0506 0.0108 \*

Mars -87392-04-13 12:13 J -30198402.20 -30198401.99 -30198401.76 0.0493 0.0335

Venus -87389-05-18 09:35 J -30197271.30 -30197271.10 -30197270.90 0.0492 0.0159

Mercury -87389-07-22 11:15 J -30197206.09 -30197206.03 -30197205.96 0.0494 0.0459

Mercury -87389-10-20 14:23 J -30197116.07 -30197115.90 -30197115.72 0.0496 0.0042

Mercury -87383-03-13 13:54 J -30195146.02 -30195145.92 -30195145.81 0.0534 0.0337

Mercury -87383-06-10 23:30 J -30195056.65 -30195056.52 -30195056.39 0.0531 0.0122

Moon -87381-04-01 04:32 J -30194396.45 -30194396.31 -30194396.17 0.0504 0.0391

Earth -87381-04-01 07:54 J -30194396.29 -30194396.17 -30194396.03 0.0504 0.0412 \*

Venus -87377-01-22 08:23 J -30193005.33 -30193005.15 -30193004.97 0.0490 0.0258

Mercury -87377-08-08 13:25 J -30192806.11 -30192805.94 -30192805.77 0.0496 0.0083

Mercury -87377-11-06 15:20 J -30192715.95 -30192715.86 -30192715.76 0.0499 0.0411

Venus -87372-11-28 10:32 J -30190868.24 -30190868.06 -30190867.88 0.0536 0.0217

Mercury -87372-12-30 17:30 J -30190835.84 -30190835.77 -30190835.69 0.0535 0.0446

Mercury -87371-03-30 02:51 J -30190746.51 -30190746.38 -30190746.24 0.0532 0.0012

Mercury -87371-06-27 12:56 J -30190657.02 -30190656.96 -30190656.90 0.0528 0.0471

Mercury -87365-05-27 12:42 J -30188496.12 -30188495.97 -30188495.81 0.0495 0.0203

Mercury -87365-08-25 15:06 J -30188406.00 -30188405.87 -30188405.73 0.0498 0.0295

Venus -87360-08-03 01:54 J -30186602.58 -30186602.42 -30186602.26 0.0537 0.0311  
 Mercury -87359-01-16 05:15 J -30186436.41 -30186436.28 -30186436.15 0.0532 0.0117  
 Mercury -87359-04-15 15:06 J -30186346.97 -30186346.87 -30186346.76 0.0529 0.0344  
 Venus -87353-01-24 23:15 J -30184236.64 -30184236.53 -30184236.41 0.0493 0.0410  
 Mercury -87353-03-15 11:44 J -30184186.14 -30184186.01 -30184185.88 0.0495 0.0325  
 Mercury -87353-06-13 14:37 J -30184096.06 -30184095.89 -30184095.73 0.0497 0.0175  
 Mercury -87348-11-04 08:23 J -30182126.26 -30182126.15 -30182126.03 0.0533 0.0232  
 Mercury -87347-02-01 17:59 J -30182036.87 -30182036.75 -30182036.62 0.0530 0.0228  
 Venus -87342-09-29 20:37 J -30179970.85 -30179970.64 -30179970.43 0.0491 0.0014  
 Mercury -87341-01-02 09:49 J -30179876.16 -30179876.09 -30179876.03 0.0494 0.0456  
 Mercury -87341-04-01 12:56 J -30179786.13 -30179785.96 -30179785.79 0.0496 0.0045  
 Moon -87340-09-24 11:59 J -30179245.13 -30179245.00 -30179244.86 0.0517 0.0424  
 Earth -87340-09-24 15:35 J -30179244.96 -30179244.85 -30179244.72 0.0517 0.0448 \*  
 Mars -87339-11-07 11:01 J -30178836.28 -30178836.04 -30178835.80 0.0533 0.0120  
 Venus -87336-08-05 21:49 J -30177833.65 -30177833.59 -30177833.51 0.0535 0.0494  
 Mercury -87336-08-23 11:59 J -30177816.10 -30177816.00 -30177815.90 0.0534 0.0343  
 Mercury -87336-11-20 21:20 J -30177726.74 -30177726.61 -30177726.47 0.0531 0.0116  
 Moon -87334-03-19 02:23 J -30177243.50 -30177243.40 -30177243.29 0.0512 0.0445  
 Earth -87334-03-19 03:20 J -30177243.44 -30177243.36 -30177243.28 0.0512 0.0474 \*  
 Venus -87330-06-04 19:39 J -30175704.78 -30175704.68 -30175704.57 0.0490 0.0426  
 Mercury -87329-01-19 11:44 J -30175476.18 -30175476.01 -30175475.84 0.0496 0.0080  
 Mercury -87329-04-18 13:39 J -30175386.02 -30175385.93 -30175385.83 0.0498 0.0413  
 Earth -87328-09-29 16:18 J -30174857.05 -30174856.82 -30174856.59 0.0519 0.0133  
 Moon -87328-09-29 18:42 J -30174856.95 -30174856.72 -30174856.50 0.0519 0.0118 \*  
 Venus -87324-04-10 17:44 J -30173567.96 -30173567.76 -30173567.57 0.0537 0.0015  
 Mercury -87324-06-11 15:49 J -30173505.91 -30173505.84 -30173505.77 0.0535 0.0451  
 Mercury -87324-09-09 01:11 J -30173416.59 -30173416.45 -30173416.32 0.0532 0.0014  
 Mercury -87324-12-07 11:15 J -30173327.09 -30173327.03 -30173326.97 0.0529 0.0467  
 Earth -87322-03-23 16:18 J -30172856.03 -30172855.82 -30172855.60 0.0509 0.0183  
 Moon -87322-03-23 18:42 J -30172855.93 -30172855.72 -30172855.49 0.0509 0.0171 \*

Mercury -87318-11-07 10:32 J -30171166.22 -30171166.06 -30171165.90 0.0495 0.0206  
 Mercury -87317-02-05 12:56 J -30171076.10 -30171075.96 -30171075.82 0.0498 0.0291  
 Moon -87316-10-04 18:13 J -30170468.97 -30170468.74 -30170468.51 0.0522 0.0166  
 Earth -87316-10-04 18:42 J -30170468.93 -30170468.72 -30170468.50 0.0522 0.0195 \*  
 Venus -87313-12-14 12:13 J -30169302.03 -30169301.99 -30169301.94 0.0538 0.0520  
 Mercury -87312-06-28 04:32 J -30169106.44 -30169106.31 -30169106.18 0.0533 0.0106  
 Mercury -87312-09-25 14:23 J -30169017.00 -30169016.90 -30169016.80 0.0529 0.0354  
 Moon -87310-03-28 00:27 J -30168468.71 -30168468.48 -30168468.26 0.0507 0.0072  
 Earth -87310-03-28 03:49 J -30168468.56 -30168468.34 -30168468.11 0.0507 0.0101 \*  
 Venus -87306-06-07 09:20 J -30166936.29 -30166936.11 -30166935.92 0.0492 0.0232  
 Mercury -87306-08-26 09:49 J -30166856.22 -30166856.09 -30166855.96 0.0495 0.0326  
 Mercury -87306-11-24 12:42 J -30166766.13 -30166765.97 -30166765.81 0.0497 0.0174  
 Moon -87304-10-09 20:51 J -30166080.68 -30166080.63 -30166080.58 0.0524 0.0510  
 Mercury -87300-04-16 07:11 J -30164796.32 -30164796.20 -30164796.08 0.0533 0.0229  
 Mercury -87300-07-14 16:47 J -30164706.92 -30164706.80 -30164706.68 0.0530 0.0229  
 Earth -87298-04-01 10:03 J -30164081.23 -30164081.08 -30164080.91 0.0505 0.0369  
 Moon -87298-04-01 13:54 J -30164081.07 -30164080.92 -30164080.75 0.0505 0.0355 \*  
 Venus -87294-02-10 08:23 J -30162670.35 -30162670.15 -30162669.96 0.0491 0.0182  
 Mercury -87294-06-14 08:23 J -30162546.21 -30162546.15 -30162546.07 0.0494 0.0450  
 Mercury -87294-09-12 11:44 J -30162456.18 -30162456.01 -30162455.83 0.0497 0.0052  
 Venus -87289-12-17 05:59 J -30160533.42 -30160533.25 -30160533.08 0.0535 0.0273  
 Mercury -87288-02-02 10:18 J -30160486.17 -30160486.07 -30160485.97 0.0534 0.0346  
 Mercury -87288-05-02 19:39 J -30160396.81 -30160396.68 -30160396.55 0.0531 0.0111  
 Mercury -87282-07-01 10:03 J -30158146.25 -30158146.08 -30158145.91 0.0496 0.0079  
 Mercury -87282-09-29 11:59 J -30158056.09 -30158056.00 -30158055.90 0.0498 0.0414  
 Venus -87277-08-21 23:44 J -30156267.68 -30156267.51 -30156267.33 0.0538 0.0242  
 Mercury -87277-11-21 13:39 J -30156175.99 -30156175.93 -30156175.86 0.0535 0.0458  
 Mercury -87276-02-18 23:01 J -30156086.67 -30156086.54 -30156086.41 0.0532 0.0006  
 Mercury -87276-05-19 09:06 J -30155997.19 -30155997.12 -30155997.06 0.0529 0.0459  
 Mars -87274-09-30 18:27 J -30155133.00 -30155132.73 -30155132.45 0.0495 0.0203

Venus -87270-02-12 20:23 J -30153901.71 -30153901.65 -30153901.59 0.0493 0.0470  
 Mercury -87270-04-19 08:37 J -30153836.29 -30153836.14 -30153835.97 0.0495 0.0205  
 Mercury -87270-07-18 11:15 J -30153746.17 -30153746.03 -30153745.89 0.0498 0.0292  
 Mercury -87265-12-08 02:37 J -30151776.52 -30151776.39 -30151776.26 0.0533 0.0113  
 Mercury -87264-03-07 12:27 J -30151687.08 -30151686.98 -30151686.88 0.0530 0.0348  
 Venus -87259-10-18 18:27 J -30149635.94 -30149635.73 -30149635.52 0.0491 0.0050  
 Mercury -87258-02-05 07:11 J -30149526.32 -30149526.20 -30149526.06 0.0494 0.0332  
 Mercury -87258-05-06 10:03 J -30149436.24 -30149436.08 -30149435.91 0.0497 0.0169  
 Earth -87257-09-23 18:13 J -30148929.81 -30148929.74 -30148929.65 0.0517 0.0486  
 Moon -87257-09-23 21:06 J -30148929.72 -30148929.62 -30148929.50 0.0517 0.0457 \*  
 Mercury -87253-09-26 06:13 J -30147466.36 -30147466.24 -30147466.12 0.0533 0.0223  
 Mercury -87253-12-24 15:49 J -30147376.96 -30147376.84 -30147376.72 0.0530 0.0236  
 Earth -87251-03-18 09:49 J -30146928.12 -30146928.09 -30146928.05 0.0512 0.0506  
 Moon -87251-03-18 12:13 J -30146928.07 -30146927.99 -30146927.90 0.0512 0.0473 \*  
 Venus -87247-06-23 18:27 J -30145369.87 -30145369.73 -30145369.59 0.0490 0.0359  
 Mercury -87247-11-24 06:13 J -30145216.30 -30145216.24 -30145216.16 0.0494 0.0453  
 Mercury -87246-02-22 09:35 J -30145126.27 -30145126.10 -30145125.92 0.0497 0.0050  
 Moon -87245-09-28 20:08 J -30144541.89 -30144541.66 -30144541.42 0.0519 0.0153  
 Earth -87245-09-28 21:20 J -30144541.83 -30144541.61 -30144541.38 0.0519 0.0163 \*  
 Venus -87241-04-29 14:51 J -30143233.07 -30143232.88 -30143232.68 0.0536 0.0060  
 Mercury -87241-07-15 08:51 J -30143156.23 -30143156.13 -30143156.03 0.0534 0.0344  
 Mercury -87241-10-12 18:13 J -30143066.87 -30143066.74 -30143066.61 0.0531 0.0112  
 Moon -87239-03-22 13:54 J -30142541.12 -30142540.92 -30142540.71 0.0510 0.0227  
 Earth -87239-03-22 17:15 J -30142540.98 -30142540.78 -30142540.57 0.0510 0.0231 \*  
 Mercury -87235-12-11 08:37 J -30140816.31 -30140816.14 -30140815.97 0.0496 0.0074  
 Mercury -87234-03-11 10:47 J -30140726.14 -30140726.05 -30140725.96 0.0499 0.0420  
 Moon -87233-10-03 21:06 J -30140153.84 -30140153.62 -30140153.40 0.0521 0.0125  
 Earth -87233-10-03 21:49 J -30140153.81 -30140153.59 -30140153.36 0.0521 0.0155 \*  
 Venus -87229-01-03 07:54 J -30138967.27 -30138967.17 -30138967.07 0.0538 0.0463  
 Mercury -87229-05-03 11:59 J -30138846.06 -30138846.00 -30138845.93 0.0534 0.0460

Mercury -87229-07-31 21:20 J -30138756.75 -30138756.61 -30138756.48 0.0532 0.0018

Mercury -87229-10-29 07:11 J -30138667.27 -30138667.20 -30138667.13 0.0528 0.0454

Earth -87227-03-27 03:35 J -30138153.58 -30138153.35 -30138153.12 0.0508 0.0050

Moon -87227-03-27 07:25 J -30138153.42 -30138153.19 -30138152.96 0.0508 0.0019 \*

Venus -87223-06-26 06:27 J -30136601.40 -30136601.23 -30136601.06 0.0492 0.0292

Mercury -87223-09-29 06:42 J -30136506.38 -30136506.22 -30136506.06 0.0495 0.0206

Mercury -87223-12-28 09:20 J -30136416.25 -30136416.11 -30136415.97 0.0498 0.0291

Earth -87221-10-08 18:13 J -30135765.84 -30135765.74 -30135765.63 0.0523 0.0465

Moon -87221-10-08 20:51 J -30135765.74 -30135765.63 -30135765.50 0.0523 0.0453 \*

Mercury -87217-05-20 00:27 J -30134446.61 -30134446.48 -30134446.35 0.0533 0.0122

Mercury -87217-08-17 10:18 J -30134357.17 -30134357.07 -30134356.97 0.0530 0.0339

Moon -87215-03-31 12:27 J -30133766.16 -30133765.98 -30133765.79 0.0506 0.0317

Earth -87215-03-31 16:03 J -30133766.00 -30133765.83 -30133765.66 0.0506 0.0332 \*

Venus -87211-03-01 05:01 J -30132335.49 -30132335.29 -30132335.09 0.0491 0.0125

Mercury -87211-07-18 05:15 J -30132196.40 -30132196.28 -30132196.15 0.0494 0.0332

Mercury -87211-10-16 08:08 J -30132106.32 -30132106.16 -30132105.99 0.0497 0.0167

Venus -87205-01-06 05:01 J -30130198.43 -30130198.29 -30130198.14 0.0536 0.0350

Mercury -87205-03-08 04:03 J -30130136.45 -30130136.33 -30130136.21 0.0534 0.0232

Mercury -87205-06-05 13:39 J -30130047.05 -30130046.93 -30130046.81 0.0531 0.0228

Mercury -87199-05-06 03:35 J -30127886.40 -30127886.35 -30127886.28 0.0494 0.0460

Mercury -87199-08-04 06:56 J -30127796.38 -30127796.21 -30127796.03 0.0496 0.0042

Venus -87194-09-10 23:59 J -30125932.69 -30125932.50 -30125932.31 0.0537 0.0158

Mercury -87194-12-26 07:39 J -30125826.28 -30125826.18 -30125826.08 0.0534 0.0341

Mercury -87193-03-24 17:01 J -30125736.92 -30125736.79 -30125736.66 0.0531 0.0117

Mercury -87187-05-23 06:13 J -30123486.41 -30123486.24 -30123486.06 0.0496 0.0080

Mercury -87187-08-21 08:23 J -30123396.24 -30123396.15 -30123396.05 0.0499 0.0416

Mars -87184-01-31 13:25 J -30122502.19 -30122501.94 -30122501.70 0.0533 0.0107

Mercury -87182-10-14 10:32 J -30121516.12 -30121516.06 -30121515.99 0.0534 0.0459

Mercury -87181-01-11 19:54 J -30121426.81 -30121426.67 -30121426.54 0.0531 0.0017

Mercury -87181-04-10 05:44 J -30121337.33 -30121337.26 -30121337.19 0.0528 0.0454

Venus -87176-11-06 17:01 J -30119300.99 -30119300.79 -30119300.58 0.0492 0.0117  
 Mercury -87175-03-11 05:01 J -30119176.45 -30119176.29 -30119176.13 0.0495 0.0204  
 Mercury -87175-06-09 07:39 J -30119086.32 -30119086.18 -30119086.04 0.0498 0.0294  
 Moon -87174-09-23 19:39 J -30118614.75 -30118614.68 -30118614.60 0.0516 0.0490  
 Mercury -87170-10-30 22:47 J -30117116.68 -30117116.55 -30117116.42 0.0532 0.0124  
 Mercury -87169-01-28 08:37 J -30117027.25 -30117027.14 -30117027.04 0.0529 0.0335  
 Venus -87164-07-12 14:51 J -30115035.04 -30115034.88 -30115034.71 0.0490 0.0303  
 Mercury -87164-12-28 03:20 J -30114866.49 -30114866.36 -30114866.23 0.0494 0.0334  
 Mercury -87163-03-28 06:13 J -30114776.41 -30114776.24 -30114776.08 0.0497 0.0165  
 Earth -87162-09-28 16:47 J -30114227.01 -30114226.80 -30114226.58 0.0518 0.0222  
 Moon -87162-09-28 16:47 J -30114227.01 -30114226.80 -30114226.59 0.0518 0.0214 \*  
 Venus -87158-05-19 11:15 J -30112898.23 -30112898.03 -30112897.84 0.0536 0.0117  
 Mercury -87158-08-19 01:54 J -30112806.54 -30112806.42 -30112806.30 0.0534 0.0241  
 Mercury -87158-11-16 11:30 J -30112717.14 -30112717.02 -30112716.90 0.0531 0.0218  
 Earth -87156-03-21 21:20 J -30112225.80 -30112225.61 -30112225.41 0.0511 0.0271  
 Moon -87156-03-22 00:56 J -30112225.64 -30112225.46 -30112225.26 0.0511 0.0275 \*  
 Mercury -87152-10-16 01:39 J -30110556.49 -30110556.43 -30110556.37 0.0493 0.0461  
 Mercury -87151-01-14 05:01 J -30110466.46 -30110466.29 -30110466.12 0.0496 0.0040  
 Earth -87150-10-03 16:32 J -30109839.04 -30109838.81 -30109838.57 0.0520 0.0093  
 Moon -87150-10-03 18:42 J -30109838.96 -30109838.72 -30109838.48 0.0520 0.0062 \*  
 Venus -87146-01-22 05:44 J -30108632.39 -30108632.26 -30108632.13 0.0538 0.0395  
 Mercury -87146-06-07 05:30 J -30108496.37 -30108496.27 -30108496.17 0.0534 0.0351  
 Mercury -87146-09-04 14:51 J -30108407.01 -30108406.88 -30108406.75 0.0531 0.0107  
 Moon -87144-03-26 06:42 J -30107838.45 -30107838.22 -30107837.98 0.0508 0.0017  
 Earth -87144-03-26 10:03 J -30107838.31 -30107838.08 -30107837.85 0.0508 0.0018 \*  
 Venus -87140-07-15 03:06 J -30106266.51 -30106266.37 -30106266.22 0.0492 0.0350  
 Mercury -87140-11-02 03:35 J -30106156.52 -30106156.35 -30106156.18 0.0495 0.0087  
 Mercury -87139-01-31 05:44 J -30106066.36 -30106066.26 -30106066.16 0.0498 0.0407  
 Moon -87138-10-08 14:37 J -30105451.02 -30105450.89 -30105450.74 0.0523 0.0410  
 Earth -87138-10-08 18:27 J -30105450.87 -30105450.73 -30105450.59 0.0523 0.0416 \*



Mercury -87134-03-26 09:06 J -30104186.18 -30104186.12 -30104186.05 0.0535 0.0460  
 Mercury -87134-06-23 18:27 J -30104096.86 -30104096.73 -30104096.60 0.0532 0.0006  
 Mercury -87134-09-21 04:18 J -30104007.38 -30104007.32 -30104007.25 0.0529 0.0457  
 Earth -87132-03-30 21:20 J -30103450.79 -30103450.61 -30103450.42 0.0506 0.0295  
 Moon -87132-03-30 23:44 J -30103450.69 -30103450.51 -30103450.32 0.0506 0.0289 \*  
 Venus -87128-03-20 02:37 J -30102000.60 -30102000.39 -30102000.19 0.0491 0.0065  
 Mercury -87128-08-21 02:37 J -30101846.54 -30101846.39 -30101846.23 0.0495 0.0209  
 Mercury -87128-11-19 05:15 J -30101756.42 -30101756.28 -30101756.14 0.0498 0.0289  
 Venus -87122-01-25 02:37 J -30099863.51 -30099863.39 -30099863.27 0.0535 0.0417  
 Mercury -87122-04-11 21:20 J -30099786.74 -30099786.61 -30099786.48 0.0532 0.0124  
 Mercury -87122-07-10 06:56 J -30099697.31 -30099697.21 -30099697.10 0.0529 0.0335  
 Mars -87120-12-23 22:03 J -30098799.88 -30098799.58 -30098799.27 0.0495 0.0008  
 Venus -87117-11-23 01:11 J -30097734.48 -30097734.45 -30097734.40 0.0490 0.0478  
 Mercury -87116-06-09 01:11 J -30097536.57 -30097536.45 -30097536.31 0.0495 0.0335  
 Mercury -87116-09-07 04:18 J -30097446.48 -30097446.32 -30097446.15 0.0497 0.0167  
 Venus -87111-09-29 19:39 J -30095597.87 -30095597.68 -30095597.48 0.0537 0.0101  
 Mercury -87110-01-29 00:27 J -30095476.60 -30095476.48 -30095476.37 0.0533 0.0242  
 Mercury -87110-04-28 09:49 J -30095387.21 -30095387.09 -30095386.97 0.0530 0.0216  
 Mercury -87104-03-27 23:30 J -30093226.58 -30093226.52 -30093226.46 0.0494 0.0465  
 Mercury -87104-06-26 02:51 J -30093136.56 -30093136.38 -30093136.21 0.0496 0.0037  
 Mercury -87099-11-17 03:20 J -30091166.45 -30091166.36 -30091166.26 0.0534 0.0360  
 Mercury -87098-02-14 12:42 J -30091077.10 -30091076.97 -30091076.84 0.0531 0.0097  
 Venus -87093-11-25 13:11 J -30088966.14 -30088965.95 -30088965.75 0.0492 0.0172  
 Mercury -87092-04-14 01:39 J -30088826.61 -30088826.43 -30088826.26 0.0495 0.0090  
 Mercury -87092-07-13 03:49 J -30088736.44 -30088736.34 -30088736.25 0.0498 0.0404  
 Mercury -87087-09-05 06:56 J -30086856.27 -30086856.21 -30086856.15 0.0535 0.0470  
 Mercury -87087-12-03 16:18 J -30086766.96 -30086766.82 -30086766.69 0.0532 0.0023  
 Mercury -87086-03-03 02:08 J -30086677.48 -30086677.41 -30086677.34 0.0529 0.0447  
 Venus -87081-07-31 11:30 J -30084700.20 -30084700.02 -30084699.84 0.0490 0.0247  
 Mercury -87080-01-30 23:59 J -30084516.66 -30084516.50 -30084516.34 0.0495 0.0217

Mercury -87080-05-01 02:37 J -30084426.53 -30084426.39 -30084426.25 0.0497 0.0280  
 Earth -87079-09-27 16:03 J -30083912.03 -30083911.83 -30083911.63 0.0518 0.0270  
 Moon -87079-09-27 17:15 J -30083911.99 -30083911.78 -30083911.56 0.0518 0.0264 \*  
 Venus -87075-06-07 10:47 J -30082563.24 -30082563.05 -30082562.87 0.0536 0.0196  
 Mercury -87075-09-21 19:39 J -30082456.80 -30082456.68 -30082456.55 0.0533 0.0126  
 Mercury -87075-12-20 05:30 J -30082367.37 -30082367.27 -30082367.16 0.0530 0.0335  
 Moon -87073-03-20 23:44 J -30081910.69 -30081910.51 -30081910.33 0.0511 0.0315  
 Earth -87073-03-21 03:06 J -30081910.55 -30081910.37 -30081910.19 0.0511 0.0306 \*  
 Mercury -87069-11-18 23:01 J -30080206.67 -30080206.54 -30080206.41 0.0494 0.0339  
 Mercury -87068-02-17 01:54 J -30080116.58 -30080116.42 -30080116.25 0.0497 0.0161  
 Moon -87067-10-02 16:03 J -30079524.07 -30079523.83 -30079523.60 0.0520 0.0022  
 Earth -87067-10-02 19:11 J -30079523.94 -30079523.70 -30079523.47 0.0520 0.0053 \*  
 Mars -87066-07-23 17:44 J -30079229.91 -30079229.76 -30079229.60 0.0532 0.0416  
 Venus -87063-02-10 04:03 J -30078297.49 -30078297.33 -30078297.17 0.0538 0.0322  
 Mercury -87063-07-10 22:47 J -30078146.66 -30078146.55 -30078146.43 0.0533 0.0242  
 Mercury -87063-10-08 08:23 J -30078057.27 -30078057.15 -30078057.03 0.0530 0.0216  
 Earth -87061-03-25 11:15 J -30077523.26 -30077523.03 -30077522.80 0.0508 0.0032  
 Moon -87061-03-25 13:39 J -30077523.15 -30077522.93 -30077522.70 0.0508 0.0064 \*  
 Venus -87057-08-03 00:56 J -30075931.57 -30075931.46 -30075931.35 0.0493 0.0413  
 Mercury -87057-09-06 21:20 J -30075896.66 -30075896.61 -30075896.55 0.0494 0.0466  
 Mercury -87057-12-06 00:56 J -30075806.63 -30075806.46 -30075806.29 0.0496 0.0037  
 Earth -87055-10-07 20:23 J -30075135.82 -30075135.65 -30075135.49 0.0522 0.0371  
 Moon -87055-10-07 23:59 J -30075135.65 -30075135.50 -30075135.33 0.0522 0.0376 \*  
 Mercury -87051-04-29 01:54 J -30073836.51 -30073836.42 -30073836.32 0.0534 0.0358  
 Mercury -87051-07-27 11:15 J -30073747.16 -30073747.03 -30073746.90 0.0531 0.0098  
 Moon -87049-03-29 19:39 J -30073135.88 -30073135.68 -30073135.46 0.0506 0.0238  
 Earth -87049-03-29 21:06 J -30073135.82 -30073135.62 -30073135.41 0.0506 0.0244 \*  
 Venus -87045-04-07 23:01 J -30071665.75 -30071665.54 -30071665.33 0.0491 0.0010  
 Mercury -87045-09-23 23:15 J -30071496.70 -30071496.53 -30071496.35 0.0495 0.0093  
 Mercury -87045-12-23 01:39 J -30071406.53 -30071406.43 -30071406.33 0.0498 0.0401

Venus -87039-02-12 21:49 J -30069528.68 -30069528.59 -30069528.50 0.0535 0.0469

Mercury -87039-02-15 05:01 J -30069526.35 -30069526.29 -30069526.24 0.0535 0.0478

Mercury -87039-05-15 14:08 J -30069437.04 -30069436.91 -30069436.78 0.0532 0.0024

Mercury -87039-08-12 23:59 J -30069347.57 -30069347.50 -30069347.42 0.0529 0.0438

Venus -87034-12-12 22:03 J -30067399.68 -30067399.58 -30067399.47 0.0489 0.0421

Mercury -87033-07-12 22:03 J -30067186.74 -30067186.58 -30067186.42 0.0495 0.0218

Mercury -87033-10-11 00:42 J -30067096.61 -30067096.47 -30067096.33 0.0497 0.0279

Mars -87030-04-26 18:42 J -30066168.93 -30066168.72 -30066168.50 0.0533 0.0258

Venus -87028-10-18 16:32 J -30065263.01 -30065262.81 -30065262.62 0.0537 0.0042

Mercury -87027-03-03 17:30 J -30065126.89 -30065126.77 -30065126.64 0.0533 0.0136

Mercury -87027-06-01 03:20 J -30065037.46 -30065037.36 -30065037.25 0.0530 0.0325

Mercury -87021-04-30 20:23 J -30062876.77 -30062876.65 -30062876.52 0.0494 0.0346

Mercury -87021-07-29 23:15 J -30062786.69 -30062786.53 -30062786.36 0.0497 0.0154

Mercury -87016-12-20 21:06 J -30060816.73 -30060816.62 -30060816.50 0.0534 0.0245

Mercury -87015-03-20 06:42 J -30060727.34 -30060727.22 -30060727.09 0.0531 0.0215

Venus -87010-12-15 10:32 J -30058631.24 -30058631.06 -30058630.87 0.0492 0.0231

Mercury -87009-02-17 19:11 J -30058566.75 -30058566.70 -30058566.65 0.0494 0.0470

Mercury -87009-05-17 22:32 J -30058476.73 -30058476.56 -30058476.38 0.0496 0.0034

Mercury -87004-10-09 00:27 J -30056506.57 -30056506.48 -30056506.38 0.0534 0.0358

Mercury -87003-01-06 09:49 J -30056417.22 -30056417.09 -30056416.96 0.0531 0.0098

# 87TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 87th millennium BCE.**

PLANET	MAX- TRANSIT	C	START	MAX	END	SUNRAD	DEPTH	S
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TIME

Venus -86998-08-20 09:06 J -30054365.31 -30054365.12 -30054364.92 0.0491 0.0186

Mercury -86997-03-05 21:35 J -30054166.78 -30054166.60 -30054166.43 0.0496 0.0093

Mercury -86997-06-03 23:44 J -30054076.61 -30054076.51 -30054076.41 0.0499 0.0403

Moon -86996-09-26 16:18 J -30053597.00 -30053596.82 -30053596.64 0.0517 0.0310

Earth -86996-09-26 18:42 J -30053596.90 -30053596.72 -30053596.52 0.0517 0.0309 \*

Venus -86992-06-26 07:39 J -30052228.35 -30052228.18 -30052228.01 0.0536 0.0259

Mercury -86992-07-28 03:49 J -30052196.40 -30052196.34 -30052196.28 0.0535 0.0472

Mercury -86992-10-25 12:56 J -30052107.10 -30052106.96 -30052106.83 0.0532 0.0021

Mercury -86991-01-22 22:47 J -30052017.62 -30052017.55 -30052017.48 0.0529 0.0440

Earth -86990-03-21 03:35 J -30051595.51 -30051595.35 -30051595.18 0.0511 0.0356

Moon -86990-03-21 05:59 J -30051595.40 -30051595.25 -30051595.09 0.0511 0.0370 \*

Mercury -86986-12-23 19:54 J -30049856.82 -30049856.67 -30049856.51 0.0495 0.0221

Mercury -86985-03-22 22:32 J -30049766.70 -30049766.56 -30049766.41 0.0497 0.0277

Earth -86984-10-01 15:20 J -30049209.09 -30049208.86 -30049208.62 0.0519 0.0008

Moon -86984-10-01 19:11 J -30049208.94 -30049208.70 -30049208.46 0.0519 0.0034 \*

Venus -86980-02-28 23:01 J -30047962.71 -30047962.54 -30047962.37 0.0538 0.0272

Mercury -86980-08-13 15:35 J -30047796.98 -30047796.85 -30047796.72 0.0533 0.0142

Mercury -86980-11-11 01:25 J -30047707.55 -30047707.44 -30047707.34 0.0530 0.0318

Moon -86978-03-25 13:39 J -30047208.17 -30047207.93 -30047207.70 0.0510 0.0102

Earth -86978-03-25 14:51 J -30047208.10 -30047207.88 -30047207.65 0.0510 0.0071 \*

Venus -86974-08-22 22:03 J -30045596.63 -30045596.58 -30045596.51 0.0493 0.0470

Mercury -86974-10-11 18:27 J -30045546.85 -30045546.73 -30045546.60 0.0494 0.0346

Mercury -86973-01-09 21:35 J -30045456.76 -30045456.60 -30045456.43 0.0496 0.0153

Moon -86972-10-06 11:30 J -30044821.21 -30044821.02 -30044820.83 0.0521 0.0313

Earth -86972-10-06 15:06 J -30044821.05 -30044820.87 -30044820.68 0.0521 0.0311 \*

Mercury -86968-06-01 19:11 J -30043486.82 -30043486.70 -30043486.59 0.0534 0.0254

Mercury -86968-08-30 04:32 J -30043397.43 -30043397.31 -30043397.18 0.0531 0.0206

Moon -86966-03-30 02:51 J -30042820.58 -30042820.38 -30042820.18 0.0507 0.0217

Earth -86966-03-30 03:35 J -30042820.56 -30042820.35 -30042820.14 0.0507 0.0212 \*

Mars -86965-03-18 14:51 J -30042466.15 -30042465.88 -30042465.60 0.0495 0.0225  
 Venus -86962-04-27 20:08 J -30041330.86 -30041330.66 -30041330.45 0.0491 0.0051  
 Mercury -86962-07-30 16:47 J -30041236.84 -30041236.80 -30041236.75 0.0493 0.0474  
 Mercury -86962-10-28 20:08 J -30041146.83 -30041146.66 -30041146.48 0.0496 0.0029  
 Mercury -86956-03-20 22:47 J -30039176.64 -30039176.55 -30039176.45 0.0535 0.0362  
 Mercury -86956-06-18 08:08 J -30039087.29 -30039087.16 -30039087.03 0.0532 0.0096  
 Earth -86954-04-03 15:06 J -30038432.92 -30038432.87 -30038432.81 0.0505 0.0488  
 Venus -86951-12-31 19:39 J -30037064.82 -30037064.68 -30037064.54 0.0490 0.0361  
 Mercury -86950-08-16 19:25 J -30036836.87 -30036836.69 -30036836.52 0.0495 0.0096  
 Mercury -86950-11-14 21:35 J -30036746.70 -30036746.60 -30036746.50 0.0498 0.0399  
 Venus -86945-11-06 16:18 J -30034928.01 -30034927.82 -30034927.62 0.0537 0.0043  
 Mercury -86944-01-07 02:23 J -30034866.46 -30034866.40 -30034866.34 0.0535 0.0472  
 Mercury -86944-04-06 11:30 J -30034777.15 -30034777.02 -30034776.89 0.0532 0.0019  
 Mercury -86944-07-04 21:20 J -30034687.68 -30034687.61 -30034687.54 0.0529 0.0441  
 Mercury -86938-06-04 17:59 J -30032526.90 -30032526.75 -30032526.59 0.0495 0.0221  
 Mercury -86938-09-02 20:51 J -30032436.77 -30032436.63 -30032436.49 0.0498 0.0278  
 Venus -86933-07-12 09:35 J -30030662.19 -30030662.10 -30030662.02 0.0538 0.0480  
 Mercury -86932-01-23 14:37 J -30030467.02 -30030466.89 -30030466.76 0.0533 0.0135  
 Mercury -86932-04-23 00:13 J -30030377.59 -30030377.49 -30030377.38 0.0530 0.0324  
 Venus -86926-01-03 08:23 J -30028296.31 -30028296.15 -30028295.98 0.0492 0.0292  
 Mercury -86926-03-23 16:32 J -30028216.93 -30028216.81 -30028216.68 0.0494 0.0347  
 Mercury -86926-06-21 19:39 J -30028126.84 -30028126.68 -30028126.51 0.0497 0.0153  
 Mercury -86921-11-11 17:15 J -30026156.89 -30026156.78 -30026156.66 0.0534 0.0258  
 Mercury -86920-02-09 02:51 J -30026067.51 -30026067.38 -30026067.26 0.0531 0.0200  
 Venus -86915-09-08 07:39 J -30024030.39 -30024030.18 -30024029.98 0.0490 0.0122  
 Mercury -86914-01-09 15:20 J -30023906.91 -30023906.86 -30023906.81 0.0493 0.0471  
 Mercury -86914-04-09 18:42 J -30023816.89 -30023816.72 -30023816.54 0.0496 0.0030  
 Earth -86913-09-25 16:03 J -30023282.00 -30023281.83 -30023281.66 0.0516 0.0357  
 Moon -86913-09-25 19:25 J -30023281.85 -30023281.69 -30023281.51 0.0516 0.0364 \*  
 Mars -86912-10-16 02:23 J -30022896.62 -30022896.40 -30022896.18 0.0531 0.0251

Venus -86909-07-15 04:03 J -30021893.48 -30021893.33 -30021893.17 0.0536 0.0319  
 Mercury -86909-08-30 20:51 J -30021846.73 -30021846.63 -30021846.54 0.0535 0.0370  
 Mercury -86909-11-28 06:13 J -30021757.37 -30021757.24 -30021757.11 0.0532 0.0088  
 Moon -86907-03-20 08:08 J -30021280.30 -30021280.16 -30021280.01 0.0513 0.0402  
 Earth -86907-03-20 09:35 J -30021280.25 -30021280.10 -30021279.95 0.0513 0.0387 \*  
 Mercury -86902-01-26 17:15 J -30019506.95 -30019506.78 -30019506.61 0.0495 0.0098  
 Mercury -86902-04-26 19:25 J -30019416.79 -30019416.69 -30019416.58 0.0498 0.0395  
 Moon -86901-09-30 11:44 J -30018894.25 -30018894.01 -30018893.77 0.0518 0.0081  
 Earth -86901-09-30 15:35 J -30018894.09 -30018893.85 -30018893.61 0.0518 0.0049 \*  
 Venus -86897-03-19 23:15 J -30017627.71 -30017627.53 -30017627.34 0.0538 0.0188  
 Mercury -86897-06-19 00:42 J -30017536.53 -30017536.47 -30017536.41 0.0536 0.0477  
 Mercury -86897-09-16 09:49 J -30017447.22 -30017447.09 -30017446.96 0.0533 0.0022  
 Mercury -86897-12-14 19:39 J -30017357.75 -30017357.68 -30017357.60 0.0529 0.0440  
 Moon -86895-03-24 22:32 J -30016892.78 -30016892.56 -30016892.35 0.0510 0.0126  
 Earth -86895-03-24 22:47 J -30016892.77 -30016892.55 -30016892.32 0.0510 0.0100 \*  
 Mercury -86891-11-14 16:18 J -30015196.98 -30015196.82 -30015196.67 0.0495 0.0221  
 Mercury -86890-02-12 18:56 J -30015106.85 -30015106.71 -30015106.57 0.0497 0.0276  
 Earth -86889-10-05 18:27 J -30014505.93 -30014505.73 -30014505.53 0.0521 0.0272  
 Moon -86889-10-05 21:06 J -30014505.81 -30014505.62 -30014505.42 0.0521 0.0283 \*  
 Mercury -86885-07-05 13:11 J -30013137.07 -30013136.95 -30013136.82 0.0533 0.0135  
 Mercury -86885-10-02 23:01 J -30013047.65 -30013047.54 -30013047.44 0.0530 0.0326  
 Earth -86883-03-29 09:06 J -30012505.34 -30012505.12 -30012504.91 0.0508 0.0176  
 Moon -86883-03-29 11:30 J -30012505.24 -30012505.02 -30012504.80 0.0508 0.0190 \*  
 Venus -86879-05-16 18:56 J -30010995.91 -30010995.71 -30010995.50 0.0491 0.0117  
 Mercury -86879-09-02 14:51 J -30010887.00 -30010886.88 -30010886.75 0.0494 0.0346  
 Mercury -86879-12-01 17:59 J -30010796.91 -30010796.75 -30010796.58 0.0497 0.0155  
 Mars -86876-07-20 21:20 J -30009834.71 -30009834.61 -30009834.50 0.0534 0.0483  
 Mercury -86873-04-23 16:32 J -30008826.93 -30008826.81 -30008826.69 0.0534 0.0248  
 Mercury -86873-07-22 01:54 J -30008737.54 -30008737.42 -30008737.29 0.0530 0.0210  
 Moon -86871-04-02 15:35 J -30008117.91 -30008117.85 -30008117.77 0.0505 0.0478

Earth -86871-04-02 19:11 J -30008117.80 -30008117.70 -30008117.59 0.0505 0.0448 \*  
 Venus -86867-01-19 18:27 J -30006729.90 -30006729.73 -30006729.56 0.0490 0.0296  
 Mercury -86867-06-21 13:25 J -30006576.98 -30006576.94 -30006576.88 0.0493 0.0471  
 Mercury -86867-09-19 17:01 J -30006486.96 -30006486.79 -30006486.61 0.0496 0.0030  
 Venus -86862-11-26 12:13 J -30004593.18 -30004592.99 -30004592.80 0.0537 0.0096  
 Mercury -86861-02-10 19:11 J -30004516.79 -30004516.70 -30004516.61 0.0535 0.0372  
 Mercury -86861-05-10 04:32 J -30004427.44 -30004427.31 -30004427.18 0.0532 0.0085  
 Mercury -86855-07-08 16:03 J -30002177.00 -30002176.83 -30002176.66 0.0495 0.0092  
 Mercury -86855-10-06 18:13 J -30002086.84 -30002086.74 -30002086.63 0.0498 0.0401  
 Venus -86850-08-01 05:44 J -30000327.37 -30000327.26 -30000327.13 0.0539 0.0422  
 Mercury -86850-11-29 22:47 J -30000206.61 -30000206.55 -30000206.50 0.0536 0.0484  
 Mercury -86849-02-27 07:54 J -30000117.30 -30000117.17 -30000117.04 0.0533 0.0030  
 Mercury -86849-05-26 17:44 J -30000027.83 -30000027.76 -30000027.68 0.0530 0.0433  
 Mars -86847-09-04 20:37 J -29999196.87 -29999196.64 -29999196.40 0.0497 0.0314  
 Venus -86843-01-22 06:56 J -29997961.35 -29997961.21 -29997961.06 0.0492 0.0359  
 Mercury -86843-04-26 14:23 J -29997867.06 -29997866.90 -29997866.74 0.0494 0.0220  
 Mercury -86843-07-25 17:01 J -29997776.93 -29997776.79 -29997776.64 0.0497 0.0276  
 Mercury -86838-12-16 11:30 J -29995807.14 -29995807.02 -29995806.89 0.0534 0.0138  
 Mercury -86837-03-14 21:20 J -29995717.72 -29995717.61 -29995717.50 0.0530 0.0324  
 Venus -86832-09-27 06:13 J -29993695.45 -29993695.24 -29993695.03 0.0490 0.0055  
 Mercury -86831-02-12 13:11 J -29993557.07 -29993556.95 -29993556.82 0.0494 0.0344  
 Mercury -86831-05-13 16:18 J -29993466.98 -29993466.82 -29993466.65 0.0496 0.0156  
 Moon -86830-09-25 15:49 J -29992966.97 -29992966.84 -29992966.68 0.0516 0.0407  
 Earth -86830-09-25 19:54 J -29992966.82 -29992966.67 -29992966.51 0.0516 0.0391 \*  
 Venus -86826-08-04 05:59 J -29991558.38 -29991558.25 -29991558.13 0.0536 0.0411  
 Mercury -86826-10-04 15:20 J -29991496.98 -29991496.86 -29991496.75 0.0534 0.0247  
 Mercury -86825-01-02 00:42 J -29991407.59 -29991407.47 -29991407.35 0.0531 0.0212  
 Earth -86824-03-19 17:01 J -29990964.92 -29990964.79 -29990964.65 0.0513 0.0416  
 Moon -86824-03-19 16:47 J -29990964.91 -29990964.80 -29990964.69 0.0513 0.0437 \*  
 Venus -86820-06-02 05:30 J -29989429.33 -29989429.27 -29989429.21 0.0489 0.0466

Mercury -86820-12-01 11:59 J -29989247.05 -29989247.00 -29989246.95 0.0493 0.0469

Mercury -86819-03-01 15:20 J -29989157.03 -29989156.86 -29989156.68 0.0496 0.0035

Earth -86818-09-30 21:35 J -29988578.83 -29988578.60 -29988578.36 0.0518 0.0078

Moon -86818-10-01 00:42 J -29988578.70 -29988578.47 -29988578.24 0.0518 0.0107 \*

Venus -86814-04-08 23:44 J -29987292.70 -29987292.51 -29987292.31 0.0538 0.0104

Mercury -86814-07-23 18:42 J -29987186.82 -29987186.72 -29987186.63 0.0534 0.0359

Mercury -86814-10-21 03:49 J -29987097.47 -29987097.34 -29987097.21 0.0531 0.0097

Earth -86812-03-24 04:47 J -29986577.52 -29986577.30 -29986577.08 0.0510 0.0134

Moon -86812-03-24 06:56 J -29986577.43 -29986577.21 -29986576.98 0.0510 0.0154 \*

Mars -86811-06-12 11:44 J -29986132.10 -29986132.01 -29986131.89 0.0495 0.0464

Mercury -86808-12-18 14:37 J -29984847.07 -29984846.89 -29984846.72 0.0495 0.0090

Mercury -86807-03-18 16:47 J -29984756.89 -29984756.80 -29984756.70 0.0498 0.0404

Moon -86806-10-05 18:42 J -29984190.93 -29984190.72 -29984190.50 0.0520 0.0245

Earth -86806-10-05 20:37 J -29984190.85 -29984190.64 -29984190.43 0.0520 0.0235 \*

Mercury -86802-05-11 21:20 J -29982876.67 -29982876.61 -29982876.56 0.0536 0.0483

Mercury -86802-08-09 06:27 J -29982787.37 -29982787.23 -29982787.10 0.0533 0.0031

Mercury -86802-11-06 16:18 J -29982697.90 -29982697.82 -29982697.74 0.0530 0.0432

Moon -86800-03-28 11:01 J -29982190.25 -29982190.04 -29982189.82 0.0509 0.0165

Earth -86800-03-28 14:37 J -29982190.11 -29982189.89 -29982189.67 0.0509 0.0144 \*

Venus -86796-06-04 19:39 J -29980660.88 -29980660.68 -29980660.49 0.0491 0.0192

Mercury -86796-10-06 13:25 J -29980537.10 -29980536.94 -29980536.78 0.0494 0.0212

Mercury -86795-01-04 16:03 J -29980446.97 -29980446.83 -29980446.68 0.0497 0.0284

Mercury -86790-05-28 09:49 J -29978477.22 -29978477.09 -29978476.96 0.0534 0.0142

Mercury -86790-08-25 19:25 J -29978387.79 -29978387.69 -29978387.58 0.0531 0.0318

Earth -86788-04-02 02:51 J -29977802.50 -29977802.38 -29977802.25 0.0507 0.0424

Moon -86788-04-02 06:56 J -29977802.31 -29977802.21 -29977802.11 0.0507 0.0453 \*

Venus -86784-02-07 17:59 J -29976394.94 -29976394.75 -29976394.57 0.0490 0.0224

Mercury -86784-07-25 11:44 J -29976227.13 -29976227.01 -29976226.88 0.0494 0.0340

Mercury -86784-10-23 14:51 J -29976137.04 -29976136.88 -29976136.72 0.0496 0.0158

Venus -86779-12-15 13:25 J -29974258.12 -29974257.94 -29974257.75 0.0537 0.0187



Mercury -86778-03-16 13:39 J -29974167.05 -29974166.93 -29974166.82 0.0534 0.0250  
 Mercury -86778-06-13 23:01 J -29974077.66 -29974077.54 -29974077.41 0.0531 0.0210  
 Mercury -86772-05-13 10:32 J -29971917.12 -29971917.06 -29971917.00 0.0493 0.0463  
 Mercury -86772-08-11 14:08 J -29971827.09 -29971826.91 -29971826.74 0.0496 0.0039  
 Venus -86767-08-20 08:37 J -29969992.30 -29969992.14 -29969991.98 0.0539 0.0322  
 Mercury -86766-01-02 17:15 J -29969856.87 -29969856.78 -29969856.68 0.0535 0.0358  
 Mercury -86766-04-02 02:37 J -29969767.52 -29969767.39 -29969767.26 0.0532 0.0100  
 Venus -86760-02-10 07:11 J -29967626.29 -29967626.20 -29967626.10 0.0492 0.0433  
 Mercury -86760-05-30 12:56 J -29967517.13 -29967516.96 -29967516.78 0.0495 0.0087  
 Mercury -86760-08-28 15:20 J -29967426.95 -29967426.86 -29967426.76 0.0498 0.0408  
 Mars -86757-01-10 10:18 J -29966562.32 -29966562.07 -29966561.82 0.0532 0.0006  
 Mercury -86755-10-21 20:51 J -29965546.69 -29965546.63 -29965546.57 0.0535 0.0469  
 Mercury -86754-01-19 05:59 J -29965457.38 -29965457.25 -29965457.12 0.0532 0.0015  
 Mercury -86754-04-18 15:49 J -29965367.91 -29965367.84 -29965367.77 0.0529 0.0445  
 Venus -86749-10-16 06:56 J -29963360.42 -29963360.21 -29963360.00 0.0491 0.0022  
 Mercury -86748-03-18 11:59 J -29963207.15 -29963207.00 -29963206.83 0.0494 0.0209  
 Mercury -86748-06-16 14:51 J -29963117.02 -29963116.88 -29963116.74 0.0497 0.0288  
 Earth -86747-09-25 00:56 J -29962651.59 -29962651.46 -29962651.32 0.0515 0.0415  
 Moon -86747-09-25 04:18 J -29962651.44 -29962651.32 -29962651.19 0.0515 0.0438 \*  
 Venus -86743-08-23 02:51 J -29961223.47 -29961223.38 -29961223.29 0.0536 0.0474  
 Mercury -86743-11-07 08:23 J -29961147.27 -29961147.15 -29961147.02 0.0533 0.0141  
 Mercury -86742-02-04 18:13 J -29961057.85 -29961057.74 -29961057.64 0.0530 0.0319  
 Earth -86741-03-18 21:49 J -29960649.70 -29960649.59 -29960649.48 0.0514 0.0449  
 Moon -86741-03-18 23:44 J -29960649.59 -29960649.51 -29960649.41 0.0514 0.0473 \*  
 Venus -86737-06-21 07:11 J -29959094.33 -29959094.20 -29959094.07 0.0489 0.0385  
 Mercury -86736-01-04 11:01 J -29958897.17 -29958897.04 -29958896.91 0.0494 0.0330  
 Mercury -86736-04-04 14:08 J -29958807.07 -29958806.91 -29958806.75 0.0496 0.0168  
 Moon -86735-09-29 22:18 J -29958263.80 -29958263.57 -29958263.33 0.0517 0.0139  
 Earth -86735-09-30 00:42 J -29958263.70 -29958263.47 -29958263.24 0.0517 0.0110 \*  
 Venus -86731-04-27 20:51 J -29956957.82 -29956957.63 -29956957.43 0.0538 0.0041

Mercury -86731-08-26 11:44 J -29956837.12 -29956837.01 -29956836.89 0.0534 0.0254

Mercury -86731-11-23 21:20 J -29956747.73 -29956747.61 -29956747.49 0.0531 0.0205

Moon -86729-03-23 07:54 J -29956262.37 -29956262.17 -29956261.95 0.0512 0.0179

Earth -86729-03-23 11:30 J -29956262.24 -29956262.02 -29956261.80 0.0512 0.0162 \*

Mercury -86725-10-23 09:20 J -29954587.17 -29954587.11 -29954587.05 0.0493 0.0458

Mercury -86724-01-21 12:42 J -29954497.14 -29954496.97 -29954496.79 0.0495 0.0042

Earth -86723-10-04 23:30 J -29953875.74 -29953875.52 -29953875.30 0.0519 0.0196

Moon -86723-10-04 23:44 J -29953875.72 -29953875.51 -29953875.30 0.0519 0.0212 \*

Mercury -86719-06-14 15:35 J -29952526.94 -29952526.85 -29952526.75 0.0535 0.0361

Mercury -86719-09-12 00:56 J -29952437.59 -29952437.46 -29952437.32 0.0532 0.0098

Earth -86717-03-28 01:25 J -29951874.66 -29951874.44 -29951874.22 0.0509 0.0124

Moon -86717-03-28 05:15 J -29951874.50 -29951874.28 -29951874.06 0.0509 0.0152 \*

Venus -86713-06-23 19:25 J -29950325.87 -29950325.69 -29950325.51 0.0491 0.0266

Mercury -86713-11-09 11:44 J -29950187.18 -29950187.01 -29950186.84 0.0495 0.0080

Mercury -86712-02-07 13:54 J -29950097.01 -29950096.92 -29950096.82 0.0498 0.0413

Earth -86711-10-10 02:23 J -29949487.44 -29949487.40 -29949487.37 0.0522 0.0514

Mercury -86707-04-02 19:39 J -29948216.74 -29948216.68 -29948216.62 0.0536 0.0467

Mercury -86707-07-01 04:47 J -29948127.44 -29948127.30 -29948127.17 0.0533 0.0016

Mercury -86707-09-28 14:37 J -29948037.96 -29948037.89 -29948037.82 0.0529 0.0449

Moon -86705-04-01 09:20 J -29947487.23 -29947487.11 -29947486.98 0.0507 0.0426

Earth -86705-04-01 13:11 J -29947487.09 -29947486.95 -29947486.81 0.0507 0.0400 \*

Venus -86701-02-27 18:27 J -29946059.93 -29946059.73 -29946059.53 0.0490 0.0149

Mercury -86701-08-28 10:32 J -29945877.22 -29945877.06 -29945876.89 0.0494 0.0204

Mercury -86701-11-26 13:25 J -29945787.08 -29945786.94 -29945786.80 0.0497 0.0292

Venus -86695-01-03 15:35 J -29943923.01 -29943922.85 -29943922.68 0.0537 0.0282

Mercury -86695-04-19 08:08 J -29943817.29 -29943817.16 -29943817.03 0.0533 0.0125

Mercury -86695-07-17 17:44 J -29943727.86 -29943727.76 -29943727.65 0.0530 0.0335

Mars -86693-11-29 05:59 J -29942862.55 -29942862.25 -29942861.94 0.0496 0.0038

Mercury -86689-06-16 09:49 J -29941567.22 -29941567.09 -29941566.96 0.0494 0.0324

Mercury -86689-09-14 12:56 J -29941477.12 -29941476.96 -29941476.80 0.0496 0.0174

Venus -86684-09-08 06:13 J -29939657.41 -29939657.24 -29939657.06 0.0538 0.0255  
 Mercury -86683-02-05 10:32 J -29939507.17 -29939507.06 -29939506.94 0.0534 0.0251  
 Mercury -86683-05-05 20:08 J -29939417.78 -29939417.66 -29939417.54 0.0531 0.0208  
 Mercury -86677-04-04 08:37 J -29937257.21 -29937257.14 -29937257.06 0.0493 0.0446  
 Mercury -86677-07-03 12:13 J -29937167.16 -29937166.99 -29937166.82 0.0495 0.0054  
 Mercury -86672-11-24 14:08 J -29935197.01 -29935196.91 -29935196.82 0.0535 0.0363  
 Mercury -86671-02-21 23:15 J -29935107.66 -29935107.53 -29935107.39 0.0532 0.0095  
 Venus -86666-11-05 07:39 J -29933025.39 -29933025.18 -29933024.97 0.0490 0.0099  
 Mercury -86665-04-21 10:32 J -29932857.23 -29932857.06 -29932856.88 0.0495 0.0075  
 Mercury -86665-07-20 12:56 J -29932767.05 -29932766.96 -29932766.87 0.0497 0.0418  
 Moon -86664-09-24 02:08 J -29932336.49 -29932336.41 -29932336.31 0.0514 0.0472  
 Earth -86664-09-24 05:01 J -29932336.41 -29932336.29 -29932336.18 0.0514 0.0448 \*  
 Mercury -86660-09-12 17:59 J -29930886.81 -29930886.75 -29930886.69 0.0536 0.0470  
 Mercury -86660-12-11 03:06 J -29930797.50 -29930797.37 -29930797.24 0.0533 0.0015  
 Mercury -86659-03-10 12:56 J -29930708.03 -29930707.96 -29930707.89 0.0530 0.0447  
 Moon -86658-03-19 05:30 J -29930334.31 -29930334.27 -29930334.22 0.0515 0.0501  
 Earth -86658-03-19 08:51 J -29930334.22 -29930334.13 -29930334.04 0.0515 0.0469 \*  
 Venus -86654-07-11 07:11 J -29928759.36 -29928759.20 -29928759.03 0.0489 0.0310  
 Mercury -86653-02-08 09:35 J -29928547.26 -29928547.10 -29928546.94 0.0494 0.0196  
 Mercury -86653-05-08 12:13 J -29928457.12 -29928456.99 -29928456.85 0.0497 0.0299  
 Earth -86652-09-29 05:59 J -29927948.48 -29927948.25 -29927948.03 0.0516 0.0142  
 Moon -86652-09-29 06:27 J -29927948.44 -29927948.23 -29927948.01 0.0516 0.0165 \*  
 Venus -86648-05-17 00:27 J -29926622.67 -29926622.48 -29926622.28 0.0538 0.0065  
 Mercury -86648-09-29 06:56 J -29926487.34 -29926487.21 -29926487.08 0.0534 0.0123  
 Mercury -86648-12-27 16:32 J -29926397.91 -29926397.81 -29926397.71 0.0530 0.0337  
 Earth -86646-03-23 22:32 J -29925946.77 -29925946.56 -29925946.34 0.0512 0.0181  
 Moon -86646-03-24 02:37 J -29925946.61 -29925946.39 -29925946.18 0.0512 0.0188 \*  
 Mercury -86642-11-27 08:23 J -29924237.28 -29924237.15 -29924237.02 0.0494 0.0321  
 Mercury -86641-02-25 11:30 J -29924147.18 -29924147.02 -29924146.86 0.0496 0.0178  
 Earth -86640-10-04 08:08 J -29923560.38 -29923560.16 -29923559.93 0.0519 0.0174

Moon -86640-10-04 09:49 J -29923560.31 -29923560.09 -29923559.85 0.0519 0.0198 \*  
 Mars -86639-07-02 06:27 J -29923289.35 -29923289.23 -29923289.12 0.0530 0.0467  
 Venus -86636-01-19 18:42 J -29922356.82 -29922356.72 -29922356.61 0.0539 0.0452  
 Mercury -86636-07-18 10:18 J -29922177.18 -29922177.07 -29922176.95 0.0534 0.0234  
 Mercury -86636-10-15 19:54 J -29922087.79 -29922087.67 -29922087.55 0.0531 0.0224  
 Moon -86634-03-28 07:11 J -29921559.42 -29921559.20 -29921558.97 0.0510 0.0127  
 Earth -86634-03-28 10:47 J -29921559.27 -29921559.05 -29921558.82 0.0510 0.0100 \*  
 Venus -86630-07-13 21:06 J -29919990.76 -29919990.62 -29919990.47 0.0492 0.0349  
 Mercury -86630-09-15 07:25 J -29919927.26 -29919927.19 -29919927.11 0.0493 0.0441  
 Mercury -86630-12-14 11:01 J -29919837.21 -29919837.04 -29919836.87 0.0496 0.0060  
 Moon -86628-10-09 05:59 J -29919172.29 -29919172.25 -29919172.20 0.0521 0.0508  
 Earth -86628-10-09 09:35 J -29919172.17 -29919172.10 -29919172.02 0.0521 0.0491  
 Mercury -86624-05-06 12:56 J -29917867.06 -29917866.96 -29917866.86 0.0535 0.0358  
 Mercury -86624-08-03 22:18 J -29917777.71 -29917777.57 -29917777.44 0.0532 0.0099  
 Earth -86622-04-01 18:56 J -29917171.86 -29917171.71 -29917171.54 0.0508 0.0371  
 Moon -86622-04-01 21:35 J -29917171.73 -29917171.60 -29917171.45 0.0508 0.0393 \*  
 Venus -86618-03-18 21:06 J -29915724.83 -29915724.62 -29915724.41 0.0490 0.0062  
 Mercury -86618-10-02 10:18 J -29915527.25 -29915527.07 -29915526.90 0.0495 0.0062  
 Mercury -86618-12-31 12:27 J -29915437.06 -29915436.98 -29915436.89 0.0498 0.0431  
 Venus -86612-01-22 12:56 J -29913588.11 -29913587.96 -29913587.81 0.0537 0.0346  
 Mercury -86612-02-22 16:18 J -29913556.88 -29913556.82 -29913556.76 0.0536 0.0471  
 Mercury -86612-05-23 01:25 J -29913467.57 -29913467.44 -29913467.31 0.0533 0.0018  
 Mercury -86612-08-20 11:15 J -29913378.10 -29913378.03 -29913377.96 0.0530 0.0444  
 Venus -86607-11-21 19:39 J -29911458.72 -29911458.68 -29911458.62 0.0489 0.0474  
 Mercury -86606-07-21 08:23 J -29911217.31 -29911217.15 -29911216.98 0.0494 0.0189  
 Mercury -86606-10-19 11:01 J -29911127.17 -29911127.04 -29911126.90 0.0497 0.0306  
 Mars -86603-04-05 11:30 J -29910228.24 -29910228.02 -29910227.79 0.0532 0.0222  
 Venus -86601-09-27 07:39 J -29909322.36 -29909322.18 -29909321.99 0.0539 0.0164  
 Mercury -86600-03-11 05:15 J -29909157.41 -29909157.28 -29909157.16 0.0534 0.0127  
 Mercury -86600-06-08 14:51 J -29909067.98 -29909067.88 -29909067.78 0.0531 0.0335

Mercury -86594-05-09 07:11 J -29906907.33 -29906907.20 -29906907.06 0.0493 0.0313

Mercury -86594-08-07 10:18 J -29906817.23 -29906817.07 -29906816.91 0.0496 0.0185

Mercury -86589-12-28 09:06 J -29904847.24 -29904847.12 -29904847.01 0.0534 0.0233

Mercury -86588-03-27 18:27 J -29904757.85 -29904757.73 -29904757.61 0.0531 0.0226

Venus -86583-11-24 08:23 J -29902690.34 -29902690.15 -29902689.95 0.0491 0.0177

Mercury -86582-02-25 05:59 J -29902597.33 -29902597.25 -29902597.17 0.0493 0.0437

Mercury -86582-05-26 09:20 J -29902507.28 -29902507.11 -29902506.93 0.0496 0.0064

Earth -86581-09-23 13:25 J -29902021.03 -29902020.94 -29902020.84 0.0514 0.0468

Moon -86581-09-23 14:23 J -29902020.95 -29902020.90 -29902020.83 0.0514 0.0497 \*

Mercury -86577-10-16 12:42 J -29900537.07 -29900536.97 -29900536.87 0.0535 0.0343

Mercury -86576-01-13 21:49 J -29900447.72 -29900447.59 -29900447.46 0.0532 0.0115

Earth -86575-03-18 18:42 J -29900018.79 -29900018.72 -29900018.66 0.0515 0.0491

Venus -86571-07-30 08:51 J -29898424.31 -29898424.13 -29898423.94 0.0489 0.0230

Mercury -86570-03-14 08:51 J -29898197.30 -29898197.13 -29898196.95 0.0495 0.0056

Mercury -86570-06-12 11:15 J -29898107.11 -29898107.03 -29898106.95 0.0498 0.0437

Earth -86569-09-28 14:37 J -29897633.11 -29897632.89 -29897632.66 0.0516 0.0159

Moon -86569-09-28 15:49 J -29897633.07 -29897632.84 -29897632.60 0.0516 0.0173 \*

Venus -86565-06-04 22:47 J -29896287.74 -29896287.55 -29896287.36 0.0537 0.0135

Mercury -86565-08-04 15:06 J -29896226.93 -29896226.87 -29896226.80 0.0535 0.0467

Mercury -86565-11-02 00:13 J -29896137.62 -29896137.49 -29896137.35 0.0533 0.0023

Mercury -86564-01-30 10:03 J -29896048.14 -29896048.08 -29896048.00 0.0530 0.0448

Moon -86563-03-22 23:44 J -29895631.72 -29895631.51 -29895631.30 0.0513 0.0222

Earth -86563-03-23 03:20 J -29895631.56 -29895631.36 -29895631.15 0.0513 0.0215 \*

Mercury -86559-12-31 07:54 J -29893887.33 -29893887.17 -29893887.00 0.0494 0.0177

Mercury -86558-03-31 10:32 J -29893797.18 -29893797.06 -29893796.92 0.0497 0.0319

Moon -86557-10-03 11:30 J -29893245.23 -29893245.02 -29893244.80 0.0518 0.0176

Earth -86557-10-03 14:51 J -29893245.11 -29893244.88 -29893244.66 0.0518 0.0148 \*

Venus -86553-02-08 15:49 J -29892021.97 -29892021.84 -29892021.70 0.0539 0.0386

Mercury -86553-08-21 03:35 J -29891827.48 -29891827.35 -29891827.22 0.0534 0.0127

Mercury -86553-11-18 13:11 J -29891738.05 -29891737.95 -29891737.84 0.0531 0.0332

Earth -86551-03-27 15:49 J -29891244.06 -29891243.84 -29891243.61 0.0511 0.0067  
 Moon -86551-03-27 18:27 J -29891243.95 -29891243.73 -29891243.51 0.0511 0.0097 \*  
 Venus -86547-08-01 21:35 J -29889655.70 -29889655.60 -29889655.49 0.0491 0.0425  
 Mercury -86547-10-19 06:13 J -29889577.38 -29889577.24 -29889577.10 0.0493 0.0305  
 Mercury -86546-01-17 09:20 J -29889487.27 -29889487.11 -29889486.95 0.0496 0.0192  
 Earth -86545-10-08 12:13 J -29888857.09 -29888856.99 -29888856.86 0.0520 0.0451  
 Moon -86545-10-08 16:18 J -29888856.91 -29888856.82 -29888856.70 0.0520 0.0464 \*  
 Mercury -86541-06-09 07:11 J -29887517.31 -29887517.20 -29887517.08 0.0535 0.0237  
 Mercury -86541-09-06 16:47 J -29887427.92 -29887427.80 -29887427.68 0.0532 0.0222  
 Moon -86539-04-01 05:01 J -29886856.46 -29886856.29 -29886856.12 0.0508 0.0360  
 Earth -86539-04-01 05:44 J -29886856.42 -29886856.26 -29886856.09 0.0508 0.0350 \*  
 Mars -86538-02-23 17:59 J -29886528.01 -29886527.75 -29886527.49 0.0497 0.0256  
 Venus -86535-04-06 20:51 J -29885389.84 -29885389.63 -29885389.42 0.0490 0.0012  
 Mercury -86535-08-07 04:47 J -29885267.38 -29885267.30 -29885267.21 0.0493 0.0429  
 Mercury -86535-11-05 08:23 J -29885177.33 -29885177.15 -29885176.98 0.0495 0.0070  
 Venus -86529-02-11 15:49 J -29883252.94 -29883252.84 -29883252.72 0.0537 0.0447  
 Mercury -86529-03-28 11:15 J -29883207.13 -29883207.03 -29883206.93 0.0535 0.0343  
 Mercury -86529-06-25 20:23 J -29883117.78 -29883117.65 -29883117.52 0.0532 0.0115  
 Venus -86524-12-10 20:08 J -29881123.77 -29881123.66 -29881123.54 0.0489 0.0399  
 Mercury -86523-08-24 07:11 J -29880867.37 -29880867.20 -29880867.02 0.0495 0.0054  
 Mercury -86523-11-22 09:35 J -29880777.18 -29880777.10 -29880777.02 0.0498 0.0438  
 Venus -86518-10-17 10:47 J -29878987.25 -29878987.05 -29878986.86 0.0538 0.0063  
 Mercury -86517-01-15 14:51 J -29878896.95 -29878896.88 -29878896.81 0.0536 0.0452  
 Mercury -86517-04-13 23:59 J -29878807.63 -29878807.50 -29878807.37 0.0533 0.0004  
 Mercury -86517-07-12 09:49 J -29878718.15 -29878718.09 -29878718.03 0.0530 0.0463  
 Mercury -86511-06-12 06:42 J -29876557.39 -29876557.22 -29876557.06 0.0494 0.0173  
 Mercury -86511-09-10 09:20 J -29876467.24 -29876467.11 -29876466.98 0.0497 0.0323  
 Mercury -86505-02-01 02:23 J -29874497.53 -29874497.40 -29874497.27 0.0533 0.0123  
 Mercury -86505-04-30 11:59 J -29874408.10 -29874408.00 -29874407.89 0.0530 0.0336  
 Venus -86500-12-13 10:32 J -29872355.23 -29872355.06 -29872354.88 0.0491 0.0263

Mercury -86499-03-31 05:30 J -29872247.41 -29872247.27 -29872247.13 0.0494 0.0294  
 Mercury -86499-06-29 08:37 J -29872157.30 -29872157.14 -29872156.98 0.0496 0.0204  
 Earth -86498-09-23 21:06 J -29871705.69 -29871705.62 -29871705.55 0.0513 0.0488  
 Mercury -86494-11-20 05:44 J -29870187.38 -29870187.26 -29870187.14 0.0534 0.0238  
 Mercury -86493-02-17 15:06 J -29870097.99 -29870097.87 -29870097.75 0.0531 0.0220  
 Venus -86488-08-18 08:51 J -29868089.33 -29868089.13 -29868088.93 0.0489 0.0155  
 Mercury -86487-01-17 03:35 J -29867937.44 -29867937.35 -29867937.26 0.0493 0.0423  
 Mercury -86487-04-17 06:56 J -29867847.38 -29867847.21 -29867847.03 0.0495 0.0077  
 Moon -86486-09-28 14:23 J -29867318.11 -29867317.90 -29867317.68 0.0515 0.0207  
 Earth -86486-09-28 17:15 J -29867318.00 -29867317.78 -29867317.56 0.0515 0.0197 \*  
 Mars -86485-09-25 08:23 J -29866955.37 -29866955.15 -29866954.92 0.0529 0.0240  
 Venus -86482-06-24 23:01 J -29865952.72 -29865952.54 -29865952.36 0.0537 0.0220  
 Mercury -86482-09-08 09:20 J -29865877.21 -29865877.11 -29865877.01 0.0535 0.0348  
 Mercury -86482-12-06 18:42 J -29865787.85 -29865787.72 -29865787.59 0.0532 0.0110  
 Earth -86480-03-22 12:42 J -29865316.17 -29865315.97 -29865315.77 0.0514 0.0241  
 Moon -86480-03-22 15:20 J -29865316.06 -29865315.86 -29865315.67 0.0514 0.0241 \*  
 Mercury -86475-02-03 05:59 J -29863537.43 -29863537.25 -29863537.08 0.0495 0.0048  
 Mercury -86475-05-04 08:08 J -29863447.23 -29863447.16 -29863447.08 0.0497 0.0443  
 Earth -86474-10-03 17:15 J -29862930.01 -29862929.78 -29862929.54 0.0517 0.0109  
 Moon -86474-10-03 21:20 J -29862929.84 -29862929.61 -29862929.38 0.0517 0.0142 \*  
 Venus -86470-02-27 18:13 J -29861686.91 -29861686.74 -29861686.57 0.0539 0.0290  
 Mercury -86470-06-27 13:11 J -29861567.01 -29861566.95 -29861566.88 0.0536 0.0455  
 Mercury -86470-09-24 22:18 J -29861477.70 -29861477.57 -29861477.44 0.0533 0.0007  
 Mercury -86470-12-23 08:08 J -29861388.22 -29861388.16 -29861388.09 0.0530 0.0461  
 Moon -86468-03-27 01:25 J -29860928.67 -29860928.44 -29860928.20 0.0511 0.0075  
 Earth -86468-03-27 02:37 J -29860928.62 -29860928.39 -29860928.16 0.0511 0.0046 \*  
 Mercury -86464-11-22 04:32 J -29859227.47 -29859227.31 -29859227.14 0.0494 0.0173  
 Mercury -86463-02-20 07:25 J -29859137.32 -29859137.19 -29859137.06 0.0497 0.0322  
 Moon -86462-10-08 15:20 J -29858541.98 -29858541.86 -29858541.72 0.0520 0.0432  
 Earth -86462-10-08 19:25 J -29858541.83 -29858541.69 -29858541.55 0.0520 0.0423 \*

Mercury -86458-07-14 01:54 J -29857167.55 -29857167.42 -29857167.29 0.0534 0.0110

Mercury -86458-10-11 11:30 J -29857078.12 -29857078.02 -29857077.92 0.0530 0.0349

Moon -86456-03-31 13:39 J -29856541.10 -29856540.93 -29856540.76 0.0509 0.0325

Earth -86456-03-31 14:51 J -29856541.06 -29856540.88 -29856540.70 0.0509 0.0323 \*

Venus -86452-04-25 21:49 J -29855054.80 -29855054.59 -29855054.38 0.0490 0.0090

Mercury -86452-09-10 03:49 J -29854917.48 -29854917.34 -29854917.19 0.0494 0.0292

Mercury -86452-12-09 06:56 J -29854827.36 -29854827.21 -29854827.05 0.0496 0.0206

Mars -86449-06-30 01:11 J -29853893.54 -29853893.45 -29853893.35 0.0532 0.0487

Venus -86446-03-02 13:54 J -29852917.97 -29852917.92 -29852917.87 0.0536 0.0516

Mercury -86446-05-02 04:32 J -29852857.43 -29852857.31 -29852857.19 0.0534 0.0234

Mercury -86446-07-30 13:54 J -29852768.04 -29852767.92 -29852767.80 0.0531 0.0223

Venus -86441-12-29 21:20 J -29850788.76 -29850788.61 -29850788.45 0.0489 0.0319

Mercury -86440-06-29 02:37 J -29850607.48 -29850607.39 -29850607.29 0.0493 0.0415

Mercury -86440-09-27 06:13 J -29850517.41 -29850517.24 -29850517.07 0.0496 0.0085

Venus -86435-11-05 07:25 J -29848652.39 -29848652.19 -29848652.00 0.0538 0.0009

Mercury -86434-02-18 07:39 J -29848547.27 -29848547.18 -29848547.08 0.0535 0.0349

Mercury -86434-05-18 17:01 J -29848457.92 -29848457.79 -29848457.66 0.0532 0.0107

Mercury -86428-07-16 04:32 J -29846207.49 -29846207.31 -29846207.14 0.0495 0.0044

Mercury -86428-10-14 06:42 J -29846117.29 -29846117.22 -29846117.14 0.0497 0.0447

Venus -86423-07-11 00:42 J -29844386.51 -29844386.47 -29844386.42 0.0540 0.0522

Mercury -86423-12-07 11:15 J -29844237.09 -29844237.03 -29844236.96 0.0536 0.0461

Mercury -86422-03-06 20:23 J -29844147.78 -29844147.65 -29844147.52 0.0533 0.0007

Mercury -86422-06-04 06:13 J -29844058.31 -29844058.24 -29844058.17 0.0530 0.0455

Mars -86420-08-11 23:30 J -29843258.76 -29843258.52 -29843258.26 0.0499 0.0283

Venus -86416-01-01 09:06 J -29842020.27 -29842020.12 -29842019.96 0.0491 0.0329

Mercury -86416-05-04 03:06 J -29841897.53 -29841897.37 -29841897.20 0.0494 0.0169

Mercury -86416-08-02 05:59 J -29841807.38 -29841807.25 -29841807.12 0.0497 0.0326

Mercury -86411-12-24 00:13 J -29839837.62 -29839837.49 -29839837.36 0.0534 0.0115

Mercury -86410-03-23 09:49 J -29839748.19 -29839748.09 -29839747.99 0.0531 0.0345

Venus -86405-09-06 07:54 J -29837754.38 -29837754.17 -29837753.96 0.0490 0.0086



Mercury -86404-02-20 01:39 J -29837587.57 -29837587.43 -29837587.28 0.0494 0.0294

Mercury -86404-05-21 05:01 J -29837497.45 -29837497.29 -29837497.14 0.0496 0.0203

Earth -86403-09-27 22:03 J -29837002.79 -29837002.58 -29837002.36 0.0515 0.0227

Moon -86403-09-28 02:08 J -29837002.63 -29837002.41 -29837002.20 0.0515 0.0224 \*

Venus -86399-07-14 00:42 J -29835617.62 -29835617.47 -29835617.30 0.0537 0.0313

Mercury -86399-10-12 03:49 J -29835527.46 -29835527.34 -29835527.22 0.0534 0.0225

Mercury -86398-01-09 13:11 J -29835438.07 -29835437.95 -29835437.83 0.0531 0.0234

Moon -86397-03-21 19:39 J -29835000.88 -29835000.68 -29835000.47 0.0514 0.0262

Earth -86397-03-21 20:51 J -29835000.82 -29835000.63 -29835000.43 0.0514 0.0268 \*

Mercury -86393-12-09 00:56 J -29833277.56 -29833277.46 -29833277.37 0.0493 0.0415

Mercury -86392-03-09 04:18 J -29833187.49 -29833187.32 -29833187.14 0.0496 0.0087

Moon -86391-10-02 20:37 J -29832614.88 -29832614.64 -29832614.41 0.0517 0.0117

Earth -86391-10-03 00:27 J -29832614.71 -29832614.48 -29832614.24 0.0517 0.0085 \*

Venus -86387-03-18 16:18 J -29831351.99 -29831351.82 -29831351.63 0.0538 0.0216

Mercury -86387-07-31 06:27 J -29831217.33 -29831217.23 -29831217.13 0.0535 0.0346

Mercury -86387-10-28 15:35 J -29831127.98 -29831127.85 -29831127.71 0.0532 0.0111

Moon -86385-03-26 03:49 J -29830613.56 -29830613.34 -29830613.12 0.0512 0.0030

Earth -86385-03-26 04:32 J -29830613.54 -29830613.31 -29830613.08 0.0512 0.0009 \*

Mercury -86381-12-26 03:20 J -29828877.53 -29828877.36 -29828877.18 0.0495 0.0037

Mercury -86380-03-26 05:44 J -29828787.32 -29828787.26 -29828787.19 0.0498 0.0455

Earth -86379-10-08 00:27 J -29828226.63 -29828226.48 -29828226.32 0.0519 0.0391

Moon -86379-10-08 03:35 J -29828226.50 -29828226.35 -29828226.20 0.0519 0.0397 \*

Mercury -86375-05-19 09:35 J -29826907.16 -29826907.10 -29826907.03 0.0535 0.0462

Mercury -86375-08-16 18:42 J -29826817.85 -29826817.72 -29826817.59 0.0533 0.0011

Mercury -86375-11-14 04:32 J -29826728.38 -29826728.31 -29826728.24 0.0530 0.0451

Earth -86373-03-30 16:03 J -29826226.03 -29826225.83 -29826225.64 0.0510 0.0278

Moon -86373-03-30 18:42 J -29826225.92 -29826225.72 -29826225.52 0.0510 0.0271 \*

Venus -86369-05-14 20:08 J -29824719.86 -29824719.66 -29824719.46 0.0490 0.0156

Mercury -86369-10-14 01:25 J -29824567.60 -29824567.44 -29824567.27 0.0494 0.0167

Mercury -86368-01-12 04:18 J -29824477.45 -29824477.32 -29824477.19 0.0497 0.0328

Mercury -86363-06-04 22:03 J -29822507.71 -29822507.58 -29822507.45 0.0534 0.0122  
 Mercury -86363-09-02 07:39 J -29822418.28 -29822418.18 -29822418.07 0.0531 0.0338  
 Venus -86357-01-18 19:11 J -29820453.87 -29820453.70 -29820453.52 0.0489 0.0256  
 Mercury -86357-08-01 23:59 J -29820257.64 -29820257.50 -29820257.35 0.0493 0.0292  
 Mercury -86357-10-31 03:20 J -29820167.52 -29820167.36 -29820167.21 0.0496 0.0205  
 Venus -86352-11-24 07:25 J -29818317.38 -29818317.19 -29818316.99 0.0538 0.0082  
 Mercury -86351-03-24 01:54 J -29818197.54 -29818197.42 -29818197.30 0.0535 0.0231  
 Mercury -86351-06-21 11:15 J -29818108.15 -29818108.03 -29818107.91 0.0532 0.0227  
 Mercury -86345-05-20 22:18 J -29815947.66 -29815947.57 -29815947.47 0.0493 0.0419  
 Mercury -86345-08-19 01:54 J -29815857.59 -29815857.42 -29815857.24 0.0495 0.0081  
 Venus -86340-07-30 01:54 J -29814051.54 -29814051.42 -29814051.30 0.0539 0.0431  
 Mercury -86339-01-10 05:30 J -29813887.37 -29813887.27 -29813887.17 0.0535 0.0340  
 Mercury -86339-04-09 14:51 J -29813798.01 -29813797.88 -29813797.75 0.0532 0.0118  
 Venus -86333-01-21 08:08 J -29811685.27 -29811685.16 -29811685.03 0.0491 0.0399  
 Mercury -86333-06-07 01:25 J -29811547.62 -29811547.44 -29811547.27 0.0495 0.0041  
 Mercury -86333-09-05 03:49 J -29811457.41 -29811457.34 -29811457.27 0.0498 0.0453  
 Mars -86331-12-20 14:37 J -29810621.14 -29810620.89 -29810620.64 0.0530 0.0007  
 Mercury -86328-10-29 08:23 J -29809577.21 -29809577.15 -29809577.08 0.0535 0.0459  
 Mercury -86327-01-26 17:30 J -29809487.91 -29809487.77 -29809487.64 0.0532 0.0020  
 Mercury -86327-04-26 03:06 J -29809398.44 -29809398.37 -29809398.30 0.0529 0.0452  
 Venus -86322-09-26 07:11 J -29807419.41 -29807419.20 -29807418.99 0.0490 0.0015  
 Mercury -86321-03-25 23:59 J -29807237.66 -29807237.50 -29807237.33 0.0494 0.0163  
 Mercury -86321-06-24 03:06 J -29807147.50 -29807147.37 -29807147.25 0.0497 0.0333  
 Moon -86320-09-26 23:01 J -29806687.74 -29806687.54 -29806687.33 0.0514 0.0253  
 Earth -86320-09-27 03:06 J -29806687.57 -29806687.37 -29806687.16 0.0514 0.0258 \*  
 Venus -86316-08-01 20:37 J -29805282.79 -29805282.64 -29805282.50 0.0536 0.0370  
 Mercury -86316-11-14 20:23 J -29805177.78 -29805177.65 -29805177.52 0.0533 0.0124  
 Mercury -86315-02-12 05:59 J -29805088.35 -29805088.25 -29805088.15 0.0530 0.0334  
 Moon -86314-03-21 19:39 J -29804685.85 -29804685.68 -29804685.50 0.0515 0.0308  
 Earth -86314-03-21 20:08 J -29804685.84 -29804685.66 -29804685.48 0.0515 0.0320 \*

Venus -86310-06-01 05:59 J -29803153.35 -29803153.25 -29803153.16 0.0489 0.0429  
 Mercury -86309-01-12 22:03 J -29802927.72 -29802927.58 -29802927.43 0.0493 0.0293  
 Mercury -86309-04-12 01:25 J -29802837.60 -29802837.44 -29802837.28 0.0496 0.0205  
 Earth -86308-10-01 22:18 J -29802299.80 -29802299.57 -29802299.33 0.0516 0.0034  
 Moon -86308-10-02 01:54 J -29802299.65 -29802299.42 -29802299.19 0.0516 0.0067 \*  
 Venus -86304-04-06 13:25 J -29801017.13 -29801016.94 -29801016.75 0.0539 0.0152  
 Mercury -86304-09-02 23:44 J -29800867.63 -29800867.51 -29800867.39 0.0535 0.0239  
 Mercury -86304-12-01 09:06 J -29800778.24 -29800778.12 -29800778.00 0.0532 0.0219  
 Earth -86302-03-26 09:49 J -29800298.32 -29800298.09 -29800297.86 0.0513 0.0034  
 Moon -86302-03-26 12:27 J -29800298.21 -29800297.98 -29800297.74 0.0513 0.0008 \*  
 Mercury -86298-10-31 20:23 J -29798617.73 -29798617.65 -29798617.55 0.0493 0.0419  
 Mercury -86297-01-30 00:13 J -29798527.67 -29798527.49 -29798527.32 0.0495 0.0081  
 Moon -86296-10-06 19:39 J -29797911.86 -29797911.68 -29797911.49 0.0518 0.0337  
 Earth -86296-10-06 21:35 J -29797911.78 -29797911.60 -29797911.42 0.0518 0.0336 \*  
 Mercury -86292-06-22 03:20 J -29796557.45 -29796557.36 -29796557.26 0.0535 0.0349  
 Mercury -86292-09-19 12:42 J -29796468.10 -29796467.97 -29796467.84 0.0532 0.0108  
 Moon -86290-03-30 19:39 J -29795910.87 -29795910.68 -29795910.47 0.0510 0.0238  
 Earth -86290-03-30 23:30 J -29795910.72 -29795910.52 -29795910.32 0.0510 0.0249 \*  
 Venus -86286-06-03 17:30 J -29794384.96 -29794384.77 -29794384.58 0.0490 0.0217  
 Mercury -86286-11-17 22:47 J -29794217.73 -29794217.55 -29794217.38 0.0495 0.0046  
 Mercury -86285-02-16 01:11 J -29794127.52 -29794127.45 -29794127.37 0.0497 0.0446  
 Mercury -86280-04-10 07:11 J -29792247.27 -29792247.20 -29792247.13 0.0536 0.0457  
 Mercury -86280-07-08 16:18 J -29792157.96 -29792157.82 -29792157.69 0.0533 0.0015  
 Mercury -86280-10-06 01:54 J -29792068.48 -29792068.42 -29792068.35 0.0530 0.0457  
 Moon -86278-04-04 15:06 J -29791522.92 -29791522.87 -29791522.81 0.0508 0.0490  
 Venus -86274-02-06 17:15 J -29790118.97 -29790118.78 -29790118.59 0.0489 0.0192  
 Mercury -86274-09-05 21:49 J -29789907.75 -29789907.59 -29789907.42 0.0494 0.0166  
 Mercury -86274-12-05 00:42 J -29789817.60 -29789817.47 -29789817.34 0.0497 0.0329  
 Venus -86269-12-13 05:15 J -29787982.47 -29787982.28 -29787982.09 0.0537 0.0153  
 Mercury -86268-04-26 19:11 J -29787847.83 -29787847.70 -29787847.58 0.0533 0.0124

Mercury -86268-07-25 04:32 J -29787758.41 -29787758.31 -29787758.21 0.0530 0.0334  
 Mars -86266-11-05 06:56 J -29786925.51 -29786925.21 -29786924.91 0.0498 0.0072  
 Mercury -86262-06-24 20:23 J -29785597.79 -29785597.65 -29785597.50 0.0494 0.0291  
 Mercury -86262-09-22 23:44 J -29785507.67 -29785507.51 -29785507.35 0.0496 0.0207  
 Venus -86257-08-17 21:49 J -29783716.73 -29783716.59 -29783716.45 0.0539 0.0372  
 Mercury -86256-02-12 22:03 J -29783537.69 -29783537.58 -29783537.46 0.0534 0.0241  
 Mercury -86256-05-13 07:25 J -29783448.31 -29783448.19 -29783448.07 0.0531 0.0216  
 Venus -86250-02-09 04:47 J -29781350.36 -29781350.30 -29781350.21 0.0491 0.0457  
 Mercury -86250-04-12 18:13 J -29781287.82 -29781287.74 -29781287.64 0.0493 0.0422  
 Mercury -86250-07-11 22:03 J -29781197.75 -29781197.58 -29781197.41 0.0495 0.0078  
 Mercury -86245-12-02 01:11 J -29779227.54 -29779227.45 -29779227.35 0.0535 0.0358  
 Mercury -86244-03-01 10:32 J -29779138.19 -29779138.06 -29779137.93 0.0532 0.0099  
 Venus -86239-10-15 03:49 J -29777084.55 -29777084.34 -29777084.13 0.0490 0.0041  
 Mercury -86238-04-29 20:51 J -29776887.81 -29776887.63 -29776887.46 0.0495 0.0048  
 Mercury -86238-07-28 23:15 J -29776797.61 -29776797.53 -29776797.46 0.0497 0.0444  
 Earth -86237-09-25 23:01 J -29776372.72 -29776372.54 -29776372.35 0.0513 0.0311  
 Moon -86237-09-26 02:51 J -29776372.57 -29776372.38 -29776372.19 0.0513 0.0302 \*  
 Venus -86233-08-20 18:27 J -29774947.84 -29774947.73 -29774947.61 0.0537 0.0439  
 Mercury -86233-09-20 05:01 J -29774917.35 -29774917.29 -29774917.23 0.0536 0.0467  
 Mercury -86233-12-18 14:08 J -29774828.05 -29774827.91 -29774827.78 0.0533 0.0022  
 Mercury -86232-03-17 23:44 J -29774738.58 -29774738.51 -29774738.44 0.0530 0.0448  
 Earth -86231-03-21 02:08 J -29774370.58 -29774370.41 -29774370.25 0.0515 0.0351  
 Moon -86231-03-21 04:32 J -29774370.49 -29774370.31 -29774370.13 0.0515 0.0328 \*  
 Venus -86227-06-20 02:37 J -29772818.52 -29772818.39 -29772818.25 0.0489 0.0372  
 Mercury -86226-02-15 19:11 J -29772577.87 -29772577.70 -29772577.54 0.0494 0.0174  
 Mercury -86226-05-16 22:03 J -29772487.71 -29772487.58 -29772487.45 0.0497 0.0321  
 Moon -86225-09-30 19:39 J -29771984.92 -29771984.68 -29771984.43 0.0516 0.0020  
 Earth -86225-09-30 22:18 J -29771984.81 -29771984.57 -29771984.33 0.0516 0.0012 \*  
 Venus -86221-04-25 13:25 J -29770682.14 -29770681.94 -29770681.75 0.0538 0.0071  
 Mercury -86221-10-06 17:44 J -29770517.89 -29770517.76 -29770517.64 0.0534 0.0124

Mercury -86220-01-04 03:06 J -29770428.47 -29770428.37 -29770428.26 0.0531 0.0337

Moon -86219-03-25 11:59 J -29769983.22 -29769983.00 -29769982.77 0.0513 0.0044

Earth -86219-03-25 15:35 J -29769983.08 -29769982.85 -29769982.62 0.0513 0.0069 \*

Mercury -86215-12-04 17:59 J -29768267.89 -29768267.75 -29768267.61 0.0494 0.0296

Mercury -86214-03-04 21:20 J -29768177.77 -29768177.61 -29768177.45 0.0496 0.0202

Earth -86213-10-06 00:42 J -29767596.67 -29767596.47 -29767596.28 0.0518 0.0299

Moon -86213-10-06 00:42 J -29767596.66 -29767596.47 -29767596.28 0.0518 0.0294 \*

Mars -86212-06-10 23:59 J -29767348.57 -29767348.50 -29767348.42 0.0528 0.0500

Mercury -86209-07-25 20:37 J -29766207.75 -29766207.64 -29766207.52 0.0534 0.0241

Mercury -86209-10-23 05:59 J -29766118.37 -29766118.25 -29766118.13 0.0531 0.0216

Earth -86207-03-29 23:44 J -29765595.72 -29765595.51 -29765595.30 0.0510 0.0200

Moon -86207-03-30 03:49 J -29765595.56 -29765595.34 -29765595.13 0.0510 0.0186 \*

Venus -86203-06-22 15:06 J -29764050.04 -29764049.87 -29764049.69 0.0491 0.0280

Mercury -86203-09-22 16:32 J -29763957.90 -29763957.81 -29763957.72 0.0493 0.0422

Mercury -86203-12-21 20:08 J -29763867.83 -29763867.66 -29763867.48 0.0496 0.0080

Mercury -86197-05-13 23:44 J -29761897.60 -29761897.51 -29761897.41 0.0535 0.0357

Mercury -86197-08-11 08:51 J -29761808.26 -29761808.13 -29761808.00 0.0532 0.0098

Moon -86195-04-03 06:27 J -29761208.34 -29761208.23 -29761208.11 0.0508 0.0436

Earth -86195-04-03 10:18 J -29761208.16 -29761208.07 -29761207.99 0.0508 0.0469 \*

Venus -86191-02-25 13:39 J -29759784.13 -29759783.93 -29759783.73 0.0489 0.0138

Mercury -86191-10-09 18:27 J -29759557.90 -29759557.73 -29759557.55 0.0495 0.0051

Mercury -86190-01-07 21:06 J -29759467.70 -29759467.62 -29759467.54 0.0497 0.0441

Venus -86185-01-02 00:42 J -29757647.65 -29757647.47 -29757647.29 0.0537 0.0206

Mercury -86185-03-02 02:51 J -29757587.44 -29757587.38 -29757587.32 0.0536 0.0476

Mercury -86185-05-30 11:59 J -29757498.14 -29757498.00 -29757497.87 0.0533 0.0029

Mercury -86185-08-27 21:35 J -29757408.67 -29757408.60 -29757408.52 0.0530 0.0438

Mercury -86179-07-28 17:01 J -29755247.95 -29755247.79 -29755247.62 0.0494 0.0176

Mercury -86179-10-26 19:54 J -29755157.80 -29755157.67 -29755157.53 0.0496 0.0319

Mars -86176-03-14 21:49 J -29754287.83 -29754287.59 -29754287.35 0.0530 0.0155

Venus -86174-09-06 18:42 J -29753381.88 -29753381.72 -29753381.56 0.0539 0.0312

Mercury -86173-03-18 15:20 J -29753187.99 -29753187.86 -29753187.73 0.0534 0.0134

Mercury -86173-06-16 00:56 J -29753098.56 -29753098.46 -29753098.35 0.0531 0.0326

Mercury -86167-05-16 15:20 J -29750938.00 -29750937.86 -29750937.72 0.0493 0.0304

Mercury -86167-08-14 18:42 J -29750847.88 -29750847.72 -29750847.56 0.0496 0.0193

Mercury -86161-01-05 19:11 J -29748877.82 -29748877.70 -29748877.59 0.0535 0.0243

Mercury -86161-04-04 04:18 J -29748788.44 -29748788.32 -29748788.19 0.0532 0.0216

Venus -86156-11-03 00:42 J -29746749.67 -29746749.47 -29746749.26 0.0490 0.0100

Mercury -86155-03-04 14:08 J -29746628.00 -29746627.91 -29746627.83 0.0493 0.0427

Mercury -86155-06-02 17:44 J -29746537.93 -29746537.76 -29746537.58 0.0495 0.0073

Moon -86154-09-25 21:49 J -29746057.77 -29746057.59 -29746057.40 0.0513 0.0339

Earth -86154-09-26 00:56 J -29746057.63 -29746057.46 -29746057.28 0.0513 0.0348 \*

Venus -86150-09-09 16:47 J -29744612.86 -29744612.80 -29744612.75 0.0536 0.0509

Mercury -86150-10-24 22:18 J -29744567.66 -29744567.57 -29744567.47 0.0535 0.0358

Mercury -86149-01-22 07:25 J -29744478.32 -29744478.19 -29744478.06 0.0532 0.0097

Moon -86148-03-19 23:44 J -29744055.66 -29744055.51 -29744055.35 0.0515 0.0373

Earth -86148-03-20 03:06 J -29744055.51 -29744055.37 -29744055.22 0.0515 0.0398 \*

Venus -86144-07-08 23:30 J -29742483.67 -29742483.52 -29742483.35 0.0489 0.0315

Mercury -86143-03-21 16:32 J -29742227.99 -29742227.81 -29742227.64 0.0495 0.0052

Mercury -86143-06-19 19:11 J -29742137.78 -29742137.70 -29742137.62 0.0498 0.0441

Earth -86142-10-01 00:42 J -29741669.71 -29741669.47 -29741669.23 0.0515 0.0050

Moon -86142-10-01 01:39 J -29741669.66 -29741669.43 -29741669.20 0.0515 0.0022 \*

Venus -86138-05-15 09:49 J -29740347.29 -29740347.09 -29740346.90 0.0538 0.0015

Mercury -86138-08-13 01:25 J -29740257.49 -29740257.44 -29740257.38 0.0535 0.0473

Mercury -86138-11-10 10:32 J -29740168.20 -29740168.06 -29740167.93 0.0533 0.0025

Mercury -86137-02-07 20:08 J -29740078.74 -29740078.66 -29740078.59 0.0530 0.0437

Earth -86136-03-24 14:23 J -29739668.12 -29739667.90 -29739667.67 0.0513 0.0121

Moon -86136-03-24 18:27 J -29739667.96 -29739667.73 -29739667.50 0.0513 0.0096 \*

Mercury -86131-01-07 14:51 J -29737918.05 -29737917.88 -29737917.72 0.0494 0.0181

Mercury -86131-04-07 17:44 J -29737827.89 -29737827.76 -29737827.62 0.0496 0.0315

Earth -86130-10-05 20:23 J -29737281.86 -29737281.65 -29737281.44 0.0517 0.0244

Moon -86130-10-05 22:03 J -29737281.80 -29737281.58 -29737281.36 0.0517 0.0230 \*  
 Mercury -86126-08-29 13:25 J -29735858.07 -29735857.94 -29735857.82 0.0534 0.0143  
 Mercury -86126-11-26 22:47 J -29735768.66 -29735768.55 -29735768.44 0.0531 0.0316  
 Moon -86124-03-28 22:47 J -29735280.77 -29735280.55 -29735280.33 0.0512 0.0144  
 Earth -86124-03-29 02:37 J -29735280.61 -29735280.39 -29735280.17 0.0512 0.0160 \*  
 Venus -86120-07-11 11:44 J -29733715.16 -29733715.01 -29733714.86 0.0491 0.0335  
 Mercury -86120-10-26 13:11 J -29733608.08 -29733607.95 -29733607.80 0.0493 0.0307  
 Mercury -86119-01-24 16:47 J -29733517.96 -29733517.80 -29733517.64 0.0496 0.0192  
 Moon -86118-10-10 16:03 J -29732893.85 -29732893.83 -29732893.81 0.0519 0.0515  
 Mercury -86114-06-17 16:47 J -29731547.91 -29731547.80 -29731547.68 0.0535 0.0254  
 Mercury -86114-09-15 02:08 J -29731458.53 -29731458.41 -29731458.29 0.0532 0.0204  
 Earth -86112-04-02 15:20 J -29730892.96 -29730892.86 -29730892.73 0.0509 0.0438  
 Moon -86112-04-02 17:59 J -29730892.87 -29730892.75 -29730892.61 0.0509 0.0412 \*  
 Mars -86111-01-28 20:23 J -29730591.94 -29730591.65 -29730591.35 0.0498 0.0154  
 Venus -86108-03-16 10:03 J -29729449.28 -29729449.08 -29729448.87 0.0489 0.0082  
 Mercury -86108-08-14 11:30 J -29729298.10 -29729298.02 -29729297.94 0.0493 0.0435  
 Mercury -86108-11-12 15:06 J -29729208.04 -29729207.87 -29729207.69 0.0495 0.0065  
 Venus -86102-01-20 23:59 J -29727312.66 -29727312.50 -29727312.33 0.0538 0.0284  
 Mercury -86102-04-05 20:37 J -29727237.74 -29727237.64 -29727237.55 0.0535 0.0362  
 Mercury -86102-07-04 05:44 J -29727148.39 -29727148.26 -29727148.13 0.0533 0.0094  
 Mercury -86096-08-31 14:08 J -29724898.08 -29724897.91 -29724897.73 0.0495 0.0057  
 Mercury -86096-11-29 16:47 J -29724807.88 -29724807.80 -29724807.72 0.0497 0.0436  
 Venus -86091-09-25 17:44 J -29723046.94 -29723046.76 -29723046.58 0.0539 0.0234  
 Mercury -86090-01-22 23:59 J -29722927.55 -29722927.50 -29722927.44 0.0536 0.0474  
 Mercury -86090-04-22 08:51 J -29722838.26 -29722838.13 -29722837.99 0.0533 0.0027  
 Mercury -86090-07-20 18:27 J -29722748.80 -29722748.73 -29722748.65 0.0530 0.0437  
 Mercury -86084-06-19 12:42 J -29720588.13 -29720587.97 -29720587.80 0.0494 0.0182  
 Mercury -86084-09-17 15:49 J -29720497.97 -29720497.84 -29720497.70 0.0497 0.0314  
 Mercury -86078-02-08 11:59 J -29718528.12 -29718528.00 -29718527.87 0.0533 0.0140  
 Mercury -86078-05-08 21:35 J -29718438.71 -29718438.60 -29718438.50 0.0530 0.0319

Venus -86073-11-21 21:35 J -29716414.80 -29716414.60 -29716414.40 0.0490 0.0154  
 Mercury -86072-04-07 11:01 J -29716278.17 -29716278.04 -29716277.90 0.0493 0.0310  
 Mercury -86072-07-06 14:37 J -29716188.05 -29716187.89 -29716187.73 0.0496 0.0188  
 Earth -86071-09-24 22:18 J -29715742.71 -29715742.57 -29715742.41 0.0512 0.0393  
 Moon -86071-09-25 00:13 J -29715742.64 -29715742.49 -29715742.33 0.0512 0.0381 \*  
 Mercury -86067-11-27 14:51 J -29714217.99 -29714217.88 -29714217.77 0.0535 0.0261  
 Mercury -86066-02-25 00:13 J -29714128.62 -29714128.49 -29714128.37 0.0532 0.0196  
 Earth -86065-03-19 04:32 J -29713740.41 -29713740.31 -29713740.18 0.0517 0.0441  
 Moon -86065-03-19 08:37 J -29713740.27 -29713740.14 -29713739.99 0.0517 0.0409 \*  
 Venus -86061-07-27 21:06 J -29712148.80 -29712148.62 -29712148.44 0.0489 0.0255  
 Mercury -86060-01-24 09:35 J -29711968.18 -29711968.10 -29711968.02 0.0493 0.0435  
 Mercury -86060-04-24 13:25 J -29711878.12 -29711877.94 -29711877.77 0.0495 0.0065  
 Earth -86059-09-29 20:23 J -29711354.88 -29711354.65 -29711354.42 0.0514 0.0101  
 Moon -86059-09-29 21:06 J -29711354.87 -29711354.62 -29711354.38 0.0514 0.0076 \*  
 Mars -86058-09-04 05:59 J -29711015.43 -29711015.25 -29711015.06 0.0528 0.0347  
 Venus -86055-06-03 05:44 J -29710012.46 -29710012.26 -29710012.07 0.0538 0.0046  
 Mercury -86055-09-15 18:27 J -29709907.82 -29709907.73 -29709907.64 0.0536 0.0373  
 Mercury -86055-12-14 03:35 J -29709818.48 -29709818.35 -29709818.22 0.0533 0.0083  
 Moon -86053-03-23 15:20 J -29709353.08 -29709352.86 -29709352.63 0.0515 0.0132  
 Earth -86053-03-23 19:11 J -29709352.91 -29709352.70 -29709352.48 0.0515 0.0154 \*  
 Mercury -86048-02-10 11:44 J -29707568.18 -29707568.01 -29707567.84 0.0494 0.0063  
 Mercury -86048-05-11 14:23 J -29707477.98 -29707477.90 -29707477.81 0.0497 0.0429  
 Moon -86047-10-04 16:03 J -29706967.04 -29706966.83 -29706966.61 0.0516 0.0178  
 Earth -86047-10-04 18:56 J -29706966.92 -29706966.71 -29706966.48 0.0516 0.0197 \*  
 Venus -86043-02-05 23:59 J -29705746.59 -29705746.50 -29705746.39 0.0540 0.0469  
 Mercury -86043-07-04 22:18 J -29705597.63 -29705597.57 -29705597.52 0.0536 0.0480  
 Mercury -86043-10-02 07:11 J -29705508.33 -29705508.20 -29705508.07 0.0533 0.0027  
 Mercury -86043-12-30 16:47 J -29705418.87 -29705418.80 -29705418.72 0.0530 0.0434  
 Earth -86041-03-28 08:51 J -29704965.35 -29704965.13 -29704964.91 0.0512 0.0128  
 Moon -86041-03-28 11:44 J -29704965.23 -29704965.01 -29704964.80 0.0512 0.0108 \*



Venus -86037-07-30 08:51 J -29703380.25 -29703380.13 -29703380.00 0.0491 0.0394

Mercury -86037-11-29 10:32 J -29703258.22 -29703258.06 -29703257.89 0.0494 0.0185

Mercury -86036-02-27 13:39 J -29703168.06 -29703167.93 -29703167.80 0.0496 0.0310

Earth -86035-10-09 20:51 J -29702578.67 -29702578.63 -29702578.56 0.0519 0.0505

Moon -86035-10-10 00:56 J -29702578.54 -29702578.46 -29702578.35 0.0519 0.0477

Mercury -86031-07-21 10:32 J -29701198.18 -29701198.06 -29701197.93 0.0534 0.0140

Mercury -86031-10-18 20:08 J -29701108.77 -29701108.66 -29701108.56 0.0531 0.0319

Moon -86029-04-01 17:44 J -29700577.91 -29700577.76 -29700577.59 0.0509 0.0374

Earth -86029-04-01 18:56 J -29700577.85 -29700577.71 -29700577.56 0.0509 0.0396 \*

Venus -86025-04-04 07:39 J -29699114.39 -29699114.18 -29699113.97 0.0490 0.0022

Mercury -86025-09-17 09:06 J -29698948.26 -29698948.12 -29698947.98 0.0494 0.0312

Mercury -86025-12-16 12:27 J -29698858.14 -29698857.98 -29698857.81 0.0496 0.0188

Mars -86022-06-08 19:39 J -29697953.86 -29697953.68 -29697953.50 0.0530 0.0360

Venus -86019-02-08 21:49 J -29696977.73 -29696977.59 -29696977.44 0.0537 0.0352

Mercury -86019-05-09 13:54 J -29696888.04 -29696887.92 -29696887.81 0.0534 0.0254

Mercury -86019-08-06 23:01 J -29696798.66 -29696798.54 -29696798.41 0.0531 0.0202

Venus -86014-12-09 07:25 J -29694848.29 -29694848.19 -29694848.10 0.0488 0.0432

Mercury -86013-07-06 07:25 J -29694638.26 -29694638.19 -29694638.11 0.0493 0.0438

Mercury -86013-10-04 11:15 J -29694548.20 -29694548.03 -29694547.85 0.0495 0.0063

Venus -86008-10-14 12:42 J -29692712.15 -29692711.97 -29692711.78 0.0539 0.0184

Mercury -86007-02-25 16:32 J -29692577.90 -29692577.81 -29692577.72 0.0535 0.0378

Mercury -86007-05-26 01:39 J -29692488.56 -29692488.43 -29692488.30 0.0533 0.0078

Mercury -86001-07-23 10:03 J -29690238.25 -29690238.08 -29690237.90 0.0494 0.0062

Mercury -86001-10-21 12:42 J -29690148.05 -29690147.97 -29690147.88 0.0497 0.0431

# 86TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 86th millennium BCE.**

PLANET	MAX-	C	START	MAX	END	SUNRAD	DEPTH	S
	TRANSIT							
	TIME							
Mercury	-85996-12-14 20:08 J	-29688267.71	-29688267.66	-29688267.61	0.0536	0.0489		
Mercury	-85995-03-14 05:01 J	-29688178.42	-29688178.29	-29688178.15	0.0534	0.0038		
Mercury	-85995-06-11 14:51 J	-29688088.96	-29688088.88	-29688088.80	0.0531	0.0425		
Mars	-85993-07-16 14:51 J	-29687323.04	-29687322.88	-29687322.71	0.0500	0.0419		
Venus	-85990-12-11 19:11 J	-29686079.89	-29686079.70	-29686079.51	0.0490	0.0216		
Mercury	-85989-05-11 08:23 J	-29685928.31	-29685928.15	-29685927.98	0.0494	0.0189		
Mercury	-85989-08-09 11:30 J	-29685838.16	-29685838.02	-29685837.89	0.0496	0.0306		
Moon	-85988-09-23 21:49 J	-29685427.72	-29685427.59	-29685427.44	0.0511	0.0416		
Earth	-85988-09-23 22:03 J	-29685427.69	-29685427.58	-29685427.45	0.0511	0.0434	*	
Mercury	-85984-12-31 08:51 J	-29683868.26	-29683868.13	-29683868.00	0.0534	0.0144		
Mercury	-85983-03-30 18:13 J	-29683778.84	-29683778.74	-29683778.63	0.0531	0.0316		
Moon	-85982-03-19 08:08 J	-29683425.28	-29683425.16	-29683425.04	0.0517	0.0439		
Earth	-85982-03-19 11:59 J	-29683425.09	-29683425.00	-29683424.90	0.0517	0.0469	*	
Venus	-85978-08-16 18:56 J	-29681813.91	-29681813.71	-29681813.52	0.0489	0.0194		
Mercury	-85977-02-28 07:11 J	-29681618.34	-29681618.20	-29681618.06	0.0493	0.0312		
Mercury	-85977-05-28 10:32 J	-29681528.22	-29681528.06	-29681527.89	0.0496	0.0186		
Moon	-85976-09-28 20:08 J	-29681039.88	-29681039.66	-29681039.43	0.0514	0.0119		
Earth	-85976-09-28 22:32 J	-29681039.79	-29681039.56	-29681039.33	0.0514	0.0138	*	
Venus	-85972-06-22 06:27 J	-29679677.42	-29679677.23	-29679677.04	0.0538	0.0131		
Mercury	-85972-10-19 12:27 J	-29679558.09	-29679557.98	-29679557.86	0.0535	0.0254		
Mercury	-85971-01-16 21:35 J	-29679468.72	-29679468.60	-29679468.47	0.0532	0.0203		
Earth	-85970-03-24 00:27 J	-29679037.69	-29679037.48	-29679037.27	0.0515	0.0189		
Moon	-85970-03-24 03:20 J	-29679037.57	-29679037.36	-29679037.15	0.0515	0.0172	*	
Mercury	-85966-12-17 05:30 J	-29677308.35	-29677308.27	-29677308.19	0.0493	0.0439		

Mercury -85965-03-16 09:20 J -29677218.28 -29677218.11 -29677217.93 0.0495 0.0064  
 Earth -85964-10-03 23:15 J -29676651.76 -29676651.53 -29676651.31 0.0516 0.0164  
 Moon -85964-10-04 03:06 J -29676651.60 -29676651.37 -29676651.13 0.0516 0.0140 \*  
 Venus -85960-02-24 23:30 J -29675411.65 -29675411.52 -29675411.38 0.0539 0.0391  
 Mercury -85960-08-07 15:49 J -29675247.93 -29675247.84 -29675247.75 0.0535 0.0368  
 Mercury -85960-11-05 00:56 J -29675158.59 -29675158.46 -29675158.33 0.0532 0.0087  
 Moon -85958-03-28 11:01 J -29674650.28 -29674650.04 -29674649.80 0.0512 0.0063  
 Earth -85958-03-28 12:13 J -29674650.21 -29674649.99 -29674649.76 0.0512 0.0088 \*  
 Mars -85957-04-23 07:54 J -29674258.36 -29674258.17 -29674257.95 0.0498 0.0371  
 Venus -85954-08-19 07:25 J -29673045.26 -29673045.19 -29673045.12 0.0491 0.0456  
 Mercury -85953-01-03 08:23 J -29672908.33 -29672908.15 -29672907.98 0.0494 0.0062  
 Mercury -85953-04-02 11:01 J -29672818.12 -29672818.04 -29672817.96 0.0497 0.0430  
 Moon -85952-10-08 16:47 J -29672263.92 -29672263.80 -29672263.67 0.0518 0.0433  
 Earth -85952-10-08 20:51 J -29672263.73 -29672263.63 -29672263.52 0.0518 0.0463 \*  
 Mercury -85948-05-26 18:27 J -29670937.78 -29670937.73 -29670937.68 0.0536 0.0492  
 Mercury -85948-08-24 03:20 J -29670848.49 -29670848.36 -29670848.23 0.0534 0.0041  
 Mercury -85948-11-21 13:11 J -29670759.03 -29670758.95 -29670758.87 0.0531 0.0421  
 Moon -85946-04-01 22:03 J -29670262.74 -29670262.58 -29670262.42 0.0511 0.0347  
 Earth -85946-04-01 22:47 J -29670262.71 -29670262.55 -29670262.39 0.0511 0.0362 \*  
 Venus -85942-04-24 07:11 J -29668779.41 -29668779.20 -29668778.99 0.0489 0.0047  
 Mercury -85942-10-22 07:11 J -29668598.37 -29668598.20 -29668598.04 0.0494 0.0184  
 Mercury -85941-01-20 10:03 J -29668508.21 -29668508.08 -29668507.94 0.0496 0.0310  
 Venus -85936-02-27 17:59 J -29666642.87 -29666642.75 -29666642.62 0.0537 0.0409  
 Mercury -85936-06-12 06:56 J -29666538.34 -29666538.21 -29666538.09 0.0534 0.0152  
 Mercury -85936-09-09 16:18 J -29666448.93 -29666448.82 -29666448.71 0.0532 0.0307  
 Venus -85931-12-28 05:59 J -29664513.39 -29664513.25 -29664513.11 0.0488 0.0365  
 Mercury -85930-08-10 05:15 J -29664288.41 -29664288.28 -29664288.14 0.0493 0.0312  
 Mercury -85930-11-08 08:37 J -29664198.30 -29664198.14 -29664197.97 0.0495 0.0185  
 Venus -85925-11-02 13:11 J -29662377.15 -29662376.95 -29662376.76 0.0539 0.0101  
 Mercury -85924-03-31 10:32 J -29662228.17 -29662228.06 -29662227.94 0.0535 0.0260

Mercury -85924-06-28 19:54 J -29662138.79 -29662138.67 -29662138.54 0.0532 0.0199

Mercury -85918-05-29 03:49 J -29659978.41 -29659978.34 -29659978.25 0.0492 0.0436

Mercury -85918-08-27 07:39 J -29659888.35 -29659888.18 -29659888.00 0.0495 0.0065

Mercury -85912-01-17 14:23 J -29657917.99 -29657917.90 -29657917.80 0.0535 0.0368

Mercury -85912-04-16 23:30 J -29657828.65 -29657828.52 -29657828.39 0.0533 0.0087

Venus -85907-12-30 17:59 J -29655744.91 -29655744.75 -29655744.57 0.0490 0.0284

Mercury -85906-06-15 06:27 J -29655578.40 -29655578.23 -29655578.05 0.0494 0.0061

Mercury -85906-09-13 09:20 J -29655488.19 -29655488.11 -29655488.03 0.0497 0.0432

Moon -85905-09-23 01:54 J -29655112.52 -29655112.42 -29655112.29 0.0511 0.0438

Earth -85905-09-23 03:49 J -29655112.44 -29655112.34 -29655112.24 0.0511 0.0460 \*

Mars -85904-11-28 08:08 J -29654681.40 -29654681.16 -29654680.92 0.0528 0.0125

Mercury -85901-11-05 17:59 J -29653607.81 -29653607.75 -29653607.70 0.0536 0.0479

Mercury -85900-02-03 02:51 J -29653518.51 -29653518.38 -29653518.25 0.0533 0.0028

Mercury -85900-05-03 12:27 J -29653429.06 -29653428.98 -29653428.91 0.0530 0.0432

Earth -85899-03-18 17:01 J -29653109.84 -29653109.79 -29653109.73 0.0518 0.0502

Moon -85899-03-18 20:08 J -29653109.75 -29653109.66 -29653109.57 0.0518 0.0472 \*

Venus -85895-09-04 17:59 J -29651478.95 -29651478.75 -29651478.54 0.0489 0.0127

Mercury -85894-04-03 05:30 J -29651268.43 -29651268.27 -29651268.11 0.0494 0.0183

Mercury -85894-07-02 08:37 J -29651178.27 -29651178.14 -29651178.01 0.0496 0.0312

Earth -85893-09-28 01:39 J -29650724.66 -29650724.43 -29650724.21 0.0513 0.0167

Moon -85893-09-28 05:15 J -29650724.51 -29650724.28 -29650724.04 0.0513 0.0149 \*

Venus -85889-07-11 02:23 J -29649342.58 -29649342.40 -29649342.21 0.0538 0.0188

Mercury -85889-11-22 05:15 J -29649208.40 -29649208.28 -29649208.15 0.0534 0.0154

Mercury -85888-02-19 14:51 J -29649118.99 -29649118.88 -29649118.77 0.0531 0.0306

Moon -85887-03-23 02:23 J -29648722.62 -29648722.40 -29648722.19 0.0516 0.0215

Earth -85887-03-23 04:03 J -29648722.54 -29648722.33 -29648722.13 0.0516 0.0224 \*

Mercury -85882-01-20 04:18 J -29646958.46 -29646958.32 -29646958.18 0.0493 0.0305

Mercury -85882-04-20 07:39 J -29646868.34 -29646868.18 -29646868.02 0.0495 0.0192

Moon -85881-10-02 20:23 J -29646336.88 -29646336.65 -29646336.41 0.0515 0.0102

Earth -85881-10-03 00:42 J -29646336.70 -29646336.47 -29646336.24 0.0515 0.0128 \*

Venus -85877-03-15 19:39 J -29645076.83 -29645076.68 -29645076.52 0.0540 0.0333  
 Mercury -85877-09-10 08:51 J -29644898.24 -29644898.13 -29644898.02 0.0535 0.0266  
 Mercury -85877-12-08 17:59 J -29644808.87 -29644808.75 -29644808.62 0.0532 0.0193  
 Moon -85875-03-27 17:15 J -29644335.00 -29644334.78 -29644334.56 0.0514 0.0031  
 Earth -85875-03-27 17:59 J -29644334.98 -29644334.75 -29644334.52 0.0514 0.0059 \*  
 Mercury -85871-11-08 02:23 J -29642648.48 -29642648.40 -29642648.32 0.0492 0.0433  
 Mercury -85870-02-06 06:13 J -29642558.41 -29642558.24 -29642558.07 0.0495 0.0066  
 Earth -85869-10-07 22:32 J -29641948.69 -29641948.56 -29641948.42 0.0517 0.0423  
 Moon -85869-10-08 01:54 J -29641948.55 -29641948.42 -29641948.26 0.0517 0.0401 \*  
 Mercury -85865-06-29 12:42 J -29640588.06 -29640587.97 -29640587.88 0.0536 0.0372  
 Mercury -85865-09-26 21:49 J -29640498.72 -29640498.59 -29640498.46 0.0533 0.0084  
 Earth -85863-04-01 08:23 J -29639947.32 -29639947.15 -29639946.98 0.0511 0.0338  
 Moon -85863-04-01 10:32 J -29639947.23 -29639947.06 -29639946.87 0.0511 0.0329 \*  
 Venus -85859-05-13 06:13 J -29638444.44 -29638444.24 -29638444.04 0.0489 0.0116  
 Mercury -85859-11-25 05:01 J -29638248.46 -29638248.29 -29638248.11 0.0494 0.0058  
 Mercury -85858-02-23 07:54 J -29638158.25 -29638158.17 -29638158.09 0.0497 0.0435  
 Venus -85853-03-18 20:08 J -29636307.71 -29636307.66 -29636307.58 0.0537 0.0506  
 Mercury -85853-04-17 16:32 J -29636277.86 -29636277.81 -29636277.75 0.0536 0.0479  
 Mercury -85853-07-16 01:25 J -29636188.57 -29636188.44 -29636188.30 0.0534 0.0030  
 Mercury -85853-10-13 11:01 J -29636099.11 -29636099.04 -29636098.96 0.0530 0.0434  
 Venus -85847-01-16 05:30 J -29634178.44 -29634178.27 -29634178.11 0.0489 0.0296  
 Mercury -85847-09-13 03:49 J -29633938.50 -29633938.34 -29633938.18 0.0494 0.0181  
 Mercury -85847-12-12 06:56 J -29633848.34 -29633848.21 -29633848.07 0.0496 0.0315  
 Venus -85842-11-22 14:37 J -29632042.09 -29632041.89 -29632041.70 0.0539 0.0014  
 Mercury -85841-05-04 05:01 J -29631878.42 -29631878.29 -29631878.17 0.0534 0.0139  
 Mercury -85841-08-01 14:23 J -29631789.01 -29631788.90 -29631788.79 0.0531 0.0319  
 Mars -85839-10-10 17:30 J -29630989.06 -29630988.77 -29630988.48 0.0500 0.0158  
 Mercury -85835-07-02 02:52 J -29629628.52 -29629628.38 -29629628.24 0.0493 0.0302  
 Mercury -85835-09-30 06:13 J -29629538.40 -29629538.24 -29629538.08 0.0495 0.0196  
 Mercury -85829-02-21 07:25 J -29627568.30 -29627568.19 -29627568.07 0.0535 0.0264

Mercury -85829-05-20 16:47 J -29627478.93 -29627478.80 -29627478.68 0.0532 0.0193

Venus -85823-01-18 19:25 J -29625409.82 -29625409.69 -29625409.54 0.0490 0.0363

Mercury -85823-04-20 01:40 J -29625318.52 -29625318.43 -29625318.34 0.0492 0.0423

Mercury -85823-07-19 05:30 J -29625228.45 -29625228.27 -29625228.10 0.0495 0.0076

Earth -85822-09-23 08:08 J -29624797.22 -29624797.16 -29624797.08 0.0510 0.0484

Moon -85822-09-23 11:44 J -29624797.12 -29624797.01 -29624796.90 0.0510 0.0452 \*

Mercury -85818-12-10 11:01 J -29623258.13 -29623258.04 -29623257.95 0.0536 0.0376

Mercury -85817-03-08 20:08 J -29623168.80 -29623168.66 -29623168.53 0.0533 0.0081

Moon -85816-03-17 19:54 J -29622794.71 -29622794.67 -29622794.61 0.0519 0.0504

Venus -85812-09-23 18:13 J -29621143.95 -29621143.74 -29621143.53 0.0489 0.0051

Mercury -85811-05-07 03:49 J -29620918.51 -29620918.34 -29620918.16 0.0494 0.0051

Mercury -85811-08-05 06:28 J -29620828.30 -29620828.23 -29620828.15 0.0496 0.0439

Moon -85810-09-28 00:42 J -29620409.68 -29620409.47 -29620409.24 0.0512 0.0185

Earth -85810-09-28 05:01 J -29620409.51 -29620409.29 -29620409.07 0.0512 0.0200 \*

Venus -85806-07-31 03:35 J -29619007.51 -29619007.35 -29619007.18 0.0538 0.0279

Mercury -85806-09-28 14:52 J -29618947.93 -29618947.88 -29618947.83 0.0537 0.0483

Mercury -85806-12-26 23:44 J -29618858.64 -29618858.51 -29618858.38 0.0534 0.0031

Mercury -85805-03-25 09:20 J -29618769.18 -29618769.11 -29618769.03 0.0531 0.0432

Moon -85804-03-22 13:25 J -29618407.13 -29618406.94 -29618406.75 0.0517 0.0250

Earth -85804-03-22 13:54 J -29618407.11 -29618406.92 -29618406.71 0.0517 0.0246 \*

Venus -85800-05-29 18:13 J -29616877.81 -29616877.74 -29616877.66 0.0488 0.0456

Mercury -85799-02-23 02:37 J -29616608.55 -29616608.39 -29616608.22 0.0493 0.0174

Mercury -85799-05-24 05:44 J -29616518.39 -29616518.26 -29616518.13 0.0496 0.0320

Earth -85798-10-03 05:16 J -29616021.51 -29616021.28 -29616021.05 0.0514 0.0097

Moon -85798-10-03 09:06 J -29616021.35 -29616021.12 -29616020.89 0.0514 0.0070 \*

Venus -85794-04-04 22:47 J -29614741.72 -29614741.55 -29614741.37 0.0539 0.0232

Mercury -85794-10-15 03:35 J -29614548.47 -29614548.35 -29614548.22 0.0534 0.0137

Mercury -85793-01-12 12:56 J -29614459.06 -29614458.96 -29614458.85 0.0531 0.0322

Earth -85792-03-27 04:18 J -29614019.55 -29614019.32 -29614019.10 0.0514 0.0039

Moon -85792-03-27 06:42 J -29614019.46 -29614019.22 -29614018.99 0.0514 0.0011 \*

Mercury -85788-12-12 01:11 J -29612298.59 -29612298.45 -29612298.30 0.0493 0.0299

Mercury -85787-03-12 04:47 J -29612208.46 -29612208.30 -29612208.14 0.0496 0.0199

Moon -85786-10-08 04:18 J -29611633.48 -29611633.32 -29611633.15 0.0517 0.0383

Earth -85786-10-08 06:42 J -29611633.37 -29611633.22 -29611633.07 0.0517 0.0400 \*

Mercury -85782-08-03 07:11 J -29610238.32 -29610238.20 -29610238.08 0.0535 0.0248

Mercury -85782-10-31 16:18 J -29610148.94 -29610148.82 -29610148.69 0.0532 0.0209

Moon -85780-03-31 13:25 J -29609632.11 -29609631.94 -29609631.75 0.0512 0.0306

Earth -85780-03-31 16:47 J -29609631.97 -29609631.80 -29609631.61 0.0512 0.0313 \*

Venus -85776-06-01 07:25 J -29608109.39 -29608109.19 -29608109.00 0.0490 0.0194

Mercury -85776-09-30 00:13 J -29607988.58 -29607988.49 -29607988.40 0.0492 0.0419

Mercury -85776-12-29 04:04 J -29607898.50 -29607898.33 -29607898.15 0.0495 0.0081

Mercury -85770-05-22 09:49 J -29605928.18 -29605928.09 -29605928.00 0.0536 0.0373

Mercury -85770-08-19 18:56 J -29605838.85 -29605838.71 -29605838.58 0.0533 0.0084

Venus -85764-02-04 07:25 J -29603843.37 -29603843.19 -29603842.99 0.0489 0.0212

Mercury -85764-10-17 03:20 J -29603588.54 -29603588.36 -29603588.19 0.0494 0.0041

Mercury -85763-01-15 05:59 J -29603498.32 -29603498.25 -29603498.18 0.0497 0.0451

Venus -85759-12-11 11:30 J -29601707.21 -29601707.02 -29601706.82 0.0539 0.0055

Mercury -85758-03-10 13:11 J -29601618.00 -29601617.95 -29601617.89 0.0536 0.0485

Mercury -85758-06-07 22:04 J -29601528.71 -29601528.58 -29601528.44 0.0534 0.0036

Mercury -85758-09-05 07:54 J -29601439.25 -29601439.17 -29601439.10 0.0531 0.0428

Mercury -85752-08-05 01:40 J -29599278.60 -29599278.43 -29599278.27 0.0493 0.0167

Mercury -85752-11-03 04:32 J -29599188.44 -29599188.31 -29599188.18 0.0496 0.0326

Mars -85749-02-22 07:40 J -29598347.42 -29598347.18 -29598346.93 0.0528 0.0092

Venus -85747-08-16 05:44 J -29597441.35 -29597441.26 -29597441.15 0.0540 0.0461

Mercury -85746-03-27 01:54 J -29597218.55 -29597218.42 -29597218.29 0.0535 0.0140

Mercury -85746-06-24 11:16 J -29597129.13 -29597129.03 -29597128.92 0.0532 0.0320

Venus -85740-02-06 19:25 J -29595074.77 -29595074.69 -29595074.59 0.0490 0.0438

Mercury -85740-05-24 00:13 J -29594968.63 -29594968.49 -29594968.34 0.0493 0.0290

Mercury -85740-08-22 03:49 J -29594878.50 -29594878.34 -29594878.18 0.0495 0.0206

Moon -85739-09-22 09:20 J -29594482.18 -29594482.11 -29594482.02 0.0509 0.0479

Mercury -85734-01-13 05:59 J -29592908.37 -29592908.25 -29592908.14 0.0535 0.0247

Mercury -85734-04-12 15:06 J -29592818.99 -29592818.87 -29592818.75 0.0532 0.0211

Venus -85729-10-12 18:56 J -29590808.92 -29590808.71 -29590808.50 0.0489 0.0027

Mercury -85728-03-11 22:47 J -29590658.64 -29590658.55 -29590658.46 0.0492 0.0415

Mercury -85728-06-10 02:37 J -29590568.56 -29590568.39 -29590568.21 0.0495 0.0084

Earth -85727-09-27 13:11 J -29590094.16 -29590093.95 -29590093.73 0.0512 0.0219

Moon -85727-09-27 17:16 J -29590093.99 -29590093.78 -29590093.56 0.0512 0.0208 \*

Venus -85723-08-19 06:28 J -29588672.36 -29588672.23 -29588672.08 0.0538 0.0378

Mercury -85723-11-01 09:35 J -29588598.20 -29588598.10 -29588598.01 0.0536 0.0357

Mercury -85722-01-29 18:28 J -29588508.86 -29588508.73 -29588508.59 0.0533 0.0100

Earth -85721-03-21 23:30 J -29588091.72 -29588091.52 -29588091.33 0.0517 0.0267

Moon -85721-03-22 01:54 J -29588091.62 -29588091.42 -29588091.23 0.0517 0.0279 \*

Venus -85717-06-17 19:40 J -29586542.81 -29586542.68 -29586542.54 0.0488 0.0377

Mercury -85716-03-29 02:08 J -29586258.59 -29586258.41 -29586258.24 0.0494 0.0036

Mercury -85716-06-27 04:47 J -29586168.36 -29586168.30 -29586168.23 0.0497 0.0456

Moon -85715-10-02 10:47 J -29585706.29 -29585706.05 -29585705.80 0.0514 0.0052

Earth -85715-10-02 13:40 J -29585706.17 -29585705.93 -29585705.70 0.0514 0.0080 \*

Venus -85711-04-23 21:06 J -29584406.80 -29584406.62 -29584406.43 0.0539 0.0160

Mercury -85711-08-20 12:13 J -29584288.05 -29584287.99 -29584287.94 0.0536 0.0480

Mercury -85711-11-17 21:06 J -29584198.75 -29584198.62 -29584198.49 0.0534 0.0030

Mercury -85710-02-15 06:42 J -29584109.30 -29584109.22 -29584109.15 0.0531 0.0432

Moon -85709-03-26 05:44 J -29583704.49 -29583704.26 -29583704.04 0.0515 0.0030

Earth -85709-03-26 08:52 J -29583704.36 -29583704.13 -29583703.90 0.0515 0.0007 \*

Mercury -85704-01-15 00:56 J -29581948.62 -29581948.46 -29581948.29 0.0493 0.0155

Mercury -85704-04-15 04:04 J -29581858.45 -29581858.33 -29581858.20 0.0496 0.0339

Earth -85703-10-07 13:11 J -29581318.11 -29581317.95 -29581317.79 0.0516 0.0375

Moon -85703-10-07 13:25 J -29581318.10 -29581317.94 -29581317.78 0.0516 0.0371 \*

Mercury -85699-09-06 00:28 J -29579888.61 -29579888.48 -29579888.36 0.0535 0.0142

Mercury -85699-12-04 09:49 J -29579799.20 -29579799.09 -29579798.98 0.0532 0.0317

Earth -85697-03-30 22:18 J -29579316.76 -29579316.57 -29579316.38 0.0513 0.0283



Moon -85697-03-31 01:54 J -29579316.61 -29579316.42 -29579316.22 0.0513 0.0283 \*  
 Venus -85693-06-20 08:08 J -29577774.33 -29577774.16 -29577773.98 0.0490 0.0273  
 Mercury -85693-11-02 23:16 J -29577638.68 -29577638.53 -29577638.38 0.0493 0.0282  
 Mercury -85692-02-01 02:37 J -29577548.54 -29577548.39 -29577548.23 0.0495 0.0214  
 Mercury -85687-06-25 04:04 J -29575578.44 -29575578.33 -29575578.21 0.0535 0.0251  
 Mercury -85687-09-22 13:25 J -29575489.06 -29575488.94 -29575488.82 0.0533 0.0208  
 Mars -85684-01-04 08:08 J -29574654.45 -29574654.16 -29574653.86 0.0500 0.0143  
 Venus -85681-02-24 07:54 J -29573508.37 -29573508.17 -29573507.97 0.0488 0.0135  
 Mercury -85681-08-21 21:49 J -29573328.69 -29573328.59 -29573328.49 0.0492 0.0406  
 Mercury -85681-11-20 01:40 J -29573238.60 -29573238.43 -29573238.26 0.0494 0.0092  
 Venus -85676-12-30 15:06 J -29571372.06 -29571371.87 -29571371.68 0.0539 0.0158  
 Mercury -85675-04-13 08:08 J -29571268.26 -29571268.16 -29571268.06 0.0536 0.0356  
 Mercury -85675-07-11 17:16 J -29571178.91 -29571178.78 -29571178.65 0.0533 0.0100  
 Mercury -85669-09-08 00:28 J -29568928.65 -29568928.48 -29568928.30 0.0494 0.0031  
 Mercury -85669-12-07 03:06 J -29568838.43 -29568838.37 -29568838.30 0.0497 0.0460  
 Venus -85664-09-04 09:20 J -29567106.26 -29567106.11 -29567105.96 0.0540 0.0358  
 Mercury -85663-01-30 11:59 J -29566958.07 -29566958.00 -29566957.94 0.0536 0.0465  
 Mercury -85663-04-29 20:52 J -29566868.77 -29566868.63 -29566868.50 0.0534 0.0017  
 Mercury -85663-07-28 06:28 J -29566779.30 -29566779.23 -29566779.16 0.0531 0.0448  
 Mercury -85657-06-26 23:44 J -29564618.68 -29564618.51 -29564618.34 0.0494 0.0149  
 Mercury -85657-09-25 02:52 J -29564528.50 -29564528.38 -29564528.25 0.0496 0.0345  
 Moon -85656-09-22 03:06 J -29564166.43 -29564166.37 -29564166.30 0.0509 0.0488  
 Mercury -85651-02-15 23:16 J -29562558.65 -29562558.53 -29562558.40 0.0534 0.0137  
 Mercury -85651-05-16 08:37 J -29562469.24 -29562469.14 -29562469.03 0.0531 0.0322  
 Venus -85646-11-01 21:20 J -29560473.81 -29560473.61 -29560473.40 0.0489 0.0113  
 Mercury -85645-04-14 22:47 J -29560308.70 -29560308.55 -29560308.40 0.0493 0.0270  
 Mercury -85645-07-14 02:08 J -29560218.56 -29560218.41 -29560218.25 0.0495 0.0227  
 Moon -85644-09-26 18:28 J -29559778.95 -29559778.73 -29559778.51 0.0511 0.0230  
 Earth -85644-09-26 21:35 J -29559778.80 -29559778.60 -29559778.38 0.0511 0.0237 \*  
 Venus -85640-09-07 03:49 J -29558337.45 -29558337.34 -29558337.23 0.0537 0.0443

Mercury -85640-12-05 02:37 J -29558248.50 -29558248.39 -29558248.27 0.0535 0.0251

Mercury -85639-03-04 11:59 J -29558159.13 -29558159.00 -29558158.88 0.0532 0.0207

Moon -85638-03-21 23:59 J -29557776.68 -29557776.50 -29557776.33 0.0518 0.0320

Earth -85638-03-22 03:20 J -29557776.55 -29557776.36 -29557776.18 0.0518 0.0303 \*

Venus -85634-07-07 20:23 J -29556207.81 -29556207.65 -29556207.48 0.0488 0.0298

Mercury -85633-02-01 20:52 J -29555998.73 -29555998.63 -29555998.53 0.0492 0.0398

Mercury -85633-05-02 00:42 J -29555908.64 -29555908.47 -29555908.30 0.0494 0.0100

Earth -85632-10-01 17:44 J -29555391.00 -29555390.76 -29555390.53 0.0513 0.0048

Moon -85632-10-01 18:42 J -29555390.95 -29555390.72 -29555390.49 0.0513 0.0020 \*

Mars -85631-08-14 10:04 J -29555074.26 -29555074.08 -29555073.89 0.0526 0.0347

Venus -85628-05-12 22:04 J -29554071.77 -29554071.58 -29554071.38 0.0539 0.0072

Mercury -85628-09-23 06:28 J -29553938.33 -29553938.23 -29553938.14 0.0536 0.0360

Mercury -85628-12-21 15:35 J -29553848.98 -29553848.85 -29553848.72 0.0533 0.0097

Earth -85626-03-26 19:11 J -29553388.93 -29553388.70 -29553388.47 0.0516 0.0016

Moon -85626-03-26 23:01 J -29553388.77 -29553388.54 -29553388.31 0.0516 0.0047 \*

Mercury -85621-02-18 23:30 J -29551598.70 -29551598.52 -29551598.34 0.0494 0.0023

Mercury -85621-05-19 02:08 J -29551508.46 -29551508.41 -29551508.35 0.0496 0.0467

Earth -85620-10-06 17:30 J -29551002.95 -29551002.77 -29551002.59 0.0515 0.0342

Moon -85620-10-06 18:56 J -29551002.89 -29551002.71 -29551002.52 0.0515 0.0344 \*

Mercury -85616-07-12 10:18 J -29549628.13 -29549628.07 -29549628.00 0.0537 0.0466

Mercury -85616-10-09 19:25 J -29549538.83 -29549538.69 -29549538.56 0.0534 0.0018

Mercury -85615-01-07 05:01 J -29549449.36 -29549449.29 -29549449.22 0.0531 0.0448

Moon -85614-03-31 06:28 J -29549001.43 -29549001.23 -29549001.03 0.0513 0.0270

Earth -85614-03-31 09:49 J -29549001.28 -29549001.09 -29549000.89 0.0513 0.0266 \*

Venus -85610-07-10 08:37 J -29547439.28 -29547439.14 -29547438.99 0.0490 0.0350

Mercury -85610-12-07 22:04 J -29547288.74 -29547288.58 -29547288.41 0.0493 0.0147

Mercury -85609-03-07 01:11 J -29547198.57 -29547198.45 -29547198.32 0.0496 0.0347

Mercury -85604-07-28 23:01 J -29545228.67 -29545228.54 -29545228.41 0.0534 0.0122

Mercury -85604-10-26 08:23 J -29545139.25 -29545139.15 -29545139.05 0.0532 0.0337

Venus -85598-03-15 09:20 J -29543173.32 -29543173.11 -29543172.90 0.0489 0.0056

Mercury -85598-09-25 21:20 J -29542978.76 -29542978.61 -29542978.46 0.0493 0.0266

Mercury -85598-12-25 00:56 J -29542888.62 -29542888.46 -29542888.31 0.0495 0.0231

Mars -85595-05-19 00:13 J -29542012.66 -29542012.49 -29542012.30 0.0528 0.0362

Venus -85592-01-18 13:40 J -29541037.10 -29541036.93 -29541036.75 0.0538 0.0234

Mercury -85592-05-17 01:40 J -29540918.55 -29540918.43 -29540918.32 0.0535 0.0245

Mercury -85592-08-14 10:47 J -29540829.17 -29540829.05 -29540828.93 0.0532 0.0211

Venus -85587-11-18 09:35 J -29538907.17 -29538907.10 -29538907.03 0.0488 0.0458

Mercury -85586-07-14 20:08 J -29538668.77 -29538668.66 -29538668.55 0.0492 0.0387

Mercury -85586-10-12 23:59 J -29538578.67 -29538578.50 -29538578.33 0.0495 0.0112

Venus -85581-09-23 06:42 J -29536771.39 -29536771.22 -29536771.06 0.0539 0.0290

Mercury -85580-03-05 05:01 J -29536608.39 -29536608.29 -29536608.20 0.0536 0.0360

Mercury -85580-06-02 13:54 J -29536519.05 -29536518.92 -29536518.79 0.0533 0.0095

Mercury -85574-07-31 22:18 J -29534268.74 -29534268.57 -29534268.39 0.0494 0.0017

Mercury -85574-10-30 00:56 J -29534178.50 -29534178.46 -29534178.41 0.0496 0.0474

Mercury -85569-12-22 08:37 J -29532298.20 -29532298.14 -29532298.08 0.0537 0.0470

Mercury -85568-03-21 17:30 J -29532208.90 -29532208.77 -29532208.64 0.0534 0.0016

Mercury -85568-06-19 03:06 J -29532119.44 -29532119.37 -29532119.30 0.0531 0.0444

Mars -85566-06-23 15:49 J -29531385.02 -29531384.84 -29531384.65 0.0502 0.0396

Venus -85563-11-20 21:06 J -29530138.81 -29530138.62 -29530138.42 0.0489 0.0185

Mercury -85562-05-19 21:06 J -29529958.79 -29529958.62 -29529958.45 0.0493 0.0140

Mercury -85562-08-17 23:59 J -29529868.61 -29529868.50 -29529868.37 0.0496 0.0354

Earth -85561-09-26 01:11 J -29529463.65 -29529463.45 -29529463.25 0.0510 0.0269

Moon -85561-09-26 02:52 J -29529463.58 -29529463.38 -29529463.19 0.0510 0.0273 \*

Mercury -85556-01-07 21:20 J -29527898.74 -29527898.61 -29527898.48 0.0535 0.0124

Mercury -85556-04-07 06:42 J -29527809.32 -29527809.22 -29527809.11 0.0532 0.0336

Earth -85555-03-21 14:08 J -29527461.08 -29527460.91 -29527460.72 0.0518 0.0321

Moon -85555-03-21 18:13 J -29527460.91 -29527460.74 -29527460.57 0.0518 0.0342 \*

Venus -85551-07-26 20:23 J -29525872.83 -29525872.65 -29525872.46 0.0488 0.0225

Mercury -85550-03-07 19:25 J -29525648.83 -29525648.69 -29525648.54 0.0493 0.0265

Mercury -85550-06-05 23:01 J -29525558.69 -29525558.54 -29525558.38 0.0495 0.0231

Earth -85549-10-01 00:42 J -29525075.71 -29525075.47 -29525075.23 0.0513 0.0024  
 Moon -85549-10-01 01:40 J -29525075.67 -29525075.43 -29525075.18 0.0513 0.0009 \*  
 Venus -85545-06-01 01:11 J -29523736.65 -29523736.45 -29523736.25 0.0539 0.0030  
 Mercury -85545-10-27 01:11 J -29523588.57 -29523588.45 -29523588.34 0.0535 0.0234  
 Mercury -85544-01-24 10:18 J -29523499.19 -29523499.07 -29523498.95 0.0532 0.0224  
 Moon -85543-03-26 01:11 J -29523073.68 -29523073.45 -29523073.22 0.0516 0.0067  
 Earth -85543-03-26 04:47 J -29523073.53 -29523073.30 -29523073.07 0.0516 0.0039 \*  
 Mercury -85539-12-24 18:28 J -29521338.83 -29521338.73 -29521338.61 0.0492 0.0385  
 Mercury -85538-03-24 22:32 J -29521248.73 -29521248.56 -29521248.39 0.0495 0.0115  
 Moon -85537-10-05 23:16 J -29520687.70 -29520687.53 -29520687.35 0.0515 0.0331  
 Earth -85537-10-06 02:08 J -29520687.59 -29520687.41 -29520687.22 0.0515 0.0324 \*  
 Venus -85533-02-04 16:18 J -29519470.89 -29519470.82 -29519470.75 0.0540 0.0503  
 Mercury -85533-08-15 03:49 J -29519278.44 -29519278.34 -29519278.24 0.0535 0.0355  
 Mercury -85533-11-12 12:42 J -29519189.10 -29519188.97 -29519188.83 0.0533 0.0101  
 Earth -85531-03-30 13:11 J -29518686.16 -29518685.95 -29518685.75 0.0514 0.0226  
 Moon -85531-03-30 15:35 J -29518686.05 -29518685.85 -29518685.66 0.0514 0.0243 \*  
 Mars -85530-03-31 10:04 J -29518320.25 -29518320.08 -29518319.90 0.0500 0.0406  
 Venus -85527-07-29 10:18 J -29517104.16 -29517104.07 -29517103.97 0.0490 0.0433  
 Mercury -85526-01-10 21:35 J -29516938.78 -29516938.60 -29516938.43 0.0494 0.0008  
 Mercury -85526-04-11 00:13 J -29516848.52 -29516848.49 -29516848.45 0.0497 0.0484  
 Mercury -85521-06-03 07:11 J -29514968.26 -29514968.20 -29514968.14 0.0536 0.0469  
 Mercury -85521-08-31 16:04 J -29514878.96 -29514878.83 -29514878.70 0.0534 0.0021  
 Mercury -85521-11-29 01:25 J -29514789.51 -29514789.44 -29514789.36 0.0531 0.0442  
 Earth -85519-04-04 01:25 J -29514298.49 -29514298.44 -29514298.39 0.0512 0.0497  
 Venus -85515-04-03 09:06 J -29512838.33 -29512838.12 -29512837.91 0.0489 0.0020  
 Mercury -85515-10-29 19:40 J -29512628.85 -29512628.68 -29512628.51 0.0493 0.0135  
 Mercury -85514-01-27 22:47 J -29512538.67 -29512538.55 -29512538.43 0.0496 0.0358  
 Venus -85509-02-07 13:25 J -29510702.10 -29510701.94 -29510701.78 0.0538 0.0312  
 Mercury -85509-06-19 19:25 J -29510568.81 -29510568.69 -29510568.56 0.0535 0.0130  
 Mercury -85509-09-17 04:47 J -29510479.40 -29510479.30 -29510479.19 0.0532 0.0330

Venus -85504-12-07 08:52 J -29508572.26 -29508572.13 -29508572.01 0.0488 0.0389  
 Mercury -85503-08-17 18:13 J -29508318.89 -29508318.74 -29508318.59 0.0493 0.0259  
 Mercury -85503-11-15 21:49 J -29508228.75 -29508228.59 -29508228.44 0.0495 0.0236  
 Venus -85498-10-13 08:08 J -29506436.34 -29506436.16 -29506435.98 0.0540 0.0200  
 Mercury -85497-04-07 23:16 J -29506258.64 -29506258.53 -29506258.41 0.0535 0.0237  
 Mercury -85497-07-06 08:37 J -29506169.26 -29506169.14 -29506169.02 0.0533 0.0220  
 Mercury -85491-06-05 16:32 J -29504008.92 -29504008.81 -29504008.70 0.0492 0.0386  
 Mercury -85491-09-03 20:23 J -29503918.82 -29503918.65 -29503918.47 0.0495 0.0113  
 Mercury -85485-01-26 03:06 J -29501948.47 -29501948.37 -29501948.27 0.0536 0.0346  
 Mercury -85485-04-24 12:13 J -29501859.12 -29501858.99 -29501858.86 0.0533 0.0111  
 Venus -85480-12-09 21:20 J -29499803.78 -29499803.61 -29499803.43 0.0490 0.0260  
 Mercury -85479-06-22 19:54 J -29499608.85 -29499608.67 -29499608.50 0.0494 0.0014  
 Mercury -85479-09-20 22:32 J -29499518.59 -29499518.56 -29499518.52 0.0497 0.0485  
 Earth -85478-09-26 09:06 J -29499148.32 -29499148.12 -29499147.92 0.0510 0.0288  
 Moon -85478-09-26 09:20 J -29499148.30 -29499148.11 -29499147.90 0.0510 0.0301 \*  
 Mars -85477-11-07 22:47 J -29498739.79 -29498739.55 -29498739.30 0.0526 0.0093  
 Mercury -85474-11-14 05:59 J -29497638.31 -29497638.25 -29497638.19 0.0536 0.0465  
 Mercury -85473-02-11 14:52 J -29497549.01 -29497548.88 -29497548.75 0.0533 0.0017  
 Mercury -85473-05-11 00:13 J -29497459.56 -29497459.49 -29497459.42 0.0530 0.0445  
 Moon -85472-03-20 12:28 J -29497146.13 -29497145.98 -29497145.82 0.0519 0.0386  
 Earth -85472-03-20 16:18 J -29497145.98 -29497145.82 -29497145.66 0.0519 0.0363 \*  
 Venus -85468-08-14 20:52 J -29495537.83 -29495537.63 -29495537.43 0.0489 0.0149  
 Mercury -85467-04-10 18:42 J -29495298.90 -29495298.72 -29495298.55 0.0494 0.0128  
 Mercury -85467-07-09 21:49 J -29495208.71 -29495208.59 -29495208.47 0.0496 0.0366  
 Moon -85466-10-01 05:01 J -29494760.52 -29494760.29 -29494760.05 0.0512 0.0032  
 Earth -85466-10-01 07:40 J -29494760.42 -29494760.18 -29494759.94 0.0512 0.0005 \*  
 Venus -85462-06-20 21:49 J -29493401.78 -29493401.59 -29493401.39 0.0538 0.0094  
 Mercury -85462-11-30 17:59 J -29493238.88 -29493238.75 -29493238.62 0.0534 0.0130  
 Mercury -85461-02-28 03:20 J -29493149.47 -29493149.36 -29493149.26 0.0531 0.0327  
 Earth -85460-03-25 05:16 J -29492758.50 -29492758.28 -29492758.05 0.0517 0.0085

Moon -85460-03-25 07:54 J -29492758.39 -29492758.17 -29492757.96 0.0517 0.0106 \*  
 Mercury -85455-01-27 16:32 J -29490988.96 -29490988.81 -29490988.65 0.0493 0.0257  
 Mercury -85455-04-27 20:08 J -29490898.81 -29490898.66 -29490898.51 0.0495 0.0239  
 Earth -85454-10-06 02:52 J -29490372.58 -29490372.38 -29490372.18 0.0514 0.0281  
 Moon -85454-10-06 06:28 J -29490372.42 -29490372.23 -29490372.03 0.0514 0.0293 \*  
 Venus -85450-02-23 14:23 J -29489136.01 -29489135.90 -29489135.78 0.0540 0.0433  
 Mercury -85450-09-18 21:20 J -29488928.73 -29488928.61 -29488928.49 0.0535 0.0244  
 Mercury -85450-12-17 06:28 J -29488839.35 -29488839.23 -29488839.10 0.0533 0.0214  
 Moon -85448-03-29 19:11 J -29488370.92 -29488370.70 -29488370.49 0.0515 0.0217  
 Earth -85448-03-29 19:54 J -29488370.88 -29488370.67 -29488370.46 0.0515 0.0196 \*  
 Mercury -85444-11-15 15:06 J -29486678.98 -29486678.87 -29486678.76 0.0492 0.0382  
 Mercury -85443-02-13 18:56 J -29486588.88 -29486588.71 -29486588.54 0.0494 0.0116  
 Mercury -85438-07-08 01:11 J -29484618.55 -29484618.45 -29484618.35 0.0536 0.0352  
 Mercury -85438-10-05 10:18 J -29484529.20 -29484529.07 -29484528.94 0.0533 0.0104  
 Earth -85436-04-03 10:18 J -29483983.15 -29483983.07 -29483982.98 0.0512 0.0473  
 Moon -85436-04-03 09:35 J -29483983.14 -29483983.10 -29483983.05 0.0512 0.0499 \*  
 Venus -85432-04-22 07:25 J -29482503.40 -29482503.19 -29482502.98 0.0489 0.0084  
 Mercury -85432-12-02 17:30 J -29482278.95 -29482278.77 -29482278.59 0.0494 0.0009  
 Mercury -85431-03-02 20:08 J -29482188.69 -29482188.66 -29482188.61 0.0497 0.0481  
 Venus -85426-02-26 14:37 J -29480367.01 -29480366.89 -29480366.75 0.0538 0.0404  
 Mercury -85426-04-26 05:01 J -29480308.36 -29480308.29 -29480308.23 0.0536 0.0459  
 Mercury -85426-07-24 13:54 J -29480219.05 -29480218.92 -29480218.79 0.0534 0.0009  
 Mercury -85426-10-21 23:16 J -29480129.59 -29480129.53 -29480129.45 0.0531 0.0453  
 Venus -85421-12-26 07:40 J -29478237.33 -29478237.18 -29478237.01 0.0488 0.0322  
 Mercury -85420-09-20 16:32 J -29477968.98 -29477968.81 -29477968.64 0.0494 0.0129  
 Mercury -85420-12-19 19:40 J -29477878.79 -29477878.68 -29477878.56 0.0496 0.0365  
 Venus -85415-11-01 06:56 J -29476101.40 -29476101.21 -29476101.02 0.0539 0.0123  
 Mercury -85414-05-12 16:32 J -29475908.93 -29475908.81 -29475908.68 0.0534 0.0129  
 Mercury -85414-08-10 01:54 J -29475819.52 -29475819.42 -29475819.31 0.0531 0.0329  
 Mars -85412-09-16 07:25 J -29475051.47 -29475051.19 -29475050.89 0.0502 0.0163

Mercury -85408-07-09 15:06 J -29473659.02 -29473658.87 -29473658.71 0.0493 0.0253

Mercury -85408-10-07 18:56 J -29473568.87 -29473568.71 -29473568.56 0.0496 0.0245

Mercury -85402-02-28 19:54 J -29471598.79 -29471598.67 -29471598.56 0.0535 0.0244

Mercury -85402-05-29 05:01 J -29471509.41 -29471509.29 -29471509.17 0.0532 0.0212

Venus -85397-12-28 19:11 J -29469468.85 -29469468.70 -29469468.54 0.0490 0.0323

Mercury -85396-04-27 13:11 J -29469349.06 -29469348.95 -29469348.84 0.0492 0.0382

Mercury -85396-07-26 17:01 J -29469258.96 -29469258.79 -29469258.61 0.0495 0.0117

Moon -85395-09-25 06:56 J -29468833.37 -29468833.21 -29468833.04 0.0509 0.0348

Earth -85395-09-25 08:52 J -29468833.31 -29468833.13 -29468832.94 0.0509 0.0328 \*

Mercury -85391-12-17 23:16 J -29467288.63 -29467288.53 -29467288.44 0.0536 0.0360

Mercury -85390-03-17 08:08 J -29467199.29 -29467199.16 -29467199.03 0.0533 0.0095

Earth -85389-03-19 20:52 J -29466830.78 -29466830.63 -29466830.49 0.0520 0.0399

Moon -85389-03-19 23:30 J -29466830.64 -29466830.52 -29466830.39 0.0520 0.0425 \*

Venus -85385-09-02 18:28 J -29465202.93 -29465202.73 -29465202.52 0.0489 0.0088

Mercury -85384-05-14 15:49 J -29464949.02 -29464948.84 -29464948.67 0.0494 0.0013

Mercury -85384-08-12 18:28 J -29464858.76 -29464858.73 -29464858.69 0.0496 0.0481

Earth -85383-09-30 05:59 J -29464445.49 -29464445.25 -29464445.01 0.0511 0.0046

Moon -85383-09-30 09:35 J -29464445.34 -29464445.10 -29464444.86 0.0511 0.0073 \*

Venus -85379-07-09 20:52 J -29463066.82 -29463066.63 -29463066.44 0.0539 0.0169

Mercury -85379-10-06 02:52 J -29462978.44 -29462978.38 -29462978.31 0.0537 0.0468

Mercury -85378-01-03 11:44 J -29462889.14 -29462889.01 -29462888.88 0.0534 0.0018

Mercury -85378-04-02 21:20 J -29462799.68 -29462799.61 -29462799.54 0.0531 0.0445

Moon -85377-03-24 11:44 J -29462443.24 -29462443.01 -29462442.78 0.0517 0.0127

Earth -85377-03-24 12:42 J -29462443.19 -29462442.97 -29462442.75 0.0517 0.0113 \*

Mercury -85372-03-02 14:08 J -29460639.08 -29460638.91 -29460638.74 0.0493 0.0135

Mercury -85372-05-31 17:16 J -29460548.90 -29460548.78 -29460548.66 0.0496 0.0358

Moon -85371-10-05 00:56 J -29460057.67 -29460057.46 -29460057.26 0.0514 0.0255

Earth -85371-10-05 04:47 J -29460057.50 -29460057.30 -29460057.09 0.0514 0.0243 \*

Venus -85367-03-14 15:06 J -29458801.01 -29458800.87 -29458800.71 0.0540 0.0346

Mercury -85367-10-22 15:35 J -29458578.98 -29458578.85 -29458578.73 0.0535 0.0125

Mercury -85366-01-20 00:42 J -29458489.57 -29458489.47 -29458489.36 0.0532 0.0334

Moon -85365-03-29 01:54 J -29458055.62 -29458055.42 -29458055.21 0.0515 0.0193

Earth -85365-03-29 02:37 J -29458055.60 -29458055.39 -29458055.17 0.0515 0.0166 \*

Mercury -85361-12-19 12:56 J -29456329.11 -29456328.96 -29456328.81 0.0493 0.0256

Mercury -85360-03-19 16:32 J -29456238.96 -29456238.81 -29456238.65 0.0495 0.0241

Mercury -85355-08-10 18:28 J -29454268.84 -29454268.73 -29454268.61 0.0535 0.0243

Mercury -85355-11-08 03:35 J -29454179.47 -29454179.35 -29454179.23 0.0532 0.0212

Earth -85353-04-02 11:16 J -29453668.15 -29453668.03 -29453667.90 0.0512 0.0426

Moon -85353-04-02 13:11 J -29453668.06 -29453667.95 -29453667.83 0.0512 0.0448 \*

Venus -85349-05-11 05:59 J -29452168.45 -29452168.25 -29452168.05 0.0490 0.0150

Mercury -85349-10-07 11:16 J -29452019.14 -29452019.03 -29452018.91 0.0493 0.0382

Mercury -85348-01-05 15:20 J -29451929.03 -29451928.86 -29451928.68 0.0495 0.0119

Venus -85343-03-17 10:47 J -29450032.15 -29450032.05 -29450031.95 0.0537 0.0461

Mercury -85343-05-29 21:35 J -29449958.69 -29449958.60 -29449958.50 0.0535 0.0359

Mercury -85343-08-27 06:42 J -29449869.35 -29449869.22 -29449869.09 0.0533 0.0096

Venus -85337-01-15 04:47 J -29447902.48 -29447902.30 -29447902.12 0.0488 0.0264

Mercury -85337-10-24 13:40 J -29447619.11 -29447618.93 -29447618.75 0.0494 0.0011

Mercury -85336-01-22 16:32 J -29447528.85 -29447528.81 -29447528.77 0.0496 0.0479

Venus -85332-11-20 03:06 J -29445766.57 -29445766.37 -29445766.18 0.0539 0.0067

Mercury -85331-03-18 00:56 J -29445648.52 -29445648.46 -29445648.40 0.0536 0.0476

Mercury -85331-06-15 09:35 J -29445559.23 -29445559.10 -29445558.96 0.0534 0.0028

Mercury -85331-09-12 19:11 J -29445469.77 -29445469.70 -29445469.62 0.0531 0.0435

Mercury -85325-08-12 12:13 J -29443309.16 -29443308.99 -29443308.82 0.0493 0.0136

Mercury -85325-11-10 15:20 J -29443218.98 -29443218.86 -29443218.74 0.0496 0.0357

Mars -85322-02-01 11:16 J -29442406.27 -29442406.03 -29442405.78 0.0526 0.0078

Mercury -85319-04-03 13:11 J -29441249.07 -29441248.95 -29441248.82 0.0535 0.0136

Mercury -85319-07-01 22:32 J -29441159.66 -29441159.56 -29441159.45 0.0532 0.0324

Venus -85313-01-17 16:04 J -29439133.96 -29439133.83 -29439133.69 0.0490 0.0381

Mercury -85313-05-31 10:18 J -29438999.22 -29438999.07 -29438998.92 0.0493 0.0264

Mercury -85313-08-29 13:54 J -29438909.07 -29438908.92 -29438908.76 0.0495 0.0233



Earth -85312-09-24 09:06 J -29438518.28 -29438518.12 -29438517.95 0.0509 0.0367  
 Moon -85312-09-24 12:13 J -29438518.14 -29438517.99 -29438517.83 0.0509 0.0390 \*  
 Mercury -85307-01-20 17:01 J -29436938.91 -29436938.79 -29436938.67 0.0535 0.0244  
 Mercury -85307-04-20 02:08 J -29436849.53 -29436849.41 -29436849.29 0.0533 0.0213  
 Moon -85306-03-20 01:11 J -29436515.55 -29436515.45 -29436515.33 0.0520 0.0459  
 Earth -85306-03-20 02:37 J -29436515.51 -29436515.39 -29436515.26 0.0520 0.0431 \*  
 Venus -85302-09-22 15:49 J -29434868.05 -29434867.84 -29434867.63 0.0489 0.0029  
 Mercury -85301-03-19 08:52 J -29434689.23 -29434689.13 -29434689.01 0.0492 0.0387  
 Mercury -85301-06-17 13:11 J -29434599.12 -29434598.95 -29434598.78 0.0495 0.0113  
 Moon -85300-09-29 05:16 J -29434130.51 -29434130.28 -29434130.05 0.0511 0.0108  
 Earth -85300-09-29 09:06 J -29434130.35 -29434130.12 -29434129.88 0.0511 0.0079 \*  
 Venus -85296-07-28 19:11 J -29432731.87 -29432731.70 -29432731.52 0.0538 0.0242  
 Mercury -85296-11-08 20:08 J -29432628.75 -29432628.66 -29432628.56 0.0535 0.0360  
 Mercury -85295-02-06 05:01 J -29432539.42 -29432539.29 -29432539.16 0.0533 0.0095  
 Moon -85294-03-24 12:42 J -29432128.17 -29432127.97 -29432127.76 0.0517 0.0169  
 Earth -85294-03-24 13:11 J -29432128.16 -29432127.95 -29432127.73 0.0517 0.0160 \*  
 Venus -85290-05-28 15:06 J -29430601.96 -29430601.87 -29430601.78 0.0488 0.0439  
 Mercury -85289-04-05 11:44 J -29430289.19 -29430289.01 -29430288.83 0.0494 0.0011  
 Mercury -85289-07-04 14:37 J -29430198.92 -29430198.89 -29430198.84 0.0497 0.0481  
 Earth -85288-10-04 07:54 J -29429742.38 -29429742.17 -29429741.95 0.0513 0.0208  
 Moon -85288-10-04 11:30 J -29429742.23 -29429742.02 -29429741.81 0.0513 0.0228 \*  
 Venus -85284-04-02 11:44 J -29428466.18 -29428466.01 -29428465.84 0.0539 0.0284  
 Mercury -85284-08-27 23:30 J -29428318.58 -29428318.52 -29428318.46 0.0536 0.0474  
 Mercury -85284-11-25 08:08 J -29428229.29 -29428229.16 -29428229.03 0.0533 0.0026  
 Mercury -85283-02-22 17:30 J -29428139.84 -29428139.77 -29428139.69 0.0531 0.0434  
 Earth -85282-03-29 01:11 J -29427740.68 -29427740.45 -29427740.23 0.0515 0.0113  
 Moon -85282-03-29 02:52 J -29427740.60 -29427740.38 -29427740.15 0.0515 0.0142 \*  
 Mercury -85277-01-23 09:49 J -29425979.26 -29425979.09 -29425978.92 0.0493 0.0141  
 Mercury -85277-04-22 13:11 J -29425889.07 -29425888.95 -29425888.83 0.0496 0.0354  
 Moon -85276-10-09 00:56 J -29425354.48 -29425354.46 -29425354.43 0.0515 0.0511

Earth -85276-10-09 02:52 J -29425354.44 -29425354.38 -29425354.30 0.0515 0.0490 \*  
 Mercury -85272-09-13 11:16 J -29423919.16 -29423919.03 -29423918.91 0.0535 0.0144  
 Mercury -85272-12-11 20:23 J -29423829.75 -29423829.65 -29423829.54 0.0532 0.0315  
 Moon -85270-04-02 11:01 J -29423353.16 -29423353.04 -29423352.90 0.0514 0.0408  
 Earth -85270-04-02 14:08 J -29423353.06 -29423352.91 -29423352.76 0.0514 0.0387 \*  
 Venus -85266-05-31 02:37 J -29421833.58 -29421833.39 -29421833.20 0.0489 0.0204  
 Mercury -85266-11-11 08:23 J -29421669.30 -29421669.15 -29421669.00 0.0493 0.0266  
 Mercury -85265-02-09 11:59 J -29421579.15 -29421579.00 -29421578.85 0.0495 0.0231  
 Venus -85260-04-05 07:40 J -29419697.22 -29419697.18 -29419697.14 0.0538 0.0523  
 Mercury -85260-07-02 14:52 J -29419609.00 -29419608.88 -29419608.77 0.0535 0.0255  
 Mercury -85260-09-29 23:59 J -29419519.62 -29419519.50 -29419519.38 0.0533 0.0202  
 Mars -85258-12-10 23:59 J -29418717.80 -29418717.50 -29418717.20 0.0502 0.0071  
 Venus -85254-02-03 01:11 J -29417567.63 -29417567.45 -29417567.25 0.0488 0.0208  
 Mercury -85254-08-30 06:13 J -29417359.34 -29417359.24 -29417359.13 0.0492 0.0394  
 Mercury -85254-11-28 10:18 J -29417269.24 -29417269.07 -29417268.89 0.0494 0.0105  
 Venus -85249-12-09 02:23 J -29415431.59 -29415431.40 -29415431.20 0.0539 0.0015  
 Mercury -85248-04-20 18:42 J -29415298.82 -29415298.72 -29415298.63 0.0536 0.0363  
 Mercury -85248-07-19 03:35 J -29415209.48 -29415209.35 -29415209.22 0.0533 0.0092  
 Mercury -85242-09-16 09:20 J -29412959.29 -29412959.11 -29412958.93 0.0494 0.0017  
 Mercury -85242-12-15 12:13 J -29412869.03 -29412868.99 -29412868.94 0.0496 0.0475  
 Venus -85237-08-13 19:25 J -29411165.74 -29411165.69 -29411165.62 0.0540 0.0510  
 Mercury -85236-02-06 22:04 J -29410988.64 -29410988.58 -29410988.52 0.0536 0.0476  
 Mercury -85236-05-07 06:42 J -29410899.35 -29410899.22 -29410899.09 0.0533 0.0025  
 Mercury -85236-08-04 16:04 J -29410809.90 -29410809.83 -29410809.75 0.0531 0.0432  
 Venus -85230-02-05 13:11 J -29408799.04 -29408798.95 -29408798.86 0.0490 0.0439  
 Mercury -85230-07-05 07:40 J -29408649.34 -29408649.18 -29408649.00 0.0494 0.0143  
 Mercury -85230-10-03 11:16 J -29408559.15 -29408559.03 -29408558.91 0.0496 0.0353  
 Moon -85229-09-23 07:40 J -29408203.30 -29408203.18 -29408203.04 0.0508 0.0426  
 Earth -85229-09-23 11:44 J -29408203.15 -29408203.01 -29408202.86 0.0508 0.0400 \*  
 Mercury -85224-02-23 09:49 J -29406589.22 -29406589.09 -29406588.96 0.0534 0.0142

Mercury -85224-05-23 18:56 J -29406499.81 -29406499.71 -29406499.60 0.0531 0.0314

Earth -85223-03-19 01:11 J -29406200.53 -29406200.45 -29406200.36 0.0520 0.0482

Moon -85223-03-19 00:56 J -29406200.49 -29406200.46 -29406200.43 0.0520 0.0514 \*

Venus -85219-10-11 11:59 J -29404533.21 -29404533.00 -29404532.79 0.0489 0.0026

Mercury -85218-04-23 05:59 J -29404339.40 -29404339.25 -29404339.10 0.0493 0.0271

Mercury -85218-07-22 09:49 J -29404249.25 -29404249.09 -29404248.94 0.0495 0.0226

Earth -85217-09-28 06:13 J -29403815.47 -29403815.24 -29403815.01 0.0510 0.0124

Moon -85217-09-28 10:04 J -29403815.30 -29403815.08 -29403814.85 0.0510 0.0146 \*

Venus -85213-08-16 13:54 J -29402397.08 -29402396.92 -29402396.75 0.0538 0.0291

Mercury -85213-12-12 12:42 J -29402279.08 -29402278.97 -29402278.86 0.0535 0.0263

Mercury -85212-03-11 21:49 J -29402189.71 -29402189.59 -29402189.47 0.0533 0.0193

Earth -85211-03-23 14:23 J -29401813.11 -29401812.90 -29401812.69 0.0519 0.0202

Moon -85211-03-23 16:04 J -29401813.04 -29401812.83 -29401812.61 0.0519 0.0206 \*

Venus -85207-06-16 11:59 J -29400267.13 -29400267.00 -29400266.87 0.0488 0.0382

Mercury -85206-02-09 04:18 J -29400029.42 -29400029.32 -29400029.21 0.0492 0.0396

Mercury -85206-05-10 08:23 J -29399939.32 -29399939.15 -29399938.98 0.0494 0.0102

Moon -85205-10-03 00:28 J -29399427.71 -29399427.48 -29399427.25 0.0512 0.0178

Earth -85205-10-03 03:20 J -29399427.58 -29399427.36 -29399427.13 0.0512 0.0157 \*

Mars -85204-07-23 21:20 J -29399133.76 -29399133.61 -29399133.45 0.0524 0.0412

Venus -85201-04-21 07:25 J -29398131.36 -29398131.19 -29398131.01 0.0540 0.0230

Mercury -85201-09-30 16:18 J -29397968.91 -29397968.82 -29397968.73 0.0536 0.0375

Mercury -85201-12-29 01:11 J -29397879.58 -29397879.45 -29397879.32 0.0534 0.0081

Moon -85199-03-28 02:37 J -29397425.61 -29397425.39 -29397425.18 0.0516 0.0109

Earth -85199-03-28 05:16 J -29397425.50 -29397425.28 -29397425.05 0.0516 0.0080 \*

Mercury -85194-02-26 06:42 J -29395629.40 -29395629.22 -29395629.04 0.0494 0.0025

Mercury -85194-05-27 09:35 J -29395539.15 -29395539.10 -29395539.04 0.0496 0.0466

Earth -85193-10-08 01:11 J -29395039.56 -29395039.45 -29395039.33 0.0514 0.0443

Moon -85193-10-08 01:54 J -29395039.51 -29395039.42 -29395039.32 0.0514 0.0464 \*

Mercury -85189-07-19 20:08 J -29393658.71 -29393658.66 -29393658.60 0.0537 0.0482

Mercury -85189-10-17 05:01 J -29393569.43 -29393569.29 -29393569.16 0.0534 0.0033

Mercury -85188-01-14 14:23 J -29393479.98 -29393479.90 -29393479.82 0.0531 0.0429

Earth -85187-04-01 19:25 J -29393037.85 -29393037.69 -29393037.52 0.0514 0.0354

Moon -85187-04-01 23:01 J -29393037.70 -29393037.54 -29393037.38 0.0514 0.0366 \*

Venus -85183-06-18 23:16 J -29391498.71 -29391498.53 -29391498.35 0.0489 0.0261

Mercury -85183-12-15 05:30 J -29391319.44 -29391319.27 -29391319.10 0.0493 0.0147

Mercury -85182-03-15 08:52 J -29391229.25 -29391229.13 -29391229.01 0.0496 0.0347

Mercury -85177-08-05 08:23 J -29389259.28 -29389259.15 -29389259.03 0.0534 0.0144

Mercury -85177-11-02 17:30 J -29389169.88 -29389169.77 -29389169.66 0.0531 0.0313

Venus -85171-02-21 21:49 J -29387232.79 -29387232.59 -29387232.39 0.0489 0.0153

Mercury -85171-10-03 03:49 J -29387009.49 -29387009.34 -29387009.20 0.0493 0.0274

Mercury -85170-01-01 07:40 J -29386919.34 -29386919.18 -29386919.03 0.0495 0.0224

Mars -85168-04-27 07:25 J -29386072.40 -29386072.19 -29386071.97 0.0527 0.0274

Venus -85166-12-28 23:30 J -29385096.71 -29385096.52 -29385096.32 0.0538 0.0077

Mercury -85165-05-24 11:30 J -29384949.13 -29384949.02 -29384948.90 0.0535 0.0260

Mercury -85165-08-21 20:37 J -29384859.77 -29384859.64 -29384859.52 0.0532 0.0196

Mercury -85159-07-22 01:54 J -29382699.52 -29382699.42 -29382699.32 0.0492 0.0402

Mercury -85159-10-20 06:13 J -29382609.42 -29382609.24 -29382609.07 0.0494 0.0098

Venus -85154-09-02 13:54 J -29380831.02 -29380830.92 -29380830.82 0.0540 0.0464

Mercury -85153-03-12 14:23 J -29380638.99 -29380638.90 -29380638.81 0.0536 0.0382

Mercury -85153-06-09 23:16 J -29380549.66 -29380549.53 -29380549.40 0.0533 0.0072

Mercury -85147-08-08 04:47 J -29378299.48 -29378299.30 -29378299.12 0.0494 0.0026

Mercury -85147-11-06 07:40 J -29378209.23 -29378209.18 -29378209.12 0.0496 0.0465

Earth -85146-09-23 08:37 J -29377888.25 -29377888.14 -29377888.02 0.0507 0.0441

Moon -85146-09-23 12:42 J -29377888.06 -29377887.97 -29377887.87 0.0507 0.0466 \*

Mercury -85142-12-30 17:59 J -29376328.80 -29376328.75 -29376328.70 0.0537 0.0493

Mercury -85141-03-29 02:37 J -29376239.52 -29376239.39 -29376239.26 0.0534 0.0043

Mercury -85141-06-26 12:13 J -29376150.07 -29376149.99 -29376149.91 0.0532 0.0418

Earth -85140-03-18 03:49 J -29375885.35 -29375885.34 -29375885.31 0.0522 0.0519

Venus -85136-10-30 08:52 J -29374198.34 -29374198.13 -29374197.92 0.0489 0.0081

Mercury -85135-05-27 02:52 J -29373989.54 -29373989.38 -29373989.21 0.0493 0.0154

Mercury -85135-08-25 06:13 J -29373899.36 -29373899.24 -29373899.11 0.0495 0.0340  
 Moon -85134-09-28 01:25 J -29373500.66 -29373500.44 -29373500.21 0.0509 0.0187  
 Earth -85134-09-28 04:47 J -29373500.52 -29373500.30 -29373500.07 0.0509 0.0167 \*  
 Venus -85130-09-05 12:56 J -29372062.10 -29372061.96 -29372061.81 0.0538 0.0368  
 Mercury -85129-01-16 06:28 J -29371929.36 -29371929.23 -29371929.10 0.0535 0.0150  
 Mercury -85129-04-14 15:49 J -29371839.95 -29371839.84 -29371839.74 0.0532 0.0309  
 Moon -85128-03-22 17:16 J -29371497.98 -29371497.78 -29371497.58 0.0519 0.0237  
 Earth -85128-03-22 20:08 J -29371497.86 -29371497.66 -29371497.46 0.0519 0.0234 \*  
 Venus -85124-07-05 08:37 J -29369932.29 -29369932.14 -29369931.98 0.0488 0.0325  
 Mercury -85123-03-15 01:25 J -29369679.58 -29369679.44 -29369679.29 0.0493 0.0278  
 Mercury -85123-06-13 05:16 J -29369589.43 -29369589.28 -29369589.12 0.0495 0.0220  
 Earth -85122-10-03 04:18 J -29369112.55 -29369112.32 -29369112.08 0.0512 0.0120  
 Moon -85122-10-03 05:44 J -29369112.48 -29369112.26 -29369112.04 0.0512 0.0147 \*  
 Venus -85118-05-11 07:25 J -29367796.38 -29367796.19 -29367796.00 0.0539 0.0149  
 Mercury -85118-11-04 10:04 J -29367619.19 -29367619.08 -29367618.97 0.0535 0.0261  
 Mercury -85117-02-01 18:56 J -29367529.83 -29367529.71 -29367529.58 0.0532 0.0195  
 Earth -85116-03-27 08:37 J -29367110.37 -29367110.14 -29367109.92 0.0516 0.0041  
 Moon -85116-03-27 12:13 J -29367110.22 -29367109.99 -29367109.77 0.0516 0.0073 \*  
 Mercury -85112-12-31 23:44 J -29365369.61 -29365369.51 -29365369.41 0.0492 0.0405  
 Mercury -85111-04-01 04:04 J -29365279.50 -29365279.33 -29365279.16 0.0495 0.0096  
 Earth -85110-10-08 03:49 J -29364724.48 -29364724.34 -29364724.19 0.0514 0.0408  
 Moon -85110-10-08 04:32 J -29364724.44 -29364724.31 -29364724.16 0.0514 0.0423 \*  
 Mercury -85106-08-23 13:25 J -29363309.03 -29363308.94 -29363308.85 0.0536 0.0375  
 Mercury -85106-11-20 22:04 J -29363219.71 -29363219.58 -29363219.44 0.0533 0.0080  
 Moon -85104-03-31 17:01 J -29362722.97 -29362722.79 -29362722.61 0.0514 0.0314  
 Earth -85104-03-31 20:23 J -29362722.82 -29362722.65 -29362722.46 0.0514 0.0310 \*  
 Mars -85103-03-05 03:35 J -29362384.60 -29362384.35 -29362384.09 0.0501 0.0268  
 Venus -85100-07-07 20:08 J -29361163.82 -29361163.66 -29361163.50 0.0490 0.0317  
 Mercury -85099-01-18 02:37 J -29360969.57 -29360969.39 -29360969.21 0.0494 0.0030  
 Mercury -85099-04-18 05:44 J -29360879.32 -29360879.26 -29360879.20 0.0496 0.0461

Mercury -85094-06-11 16:04 J -29358998.87 -29358998.83 -29358998.78 0.0537 0.0498  
 Mercury -85094-09-09 00:56 J -29358909.60 -29358909.46 -29358909.33 0.0534 0.0049  
 Mercury -85094-12-07 10:18 J -29358820.16 -29358820.07 -29358819.99 0.0531 0.0412  
 Venus -85088-03-12 20:08 J -29356897.87 -29356897.66 -29356897.46 0.0488 0.0091  
 Mercury -85088-11-06 01:11 J -29356659.62 -29356659.45 -29356659.28 0.0493 0.0153  
 Mercury -85087-02-04 04:32 J -29356569.43 -29356569.31 -29356569.18 0.0495 0.0341  
 Venus -85082-01-16 18:56 J -29354761.90 -29354761.71 -29354761.52 0.0539 0.0130  
 Mercury -85082-06-28 04:18 J -29354599.44 -29354599.32 -29354599.19 0.0535 0.0160  
 Mercury -85082-09-25 13:40 J -29354510.04 -29354509.93 -29354509.82 0.0532 0.0299  
 Mercury -85076-08-24 23:16 J -29352349.67 -29352349.53 -29352349.38 0.0492 0.0281  
 Mercury -85076-11-23 03:06 J -29352259.53 -29352259.37 -29352259.21 0.0495 0.0215  
 Venus -85071-09-21 13:11 J -29350496.08 -29350495.95 -29350495.81 0.0540 0.0386  
 Mercury -85070-04-16 08:08 J -29350289.27 -29350289.16 -29350289.05 0.0536 0.0268  
 Mercury -85070-07-14 17:16 J -29350199.91 -29350199.78 -29350199.66 0.0533 0.0189  
 Mercury -85064-06-12 21:49 J -29348039.69 -29348039.59 -29348039.49 0.0492 0.0405  
 Mercury -85064-09-11 01:54 J -29347949.59 -29347949.42 -29347949.24 0.0494 0.0095  
 Moon -85063-09-22 06:13 J -29347573.25 -29347573.24 -29347573.20 0.0507 0.0503  
 Earth -85063-09-22 10:18 J -29347573.15 -29347573.07 -29347572.99 0.0507 0.0475  
 Mercury -85058-02-02 11:59 J -29345979.09 -29345979.00 -29345978.91 0.0536 0.0377  
 Mercury -85058-05-02 20:37 J -29345889.77 -29345889.64 -29345889.51 0.0533 0.0078  
 Venus -85053-11-18 06:28 J -29343863.43 -29343863.23 -29343863.03 0.0489 0.0141  
 Mercury -85052-06-30 00:28 J -29343639.65 -29343639.48 -29343639.30 0.0494 0.0034  
 Mercury -85052-09-28 03:35 J -29343549.40 -29343549.35 -29343549.28 0.0496 0.0461  
 Earth -85051-09-27 08:23 J -29343185.37 -29343185.15 -29343184.93 0.0509 0.0196  
 Moon -85051-09-27 10:18 J -29343185.28 -29343185.07 -29343184.86 0.0509 0.0206 \*  
 Mars -85050-10-17 18:28 J -29342799.96 -29342799.73 -29342799.50 0.0525 0.0210  
 Venus -85047-09-24 11:59 J -29341727.10 -29341727.00 -29341726.88 0.0538 0.0441  
 Mercury -85047-11-21 15:20 J -29341668.91 -29341668.86 -29341668.81 0.0536 0.0489  
 Mercury -85046-02-18 23:59 J -29341579.63 -29341579.50 -29341579.37 0.0534 0.0039  
 Mercury -85046-05-19 09:20 J -29341490.19 -29341490.11 -29341490.03 0.0531 0.0419

Earth -85045-03-21 22:47 J -29341182.74 -29341182.55 -29341182.35 0.0519 0.0273  
 Moon -85045-03-22 02:23 J -29341182.60 -29341182.40 -29341182.20 0.0519 0.0267 \*  
 Venus -85041-07-24 06:28 J -29339597.40 -29339597.23 -29339597.05 0.0488 0.0266  
 Mercury -85040-04-17 23:16 J -29339329.70 -29339329.53 -29339329.36 0.0493 0.0155  
 Mercury -85040-07-17 02:37 J -29339239.51 -29339239.39 -29339239.26 0.0495 0.0340  
 Earth -85039-10-02 05:01 J -29338797.52 -29338797.29 -29338797.05 0.0511 0.0085  
 Moon -85039-10-02 05:16 J -29338797.52 -29338797.28 -29338797.04 0.0511 0.0115 \*  
 Venus -85035-05-30 02:37 J -29337461.59 -29337461.39 -29337461.20 0.0539 0.0098  
 Mercury -85035-12-08 02:37 J -29337269.51 -29337269.39 -29337269.27 0.0535 0.0163  
 Mercury -85034-03-07 11:44 J -29337180.12 -29337180.01 -29337179.90 0.0532 0.0294  
 Moon -85033-03-26 06:42 J -29336795.45 -29336795.22 -29336794.99 0.0518 0.0033  
 Earth -85033-03-26 10:18 J -29336795.30 -29336795.07 -29336794.84 0.0518 0.0004 \*  
 Mercury -85028-02-03 21:49 J -29335019.73 -29335019.59 -29335019.44 0.0492 0.0278  
 Mercury -85028-05-05 01:40 J -29334929.58 -29334929.43 -29334929.27 0.0495 0.0219  
 Moon -85027-10-07 01:11 J -29334409.60 -29334409.45 -29334409.30 0.0513 0.0383  
 Earth -85027-10-07 02:52 J -29334409.54 -29334409.38 -29334409.21 0.0513 0.0368 \*  
 Mercury -85023-09-26 05:59 J -29332959.36 -29332959.25 -29332959.13 0.0536 0.0277  
 Mercury -85023-12-24 15:06 J -29332869.99 -29332869.87 -29332869.74 0.0533 0.0180  
 Earth -85021-03-31 00:42 J -29332407.66 -29332407.47 -29332407.28 0.0516 0.0279  
 Moon -85021-03-31 03:20 J -29332407.54 -29332407.36 -29332407.17 0.0516 0.0277 \*  
 Venus -85017-07-26 18:28 J -29330828.86 -29330828.73 -29330828.60 0.0489 0.0382  
 Mercury -85017-11-22 19:54 J -29330709.77 -29330709.67 -29330709.57 0.0492 0.0406  
 Mercury -85016-02-21 00:13 J -29330619.67 -29330619.49 -29330619.32 0.0494 0.0093  
 Mars -85014-07-21 16:47 J -29329738.93 -29329738.80 -29329738.67 0.0527 0.0442  
 Mercury -85011-07-15 10:04 J -29328649.17 -29328649.08 -29328648.99 0.0536 0.0383  
 Mercury -85011-10-12 18:56 J -29328559.84 -29328559.71 -29328559.58 0.0534 0.0072  
 Mercury -85010-01-10 04:32 J -29328470.31 -29328470.31 -29328470.31 0.0531 0.0531  
 Venus -85005-03-31 18:13 J -29326562.95 -29326562.74 -29326562.53 0.0488 0.0027  
 Mercury -85005-12-09 22:47 J -29326309.72 -29326309.55 -29326309.37 0.0493 0.0033  
 Mercury -85004-03-10 01:54 J -29326219.48 -29326219.42 -29326219.35 0.0496 0.0461

# 85TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 85th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Venus	-84999-02-04 20:23 J	-29324426.83	-29324426.65	-29324426.47	0.0539	0.0219		
Mercury	-84999-05-03 13:54 J	-29324338.97	-29324338.92	-29324338.87	0.0537	0.0490		
Mercury	-84999-07-31 22:32 J	-29324249.69	-29324249.56	-29324249.43	0.0534	0.0039		
Mercury	-84999-10-29 07:54 J	-29324160.25	-29324160.17	-29324160.09	0.0531	0.0419		
Venus	-84994-12-05 17:30 J	-29322296.86	-29322296.77	-29322296.68	0.0488	0.0436		
Mercury	-84993-09-27 21:20 J	-29321999.78	-29321999.61	-29321999.44	0.0493	0.0155		
Mercury	-84993-12-27 00:56 J	-29321909.59	-29321909.46	-29321909.33	0.0496	0.0340		
Venus	-84988-10-10 13:40 J	-29320161.09	-29320160.93	-29320160.76	0.0540	0.0302		
Mercury	-84987-05-20 01:54 J	-29319939.54	-29319939.42	-29319939.29	0.0535	0.0153		
Mercury	-84987-08-17 11:01 J	-29319850.14	-29319850.04	-29319849.93	0.0532	0.0305		
Mars	-84985-08-21 03:35 J	-29319115.59	-29319115.35	-29319115.10	0.0504	0.0290		
Mercury	-84981-07-16 20:08 J	-29317689.81	-29317689.66	-29317689.51	0.0492	0.0278		
Mercury	-84981-10-14 23:59 J	-29317599.65	-29317599.50	-29317599.34	0.0495	0.0219		
Earth	-84980-09-21 13:54 J	-29317257.96	-29317257.92	-29317257.88	0.0506	0.0497		
Mercury	-84975-03-08 04:32 J	-29315629.42	-29315629.31	-29315629.20	0.0536	0.0277		
Mercury	-84975-06-05 13:40 J	-29315540.06	-29315539.93	-29315539.81	0.0533	0.0179		
Venus	-84970-12-08 06:56 J	-29313528.40	-29313528.21	-29313528.02	0.0489	0.0215		
Mercury	-84969-05-04 18:42 J	-29313379.82	-29313379.72	-29313379.61	0.0492	0.0400		



Mercury -84969-08-02 23:01 J -29313289.71 -29313289.54 -29313289.37 0.0494 0.0099  
 Moon -84968-09-26 10:47 J -29312870.27 -29312870.05 -29312869.83 0.0508 0.0227  
 Earth -84968-09-26 11:01 J -29312870.25 -29312870.04 -29312869.82 0.0508 0.0224 \*  
 Venus -84964-10-13 08:08 J -29311392.23 -29311392.16 -29311392.09 0.0538 0.0498  
 Mercury -84964-12-25 08:08 J -29311319.25 -29311319.16 -29311319.07 0.0536 0.0389  
 Mercury -84963-03-24 17:01 J -29311229.92 -29311229.79 -29311229.66 0.0534 0.0065  
 Mercury -84963-06-22 02:37 J -29311140.41 -29311140.39 -29311140.37 0.0531 0.0524  
 Moon -84962-03-21 22:32 J -29310867.74 -29310867.56 -29310867.37 0.0521 0.0298  
 Earth -84962-03-22 02:08 J -29310867.58 -29310867.41 -29310867.22 0.0521 0.0307 \*  
 Venus -84958-08-13 05:59 J -29309262.44 -29309262.25 -29309262.06 0.0488 0.0195  
 Mercury -84957-05-21 21:20 J -29308979.79 -29308979.61 -29308979.43 0.0493 0.0028  
 Mercury -84957-08-20 00:28 J -29308889.54 -29308889.48 -29308889.42 0.0496 0.0462  
 Moon -84956-10-01 05:30 J -29308482.50 -29308482.27 -29308482.04 0.0510 0.0081  
 Earth -84956-10-01 06:56 J -29308482.45 -29308482.21 -29308481.97 0.0510 0.0050 \*  
 Venus -84952-06-18 02:52 J -29307126.57 -29307126.38 -29307126.18 0.0540 0.0016  
 Mercury -84952-10-13 11:59 J -29307009.04 -29307009.00 -29307008.95 0.0537 0.0496  
 Mercury -84951-01-10 20:52 J -29306919.77 -29306919.63 -29306919.50 0.0535 0.0046  
 Mercury -84951-04-10 06:13 J -29306830.32 -29306830.24 -29306830.16 0.0532 0.0415  
 Earth -84950-03-26 18:56 J -29306479.94 -29306479.71 -29306479.48 0.0518 0.0022  
 Moon -84950-03-26 21:35 J -29306479.82 -29306479.60 -29306479.38 0.0518 0.0008 \*  
 Mercury -84945-03-09 19:54 J -29304669.84 -29304669.67 -29304669.50 0.0493 0.0151  
 Mercury -84945-06-07 23:30 J -29304579.65 -29304579.52 -29304579.40 0.0495 0.0343  
 Earth -84944-10-06 06:28 J -29304094.41 -29304094.23 -29304094.05 0.0512 0.0335  
 Moon -84944-10-06 09:35 J -29304094.28 -29304094.10 -29304093.92 0.0513 0.0343 \*  
 Venus -84940-02-20 21:35 J -29302860.64 -29302860.60 -29302860.56 0.0541 0.0527  
 Mercury -84940-10-30 00:42 J -29302609.60 -29302609.47 -29302609.35 0.0535 0.0152  
 Mercury -84939-01-27 09:49 J -29302520.20 -29302520.09 -29302519.98 0.0532 0.0305  
 Moon -84938-03-31 07:54 J -29302092.38 -29302092.17 -29302091.96 0.0516 0.0245  
 Earth -84938-03-31 09:20 J -29302092.30 -29302092.11 -29302091.91 0.0516 0.0255 \*  
 Venus -84934-08-15 17:44 J -29300493.84 -29300493.76 -29300493.68 0.0490 0.0450

Mercury -84934-12-27 18:28 J -29300359.88 -29300359.73 -29300359.59 0.0493 0.0276  
 Mercury -84933-03-26 22:18 J -29300269.73 -29300269.57 -29300269.41 0.0495 0.0221  
 Mercury -84928-08-18 04:04 J -29298299.44 -29298299.33 -29298299.21 0.0535 0.0264  
 Mercury -84928-11-15 13:11 J -29298210.07 -29298209.95 -29298209.83 0.0533 0.0192  
 Moon -84926-04-04 22:18 J -29297704.62 -29297704.57 -29297704.51 0.0513 0.0493  
 Venus -84922-04-20 18:13 J -29296227.95 -29296227.74 -29296227.53 0.0489 0.0045  
 Mercury -84922-10-15 17:16 J -29296049.88 -29296049.78 -29296049.68 0.0492 0.0398  
 Mercury -84921-01-13 21:20 J -29295959.78 -29295959.61 -29295959.43 0.0494 0.0103  
 Venus -84916-02-23 17:01 J -29294091.96 -29294091.79 -29294091.62 0.0539 0.0280  
 Mercury -84916-06-06 06:42 J -29293989.30 -29293989.22 -29293989.13 0.0536 0.0388  
 Mercury -84916-09-03 15:35 J -29293899.98 -29293899.85 -29293899.72 0.0534 0.0066  
 Mercury -84916-12-02 01:11 J -29293810.47 -29293810.45 -29293810.43 0.0531 0.0525  
 Venus -84911-12-24 18:56 J -29291961.85 -29291961.71 -29291961.57 0.0488 0.0357  
 Mercury -84910-11-01 20:23 J -29291649.82 -29291649.65 -29291649.47 0.0493 0.0022  
 Mercury -84909-01-30 23:30 J -29291559.57 -29291559.52 -29291559.47 0.0496 0.0471  
 Venus -84905-10-29 10:04 J -29289826.25 -29289826.08 -29289825.90 0.0540 0.0242  
 Mercury -84904-03-25 10:18 J -29289679.11 -29289679.07 -29289679.02 0.0537 0.0500  
 Mercury -84904-06-22 18:56 J -29289589.84 -29289589.71 -29289589.58 0.0535 0.0050  
 Mercury -84904-09-20 04:18 J -29289500.40 -29289500.32 -29289500.23 0.0532 0.0411  
 Mercury -84898-08-20 18:42 J -29287339.89 -29287339.72 -29287339.55 0.0493 0.0146  
 Mercury -84898-11-18 22:04 J -29287249.70 -29287249.58 -29287249.45 0.0495 0.0347  
 Mars -84895-01-10 12:13 J -29286466.24 -29286465.99 -29286465.74 0.0524 0.0011  
 Mercury -84892-04-10 22:47 J -29285279.67 -29285279.55 -29285279.42 0.0535 0.0157  
 Mercury -84892-07-09 08:08 J -29285190.27 -29285190.16 -29285190.05 0.0533 0.0302  
 Venus -84887-12-27 06:28 J -29283193.40 -29283193.23 -29283193.06 0.0489 0.0287  
 Mercury -84886-06-08 17:16 J -29283029.93 -29283029.78 -29283029.63 0.0492 0.0269  
 Mercury -84886-09-06 21:06 J -29282939.77 -29282939.62 -29282939.46 0.0494 0.0227  
 Moon -84885-09-25 14:37 J -29282555.09 -29282554.89 -29282554.69 0.0507 0.0252  
 Earth -84885-09-25 15:35 J -29282555.05 -29282554.85 -29282554.64 0.0507 0.0252 \*  
 Mercury -84880-01-28 02:52 J -29280969.49 -29280969.38 -29280969.27 0.0536 0.0263

Mercury -84880-04-27 11:44 J -29280880.13 -29280880.01 -29280879.88 0.0533 0.0194

Earth -84879-03-21 12:28 J -29280552.15 -29280551.98 -29280551.80 0.0521 0.0325

Moon -84879-03-21 15:20 J -29280552.04 -29280551.86 -29280551.68 0.0521 0.0304 \*

Venus -84875-09-01 05:44 J -29278927.46 -29278927.26 -29278927.06 0.0488 0.0124

Mercury -84874-03-27 15:35 J -29278719.95 -29278719.85 -29278719.74 0.0492 0.0395

Mercury -84874-06-25 19:54 J -29278629.84 -29278629.67 -29278629.50 0.0494 0.0104

Earth -84873-09-30 14:23 J -29278167.14 -29278166.90 -29278166.66 0.0510 0.0030

Moon -84873-09-30 17:16 J -29278167.02 -29278166.78 -29278166.54 0.0510 0.0063 \*

Venus -84869-07-07 05:16 J -29276791.47 -29276791.28 -29276791.08 0.0539 0.0083

Mercury -84869-11-16 06:28 J -29276659.32 -29276659.23 -29276659.14 0.0536 0.0373

Mercury -84868-02-13 15:20 J -29276569.99 -29276569.86 -29276569.73 0.0534 0.0081

Moon -84867-03-26 01:54 J -29276164.65 -29276164.42 -29276164.18 0.0519 0.0022

Earth -84867-03-26 03:20 J -29276164.58 -29276164.36 -29276164.13 0.0519 0.0047 \*

Mercury -84862-04-13 19:11 J -29274319.88 -29274319.70 -29274319.53 0.0493 0.0017

Mercury -84862-07-12 22:04 J -29274229.62 -29274229.58 -29274229.53 0.0496 0.0476

Moon -84861-10-05 10:04 J -29273779.27 -29273779.08 -29273778.90 0.0512 0.0318

Earth -84861-10-05 13:40 J -29273779.11 -29273778.93 -29273778.74 0.0512 0.0317 \*

Venus -84857-03-11 19:11 J -29272525.79 -29272525.70 -29272525.59 0.0540 0.0458

Mercury -84857-09-04 09:06 J -29272349.16 -29272349.12 -29272349.07 0.0537 0.0496

Mercury -84857-12-02 17:44 J -29272259.89 -29272259.76 -29272259.62 0.0534 0.0048

Mercury -84856-03-02 03:06 J -29272170.45 -29272170.37 -29272170.28 0.0532 0.0413

Earth -84855-03-30 13:25 J -29271777.15 -29271776.94 -29271776.73 0.0517 0.0222

Moon -84855-03-30 13:25 J -29271777.13 -29271776.94 -29271776.73 0.0517 0.0211 \*

Mercury -84850-01-30 17:59 J -29270009.92 -29270009.75 -29270009.58 0.0493 0.0135

Mercury -84850-04-30 21:35 J -29269919.72 -29269919.60 -29269919.48 0.0495 0.0358

Mercury -84845-09-20 21:20 J -29267949.74 -29267949.61 -29267949.49 0.0535 0.0159

Mercury -84845-12-19 06:28 J -29267860.34 -29267860.23 -29267860.12 0.0533 0.0299

Earth -84843-04-04 03:35 J -29267389.41 -29267389.35 -29267389.28 0.0515 0.0494

Moon -84843-04-04 05:01 J -29267389.38 -29267389.29 -29267389.18 0.0515 0.0464 \*

Venus -84839-05-09 18:56 J -29265892.91 -29265892.71 -29265892.50 0.0488 0.0123

Mercury -84839-11-18 16:18 J -29265699.97 -29265699.82 -29265699.67 0.0492 0.0262

Mercury -84838-02-16 20:08 J -29265609.82 -29265609.66 -29265609.51 0.0494 0.0234

Venus -84833-03-14 18:13 J -29263756.88 -29263756.74 -29263756.60 0.0539 0.0371

Mercury -84833-07-10 01:11 J -29263639.57 -29263639.45 -29263639.34 0.0536 0.0267

Mercury -84833-10-07 10:04 J -29263550.20 -29263550.08 -29263549.95 0.0533 0.0190

Mars -84831-11-15 15:06 J -29262781.17 -29262780.87 -29262780.56 0.0504 0.0007

Venus -84827-01-12 18:56 J -29261626.87 -29261626.71 -29261626.53 0.0487 0.0283

Mercury -84827-09-06 14:37 J -29261390.00 -29261389.89 -29261389.78 0.0492 0.0386

Mercury -84827-12-05 18:56 J -29261299.88 -29261299.71 -29261299.54 0.0494 0.0112

Venus -84822-11-18 13:40 J -29259491.12 -29259490.93 -29259490.74 0.0540 0.0139

Mercury -84821-04-28 05:01 J -29259329.38 -29259329.29 -29259329.19 0.0537 0.0373

Mercury -84821-07-26 13:54 J -29259240.05 -29259239.92 -29259239.79 0.0534 0.0084

Mercury -84815-09-23 17:30 J -29256989.94 -29256989.77 -29256989.59 0.0493 0.0016

Mercury -84815-12-22 20:52 J -29256899.67 -29256899.63 -29256899.59 0.0496 0.0479

Mercury -84809-02-15 08:52 J -29255019.18 -29255019.13 -29255019.07 0.0537 0.0481

Mercury -84809-05-14 17:30 J -29254929.90 -29254929.77 -29254929.64 0.0534 0.0031

Mercury -84809-08-12 02:52 J -29254840.45 -29254840.38 -29254840.30 0.0532 0.0430

Venus -84803-01-15 07:54 J -29252858.31 -29252858.17 -29252858.03 0.0489 0.0367

Mercury -84803-07-12 16:47 J -29252679.97 -29252679.80 -29252679.63 0.0493 0.0130

Mercury -84803-10-10 20:08 J -29252589.77 -29252589.66 -29252589.54 0.0495 0.0364

Earth -84802-09-26 00:56 J -29252239.67 -29252239.46 -29252239.26 0.0507 0.0264

Moon -84802-09-26 03:35 J -29252239.56 -29252239.35 -29252239.14 0.0507 0.0255 \*

Mercury -84797-03-02 20:08 J -29250619.78 -29250619.66 -29250619.53 0.0535 0.0154

Mercury -84797-05-31 05:16 J -29250530.39 -29250530.28 -29250530.17 0.0532 0.0303

Moon -84796-03-20 14:37 J -29250237.07 -29250236.89 -29250236.71 0.0522 0.0334

Earth -84796-03-20 16:04 J -29250236.99 -29250236.83 -29250236.66 0.0522 0.0360 \*

Venus -84792-09-20 08:23 J -29248592.36 -29248592.15 -29248591.94 0.0488 0.0037

Mercury -84791-04-30 15:35 J -29248370.00 -29248369.85 -29248369.69 0.0492 0.0250

Mercury -84791-07-29 19:25 J -29248279.84 -29248279.69 -29248279.53 0.0495 0.0247

Moon -84790-09-30 19:11 J -29247851.93 -29247851.70 -29247851.46 0.0509 0.0044

Earth -84790-09-30 22:47 J -29247851.79 -29247851.55 -29247851.31 0.0509 0.0015 \*  
 Venus -84786-07-27 02:37 J -29246456.58 -29246456.39 -29246456.20 0.0539 0.0150  
 Mercury -84786-12-20 23:30 J -29246309.63 -29246309.52 -29246309.40 0.0536 0.0268  
 Mercury -84785-03-19 08:37 J -29246220.26 -29246220.14 -29246220.02 0.0533 0.0189  
 Earth -84784-03-25 07:25 J -29245849.42 -29245849.19 -29245848.97 0.0520 0.0080  
 Moon -84784-03-25 07:25 J -29245849.41 -29245849.19 -29245848.97 0.0520 0.0057 \*  
 Venus -84780-05-26 07:54 J -29244326.25 -29244326.17 -29244326.08 0.0487 0.0443  
 Mercury -84779-02-16 13:40 J -29244060.04 -29244059.93 -29244059.81 0.0492 0.0378  
 Mercury -84779-05-17 17:59 J -29243969.92 -29243969.75 -29243969.58 0.0494 0.0120  
 Earth -84778-10-05 18:28 J -29243463.93 -29243463.73 -29243463.53 0.0511 0.0287  
 Moon -84778-10-05 22:04 J -29243463.77 -29243463.58 -29243463.38 0.0511 0.0279 \*  
 Mars -84777-07-02 15:06 J -29243193.00 -29243192.87 -29243192.73 0.0522 0.0437  
 Venus -84774-03-31 20:23 J -29242190.79 -29242190.65 -29242190.50 0.0540 0.0369  
 Mercury -84774-10-09 03:20 J -29241999.45 -29241999.36 -29241999.26 0.0537 0.0376  
 Mercury -84773-01-06 12:13 J -29241910.12 -29241909.99 -29241909.86 0.0534 0.0080  
 Earth -84772-03-29 23:59 J -29241461.71 -29241461.50 -29241461.29 0.0518 0.0202  
 Moon -84772-03-30 01:25 J -29241461.66 -29241461.44 -29241461.21 0.0518 0.0183 \*  
 Mercury -84767-03-05 16:47 J -29239659.98 -29239659.80 -29239659.63 0.0493 0.0007  
 Mercury -84767-06-03 19:40 J -29239569.70 -29239569.68 -29239569.65 0.0496 0.0488  
 Mercury -84762-07-28 07:25 J -29237689.24 -29237689.19 -29237689.13 0.0537 0.0481  
 Mercury -84762-10-25 16:18 J -29237599.95 -29237599.82 -29237599.69 0.0535 0.0031  
 Mercury -84761-01-23 01:40 J -29237510.51 -29237510.43 -29237510.36 0.0532 0.0431  
 Moon -84760-04-03 12:28 J -29237074.07 -29237073.98 -29237073.87 0.0515 0.0454  
 Earth -84760-04-03 15:35 J -29237073.93 -29237073.85 -29237073.76 0.0515 0.0478 \*  
 Venus -84756-05-28 19:40 J -29235557.87 -29235557.68 -29235557.48 0.0489 0.0200  
 Mercury -84756-12-22 15:20 J -29235350.03 -29235349.86 -29235349.69 0.0493 0.0126  
 Mercury -84755-03-22 18:42 J -29235259.83 -29235259.72 -29235259.60 0.0495 0.0368  
 Venus -84750-04-03 21:35 J -29233421.68 -29233421.60 -29233421.50 0.0538 0.0474  
 Mercury -84750-08-13 19:54 J -29233289.80 -29233289.67 -29233289.54 0.0535 0.0138  
 Mercury -84750-11-11 05:01 J -29233200.39 -29233200.29 -29233200.18 0.0532 0.0320

Venus -84744-01-31 20:37 J -29231291.83 -29231291.64 -29231291.45 0.0488 0.0202  
 Mercury -84744-10-10 14:23 J -29231040.05 -29231039.90 -29231039.74 0.0492 0.0245  
 Mercury -84743-01-08 18:13 J -29230949.89 -29230949.74 -29230949.58 0.0495 0.0252  
 Mars -84741-04-06 03:35 J -29230131.57 -29230131.35 -29230131.14 0.0524 0.0255  
 Venus -84739-12-07 12:42 J -29229156.17 -29229155.97 -29229155.78 0.0539 0.0062  
 Mercury -84738-06-01 22:32 J -29228979.67 -29228979.56 -29228979.44 0.0536 0.0261  
 Mercury -84738-08-30 07:40 J -29228890.31 -29228890.18 -29228890.06 0.0533 0.0194  
 Mercury -84732-07-29 13:11 J -29226730.07 -29226729.95 -29226729.83 0.0492 0.0365  
 Mercury -84732-10-27 17:30 J -29226639.94 -29226639.77 -29226639.60 0.0494 0.0133  
 Mercury -84726-03-21 01:54 J -29224669.51 -29224669.42 -29224669.32 0.0536 0.0375  
 Mercury -84726-06-18 10:47 J -29224580.18 -29224580.05 -29224579.92 0.0534 0.0079  
 Venus -84720-02-03 08:52 J -29222523.20 -29222523.13 -29222523.04 0.0489 0.0447  
 Mercury -84720-08-15 15:49 J -29222330.02 -29222329.84 -29222329.66 0.0493 0.0008  
 Mercury -84720-11-13 18:42 J -29222239.72 -29222239.72 -29222239.71 0.0496 0.0496  
 Moon -84719-09-25 02:52 J -29221924.57 -29221924.38 -29221924.18 0.0506 0.0279  
 Earth -84719-09-25 06:28 J -29221924.43 -29221924.23 -29221924.03 0.0506 0.0289 \*  
 Mercury -84714-01-07 05:44 J -29220359.31 -29220359.26 -29220359.20 0.0537 0.0484  
 Mercury -84714-04-06 14:23 J -29220270.03 -29220269.90 -29220269.76 0.0535 0.0037  
 Mercury -84714-07-04 23:44 J -29220180.58 -29220180.51 -29220180.43 0.0532 0.0428  
 Moon -84713-03-20 01:54 J -29219921.58 -29219921.42 -29219921.26 0.0523 0.0354  
 Earth -84713-03-20 01:40 J -29219921.57 -29219921.43 -29219921.27 0.0523 0.0383 \*  
 Venus -84709-10-09 08:52 J -29218257.34 -29218257.13 -29218256.92 0.0488 0.0041  
 Mercury -84708-06-03 14:23 J -29218020.07 -29218019.90 -29218019.73 0.0493 0.0117  
 Mercury -84708-09-01 17:44 J -29217929.87 -29217929.76 -29217929.64 0.0495 0.0376  
 Earth -84707-09-30 03:49 J -29217536.58 -29217536.34 -29217536.10 0.0508 0.0016  
 Moon -84707-09-30 07:40 J -29217536.42 -29217536.18 -29217535.94 0.0508 0.0013 \*  
 Venus -84703-08-15 05:44 J -29216121.43 -29216121.26 -29216121.08 0.0539 0.0252  
 Mercury -84702-01-23 18:28 J -29215959.86 -29215959.73 -29215959.60 0.0535 0.0138  
 Mercury -84702-04-23 03:35 J -29215870.45 -29215870.35 -29215870.24 0.0533 0.0320  
 Earth -84701-03-24 19:25 J -29215533.92 -29215533.69 -29215533.47 0.0520 0.0095

Moon -84701-03-24 20:52 J -29215533.86 -29215533.63 -29215533.39 0.0520 0.0076 \*  
 Venus -84697-06-14 08:23 J -29213991.28 -29213991.15 -29213991.01 0.0487 0.0367  
 Mercury -84696-03-22 12:56 J -29213710.12 -29213709.96 -29213709.81 0.0492 0.0242  
 Mercury -84696-06-20 16:47 J -29213619.95 -29213619.80 -29213619.65 0.0495 0.0254  
 Moon -84695-10-04 23:59 J -29213148.71 -29213148.50 -29213148.28 0.0511 0.0251  
 Earth -84695-10-05 02:52 J -29213148.58 -29213148.38 -29213148.17 0.0511 0.0268 \*  
 Venus -84691-04-20 00:13 J -29211855.66 -29211855.49 -29211855.32 0.0540 0.0263  
 Mercury -84691-11-11 22:18 J -29211649.69 -29211649.57 -29211649.46 0.0536 0.0247  
 Mercury -84690-02-09 07:11 J -29211560.32 -29211560.20 -29211560.08 0.0533 0.0209  
 Moon -84689-03-29 07:40 J -29211146.39 -29211146.18 -29211145.96 0.0518 0.0158  
 Earth -84689-03-29 10:32 J -29211146.27 -29211146.06 -29211145.84 0.0518 0.0183 \*  
 Mercury -84684-01-08 11:44 J -29209400.12 -29209400.01 -29209399.88 0.0492 0.0361  
 Mercury -84684-04-08 16:04 J -29209309.99 -29209309.83 -29209309.66 0.0494 0.0138  
 Mercury -84679-08-31 00:56 J -29207339.55 -29207339.46 -29207339.36 0.0536 0.0369  
 Mercury -84679-11-28 09:49 J -29207250.22 -29207250.09 -29207249.96 0.0534 0.0085  
 Earth -84677-04-02 19:40 J -29206758.79 -29206758.68 -29206758.56 0.0516 0.0444  
 Moon -84677-04-02 23:16 J -29206758.65 -29206758.53 -29206758.40 0.0516 0.0427 \*  
 Mars -84676-02-08 20:08 J -29206446.90 -29206446.66 -29206446.40 0.0504 0.0282  
 Venus -84673-06-16 22:04 J -29205222.75 -29205222.58 -29205222.41 0.0489 0.0287  
 Mercury -84673-10-27 10:32 J -29205090.09 -29205090.06 -29205090.03 0.0491 0.0482  
 Mercury -84672-01-25 15:06 J -29205000.04 -29204999.87 -29204999.69 0.0494 0.0020  
 Mercury -84667-06-19 04:32 J -29203029.37 -29203029.31 -29203029.26 0.0537 0.0482  
 Mercury -84667-09-16 13:11 J -29202940.09 -29202939.95 -29202939.82 0.0534 0.0035  
 Mercury -84667-12-14 22:18 J -29202850.64 -29202850.57 -29202850.49 0.0532 0.0427  
 Venus -84661-02-20 21:20 J -29200956.82 -29200956.61 -29200956.41 0.0488 0.0124  
 Mercury -84661-11-13 13:25 J -29200690.12 -29200689.94 -29200689.77 0.0493 0.0109  
 Mercury -84660-02-11 16:47 J -29200599.91 -29200599.80 -29200599.69 0.0495 0.0383  
 Venus -84656-12-26 13:11 J -29198821.15 -29198820.95 -29198820.76 0.0540 0.0027  
 Mercury -84655-07-05 16:47 J -29198629.93 -29198629.80 -29198629.68 0.0535 0.0143  
 Mercury -84655-10-03 01:54 J -29198540.53 -29198540.42 -29198540.31 0.0533 0.0316

Mercury -84649-09-01 11:44 J -29196380.16 -29196380.01 -29196379.85 0.0492 0.0234

Mercury -84649-11-30 15:35 J -29196289.99 -29196289.85 -29196289.70 0.0494 0.0263

Venus -84644-08-31 07:40 J -29194555.26 -29194555.18 -29194555.10 0.0541 0.0491

Mercury -84643-04-23 20:37 J -29194319.75 -29194319.64 -29194319.52 0.0536 0.0249

Mercury -84643-07-22 05:44 J -29194230.38 -29194230.26 -29194230.14 0.0533 0.0208

Mercury -84637-06-20 10:04 J -29192070.20 -29192070.08 -29192069.95 0.0492 0.0359

Mercury -84637-09-18 14:23 J -29191980.07 -29191979.90 -29191979.73 0.0494 0.0140

Earth -84636-09-24 13:40 J -29191609.12 -29191608.93 -29191608.74 0.0506 0.0309

Moon -84636-09-24 17:30 J -29191608.96 -29191608.77 -29191608.57 0.0506 0.0289 \*

Mercury -84631-02-10 00:28 J -29190009.57 -29190009.48 -29190009.38 0.0536 0.0357

Mercury -84631-05-10 09:20 J -29189920.24 -29189920.11 -29189919.98 0.0534 0.0098

Earth -84630-03-20 11:59 J -29189606.13 -29189606.00 -29189605.85 0.0523 0.0402

Moon -84630-03-20 13:40 J -29189606.09 -29189605.93 -29189605.76 0.0523 0.0368 \*

Venus -84626-10-29 09:49 J -29187922.30 -29187922.09 -29187921.89 0.0489 0.0119

Mercury -84625-04-08 09:06 J -29187760.16 -29187760.12 -29187760.08 0.0491 0.0478

Mercury -84625-07-07 13:40 J -29187670.10 -29187669.93 -29187669.75 0.0494 0.0023

Moon -84624-09-29 10:32 J -29187221.31 -29187221.06 -29187220.82 0.0508 0.0007

Earth -84624-09-29 13:25 J -29187221.17 -29187220.94 -29187220.70 0.0508 0.0031 \*

Mars -84623-09-27 07:11 J -29186858.43 -29186858.20 -29186857.96 0.0522 0.0173

Venus -84620-09-03 05:16 J -29185786.44 -29185786.28 -29185786.13 0.0538 0.0331

Mercury -84620-11-29 03:20 J -29185699.41 -29185699.36 -29185699.30 0.0536 0.0476

Mercury -84619-02-26 11:59 J -29185610.13 -29185610.00 -29185609.87 0.0534 0.0027

Mercury -84619-05-26 21:20 J -29185520.69 -29185520.61 -29185520.53 0.0531 0.0431

Moon -84618-03-24 19:54 J -29185218.89 -29185218.67 -29185218.45 0.0521 0.0121

Earth -84618-03-24 22:32 J -29185218.78 -29185218.56 -29185218.34 0.0521 0.0133 \*

Venus -84614-07-04 09:49 J -29183656.26 -29183656.09 -29183655.92 0.0488 0.0286

Mercury -84613-04-25 12:28 J -29183360.15 -29183359.98 -29183359.80 0.0493 0.0100

Mercury -84613-07-24 16:04 J -29183269.93 -29183269.83 -29183269.72 0.0495 0.0394

Earth -84612-10-04 11:44 J -29182833.21 -29182833.01 -29182832.80 0.0510 0.0250

Moon -84612-10-04 13:11 J -29182833.16 -29182832.95 -29182832.74 0.0510 0.0229 \*



Venus -84608-05-08 21:49 J -29181520.77 -29181520.59 -29181520.40 0.0539 0.0194

Mercury -84608-12-15 15:20 J -29181299.99 -29181299.86 -29181299.74 0.0535 0.0141

Mercury -84607-03-15 00:28 J -29181210.59 -29181210.48 -29181210.38 0.0532 0.0315

Earth -84606-03-29 12:28 J -29180831.20 -29180830.98 -29180830.76 0.0519 0.0142

Moon -84606-03-29 16:04 J -29180831.05 -29180830.83 -29180830.60 0.0518 0.0112 \*

Mercury -84601-02-12 10:32 J -29179050.21 -29179050.06 -29179049.90 0.0492 0.0228

Mercury -84601-05-12 14:23 J -29178960.04 -29178959.90 -29178959.75 0.0494 0.0269

Moon -84600-10-09 07:11 J -29178445.26 -29178445.20 -29178445.13 0.0512 0.0493

Mercury -84596-10-03 18:56 J -29176989.83 -29176989.71 -29176989.60 0.0536 0.0254

Mercury -84595-01-01 03:49 J -29176900.46 -29176900.34 -29176900.22 0.0533 0.0203

Moon -84594-04-03 00:42 J -29176443.62 -29176443.47 -29176443.33 0.0516 0.0403

Earth -84594-04-03 04:04 J -29176443.45 -29176443.33 -29176443.19 0.0516 0.0419 \*

Venus -84590-07-06 21:35 J -29174887.74 -29174887.60 -29174887.46 0.0489 0.0358

Mercury -84590-12-01 08:52 J -29174740.25 -29174740.13 -29174740.00 0.0492 0.0352

Mercury -84589-02-29 13:11 J -29174650.12 -29174649.95 -29174649.78 0.0494 0.0146

Mars -84587-07-01 07:11 J -29173797.30 -29173797.20 -29173797.09 0.0525 0.0474

Mercury -84584-07-22 22:47 J -29172679.64 -29172679.55 -29172679.45 0.0537 0.0360

Mercury -84584-10-20 07:40 J -29172590.31 -29172590.18 -29172590.05 0.0534 0.0094

Venus -84578-03-11 20:52 J -29170621.84 -29170621.63 -29170621.42 0.0488 0.0053

Mercury -84578-09-19 07:11 J -29170430.24 -29170430.20 -29170430.16 0.0491 0.0479

Mercury -84578-12-18 11:44 J -29170340.19 -29170340.01 -29170339.83 0.0493 0.0022

Venus -84572-01-14 15:49 J -29168486.03 -29168485.84 -29168485.65 0.0539 0.0123

Mercury -84572-05-11 02:37 J -29168369.45 -29168369.39 -29168369.33 0.0537 0.0467

Mercury -84572-08-08 11:16 J -29168280.16 -29168280.03 -29168279.90 0.0535 0.0019

Mercury -84572-11-05 20:37 J -29168190.71 -29168190.64 -29168190.57 0.0532 0.0443

Venus -84567-11-14 21:20 J -29166355.67 -29166355.61 -29166355.52 0.0487 0.0454

Mercury -84566-10-06 10:47 J -29166030.22 -29166030.05 -29166029.87 0.0493 0.0098

Mercury -84565-01-04 14:23 J -29165940.00 -29165939.90 -29165939.79 0.0495 0.0396

Venus -84561-09-19 07:25 J -29164220.32 -29164220.19 -29164220.06 0.0540 0.0408

Mercury -84560-05-27 14:08 J -29163970.03 -29163969.91 -29163969.78 0.0535 0.0137

Mercury -84560-08-24 23:16 J -29163880.64 -29163880.53 -29163880.42 0.0532 0.0319  
 Mars -84558-07-28 21:35 J -29163177.85 -29163177.60 -29163177.35 0.0506 0.0281  
 Mercury -84554-07-25 09:35 J -29161720.26 -29161720.10 -29161719.94 0.0493 0.0220  
 Mercury -84554-10-23 13:25 J -29161630.08 -29161629.94 -29161629.79 0.0495 0.0277  
 Moon -84553-09-23 18:56 J -29161293.90 -29161293.71 -29161293.51 0.0505 0.0302  
 Earth -84553-09-23 22:18 J -29161293.75 -29161293.57 -29161293.39 0.0505 0.0327 \*  
 Mercury -84548-03-15 17:30 J -29159659.89 -29159659.77 -29159659.66 0.0535 0.0252  
 Mercury -84548-06-13 02:23 J -29159570.52 -29159570.40 -29159570.28 0.0533 0.0202  
 Moon -84547-03-19 10:04 J -29159291.21 -29159291.08 -29159290.95 0.0523 0.0416  
 Earth -84547-03-19 12:13 J -29159291.09 -29159290.99 -29159290.86 0.0523 0.0448 \*  
 Venus -84543-11-17 09:06 J -29157587.32 -29157587.12 -29157586.93 0.0489 0.0188  
 Mercury -84542-05-13 07:25 J -29157410.31 -29157410.19 -29157410.06 0.0492 0.0349  
 Mercury -84542-08-11 11:44 J -29157320.18 -29157320.01 -29157319.84 0.0494 0.0149  
 Earth -84541-09-28 16:04 J -29156906.07 -29156905.83 -29156905.59 0.0507 0.0062  
 Moon -84541-09-28 17:44 J -29156905.99 -29156905.76 -29156905.53 0.0507 0.0043 \*  
 Venus -84537-09-22 03:49 J -29155451.47 -29155451.34 -29155451.21 0.0539 0.0404  
 Mercury -84536-01-01 20:52 J -29155349.72 -29155349.63 -29155349.53 0.0536 0.0366  
 Mercury -84536-04-01 05:44 J -29155260.39 -29155260.26 -29155260.13 0.0534 0.0088  
 Earth -84535-03-24 04:47 J -29154903.52 -29154903.30 -29154903.09 0.0521 0.0163  
 Moon -84535-03-24 08:23 J -29154903.37 -29154903.15 -29154902.93 0.0521 0.0161 \*  
 Venus -84531-07-23 08:52 J -29153321.32 -29153321.13 -29153320.94 0.0488 0.0218  
 Mercury -84530-03-01 05:44 J -29153100.30 -29153100.26 -29153100.22 0.0491 0.0474  
 Mercury -84530-05-30 10:18 J -29153010.24 -29153010.07 -29153009.89 0.0493 0.0027  
 Moon -84529-10-03 12:42 J -29152518.20 -29152517.97 -29152517.74 0.0509 0.0188  
 Earth -84529-10-03 12:42 J -29152518.18 -29152517.97 -29152517.75 0.0509 0.0212 \*  
 Venus -84525-05-27 22:18 J -29151185.76 -29151185.57 -29151185.37 0.0540 0.0110  
 Mercury -84525-10-21 00:56 J -29151039.52 -29151039.46 -29151039.40 0.0537 0.0473  
 Mercury -84524-01-18 09:35 J -29150950.23 -29150950.10 -29150949.97 0.0535 0.0025  
 Mercury -84524-04-17 18:56 J -29150860.79 -29150860.71 -29150860.64 0.0532 0.0437  
 Moon -84523-03-28 17:59 J -29150515.97 -29150515.75 -29150515.52 0.0519 0.0087

Earth -84523-03-28 21:35 J -29150515.82 -29150515.60 -29150515.38 0.0519 0.0120 \*  
 Mercury -84518-03-18 08:37 J -29148700.31 -29148700.14 -29148699.96 0.0493 0.0101  
 Mercury -84518-06-16 12:13 J -29148610.09 -29148609.99 -29148609.88 0.0495 0.0392  
 Moon -84517-10-08 09:06 J -29148130.20 -29148130.12 -29148130.02 0.0512 0.0470  
 Earth -84517-10-08 11:01 J -29148130.10 -29148130.04 -29148129.97 0.0512 0.0491 \*  
 Mercury -84513-11-06 13:11 J -29146640.07 -29146639.95 -29146639.82 0.0535 0.0131  
 Mercury -84512-02-03 22:18 J -29146550.67 -29146550.57 -29146550.46 0.0533 0.0327  
 Earth -84511-04-02 12:13 J -29146128.13 -29146127.99 -29146127.83 0.0517 0.0393  
 Moon -84511-04-02 15:06 J -29146128.01 -29146127.87 -29146127.72 0.0517 0.0386 \*  
 Venus -84507-07-25 21:06 J -29144552.72 -29144552.62 -29144552.52 0.0489 0.0429  
 Mercury -84506-01-04 07:40 J -29144390.34 -29144390.18 -29144390.02 0.0492 0.0221  
 Mercury -84506-04-04 11:30 J -29144300.16 -29144300.02 -29144299.87 0.0495 0.0276  
 Mercury -84501-08-25 16:18 J -29142329.94 -29142329.82 -29142329.71 0.0535 0.0249  
 Mercury -84501-11-23 01:11 J -29142240.57 -29142240.45 -29142240.33 0.0533 0.0205  
 Venus -84495-03-30 20:23 J -29140286.86 -29140286.65 -29140286.44 0.0489 0.0020  
 Mercury -84495-10-23 05:59 J -29140080.37 -29140080.25 -29140080.12 0.0492 0.0345  
 Mercury -84494-01-21 10:32 J -29139990.23 -29139990.06 -29139989.90 0.0494 0.0154  
 Venus -84489-02-03 12:42 J -29138151.15 -29138150.97 -29138150.78 0.0539 0.0187  
 Mercury -84489-06-13 19:25 J -29138019.78 -29138019.69 -29138019.59 0.0536 0.0365  
 Mercury -84489-09-11 04:18 J -29137930.45 -29137930.32 -29137930.19 0.0533 0.0088  
 Venus -84484-12-03 19:40 J -29136020.80 -29136020.68 -29136020.55 0.0488 0.0390  
 Mercury -84483-08-11 03:49 J -29135770.38 -29135770.34 -29135770.29 0.0491 0.0474  
 Mercury -84483-11-09 08:37 J -29135680.32 -29135680.14 -29135679.96 0.0493 0.0026  
 Venus -84478-10-09 04:47 J -29133885.45 -29133885.30 -29133885.15 0.0540 0.0343  
 Mercury -84477-04-01 23:01 J -29133709.60 -29133709.54 -29133709.49 0.0537 0.0480  
 Mercury -84477-06-30 07:25 J -29133620.32 -29133620.19 -29133620.06 0.0535 0.0031  
 Mercury -84477-09-27 16:47 J -29133530.88 -29133530.80 -29133530.72 0.0532 0.0429  
 Mercury -84471-08-28 06:56 J -29131370.38 -29131370.21 -29131370.03 0.0493 0.0100  
 Mercury -84471-11-26 10:32 J -29131280.16 -29131280.06 -29131279.95 0.0495 0.0394  
 Earth -84470-09-23 22:04 J -29130978.74 -29130978.58 -29130978.41 0.0505 0.0363

Moon -84470-09-24 00:13 J -29130978.66 -29130978.49 -29130978.31 0.0505 0.0335 \*  
 Mars -84469-12-21 01:11 J -29130524.70 -29130524.45 -29130524.20 0.0522 0.0018  
 Mercury -84465-04-18 11:16 J -29129310.16 -29129310.03 -29129309.91 0.0535 0.0139  
 Mercury -84465-07-16 20:23 J -29129220.76 -29129220.65 -29129220.55 0.0533 0.0319  
 Earth -84464-03-18 19:25 J -29128975.79 -29128975.69 -29128975.60 0.0524 0.0473  
 Moon -84464-03-18 22:47 J -29128975.67 -29128975.55 -29128975.42 0.0524 0.0441 \*  
 Venus -84460-12-06 06:56 J -29127252.39 -29127252.21 -29127252.03 0.0489 0.0251  
 Mercury -84459-06-16 05:16 J -29127060.44 -29127060.28 -29127060.12 0.0492 0.0226  
 Mercury -84459-09-14 09:06 J -29126970.26 -29126970.12 -29126969.97 0.0494 0.0270  
 Moon -84458-09-28 17:59 J -29126591.00 -29126590.75 -29126590.51 0.0507 0.0079  
 Earth -84458-09-28 18:28 J -29126590.97 -29126590.73 -29126590.50 0.0507 0.0094 \*  
 Venus -84454-10-12 04:47 J -29125116.38 -29125116.30 -29125116.22 0.0539 0.0492  
 Mercury -84453-02-05 15:06 J -29124999.99 -29124999.87 -29124999.76 0.0536 0.0247  
 Mercury -84453-05-04 23:59 J -29124910.62 -29124910.50 -29124910.38 0.0533 0.0209  
 Moon -84452-03-23 08:23 J -29124588.36 -29124588.15 -29124587.94 0.0522 0.0197  
 Earth -84452-03-23 11:59 J -29124588.21 -29124588.00 -29124587.79 0.0522 0.0191 \*  
 Venus -84448-08-11 06:56 J -29122986.40 -29122986.21 -29122986.00 0.0488 0.0155  
 Mercury -84447-04-04 03:49 J -29122750.46 -29122750.34 -29122750.21 0.0492 0.0348  
 Mercury -84447-07-03 08:23 J -29122660.32 -29122660.15 -29122659.98 0.0494 0.0151  
 Moon -84446-10-03 16:32 J -29122203.03 -29122202.81 -29122202.59 0.0509 0.0159  
 Earth -84446-10-03 17:44 J -29122202.98 -29122202.76 -29122202.53 0.0509 0.0185 \*  
 Venus -84442-06-16 21:35 J -29120850.80 -29120850.60 -29120850.41 0.0539 0.0033  
 Mercury -84442-11-24 18:13 J -29120689.83 -29120689.74 -29120689.65 0.0536 0.0363  
 Mercury -84441-02-22 02:52 J -29120600.51 -29120600.38 -29120600.25 0.0533 0.0089  
 Earth -84440-03-27 22:47 J -29120200.78 -29120200.55 -29120200.33 0.0519 0.0076  
 Moon -84440-03-28 01:40 J -29120200.65 -29120200.43 -29120200.21 0.0519 0.0044 \*  
 Mercury -84435-01-21 02:08 J -29118440.46 -29118440.41 -29118440.37 0.0492 0.0474  
 Mercury -84435-04-21 06:56 J -29118350.39 -29118350.21 -29118350.03 0.0494 0.0028  
 Earth -84434-10-08 16:04 J -29117814.92 -29117814.83 -29117814.72 0.0511 0.0462  
 Moon -84434-10-08 19:40 J -29117814.80 -29117814.68 -29117814.57 0.0511 0.0449 \*

Mercury -84430-09-12 21:35 J -29116379.66 -29116379.60 -29116379.55 0.0536 0.0478

Mercury -84430-12-11 05:59 J -29116290.38 -29116290.25 -29116290.12 0.0534 0.0029

Mercury -84429-03-09 15:20 J -29116200.94 -29116200.86 -29116200.79 0.0531 0.0428

Moon -84428-04-01 09:20 J -29115813.28 -29115813.11 -29115812.92 0.0517 0.0335

Earth -84428-04-01 11:16 J -29115813.19 -29115813.03 -29115812.85 0.0517 0.0343 \*

Venus -84424-08-13 17:59 J -29114217.76 -29114217.75 -29114217.72 0.0489 0.0487

Mercury -84423-02-07 05:01 J -29114040.46 -29114040.29 -29114040.12 0.0493 0.0101

Mercury -84423-05-08 08:37 J -29113950.24 -29113950.14 -29113950.03 0.0495 0.0392

Mercury -84418-09-29 09:06 J -29111980.24 -29111980.12 -29111979.99 0.0535 0.0147

Mercury -84418-12-27 18:13 J -29111890.85 -29111890.74 -29111890.63 0.0533 0.0310

Venus -84412-04-18 17:44 J -29109951.97 -29109951.76 -29109951.55 0.0488 0.0077

Mercury -84412-11-26 03:20 J -29109730.52 -29109730.36 -29109730.20 0.0492 0.0227

Mercury -84411-02-24 07:11 J -29109640.34 -29109640.20 -29109640.05 0.0494 0.0270

Venus -84406-02-22 10:18 J -29107816.24 -29107816.07 -29107815.89 0.0539 0.0254

Mercury -84406-07-18 12:56 J -29107670.08 -29107669.96 -29107669.85 0.0536 0.0257

Mercury -84406-10-15 21:49 J -29107580.71 -29107580.59 -29107580.47 0.0534 0.0199

Mars -84404-10-21 19:25 J -29106843.99 -29106843.69 -29106843.39 0.0506 0.0031

Venus -84401-12-22 16:47 J -29105685.95 -29105685.80 -29105685.64 0.0487 0.0332

Mercury -84400-09-14 01:11 J -29105420.57 -29105420.45 -29105420.32 0.0492 0.0355

Mercury -84400-12-13 05:44 J -29105330.43 -29105330.26 -29105330.09 0.0494 0.0144

Venus -84395-10-28 04:47 J -29103550.47 -29103550.30 -29103550.12 0.0540 0.0261

Mercury -84394-05-06 16:47 J -29103359.90 -29103359.80 -29103359.71 0.0536 0.0365

Mercury -84394-08-04 01:25 J -29103270.57 -29103270.44 -29103270.31 0.0534 0.0089

Mercury -84388-07-02 23:44 J -29101110.54 -29101110.51 -29101110.47 0.0491 0.0478

Mercury -84388-10-01 04:32 J -29101020.48 -29101020.31 -29101020.13 0.0493 0.0024

Moon -84387-09-23 00:28 J -29100663.65 -29100663.48 -29100663.30 0.0504 0.0360

Earth -84387-09-23 01:11 J -29100663.59 -29100663.45 -29100663.29 0.0504 0.0393 \*

Mercury -84382-02-22 20:08 J -29099049.72 -29099049.66 -29099049.61 0.0536 0.0479

Mercury -84382-05-23 04:32 J -29098960.44 -29098960.31 -29098960.18 0.0534 0.0030

Mercury -84382-08-20 13:40 J -29098871.00 -29098870.93 -29098870.85 0.0531 0.0427

Moon -84381-03-17 16:47 J -29098660.87 -29098660.80 -29098660.71 0.0524 0.0486  
 Earth -84381-03-17 20:23 J -29098660.68 -29098660.65 -29098660.61 0.0524 0.0516  
 Venus -84377-12-25 04:18 J -29096917.48 -29096917.32 -29096917.15 0.0489 0.0311  
 Mercury -84376-07-20 02:52 J -29096710.55 -29096710.38 -29096710.20 0.0493 0.0104  
 Mercury -84376-10-18 06:42 J -29096620.32 -29096620.22 -29096620.11 0.0495 0.0392  
 Moon -84375-09-27 21:20 J -29096275.83 -29096275.61 -29096275.38 0.0507 0.0113  
 Earth -84375-09-27 22:18 J -29096275.80 -29096275.57 -29096275.34 0.0507 0.0124 \*  
 Mercury -84370-03-11 07:40 J -29094650.30 -29094650.18 -29094650.05 0.0535 0.0147  
 Mercury -84370-06-08 16:47 J -29094560.91 -29094560.80 -29094560.69 0.0532 0.0309  
 Earth -84369-03-22 10:04 J -29094273.28 -29094273.08 -29094272.88 0.0522 0.0241  
 Moon -84369-03-22 13:11 J -29094273.15 -29094272.95 -29094272.76 0.0522 0.0252 \*  
 Venus -84365-08-30 03:20 J -29092651.56 -29092651.36 -29092651.15 0.0488 0.0102  
 Mercury -84364-05-08 00:56 J -29092400.61 -29092400.46 -29092400.30 0.0492 0.0232  
 Mercury -84364-08-06 05:01 J -29092310.43 -29092310.29 -29092310.14 0.0494 0.0266  
 Earth -84363-10-02 16:04 J -29091888.06 -29091887.83 -29091887.60 0.0508 0.0144  
 Moon -84363-10-02 18:56 J -29091887.95 -29091887.71 -29091887.47 0.0508 0.0116 \*  
 Venus -84359-07-05 16:47 J -29090516.00 -29090515.80 -29090515.60 0.0539 0.0019  
 Mercury -84359-12-28 10:47 J -29090340.16 -29090340.05 -29090339.94 0.0536 0.0266  
 Mercury -84358-03-27 19:40 J -29090250.80 -29090250.68 -29090250.56 0.0533 0.0189  
 Moon -84357-03-26 22:32 J -29089885.80 -29089885.56 -29089885.33 0.0520 0.0007  
 Earth -84357-03-27 00:28 J -29089885.71 -29089885.48 -29089885.25 0.0520 0.0036 \*  
 Mercury -84352-02-23 23:16 J -29088090.65 -29088090.53 -29088090.41 0.0492 0.0357  
 Mercury -84352-05-25 03:35 J -29088000.51 -29088000.35 -29088000.18 0.0494 0.0142  
 Moon -84351-10-07 08:37 J -29087500.28 -29087500.14 -29087499.99 0.0510 0.0404  
 Earth -84351-10-07 12:28 J -29087500.11 -29087499.98 -29087499.83 0.0510 0.0415 \*  
 Mars -84350-06-12 14:08 J -29087252.03 -29087251.91 -29087251.79 0.0520 0.0453  
 Venus -84347-03-10 09:49 J -29086250.16 -29086250.09 -29086250.02 0.0540 0.0504  
 Mercury -84347-10-16 14:23 J -29086029.99 -29086029.90 -29086029.80 0.0537 0.0377  
 Mercury -84346-01-13 23:16 J -29085940.66 -29085940.53 -29085940.40 0.0534 0.0078  
 Earth -84345-03-31 16:04 J -29085498.01 -29085497.83 -29085497.65 0.0518 0.0311

Moon -84345-03-31 16:18 J -29085498.00 -29085497.82 -29085497.65 0.0518 0.0313 \*  
 Mercury -84341-12-12 20:52 J -29083780.64 -29083780.63 -29083780.60 0.0491 0.0487  
 Mercury -84340-03-13 01:54 J -29083690.60 -29083690.42 -29083690.24 0.0493 0.0015  
 Mercury -84335-08-04 18:13 J -29081719.79 -29081719.74 -29081719.68 0.0537 0.0484  
 Mercury -84335-11-02 02:52 J -29081630.51 -29081630.38 -29081630.25 0.0535 0.0034  
 Mercury -84334-01-30 12:13 J -29081541.07 -29081540.99 -29081540.91 0.0532 0.0425  
 Venus -84329-05-07 14:37 J -29079617.09 -29079616.89 -29079616.69 0.0488 0.0135  
 Mercury -84329-12-30 00:42 J -29079380.65 -29079380.47 -29079380.30 0.0493 0.0108  
 Mercury -84328-03-30 04:18 J -29079290.43 -29079290.32 -29079290.21 0.0495 0.0386  
 Venus -84323-03-13 09:20 J -29077481.27 -29077481.11 -29077480.96 0.0538 0.0328  
 Mercury -84323-08-21 06:13 J -29077320.36 -29077320.24 -29077320.11 0.0535 0.0148  
 Mercury -84323-11-18 15:06 J -29077230.97 -29077230.87 -29077230.76 0.0532 0.0308  
 Venus -84317-01-11 13:11 J -29075351.12 -29075350.95 -29075350.77 0.0488 0.0279  
 Mercury -84317-10-17 22:47 J -29075070.71 -29075070.55 -29075070.39 0.0493 0.0235  
 Mercury -84316-01-16 02:52 J -29074980.52 -29074980.38 -29074980.23 0.0495 0.0263  
 Mars -84314-03-16 22:32 J -29074190.79 -29074190.56 -29074190.33 0.0523 0.0215  
 Venus -84312-11-16 01:54 J -29073215.60 -29073215.42 -29073215.24 0.0539 0.0197  
 Mercury -84311-06-09 09:20 J -29073010.22 -29073010.11 -29073009.99 0.0535 0.0265  
 Mercury -84311-09-06 18:13 J -29072920.86 -29072920.74 -29072920.61 0.0533 0.0190  
 Mercury -84305-08-05 20:52 J -29070760.75 -29070760.63 -29070760.51 0.0492 0.0363  
 Mercury -84305-11-04 01:25 J -29070670.61 -29070670.44 -29070670.27 0.0494 0.0136  
 Moon -84304-09-21 23:30 J -29070348.66 -29070348.52 -29070348.38 0.0504 0.0397  
 Earth -84304-09-21 23:44 J -29070348.63 -29070348.51 -29070348.38 0.0504 0.0427 \*  
 Mercury -84299-03-28 12:28 J -29068700.07 -29068699.98 -29068699.89 0.0536 0.0385  
 Mercury -84299-06-25 21:06 J -29068610.75 -29068610.62 -29068610.49 0.0534 0.0068  
 Mercury -84299-09-23 06:28 J -29068521.24 -29068521.23 -29068521.21 0.0531 0.0526  
 Venus -84293-01-14 01:11 J -29066582.59 -29066582.45 -29066582.31 0.0489 0.0365  
 Mercury -84293-05-24 18:56 J -29066450.72 -29066450.71 -29066450.69 0.0491 0.0489  
 Mercury -84293-08-22 23:44 J -29066360.68 -29066360.51 -29066360.33 0.0493 0.0018  
 Earth -84292-09-26 18:56 J -29065960.93 -29065960.71 -29065960.48 0.0505 0.0165

Moon -84292-09-26 21:20 J -29065960.85 -29065960.61 -29065960.38 0.0505 0.0158 \*  
 Mercury -84287-01-14 16:04 J -29064389.88 -29064389.83 -29064389.78 0.0537 0.0496  
 Mercury -84287-04-14 00:42 J -29064300.60 -29064300.47 -29064300.34 0.0535 0.0045  
 Mercury -84287-07-12 09:49 J -29064211.17 -29064211.09 -29064211.01 0.0532 0.0413  
 Moon -84286-03-22 10:32 J -29063958.25 -29063958.06 -29063957.86 0.0523 0.0290  
 Earth -84286-03-22 12:42 J -29063958.16 -29063957.97 -29063957.77 0.0523 0.0277 \*  
 Venus -84282-09-18 23:59 J -29062316.71 -29062316.50 -29062316.29 0.0488 0.0046  
 Mercury -84281-06-10 21:49 J -29062050.76 -29062050.59 -29062050.41 0.0493 0.0116  
 Mercury -84281-09-09 01:40 J -29061960.54 -29061960.43 -29061960.32 0.0495 0.0377  
 Moon -84280-10-01 10:47 J -29061573.28 -29061573.05 -29061572.81 0.0508 0.0071  
 Earth -84280-10-01 14:23 J -29061573.13 -29061572.90 -29061572.66 0.0508 0.0102 \*  
 Venus -84276-07-24 15:35 J -29060181.04 -29060180.85 -29060180.66 0.0540 0.0094  
 Mercury -84275-01-31 04:18 J -29059990.44 -29059990.32 -29059990.19 0.0535 0.0155  
 Mercury -84275-04-30 13:25 J -29059901.05 -29059900.94 -29059900.83 0.0533 0.0303  
 Earth -84274-03-27 05:16 J -29059570.51 -29059570.28 -29059570.05 0.0521 0.0004  
 Moon -84274-03-27 05:44 J -29059570.48 -29059570.26 -29059570.04 0.0521 0.0027 \*  
 Venus -84270-05-24 23:59 J -29058050.57 -29058050.50 -29058050.42 0.0487 0.0450  
 Mercury -84269-03-29 20:23 J -29057740.80 -29057740.65 -29057740.49 0.0492 0.0240  
 Mercury -84269-06-28 00:42 J -29057650.62 -29057650.47 -29057650.32 0.0494 0.0258  
 Earth -84268-10-06 13:25 J -29057185.10 -29057184.94 -29057184.78 0.0510 0.0376  
 Moon -84268-10-06 17:16 J -29057184.94 -29057184.78 -29057184.62 0.0510 0.0375 \*  
 Venus -84264-03-29 09:06 J -29055915.23 -29055915.12 -29055914.99 0.0540 0.0426  
 Mercury -84264-11-19 07:54 J -29055680.28 -29055680.17 -29055680.06 0.0535 0.0266  
 Mercury -84263-02-16 16:47 J -29055590.93 -29055590.80 -29055590.68 0.0533 0.0188  
 Earth -84262-03-31 17:30 J -29055182.96 -29055182.77 -29055182.57 0.0518 0.0270  
 Moon -84262-03-31 18:56 J -29055182.90 -29055182.71 -29055182.51 0.0518 0.0278 \*  
 Mercury -84257-01-16 18:28 J -29053430.85 -29053430.73 -29053430.61 0.0492 0.0368  
 Mercury -84257-04-15 23:01 J -29053340.71 -29053340.54 -29053340.37 0.0494 0.0133  
 Mercury -84252-09-07 11:16 J -29051370.12 -29051370.03 -29051369.94 0.0536 0.0381  
 Mercury -84252-12-05 19:54 J -29051280.80 -29051280.67 -29051280.54 0.0534 0.0071



Mercury -84251-03-05 05:16 J -29051191.29 -29051191.28 -29051191.27 0.0531 0.0527  
 Mars -84249-01-14 18:56 J -29050511.00 -29050510.71 -29050510.42 0.0505 0.0155  
 Venus -84246-05-27 10:47 J -29049282.25 -29049282.05 -29049281.86 0.0489 0.0185  
 Mercury -84245-02-02 21:20 J -29049030.78 -29049030.61 -29049030.43 0.0493 0.0015  
 Venus -84240-04-01 03:20 J -29047146.49 -29047146.36 -29047146.21 0.0539 0.0374  
 Mercury -84240-06-26 14:08 J -29047059.95 -29047059.91 -29047059.87 0.0537 0.0503  
 Mercury -84240-09-23 22:32 J -29046970.69 -29046970.56 -29046970.43 0.0535 0.0055  
 Mercury -84240-12-22 07:54 J -29046881.26 -29046881.17 -29046881.09 0.0532 0.0405  
 Venus -84234-01-30 10:32 J -29045016.24 -29045016.06 -29045015.87 0.0488 0.0220  
 Mercury -84234-11-21 19:54 J -29044720.84 -29044720.67 -29044720.49 0.0493 0.0118  
 Mercury -84233-02-19 23:44 J -29044630.62 -29044630.51 -29044630.40 0.0495 0.0376  
 Venus -84229-12-04 20:37 J -29042880.82 -29042880.64 -29042880.44 0.0540 0.0149  
 Mercury -84228-07-13 02:08 J -29042660.53 -29042660.41 -29042660.29 0.0536 0.0165  
 Mercury -84228-10-10 11:01 J -29042571.14 -29042571.04 -29042570.92 0.0533 0.0292  
 Mercury -84222-09-09 17:44 J -29040410.91 -29040410.76 -29040410.60 0.0492 0.0247  
 Mercury -84222-12-08 22:04 J -29040320.73 -29040320.58 -29040320.43 0.0494 0.0250  
 Earth -84221-09-20 22:32 J -29040033.65 -29040033.56 -29040033.47 0.0503 0.0465  
 Moon -84221-09-20 23:59 J -29040033.61 -29040033.50 -29040033.36 0.0503 0.0433 \*  
 Mercury -84216-05-01 05:59 J -29038350.36 -29038350.25 -29038350.14 0.0536 0.0274  
 Mercury -84216-07-29 14:52 J -29038261.01 -29038260.88 -29038260.76 0.0534 0.0182  
 Venus -84210-02-01 21:49 J -29036247.70 -29036247.59 -29036247.49 0.0489 0.0421  
 Mercury -84210-06-28 16:18 J -29036100.94 -29036100.82 -29036100.70 0.0492 0.0371  
 Mercury -84210-09-26 20:52 J -29036010.80 -29036010.63 -29036010.46 0.0494 0.0128  
 Moon -84209-09-25 16:18 J -29035646.04 -29035645.82 -29035645.60 0.0505 0.0201  
 Earth -84209-09-25 19:25 J -29035645.90 -29035645.69 -29035645.46 0.0505 0.0201 \*  
 Mercury -84204-02-17 09:35 J -29034040.18 -29034040.10 -29034040.01 0.0536 0.0384  
 Mercury -84204-05-17 18:13 J -29033950.87 -29033950.74 -29033950.61 0.0534 0.0069  
 Mercury -84204-08-15 03:35 J -29033861.36 -29033861.35 -29033861.33 0.0531 0.0525  
 Earth -84203-03-21 15:49 J -29033643.02 -29033642.84 -29033642.66 0.0523 0.0313  
 Moon -84203-03-21 16:32 J -29033642.98 -29033642.81 -29033642.64 0.0523 0.0331 \*

Venus -84199-10-07 20:23 J -29031981.86 -29031981.65 -29031981.44 0.0488 0.0008

Mercury -84198-07-15 19:11 J -29031700.88 -29031700.70 -29031700.52 0.0493 0.0002

Mercury -84198-10-13 22:47 J -29031610.56 -29031610.55 -29031610.54 0.0496 0.0494

Earth -84197-09-30 16:32 J -29031258.04 -29031257.81 -29031257.57 0.0507 0.0070

Moon -84197-09-30 20:37 J -29031257.88 -29031257.64 -29031257.41 0.0507 0.0040 \*

Mars -84196-09-05 07:54 J -29030918.38 -29030918.17 -29030917.95 0.0521 0.0265

Venus -84193-08-12 13:25 J -29029846.12 -29029845.94 -29029845.75 0.0539 0.0163

Mercury -84193-12-06 13:11 J -29029730.00 -29029729.95 -29029729.91 0.0537 0.0497

Mercury -84192-03-05 21:35 J -29029640.73 -29029640.60 -29029640.47 0.0534 0.0048

Mercury -84192-06-03 06:42 J -29029551.31 -29029551.22 -29029551.14 0.0532 0.0408

Earth -84191-03-26 05:44 J -29029255.49 -29029255.26 -29029255.03 0.0521 0.0040

Moon -84191-03-26 06:56 J -29029255.45 -29029255.21 -29029254.98 0.0521 0.0066 \*

Venus -84187-06-12 20:23 J -29027715.77 -29027715.65 -29027715.53 0.0487 0.0398

Mercury -84186-05-03 17:30 J -29027390.94 -29027390.77 -29027390.59 0.0493 0.0124

Mercury -84186-08-01 21:35 J -29027300.72 -29027300.60 -29027300.49 0.0495 0.0371

Moon -84185-10-05 08:37 J -29026870.32 -29026870.14 -29026869.95 0.0509 0.0336

Earth -84185-10-05 11:59 J -29026870.17 -29026870.00 -29026869.81 0.0509 0.0340 \*

Venus -84181-04-17 03:20 J -29025580.49 -29025580.36 -29025580.21 0.0540 0.0380

Mercury -84181-12-23 00:13 J -29025330.61 -29025330.49 -29025330.36 0.0535 0.0172

Mercury -84180-03-22 09:06 J -29025241.23 -29025241.12 -29025241.00 0.0533 0.0285

Moon -84179-03-30 15:06 J -29024868.06 -29024867.87 -29024867.67 0.0519 0.0244

Earth -84179-03-30 17:59 J -29024867.96 -29024867.75 -29024867.55 0.0519 0.0229 \*

Mercury -84174-02-19 16:04 J -29023080.98 -29023080.83 -29023080.67 0.0492 0.0247

Mercury -84174-05-20 20:08 J -29022990.81 -29022990.66 -29022990.50 0.0494 0.0250

Mercury -84169-10-11 03:49 J -29021020.45 -29021020.34 -29021020.23 0.0536 0.0284

Mercury -84168-01-08 12:42 J -29020931.10 -29020930.97 -29020930.85 0.0534 0.0171

Earth -84167-04-04 08:52 J -29020480.18 -29020480.13 -29020480.07 0.0517 0.0498

Venus -84163-06-15 07:54 J -29018947.35 -29018947.17 -29018946.99 0.0488 0.0244

Mercury -84163-12-08 13:54 J -29018771.03 -29018770.92 -29018770.80 0.0491 0.0376

Mercury -84162-03-08 18:28 J -29018680.90 -29018680.73 -29018680.56 0.0493 0.0123

Mars -84160-06-09 03:35 J -29017857.53 -29017857.35 -29017857.18 0.0523 0.0368  
 Venus -84157-04-20 02:23 J -29016811.51 -29016811.40 -29016811.29 0.0539 0.0449  
 Mercury -84157-07-30 07:40 J -29016710.27 -29016710.18 -29016710.09 0.0537 0.0392  
 Mercury -84157-10-27 16:18 J -29016620.95 -29016620.82 -29016620.69 0.0534 0.0062  
 Mercury -84156-01-25 01:40 J -29016531.45 -29016531.43 -29016531.40 0.0532 0.0520  
 Venus -84151-02-18 07:40 J -29014681.38 -29014681.18 -29014680.98 0.0488 0.0162  
 Mercury -84151-12-25 17:16 J -29014370.96 -29014370.78 -29014370.61 0.0493 0.0010  
 Mercury -84150-03-25 20:37 J -29014280.66 -29014280.64 -29014280.62 0.0495 0.0491  
 Venus -84146-12-24 21:06 J -29012545.82 -29012545.62 -29012545.43 0.0540 0.0065  
 Mercury -84145-05-18 11:30 J -29012400.06 -29012400.02 -29012399.97 0.0537 0.0500  
 Mercury -84145-08-15 19:54 J -29012310.80 -29012310.67 -29012310.53 0.0535 0.0054  
 Mercury -84145-11-13 05:01 J -29012221.37 -29012221.29 -29012221.20 0.0532 0.0407  
 Mercury -84139-10-13 15:20 J -29010061.03 -29010060.86 -29010060.68 0.0493 0.0127  
 Mercury -84138-01-11 19:11 J -29009970.81 -29009970.70 -29009970.58 0.0495 0.0370  
 Moon -84138-09-20 22:32 J -29009718.65 -29009718.56 -29009718.47 0.0503 0.0464  
 Earth -84138-09-21 01:25 J -29009718.48 -29009718.44 -29009718.39 0.0503 0.0492 \*  
 Mercury -84133-06-03 23:30 J -29008000.65 -29008000.52 -29008000.40 0.0535 0.0165  
 Mercury -84133-09-01 08:23 J -29007911.26 -29007911.15 -29007911.04 0.0533 0.0291  
 Mars -84131-07-02 11:30 J -29007242.16 -29007242.02 -29007241.85 0.0507 0.0430  
 Venus -84127-02-20 18:56 J -29005912.74 -29005912.71 -29005912.66 0.0489 0.0479  
 Mercury -84127-08-01 13:54 J -29005751.07 -29005750.92 -29005750.76 0.0492 0.0251  
 Mercury -84127-10-30 18:13 J -29005660.89 -29005660.74 -29005660.59 0.0494 0.0247  
 Earth -84126-09-25 20:37 J -29005330.85 -29005330.64 -29005330.42 0.0504 0.0228  
 Moon -84126-09-26 00:28 J -29005330.69 -29005330.48 -29005330.26 0.0504 0.0236 \*  
 Mercury -84121-03-23 02:08 J -29003690.52 -29003690.41 -29003690.30 0.0536 0.0288  
 Mercury -84121-06-20 10:47 J -29003601.17 -29003601.05 -29003600.92 0.0534 0.0167  
 Earth -84120-03-20 15:20 J -29003328.02 -29003327.86 -29003327.69 0.0524 0.0356  
 Moon -84120-03-20 16:04 J -29003327.99 -29003327.83 -29003327.66 0.0524 0.0374 \*  
 Venus -84116-10-26 19:11 J -29001646.90 -29001646.70 -29001646.49 0.0488 0.0075  
 Mercury -84115-05-20 12:28 J -29001441.10 -29001440.98 -29001440.86 0.0491 0.0373

Mercury -84115-08-18 17:01 J -29001350.96 -29001350.79 -29001350.62 0.0493 0.0126

Moon -84114-09-30 13:11 J -29000943.19 -29000942.95 -29000942.70 0.0506 0.0006

Earth -84114-09-30 16:47 J -29000943.03 -29000942.80 -29000942.56 0.0506 0.0038 \*

Venus -84110-09-01 08:37 J -28999511.32 -28999511.14 -28999510.96 0.0539 0.0214

Mercury -84109-01-10 05:44 J -28999380.35 -28999380.26 -28999380.18 0.0537 0.0401

Mercury -84109-04-08 14:23 J -28999291.04 -28999290.90 -28999290.77 0.0535 0.0055

Mercury -84109-07-06 23:30 J -28999201.55 -28999201.52 -28999201.48 0.0532 0.0511

Moon -84108-03-25 05:01 J -28998940.50 -28998940.29 -28998940.07 0.0522 0.0100

Earth -84108-03-25 07:40 J -28998940.40 -28998940.18 -28998939.95 0.0522 0.0076 \*

Venus -84104-07-01 18:42 J -28997380.87 -28997380.72 -28997380.57 0.0487 0.0333

Mercury -84103-06-06 15:06 J -28997041.05 -28997040.87 -28997040.69 0.0493 0.0007

Mercury -84103-09-04 18:42 J -28996950.75 -28996950.72 -28996950.70 0.0495 0.0488

Earth -84102-10-05 11:44 J -28996555.19 -28996555.01 -28996554.81 0.0508 0.0302

Moon -84102-10-05 14:23 J -28996555.08 -28996554.90 -28996554.71 0.0508 0.0304 \*

Venus -84098-05-07 02:37 J -28995245.55 -28995245.39 -28995245.22 0.0540 0.0303

Mercury -84098-10-29 09:35 J -28995070.14 -28995070.10 -28995070.06 0.0537 0.0508

Mercury -84097-01-26 17:59 J -28994980.88 -28994980.75 -28994980.62 0.0535 0.0059

Mercury -84097-04-25 03:06 J -28994891.45 -28994891.37 -28994891.28 0.0533 0.0402

Earth -84096-03-30 00:28 J -28994552.68 -28994552.48 -28994552.26 0.0520 0.0201

Moon -84096-03-30 04:18 J -28994552.52 -28994552.32 -28994552.11 0.0520 0.0226 \*

Mars -84095-04-09 15:35 J -28994177.02 -28994176.85 -28994176.67 0.0505 0.0409

Mercury -84091-03-25 13:40 J -28992731.10 -28992730.93 -28992730.76 0.0492 0.0125

Mercury -84091-06-23 17:30 J -28992640.88 -28992640.77 -28992640.65 0.0495 0.0369

Mercury -84086-11-14 21:49 J -28990670.71 -28990670.59 -28990670.46 0.0535 0.0166

Mercury -84085-02-12 06:42 J -28990581.32 -28990581.22 -28990581.10 0.0533 0.0291

Moon -84084-04-03 11:01 J -28990165.09 -28990165.04 -28990164.97 0.0517 0.0499

Earth -84084-04-03 15:06 J -28990164.96 -28990164.87 -28990164.77 0.0517 0.0470

Venus -84080-07-04 05:44 J -28988612.42 -28988612.26 -28988612.10 0.0489 0.0305

Mercury -84079-01-11 11:59 J -28988421.16 -28988421.00 -28988420.85 0.0492 0.0252

Mercury -84079-04-11 16:18 J -28988330.98 -28988330.82 -28988330.67 0.0494 0.0246

Venus -84074-05-10 02:23 J -28986476.43 -28986476.40 -28986476.36 0.0538 0.0529  
 Mercury -84074-09-03 01:25 J -28986360.55 -28986360.44 -28986360.33 0.0536 0.0278  
 Mercury -84074-12-01 10:04 J -28986271.20 -28986271.08 -28986270.95 0.0533 0.0177  
 Venus -84068-03-09 05:59 J -28984346.46 -28984346.25 -28984346.05 0.0488 0.0100  
 Mercury -84068-10-30 10:18 J -28984111.18 -28984111.07 -28984110.95 0.0492 0.0376  
 Mercury -84067-01-28 15:06 J -28984021.04 -28984020.87 -28984020.70 0.0494 0.0124  
 Venus -84062-01-12 16:47 J -28982211.00 -28982210.80 -28982210.61 0.0540 0.0013  
 Mercury -84062-06-22 04:04 J -28982050.41 -28982050.33 -28982050.24 0.0537 0.0402  
 Mercury -84062-09-19 12:42 J -28981961.10 -28981960.97 -28981960.84 0.0534 0.0050  
 Mercury -84062-12-17 22:04 J -28981871.62 -28981871.58 -28981871.54 0.0532 0.0508  
 Mercury -84056-11-16 13:54 J -28979711.10 -28979710.92 -28979710.74 0.0493 0.0006  
 Mercury -84055-02-14 17:16 J -28979620.78 -28979620.78 -28979620.76 0.0495 0.0494  
 Moon -84055-09-20 08:37 J -28979403.19 -28979403.14 -28979403.07 0.0502 0.0486  
 Venus -84051-09-17 09:20 J -28977945.13 -28977945.11 -28977945.09 0.0540 0.0535  
 Mercury -84050-04-10 07:40 J -28977740.21 -28977740.18 -28977740.14 0.0537 0.0514  
 Mercury -84050-07-08 16:04 J -28977650.96 -28977650.83 -28977650.70 0.0535 0.0065  
 Mercury -84050-10-06 01:11 J -28977561.53 -28977561.45 -28977561.36 0.0533 0.0394  
 Mercury -84044-09-04 11:59 J -28975401.17 -28975401.00 -28975400.82 0.0492 0.0124  
 Mercury -84044-12-03 15:49 J -28975310.95 -28975310.84 -28975310.72 0.0494 0.0370  
 Moon -84043-09-24 18:56 J -28975015.91 -28975015.71 -28975015.50 0.0504 0.0272  
 Earth -84043-09-24 22:47 J -28975015.75 -28975015.55 -28975015.34 0.0504 0.0259 \*  
 Mars -84042-11-29 19:54 J -28974584.92 -28974584.67 -28974584.42 0.0520 0.0086  
 Mercury -84038-04-26 19:54 J -28973340.79 -28973340.67 -28973340.54 0.0536 0.0173  
 Mercury -84038-07-25 05:01 J -28973251.40 -28973251.29 -28973251.18 0.0533 0.0285  
 Moon -84037-03-19 20:23 J -28973012.78 -28973012.65 -28973012.51 0.0525 0.0408  
 Earth -84037-03-19 22:47 J -28973012.70 -28973012.55 -28973012.39 0.0525 0.0381 \*  
 Venus -84033-11-14 17:59 J -28971311.95 -28971311.75 -28971311.55 0.0488 0.0140  
 Mercury -84032-06-23 10:32 J -28971091.22 -28971091.06 -28971090.91 0.0492 0.0247  
 Mercury -84032-09-21 14:52 J -28971001.04 -28971000.88 -28971000.73 0.0494 0.0249  
 Earth -84031-09-29 19:40 J -28970627.92 -28970627.68 -28970627.44 0.0506 0.0010

Moon -84031-09-29 22:32 J -28970627.80 -28970627.56 -28970627.33 0.0506 0.0025 \*  
 Venus -84027-09-20 10:32 J -28969176.22 -28969176.06 -28969175.90 0.0539 0.0306  
 Mercury -84026-02-12 23:59 J -28969030.61 -28969030.50 -28969030.39 0.0536 0.0279  
 Mercury -84026-05-13 08:37 J -28968941.26 -28968941.14 -28968941.01 0.0534 0.0177  
 Earth -84025-03-24 15:49 J -28968625.06 -28968624.84 -28968624.61 0.0523 0.0099  
 Moon -84025-03-24 19:40 J -28968624.91 -28968624.68 -28968624.46 0.0523 0.0113 \*  
 Venus -84021-07-20 17:16 J -28967045.96 -28967045.78 -28967045.61 0.0487 0.0269  
 Mercury -84020-04-11 08:37 J -28966781.25 -28966781.14 -28966781.02 0.0492 0.0375  
 Mercury -84020-07-10 13:25 J -28966691.12 -28966690.94 -28966690.77 0.0494 0.0126  
 Moon -84019-10-04 16:18 J -28966240.02 -28966239.82 -28966239.61 0.0508 0.0283  
 Earth -84019-10-04 17:30 J -28966239.97 -28966239.77 -28966239.57 0.0508 0.0278 \*  
 Venus -84015-05-26 04:04 J -28964910.50 -28964910.33 -28964910.14 0.0540 0.0213  
 Mercury -84015-12-02 03:35 J -28964720.44 -28964720.35 -28964720.26 0.0537 0.0390  
 Mercury -84014-03-01 12:13 J -28964631.12 -28964630.99 -28964630.86 0.0534 0.0063  
 Mercury -84014-05-29 21:20 J -28964541.63 -28964541.61 -28964541.58 0.0531 0.0521  
 Moon -84013-03-29 03:06 J -28964237.58 -28964237.37 -28964237.16 0.0520 0.0199  
 Earth -84013-03-29 06:56 J -28964237.42 -28964237.21 -28964236.99 0.0520 0.0173 \*  
 Mercury -84008-04-28 12:13 J -28962381.17 -28962380.99 -28962380.81 0.0493 0.0009  
 Mercury -84003-09-20 06:28 J -28960410.27 -28960410.23 -28960410.20 0.0537 0.0513  
 Mercury -84003-12-18 14:52 J -28960321.01 -28960320.88 -28960320.75 0.0535 0.0063  
 Mercury -84002-03-17 23:59 J -28960231.59 -28960231.50 -28960231.41 0.0532 0.0394  
 Earth -84001-04-02 17:30 J -28959849.89 -28959849.77 -28959849.64 0.0519 0.0435  
 Moon -84001-04-02 20:52 J -28959849.72 -28959849.63 -28959849.53 0.0519 0.0463 \*

# 84TH MILLENNIUM BCE

This is a list of transits visible from Jupiter in the 84th millennium

## BCE.

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Venus	-83997-07-23 06:42 J	-28958277.34	-28958277.22	-28958277.09	0.0489	0.0384		
Mercury	-83996-02-14 11:01 J	-28958071.21	-28958071.04	-28958070.86	0.0492	0.0116		
Mercury	-83996-05-15 15:06 J	-28957980.98	-28957980.87	-28957980.76	0.0494	0.0378		
Mercury	-83991-10-06 18:13 J	-28956010.86	-28956010.74	-28956010.61	0.0536	0.0177		
Mercury	-83990-01-04 03:06 J	-28955921.48	-28955921.37	-28955921.25	0.0533	0.0281		
Venus	-83985-03-28 05:59 J	-28954011.46	-28954011.25	-28954011.03	0.0488	0.0027		
Mercury	-83985-12-03 09:06 J	-28953761.27	-28953761.12	-28953760.96	0.0492	0.0243		
Mercury	-83984-03-03 13:25 J	-28953671.09	-28953670.94	-28953670.79	0.0494	0.0253		
Venus	-83979-01-31 17:01 J	-28951875.98	-28951875.79	-28951875.59	0.0540	0.0075		
Mercury	-83979-07-25 22:04 J	-28951700.69	-28951700.58	-28951700.47	0.0537	0.0285		
Mercury	-83979-10-23 06:56 J	-28951611.33	-28951611.21	-28951611.08	0.0534	0.0171		
Mars	-83977-09-25 17:16 J	-28950908.07	-28950907.78	-28950907.49	0.0508	0.0151		
Venus	-83974-12-02 06:28 J	-28949745.33	-28949745.23	-28949745.13	0.0487	0.0427		
Mercury	-83973-09-21 07:25 J	-28949451.30	-28949451.19	-28949451.06	0.0491	0.0367		
Mercury	-83973-12-20 12:13 J	-28949361.16	-28949360.99	-28949360.82	0.0493	0.0132		
Venus	-83968-10-06 11:59 J	-28947610.11	-28947610.00	-28947609.89	0.0541	0.0438		
Mercury	-83967-05-14 02:08 J	-28947390.49	-28947390.41	-28947390.32	0.0537	0.0390		
Mercury	-83967-08-11 10:47 J	-28947301.18	-28947301.05	-28947300.92	0.0535	0.0064		
Mercury	-83967-11-08 20:08 J	-28947211.68	-28947211.66	-28947211.64	0.0532	0.0521		
Mercury	-83961-10-08 10:47 J	-28945051.23	-28945051.05	-28945050.88	0.0493	0.0014		
Earth	-83960-09-24 05:30 J	-28944700.47	-28944700.27	-28944700.07	0.0504	0.0277		
Moon	-83960-09-24 08:23 J	-28944700.34	-28944700.15	-28944699.96	0.0504	0.0295	*	
Mercury	-83955-03-02 05:59 J	-28943080.29	-28943080.25	-28943080.20	0.0537	0.0498		
Mercury	-83955-05-30 14:23 J	-28942991.03	-28942990.90	-28942990.77	0.0535	0.0049		
Mercury	-83955-08-27 23:30 J	-28942901.60	-28942901.52	-28942901.43	0.0532	0.0409		

Earth -83954-03-20 06:56 J -28942697.35 -28942697.21 -28942697.06 0.0525 0.0403  
 Moon -83954-03-20 10:32 J -28942697.18 -28942697.06 -28942696.93 0.0525 0.0434 \*  
 Venus -83950-12-04 18:13 J -28940976.92 -28940976.74 -28940976.54 0.0488 0.0216  
 Mercury -83949-07-27 09:35 J -28940741.27 -28940741.10 -28940740.92 0.0492 0.0113  
 Mercury -83949-10-25 13:25 J -28940651.04 -28940650.94 -28940650.82 0.0495 0.0382  
 Moon -83948-09-29 01:54 J -28940312.67 -28940312.42 -28940312.17 0.0505 0.0037  
 Earth -83948-09-29 03:20 J -28940312.60 -28940312.36 -28940312.12 0.0505 0.0009 \*  
 Venus -83944-10-09 07:54 J -28938841.30 -28938841.17 -28938841.02 0.0539 0.0374  
 Mercury -83943-03-18 17:01 J -28938680.91 -28938680.79 -28938680.66 0.0536 0.0173  
 Mercury -83943-06-16 01:54 J -28938591.53 -28938591.42 -28938591.30 0.0533 0.0283  
 Moon -83942-03-24 14:37 J -28938310.11 -28938309.89 -28938309.67 0.0523 0.0149  
 Earth -83942-03-24 18:28 J -28938309.95 -28938309.73 -28938309.51 0.0523 0.0135 \*  
 Venus -83938-08-09 19:11 J -28936710.90 -28936710.70 -28936710.51 0.0488 0.0186  
 Mercury -83937-05-15 08:23 J -28936431.30 -28936431.15 -28936430.99 0.0492 0.0233  
 Mercury -83937-08-13 12:42 J -28936341.12 -28936340.97 -28936340.82 0.0494 0.0264  
 Moon -83936-10-03 23:44 J -28935924.70 -28935924.51 -28935924.32 0.0507 0.0273  
 Earth -83936-10-04 00:28 J -28935924.68 -28935924.48 -28935924.27 0.0507 0.0259 \*  
 Venus -83932-06-14 01:11 J -28934575.64 -28934575.45 -28934575.26 0.0540 0.0149  
 Mercury -83931-01-04 20:37 J -28934370.75 -28934370.64 -28934370.53 0.0536 0.0286  
 Mercury -83931-04-04 05:16 J -28934281.40 -28934281.28 -28934281.15 0.0534 0.0169  
 Earth -83930-03-29 10:18 J -28933922.29 -28933922.07 -28933921.85 0.0522 0.0140  
 Moon -83930-03-29 13:40 J -28933922.14 -28933921.93 -28933921.72 0.0522 0.0169 \*  
 Mercury -83925-03-03 06:28 J -28932121.35 -28932121.23 -28932121.11 0.0491 0.0360  
 Mercury -83925-06-01 11:01 J -28932031.21 -28932031.04 -28932030.87 0.0493 0.0138  
 Mars -83923-05-21 20:52 J -28931311.66 -28931311.63 -28931311.57 0.0518 0.0509  
 Mercury -83920-10-24 00:28 J -28930060.57 -28930060.48 -28930060.39 0.0537 0.0394  
 Mercury -83919-01-21 09:06 J -28929971.25 -28929971.12 -28929970.99 0.0535 0.0059  
 Mercury -83919-04-20 18:28 J -28929881.76 -28929881.73 -28929881.70 0.0532 0.0518  
 Moon -83918-04-03 01:25 J -28929534.57 -28929534.44 -28929534.31 0.0519 0.0434  
 Earth -83918-04-03 03:20 J -28929534.48 -28929534.36 -28929534.21 0.0519 0.0416 \*



Venus -83914-08-12 06:56 J -28927942.28 -28927942.21 -28927942.14 0.0489 0.0458  
 Mercury -83914-12-21 04:47 J -28927811.32 -28927811.30 -28927811.27 0.0491 0.0484  
 Mercury -83913-03-20 09:49 J -28927721.27 -28927721.09 -28927720.92 0.0493 0.0018  
 Mercury -83908-08-12 04:32 J -28925750.35 -28925750.31 -28925750.26 0.0538 0.0499  
 Mercury -83908-11-09 13:11 J -28925661.08 -28925660.95 -28925660.82 0.0535 0.0050  
 Mercury -83907-02-06 22:18 J -28925571.66 -28925571.57 -28925571.49 0.0533 0.0410  
 Venus -83902-04-17 06:13 J -28923676.45 -28923676.24 -28923676.03 0.0488 0.0050  
 Mercury -83901-01-07 08:08 J -28923411.33 -28923411.16 -28923410.98 0.0492 0.0109  
 Mercury -83901-04-06 12:13 J -28923321.10 -28923320.99 -28923320.89 0.0495 0.0385  
 Venus -83896-02-19 20:08 J -28921540.84 -28921540.66 -28921540.47 0.0540 0.0177  
 Mercury -83896-08-28 16:47 J -28921350.92 -28921350.80 -28921350.67 0.0536 0.0158  
 Mercury -83896-11-26 01:40 J -28921261.54 -28921261.43 -28921261.32 0.0533 0.0299  
 Venus -83891-12-21 07:25 J -28919410.34 -28919410.19 -28919410.05 0.0487 0.0351  
 Mercury -83890-10-26 07:11 J -28919101.36 -28919101.20 -28919101.04 0.0492 0.0228  
 Mercury -83889-01-24 11:30 J -28919011.17 -28919011.02 -28919010.87 0.0494 0.0269  
 Mars -83887-02-23 08:23 J -28918250.39 -28918250.15 -28918249.91 0.0521 0.0167  
 Venus -83885-10-25 10:47 J -28917275.19 -28917275.05 -28917274.90 0.0540 0.0361  
 Mercury -83884-06-16 19:25 J -28917040.80 -28917040.69 -28917040.58 0.0536 0.0282  
 Mercury -83884-09-14 04:18 J -28916951.45 -28916951.32 -28916951.20 0.0534 0.0173  
 Mercury -83878-08-14 05:44 J -28914791.38 -28914791.26 -28914791.13 0.0491 0.0349  
 Mercury -83878-11-12 10:32 J -28914701.23 -28914701.06 -28914700.89 0.0493 0.0150  
 Moon -83877-09-23 13:40 J -28914385.12 -28914384.93 -28914384.73 0.0503 0.0308  
 Earth -83877-09-23 15:35 J -28914385.05 -28914384.85 -28914384.66 0.0503 0.0288 \*  
 Mercury -83872-04-04 23:01 J -28912730.63 -28912730.54 -28912730.45 0.0537 0.0394  
 Mercury -83872-07-03 07:40 J -28912641.31 -28912641.18 -28912641.05 0.0535 0.0059  
 Mercury -83872-09-30 16:47 J -28912551.82 -28912551.80 -28912551.77 0.0532 0.0517  
 Moon -83871-03-19 05:44 J -28912382.35 -28912382.26 -28912382.16 0.0526 0.0475  
 Earth -83871-03-19 09:35 J -28912382.22 -28912382.10 -28912381.98 0.0526 0.0440 \*  
 Venus -83867-12-23 19:40 J -28910641.84 -28910641.68 -28910641.51 0.0488 0.0296  
 Mercury -83866-06-02 03:49 J -28910481.38 -28910481.34 -28910481.30 0.0491 0.0476

Mercury -83866-08-31 08:52 J -28910391.31 -28910391.13 -28910390.95 0.0493 0.0025  
 Moon -83865-09-28 09:06 J -28909997.35 -28909997.12 -28909996.89 0.0504 0.0054  
 Earth -83865-09-28 09:20 J -28909997.35 -28909997.11 -28909996.87 0.0504 0.0032 \*  
 Venus -83861-10-28 09:06 J -28908506.21 -28908506.12 -28908506.01 0.0539 0.0463  
 Mercury -83860-01-22 02:52 J -28908420.42 -28908420.38 -28908420.33 0.0538 0.0502  
 Mercury -83860-04-21 11:30 J -28908331.15 -28908331.02 -28908330.89 0.0535 0.0054  
 Mercury -83860-07-19 20:37 J -28908241.73 -28908241.64 -28908241.56 0.0533 0.0407  
 Earth -83859-03-24 04:04 J -28907994.54 -28907994.33 -28907994.11 0.0524 0.0156  
 Moon -83859-03-24 07:25 J -28907994.40 -28907994.19 -28907993.97 0.0524 0.0162 \*  
 Venus -83855-08-28 19:54 J -28906375.88 -28906375.67 -28906375.47 0.0487 0.0109  
 Mercury -83854-06-19 07:25 J -28906081.37 -28906081.19 -28906081.02 0.0492 0.0099  
 Mercury -83854-09-17 11:16 J -28905991.13 -28905991.03 -28905990.93 0.0494 0.0394  
 Earth -83853-10-03 06:13 J -28905609.45 -28905609.24 -28905609.03 0.0507 0.0233  
 Moon -83853-10-03 08:52 J -28905609.33 -28905609.13 -28905608.91 0.0507 0.0257 \*  
 Venus -83849-07-03 04:32 J -28904240.51 -28904240.31 -28904240.12 0.0540 0.0048  
 Mercury -83848-02-07 15:20 J -28904020.98 -28904020.86 -28904020.73 0.0536 0.0158  
 Mercury -83848-05-08 00:28 J -28903931.59 -28903931.48 -28903931.37 0.0533 0.0300  
 Moon -83847-03-28 20:08 J -28903606.88 -28903606.66 -28903606.43 0.0522 0.0154  
 Earth -83847-03-28 22:18 J -28903606.78 -28903606.57 -28903606.34 0.0522 0.0127 \*  
 Mercury -83842-04-07 05:44 J -28901771.42 -28901771.26 -28901771.10 0.0492 0.0224  
 Mercury -83842-07-06 09:49 J -28901681.23 -28901681.09 -28901680.94 0.0494 0.0273  
 Earth -83841-10-08 04:32 J -28901221.33 -28901221.31 -28901221.28 0.0509 0.0505  
 Mercury -83837-11-26 19:11 J -28899710.81 -28899710.70 -28899710.58 0.0536 0.0266  
 Mercury -83836-02-24 04:04 J -28899621.45 -28899621.33 -28899621.21 0.0534 0.0189  
 Earth -83835-04-02 13:54 J -28899219.05 -28899218.92 -28899218.76 0.0519 0.0398  
 Moon -83835-04-02 14:08 J -28899219.04 -28899218.91 -28899218.77 0.0519 0.0408 \*  
 Mercury -83830-01-24 04:32 J -28897461.43 -28897461.31 -28897461.18 0.0491 0.0343  
 Mercury -83830-04-24 09:20 J -28897371.28 -28897371.11 -28897370.94 0.0493 0.0156  
 Mercury -83825-09-14 22:04 J -28895400.67 -28895400.58 -28895400.49 0.0537 0.0387  
 Mercury -83825-12-13 06:42 J -28895311.35 -28895311.22 -28895311.09 0.0534 0.0066

Mercury -83824-03-12 15:49 J -28895221.86 -28895221.84 -28895221.81 0.0532 0.0522

Mars -83823-12-20 23:59 J -28894573.79 -28894573.50 -28894573.20 0.0508 0.0129

Venus -83819-05-06 09:06 J -28893341.32 -28893341.12 -28893340.92 0.0488 0.0137

Mercury -83819-11-12 03:06 J -28893151.42 -28893151.37 -28893151.30 0.0491 0.0464

Mercury -83818-02-10 08:23 J -28893061.33 -28893061.15 -28893060.98 0.0493 0.0038

Venus -83813-03-10 17:59 J -28891205.92 -28891205.75 -28891205.57 0.0539 0.0247

Mercury -83813-07-04 01:40 J -28891090.48 -28891090.43 -28891090.39 0.0537 0.0500

Mercury -83813-10-01 10:04 J -28891001.21 -28891001.08 -28891000.95 0.0535 0.0051

Mercury -83813-12-29 19:11 J -28890911.79 -28890911.70 -28890911.62 0.0533 0.0407

Venus -83807-01-09 08:52 J -28889075.31 -28889075.13 -28889074.96 0.0487 0.0269

Mercury -83807-11-29 06:28 J -28888751.40 -28888751.23 -28888751.05 0.0492 0.0090

Mercury -83806-02-27 10:18 J -28888661.17 -28888661.07 -28888660.97 0.0494 0.0403

Venus -83802-11-14 11:44 J -28886940.18 -28886940.01 -28886939.84 0.0540 0.0274

Mercury -83801-07-20 13:40 J -28886691.05 -28886690.93 -28886690.80 0.0536 0.0161

Mercury -83801-10-17 22:47 J -28886601.66 -28886601.55 -28886601.44 0.0534 0.0297

Mercury -83795-09-17 05:01 J -28884441.45 -28884441.29 -28884441.13 0.0492 0.0213

Mercury -83795-12-16 09:06 J -28884351.26 -28884351.12 -28884350.97 0.0494 0.0282

Earth -83794-09-23 21:35 J -28884069.79 -28884069.60 -28884069.41 0.0502 0.0310

Moon -83794-09-23 21:35 J -28884069.77 -28884069.60 -28884069.43 0.0502 0.0334 \*

Mercury -83789-05-08 17:44 J -28882380.87 -28882380.76 -28882380.64 0.0537 0.0266

Mercury -83789-08-06 02:37 J -28882291.51 -28882291.39 -28882291.27 0.0534 0.0189

Earth -83788-03-18 21:35 J -28882066.71 -28882066.60 -28882066.49 0.0527 0.0453

Moon -83788-03-19 00:56 J -28882066.54 -28882066.46 -28882066.38 0.0527 0.0487 \*

Venus -83783-01-11 20:37 J -28880306.78 -28880306.64 -28880306.51 0.0488 0.0373

Mercury -83783-07-06 03:06 J -28880131.50 -28880131.37 -28880131.24 0.0491 0.0339

Mercury -83783-10-04 07:54 J -28880041.34 -28880041.17 -28880041.00 0.0493 0.0160

Earth -83782-09-28 17:44 J -28879681.99 -28879681.76 -28879681.52 0.0504 0.0049

Moon -83782-09-28 20:23 J -28879681.90 -28879681.65 -28879681.41 0.0504 0.0062 \*

Mercury -83777-02-25 21:35 J -28878070.69 -28878070.60 -28878070.50 0.0537 0.0374

Mercury -83777-05-25 06:13 J -28877981.37 -28877981.24 -28877981.11 0.0535 0.0081

Moon -83776-03-23 12:56 J -28877679.18 -28877678.96 -28877678.74 0.0524 0.0175  
 Earth -83776-03-23 15:20 J -28877679.08 -28877678.86 -28877678.65 0.0524 0.0172 \*  
 Venus -83772-09-16 21:20 J -28876040.82 -28876040.61 -28876040.40 0.0488 0.0028  
 Mercury -83771-04-24 01:54 J -28875821.48 -28875821.42 -28875821.35 0.0491 0.0459  
 Mercury -83771-07-23 06:56 J -28875731.38 -28875731.21 -28875731.03 0.0493 0.0044  
 Moon -83770-10-03 12:56 J -28875294.16 -28875293.96 -28875293.75 0.0506 0.0251  
 Earth -83770-10-03 17:01 J -28875294.01 -28875293.79 -28875293.58 0.0506 0.0223 \*  
 Mars -83769-08-15 15:35 J -28874977.08 -28874976.85 -28874976.63 0.0518 0.0243  
 Venus -83766-07-23 04:18 J -28873905.51 -28873905.32 -28873905.12 0.0539 0.0037  
 Mercury -83766-12-15 00:42 J -28873760.52 -28873760.47 -28873760.42 0.0537 0.0493  
 Mercury -83765-03-13 09:06 J -28873671.25 -28873671.12 -28873670.99 0.0535 0.0044  
 Mercury -83765-06-10 17:59 J -28873581.83 -28873581.75 -28873581.66 0.0532 0.0413  
 Earth -83764-03-28 02:23 J -28873291.63 -28873291.40 -28873291.18 0.0522 0.0091  
 Moon -83764-03-28 02:37 J -28873291.60 -28873291.39 -28873291.17 0.0522 0.0121 \*  
 Venus -83760-05-22 21:49 J -28871774.69 -28871774.59 -28871774.49 0.0488 0.0429  
 Mercury -83759-05-11 05:59 J -28871421.43 -28871421.25 -28871421.08 0.0493 0.0078  
 Mercury -83759-08-09 09:49 J -28871331.18 -28871331.09 -28871330.99 0.0495 0.0416  
 Earth -83758-10-08 14:37 J -28870905.94 -28870905.89 -28870905.82 0.0508 0.0491  
 Venus -83754-03-27 20:52 J -28869639.71 -28869639.63 -28869639.54 0.0540 0.0488  
 Mercury -83754-12-31 12:28 J -28869361.10 -28869360.98 -28869360.86 0.0535 0.0158  
 Mercury -83753-03-29 21:20 J -28869271.72 -28869271.61 -28869271.50 0.0533 0.0297  
 Earth -83752-04-01 17:01 J -28868903.95 -28868903.79 -28868903.62 0.0520 0.0361  
 Moon -83752-04-01 18:56 J -28868903.88 -28868903.71 -28868903.54 0.0520 0.0360 \*  
 Mercury -83747-02-27 04:04 J -28867111.50 -28867111.33 -28867111.17 0.0492 0.0205  
 Mercury -83747-05-28 08:08 J -28867021.30 -28867021.16 -28867021.01 0.0494 0.0291  
 Mercury -83742-10-19 16:04 J -28865050.94 -28865050.83 -28865050.72 0.0536 0.0270  
 Mercury -83741-01-17 00:56 J -28864961.59 -28864961.46 -28864961.34 0.0534 0.0186  
 Venus -83736-05-25 09:35 J -28863006.28 -28863006.10 -28863005.91 0.0488 0.0213  
 Mercury -83736-12-16 02:23 J -28862801.53 -28862801.40 -28862801.27 0.0491 0.0329  
 Mercury -83735-03-16 06:56 J -28862711.38 -28862711.21 -28862711.04 0.0493 0.0169

Mars -83733-05-19 17:01 J -28861915.95 -28861915.79 -28861915.63 0.0521 0.0397  
 Venus -83730-03-30 20:37 J -28860870.78 -28860870.64 -28860870.48 0.0540 0.0345  
 Mercury -83730-08-07 20:08 J -28860740.75 -28860740.66 -28860740.57 0.0537 0.0375  
 Mercury -83730-11-05 04:47 J -28860651.43 -28860651.30 -28860651.17 0.0535 0.0078  
 Venus -83724-01-28 09:06 J -28858740.31 -28858740.12 -28858739.92 0.0487 0.0194  
 Mercury -83724-10-04 00:13 J -28858491.54 -28858491.49 -28858491.42 0.0491 0.0456  
 Mercury -83723-01-02 05:30 J -28858401.45 -28858401.27 -28858401.09 0.0493 0.0045  
 Venus -83719-12-03 15:35 J -28856605.04 -28856604.85 -28856604.67 0.0540 0.0169  
 Mercury -83718-05-27 00:13 J -28856430.55 -28856430.49 -28856430.44 0.0537 0.0481  
 Mercury -83718-08-24 08:37 J -28856341.27 -28856341.14 -28856341.01 0.0535 0.0031  
 Mercury -83718-11-21 17:44 J -28856251.84 -28856251.76 -28856251.68 0.0533 0.0427  
 Mercury -83712-10-21 04:32 J -28854091.49 -28854091.31 -28854091.13 0.0492 0.0073  
 Mercury -83711-01-19 08:23 J -28854001.24 -28854001.15 -28854001.05 0.0495 0.0420  
 Earth -83711-09-23 07:40 J -28853754.36 -28853754.18 -28853753.99 0.0502 0.0321  
 Moon -83711-09-23 09:49 J -28853754.27 -28853754.09 -28853753.91 0.0502 0.0347 \*  
 Mercury -83706-06-12 11:30 J -28852031.15 -28852031.02 -28852030.90 0.0535 0.0152  
 Mercury -83706-09-09 20:23 J -28851941.76 -28851941.65 -28851941.54 0.0533 0.0303  
 Moon -83705-03-17 22:32 J -28851751.59 -28851751.56 -28851751.53 0.0527 0.0520  
 Earth -83705-03-18 00:56 J -28851751.54 -28851751.46 -28851751.37 0.0527 0.0488 \*  
 Mars -83704-06-08 07:54 J -28851304.33 -28851304.17 -28851304.00 0.0510 0.0425  
 Venus -83700-01-30 22:32 J -28849971.63 -28849971.56 -28849971.49 0.0489 0.0457  
 Mercury -83700-08-09 03:06 J -28849781.53 -28849781.37 -28849781.20 0.0492 0.0195  
 Mercury -83700-11-07 07:25 J -28849691.32 -28849691.19 -28849691.05 0.0494 0.0302  
 Moon -83699-09-28 00:42 J -28849366.70 -28849366.47 -28849366.23 0.0504 0.0068  
 Earth -83699-09-28 04:32 J -28849366.55 -28849366.31 -28849366.07 0.0504 0.0060 \*  
 Mercury -83694-03-31 14:52 J -28847720.99 -28847720.88 -28847720.77 0.0536 0.0266  
 Mercury -83694-06-28 23:30 J -28847631.64 -28847631.52 -28847631.40 0.0534 0.0187  
 Earth -83693-03-22 16:47 J -28847364.00 -28847363.80 -28847363.59 0.0525 0.0214  
 Moon -83693-03-22 17:30 J -28847363.97 -28847363.77 -28847363.57 0.0525 0.0210 \*  
 Venus -83689-10-05 21:49 J -28845705.80 -28845705.59 -28845705.38 0.0488 0.0048

Mercury -83688-05-28 01:11 J -28845471.58 -28845471.45 -28845471.31 0.0491 0.0323

Mercury -83688-08-26 05:44 J -28845381.42 -28845381.26 -28845381.09 0.0493 0.0176

Earth -83687-10-02 22:04 J -28844978.80 -28844978.58 -28844978.36 0.0505 0.0197

Moon -83687-10-03 02:08 J -28844978.62 -28844978.41 -28844978.19 0.0505 0.0230 \*

Venus -83683-08-11 04:18 J -28843570.52 -28843570.32 -28843570.13 0.0540 0.0118

Mercury -83682-01-17 18:28 J -28843410.82 -28843410.73 -28843410.64 0.0537 0.0379

Mercury -83682-04-17 03:06 J -28843321.50 -28843321.37 -28843321.24 0.0535 0.0075

Earth -83681-03-27 10:18 J -28842976.30 -28842976.07 -28842975.85 0.0523 0.0067

Moon -83681-03-27 11:44 J -28842976.24 -28842976.01 -28842975.77 0.0523 0.0095 \*

Venus -83677-06-10 21:49 J -28841439.72 -28841439.59 -28841439.44 0.0487 0.0356

Mercury -83676-03-15 23:16 J -28841161.59 -28841161.53 -28841161.45 0.0491 0.0448

Mercury -83676-06-14 04:18 J -28841071.49 -28841071.32 -28841071.14 0.0493 0.0054

Moon -83675-10-07 14:52 J -28840590.96 -28840590.88 -28840590.79 0.0508 0.0475

Earth -83675-10-07 18:42 J -28840590.82 -28840590.72 -28840590.62 0.0508 0.0460 \*

Venus -83671-04-15 22:32 J -28839304.69 -28839304.56 -28839304.43 0.0541 0.0398

Mercury -83671-11-05 22:32 J -28839100.61 -28839100.56 -28839100.51 0.0537 0.0484

Mercury -83670-02-03 06:56 J -28839011.34 -28839011.21 -28839011.08 0.0535 0.0034

Mercury -83670-05-03 16:04 J -28838921.91 -28838921.83 -28838921.75 0.0533 0.0424

Moon -83669-04-01 00:42 J -28838588.63 -28838588.47 -28838588.29 0.0521 0.0337

Earth -83669-04-01 04:04 J -28838588.50 -28838588.33 -28838588.16 0.0521 0.0344 \*

Mars -83668-03-16 19:11 J -28838238.84 -28838238.70 -28838238.53 0.0507 0.0435

Mercury -83664-04-02 02:37 J -28836761.56 -28836761.39 -28836761.21 0.0492 0.0074

Mercury -83664-07-01 06:42 J -28836671.31 -28836671.22 -28836671.13 0.0494 0.0420

Mercury -83659-11-22 10:47 J -28834701.17 -28834701.05 -28834700.92 0.0536 0.0142

Mercury -83658-02-19 19:40 J -28834611.78 -28834611.68 -28834611.57 0.0533 0.0314

Venus -83653-06-13 10:18 J -28832671.24 -28832671.07 -28832670.90 0.0488 0.0290

Mercury -83652-01-19 01:40 J -28832451.59 -28832451.43 -28832451.26 0.0492 0.0192

Mercury -83652-04-19 05:59 J -28832361.39 -28832361.25 -28832361.11 0.0494 0.0304

Venus -83647-04-18 20:37 J -28830535.75 -28830535.64 -28830535.51 0.0539 0.0427

Mercury -83647-09-10 13:54 J -28830391.04 -28830390.92 -28830390.81 0.0536 0.0262

Mercury -83647-12-08 22:32 J -28830301.69 -28830301.56 -28830301.44 0.0533 0.0192

Venus -83641-02-17 09:49 J -28828405.29 -28828405.09 -28828404.88 0.0488 0.0117

Mercury -83641-11-06 23:59 J -28828141.63 -28828141.50 -28828141.36 0.0492 0.0316

Mercury -83640-02-05 04:47 J -28828051.46 -28828051.30 -28828051.13 0.0494 0.0184

Venus -83636-12-22 13:40 J -28826270.13 -28826269.93 -28826269.74 0.0539 0.0097

Mercury -83635-06-29 17:16 J -28826080.87 -28826080.78 -28826080.69 0.0536 0.0376

Mercury -83635-09-27 01:40 J -28825991.56 -28825991.43 -28825991.30 0.0534 0.0076

Mercury -83629-08-25 22:04 J -28823831.66 -28823831.58 -28823831.51 0.0491 0.0444

Mercury -83629-11-24 03:06 J -28823741.55 -28823741.37 -28823741.19 0.0493 0.0057

Moon -83628-09-22 08:52 J -28823439.28 -28823439.13 -28823438.97 0.0501 0.0375

Earth -83628-09-22 12:13 J -28823439.16 -28823438.99 -28823438.81 0.0501 0.0344 \*

Mercury -83623-04-17 20:37 J -28821770.68 -28821770.64 -28821770.58 0.0537 0.0490

Mercury -83623-07-16 05:01 J -28821681.42 -28821681.29 -28821681.15 0.0535 0.0043

Mercury -83623-10-13 14:08 J -28821591.99 -28821591.91 -28821591.83 0.0533 0.0418

Earth -83622-03-18 06:28 J -28821436.26 -28821436.23 -28821436.18 0.0528 0.0518

Mercury -83617-09-12 01:25 J -28819431.62 -28819431.44 -28819431.26 0.0492 0.0068

Mercury -83617-12-11 05:16 J -28819341.36 -28819341.28 -28819341.19 0.0494 0.0425

Earth -83616-09-27 06:56 J -28819051.44 -28819051.21 -28819050.97 0.0503 0.0090

Moon -83616-09-27 11:16 J -28819051.27 -28819051.03 -28819050.80 0.0503 0.0089 \*

Mars -83615-11-09 17:59 J -28818643.00 -28818642.75 -28818642.50 0.0519 0.0031

Mercury -83611-05-04 09:06 J -28817371.25 -28817371.12 -28817371.00 0.0536 0.0148

Mercury -83611-08-01 17:59 J -28817281.86 -28817281.75 -28817281.65 0.0533 0.0309

Earth -83610-03-23 01:40 J -28817048.63 -28817048.43 -28817048.22 0.0526 0.0235

Moon -83610-03-23 03:06 J -28817048.58 -28817048.37 -28817048.15 0.0526 0.0218 \*

Venus -83606-10-25 20:52 J -28815370.83 -28815370.63 -28815370.42 0.0488 0.0117

Mercury -83605-06-30 23:30 J -28815121.68 -28815121.52 -28815121.35 0.0492 0.0195

Mercury -83605-09-29 03:49 J -28815031.47 -28815031.34 -28815031.20 0.0494 0.0302

Moon -83604-10-01 23:01 J -28814663.76 -28814663.54 -28814663.31 0.0505 0.0202

Earth -83604-10-02 02:52 J -28814663.60 -28814663.38 -28814663.15 0.0505 0.0171 \*

Venus -83600-08-30 06:28 J -28813235.41 -28813235.23 -28813235.05 0.0540 0.0214

Mercury -83599-02-20 12:56 J -28813061.08 -28813060.96 -28813060.85 0.0536 0.0255

Mercury -83599-05-20 21:35 J -28812971.72 -28812971.60 -28812971.48 0.0534 0.0200

Moon -83598-03-27 16:18 J -28812661.04 -28812660.82 -28812660.60 0.0523 0.0072

Earth -83598-03-27 19:11 J -28812660.92 -28812660.70 -28812660.47 0.0523 0.0044 \*

Venus -83594-06-30 21:20 J -28811104.77 -28811104.61 -28811104.43 0.0487 0.0285

Mercury -83593-04-18 22:18 J -28810811.71 -28810811.57 -28810811.43 0.0492 0.0315

Mercury -83593-07-18 03:06 J -28810721.54 -28810721.37 -28810721.21 0.0494 0.0184

Earth -83592-10-07 01:54 J -28810275.53 -28810275.42 -28810275.30 0.0507 0.0440

Moon -83592-10-07 04:04 J -28810275.43 -28810275.33 -28810275.22 0.0507 0.0450 \*

Venus -83588-05-04 22:47 J -28808969.71 -28808969.55 -28808969.39 0.0540 0.0313

Mercury -83588-12-09 16:04 J -28808750.92 -28808750.83 -28808750.74 0.0536 0.0372

Mercury -83587-03-09 00:28 J -28808661.61 -28808661.48 -28808661.35 0.0534 0.0080

Earth -83586-04-01 06:13 J -28808273.42 -28808273.24 -28808273.05 0.0521 0.0304

Moon -83586-04-01 10:18 J -28808273.26 -28808273.07 -28808272.88 0.0521 0.0292 \*

Mercury -83581-02-05 20:23 J -28806501.72 -28806501.65 -28806501.56 0.0491 0.0441

Mercury -83581-05-06 01:40 J -28806411.61 -28806411.43 -28806411.25 0.0493 0.0062

Mercury -83576-09-27 19:25 J -28804440.74 -28804440.69 -28804440.64 0.0537 0.0486

Mercury -83576-12-26 03:49 J -28804351.47 -28804351.34 -28804351.21 0.0535 0.0038

Mercury -83575-03-25 12:42 J -28804262.05 -28804261.97 -28804261.89 0.0532 0.0418

Venus -83570-07-03 08:37 J -28802336.28 -28802336.14 -28802335.99 0.0489 0.0355

Mercury -83569-02-22 23:44 J -28802101.69 -28802101.51 -28802101.33 0.0492 0.0067

Mercury -83569-05-23 03:49 J -28802011.43 -28802011.34 -28802011.25 0.0494 0.0427

Venus -83564-05-07 18:28 J -28800200.80 -28800200.73 -28800200.65 0.0539 0.0493

Mercury -83564-10-14 07:11 J -28800041.33 -28800041.20 -28800041.08 0.0536 0.0154

Mercury -83563-01-11 15:49 J -28799951.94 -28799951.84 -28799951.73 0.0533 0.0303

Venus -83558-03-08 08:23 J -28798070.36 -28798070.15 -28798069.94 0.0488 0.0052

Mercury -83558-12-11 22:04 J -28797791.75 -28797791.58 -28797791.41 0.0492 0.0192

Mercury -83557-03-11 02:23 J -28797701.54 -28797701.40 -28797701.26 0.0494 0.0304

Venus -83552-01-10 12:42 J -28795935.16 -28795934.97 -28795934.77 0.0540 0.0023

Mercury -83552-08-02 10:47 J -28795731.16 -28795731.05 -28795730.93 0.0536 0.0264



Mercury -83552-10-30 19:40 J -28795641.80 -28795641.68 -28795641.56 0.0534 0.0192  
 Mars -83550-09-02 15:49 J -28794970.12 -28794969.84 -28794969.54 0.0509 0.0150  
 Venus -83547-11-11 07:54 J -28793804.24 -28793804.17 -28793804.10 0.0487 0.0458  
 Mercury -83546-09-29 19:54 J -28793481.80 -28793481.67 -28793481.53 0.0491 0.0320  
 Mercury -83546-12-29 00:42 J -28793391.63 -28793391.47 -28793391.30 0.0493 0.0180  
 Earth -83545-09-21 15:06 J -28793124.02 -28793123.87 -28793123.71 0.0501 0.0372  
 Moon -83545-09-21 19:11 J -28793123.84 -28793123.70 -28793123.55 0.0501 0.0402 \*  
 Venus -83541-09-15 06:56 J -28791669.23 -28791669.21 -28791669.19 0.0540 0.0537  
 Mercury -83540-05-21 14:52 J -28791420.97 -28791420.88 -28791420.79 0.0537 0.0370  
 Mercury -83540-08-18 23:30 J -28791331.65 -28791331.52 -28791331.40 0.0535 0.0085  
 Mercury -83534-07-18 18:28 J -28789171.80 -28789171.73 -28789171.65 0.0491 0.0442  
 Mercury -83534-10-16 23:44 J -28789081.69 -28789081.51 -28789081.34 0.0493 0.0060  
 Moon -83533-09-26 08:23 J -28788736.38 -28788736.15 -28788735.91 0.0503 0.0113  
 Earth -83533-09-26 12:28 J -28788736.21 -28788735.98 -28788735.75 0.0503 0.0113 \*  
 Mercury -83528-03-09 18:13 J -28787110.79 -28787110.74 -28787110.69 0.0537 0.0484  
 Mercury -83528-06-07 02:23 J -28787021.53 -28787021.40 -28787021.26 0.0535 0.0041  
 Mercury -83528-09-04 11:30 J -28786932.10 -28786932.02 -28786931.94 0.0532 0.0419  
 Moon -83527-03-22 00:56 J -28786733.65 -28786733.46 -28786733.26 0.0525 0.0253  
 Earth -83527-03-22 03:49 J -28786733.54 -28786733.34 -28786733.15 0.0525 0.0274 \*  
 Venus -83523-11-13 19:25 J -28785035.89 -28785035.69 -28785035.50 0.0489 0.0182  
 Mercury -83522-08-04 22:04 J -28784771.76 -28784771.58 -28784771.40 0.0493 0.0065  
 Mercury -83522-11-03 02:08 J -28784681.49 -28784681.41 -28784681.32 0.0495 0.0430  
 Earth -83521-10-01 08:52 J -28784348.36 -28784348.13 -28784347.90 0.0505 0.0147  
 Moon -83521-10-01 11:30 J -28784348.24 -28784348.02 -28784347.80 0.0505 0.0179 \*  
 Venus -83517-09-18 03:49 J -28782900.51 -28782900.34 -28782900.17 0.0539 0.0278  
 Mercury -83516-03-26 05:44 J -28782711.38 -28782711.26 -28782711.13 0.0535 0.0152  
 Mercury -83516-06-23 14:23 J -28782622.00 -28782621.90 -28782621.79 0.0533 0.0303  
 Earth -83515-03-26 18:13 J -28782345.97 -28782345.74 -28782345.52 0.0524 0.0010  
 Moon -83515-03-26 22:04 J -28782345.81 -28782345.58 -28782345.36 0.0524 0.0025 \*  
 Venus -83511-07-19 18:42 J -28780769.90 -28780769.72 -28780769.53 0.0488 0.0227

Mercury -83510-05-23 20:08 J -28780461.83 -28780461.66 -28780461.50 0.0492 0.0194

Mercury -83510-08-22 00:28 J -28780371.62 -28780371.48 -28780371.34 0.0494 0.0303

Moon -83509-10-06 01:54 J -28779960.56 -28779960.42 -28779960.27 0.0507 0.0405

Earth -83509-10-06 02:23 J -28779960.54 -28779960.40 -28779960.25 0.0507 0.0405 \*

Venus -83505-05-23 19:25 J -28778634.86 -28778634.69 -28778634.52 0.0540 0.0254

Mercury -83504-01-12 09:06 J -28778401.24 -28778401.12 -28778401.01 0.0536 0.0271

Mercury -83504-04-11 17:30 J -28778311.89 -28778311.77 -28778311.64 0.0534 0.0185

Moon -83503-03-31 05:30 J -28777958.46 -28777958.27 -28777958.07 0.0522 0.0256

Earth -83503-03-31 09:35 J -28777958.30 -28777958.10 -28777957.91 0.0522 0.0269 \*

Mercury -83498-03-11 18:13 J -28776151.88 -28776151.74 -28776151.60 0.0491 0.0319

Mercury -83498-06-09 23:01 J -28776061.71 -28776061.54 -28776061.38 0.0493 0.0179

Mars -83496-05-01 11:30 J -28775370.11 -28775370.02 -28775369.92 0.0516 0.0476

Mercury -83493-10-31 12:42 J -28774091.06 -28774090.97 -28774090.88 0.0537 0.0380

Mercury -83492-01-28 21:20 J -28774001.74 -28774001.61 -28774001.48 0.0535 0.0074

Mercury -83492-04-28 06:28 J -28773912.23 -28773912.23 -28773912.22 0.0532 0.0531

Moon -83491-04-05 05:01 J -28773570.33 -28773570.29 -28773570.25 0.0520 0.0511

Venus -83487-07-22 05:59 J -28772001.35 -28772001.25 -28772001.13 0.0488 0.0414

Mercury -83487-12-28 16:04 J -28771841.90 -28771841.83 -28771841.76 0.0491 0.0448

Mercury -83486-03-28 21:06 J -28771751.80 -28771751.62 -28771751.44 0.0493 0.0053

Mercury -83481-08-19 16:47 J -28769780.86 -28769780.80 -28769780.75 0.0537 0.0486

Mercury -83481-11-17 00:56 J -28769691.59 -28769691.46 -28769691.32 0.0535 0.0041

Mercury -83480-02-14 10:04 J -28769602.16 -28769602.08 -28769602.00 0.0533 0.0420

Venus -83475-03-27 05:59 J -28767735.46 -28767735.25 -28767735.03 0.0488 0.0013

Mercury -83474-01-14 19:54 J -28767441.85 -28767441.67 -28767441.49 0.0492 0.0069

Mercury -83474-04-14 23:44 J -28767351.59 -28767351.51 -28767351.41 0.0495 0.0426

Venus -83469-01-30 12:13 J -28765600.19 -28765599.99 -28765599.79 0.0539 0.0057

Mercury -83469-09-05 04:18 J -28765381.44 -28765381.32 -28765381.19 0.0535 0.0152

Mercury -83469-12-03 13:11 J -28765292.06 -28765291.95 -28765291.85 0.0533 0.0302

Venus -83464-11-30 04:47 J -28763469.41 -28763469.30 -28763469.18 0.0488 0.0402

Mercury -83463-11-02 17:59 J -28763131.91 -28763131.75 -28763131.59 0.0492 0.0196

Mercury -83462-01-31 22:32 J -28763041.70 -28763041.56 -28763041.42 0.0494 0.0303  
 Moon -83462-09-21 15:35 J -28762808.97 -28762808.85 -28762808.72 0.0501 0.0428  
 Earth -83462-09-21 19:25 J -28762808.83 -28762808.69 -28762808.54 0.0501 0.0396 \*  
 Mars -83460-02-02 20:23 J -28762308.89 -28762308.65 -28762308.42 0.0519 0.0181  
 Venus -83458-10-05 04:32 J -28761334.40 -28761334.31 -28761334.22 0.0540 0.0470  
 Mercury -83457-06-24 07:40 J -28761071.29 -28761071.18 -28761071.07 0.0536 0.0268  
 Mercury -83457-09-21 16:18 J -28760981.95 -28760981.82 -28760981.70 0.0533 0.0185  
 Mercury -83451-08-21 15:49 J -28758821.97 -28758821.84 -28758821.70 0.0492 0.0325  
 Mercury -83451-11-19 20:52 J -28758731.80 -28758731.63 -28758731.47 0.0493 0.0176  
 Earth -83450-09-26 12:13 J -28758421.22 -28758420.99 -28758420.76 0.0502 0.0145  
 Moon -83450-09-26 15:20 J -28758421.09 -28758420.86 -28758420.64 0.0502 0.0140 \*  
 Mercury -83445-04-12 10:47 J -28756761.14 -28756761.05 -28756760.96 0.0537 0.0388  
 Mercury -83445-07-10 19:11 J -28756671.83 -28756671.70 -28756671.57 0.0535 0.0064  
 Mercury -83445-10-08 04:18 J -28756582.34 -28756582.32 -28756582.29 0.0532 0.0521  
 Earth -83444-03-21 04:04 J -28756418.51 -28756418.33 -28756418.14 0.0527 0.0314  
 Moon -83444-03-21 07:54 J -28756418.36 -28756418.17 -28756417.98 0.0527 0.0285 \*  
 Venus -83440-12-02 16:32 J -28754700.99 -28754700.81 -28754700.62 0.0488 0.0239  
 Mercury -83439-06-09 13:54 J -28754511.98 -28754511.92 -28754511.85 0.0491 0.0450  
 Mercury -83439-09-07 19:11 J -28754421.88 -28754421.70 -28754421.52 0.0493 0.0051  
 Moon -83438-10-01 05:30 J -28754033.50 -28754033.27 -28754033.02 0.0504 0.0138  
 Earth -83438-10-01 06:56 J -28754033.45 -28754033.21 -28754032.98 0.0504 0.0109 \*  
 Venus -83434-10-08 00:13 J -28752565.64 -28752565.49 -28752565.33 0.0539 0.0338  
 Mercury -83433-01-30 14:23 J -28752450.94 -28752450.90 -28752450.85 0.0537 0.0498  
 Mercury -83433-04-28 22:47 J -28752361.68 -28752361.55 -28752361.42 0.0535 0.0048  
 Mercury -83433-07-27 07:54 J -28752272.26 -28752272.17 -28752272.09 0.0533 0.0409  
 Moon -83432-03-25 17:44 J -28752030.98 -28752030.76 -28752030.53 0.0525 0.0013  
 Earth -83432-03-25 21:49 J -28752030.82 -28752030.59 -28752030.36 0.0525 0.0036 \*  
 Venus -83428-08-07 15:35 J -28750435.04 -28750434.85 -28750434.65 0.0487 0.0170  
 Mercury -83427-06-26 17:16 J -28750111.96 -28750111.78 -28750111.61 0.0492 0.0078  
 Mercury -83427-09-24 21:20 J -28750021.71 -28750021.61 -28750021.52 0.0494 0.0417

Moon -83426-10-06 00:28 J -28749645.64 -28749645.48 -28749645.32 0.0506 0.0360  
 Earth -83426-10-06 01:40 J -28749645.59 -28749645.43 -28749645.26 0.0506 0.0367 \*  
 Venus -83422-06-12 18:42 J -28748299.91 -28748299.72 -28748299.53 0.0540 0.0177  
 Mercury -83421-02-16 02:37 J -28748051.51 -28748051.39 -28748051.26 0.0536 0.0157  
 Mercury -83421-05-15 11:30 J -28747962.13 -28747962.02 -28747961.91 0.0533 0.0299  
 Earth -83420-03-30 14:52 J -28747643.08 -28747642.88 -28747642.68 0.0522 0.0239  
 Moon -83420-03-30 17:59 J -28747642.95 -28747642.75 -28747642.54 0.0522 0.0222 \*  
 Mercury -83415-04-14 15:35 J -28745802.01 -28745801.85 -28745801.68 0.0492 0.0200  
 Mercury -83415-07-13 20:08 J -28745711.80 -28745711.66 -28745711.52 0.0494 0.0297  
 Mercury -83410-12-05 05:59 J -28743741.36 -28743741.25 -28743741.13 0.0536 0.0271  
 Mercury -83409-03-03 14:37 J -28743652.01 -28743651.89 -28743651.76 0.0533 0.0183  
 Moon -83408-04-04 01:11 J -28743255.54 -28743255.45 -28743255.35 0.0520 0.0471  
 Earth -83408-04-04 03:06 J -28743255.43 -28743255.37 -28743255.30 0.0520 0.0497 \*  
 Venus -83404-08-10 02:37 J -28741666.44 -28741666.39 -28741666.33 0.0489 0.0468  
 Mercury -83403-01-31 13:40 J -28741492.07 -28741491.93 -28741491.80 0.0492 0.0329  
 Mercury -83403-05-01 18:28 J -28741401.89 -28741401.73 -28741401.56 0.0494 0.0172  
 Mercury -83398-09-23 09:35 J -28739431.19 -28739431.10 -28739431.02 0.0536 0.0385  
 Mercury -83398-12-21 17:59 J -28739341.88 -28739341.75 -28739341.62 0.0534 0.0068  
 Mercury -83397-03-20 02:52 J -28739252.40 -28739252.38 -28739252.35 0.0531 0.0521  
 Mars -83396-11-25 17:44 J -28738637.06 -28738636.76 -28738636.46 0.0509 0.0040  
 Venus -83392-04-15 02:08 J -28737400.62 -28737400.41 -28737400.21 0.0488 0.0060  
 Mercury -83392-11-19 11:30 J -28737182.08 -28737182.02 -28737181.96 0.0491 0.0457  
 Mercury -83391-02-17 16:47 J -28737091.98 -28737091.80 -28737091.62 0.0493 0.0045  
 Venus -83386-02-18 06:42 J -28735265.41 -28735265.22 -28735265.02 0.0539 0.0104  
 Mercury -83386-07-12 12:28 J -28735121.02 -28735120.98 -28735120.94 0.0537 0.0506  
 Mercury -83386-10-09 20:52 J -28735031.76 -28735031.63 -28735031.50 0.0535 0.0058  
 Mercury -83385-01-07 05:44 J -28734942.35 -28734942.26 -28734942.17 0.0533 0.0400  
 Venus -83381-12-19 02:08 J -28733134.56 -28733134.41 -28733134.26 0.0487 0.0345  
 Mercury -83380-12-06 15:06 J -28732782.05 -28732781.87 -28732781.69 0.0492 0.0080  
 Mercury -83379-03-06 19:11 J -28732691.79 -28732691.70 -28732691.60 0.0494 0.0414

Earth -83379-09-20 17:44 J -28732493.87 -28732493.76 -28732493.63 0.0500 0.0429  
 Moon -83379-09-20 21:06 J -28732493.70 -28732493.62 -28732493.52 0.0500 0.0459 \*  
 Venus -83375-10-23 23:44 J -28730999.63 -28730999.51 -28730999.39 0.0540 0.0419  
 Mercury -83374-07-29 00:28 J -28730721.61 -28730721.48 -28730721.36 0.0536 0.0169  
 Mercury -83374-10-26 09:06 J -28730632.23 -28730632.12 -28730632.01 0.0534 0.0287  
 Mercury -83368-09-24 12:56 J -28728472.12 -28728471.96 -28728471.80 0.0492 0.0209  
 Mercury -83368-12-23 17:16 J -28728381.91 -28728381.78 -28728381.63 0.0494 0.0289  
 Moon -83367-09-25 08:52 J -28728106.36 -28728106.13 -28728105.89 0.0502 0.0176  
 Earth -83367-09-25 11:01 J -28728106.26 -28728106.04 -28728105.82 0.0502 0.0182 \*  
 Mercury -83362-05-17 04:18 J -28726411.43 -28726411.32 -28726411.21 0.0536 0.0277  
 Mercury -83362-08-14 12:56 J -28726322.09 -28726321.96 -28726321.84 0.0534 0.0177  
 Moon -83361-03-20 04:32 J -28726103.48 -28726103.31 -28726103.13 0.0527 0.0318  
 Earth -83361-03-20 08:37 J -28726103.31 -28726103.14 -28726102.97 0.0527 0.0346 \*  
 Venus -83357-12-21 12:56 J -28724366.12 -28724365.96 -28724365.78 0.0488 0.0295  
 Mercury -83356-07-13 11:16 J -28724162.16 -28724162.03 -28724161.90 0.0491 0.0333  
 Mercury -83356-10-11 16:04 J -28724071.99 -28724071.83 -28724071.66 0.0493 0.0167  
 Moon -83355-09-30 06:56 J -28723718.44 -28723718.21 -28723717.99 0.0504 0.0101  
 Earth -83355-09-30 07:25 J -28723718.42 -28723718.19 -28723717.95 0.0504 0.0076 \*  
 Venus -83351-10-26 23:30 J -28722230.64 -28722230.52 -28722230.39 0.0539 0.0412  
 Mercury -83350-03-05 07:54 J -28722101.26 -28722101.17 -28722101.08 0.0536 0.0388  
 Mercury -83350-06-02 16:18 J -28722011.95 -28722011.82 -28722011.69 0.0534 0.0063  
 Mercury -83350-08-31 01:11 J -28721922.47 -28721922.45 -28721922.42 0.0532 0.0519  
 Earth -83349-03-24 23:30 J -28721715.74 -28721715.52 -28721715.29 0.0525 0.0074  
 Moon -83349-03-25 03:06 J -28721715.59 -28721715.37 -28721715.15 0.0525 0.0050 \*  
 Venus -83345-08-26 11:30 J -28720100.22 -28720100.02 -28720099.81 0.0488 0.0120  
 Mercury -83344-05-01 08:52 J -28719852.18 -28719852.13 -28719852.07 0.0491 0.0463  
 Mercury -83344-07-30 14:23 J -28719762.08 -28719761.90 -28719761.72 0.0493 0.0040  
 Earth -83343-10-05 03:35 J -28719330.53 -28719330.35 -28719330.17 0.0506 0.0336  
 Moon -83343-10-05 06:28 J -28719330.41 -28719330.23 -28719330.03 0.0506 0.0321 \*  
 Mars -83342-07-26 05:16 J -28719036.48 -28719036.28 -28719036.06 0.0517 0.0289

Venus -83339-07-01 16:18 J -28717965.01 -28717964.82 -28717964.63 0.0539 0.0111  
 Mercury -83339-12-22 11:16 J -28717791.07 -28717791.03 -28717790.98 0.0537 0.0502  
 Mercury -83338-03-21 19:40 J -28717701.81 -28717701.68 -28717701.55 0.0535 0.0056  
 Mercury -83338-06-19 04:18 J -28717612.40 -28717612.32 -28717612.23 0.0532 0.0402  
 Moon -83337-03-29 11:30 J -28717328.24 -28717328.02 -28717327.79 0.0523 0.0172  
 Earth -83337-03-29 13:40 J -28717328.13 -28717327.93 -28717327.71 0.0523 0.0194 \*  
 Mercury -83332-05-18 12:28 J -28715452.15 -28715451.98 -28715451.80 0.0492 0.0088  
 Mercury -83332-08-16 16:47 J -28715361.90 -28715361.80 -28715361.70 0.0494 0.0408  
 Mercury -83326-01-07 22:18 J -28713391.69 -28713391.57 -28713391.44 0.0536 0.0177  
 Mercury -83326-04-07 07:11 J -28713302.31 -28713302.20 -28713302.09 0.0533 0.0278  
 Moon -83325-04-03 02:37 J -28712940.50 -28712940.39 -28712940.26 0.0521 0.0439  
 Earth -83325-04-03 02:37 J -28712940.49 -28712940.39 -28712940.28 0.0521 0.0457 \*  
 Mercury -83320-03-06 10:47 J -28711142.21 -28711142.05 -28711141.88 0.0492 0.0212  
 Mercury -83320-06-04 15:20 J -28711052.00 -28711051.86 -28711051.71 0.0494 0.0286  
 Mercury -83315-10-27 01:54 J -28709081.53 -28709081.42 -28709081.31 0.0536 0.0289  
 Mercury -83314-01-24 10:32 J -28708992.18 -28708992.06 -28708991.94 0.0534 0.0164  
 Venus -83309-05-03 22:47 J -28707065.75 -28707065.55 -28707065.34 0.0488 0.0115  
 Mercury -83309-12-23 08:37 J -28706832.27 -28706832.14 -28706832.01 0.0491 0.0341  
 Mercury -83308-03-23 13:25 J -28706742.10 -28706741.94 -28706741.77 0.0493 0.0159  
 Mars -83306-04-29 00:13 J -28705975.68 -28705975.49 -28705975.29 0.0519 0.0330  
 Venus -83303-03-09 05:01 J -28704930.47 -28704930.29 -28704930.10 0.0540 0.0175  
 Mercury -83303-08-15 05:44 J -28704771.34 -28704771.26 -28704771.17 0.0537 0.0398  
 Mercury -83303-11-12 14:23 J -28704682.03 -28704681.90 -28704681.77 0.0535 0.0056  
 Mercury -83302-02-09 23:30 J -28704592.56 -28704592.52 -28704592.49 0.0532 0.0512  
 Venus -83297-01-07 22:32 J -28702799.72 -28702799.56 -28702799.39 0.0487 0.0290  
 Mercury -83297-10-11 06:42 J -28702522.27 -28702522.22 -28702522.16 0.0491 0.0466  
 Mercury -83296-01-09 11:59 J -28702432.17 -28702432.00 -28702431.82 0.0493 0.0038  
 Moon -83296-09-19 15:35 J -28702178.89 -28702178.85 -28702178.79 0.0500 0.0489  
 Earth -83296-09-19 17:59 J -28702178.83 -28702178.75 -28702178.65 0.0500 0.0462 \*  
 Venus -83292-11-11 23:30 J -28700664.68 -28700664.52 -28700664.37 0.0540 0.0341

Mercury -83291-06-03 09:35 J -28700461.14 -28700461.10 -28700461.06 0.0537 0.0506

Mercury -83291-08-31 17:59 J -28700371.88 -28700371.75 -28700371.62 0.0535 0.0058

Mercury -83291-11-29 02:52 J -28700282.47 -28700282.38 -28700282.30 0.0532 0.0398

Mercury -83285-10-28 10:04 J -28698122.25 -28698122.08 -28698121.90 0.0493 0.0093

Mercury -83284-01-26 14:23 J -28698032.00 -28698031.90 -28698031.80 0.0495 0.0404

Earth -83284-09-24 12:42 J -28697791.19 -28697790.97 -28697790.75 0.0502 0.0211

Moon -83284-09-24 12:42 J -28697791.18 -28697790.97 -28697790.76 0.0502 0.0197 \*

Mercury -83279-06-19 21:20 J -28696061.73 -28696061.61 -28696061.49 0.0535 0.0172

Mercury -83279-09-17 05:59 J -28695972.36 -28695972.25 -28695972.14 0.0533 0.0282

Earth -83278-03-20 08:37 J -28695788.29 -28695788.14 -28695787.98 0.0527 0.0387

Moon -83278-03-20 12:13 J -28695788.14 -28695787.99 -28695787.82 0.0527 0.0356 \*

Venus -83273-01-10 09:06 J -28694031.26 -28694031.12 -28694030.96 0.0488 0.0345

Mercury -83273-08-16 08:23 J -28693812.31 -28693812.15 -28693811.99 0.0492 0.0218

Mercury -83273-11-14 12:56 J -28693722.10 -28693721.96 -28693721.81 0.0494 0.0280

Earth -83272-09-29 06:56 J -28693403.45 -28693403.21 -28693402.97 0.0503 0.0044

Moon -83272-09-29 09:20 J -28693403.35 -28693403.11 -28693402.86 0.0503 0.0068 \*

Venus -83268-11-14 17:44 J -28691895.86 -28691895.76 -28691895.66 0.0539 0.0457

Mercury -83267-04-07 23:59 J -28691751.60 -28691751.50 -28691751.39 0.0536 0.0296

Mercury -83267-07-06 08:37 J -28691662.26 -28691662.14 -28691662.01 0.0534 0.0157

Moon -83266-03-24 19:11 J -28691400.92 -28691400.70 -28691400.47 0.0526 0.0100

Earth -83266-03-24 22:04 J -28691400.80 -28691400.58 -28691400.36 0.0526 0.0117 \*

Venus -83262-09-15 09:20 J -28689765.32 -28689765.11 -28689764.90 0.0488 0.0059

Mercury -83261-06-04 06:42 J -28689502.35 -28689502.22 -28689502.09 0.0491 0.0342

Mercury -83261-09-02 11:44 J -28689412.18 -28689412.01 -28689411.84 0.0493 0.0158

Moon -83260-10-03 22:32 J -28689015.75 -28689015.56 -28689015.37 0.0505 0.0284

Earth -83260-10-04 02:08 J -28689015.60 -28689015.41 -28689015.21 0.0505 0.0300 \*

Venus -83256-07-20 10:32 J -28687630.25 -28687630.06 -28687629.86 0.0540 0.0065

Mercury -83255-01-25 03:35 J -28687441.43 -28687441.35 -28687441.26 0.0537 0.0408

Mercury -83255-04-24 11:59 J -28687352.13 -28687352.00 -28687351.87 0.0535 0.0047

Mercury -83255-07-22 21:06 J -28687262.66 -28687262.62 -28687262.57 0.0532 0.0501

Earth -83254-03-29 14:37 J -28687013.11 -28687012.89 -28687012.67 0.0524 0.0156  
 Moon -83254-03-29 15:06 J -28687013.08 -28687012.87 -28687012.66 0.0524 0.0131 \*  
 Venus -83250-05-21 08:52 J -28685499.19 -28685499.13 -28685499.07 0.0487 0.0465  
 Mercury -83249-03-23 04:18 J -28685192.36 -28685192.32 -28685192.27 0.0491 0.0472  
 Mercury -83249-06-21 09:35 J -28685102.27 -28685102.10 -28685101.92 0.0492 0.0033  
 Mercury -83244-11-13 07:40 J -28683131.22 -28683131.18 -28683131.15 0.0538 0.0515  
 Mercury -83243-02-10 15:49 J -28683041.97 -28683041.84 -28683041.71 0.0536 0.0066  
 Mercury -83243-05-11 00:42 J -28682952.55 -28682952.47 -28682952.38 0.0533 0.0391  
 Earth -83242-04-03 07:40 J -28682625.30 -28682625.18 -28682625.05 0.0522 0.0427  
 Moon -83242-04-03 09:06 J -28682625.25 -28682625.12 -28682624.97 0.0522 0.0411 \*  
 Mars -83241-02-19 08:52 J -28682303.38 -28682303.13 -28682302.88 0.0509 0.0278  
 Mercury -83237-04-09 08:08 J -28680792.34 -28680792.16 -28680791.98 0.0492 0.0094  
 Mercury -83237-07-08 12:13 J -28680702.08 -28680701.99 -28680701.88 0.0494 0.0401  
 Mercury -83232-11-29 19:40 J -28678731.80 -28678731.68 -28678731.56 0.0536 0.0175  
 Mercury -83231-02-27 04:18 J -28678642.43 -28678642.32 -28678642.20 0.0533 0.0279  
 Venus -83226-05-23 19:11 J -28676730.90 -28676730.70 -28676730.50 0.0488 0.0168  
 Mercury -83225-01-27 05:59 J -28676482.41 -28676482.25 -28676482.09 0.0492 0.0223  
 Mercury -83225-04-26 10:47 J -28676392.20 -28676392.05 -28676391.90 0.0494 0.0276  
 Venus -83220-03-28 03:49 J -28674595.51 -28674595.34 -28674595.16 0.0539 0.0248  
 Mercury -83220-09-17 23:16 J -28674421.64 -28674421.53 -28674421.42 0.0536 0.0289  
 Mercury -83220-12-16 07:40 J -28674332.30 -28674332.18 -28674332.05 0.0534 0.0164  
 Venus -83214-01-26 19:11 J -28672464.88 -28672464.70 -28672464.51 0.0488 0.0237  
 Mercury -83214-11-15 04:18 J -28672172.44 -28672172.32 -28672172.19 0.0491 0.0348  
 Mercury -83213-02-13 09:20 J -28672082.28 -28672082.11 -28672081.94 0.0493 0.0153  
 Earth -83213-09-18 19:40 J -28671863.74 -28671863.68 -28671863.63 0.0499 0.0484  
 Venus -83209-11-30 17:59 J -28670329.92 -28670329.75 -28670329.59 0.0540 0.0293  
 Mercury -83208-07-07 01:54 J -28670111.50 -28670111.42 -28670111.34 0.0537 0.0412  
 Mercury -83208-10-04 10:18 J -28670022.20 -28670022.07 -28670021.94 0.0535 0.0038  
 Mercury -83207-01-01 19:25 J -28669932.74 -28669932.69 -28669932.65 0.0532 0.0495  
 Mercury -83202-09-03 02:37 J -28667862.43 -28667862.39 -28667862.34 0.0491 0.0471



Mercury -83202-12-02 08:08 J -28667772.34 -28667772.16 -28667771.98 0.0493 0.0032

Earth -83201-09-23 13:54 J -28667476.12 -28667475.92 -28667475.70 0.0501 0.0238

Moon -83201-09-23 15:49 J -28667476.06 -28667475.84 -28667475.61 0.0501 0.0215 \*

Mercury -83196-04-25 05:30 J -28665801.29 -28665801.27 -28665801.24 0.0537 0.0524

Mercury -83196-07-23 13:40 J -28665712.05 -28665711.93 -28665711.80 0.0536 0.0078

Mercury -83196-10-20 22:32 J -28665622.65 -28665622.56 -28665622.46 0.0533 0.0382

Moon -83195-03-19 05:16 J -28665473.43 -28665473.28 -28665473.13 0.0528 0.0398

Earth -83195-03-19 08:08 J -28665473.28 -28665473.16 -28665473.02 0.0528 0.0428 \*

Venus -83190-01-29 07:11 J -28663696.31 -28663696.20 -28663696.08 0.0488 0.0407

Mercury -83190-09-20 05:59 J -28663462.42 -28663462.25 -28663462.07 0.0492 0.0097

Mercury -83190-12-19 10:18 J -28663372.17 -28663372.07 -28663371.97 0.0494 0.0397

Moon -83189-09-28 03:49 J -28663088.58 -28663088.34 -28663088.11 0.0502 0.0033

Earth -83189-09-28 07:11 J -28663088.44 -28663088.20 -28663087.96 0.0502 0.0010 \*

Mars -83188-10-18 11:59 J -28662703.24 -28662703.00 -28662702.75 0.0517 0.0127

Venus -83185-12-03 16:32 J -28661560.84 -28661560.81 -28661560.78 0.0539 0.0531

Mercury -83184-05-11 17:30 J -28661401.89 -28661401.77 -28661401.64 0.0536 0.0185

Mercury -83184-08-09 02:23 J -28661312.51 -28661312.40 -28661312.29 0.0534 0.0271

Earth -83183-03-24 03:20 J -28661085.58 -28661085.36 -28661085.14 0.0526 0.0147

Moon -83183-03-24 04:04 J -28661085.54 -28661085.33 -28661085.12 0.0526 0.0140 \*

Venus -83179-10-04 06:56 J -28659430.42 -28659430.21 -28659430.00 0.0488 0.0006

Mercury -83178-07-09 04:18 J -28659152.48 -28659152.32 -28659152.16 0.0492 0.0221

Mercury -83178-10-07 08:52 J -28659062.27 -28659062.13 -28659061.98 0.0494 0.0276

Earth -83177-10-03 03:20 J -28658700.56 -28658700.36 -28658700.16 0.0504 0.0267

Moon -83177-10-03 07:25 J -28658700.40 -28658700.19 -28658699.98 0.0504 0.0249 \*

Venus -83173-08-08 11:16 J -28657295.23 -28657295.03 -28657294.83 0.0540 0.0020

Mercury -83172-02-27 21:35 J -28657091.71 -28657091.60 -28657091.49 0.0536 0.0292

Mercury -83172-05-28 06:13 J -28657002.37 -28657002.24 -28657002.12 0.0534 0.0162

Earth -83171-03-28 20:37 J -28656697.86 -28656697.64 -28656697.42 0.0524 0.0129

Moon -83171-03-28 21:49 J -28656697.82 -28656697.59 -28656697.36 0.0524 0.0099 \*

Venus -83167-06-09 05:59 J -28655164.36 -28655164.25 -28655164.14 0.0487 0.0408

Mercury -83166-04-27 02:08 J -28654842.53 -28654842.41 -28654842.28 0.0491 0.0350  
 Mercury -83166-07-26 07:11 J -28654752.36 -28654752.20 -28654752.03 0.0493 0.0151  
 Moon -83165-10-07 20:23 J -28654312.69 -28654312.65 -28654312.61 0.0507 0.0498  
 Venus -83161-04-13 04:18 J -28653029.38 -28653029.32 -28653029.24 0.0540 0.0501  
 Mercury -83161-12-17 01:11 J -28652781.53 -28652781.45 -28652781.36 0.0537 0.0403  
 Mercury -83160-03-16 09:35 J -28652692.23 -28652692.10 -28652691.97 0.0535 0.0048  
 Mercury -83160-06-13 18:28 J -28652602.76 -28652602.73 -28652602.68 0.0532 0.0504  
 Moon -83159-04-02 08:52 J -28652310.27 -28652310.13 -28652309.97 0.0522 0.0381  
 Earth -83159-04-02 11:30 J -28652310.16 -28652310.02 -28652309.87 0.0522 0.0394 \*  
 Mercury -83154-02-13 00:28 J -28650532.52 -28650532.48 -28650532.43 0.0491 0.0474  
 Mercury -83154-05-14 05:59 J -28650442.43 -28650442.25 -28650442.07 0.0493 0.0029  
 Mercury -83149-10-05 04:04 J -28648471.35 -28648471.33 -28648471.31 0.0537 0.0526  
 Mercury -83148-01-02 12:13 J -28648382.12 -28648381.99 -28648381.86 0.0535 0.0078  
 Mercury -83148-04-01 21:06 J -28648292.71 -28648292.62 -28648292.53 0.0533 0.0378  
 Venus -83143-06-11 18:56 J -28646395.89 -28646395.71 -28646395.53 0.0488 0.0239  
 Mercury -83142-03-02 04:32 J -28646132.48 -28646132.31 -28646132.13 0.0492 0.0094  
 Mercury -83142-05-31 08:52 J -28646042.23 -28646042.13 -28646042.02 0.0494 0.0402  
 Venus -83137-04-15 23:01 J -28644260.70 -28644260.54 -28644260.38 0.0539 0.0300  
 Mercury -83137-10-21 15:35 J -28644071.97 -28644071.85 -28644071.72 0.0536 0.0192  
 Mercury -83136-01-19 00:28 J -28643982.60 -28643982.48 -28643982.37 0.0534 0.0264  
 Venus -83131-02-14 18:13 J -28642129.93 -28642129.74 -28642129.54 0.0487 0.0168  
 Mercury -83131-12-19 02:37 J -28641822.55 -28641822.39 -28641822.23 0.0491 0.0221  
 Mercury -83130-03-19 07:11 J -28641732.34 -28641732.20 -28641732.05 0.0493 0.0276  
 Venus -83126-12-20 17:01 J -28639994.97 -28639994.79 -28639994.61 0.0540 0.0216  
 Mercury -83125-08-09 19:40 J -28639761.79 -28639761.68 -28639761.58 0.0537 0.0300  
 Mercury -83125-11-07 04:04 J -28639672.45 -28639672.33 -28639672.20 0.0535 0.0156  
 Mars -83123-08-07 04:18 J -28639034.55 -28639034.32 -28639034.07 0.0512 0.0305  
 Mercury -83119-10-07 00:42 J -28637512.59 -28637512.47 -28637512.34 0.0491 0.0346  
 Mercury -83118-01-05 05:44 J -28637422.42 -28637422.26 -28637422.09 0.0493 0.0155  
 Moon -83118-09-23 13:40 J -28637161.14 -28637160.93 -28637160.73 0.0500 0.0240

Earth -83118-09-23 16:47 J -28637161.00 -28637160.80 -28637160.60 0.0500 0.0265 \*  
 Mercury -83113-05-28 23:44 J -28635451.60 -28635451.51 -28635451.43 0.0537 0.0405  
 Mercury -83113-08-26 08:08 J -28635362.29 -28635362.16 -28635362.03 0.0535 0.0047  
 Mercury -83113-11-23 17:01 J -28635272.83 -28635272.79 -28635272.74 0.0532 0.0503  
 Earth -83112-03-18 15:49 J -28635157.95 -28635157.84 -28635157.71 0.0529 0.0449  
 Moon -83112-03-18 17:16 J -28635157.91 -28635157.78 -28635157.65 0.0529 0.0420 \*  
 Venus -83107-02-17 05:16 J -28633361.33 -28633361.28 -28633361.22 0.0488 0.0470  
 Mercury -83107-07-25 22:47 J -28633202.60 -28633202.55 -28633202.51 0.0491 0.0474  
 Mercury -83107-10-24 04:04 J -28633112.51 -28633112.33 -28633112.15 0.0493 0.0028  
 Earth -83106-09-28 11:44 J -28632773.25 -28632773.01 -28632772.77 0.0502 0.0013  
 Moon -83106-09-28 15:49 J -28632773.08 -28632772.84 -28632772.60 0.0502 0.0010 \*  
 Mercury -83101-03-17 03:20 J -28631141.39 -28631141.36 -28631141.32 0.0537 0.0515  
 Mercury -83101-06-14 11:44 J -28631052.14 -28631052.01 -28631051.88 0.0535 0.0067  
 Mercury -83101-09-11 20:23 J -28630962.73 -28630962.65 -28630962.56 0.0533 0.0390  
 Earth -83100-03-23 09:20 J -28630770.33 -28630770.11 -28630769.90 0.0527 0.0174  
 Moon -83100-03-23 10:18 J -28630770.29 -28630770.07 -28630769.85 0.0527 0.0175 \*  
 Venus -83096-10-23 05:44 J -28629095.47 -28629095.26 -28629095.05 0.0488 0.0067  
 Mercury -83095-08-12 02:52 J -28628802.56 -28628802.38 -28628802.20 0.0492 0.0093  
 Mercury -83095-11-10 07:11 J -28628712.30 -28628712.20 -28628712.10 0.0494 0.0402  
 Moon -83094-10-03 04:18 J -28628385.53 -28628385.32 -28628385.10 0.0504 0.0227  
 Earth -83094-10-03 08:23 J -28628385.36 -28628385.15 -28628384.94 0.0504 0.0247 \*  
 Venus -83090-08-28 07:40 J -28626960.37 -28626960.18 -28626959.98 0.0540 0.0082  
 Mercury -83089-04-02 14:23 J -28626742.02 -28626741.90 -28626741.78 0.0536 0.0191  
 Mercury -83089-06-30 23:01 J -28626652.65 -28626652.54 -28626652.43 0.0534 0.0264  
 Moon -83088-03-27 18:42 J -28626382.93 -28626382.72 -28626382.50 0.0525 0.0058  
 Earth -83088-03-27 21:20 J -28626382.84 -28626382.61 -28626382.39 0.0525 0.0091 \*  
 Venus -83084-06-28 06:28 J -28624829.37 -28624829.23 -28624829.07 0.0487 0.0332  
 Mercury -83083-05-31 01:25 J -28624492.60 -28624492.44 -28624492.27 0.0492 0.0214  
 Mercury -83083-08-29 06:13 J -28624402.38 -28624402.24 -28624402.10 0.0493 0.0284  
 Earth -83082-10-08 04:47 J -28623997.31 -28623997.30 -28623997.28 0.0506 0.0504

Moon -83082-10-08 07:11 J -28623997.26 -28623997.20 -28623997.13 0.0506 0.0485  
 Venus -83078-05-03 00:13 J -28622694.59 -28622694.49 -28622694.37 0.0540 0.0443  
 Mercury -83077-01-20 17:44 J -28622431.86 -28622431.76 -28622431.65 0.0537 0.0305  
 Mercury -83077-04-19 02:23 J -28622342.53 -28622342.40 -28622342.27 0.0534 0.0150  
 Earth -83076-04-01 13:25 J -28621995.10 -28621994.94 -28621994.77 0.0523 0.0359  
 Moon -83076-04-01 17:01 J -28621994.96 -28621994.79 -28621994.62 0.0523 0.0349 \*  
 Mercury -83071-03-18 23:16 J -28620182.65 -28620182.53 -28620182.39 0.0491 0.0342  
 Mercury -83071-06-17 04:18 J -28620092.48 -28620092.32 -28620092.15 0.0493 0.0158  
 Mercury -83066-11-08 21:49 J -28618121.67 -28618121.59 -28618121.51 0.0537 0.0412  
 Mercury -83065-02-06 06:13 J -28618032.37 -28618032.24 -28618032.11 0.0535 0.0040  
 Mercury -83065-05-05 15:20 J -28617942.91 -28617942.86 -28617942.82 0.0533 0.0498  
 Venus -83060-06-30 18:13 J -28616060.90 -28616060.74 -28616060.58 0.0488 0.0309  
 Mercury -83059-01-04 21:35 J -28615872.65 -28615872.60 -28615872.55 0.0491 0.0466  
 Mercury -83059-04-05 02:52 J -28615782.56 -28615782.38 -28615782.20 0.0492 0.0036  
 Venus -83054-05-06 01:25 J -28613925.58 -28613925.44 -28613925.31 0.0540 0.0395  
 Mercury -83054-08-28 01:54 J -28613811.45 -28613811.42 -28613811.39 0.0538 0.0516  
 Mercury -83054-11-25 10:04 J -28613722.20 -28613722.08 -28613721.95 0.0536 0.0070  
 Mercury -83053-02-22 18:56 J -28613632.79 -28613632.71 -28613632.62 0.0533 0.0390  
 Venus -83048-03-05 17:16 J -28611794.98 -28611794.78 -28611794.57 0.0487 0.0100  
 Mercury -83047-01-22 01:11 J -28611472.63 -28611472.45 -28611472.27 0.0492 0.0091  
 Mercury -83047-04-22 05:30 J -28611382.37 -28611382.27 -28611382.17 0.0494 0.0404  
 Venus -83042-01-08 19:25 J -28609659.88 -28609659.69 -28609659.50 0.0540 0.0120  
 Mercury -83042-09-13 13:54 J -28609412.04 -28609411.92 -28609411.80 0.0536 0.0177  
 Mercury -83042-12-11 22:32 J -28609322.67 -28609322.56 -28609322.45 0.0534 0.0278  
 Mercury -83036-11-09 23:59 J -28607162.66 -28607162.50 -28607162.34 0.0492 0.0212  
 Mercury -83035-02-08 04:32 J -28607072.45 -28607072.31 -28607072.16 0.0494 0.0286  
 Earth -83035-09-23 00:13 J -28606845.69 -28606845.49 -28606845.29 0.0500 0.0278  
 Moon -83035-09-23 04:04 J -28606845.53 -28606845.33 -28606845.11 0.0500 0.0247 \*  
 Mars -83033-01-12 16:47 J -28606369.04 -28606368.80 -28606368.55 0.0517 0.0105  
 Mercury -83030-07-02 16:32 J -28605101.91 -28605101.81 -28605101.70 0.0536 0.0302

Mercury -83030-09-30 01:11 J -28605012.58 -28605012.45 -28605012.32 0.0534 0.0152

Earth -83029-03-17 17:16 J -28604842.87 -28604842.78 -28604842.70 0.0529 0.0487

Moon -83029-03-17 17:44 J -28604842.87 -28604842.76 -28604842.64 0.0529 0.0457 \*

Mercury -83024-08-28 22:32 J -28602852.69 -28602852.56 -28602852.42 0.0491 0.0333

Mercury -83024-11-27 03:35 J -28602762.51 -28602762.35 -28602762.18 0.0493 0.0168

Moon -83023-09-27 15:49 J -28602458.08 -28602457.84 -28602457.59 0.0501 0.0011

Earth -83023-09-27 19:54 J -28602457.91 -28602457.67 -28602457.42 0.0501 0.0028 \*

Mercury -83018-04-20 20:08 J -28600791.74 -28600791.66 -28600791.57 0.0537 0.0414

Mercury -83018-07-19 04:32 J -28600702.44 -28600702.31 -28600702.18 0.0535 0.0039

Mercury -83018-10-16 13:40 J -28600612.98 -28600612.93 -28600612.88 0.0533 0.0495

Moon -83017-03-22 08:23 J -28600455.35 -28600455.15 -28600454.95 0.0528 0.0219

Earth -83017-03-22 10:47 J -28600455.26 -28600455.05 -28600454.84 0.0528 0.0212 \*

Venus -83013-11-11 06:28 J -28598760.43 -28598760.23 -28598760.02 0.0488 0.0146

Mercury -83012-06-16 20:23 J -28598542.70 -28598542.65 -28598542.59 0.0491 0.0460

Mercury -83012-09-15 01:54 J -28598452.60 -28598452.42 -28598452.24 0.0492 0.0042

Earth -83011-10-02 13:11 J -28598070.16 -28598069.95 -28598069.73 0.0503 0.0223

Moon -83011-10-02 16:18 J -28598070.04 -28598069.82 -28598069.61 0.0503 0.0200 \*

Venus -83007-09-16 08:08 J -28596625.35 -28596625.16 -28596624.97 0.0540 0.0166

Mercury -83006-02-07 00:13 J -28596481.52 -28596481.49 -28596481.46 0.0538 0.0521

Mercury -83006-05-07 08:23 J -28596392.28 -28596392.15 -28596392.02 0.0536 0.0072

Mercury -83006-08-04 17:16 J -28596302.87 -28596302.78 -28596302.69 0.0534 0.0385

Earth -83005-03-27 05:44 J -28596067.48 -28596067.26 -28596067.03 0.0526 0.0068

Moon -83005-03-27 09:20 J -28596067.34 -28596067.11 -28596066.88 0.0526 0.0035 \*

Venus -83001-07-17 06:42 J -28594494.39 -28594494.22 -28594494.04 0.0487 0.0257

# 83RD MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 83rd millennium BCE.**

PLANET	MAX-	C	START	MAX	END	SUNRAD	DEPTH	S
	TRANSIT							
	TIME							
Mercury	-83000-07-04 00:13 J	-28594142.66	-28594142.49	-28594142.31	0.0492	0.0082		
Mercury	-83000-10-02 04:32 J	-28594052.40	-28594052.31	-28594052.21	0.0494	0.0412		
Moon	-82999-10-07 08:37 J	-28593682.22	-28593682.14	-28593682.03	0.0505	0.0463		
Earth	-82999-10-07 09:35 J	-28593682.17	-28593682.10	-28593682.02	0.0505	0.0478	*	
Venus	-82995-05-22 03:06 J	-28592359.52	-28592359.37	-28592359.22	0.0540	0.0345		
Mercury	-82994-02-23 12:28 J	-28592082.10	-28592081.98	-28592081.86	0.0536	0.0178		
Mercury	-82994-05-23 21:06 J	-28591992.73	-28591992.62	-28591992.50	0.0534	0.0279		
Moon	-82993-03-31 20:52 J	-28591679.80	-28591679.63	-28591679.46	0.0523	0.0339		
Earth	-82993-04-01 00:42 J	-28591679.64	-28591679.47	-28591679.30	0.0523	0.0344	*	
Mercury	-82988-04-21 22:18 J	-28589832.73	-28589832.57	-28589832.40	0.0492	0.0209		
Mercury	-82988-07-21 03:06 J	-28589742.51	-28589742.37	-28589742.22	0.0493	0.0289		
Mercury	-82983-12-12 16:18 J	-28587771.93	-28587771.82	-28587771.71	0.0537	0.0286		
Mercury	-82982-03-12 00:56 J	-28587682.59	-28587682.46	-28587682.34	0.0534	0.0168		
Venus	-82977-07-19 18:56 J	-28585725.83	-28585725.71	-28585725.58	0.0488	0.0386		
Mercury	-82976-02-07 21:20 J	-28585522.75	-28585522.61	-28585522.48	0.0491	0.0329		
Mercury	-82976-05-09 02:23 J	-28585432.57	-28585432.40	-28585432.24	0.0493	0.0172		
Venus	-82971-05-24 23:59 J	-28583590.60	-28583590.50	-28583590.41	0.0539	0.0468		
Mercury	-82971-09-30 19:11 J	-28583461.78	-28583461.70	-28583461.62	0.0537	0.0408		
Mercury	-82971-12-29 03:35 J	-28583372.48	-28583372.35	-28583372.22	0.0535	0.0044		
Mercury	-82970-03-28 12:28 J	-28583283.02	-28583282.98	-28583282.93	0.0532	0.0499		
Mars	-82969-10-31 05:30 J	-28582700.57	-28582700.27	-28582699.98	0.0512	0.0040		
Venus	-82965-03-24 19:40 J	-28581459.89	-28581459.68	-28581459.47	0.0488	0.0015		
Mercury	-82965-11-26 19:54 J	-28581212.74	-28581212.67	-28581212.60	0.0491	0.0449		
Mercury	-82964-02-25 01:11 J	-28581122.63	-28581122.45	-28581122.27	0.0493	0.0053		

Venus -82959-01-27 17:01 J -28579324.99 -28579324.79 -28579324.60 0.0540 0.0053  
 Mercury -82959-07-19 22:47 J -28579151.58 -28579151.55 -28579151.52 0.0537 0.0520  
 Mercury -82959-10-17 06:56 J -28579062.34 -28579062.21 -28579062.08 0.0536 0.0072  
 Mercury -82958-01-14 15:49 J -28578972.93 -28578972.84 -28578972.75 0.0533 0.0384  
 Venus -82954-11-28 19:25 J -28577193.78 -28577193.69 -28577193.57 0.0487 0.0419  
 Mercury -82953-12-13 23:16 J -28576812.70 -28576812.53 -28576812.35 0.0492 0.0074  
 Mercury -82952-03-14 03:35 J -28576722.44 -28576722.35 -28576722.26 0.0494 0.0420  
 Moon -82952-09-22 03:06 J -28576530.57 -28576530.37 -28576530.16 0.0499 0.0265  
 Earth -82952-09-22 07:25 J -28576530.38 -28576530.19 -28576529.99 0.0499 0.0295 \*  
 Mercury -82947-08-05 10:47 J -28574752.17 -28574752.05 -28574751.93 0.0536 0.0181  
 Mercury -82947-11-02 19:25 J -28574662.80 -28574662.69 -28574662.57 0.0534 0.0275  
 Moon -82946-03-17 23:30 J -28574527.61 -28574527.52 -28574527.43 0.0530 0.0483  
 Earth -82946-03-18 01:40 J -28574527.48 -28574527.43 -28574527.37 0.0530 0.0509 \*  
 Mercury -82941-10-01 21:35 J -28572502.76 -28572502.60 -28572502.43 0.0491 0.0198  
 Mercury -82941-12-31 02:23 J -28572412.54 -28572412.40 -28572412.26 0.0493 0.0299  
 Earth -82940-09-27 02:08 J -28572142.65 -28572142.41 -28572142.18 0.0501 0.0048  
 Moon -82940-09-27 05:16 J -28572142.52 -28572142.28 -28572142.05 0.0501 0.0036 \*  
 Mercury -82935-05-24 14:52 J -28570441.99 -28570441.88 -28570441.77 0.0537 0.0287  
 Mercury -82935-08-21 23:30 J -28570352.65 -28570352.52 -28570352.40 0.0535 0.0168  
 Earth -82934-03-22 22:32 J -28570139.77 -28570139.56 -28570139.36 0.0528 0.0224  
 Moon -82934-03-23 01:54 J -28570139.62 -28570139.42 -28570139.21 0.0528 0.0236 \*  
 Venus -82930-12-01 07:11 J -28568425.39 -28568425.20 -28568425.01 0.0488 0.0221  
 Mercury -82929-07-20 19:40 J -28568192.81 -28568192.68 -28568192.54 0.0491 0.0324  
 Mercury -82929-10-19 00:56 J -28568102.63 -28568102.46 -28568102.30 0.0493 0.0176  
 Moon -82928-10-01 20:23 J -28567754.88 -28567754.65 -28567754.41 0.0503 0.0179  
 Earth -82928-10-01 21:49 J -28567754.81 -28567754.59 -28567754.37 0.0503 0.0207 \*  
 Venus -82924-10-05 11:59 J -28566290.17 -28566290.00 -28566289.83 0.0540 0.0271  
 Mercury -82923-03-12 18:56 J -28566131.80 -28566131.71 -28566131.63 0.0537 0.0394  
 Mercury -82923-06-10 03:20 J -28566042.49 -28566042.36 -28566042.23 0.0535 0.0060  
 Mercury -82923-09-07 12:13 J -28565953.02 -28565952.99 -28565952.96 0.0533 0.0515

Moon -82922-03-27 12:56 J -28565752.19 -28565751.96 -28565751.73 0.0526 0.0018  
 Earth -82922-03-27 16:47 J -28565752.03 -28565751.80 -28565751.58 0.0526 0.0052 \*  
 Venus -82918-08-06 07:54 J -28564159.36 -28564159.17 -28564158.97 0.0488 0.0179  
 Mercury -82917-05-08 18:28 J -28563882.80 -28563882.73 -28563882.65 0.0491 0.0444  
 Mercury -82917-08-06 23:59 J -28563792.68 -28563792.50 -28563792.32 0.0493 0.0058  
 Moon -82916-10-06 18:42 J -28563366.81 -28563366.72 -28563366.63 0.0505 0.0462  
 Earth -82916-10-06 19:54 J -28563366.75 -28563366.67 -28563366.58 0.0505 0.0467 \*  
 Mars -82915-07-04 21:35 J -28563095.80 -28563095.60 -28563095.39 0.0515 0.0299  
 Venus -82912-06-10 03:06 J -28562024.54 -28562024.37 -28562024.20 0.0540 0.0262  
 Mercury -82912-12-29 21:49 J -28561821.62 -28561821.59 -28561821.55 0.0537 0.0513  
 Mercury -82911-03-29 05:59 J -28561732.38 -28561732.25 -28561732.12 0.0535 0.0065  
 Mercury -82911-06-26 14:52 J -28561642.97 -28561642.88 -28561642.79 0.0533 0.0390  
 Earth -82910-04-01 04:04 J -28561364.50 -28561364.33 -28561364.14 0.0524 0.0310  
 Moon -82910-04-01 07:25 J -28561364.37 -28561364.19 -28561364.01 0.0524 0.0317 \*  
 Mercury -82905-05-25 22:47 J -28559482.73 -28559482.55 -28559482.37 0.0492 0.0062  
 Mercury -82905-08-24 03:06 J -28559392.45 -28559392.37 -28559392.28 0.0494 0.0433  
 Mercury -82899-01-15 09:35 J -28557422.23 -28557422.10 -28557421.98 0.0536 0.0180  
 Mercury -82899-04-14 18:13 J -28557332.86 -28557332.74 -28557332.63 0.0534 0.0276  
 Venus -82894-08-08 20:37 J -28555390.70 -28555390.64 -28555390.58 0.0488 0.0467  
 Mercury -82893-03-13 20:52 J -28555172.80 -28555172.63 -28555172.46 0.0491 0.0189  
 Mercury -82893-06-12 01:25 J -28555082.57 -28555082.44 -28555082.30 0.0493 0.0308  
 Mercury -82888-11-03 13:11 J -28553112.05 -28553111.95 -28553111.84 0.0537 0.0290  
 Mercury -82887-01-31 21:49 J -28553022.71 -28553022.59 -28553022.47 0.0535 0.0165  
 Venus -82882-04-13 20:37 J -28551124.85 -28551124.64 -28551124.43 0.0488 0.0064  
 Mercury -82882-12-31 19:11 J -28550862.84 -28550862.70 -28550862.56 0.0491 0.0313  
 Mercury -82881-03-31 00:13 J -28550772.66 -28550772.49 -28550772.33 0.0493 0.0186  
 Mars -82879-04-08 00:56 J -28550034.65 -28550034.46 -28550034.26 0.0517 0.0335  
 Venus -82876-02-15 19:54 J -28548989.86 -28548989.67 -28548989.47 0.0540 0.0048  
 Mercury -82876-08-22 17:30 J -28548801.86 -28548801.77 -28548801.69 0.0537 0.0394  
 Mercury -82876-11-20 01:54 J -28548712.55 -28548712.42 -28548712.29 0.0535 0.0059



Mercury -82875-02-17 10:47 J -28548623.07 -28548623.05 -28548623.01 0.0533 0.0516

Venus -82871-12-17 20:23 J -28546858.79 -28546858.65 -28546858.50 0.0487 0.0341

Mercury -82870-10-19 17:01 J -28546552.86 -28546552.79 -28546552.71 0.0491 0.0440

Mercury -82869-01-17 22:32 J -28546462.74 -28546462.56 -28546462.38 0.0492 0.0062

Earth -82869-09-21 15:49 J -28546215.03 -28546214.84 -28546214.65 0.0499 0.0309

Moon -82869-09-21 19:11 J -28546214.89 -28546214.70 -28546214.50 0.0499 0.0279 \*

Venus -82865-10-21 14:23 J -28544723.99 -28544723.90 -28544723.80 0.0540 0.0465

Mercury -82864-06-10 21:35 J -28544491.65 -28544491.60 -28544491.56 0.0538 0.0500

Mercury -82864-09-08 05:44 J -28544402.39 -28544402.26 -28544402.13 0.0536 0.0051

Mercury -82864-12-06 14:23 J -28544312.98 -28544312.90 -28544312.81 0.0533 0.0407

Earth -82863-03-17 12:56 J -28544211.99 -28544211.96 -28544211.92 0.0530 0.0523

Moon -82863-03-17 16:32 J -28544211.89 -28544211.81 -28544211.73 0.0530 0.0495

Mercury -82858-11-05 21:35 J -28542152.78 -28542152.60 -28542152.42 0.0492 0.0056

Mercury -82857-02-04 01:54 J -28542062.50 -28542062.42 -28542062.34 0.0494 0.0438

Moon -82857-09-26 11:16 J -28541827.27 -28541827.03 -28541826.78 0.0501 0.0056

Earth -82857-09-26 12:56 J -28541827.20 -28541826.96 -28541826.72 0.0501 0.0056 \*

Mercury -82852-06-27 08:37 J -28540092.26 -28540092.14 -28540092.02 0.0536 0.0172

Mercury -82852-09-24 17:16 J -28540002.89 -28540002.78 -28540002.67 0.0534 0.0282

Moon -82851-03-21 22:32 J -28539824.75 -28539824.56 -28539824.37 0.0528 0.0273

Earth -82851-03-22 02:23 J -28539824.60 -28539824.40 -28539824.20 0.0528 0.0258 \*

Venus -82847-12-20 09:35 J -28538090.26 -28538090.10 -28538089.93 0.0488 0.0308

Mercury -82846-08-24 20:08 J -28537842.82 -28537842.66 -28537842.49 0.0492 0.0177

Mercury -82846-11-23 00:56 J -28537752.59 -28537752.46 -28537752.32 0.0494 0.0321

Moon -82845-10-01 08:23 J -28537439.36 -28537439.15 -28537438.93 0.0502 0.0169

Earth -82845-10-01 09:20 J -28537439.32 -28537439.11 -28537438.88 0.0502 0.0198 \*

Venus -82841-10-24 10:32 J -28535955.21 -28535955.06 -28535954.91 0.0539 0.0344

Mercury -82840-04-15 11:59 J -28535782.10 -28535782.00 -28535781.89 0.0536 0.0286

Mercury -82840-07-13 20:37 J -28535692.77 -28535692.64 -28535692.52 0.0534 0.0167

Earth -82839-03-26 18:56 J -28535436.94 -28535436.71 -28535436.48 0.0526 0.0014

Moon -82839-03-26 22:18 J -28535436.79 -28535436.57 -28535436.35 0.0526 0.0014 \*

Venus -82835-08-25 09:20 J -28533824.31 -28533824.11 -28533823.90 0.0488 0.0099

Mercury -82834-06-12 18:13 J -28533532.88 -28533532.74 -28533532.60 0.0491 0.0304

Mercury -82834-09-10 23:16 J -28533442.69 -28533442.53 -28533442.37 0.0493 0.0195

Earth -82833-10-06 02:52 J -28533051.49 -28533051.38 -28533051.27 0.0504 0.0446

Moon -82833-10-06 05:30 J -28533051.38 -28533051.27 -28533051.15 0.0504 0.0444 \*

Venus -82829-06-29 03:35 J -28531689.53 -28531689.35 -28531689.16 0.0540 0.0178

Mercury -82828-02-01 15:49 J -28531471.93 -28531471.84 -28531471.75 0.0537 0.0397

Mercury -82828-05-02 00:13 J -28531382.62 -28531382.49 -28531382.36 0.0535 0.0056

Mercury -82828-07-30 09:06 J -28531293.15 -28531293.12 -28531293.08 0.0533 0.0513

Moon -82827-03-31 11:16 J -28531049.21 -28531049.03 -28531048.83 0.0525 0.0303

Earth -82827-03-31 13:25 J -28531049.13 -28531048.94 -28531048.75 0.0525 0.0289 \*

Mercury -82822-03-31 16:32 J -28529222.90 -28529222.81 -28529222.73 0.0491 0.0429

Mercury -82822-06-29 21:49 J -28529132.77 -28529132.59 -28529132.41 0.0492 0.0072

Mercury -82817-11-20 19:54 J -28527161.71 -28527161.67 -28527161.62 0.0538 0.0502

Mercury -82816-02-18 04:18 J -28527072.45 -28527072.32 -28527072.19 0.0536 0.0055

Mercury -82816-05-18 12:56 J -28526983.04 -28526982.96 -28526982.87 0.0533 0.0405

Mars -82814-01-26 04:04 J -28526365.58 -28526365.33 -28526365.08 0.0511 0.0278

Mercury -82810-04-17 20:08 J -28524822.84 -28524822.66 -28524822.48 0.0492 0.0053

Mercury -82810-07-17 00:28 J -28524732.56 -28524732.48 -28524732.40 0.0494 0.0441

Mercury -82805-12-07 08:08 J -28522762.28 -28522762.16 -28522762.04 0.0536 0.0159

Mercury -82804-03-06 16:47 J -28522672.91 -28522672.80 -28522672.69 0.0534 0.0296

Venus -82799-05-02 22:04 J -28520789.78 -28520789.58 -28520789.38 0.0488 0.0144

Mercury -82798-02-03 18:56 J -28520512.88 -28520512.71 -28520512.54 0.0492 0.0172

Mercury -82798-05-04 23:44 J -28520422.64 -28520422.51 -28520422.38 0.0494 0.0326

Venus -82793-03-06 20:37 J -28518654.83 -28518654.64 -28518654.45 0.0539 0.0135

Mercury -82793-09-25 11:01 J -28518452.14 -28518452.04 -28518451.92 0.0536 0.0280

Mercury -82793-12-23 19:40 J -28518362.81 -28518362.68 -28518362.56 0.0534 0.0174

Venus -82787-01-05 22:04 J -28516523.76 -28516523.58 -28516523.40 0.0488 0.0260

Mercury -82787-11-22 17:30 J -28516202.92 -28516202.77 -28516202.63 0.0491 0.0294

Mercury -82786-02-20 22:32 J -28516112.72 -28516112.56 -28516112.40 0.0493 0.0206

Moon -82786-09-22 01:40 J -28515899.63 -28515899.43 -28515899.22 0.0499 0.0289  
 Earth -82786-09-22 03:35 J -28515899.53 -28515899.35 -28515899.16 0.0499 0.0318 \*  
 Venus -82782-11-10 13:40 J -28514389.07 -28514388.93 -28514388.80 0.0539 0.0388  
 Mercury -82781-07-14 14:37 J -28514141.97 -28514141.89 -28514141.80 0.0537 0.0392  
 Mercury -82781-10-11 23:01 J -28514052.67 -28514052.54 -28514052.41 0.0535 0.0059  
 Mercury -82780-01-09 07:54 J -28513963.20 -28513963.17 -28513963.14 0.0532 0.0514  
 Mercury -82775-09-10 15:20 J -28511892.95 -28511892.86 -28511892.77 0.0491 0.0422  
 Mercury -82775-12-09 20:52 J -28511802.81 -28511802.63 -28511802.46 0.0492 0.0080  
 Moon -82774-09-26 19:25 J -28511511.92 -28511511.69 -28511511.46 0.0500 0.0083  
 Earth -82774-09-26 19:54 J -28511511.90 -28511511.67 -28511511.43 0.0500 0.0074 \*  
 Mercury -82769-05-02 18:13 J -28509831.78 -28509831.74 -28509831.69 0.0537 0.0505  
 Mercury -82769-07-31 02:37 J -28509742.52 -28509742.39 -28509742.26 0.0536 0.0057  
 Mercury -82769-10-28 11:16 J -28509653.11 -28509653.03 -28509652.94 0.0533 0.0401  
 Earth -82768-03-21 09:35 J -28509509.29 -28509509.10 -28509508.91 0.0529 0.0282  
 Moon -82768-03-21 12:56 J -28509509.13 -28509508.96 -28509508.77 0.0529 0.0303 \*  
 Venus -82763-01-08 10:18 J -28507755.20 -28507755.07 -28507754.94 0.0488 0.0382  
 Mercury -82763-09-27 19:11 J -28507492.88 -28507492.70 -28507492.52 0.0492 0.0044  
 Mercury -82763-12-26 23:30 J -28507402.59 -28507402.52 -28507402.45 0.0494 0.0449  
 Earth -82762-10-01 14:23 J -28507124.12 -28507123.90 -28507123.67 0.0502 0.0175  
 Moon -82762-10-01 17:01 J -28507124.03 -28507123.79 -28507123.55 0.0502 0.0144 \*  
 Mars -82761-09-28 05:30 J -28506761.53 -28506761.27 -28506761.02 0.0515 0.0071  
 Venus -82758-11-13 12:13 J -28505620.10 -28505619.99 -28505619.87 0.0539 0.0437  
 Mercury -82757-05-19 06:28 J -28505432.35 -28505432.23 -28505432.10 0.0536 0.0163  
 Mercury -82757-08-16 15:06 J -28505342.97 -28505342.87 -28505342.76 0.0534 0.0294  
 Moon -82756-03-26 03:35 J -28505121.58 -28505121.35 -28505121.11 0.0527 0.0025  
 Earth -82756-03-26 05:44 J -28505121.49 -28505121.26 -28505121.03 0.0527 0.0001 \*  
 Venus -82752-09-13 09:35 J -28503489.31 -28503489.10 -28503488.89 0.0488 0.0024  
 Mercury -82751-07-16 17:16 J -28503182.95 -28503182.78 -28503182.61 0.0492 0.0170  
 Mercury -82751-10-14 22:04 J -28503092.71 -28503092.58 -28503092.45 0.0493 0.0327  
 Moon -82750-10-06 06:28 J -28502736.35 -28502736.23 -28502736.11 0.0504 0.0428

Earth -82750-10-06 10:04 J -28502736.21 -28502736.08 -28502735.96 0.0504 0.0426 \*  
 Venus -82746-07-19 07:11 J -28501354.40 -28501354.20 -28501354.01 0.0540 0.0075  
 Mercury -82745-03-07 10:32 J -28501122.17 -28501122.06 -28501121.95 0.0537 0.0269  
 Mercury -82745-06-04 18:56 J -28501032.83 -28501032.71 -28501032.58 0.0534 0.0185  
 Earth -82744-03-30 23:59 J -28500733.69 -28500733.50 -28500733.30 0.0525 0.0271  
 Moon -82744-03-31 00:13 J -28500733.67 -28500733.49 -28500733.31 0.0525 0.0295 \*  
 Venus -82740-05-19 10:32 J -28499223.16 -28499223.06 -28499222.96 0.0487 0.0423  
 Mercury -82739-05-04 16:04 J -28498872.98 -28498872.83 -28498872.69 0.0491 0.0291  
 Mercury -82739-08-02 21:06 J -28498782.78 -28498782.62 -28498782.46 0.0493 0.0210  
 Mercury -82734-12-25 13:40 J -28496812.02 -28496811.93 -28496811.84 0.0536 0.0387  
 Mercury -82733-03-23 21:49 J -28496722.71 -28496722.59 -28496722.46 0.0534 0.0066  
 Mercury -82733-06-21 06:42 J -28496633.24 -28496633.22 -28496633.19 0.0532 0.0519  
 Mercury -82727-02-20 14:08 J -28494563.00 -28494562.91 -28494562.81 0.0491 0.0415  
 Mercury -82727-05-21 19:40 J -28494472.85 -28494472.68 -28494472.50 0.0493 0.0089  
 Mercury -82722-10-13 17:16 J -28492501.83 -28492501.78 -28492501.74 0.0537 0.0500  
 Mercury -82721-01-11 01:11 J -28492412.57 -28492412.45 -28492412.32 0.0535 0.0055  
 Mercury -82721-04-09 10:04 J -28492323.17 -28492323.08 -28492323.00 0.0533 0.0403  
 Venus -82716-05-21 22:04 J -28490454.77 -28490454.58 -28490454.39 0.0488 0.0216  
 Mercury -82715-03-09 17:59 J -28490162.93 -28490162.75 -28490162.58 0.0492 0.0041  
 Mercury -82715-06-07 22:04 J -28490072.64 -28490072.58 -28490072.51 0.0494 0.0455  
 Venus -82710-03-26 19:40 J -28488319.86 -28488319.68 -28488319.49 0.0539 0.0210  
 Mercury -82710-10-30 04:47 J -28488102.42 -28488102.30 -28488102.18 0.0536 0.0166  
 Mercury -82709-01-27 13:25 J -28488013.05 -28488012.94 -28488012.83 0.0534 0.0288  
 Venus -82704-01-24 22:04 J -28486188.78 -28486188.58 -28486188.39 0.0488 0.0188  
 Mercury -82704-12-26 16:04 J -28485853.00 -28485852.83 -28485852.66 0.0492 0.0164  
 Mercury -82703-03-26 20:52 J -28485762.76 -28485762.63 -28485762.50 0.0493 0.0333  
 Moon -82703-09-21 07:54 J -28485584.35 -28485584.17 -28485583.99 0.0498 0.0316  
 Earth -82703-09-21 07:54 J -28485584.34 -28485584.17 -28485583.99 0.0498 0.0339 \*  
 Venus -82699-11-29 13:54 J -28484054.08 -28484053.92 -28484053.75 0.0540 0.0305  
 Mercury -82698-08-18 08:37 J -28483792.25 -28483792.14 -28483792.02 0.0537 0.0275

Mercury -82698-11-15 17:16 J -28483702.90 -28483702.78 -28483702.66 0.0535 0.0180

Mars -82696-07-14 09:35 J -28483096.34 -28483096.10 -28483095.85 0.0513 0.0289

Mercury -82692-10-14 14:08 J -28481543.06 -28481542.91 -28481542.77 0.0491 0.0291

Mercury -82691-01-12 19:11 J -28481452.86 -28481452.70 -28481452.54 0.0493 0.0208

Earth -82691-09-26 01:25 J -28481196.67 -28481196.44 -28481196.20 0.0500 0.0095

Moon -82691-09-26 03:49 J -28481196.58 -28481196.34 -28481196.10 0.0500 0.0111 \*

Mercury -82686-06-06 12:42 J -28479482.06 -28479481.97 -28479481.88 0.0537 0.0381

Mercury -82686-09-03 21:06 J -28479392.75 -28479392.62 -28479392.49 0.0535 0.0071

Mercury -82686-12-02 05:59 J -28479303.26 -28479303.25 -28479303.23 0.0533 0.0528

Moon -82685-03-20 16:47 J -28479193.98 -28479193.80 -28479193.61 0.0529 0.0327

Earth -82685-03-20 19:11 J -28479193.88 -28479193.70 -28479193.51 0.0529 0.0301 \*

Venus -82680-01-27 10:04 J -28477420.15 -28477420.08 -28477420.00 0.0488 0.0455

Mercury -82680-08-02 12:28 J -28477233.07 -28477232.98 -28477232.88 0.0491 0.0413

Mercury -82680-10-31 17:59 J -28477142.92 -28477142.75 -28477142.57 0.0493 0.0090

Moon -82679-09-30 18:56 J -28476808.93 -28476808.71 -28476808.48 0.0502 0.0127

Earth -82679-09-30 22:32 J -28476808.79 -28476808.56 -28476808.33 0.0502 0.0157 \*

Venus -82675-12-02 12:42 J -28475285.01 -28475284.97 -28475284.92 0.0538 0.0519

Mercury -82674-03-25 16:04 J -28475171.87 -28475171.83 -28475171.78 0.0537 0.0496

Mercury -82674-06-23 00:13 J -28475082.62 -28475082.49 -28475082.36 0.0535 0.0049

Mercury -82674-09-20 08:52 J -28474993.21 -28474993.13 -28474993.04 0.0533 0.0406

Earth -82673-03-25 08:52 J -28474806.35 -28474806.13 -28474805.90 0.0527 0.0037

Moon -82673-03-25 09:20 J -28474806.33 -28474806.11 -28474805.89 0.0527 0.0053 \*

Venus -82669-10-02 09:20 J -28473154.32 -28473154.11 -28473153.90 0.0488 0.0048

Mercury -82668-08-19 16:32 J -28472832.99 -28472832.81 -28472832.63 0.0492 0.0035

Mercury -82668-11-17 20:52 J -28472742.68 -28472742.63 -28472742.56 0.0494 0.0461

Earth -82667-10-05 18:28 J -28472420.86 -28472420.73 -28472420.59 0.0504 0.0410

Moon -82667-10-05 22:32 J -28472420.69 -28472420.56 -28472420.43 0.0504 0.0420 \*

Venus -82663-08-07 05:30 J -28471019.46 -28471019.27 -28471019.07 0.0539 0.0008

Mercury -82662-04-11 03:35 J -28470772.47 -28470772.35 -28470772.23 0.0535 0.0163

Mercury -82662-07-09 11:59 J -28470683.10 -28470683.00 -28470682.89 0.0533 0.0291

Earth -82661-03-30 00:13 J -28470418.69 -28470418.49 -28470418.28 0.0525 0.0229  
 Moon -82661-03-30 01:25 J -28470418.64 -28470418.44 -28470418.23 0.0525 0.0254 \*  
 Mars -82660-04-20 21:06 J -28470031.63 -28470031.62 -28470031.59 0.0511 0.0509  
 Venus -82657-06-07 09:06 J -28468888.26 -28468888.12 -28468887.98 0.0488 0.0359  
 Mercury -82656-06-07 14:23 J -28468523.07 -28468522.90 -28468522.73 0.0492 0.0163  
 Mercury -82656-09-05 19:11 J -28468432.82 -28468432.70 -28468432.57 0.0494 0.0335  
 Venus -82651-04-11 21:06 J -28466753.64 -28466753.62 -28466753.59 0.0540 0.0532  
 Mercury -82650-01-28 06:56 J -28466462.32 -28466462.21 -28466462.10 0.0536 0.0279  
 Mercury -82650-04-27 15:20 J -28466372.98 -28466372.86 -28466372.73 0.0534 0.0174  
 Moon -82649-04-03 14:08 J -28466030.92 -28466030.91 -28466030.88 0.0524 0.0521  
 Earth -82649-04-03 16:32 J -28466030.87 -28466030.81 -28466030.73 0.0524 0.0496  
 Mercury -82644-03-26 12:42 J -28464213.12 -28464212.97 -28464212.83 0.0491 0.0288  
 Mercury -82644-06-24 17:44 J -28464122.92 -28464122.76 -28464122.60 0.0493 0.0212  
 Mars -82642-03-21 02:08 J -28463488.47 -28463488.41 -28463488.33 0.0513 0.0491  
 Mercury -82639-11-16 10:47 J -28462152.13 -28462152.05 -28462151.96 0.0537 0.0388  
 Mercury -82638-02-13 19:11 J -28462062.83 -28462062.70 -28462062.57 0.0535 0.0064  
 Mercury -82638-05-14 04:04 J -28461973.35 -28461973.33 -28461973.30 0.0533 0.0521  
 Venus -82633-06-09 20:37 J -28460119.81 -28460119.64 -28460119.47 0.0488 0.0281  
 Mercury -82632-01-12 10:18 J -28459903.16 -28459903.07 -28459902.97 0.0491 0.0417  
 Mercury -82632-04-12 15:49 J -28459813.01 -28459812.84 -28459812.66 0.0492 0.0086  
 Venus -82627-04-14 21:20 J -28457984.77 -28457984.61 -28457984.45 0.0539 0.0301  
 Mercury -82627-09-04 14:52 J -28457841.93 -28457841.88 -28457841.83 0.0537 0.0494  
 Mercury -82627-12-02 23:01 J -28457752.67 -28457752.54 -28457752.41 0.0536 0.0045  
 Mercury -82626-03-02 07:54 J -28457663.26 -28457663.17 -28457663.09 0.0533 0.0411  
 Venus -82621-02-13 20:52 J -28455853.84 -28455853.63 -28455853.43 0.0488 0.0121  
 Mercury -82620-01-29 14:37 J -28455503.07 -28455502.89 -28455502.71 0.0492 0.0035  
 Mercury -82620-04-29 18:56 J -28455412.77 -28455412.71 -28455412.64 0.0494 0.0460  
 Earth -82620-09-20 13:25 J -28455269.09 -28455268.94 -28455268.76 0.0498 0.0359  
 Moon -82620-09-20 15:35 J -28455269.03 -28455268.85 -28455268.66 0.0498 0.0337 \*  
 Venus -82616-12-18 14:37 J -28453719.07 -28453718.89 -28453718.71 0.0539 0.0220

Mercury -82615-09-21 02:23 J -28453442.53 -28453442.40 -28453442.28 0.0535 0.0162

Mercury -82615-12-19 10:47 J -28453353.16 -28453353.05 -28453352.94 0.0533 0.0292

Mercury -82609-11-17 12:42 J -28451193.14 -28451192.97 -28451192.80 0.0492 0.0162

Mercury -82608-02-15 17:30 J -28451102.89 -28451102.77 -28451102.64 0.0494 0.0338

Moon -82608-09-25 04:47 J -28450881.52 -28450881.30 -28450881.07 0.0500 0.0134

Earth -82608-09-25 08:08 J -28450881.39 -28450881.16 -28450880.92 0.0500 0.0114 \*

Mars -82607-12-23 12:56 J -28450427.20 -28450426.96 -28450426.72 0.0516 0.0159

Mercury -82603-07-10 05:44 J -28449132.37 -28449132.26 -28449132.15 0.0536 0.0277

Mercury -82603-10-07 14:08 J -28449043.04 -28449042.91 -28449042.79 0.0534 0.0175

Earth -82602-03-20 18:28 J -28448878.89 -28448878.73 -28448878.55 0.0529 0.0344

Moon -82602-03-20 19:25 J -28448878.84 -28448878.69 -28448878.54 0.0529 0.0374 \*

Mercury -82597-09-05 10:32 J -28446883.20 -28446883.06 -28446882.91 0.0491 0.0290

Mercury -82597-12-04 15:49 J -28446793.00 -28446792.84 -28446792.68 0.0493 0.0211

Earth -82596-09-30 00:42 J -28446493.71 -28446493.47 -28446493.24 0.0501 0.0131

Moon -82596-09-30 04:32 J -28446493.55 -28446493.31 -28446493.07 0.0501 0.0104 \*

Mercury -82591-04-28 08:52 J -28444822.21 -28444822.13 -28444822.04 0.0537 0.0395

Mercury -82591-07-26 17:16 J -28444732.91 -28444732.78 -28444732.65 0.0535 0.0057

Mercury -82591-10-24 02:08 J -28444643.44 -28444643.41 -28444643.38 0.0533 0.0513

Earth -82590-03-25 11:01 J -28444491.26 -28444491.04 -28444490.81 0.0528 0.0073

Moon -82590-03-25 12:13 J -28444491.22 -28444490.99 -28444490.76 0.0528 0.0084 \*

Venus -82586-10-22 07:25 J -28442819.39 -28442819.19 -28442818.98 0.0488 0.0110

Mercury -82585-06-24 08:37 J -28442573.23 -28442573.14 -28442573.04 0.0491 0.0416

Mercury -82585-09-22 14:08 J -28442483.09 -28442482.91 -28442482.73 0.0492 0.0086

Moon -82584-10-04 15:06 J -28442106.02 -28442105.87 -28442105.71 0.0503 0.0390

Earth -82584-10-04 18:42 J -28442105.87 -28442105.72 -28442105.55 0.0503 0.0377 \*

Venus -82580-08-26 03:20 J -28440684.56 -28440684.36 -28440684.17 0.0540 0.0065

Mercury -82579-02-14 12:42 J -28440512.01 -28440511.97 -28440511.92 0.0537 0.0503

Mercury -82579-05-14 20:52 J -28440422.75 -28440422.63 -28440422.50 0.0536 0.0057

Mercury -82579-08-12 05:44 J -28440333.35 -28440333.26 -28440333.17 0.0533 0.0402

Moon -82578-03-30 03:20 J -28440103.56 -28440103.36 -28440103.16 0.0526 0.0230

Earth -82578-03-30 05:30 J -28440103.47 -28440103.27 -28440103.05 0.0526 0.0202 \*  
 Venus -82574-06-27 06:56 J -28438553.38 -28438553.21 -28438553.04 0.0488 0.0297  
 Mercury -82573-07-11 12:13 J -28438173.17 -28438172.99 -28438172.81 0.0492 0.0042  
 Mercury -82573-10-09 16:32 J -28438082.87 -28438082.81 -28438082.74 0.0494 0.0453  
 Venus -82568-04-30 21:35 J -28436418.71 -28436418.60 -28436418.49 0.0540 0.0449  
 Mercury -82567-03-03 00:56 J -28436112.59 -28436112.46 -28436112.34 0.0536 0.0163  
 Mercury -82567-05-31 09:20 J -28436023.21 -28436023.11 -28436023.00 0.0534 0.0293  
 Earth -82566-04-03 23:16 J -28435715.62 -28435715.53 -28435715.43 0.0524 0.0469  
 Moon -82566-04-04 02:52 J -28435715.46 -28435715.38 -28435715.30 0.0524 0.0485 \*  
 Mercury -82561-04-29 10:32 J -28433863.23 -28433863.06 -28433862.89 0.0492 0.0164  
 Mercury -82561-07-28 15:20 J -28433772.98 -28433772.86 -28433772.72 0.0494 0.0335  
 Mercury -82556-12-20 04:18 J -28431802.43 -28431802.32 -28431802.21 0.0536 0.0277  
 Mercury -82555-03-19 12:42 J -28431713.10 -28431712.97 -28431712.85 0.0534 0.0175  
 Venus -82550-06-29 17:44 J -28429784.90 -28429784.76 -28429784.60 0.0489 0.0340  
 Mercury -82549-02-16 08:23 J -28429553.29 -28429553.15 -28429553.00 0.0492 0.0293  
 Mercury -82549-05-16 13:54 J -28429463.08 -28429462.92 -28429462.76 0.0493 0.0210  
 Venus -82544-05-03 18:56 J -28427649.85 -28427649.71 -28427649.57 0.0539 0.0366  
 Mercury -82544-10-08 07:40 J -28427492.26 -28427492.18 -28427492.09 0.0536 0.0391  
 Mercury -82543-01-05 15:49 J -28427402.97 -28427402.84 -28427402.71 0.0534 0.0061  
 Mercury -82543-04-05 00:42 J -28427313.50 -28427313.47 -28427313.44 0.0532 0.0513  
 Mars -82542-10-07 16:32 J -28426763.10 -28426762.81 -28426762.52 0.0513 0.0086  
 Venus -82538-03-04 17:16 J -28425518.99 -28425518.78 -28425518.57 0.0488 0.0069  
 Mercury -82538-12-05 06:13 J -28425243.33 -28425243.24 -28425243.14 0.0491 0.0422  
 Mercury -82537-03-04 11:59 J -28425153.18 -28425153.00 -28425152.82 0.0493 0.0082  
 Moon -82537-09-19 11:44 J -28424954.17 -28424954.01 -28424953.85 0.0497 0.0365  
 Earth -82537-09-19 14:37 J -28424954.03 -28424953.89 -28424953.73 0.0497 0.0384 \*  
 Venus -82532-01-06 10:04 J -28423384.27 -28423384.08 -28423383.89 0.0539 0.0167  
 Mercury -82532-07-27 10:47 J -28423182.08 -28423182.05 -28423182.01 0.0537 0.0510  
 Mercury -82532-10-24 18:56 J -28423092.84 -28423092.71 -28423092.58 0.0535 0.0063  
 Mercury -82531-01-22 03:49 J -28423003.43 -28423003.34 -28423003.26 0.0533 0.0393



Venus -82527-11-07 17:30 J -28421252.82 -28421252.77 -28421252.72 0.0488 0.0471

Mercury -82526-12-22 10:04 J -28420843.25 -28420843.08 -28420842.90 0.0492 0.0045

Mercury -82525-03-21 14:37 J -28420752.96 -28420752.89 -28420752.82 0.0494 0.0452

Earth -82525-09-24 07:40 J -28420566.41 -28420566.18 -28420565.94 0.0499 0.0144

Moon -82525-09-24 11:44 J -28420566.24 -28420566.01 -28420565.78 0.0499 0.0165 \*

Mercury -82520-08-12 22:47 J -28418782.68 -28418782.55 -28418782.43 0.0536 0.0174

Mercury -82520-11-10 07:11 J -28418693.31 -28418693.20 -28418693.09 0.0534 0.0281

Earth -82519-03-19 20:52 J -28418563.79 -28418563.63 -28418563.47 0.0530 0.0377

Moon -82519-03-19 21:35 J -28418563.74 -28418563.60 -28418563.45 0.0530 0.0409 \*

Mercury -82514-10-10 07:54 J -28416533.33 -28416533.17 -28416533.00 0.0492 0.0172

Mercury -82513-01-08 12:42 J -28416443.09 -28416442.97 -28416442.83 0.0493 0.0327

Moon -82513-09-28 20:52 J -28416178.87 -28416178.63 -28416178.39 0.0501 0.0072

Earth -82513-09-29 00:42 J -28416178.71 -28416178.47 -28416178.24 0.0501 0.0098 \*

Mercury -82508-06-01 02:37 J -28414472.50 -28414472.39 -28414472.28 0.0537 0.0281

Mercury -82508-08-29 11:01 J -28414383.16 -28414383.04 -28414382.92 0.0534 0.0172

Moon -82507-03-24 14:08 J -28414176.12 -28414175.91 -28414175.69 0.0528 0.0111

Earth -82507-03-24 16:18 J -28414176.04 -28414175.82 -28414175.59 0.0528 0.0101 \*

Venus -82503-11-10 04:18 J -28412484.51 -28412484.32 -28412484.11 0.0488 0.0168

Mercury -82502-07-29 06:13 J -28412223.38 -28412223.24 -28412223.09 0.0491 0.0296

Mercury -82502-10-27 11:30 J -28412133.18 -28412133.02 -28412132.86 0.0493 0.0205

Earth -82501-10-03 20:37 J -28411790.81 -28411790.64 -28411790.46 0.0503 0.0346

Moon -82501-10-03 23:01 J -28411790.69 -28411790.54 -28411790.38 0.0503 0.0369 \*

Venus -82497-09-14 02:52 J -28410349.57 -28410349.38 -28410349.19 0.0539 0.0142

Mercury -82496-03-20 06:13 J -28410162.33 -28410162.24 -28410162.15 0.0536 0.0393

Mercury -82496-06-17 14:23 J -28410073.03 -28410072.90 -28410072.77 0.0534 0.0056

Mercury -82496-09-14 23:16 J -28409983.56 -28409983.53 -28409983.50 0.0532 0.0511

Earth -82495-03-29 07:25 J -28409788.41 -28409788.19 -28409787.98 0.0526 0.0164

Moon -82495-03-29 10:32 J -28409788.27 -28409788.06 -28409787.84 0.0526 0.0196 \*

Venus -82491-07-16 02:52 J -28408218.56 -28408218.38 -28408218.20 0.0488 0.0247

Mercury -82490-05-17 03:49 J -28407913.42 -28407913.34 -28407913.25 0.0491 0.0427

Mercury -82490-08-15 09:35 J -28407823.27 -28407823.10 -28407822.92 0.0493 0.0078

Mars -82488-06-13 23:01 J -28407154.74 -28407154.54 -28407154.32 0.0514 0.0294

Venus -82485-05-19 19:25 J -28406083.83 -28406083.69 -28406083.55 0.0539 0.0382

Mercury -82484-01-06 09:49 J -28405852.13 -28405852.09 -28405852.06 0.0537 0.0507

Mercury -82484-04-05 17:44 J -28405762.89 -28405762.76 -28405762.63 0.0535 0.0060

Mercury -82484-07-04 02:23 J -28405673.49 -28405673.40 -28405673.31 0.0533 0.0394

Moon -82483-04-02 18:13 J -28405400.86 -28405400.74 -28405400.61 0.0524 0.0435

Earth -82483-04-02 22:04 J -28405400.71 -28405400.58 -28405400.45 0.0524 0.0424 \*

Mercury -82478-06-03 07:40 J -28403513.36 -28403513.18 -28403513.00 0.0492 0.0050

Mercury -82478-09-01 12:13 J -28403423.06 -28403422.99 -28403422.91 0.0494 0.0446

Mercury -82472-01-22 20:37 J -28401452.76 -28401452.64 -28401452.52 0.0536 0.0182

Mercury -82472-04-22 05:16 J -28401363.39 -28401363.28 -28401363.17 0.0534 0.0272

Venus -82467-07-18 15:06 J -28399450.00 -28399449.87 -28399449.75 0.0488 0.0396

Mercury -82466-03-22 05:44 J -28399203.42 -28399203.26 -28399203.09 0.0492 0.0176

Mercury -82466-06-20 10:47 J -28399113.18 -28399113.05 -28399112.92 0.0493 0.0323

Venus -82461-05-22 14:08 J -28397315.03 -28397314.91 -28397314.78 0.0539 0.0418

Mercury -82461-11-11 00:13 J -28397142.59 -28397142.49 -28397142.38 0.0537 0.0294

Mercury -82460-02-08 08:37 J -28397053.26 -28397053.14 -28397053.01 0.0535 0.0160

Venus -82455-03-23 13:54 J -28395184.13 -28395183.92 -28395183.71 0.0488 0.0015

Mercury -82454-01-08 03:35 J -28394893.49 -28394893.35 -28394893.21 0.0491 0.0305

Mercury -82454-04-08 08:52 J -28394803.30 -28394803.13 -28394802.97 0.0493 0.0196

Earth -82454-09-19 14:08 J -28394639.04 -28394638.91 -28394638.78 0.0497 0.0415

Moon -82454-09-19 17:59 J -28394638.89 -28394638.75 -28394638.60 0.0497 0.0397 \*

Mars -82452-03-17 19:11 J -28394093.90 -28394093.70 -28394093.50 0.0516 0.0316

Venus -82449-01-26 08:37 J -28393049.34 -28393049.14 -28393048.95 0.0540 0.0095

Mercury -82449-08-30 04:18 J -28392832.41 -28392832.32 -28392832.24 0.0537 0.0401

Mercury -82449-11-27 12:28 J -28392743.11 -28392742.98 -28392742.85 0.0535 0.0050

Mercury -82448-02-24 21:20 J -28392653.65 -28392653.61 -28392653.57 0.0533 0.0506

Venus -82444-11-26 13:54 J -28390918.03 -28390917.92 -28390917.81 0.0488 0.0416

Mercury -82443-10-27 01:40 J -28390583.52 -28390583.43 -28390583.34 0.0491 0.0430

Mercury -82442-01-25 07:11 J -28390493.37 -28390493.20 -28390493.02 0.0492 0.0074

Moon -82442-09-24 04:18 J -28390251.53 -28390251.32 -28390251.09 0.0499 0.0199

Earth -82442-09-24 08:23 J -28390251.37 -28390251.15 -28390250.92 0.0499 0.0175 \*

Mercury -82437-06-18 08:08 J -28388522.20 -28388522.16 -28388522.13 0.0537 0.0511

Mercury -82437-09-15 16:04 J -28388432.96 -28388432.83 -28388432.70 0.0535 0.0064

Mercury -82437-12-14 00:42 J -28388343.56 -28388343.47 -28388343.38 0.0533 0.0391

Moon -82436-03-18 21:20 J -28388248.72 -28388248.61 -28388248.49 0.0530 0.0446

Earth -82436-03-18 23:16 J -28388248.67 -28388248.53 -28388248.39 0.0530 0.0410 \*

Mercury -82431-11-13 05:16 J -28386183.46 -28386183.28 -28386183.10 0.0492 0.0057

Mercury -82430-02-11 09:49 J -28386093.16 -28386093.09 -28386093.01 0.0494 0.0441

Earth -82430-09-29 02:08 J -28385863.65 -28385863.41 -28385863.17 0.0501 0.0070

Moon -82430-09-29 04:47 J -28385863.53 -28385863.30 -28385863.06 0.0501 0.0055 \*

Mercury -82425-07-04 19:25 J -28384122.81 -28384122.69 -28384122.57 0.0535 0.0179

Mercury -82425-10-02 03:49 J -28384033.45 -28384033.34 -28384033.22 0.0533 0.0274

Earth -82424-03-23 15:20 J -28383861.07 -28383860.86 -28383860.64 0.0528 0.0143

Moon -82424-03-23 18:28 J -28383860.95 -28383860.73 -28383860.50 0.0528 0.0146 \*

Venus -82420-11-28 23:59 J -28382149.69 -28382149.50 -28382149.31 0.0488 0.0214

Mercury -82419-09-01 03:20 J -28381873.53 -28381873.36 -28381873.20 0.0492 0.0184

Mercury -82419-11-30 08:08 J -28381783.29 -28381783.16 -28381783.02 0.0494 0.0316

Moon -82418-10-03 18:28 J -28381475.91 -28381475.73 -28381475.55 0.0502 0.0339

Earth -82418-10-03 19:40 J -28381475.87 -28381475.68 -28381475.50 0.0502 0.0315 \*

Venus -82414-10-03 20:52 J -28380014.81 -28380014.63 -28380014.44 0.0539 0.0186

Mercury -82413-04-22 22:18 J -28379812.67 -28379812.57 -28379812.46 0.0536 0.0302

Mercury -82413-07-21 06:42 J -28379723.35 -28379723.22 -28379723.09 0.0534 0.0150

Moon -82412-03-28 01:54 J -28379473.64 -28379473.42 -28379473.21 0.0527 0.0152

Earth -82412-03-28 05:30 J -28379473.49 -28379473.27 -28379473.05 0.0527 0.0121 \*

Venus -82408-08-04 00:13 J -28377883.68 -28377883.49 -28377883.30 0.0488 0.0189

Mercury -82407-06-20 01:25 J -28377563.58 -28377563.44 -28377563.30 0.0491 0.0308

Mercury -82407-09-18 06:42 J -28377473.38 -28377473.22 -28377473.05 0.0493 0.0193

Venus -82402-06-08 13:40 J -28375749.08 -28375748.93 -28375748.77 0.0540 0.0336

Mercury -82401-02-10 01:54 J -28375502.50 -28375502.42 -28375502.33 0.0537 0.0414

Mercury -82401-05-09 10:18 J -28375413.20 -28375413.07 -28375412.94 0.0535 0.0040

Mercury -82401-08-06 19:11 J -28375323.75 -28375323.70 -28375323.66 0.0533 0.0493

Earth -82400-04-01 22:32 J -28375085.71 -28375085.56 -28375085.41 0.0525 0.0388

Moon -82400-04-02 01:40 J -28375085.57 -28375085.43 -28375085.28 0.0525 0.0393 \*

Mercury -82395-04-07 22:47 J -28373253.62 -28373253.55 -28373253.46 0.0491 0.0439

Mercury -82395-07-07 04:32 J -28373163.48 -28373163.31 -28373163.13 0.0492 0.0066

Mercury -82390-11-29 05:59 J -28371192.28 -28371192.25 -28371192.22 0.0538 0.0521

Mercury -82389-02-26 14:08 J -28371103.04 -28371102.91 -28371102.79 0.0536 0.0074

Mercury -82389-05-25 22:47 J -28371013.64 -28371013.55 -28371013.46 0.0533 0.0383

Mars -82388-12-31 06:42 J -28370429.51 -28370429.22 -28370428.94 0.0513 0.0147

Venus -82384-08-06 11:01 J -28369115.11 -28369115.04 -28369114.95 0.0488 0.0449

Mercury -82383-04-25 02:52 J -28368853.56 -28368853.38 -28368853.20 0.0492 0.0060

Mercury -82383-07-24 07:40 J -28368763.26 -28368763.18 -28368763.10 0.0494 0.0436

Venus -82378-06-11 13:40 J -28366980.00 -28366979.93 -28366979.85 0.0539 0.0493

Mercury -82378-12-15 17:44 J -28366792.88 -28366792.76 -28366792.64 0.0536 0.0183

Mercury -82377-03-14 02:08 J -28366703.52 -28366703.41 -28366703.29 0.0534 0.0271

Venus -82372-04-11 09:35 J -28364849.31 -28364849.10 -28364848.89 0.0488 0.0036

Mercury -82371-02-11 00:42 J -28364543.64 -28364543.47 -28364543.30 0.0492 0.0190

Mercury -82371-05-12 05:44 J -28364453.39 -28364453.26 -28364453.12 0.0494 0.0310

Moon -82371-09-18 11:16 J -28364324.15 -28364324.03 -28364323.91 0.0497 0.0426

Earth -82371-09-18 15:20 J -28364323.97 -28364323.86 -28364323.75 0.0497 0.0441 \*

Venus -82366-02-14 06:42 J -28362714.42 -28362714.22 -28362714.02 0.0539 0.0027

Mercury -82366-10-03 21:20 J -28362482.72 -28362482.61 -28362482.50 0.0536 0.0297

Mercury -82365-01-01 05:30 J -28362393.39 -28362393.27 -28362393.14 0.0534 0.0155

Venus -82361-12-15 09:20 J -28360583.24 -28360583.11 -28360582.97 0.0488 0.0370

Mercury -82360-11-29 22:47 J -28360233.69 -28360233.55 -28360233.41 0.0491 0.0317

Mercury -82359-02-28 04:18 J -28360143.49 -28360143.32 -28360143.16 0.0493 0.0186

Earth -82359-09-23 08:08 J -28359936.38 -28359936.16 -28359935.94 0.0498 0.0201

Moon -82359-09-23 11:30 J -28359936.23 -28359936.02 -28359935.81 0.0498 0.0227 \*

Mercury -82354-07-23 00:13 J -28358172.57 -28358172.49 -28358172.41 0.0537 0.0420

Mercury -82354-10-20 08:23 J -28358083.28 -28358083.15 -28358083.02 0.0535 0.0032

Mercury -82353-01-17 17:01 J -28357993.84 -28357993.79 -28357993.73 0.0533 0.0485

Earth -82353-03-17 19:40 J -28357933.79 -28357933.68 -28357933.56 0.0531 0.0457

Moon -82353-03-17 22:32 J -28357933.64 -28357933.56 -28357933.46 0.0531 0.0489 \*

Mercury -82348-09-17 20:52 J -28355923.70 -28355923.63 -28355923.55 0.0491 0.0441

Mercury -82348-12-17 02:37 J -28355833.57 -28355833.39 -28355833.21 0.0492 0.0063

Moon -82347-09-28 00:13 J -28355548.74 -28355548.49 -28355548.24 0.0499 0.0027

Earth -82347-09-28 01:54 J -28355548.66 -28355548.42 -28355548.18 0.0499 0.0040 \*

Mercury -82342-05-11 03:35 J -28353862.36 -28353862.35 -28353862.33 0.0537 0.0533

Mercury -82342-08-08 11:44 J -28353773.14 -28353773.01 -28353772.88 0.0536 0.0085

Mercury -82342-11-05 20:23 J -28353683.74 -28353683.65 -28353683.55 0.0534 0.0371

Moon -82341-03-22 10:32 J -28353546.27 -28353546.06 -28353545.85 0.0530 0.0186

Earth -82341-03-22 14:08 J -28353546.12 -28353545.91 -28353545.70 0.0529 0.0185 \*

Venus -82337-12-17 21:06 J -28351814.79 -28351814.62 -28351814.44 0.0488 0.0272

Mercury -82336-10-05 00:28 J -28351523.66 -28351523.48 -28351523.30 0.0492 0.0066

Mercury -82335-01-03 05:01 J -28351433.37 -28351433.29 -28351433.20 0.0494 0.0429

Earth -82335-10-02 18:13 J -28351160.93 -28351160.74 -28351160.53 0.0501 0.0279

Moon -82335-10-02 18:13 J -28351160.92 -28351160.74 -28351160.56 0.0501 0.0307 \*

Mars -82334-09-07 03:06 J -28350821.62 -28350821.37 -28350821.13 0.0513 0.0142

Venus -82331-10-22 18:56 J -28349679.88 -28349679.71 -28349679.54 0.0540 0.0255

Mercury -82330-05-27 15:35 J -28349462.97 -28349462.85 -28349462.73 0.0536 0.0194

Mercury -82330-08-25 00:13 J -28349373.61 -28349373.49 -28349373.38 0.0534 0.0261

Earth -82329-03-27 09:06 J -28349158.34 -28349158.12 -28349157.89 0.0528 0.0090

Moon -82329-03-27 12:28 J -28349158.19 -28349157.98 -28349157.76 0.0528 0.0123 \*

Venus -82325-08-22 20:52 J -28347548.83 -28347548.63 -28347548.43 0.0488 0.0133

Mercury -82324-07-23 22:32 J -28347213.72 -28347213.56 -28347213.39 0.0491 0.0192

Mercury -82324-10-22 03:35 J -28347123.48 -28347123.35 -28347123.21 0.0493 0.0308

Venus -82319-06-27 13:25 J -28345414.11 -28345413.94 -28345413.76 0.0540 0.0258

Mercury -82318-03-15 19:40 J -28345152.79 -28345152.68 -28345152.58 0.0536 0.0302

Mercury -82318-06-13 03:49 J -28345063.46 -28345063.34 -28345063.21 0.0534 0.0151

Moon -82317-04-01 00:13 J -28344770.66 -28344770.49 -28344770.32 0.0525 0.0356

Earth -82317-04-01 02:23 J -28344770.56 -28344770.40 -28344770.23 0.0525 0.0358 \*

Mercury -82312-05-11 20:23 J -28342903.79 -28342903.65 -28342903.52 0.0491 0.0323

Mercury -82312-08-10 01:40 J -28342813.59 -28342813.43 -28342813.26 0.0493 0.0181

Mercury -82306-01-01 23:16 J -28340842.61 -28340842.53 -28340842.45 0.0537 0.0414

Mercury -82306-04-01 07:25 J -28340753.32 -28340753.19 -28340753.06 0.0535 0.0039

Mercury -82306-06-29 16:04 J -28340663.88 -28340663.83 -28340663.78 0.0532 0.0490

Mercury -82300-02-27 18:28 J -28338593.80 -28338593.73 -28338593.66 0.0491 0.0448

Mercury -82300-05-29 00:13 J -28338503.67 -28338503.49 -28338503.31 0.0492 0.0056

Mars -82298-06-11 08:23 J -28337760.21 -28337760.15 -28337760.09 0.0516 0.0498

Mercury -82295-10-21 02:08 J -28336532.42 -28336532.41 -28336532.41 0.0537 0.0537

Mercury -82294-01-18 10:04 J -28336443.21 -28336443.08 -28336442.95 0.0536 0.0090

Mercury -82294-04-17 18:42 J -28336353.82 -28336353.72 -28336353.63 0.0533 0.0365

Venus -82289-04-30 07:54 J -28334514.37 -28334514.17 -28334513.96 0.0488 0.0100

Mercury -82288-03-16 22:47 J -28334193.73 -28334193.55 -28334193.37 0.0492 0.0067

Mercury -82288-06-15 03:20 J -28334103.44 -28334103.36 -28334103.27 0.0494 0.0430

Earth -82288-09-17 17:30 J -28334008.85 -28334008.77 -28334008.68 0.0496 0.0463

Moon -82288-09-17 21:06 J -28334008.71 -28334008.62 -28334008.53 0.0496 0.0455 \*

Venus -82283-03-05 00:56 J -28332379.66 -28332379.46 -28332379.27 0.0539 0.0022

Mercury -82283-11-06 13:40 J -28332133.05 -28332132.93 -28332132.81 0.0536 0.0204

Mercury -82282-02-03 22:04 J -28332043.70 -28332043.58 -28332043.47 0.0534 0.0251

Venus -82277-01-04 07:25 J -28330248.35 -28330248.19 -28330248.02 0.0488 0.0306

Mercury -82276-01-02 20:23 J -28329883.81 -28329883.65 -28329883.48 0.0491 0.0195

Mercury -82276-04-03 01:25 J -28329793.58 -28329793.44 -28329793.30 0.0493 0.0304

Moon -82276-09-22 06:42 J -28329621.42 -28329621.22 -28329621.00 0.0497 0.0260

Earth -82276-09-22 09:06 J -28329621.33 -28329621.12 -28329620.91 0.0497 0.0231 \*

Venus -82272-11-07 18:42 J -28328113.80 -28328113.72 -28328113.65 0.0540 0.0497

Mercury -82271-08-25 17:30 J -28327822.88 -28327822.77 -28327822.67 0.0537 0.0312

Mercury -82271-11-23 01:54 J -28327733.55 -28327733.42 -28327733.30 0.0535 0.0142

Moon -82270-03-17 20:08 J -28327618.70 -28327618.66 -28327618.62 0.0532 0.0522  
 Earth -82270-03-17 23:44 J -28327618.60 -28327618.51 -28327618.43 0.0532 0.0488  
 Mars -82269-06-17 23:44 J -28327160.64 -28327160.51 -28327160.36 0.0515 0.0453  
 Mercury -82265-10-21 18:28 J -28325573.86 -28325573.73 -28325573.59 0.0491 0.0321  
 Mercury -82264-01-19 23:59 J -28325483.67 -28325483.50 -28325483.33 0.0493 0.0181  
 Earth -82264-09-27 02:52 J -28325233.62 -28325233.38 -28325233.14 0.0499 0.0011  
 Moon -82264-09-27 02:52 J -28325233.61 -28325233.38 -28325233.14 0.0499 0.0010 \*  
 Mercury -82259-06-13 21:35 J -28323512.68 -28323512.60 -28323512.52 0.0537 0.0418  
 Mercury -82259-09-11 05:44 J -28323423.39 -28323423.26 -28323423.13 0.0535 0.0033  
 Mercury -82259-12-09 14:23 J -28323333.95 -28323333.90 -28323333.85 0.0533 0.0488  
 Earth -82258-03-22 19:25 J -28323230.89 -28323230.69 -28323230.47 0.0530 0.0211  
 Moon -82258-03-22 23:01 J -28323230.74 -28323230.54 -28323230.33 0.0530 0.0199 \*  
 Venus -82253-01-06 17:59 J -28321479.91 -28321479.75 -28321479.60 0.0488 0.0326  
 Mercury -82253-08-09 16:04 J -28321263.89 -28321263.83 -28321263.76 0.0491 0.0452  
 Mercury -82253-11-07 22:04 J -28321173.76 -28321173.58 -28321173.40 0.0492 0.0053  
 Earth -82252-10-01 20:52 J -28320845.83 -28320845.63 -28320845.42 0.0501 0.0254  
 Moon -82252-10-01 22:18 J -28320845.77 -28320845.57 -28320845.36 0.0501 0.0283 \*  
 Venus -82248-11-10 18:42 J -28319344.87 -28319344.72 -28319344.57 0.0539 0.0334  
 Mercury -82247-04-02 01:11 J -28319202.47 -28319202.45 -28319202.43 0.0537 0.0528  
 Mercury -82247-06-30 09:20 J -28319113.24 -28319113.11 -28319112.99 0.0535 0.0082  
 Mercury -82247-09-27 17:44 J -28319023.85 -28319023.76 -28319023.66 0.0533 0.0374  
 Moon -82246-03-27 10:18 J -28318843.30 -28318843.07 -28318842.84 0.0528 0.0090  
 Earth -82246-03-27 12:42 J -28318843.19 -28318842.97 -28318842.74 0.0528 0.0059 \*  
 Venus -82242-09-11 17:59 J -28317213.96 -28317213.75 -28317213.54 0.0488 0.0077  
 Mercury -82241-08-26 20:23 J -28316863.82 -28316863.65 -28316863.47 0.0492 0.0071  
 Mercury -82241-11-25 01:11 J -28316773.53 -28316773.45 -28316773.36 0.0494 0.0427  
 Earth -82240-10-06 16:04 J -28316457.83 -28316457.83 -28316457.82 0.0503 0.0502  
 Venus -82236-07-16 08:52 J -28315079.32 -28315079.13 -28315078.95 0.0539 0.0204  
 Mercury -82235-04-18 11:59 J -28314803.12 -28314803.00 -28314802.88 0.0536 0.0206  
 Mercury -82235-07-16 20:23 J -28314713.76 -28314713.65 -28314713.53 0.0534 0.0248

Earth -82234-04-01 01:11 J -28314455.62 -28314455.45 -28314455.26 0.0526 0.0317  
 Moon -82234-04-01 02:23 J -28314455.57 -28314455.40 -28314455.22 0.0526 0.0314 \*  
 Mars -82233-03-25 10:32 J -28314096.27 -28314096.06 -28314095.84 0.0513 0.0356  
 Venus -82230-05-17 18:42 J -28312947.76 -28312947.72 -28312947.67 0.0488 0.0474  
 Mercury -82229-06-14 18:56 J -28312553.87 -28312553.71 -28312553.54 0.0491 0.0192  
 Mercury -82229-09-12 23:59 J -28312463.63 -28312463.50 -28312463.36 0.0493 0.0307  
 Mercury -82223-02-04 15:35 J -28310492.95 -28310492.85 -28310492.75 0.0537 0.0319  
 Mercury -82223-05-04 23:44 J -28310403.63 -28310403.51 -28310403.38 0.0535 0.0134  
 Mercury -82217-04-02 16:47 J -28308243.94 -28308243.80 -28308243.66 0.0491 0.0321  
 Mercury -82217-07-01 22:04 J -28308153.74 -28308153.58 -28308153.41 0.0492 0.0180  
 Mercury -82212-11-23 19:25 J -28306182.76 -28306182.69 -28306182.61 0.0537 0.0427  
 Mercury -82211-02-21 03:35 J -28306093.48 -28306093.35 -28306093.22 0.0536 0.0026  
 Mercury -82211-05-21 12:28 J -28306004.03 -28306003.98 -28306003.93 0.0533 0.0480  
 Venus -82206-05-20 06:13 J -28304179.44 -28304179.24 -28304179.04 0.0488 0.0163  
 Mercury -82205-01-20 14:37 J -28303933.96 -28303933.89 -28303933.81 0.0490 0.0447  
 Mercury -82205-04-19 20:23 J -28303843.82 -28303843.65 -28303843.47 0.0492 0.0058  
 Moon -82205-09-16 17:44 J -28303693.80 -28303693.76 -28303693.71 0.0496 0.0486  
 Earth -82205-09-16 20:08 J -28303693.69 -28303693.66 -28303693.61 0.0496 0.0488  
 Venus -82200-03-24 01:54 J -28302044.61 -28302044.42 -28302044.23 0.0540 0.0106  
 Mercury -82200-09-11 23:44 J -28301872.53 -28301872.51 -28301872.50 0.0538 0.0532  
 Mercury -82200-12-10 07:40 J -28301783.31 -28301783.18 -28301783.05 0.0536 0.0084  
 Mercury -82199-03-09 16:18 J -28301693.91 -28301693.82 -28301693.73 0.0534 0.0371  
 Venus -82194-01-23 05:01 J -28299913.47 -28299913.29 -28299913.11 0.0488 0.0246  
 Mercury -82193-02-06 18:28 J -28299533.91 -28299533.73 -28299533.55 0.0492 0.0072  
 Mercury -82193-05-06 23:16 J -28299443.62 -28299443.53 -28299443.44 0.0494 0.0425  
 Earth -82193-09-21 12:42 J -28299306.17 -28299305.97 -28299305.76 0.0497 0.0252  
 Moon -82193-09-21 13:11 J -28299306.14 -28299305.95 -28299305.76 0.0497 0.0283 \*  
 Venus -82189-11-26 19:40 J -28297778.81 -28297778.68 -28297778.55 0.0540 0.0410  
 Mercury -82188-09-28 11:16 J -28297473.15 -28297473.03 -28297472.91 0.0536 0.0195  
 Mercury -82188-12-26 19:54 J -28297383.79 -28297383.67 -28297383.56 0.0534 0.0259



Earth -82187-03-17 05:16 J -28297303.34 -28297303.28 -28297303.22 0.0532 0.0513  
 Mercury -82182-11-25 17:01 J -28295223.96 -28295223.79 -28295223.62 0.0491 0.0194  
 Mercury -82181-02-23 22:04 J -28295133.71 -28295133.58 -28295133.44 0.0493 0.0306  
 Earth -82181-09-26 07:40 J -28294918.42 -28294918.18 -28294917.94 0.0499 0.0009  
 Moon -82181-09-26 09:06 J -28294918.37 -28294918.12 -28294917.87 0.0499 0.0014 \*  
 Mars -82180-12-01 00:28 J -28294487.73 -28294487.48 -28294487.22 0.0513 0.0069  
 Mercury -82176-07-17 14:08 J -28293163.01 -28293162.91 -28293162.81 0.0537 0.0319  
 Mercury -82176-10-14 22:18 J -28293073.69 -28293073.57 -28293073.44 0.0535 0.0134  
 Moon -82175-03-21 16:04 J -28292916.04 -28292915.83 -28292915.62 0.0530 0.0237  
 Earth -82175-03-21 18:42 J -28292915.91 -28292915.72 -28292915.52 0.0530 0.0252 \*  
 Venus -82170-01-25 18:13 J -28291144.85 -28291144.74 -28291144.61 0.0488 0.0403  
 Mercury -82170-09-13 15:35 J -28290913.99 -28290913.85 -28290913.71 0.0491 0.0316  
 Mercury -82170-12-12 20:52 J -28290823.79 -28290823.63 -28290823.46 0.0493 0.0187  
 Moon -82169-09-30 23:59 J -28290530.69 -28290530.50 -28290530.30 0.0500 0.0265  
 Earth -82169-10-01 02:37 J -28290530.59 -28290530.39 -28290530.17 0.0500 0.0236 \*  
 Venus -82165-11-29 14:23 J -28289010.04 -28289009.90 -28289009.77 0.0539 0.0389  
 Mercury -82164-05-05 17:44 J -28288852.83 -28288852.76 -28288852.68 0.0537 0.0431  
 Mercury -82164-08-03 01:54 J -28288763.55 -28288763.42 -28288763.29 0.0535 0.0019  
 Mercury -82164-10-31 10:32 J -28288674.11 -28288674.06 -28288674.00 0.0533 0.0475  
 Earth -82163-03-26 12:42 J -28288528.20 -28288527.97 -28288527.75 0.0529 0.0021  
 Moon -82163-03-26 13:54 J -28288528.14 -28288527.92 -28288527.70 0.0529 0.0050 \*  
 Venus -82159-09-30 17:59 J -28286878.96 -28286878.75 -28286878.54 0.0488 0.0006  
 Mercury -82158-07-02 13:11 J -28286604.02 -28286603.95 -28286603.87 0.0490 0.0444  
 Mercury -82158-09-30 18:56 J -28286513.88 -28286513.71 -28286513.53 0.0492 0.0060  
 Earth -82157-10-05 19:40 J -28286142.76 -28286142.68 -28286142.61 0.0502 0.0475  
 Moon -82157-10-05 23:16 J -28286142.59 -28286142.53 -28286142.45 0.0502 0.0480  
 Venus -82153-08-04 08:08 J -28284744.35 -28284744.16 -28284743.97 0.0540 0.0127  
 Mercury -82152-05-22 05:44 J -28284453.39 -28284453.26 -28284453.13 0.0536 0.0091  
 Mercury -82152-08-19 14:23 J -28284363.99 -28284363.90 -28284363.81 0.0534 0.0365  
 Earth -82151-03-31 07:54 J -28284140.35 -28284140.17 -28284139.97 0.0527 0.0292

Moon -82151-03-31 08:23 J -28284140.35 -28284140.15 -28284139.95 0.0527 0.0282 \*  
 Venus -82147-06-05 17:59 J -28282612.86 -28282612.75 -28282612.63 0.0487 0.0406  
 Mercury -82146-07-19 17:16 J -28282203.96 -28282203.78 -28282203.60 0.0492 0.0065  
 Mercury -82146-10-17 22:04 J -28282113.66 -28282113.58 -28282113.50 0.0493 0.0431  
 Mercury -82140-03-10 09:49 J -28280143.21 -28280143.09 -28280142.97 0.0536 0.0197  
 Mercury -82140-06-07 18:13 J -28280053.85 -28280053.74 -28280053.62 0.0534 0.0258  
 Mercury -82134-05-07 15:06 J -28277894.03 -28277893.87 -28277893.70 0.0491 0.0194  
 Mercury -82134-08-05 20:23 J -28277803.79 -28277803.65 -28277803.51 0.0493 0.0307  
 Mercury -82129-12-27 13:40 J -28275833.03 -28275832.93 -28275832.82 0.0537 0.0306  
 Mercury -82128-03-26 22:04 J -28275743.71 -28275743.58 -28275743.46 0.0535 0.0147  
 Venus -82123-06-08 05:44 J -28273844.44 -28273844.26 -28273844.07 0.0488 0.0233  
 Mercury -82122-02-23 13:54 J -28273584.06 -28273583.92 -28273583.78 0.0491 0.0314  
 Mercury -82122-05-24 19:25 J -28273493.86 -28273493.69 -28273493.53 0.0493 0.0188  
 Venus -82117-04-11 23:30 J -28271709.71 -28271709.52 -28271709.34 0.0539 0.0175  
 Mercury -82117-10-15 16:32 J -28271522.88 -28271522.81 -28271522.73 0.0537 0.0428  
 Mercury -82116-01-13 00:42 J -28271433.60 -28271433.47 -28271433.34 0.0535 0.0022  
 Mercury -82116-04-12 09:20 J -28271344.16 -28271344.11 -28271344.05 0.0533 0.0477  
 Mars -82115-09-11 17:30 J -28270827.04 -28270826.77 -28270826.50 0.0515 0.0210  
 Venus -82111-02-11 06:28 J -28269578.43 -28269578.23 -28269578.03 0.0488 0.0166  
 Mercury -82111-12-12 12:13 J -28269274.07 -28269273.99 -28269273.90 0.0491 0.0436  
 Mercury -82110-03-12 18:13 J -28269183.92 -28269183.74 -28269183.56 0.0492 0.0069  
 Earth -82110-09-21 21:35 J -28268990.80 -28268990.60 -28268990.39 0.0497 0.0263  
 Moon -82110-09-21 22:47 J -28268990.74 -28268990.55 -28268990.34 0.0497 0.0293 \*  
 Venus -82106-12-16 16:18 J -28267443.97 -28267443.82 -28267443.67 0.0539 0.0347  
 Mercury -82105-11-01 04:04 J -28267123.45 -28267123.33 -28267123.20 0.0536 0.0094  
 Mercury -82104-01-29 12:42 J -28267034.06 -28267033.97 -28267033.87 0.0534 0.0362  
 Mercury -82099-12-29 16:18 J -28264874.00 -28264873.82 -28264873.64 0.0492 0.0060  
 Mercury -82098-03-29 20:52 J -28264783.71 -28264783.63 -28264783.55 0.0493 0.0437  
 Moon -82098-09-26 11:16 J -28264603.27 -28264603.03 -28264602.80 0.0498 0.0028  
 Earth -82098-09-26 13:40 J -28264603.17 -28264602.93 -28264602.69 0.0498 0.0028 \*

Mercury -82093-08-20 08:08 J -28262813.28 -28262813.16 -28262813.04 0.0537 0.0203

Mercury -82093-11-17 16:32 J -28262723.93 -28262723.81 -28262723.70 0.0535 0.0253

Earth -82092-03-21 01:54 J -28262600.61 -28262600.42 -28262600.23 0.0531 0.0276

Moon -82092-03-21 03:20 J -28262600.55 -28262600.36 -28262600.17 0.0531 0.0255 \*

Venus -82087-02-13 18:13 J -28260809.78 -28260809.74 -28260809.69 0.0488 0.0475

Mercury -82087-10-17 14:23 J -28260564.07 -28260563.90 -28260563.73 0.0491 0.0183

Mercury -82086-01-15 19:25 J -28260473.82 -28260473.69 -28260473.55 0.0493 0.0316

Earth -82086-10-01 07:40 J -28260215.39 -28260215.18 -28260214.96 0.0500 0.0213

Moon -82086-10-01 11:30 J -28260215.23 -28260215.02 -28260214.81 0.0500 0.0244 \*

Venus -82082-12-19 16:47 J -28258674.88 -28258674.80 -28258674.71 0.0539 0.0485

Mercury -82081-06-08 12:13 J -28258503.09 -28258502.99 -28258502.89 0.0537 0.0307

Mercury -82081-09-05 20:37 J -28258413.77 -28258413.64 -28258413.52 0.0535 0.0146

Earth -82080-03-25 23:01 J -28258212.76 -28258212.54 -28258212.31 0.0529 0.0007

Moon -82080-03-25 23:16 J -28258212.76 -28258212.53 -28258212.29 0.0529 0.0031 \*

Venus -82076-10-19 17:30 J -28256543.97 -28256543.77 -28256543.56 0.0488 0.0069

Mercury -82075-08-05 12:13 J -28256254.12 -28256253.99 -28256253.85 0.0491 0.0311

Mercury -82075-11-03 17:44 J -28256163.92 -28256163.76 -28256163.59 0.0493 0.0191

Moon -82074-10-05 23:01 J -28255827.64 -28255827.54 -28255827.44 0.0502 0.0454

Earth -82074-10-06 02:37 J -28255827.48 -28255827.39 -28255827.29 0.0502 0.0458 \*

Venus -82070-08-24 11:16 J -28254409.23 -28254409.03 -28254408.84 0.0540 0.0026

Mercury -82069-03-27 16:04 J -28254192.91 -28254192.83 -28254192.75 0.0537 0.0415

Mercury -82069-06-25 00:13 J -28254103.62 -28254103.49 -28254103.36 0.0535 0.0038

Mercury -82069-09-22 09:06 J -28254014.17 -28254014.12 -28254014.07 0.0533 0.0492

Moon -82068-03-30 15:35 J -28253825.04 -28253824.85 -28253824.65 0.0527 0.0258

Earth -82068-03-30 17:30 J -28253824.96 -28253824.77 -28253824.57 0.0527 0.0274 \*

Venus -82064-06-24 18:28 J -28252277.88 -28252277.73 -28252277.57 0.0488 0.0331

Mercury -82063-05-24 11:01 J -28251944.13 -28251944.04 -28251943.96 0.0491 0.0432

Mercury -82063-08-22 16:47 J -28251853.98 -28251853.80 -28251853.62 0.0492 0.0072

Mars -82061-05-23 00:42 J -28251214.65 -28251214.47 -28251214.27 0.0511 0.0338

Mercury -82057-01-14 19:11 J -28249882.71 -28249882.70 -28249882.69 0.0537 0.0535

Mercury -82057-04-13 03:06 J -28249793.50 -28249793.37 -28249793.24 0.0536 0.0088

Mercury -82057-07-11 11:44 J -28249704.11 -28249704.01 -28249703.92 0.0534 0.0367

Earth -82056-04-04 05:30 J -28249437.27 -28249437.27 -28249437.26 0.0525 0.0525

Moon -82056-04-04 09:06 J -28249437.19 -28249437.12 -28249437.05 0.0525 0.0500

Mercury -82051-06-10 15:35 J -28247544.03 -28247543.85 -28247543.67 0.0492 0.0048

Mercury -82051-09-08 20:08 J -28247453.72 -28247453.66 -28247453.58 0.0494 0.0449

Mercury -82045-01-31 06:42 J -28245483.34 -28245483.22 -28245483.10 0.0536 0.0201

Mercury -82045-04-29 15:06 J -28245393.99 -28245393.87 -28245393.76 0.0534 0.0252

Venus -82040-06-27 07:11 J -28243509.36 -28243509.20 -28243509.04 0.0488 0.0314

Mercury -82039-03-29 13:25 J -28243234.11 -28243233.94 -28243233.77 0.0491 0.0175

Mercury -82039-06-27 18:28 J -28243143.86 -28243143.73 -28243143.59 0.0493 0.0324

Venus -82034-05-01 23:59 J -28241374.67 -28241374.50 -28241374.32 0.0539 0.0260

Mercury -82034-11-19 10:32 J -28241173.17 -28241173.06 -28241172.96 0.0537 0.0311

Mercury -82033-02-16 18:42 J -28241083.84 -28241083.72 -28241083.59 0.0535 0.0143

Venus -82028-03-02 07:11 J -28239243.40 -28239243.20 -28239242.99 0.0488 0.0089

Mercury -82027-01-15 11:44 J -28238924.15 -28238924.01 -28238923.87 0.0491 0.0300

Mercury -82027-04-15 17:01 J -28238833.95 -28238833.79 -28238833.62 0.0492 0.0202

Moon -82027-09-21 02:08 J -28238675.59 -28238675.41 -28238675.23 0.0496 0.0310

Earth -82027-09-21 04:32 J -28238675.51 -28238675.31 -28238675.11 0.0496 0.0279 \*

Mars -82025-02-25 06:56 J -28238153.42 -28238153.21 -28238153.00 0.0514 0.0290

Venus -82022-01-04 19:11 J -28237108.88 -28237108.70 -28237108.53 0.0540 0.0249

Mercury -82022-09-07 14:37 J -28236862.96 -28236862.89 -28236862.80 0.0537 0.0416

Mercury -82022-12-05 23:01 J -28236773.67 -28236773.54 -28236773.41 0.0536 0.0041

Mercury -82021-03-04 07:40 J -28236684.23 -28236684.18 -28236684.13 0.0533 0.0492

Mercury -82016-11-03 09:20 J -28234614.19 -28234614.11 -28234614.01 0.0491 0.0428

Mercury -82015-02-01 15:20 J -28234524.04 -28234523.86 -28234523.68 0.0492 0.0077

Earth -82015-09-25 21:35 J -28234287.84 -28234287.60 -28234287.36 0.0498 0.0043

Moon -82015-09-26 01:25 J -28234287.69 -28234287.44 -28234287.20 0.0498 0.0032 \*

Mercury -82010-06-26 18:42 J -28232552.74 -28232552.72 -28232552.69 0.0538 0.0521

Mercury -82010-09-24 02:52 J -28232463.51 -28232463.38 -28232463.25 0.0536 0.0073

Mercury	-82010-12-22 11:16 J	-28232374.11	-28232374.03	-28232373.93	0.0534	0.0383
Moon	-82009-03-20 12:56 J	-28232285.16	-28232284.96	-28232284.76	0.0531	0.0263
Earth	-82009-03-20 12:56 J	-28232285.15	-28232284.96	-28232284.77	0.0531	0.0290 *
Mercury	-82004-11-20 14:08 J	-28230214.09	-28230213.91	-28230213.73	0.0492	0.0044
Mercury	-82003-02-18 18:56 J	-28230123.77	-28230123.71	-28230123.64	0.0494	0.0454
Moon	-82003-09-30 14:23 J	-28229900.12	-28229899.90	-28229899.69	0.0500	0.0232
Earth	-82003-09-30 17:59 J	-28229899.96	-28229899.75	-28229899.52	0.0500	0.0204 *

# 82ND MILLENNIUM BCE

This is a list of transits visible from Jupiter in the 82nd millennium BCE.

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-81998-07-13 05:44 J	-28228153.38	-28228153.26	-28228153.14	0.0536	0.0195		
Mercury	-81998-10-10 14:08 J	-28228064.03	-28228063.91	-28228063.80	0.0534	0.0258		
Moon	-81997-03-25 00:56 J	-28227897.68	-28227897.46	-28227897.24	0.0529	0.0009		
Earth	-81997-03-25 02:23 J	-28227897.62	-28227897.40	-28227897.17	0.0529	0.0032 *		
Venus	-81993-11-07 20:08 J	-28226208.86	-28226208.66	-28226208.46	0.0488	0.0154		
Mercury	-81992-09-08 12:56 J	-28225904.13	-28225903.96	-28225903.79	0.0492	0.0163		
Mercury	-81992-12-07 17:59 J	-28225813.87	-28225813.75	-28225813.62	0.0493	0.0337		
Earth	-81991-10-05 14:08 J	-28225512.01	-28225511.91	-28225511.80	0.0501	0.0449		
Moon	-81991-10-05 16:47 J	-28225511.90	-28225511.80	-28225511.68	0.0501	0.0439 *		
Venus	-81987-09-12 09:35 J	-28224074.29	-28224074.10	-28224073.90	0.0539	0.0048		
Mercury	-81986-05-01 09:20 J	-28223843.22	-28223843.11	-28223843.01	0.0536	0.0308		

Mercury -81986-07-29 17:30 J -28223753.89 -28223753.77 -28223753.64 0.0535 0.0144

Earth -81985-03-29 19:40 J -28223509.88 -28223509.68 -28223509.47 0.0528 0.0238

Moon -81985-03-29 23:01 J -28223509.75 -28223509.54 -28223509.33 0.0528 0.0213 \*

Venus -81981-07-13 20:08 J -28221942.84 -28221942.66 -28221942.48 0.0488 0.0249

Mercury -81980-06-27 10:47 J -28221594.19 -28221594.05 -28221593.90 0.0491 0.0291

Mercury -81980-09-25 16:18 J -28221503.98 -28221503.82 -28221503.66 0.0493 0.0211

Venus -81975-05-18 02:52 J -28219808.47 -28219808.38 -28219808.29 0.0540 0.0473

Mercury -81974-02-17 13:11 J -28219533.03 -28219532.95 -28219532.87 0.0537 0.0418

Mercury -81974-05-17 21:20 J -28219443.74 -28219443.61 -28219443.48 0.0536 0.0034

Mercury -81974-08-15 05:59 J -28219354.30 -28219354.25 -28219354.20 0.0533 0.0489

Moon -81973-04-03 11:01 J -28219122.12 -28219122.04 -28219121.95 0.0526 0.0482

Earth -81973-04-03 14:52 J -28219121.93 -28219121.88 -28219121.82 0.0526 0.0506

Mercury -81968-04-15 08:52 J -28217284.22 -28217284.13 -28217284.03 0.0490 0.0416

Mercury -81968-07-14 14:37 J -28217194.06 -28217193.89 -28217193.71 0.0492 0.0089

Mercury -81963-12-06 17:16 J -28215222.80 -28215222.78 -28215222.75 0.0538 0.0522

Mercury -81962-03-06 01:25 J -28215133.57 -28215133.44 -28215133.31 0.0536 0.0073

Mercury -81962-06-03 10:04 J -28215044.17 -28215044.08 -28215043.99 0.0534 0.0383

Mars -81961-12-06 17:30 J -28214492.06 -28214491.77 -28214491.48 0.0515 0.0108

Venus -81957-07-16 08:08 J -28213174.29 -28213174.16 -28213174.04 0.0488 0.0392

Mercury -81956-05-02 12:56 J -28212884.14 -28212883.96 -28212883.78 0.0492 0.0038

Mercury -81956-07-31 17:44 J -28212793.82 -28212793.76 -28212793.70 0.0494 0.0458

Venus -81951-05-21 04:18 J -28211039.46 -28211039.32 -28211039.18 0.0539 0.0367

Mercury -81951-12-23 05:16 J -28210823.40 -28210823.28 -28210823.15 0.0536 0.0181

Mercury -81950-03-22 13:40 J -28210734.04 -28210733.93 -28210733.81 0.0534 0.0275

Venus -81945-03-21 08:37 J -28208908.35 -28208908.14 -28208907.92 0.0488 0.0014

Mercury -81944-02-18 11:44 J -28208574.18 -28208574.01 -28208573.84 0.0491 0.0157

Mercury -81944-05-19 16:47 J -28208483.92 -28208483.80 -28208483.67 0.0493 0.0343

Earth -81944-09-20 15:20 J -28208360.05 -28208359.86 -28208359.66 0.0496 0.0287

Moon -81944-09-20 18:56 J -28208359.90 -28208359.71 -28208359.52 0.0496 0.0311 \*

Venus -81939-01-23 20:08 J -28206773.85 -28206773.66 -28206773.47 0.0539 0.0160

Mercury -81939-10-11 08:23 J -28206513.25 -28206513.15 -28206513.04 0.0536 0.0301

Mercury -81938-01-08 16:32 J -28206423.93 -28206423.81 -28206423.68 0.0534 0.0152

Venus -81934-11-25 08:52 J -28204642.24 -28204642.13 -28204642.01 0.0488 0.0410

Mercury -81933-12-07 10:04 J -28204264.22 -28204264.08 -28204263.92 0.0491 0.0280

Mercury -81932-03-07 15:49 J -28204174.00 -28204173.84 -28204173.68 0.0493 0.0224

Moon -81932-09-25 06:28 J -28203972.47 -28203972.23 -28203971.98 0.0498 0.0033

Earth -81932-09-25 10:18 J -28203972.31 -28203972.07 -28203971.83 0.0498 0.0049 \*

Mercury -81927-07-30 11:59 J -28202203.08 -28202203.00 -28202202.92 0.0537 0.0413

Mercury -81927-10-27 20:08 J -28202113.79 -28202113.66 -28202113.53 0.0535 0.0037

Mercury -81926-01-25 04:47 J -28202024.35 -28202024.30 -28202024.25 0.0533 0.0492

Moon -81926-03-20 13:40 J -28201970.11 -28201969.93 -28201969.75 0.0531 0.0300

Earth -81926-03-20 15:06 J -28201970.05 -28201969.87 -28201969.70 0.0531 0.0327 \*

Mercury -81921-09-25 08:08 J -28199954.26 -28199954.16 -28199954.06 0.0491 0.0406

Mercury -81921-12-24 13:54 J -28199864.09 -28199863.92 -28199863.74 0.0492 0.0098

Earth -81920-09-30 02:37 J -28199584.61 -28199584.39 -28199584.17 0.0499 0.0189

Moon -81920-09-30 05:16 J -28199584.48 -28199584.28 -28199584.06 0.0499 0.0216 \*

Mercury -81915-05-18 15:49 J -28197892.86 -28197892.84 -28197892.81 0.0538 0.0523

Mercury -81915-08-15 23:44 J -28197803.64 -28197803.51 -28197803.38 0.0536 0.0076

Mercury -81915-11-13 08:23 J -28197714.24 -28197714.15 -28197714.06 0.0534 0.0380

Earth -81914-03-25 10:47 J -28197582.28 -28197582.05 -28197581.83 0.0530 0.0050

Moon -81914-03-25 13:54 J -28197582.15 -28197581.92 -28197581.69 0.0530 0.0036 \*

Venus -81910-11-27 21:20 J -28195873.79 -28195873.61 -28195873.42 0.0488 0.0233

Mercury -81909-10-12 12:13 J -28195554.17 -28195553.99 -28195553.81 0.0492 0.0027

Mercury -81908-01-10 17:01 J -28195463.84 -28195463.79 -28195463.74 0.0493 0.0469

Moon -81908-10-04 19:11 J -28195196.83 -28195196.70 -28195196.56 0.0501 0.0414

Earth -81908-10-04 20:52 J -28195196.75 -28195196.63 -28195196.51 0.0501 0.0430 \*

Mars -81907-08-17 12:28 J -28194880.23 -28194879.98 -28194879.72 0.0511 0.0101

Venus -81904-10-01 12:13 J -28193739.17 -28193738.99 -28193738.80 0.0540 0.0144

Mercury -81903-06-04 03:49 J -28193493.46 -28193493.34 -28193493.21 0.0536 0.0182

Mercury -81903-09-01 12:28 J -28193404.10 -28193403.98 -28193403.87 0.0534 0.0274

Moon -81902-03-30 03:49 J -28193194.54 -28193194.34 -28193194.12 0.0528 0.0195  
 Earth -81902-03-30 07:40 J -28193194.38 -28193194.18 -28193193.97 0.0528 0.0226 \*  
 Venus -81898-08-02 21:06 J -28191607.82 -28191607.62 -28191607.42 0.0488 0.0171  
 Mercury -81897-07-31 10:18 J -28191244.24 -28191244.07 -28191243.90 0.0491 0.0153  
 Mercury -81897-10-29 15:20 J -28191153.98 -28191153.86 -28191153.73 0.0493 0.0347  
 Venus -81892-06-06 07:11 J -28189473.34 -28189473.20 -28189473.06 0.0540 0.0365  
 Mercury -81891-03-23 07:54 J -28189183.28 -28189183.17 -28189183.06 0.0537 0.0288  
 Mercury -81891-06-20 16:18 J -28189093.95 -28189093.82 -28189093.70 0.0535 0.0165  
 Earth -81890-04-04 02:37 J -28188806.46 -28188806.39 -28188806.31 0.0526 0.0492  
 Moon -81890-04-04 05:59 J -28188806.34 -28188806.25 -28188806.16 0.0526 0.0477 \*  
 Mercury -81885-05-19 09:06 J -28186934.27 -28186934.12 -28186933.97 0.0491 0.0273  
 Mercury -81885-08-17 14:37 J -28186844.05 -28186843.89 -28186843.73 0.0493 0.0229  
 Mercury -81879-01-09 11:16 J -28184873.12 -28184873.03 -28184872.95 0.0537 0.0406  
 Mercury -81879-04-08 19:11 J -28184783.83 -28184783.70 -28184783.57 0.0535 0.0044  
 Mercury -81879-07-07 03:49 J -28184694.38 -28184694.34 -28184694.29 0.0533 0.0498  
 Venus -81874-08-05 09:49 J -28182839.12 -28182839.09 -28182839.03 0.0489 0.0476  
 Mercury -81873-03-07 07:11 J -28182624.30 -28182624.20 -28182624.09 0.0491 0.0397  
 Mercury -81873-06-05 13:11 J -28182534.12 -28182533.95 -28182533.77 0.0493 0.0109  
 Venus -81868-06-09 03:35 J -28180704.46 -28180704.35 -28180704.24 0.0539 0.0443  
 Mercury -81868-10-28 14:37 J -28180562.91 -28180562.89 -28180562.85 0.0537 0.0518  
 Mercury -81867-01-25 22:47 J -28180473.68 -28180473.55 -28180473.43 0.0535 0.0072  
 Mercury -81867-04-25 07:11 J -28180384.29 -28180384.20 -28180384.11 0.0533 0.0383  
 Venus -81862-04-10 09:49 J -28178573.30 -28178573.09 -28178572.88 0.0488 0.0069  
 Mercury -81861-03-24 11:16 J -28178224.21 -28178224.03 -28178223.85 0.0492 0.0021  
 Mercury -81861-06-22 16:04 J -28178133.87 -28178133.83 -28178133.78 0.0494 0.0477  
 Moon -81861-09-19 20:23 J -28178044.84 -28178044.65 -28178044.47 0.0496 0.0318  
 Earth -81861-09-19 23:59 J -28178044.69 -28178044.50 -28178044.30 0.0496 0.0298 \*  
 Venus -81856-02-11 20:23 J -28176438.84 -28176438.65 -28176438.45 0.0539 0.0079  
 Mercury -81856-11-14 02:23 J -28176163.52 -28176163.40 -28176163.28 0.0536 0.0184  
 Mercury -81855-02-11 10:47 J -28176074.16 -28176074.05 -28176073.94 0.0534 0.0270



Venus -81851-12-14 10:04 J -28174307.23 -28174307.08 -28174306.92 0.0488 0.0332

Mercury -81849-01-11 09:35 J -28173914.27 -28173914.10 -28173913.93 0.0491 0.0143

Mercury -81849-04-10 14:37 J -28173824.01 -28173823.89 -28173823.77 0.0493 0.0356

Earth -81849-09-24 17:01 J -28173657.03 -28173656.79 -28173656.55 0.0497 0.0064

Moon -81849-09-24 19:54 J -28173656.90 -28173656.67 -28173656.43 0.0497 0.0039 \*

Mercury -81844-09-02 06:28 J -28171853.34 -28171853.23 -28171853.12 0.0537 0.0290

Mercury -81844-11-30 14:37 J -28171764.01 -28171763.89 -28171763.76 0.0535 0.0163

Earth -81843-03-20 01:11 J -28171654.62 -28171654.45 -28171654.27 0.0532 0.0341

Moon -81843-03-20 04:18 J -28171654.51 -28171654.32 -28171654.13 0.0532 0.0308 \*

Mars -81842-05-26 10:04 J -28171222.23 -28171222.08 -28171221.93 0.0517 0.0441

Mercury -81838-10-30 07:25 J -28169604.34 -28169604.19 -28169604.04 0.0491 0.0270

Mercury -81837-01-28 12:56 J -28169514.12 -28169513.96 -28169513.80 0.0493 0.0232

Moon -81837-09-29 08:23 J -28169269.37 -28169269.15 -28169268.92 0.0499 0.0195

Earth -81837-09-29 10:04 J -28169269.30 -28169269.08 -28169268.85 0.0499 0.0173 \*

Mercury -81832-06-21 10:32 J -28167543.15 -28167543.06 -28167542.98 0.0537 0.0396

Mercury -81832-09-18 18:42 J -28167453.85 -28167453.72 -28167453.59 0.0535 0.0057

Mercury -81832-12-17 03:20 J -28167364.39 -28167364.36 -28167364.32 0.0533 0.0511

Moon -81831-03-24 18:28 J -28167266.96 -28167266.73 -28167266.51 0.0530 0.0061

Earth -81831-03-24 22:04 J -28167266.80 -28167266.58 -28167266.35 0.0530 0.0066 \*

Venus -81827-12-16 22:32 J -28165538.72 -28165538.56 -28165538.40 0.0488 0.0312

Mercury -81826-08-18 05:59 J -28165294.36 -28165294.25 -28165294.14 0.0491 0.0391

Mercury -81826-11-16 11:59 J -28165204.18 -28165204.00 -28165203.83 0.0492 0.0113

Moon -81825-10-04 06:42 J -28164881.35 -28164881.22 -28164881.08 0.0501 0.0400

Earth -81825-10-04 06:56 J -28164881.34 -28164881.21 -28164881.08 0.0501 0.0418 \*

Venus -81821-10-20 13:54 J -28163404.10 -28163403.92 -28163403.75 0.0539 0.0234

Mercury -81820-04-09 13:54 J -28163232.96 -28163232.92 -28163232.89 0.0537 0.0511

Mercury -81820-07-07 21:49 J -28163143.72 -28163143.59 -28163143.46 0.0535 0.0065

Mercury -81820-10-05 06:13 J -28163054.33 -28163054.24 -28163054.15 0.0533 0.0389

Earth -81819-03-29 11:59 J -28162879.20 -28162879.00 -28162878.78 0.0528 0.0195

Moon -81819-03-29 15:35 J -28162879.06 -28162878.85 -28162878.64 0.0528 0.0162 \*

Venus -81815-08-21 21:49 J -28161272.79 -28161272.59 -28161272.38 0.0488 0.0096

Mercury -81814-09-04 10:18 J -28160894.25 -28160894.07 -28160893.89 0.0492 0.0012

Mercury -81814-12-03 15:06 J -28160803.89 -28160803.87 -28160803.84 0.0494 0.0487

Venus -81809-06-25 06:42 J -28159138.38 -28159138.22 -28159138.05 0.0539 0.0286

Mercury -81808-04-26 01:11 J -28158833.57 -28158833.45 -28158833.33 0.0536 0.0179

Mercury -81808-07-24 09:35 J -28158744.21 -28158744.10 -28158743.99 0.0534 0.0274

Moon -81807-04-03 01:54 J -28158491.55 -28158491.42 -28158491.29 0.0526 0.0437

Earth -81807-04-03 04:32 J -28158491.42 -28158491.31 -28158491.20 0.0526 0.0454 \*

Mars -81806-03-02 18:56 J -28158157.92 -28158157.71 -28158157.50 0.0515 0.0358

Mercury -81802-06-23 08:23 J -28156584.32 -28156584.15 -28156583.98 0.0492 0.0138

Mercury -81802-09-21 13:25 J -28156494.05 -28156493.94 -28156493.82 0.0493 0.0362

Mercury -81796-02-12 04:47 J -28154523.41 -28154523.30 -28154523.19 0.0537 0.0293

Mercury -81796-05-12 12:56 J -28154434.08 -28154433.96 -28154433.83 0.0535 0.0159

Mercury -81790-04-11 06:28 J -28152274.38 -28152274.23 -28152274.08 0.0491 0.0263

Mercury -81790-07-10 11:59 J -28152184.16 -28152184.00 -28152183.84 0.0493 0.0239

Mars -81788-02-06 13:11 J -28151606.99 -28151606.95 -28151606.89 0.0509 0.0499

Venus -81785-06-28 04:32 J -28150369.34 -28150369.31 -28150369.27 0.0539 0.0528

Mercury -81785-12-01 08:52 J -28150213.22 -28150213.13 -28150213.05 0.0537 0.0400

Mercury -81784-02-28 17:01 J -28150123.92 -28150123.79 -28150123.66 0.0535 0.0052

Mercury -81784-05-29 01:40 J -28150034.47 -28150034.43 -28150034.39 0.0533 0.0507

Venus -81779-04-29 09:49 J -28148238.29 -28148238.09 -28148237.89 0.0488 0.0143

Mercury -81778-01-28 04:18 J -28147964.43 -28147964.32 -28147964.21 0.0491 0.0391

Mercury -81778-04-28 10:04 J -28147874.25 -28147874.08 -28147873.90 0.0492 0.0113

Earth -81778-09-20 06:13 J -28147729.41 -28147729.24 -28147729.05 0.0495 0.0316

Moon -81778-09-20 09:20 J -28147729.28 -28147729.11 -28147728.92 0.0495 0.0326 \*

Venus -81773-03-02 23:30 J -28146103.72 -28146103.52 -28146103.33 0.0539 0.0024

Mercury -81773-09-19 12:56 J -28145903.00 -28145902.96 -28145902.92 0.0537 0.0505

Mercury -81773-12-17 20:52 J -28145813.76 -28145813.63 -28145813.50 0.0536 0.0057

Mercury -81772-03-17 05:30 J -28145724.36 -28145724.27 -28145724.18 0.0534 0.0398

Venus -81767-01-02 10:18 J -28143972.24 -28143972.07 -28143971.89 0.0488 0.0258

Mercury -81766-02-14 08:52 J -28143564.31 -28143564.13 -28143563.95 0.0492 0.0008

Mercury -81766-05-15 13:40 J -28143473.95 -28143473.93 -28143473.91 0.0494 0.0489

Moon -81766-09-24 23:44 J -28143341.76 -28143341.51 -28143341.27 0.0497 0.0051

Earth -81766-09-25 01:25 J -28143341.68 -28143341.44 -28143341.20 0.0497 0.0079 \*

Venus -81762-11-06 16:32 J -28141837.88 -28141837.81 -28141837.74 0.0539 0.0498

Mercury -81761-10-06 00:13 J -28141503.61 -28141503.49 -28141503.37 0.0536 0.0174

Mercury -81760-01-03 08:23 J -28141414.26 -28141414.15 -28141414.03 0.0534 0.0279

Moon -81760-03-19 02:08 J -28141339.58 -28141339.41 -28141339.24 0.0532 0.0338

Earth -81760-03-19 05:44 J -28141339.42 -28141339.26 -28141339.10 0.0532 0.0370 \*

Mercury -81755-12-03 06:56 J -28139254.38 -28139254.21 -28139254.03 0.0492 0.0133

Mercury -81754-03-03 12:13 J -28139164.10 -28139163.99 -28139163.87 0.0494 0.0368

Earth -81754-09-29 19:40 J -28138953.90 -28138953.68 -28138953.45 0.0499 0.0161

Moon -81754-09-29 19:40 J -28138953.89 -28138953.68 -28138953.46 0.0499 0.0179 \*

Mars -81753-11-11 03:49 J -28138545.58 -28138545.34 -28138545.09 0.0512 0.0150

Mercury -81749-07-25 03:35 J -28137193.45 -28137193.35 -28137193.24 0.0536 0.0289

Mercury -81749-10-22 11:44 J -28137104.13 -28137104.01 -28137103.88 0.0534 0.0163

Earth -81748-03-23 23:01 J -28136951.76 -28136951.54 -28136951.32 0.0530 0.0103

Moon -81748-03-24 02:37 J -28136951.61 -28136951.39 -28136951.17 0.0530 0.0104 \*

Venus -81743-01-04 21:35 J -28135203.73 -28135203.60 -28135203.46 0.0489 0.0378

Mercury -81743-09-21 04:47 J -28134944.45 -28134944.30 -28134944.14 0.0491 0.0262

Mercury -81743-12-20 10:32 J -28134854.22 -28134854.06 -28134853.91 0.0493 0.0242

Earth -81742-10-04 11:59 J -28134566.13 -28134566.00 -28134565.85 0.0500 0.0399

Moon -81742-10-04 14:08 J -28134566.07 -28134565.91 -28134565.74 0.0500 0.0374 \*

Venus -81738-11-09 12:13 J -28133069.15 -28133068.99 -28133068.82 0.0539 0.0304

Mercury -81737-05-13 07:11 J -28132883.28 -28132883.20 -28132883.12 0.0537 0.0404

Mercury -81737-08-10 15:06 J -28132794.00 -28132793.87 -28132793.74 0.0535 0.0049

Mercury -81737-11-07 23:59 J -28132704.54 -28132704.50 -28132704.46 0.0533 0.0501

Moon -81736-03-28 13:54 J -28132564.14 -28132563.92 -28132563.69 0.0529 0.0133

Earth -81736-03-28 16:47 J -28132564.02 -28132563.80 -28132563.59 0.0529 0.0167 \*

Venus -81732-09-09 21:35 J -28130937.81 -28130937.60 -28130937.39 0.0488 0.0026

Mercury -81731-07-10 02:52 J -28130634.49 -28130634.38 -28130634.27 0.0491 0.0387

Mercury -81731-10-08 08:52 J -28130544.31 -28130544.13 -28130543.96 0.0492 0.0118

Venus -81726-07-15 06:13 J -28128803.42 -28128803.24 -28128803.06 0.0539 0.0210

Mercury -81725-03-01 11:01 J -28128573.07 -28128573.04 -28128573.00 0.0537 0.0512

Mercury -81725-05-29 18:56 J -28128483.83 -28128483.71 -28128483.58 0.0536 0.0066

Mercury -81725-08-27 03:35 J -28128394.44 -28128394.35 -28128394.26 0.0534 0.0392

Earth -81724-04-02 12:13 J -28128176.12 -28128175.99 -28128175.86 0.0527 0.0434

Moon -81724-04-02 13:11 J -28128176.07 -28128175.95 -28128175.82 0.0527 0.0428 \*

Venus -81720-05-15 21:20 J -28126671.71 -28126671.61 -28126671.52 0.0488 0.0429

Mercury -81719-07-27 06:42 J -28126234.40 -28126234.22 -28126234.04 0.0492 0.0012

Mercury -81719-10-25 11:30 J -28126144.04 -28126144.02 -28126143.99 0.0494 0.0486

Mercury -81713-03-17 23:01 J -28124173.66 -28124173.54 -28124173.42 0.0536 0.0171

Mercury -81713-06-15 07:25 J -28124084.30 -28124084.19 -28124084.08 0.0534 0.0283

Mercury -81707-05-15 05:16 J -28121924.45 -28121924.28 -28121924.11 0.0492 0.0132

Mercury -81707-08-13 10:32 J -28121834.18 -28121834.06 -28121833.94 0.0493 0.0368

Mercury -81701-01-05 02:37 J -28119863.50 -28119863.39 -28119863.29 0.0536 0.0286

Mercury -81701-04-03 10:32 J -28119774.18 -28119774.06 -28119773.93 0.0534 0.0166

Venus -81696-05-18 08:23 J -28117903.34 -28117903.15 -28117902.96 0.0489 0.0206

Mercury -81695-03-03 03:06 J -28117614.52 -28117614.37 -28117614.21 0.0492 0.0260

Mercury -81695-06-01 08:52 J -28117524.29 -28117524.13 -28117523.97 0.0493 0.0244

Moon -81695-09-19 11:44 J -28117414.19 -28117414.01 -28117413.83 0.0496 0.0335

Earth -81695-09-19 13:40 J -28117414.11 -28117413.93 -28117413.75 0.0496 0.0330 \*

Venus -81690-03-22 22:04 J -28115768.77 -28115768.58 -28115768.38 0.0538 0.0094

Mercury -81690-10-24 05:59 J -28115553.33 -28115553.25 -28115553.16 0.0536 0.0400

Mercury -81689-01-21 13:54 J -28115464.05 -28115463.92 -28115463.79 0.0535 0.0050

Mercury -81689-04-19 22:32 J -28115374.60 -28115374.56 -28115374.52 0.0532 0.0503

Mars -81688-08-19 02:08 J -28114888.67 -28114888.41 -28114888.13 0.0516 0.0216

Venus -81684-01-21 08:08 J -28113637.36 -28113637.16 -28113636.97 0.0488 0.0201

Mercury -81684-12-20 00:56 J -28113304.57 -28113304.46 -28113304.35 0.0491 0.0389

Mercury -81683-03-20 06:56 J -28113214.38 -28113214.21 -28113214.04 0.0492 0.0117

Earth -81683-09-24 05:16 J -28113026.52 -28113026.28 -28113026.05 0.0497 0.0098  
 Moon -81683-09-24 05:30 J -28113026.50 -28113026.27 -28113026.04 0.0497 0.0069 \*  
 Venus -81679-11-25 13:40 J -28111503.04 -28111502.93 -28111502.81 0.0539 0.0436  
 Mercury -81678-08-12 09:20 J -28111243.14 -28111243.11 -28111243.08 0.0537 0.0517  
 Mercury -81678-11-09 17:16 J -28111153.91 -28111153.78 -28111153.65 0.0536 0.0069  
 Mercury -81677-02-07 01:40 J -28111064.52 -28111064.43 -28111064.34 0.0534 0.0385  
 Earth -81677-03-18 07:11 J -28111024.34 -28111024.20 -28111024.05 0.0532 0.0404  
 Moon -81677-03-18 10:47 J -28111024.20 -28111024.05 -28111023.89 0.0532 0.0371 \*  
 Mercury -81671-01-06 05:01 J -28108904.47 -28108904.29 -28108904.11 0.0492 0.0013  
 Mercury -81671-04-06 09:49 J -28108814.11 -28108814.09 -28108814.06 0.0494 0.0488  
 Earth -81671-09-28 21:49 J -28108638.82 -28108638.59 -28108638.36 0.0498 0.0136  
 Moon -81671-09-28 23:16 J -28108638.76 -28108638.53 -28108638.29 0.0498 0.0148 \*  
 Mercury -81666-08-28 21:06 J -28106843.74 -28106843.62 -28106843.50 0.0536 0.0180  
 Mercury -81666-11-26 05:30 J -28106754.39 -28106754.27 -28106754.16 0.0534 0.0275  
 Moon -81665-03-23 00:42 J -28106636.69 -28106636.47 -28106636.24 0.0531 0.0134  
 Earth -81665-03-23 03:35 J -28106636.57 -28106636.35 -28106636.13 0.0531 0.0130 \*  
 Venus -81660-01-23 19:54 J -28104868.76 -28104868.67 -28104868.58 0.0488 0.0440  
 Mercury -81660-10-25 02:52 J -28104594.55 -28104594.38 -28104594.20 0.0491 0.0137  
 Mercury -81659-01-23 08:08 J -28104504.28 -28104504.16 -28104504.04 0.0493 0.0362  
 Moon -81659-10-03 11:16 J -28104251.20 -28104251.03 -28104250.86 0.0500 0.0343  
 Earth -81659-10-03 14:23 J -28104251.05 -28104250.90 -28104250.74 0.0500 0.0371 \*  
 Venus -81655-11-28 12:56 J -28102734.09 -28102733.96 -28102733.82 0.0539 0.0389  
 Mercury -81654-06-17 00:56 J -28102533.56 -28102533.46 -28102533.35 0.0537 0.0288  
 Mercury -81654-09-14 09:20 J -28102444.24 -28102444.11 -28102443.99 0.0535 0.0166  
 Earth -81653-03-27 23:30 J -28102248.73 -28102248.52 -28102248.30 0.0529 0.0143  
 Moon -81653-03-28 00:56 J -28102248.68 -28102248.46 -28102248.25 0.0529 0.0111 \*  
 Venus -81649-09-28 19:40 J -28100602.89 -28100602.68 -28100602.47 0.0488 0.0038  
 Mercury -81648-08-13 01:11 J -28100284.60 -28100284.45 -28100284.30 0.0491 0.0261  
 Mercury -81648-11-11 06:56 J -28100194.37 -28100194.21 -28100194.06 0.0493 0.0242  
 Venus -81643-08-03 06:42 J -28098468.41 -28098468.22 -28098468.03 0.0539 0.0127

Mercury -81642-04-05 04:47 J -28098223.39 -28098223.30 -28098223.22 0.0536 0.0400

Mercury -81642-07-03 12:42 J -28098134.10 -28098133.97 -28098133.84 0.0535 0.0050

Mercury -81642-09-30 21:06 J -28098044.65 -28098044.62 -28098044.57 0.0532 0.0503

Earth -81641-04-01 14:52 J -28097861.03 -28097860.88 -28097860.73 0.0527 0.0400

Moon -81641-04-01 15:35 J -28097861.00 -28097860.85 -28097860.70 0.0527 0.0400 \*

Venus -81637-06-03 17:59 J -28096336.87 -28096336.75 -28096336.61 0.0488 0.0376

Mercury -81636-05-31 22:47 J -28095974.66 -28095974.55 -28095974.44 0.0491 0.0392

Mercury -81636-08-30 04:47 J -28095884.47 -28095884.30 -28095884.12 0.0493 0.0116

Mars -81634-05-03 17:16 J -28095272.98 -28095272.78 -28095272.55 0.0510 0.0282

Mercury -81630-01-22 08:08 J -28093913.19 -28093913.16 -28093913.12 0.0537 0.0513

Mercury -81630-04-21 16:04 J -28093823.96 -28093823.83 -28093823.70 0.0535 0.0067

Mercury -81630-07-20 00:28 J -28093734.57 -28093734.48 -28093734.39 0.0533 0.0386

Mercury -81624-06-18 02:52 J -28091574.56 -28091574.38 -28091574.20 0.0492 0.0014

Mercury -81624-09-16 07:54 J -28091484.20 -28091484.17 -28091484.14 0.0494 0.0484

Mercury -81618-02-07 19:11 J -28089513.82 -28089513.70 -28089513.58 0.0536 0.0187

Mercury -81618-05-08 03:20 J -28089424.47 -28089424.36 -28089424.24 0.0534 0.0267

Venus -81613-06-06 06:28 J -28087568.41 -28087568.23 -28087568.06 0.0488 0.0267

Mercury -81612-04-06 00:56 J -28087264.63 -28087264.46 -28087264.28 0.0492 0.0139

Mercury -81612-07-05 06:13 J -28087174.36 -28087174.24 -28087174.12 0.0493 0.0361

Earth -81612-09-18 14:52 J -28087099.04 -28087098.88 -28087098.70 0.0495 0.0353

Moon -81612-09-18 15:35 J -28087099.01 -28087098.85 -28087098.69 0.0495 0.0356 \*

Venus -81607-04-10 18:42 J -28085433.91 -28085433.72 -28085433.53 0.0539 0.0152

Mercury -81607-11-26 22:47 J -28085203.65 -28085203.55 -28085203.44 0.0537 0.0299

Mercury -81606-02-24 07:11 J -28085114.33 -28085114.20 -28085114.08 0.0535 0.0155

Venus -81601-02-10 05:30 J -28083302.47 -28083302.27 -28083302.07 0.0488 0.0140

Mercury -81600-01-22 22:32 J -28082954.71 -28082954.56 -28082954.40 0.0491 0.0269

Mercury -81600-04-23 04:18 J -28082864.48 -28082864.32 -28082864.16 0.0493 0.0234

Earth -81600-09-23 05:59 J -28082711.48 -28082711.25 -28082711.02 0.0496 0.0126

Moon -81600-09-23 07:11 J -28082711.45 -28082711.20 -28082710.96 0.0496 0.0096 \*

Mars -81598-02-04 16:47 J -28082212.00 -28082211.80 -28082211.60 0.0512 0.0325

Venus -81596-12-14 12:56 J -28081168.10 -28081167.96 -28081167.81 0.0539 0.0360  
 Mercury -81595-09-15 02:52 J -28080893.46 -28080893.38 -28080893.29 0.0537 0.0405  
 Mercury -81595-12-13 11:01 J -28080804.17 -28080804.04 -28080803.91 0.0535 0.0046  
 Mercury -81594-03-12 19:25 J -28080714.72 -28080714.69 -28080714.64 0.0533 0.0502  
 Moon -81594-03-18 09:20 J -28080709.26 -28080709.11 -28080708.96 0.0533 0.0399  
 Earth -81594-03-18 12:13 J -28080709.11 -28080708.99 -28080708.85 0.0533 0.0432 \*  
 Mercury -81589-11-10 20:37 J -28078644.74 -28078644.64 -28078644.53 0.0491 0.0394  
 Mercury -81588-02-09 02:37 J -28078554.56 -28078554.39 -28078554.21 0.0492 0.0112  
 Moon -81588-09-27 21:06 J -28078323.85 -28078323.62 -28078323.39 0.0498 0.0114  
 Earth -81588-09-27 23:59 J -28078323.73 -28078323.50 -28078323.26 0.0498 0.0109 \*  
 Mercury -81583-07-04 06:42 J -28076583.25 -28076583.22 -28076583.19 0.0537 0.0515  
 Mercury -81583-10-01 14:37 J -28076494.02 -28076493.89 -28076493.77 0.0535 0.0071  
 Mercury -81583-12-29 22:47 J -28076404.63 -28076404.55 -28076404.45 0.0533 0.0385  
 Earth -81582-03-23 06:13 J -28076321.46 -28076321.24 -28076321.03 0.0531 0.0161  
 Moon -81582-03-23 07:54 J -28076321.38 -28076321.17 -28076320.97 0.0531 0.0169 \*  
 Mercury -81577-11-28 00:28 J -28074244.66 -28074244.48 -28074244.30 0.0492 0.0019  
 Mercury -81576-02-26 05:30 J -28074154.30 -28074154.27 -28074154.23 0.0494 0.0481  
 Earth -81576-10-02 17:16 J -28073935.95 -28073935.78 -28073935.61 0.0500 0.0348  
 Moon -81576-10-02 21:20 J -28073935.80 -28073935.61 -28073935.43 0.0500 0.0317 \*  
 Venus -81572-12-17 10:47 J -28072399.15 -28072399.05 -28072398.94 0.0538 0.0454  
 Mercury -81571-07-20 17:59 J -28072183.87 -28072183.75 -28072183.63 0.0535 0.0184  
 Mercury -81571-10-18 02:08 J -28072094.52 -28072094.41 -28072094.30 0.0533 0.0268  
 Moon -81570-03-27 23:01 J -28071933.78 -28071933.54 -28071933.31 0.0529 0.0072  
 Earth -81570-03-27 22:47 J -28071933.77 -28071933.55 -28071933.33 0.0529 0.0102 \*  
 Venus -81566-10-18 15:20 J -28070268.07 -28070267.86 -28070267.65 0.0489 0.0085  
 Mercury -81565-09-15 22:18 J -28069934.74 -28069934.57 -28069934.39 0.0492 0.0147  
 Mercury -81565-12-15 03:49 J -28069844.46 -28069844.34 -28069844.22 0.0493 0.0355  
 Venus -81560-08-22 01:25 J -28068133.63 -28068133.44 -28068133.24 0.0539 0.0079  
 Mercury -81559-05-08 21:06 J -28067873.73 -28067873.62 -28067873.52 0.0536 0.0306  
 Mercury -81559-08-06 05:01 J -28067784.41 -28067784.29 -28067784.16 0.0535 0.0147

Moon -81558-04-01 11:16 J -28067546.18 -28067546.03 -28067545.87 0.0528 0.0371  
 Earth -81558-04-01 13:25 J -28067546.09 -28067545.94 -28067545.76 0.0528 0.0362 \*  
 Venus -81554-06-23 15:35 J -28066002.01 -28066001.85 -28066001.69 0.0488 0.0317  
 Mercury -81553-07-04 20:23 J -28065624.80 -28065624.65 -28065624.50 0.0491 0.0273  
 Mercury -81553-10-03 02:08 J -28065534.57 -28065534.41 -28065534.25 0.0493 0.0231  
 Mercury -81547-02-25 00:42 J -28063563.55 -28063563.47 -28063563.39 0.0537 0.0417  
 Mercury -81547-05-25 08:37 J -28063474.27 -28063474.14 -28063474.01 0.0535 0.0035  
 Mercury -81547-08-22 17:16 J -28063384.83 -28063384.78 -28063384.73 0.0533 0.0488  
 Mercury -81541-04-22 17:59 J -28061314.85 -28061314.75 -28061314.65 0.0491 0.0403  
 Mercury -81541-07-21 23:59 J -28061224.68 -28061224.50 -28061224.32 0.0492 0.0103  
 Mercury -81536-12-14 04:32 J -28059253.33 -28059253.31 -28059253.28 0.0537 0.0525  
 Mercury -81535-03-13 12:28 J -28059164.10 -28059163.98 -28059163.85 0.0536 0.0078  
 Mercury -81535-06-10 21:06 J -28059074.71 -28059074.62 -28059074.53 0.0534 0.0379  
 Mars -81534-11-12 21:20 J -28058554.91 -28058554.61 -28058554.32 0.0516 0.0026  
 Venus -81530-06-26 02:37 J -28057233.54 -28057233.39 -28057233.22 0.0488 0.0322  
 Mercury -81529-05-09 22:18 J -28056914.75 -28056914.57 -28056914.39 0.0492 0.0023  
 Mercury -81529-08-08 03:06 J -28056824.41 -28056824.37 -28056824.32 0.0494 0.0476  
 Earth -81529-09-17 15:35 J -28056783.99 -28056783.85 -28056783.69 0.0495 0.0381  
 Moon -81529-09-17 16:32 J -28056783.97 -28056783.81 -28056783.65 0.0495 0.0378 \*  
 Venus -81524-04-29 17:59 J -28055098.92 -28055098.75 -28055098.57 0.0539 0.0228  
 Mercury -81524-12-30 16:18 J -28054853.94 -28054853.82 -28054853.70 0.0536 0.0188  
 Mercury -81523-03-30 00:28 J -28054764.59 -28054764.48 -28054764.36 0.0534 0.0265  
 Venus -81518-03-01 00:42 J -28052967.68 -28052967.47 -28052967.26 0.0488 0.0094  
 Mercury -81517-02-26 19:54 J -28052604.84 -28052604.67 -28052604.50 0.0492 0.0154  
 Mercury -81517-05-27 01:11 J -28052514.57 -28052514.45 -28052514.32 0.0494 0.0349  
 Moon -81517-09-22 04:47 J -28052396.53 -28052396.30 -28052396.08 0.0496 0.0123  
 Earth -81517-09-22 07:11 J -28052396.43 -28052396.20 -28052395.97 0.0496 0.0151 \*  
 Venus -81512-01-02 11:01 J -28050833.20 -28050833.04 -28050832.87 0.0539 0.0291  
 Mercury -81512-10-18 19:54 J -28050543.78 -28050543.67 -28050543.57 0.0536 0.0302  
 Mercury -81511-01-16 03:49 J -28050454.46 -28050454.34 -28050454.21 0.0534 0.0148



Earth -81511-03-17 11:44 J -28050394.11 -28050394.01 -28050393.90 0.0533 0.0468  
 Moon -81511-03-17 13:40 J -28050394.05 -28050393.93 -28050393.80 0.0533 0.0439 \*  
 Mercury -81506-12-15 17:44 J -28048294.91 -28048294.76 -28048294.61 0.0491 0.0282  
 Mercury -81505-03-14 23:30 J -28048204.68 -28048204.52 -28048204.36 0.0493 0.0223  
 Earth -81505-09-26 23:30 J -28048008.76 -28048008.52 -28048008.29 0.0497 0.0083  
 Moon -81505-09-27 03:20 J -28048008.60 -28048008.36 -28048008.12 0.0497 0.0080 \*  
 Mercury -81500-08-06 22:47 J -28046233.63 -28046233.55 -28046233.47 0.0537 0.0424  
 Mercury -81500-11-04 06:42 J -28046144.35 -28046144.22 -28046144.09 0.0535 0.0025  
 Mercury -81499-02-01 15:20 J -28046054.92 -28046054.86 -28046054.81 0.0533 0.0479  
 Moon -81499-03-22 02:23 J -28046006.61 -28046006.40 -28046006.18 0.0532 0.0216  
 Earth -81499-03-22 02:52 J -28046006.59 -28046006.38 -28046006.17 0.0532 0.0206 \*  
 Mercury -81494-10-03 15:35 J -28043984.94 -28043984.85 -28043984.74 0.0491 0.0408  
 Mercury -81493-01-01 21:49 J -28043894.77 -28043894.59 -28043894.41 0.0492 0.0099  
 Moon -81493-10-01 12:28 J -28043621.18 -28043620.98 -28043620.78 0.0499 0.0284  
 Earth -81493-10-01 16:18 J -28043620.99 -28043620.82 -28043620.63 0.0499 0.0318 \*  
 Venus -81488-01-05 05:01 J -28042064.36 -28042064.29 -28042064.22 0.0539 0.0500  
 Mercury -81488-05-26 02:23 J -28041923.40 -28041923.40 -28041923.39 0.0537 0.0536  
 Mercury -81488-08-23 10:18 J -28041834.20 -28041834.07 -28041833.94 0.0536 0.0089  
 Mercury -81488-11-20 18:42 J -28041744.81 -28041744.72 -28041744.62 0.0534 0.0366  
 Moon -81487-03-26 19:40 J -28041618.90 -28041618.68 -28041618.46 0.0530 0.0035  
 Earth -81487-03-26 21:35 J -28041618.83 -28041618.60 -28041618.38 0.0530 0.0063 \*  
 Venus -81483-11-06 12:13 J -28039933.19 -28039932.99 -28039932.79 0.0488 0.0141  
 Mercury -81482-10-20 19:25 J -28039584.87 -28039584.69 -28039584.50 0.0492 0.0033  
 Mercury -81481-01-19 00:42 J -28039494.53 -28039494.47 -28039494.42 0.0493 0.0467  
 Mars -81480-07-26 21:35 J -28038939.84 -28038939.60 -28038939.34 0.0510 0.0128  
 Venus -81477-09-09 23:16 J -28037798.73 -28037798.53 -28037798.34 0.0539 0.0016  
 Mercury -81476-06-11 14:08 J -28037524.03 -28037523.91 -28037523.79 0.0536 0.0198  
 Mercury -81476-09-08 22:32 J -28037434.68 -28037434.56 -28037434.45 0.0534 0.0256  
 Earth -81475-03-31 16:47 J -28037230.97 -28037230.80 -28037230.62 0.0529 0.0330  
 Moon -81475-03-31 20:23 J -28037230.82 -28037230.65 -28037230.48 0.0529 0.0347 \*

Venus -81471-07-12 11:44 J -28035667.18 -28035667.01 -28035666.83 0.0488 0.0263  
 Mercury -81470-08-08 17:30 J -28035274.94 -28035274.77 -28035274.59 0.0491 0.0157  
 Mercury -81470-11-06 23:01 J -28035184.67 -28035184.54 -28035184.41 0.0493 0.0345  
 Venus -81465-05-15 17:44 J -28033532.81 -28033532.76 -28033532.72 0.0539 0.0522  
 Mercury -81464-03-30 17:59 J -28033213.85 -28033213.75 -28033213.64 0.0536 0.0308  
 Mercury -81464-06-28 02:08 J -28033124.53 -28033124.41 -28033124.28 0.0534 0.0143  
 Mercury -81458-05-27 15:06 J -28030965.02 -28030964.87 -28030964.73 0.0491 0.0289  
 Mercury -81458-08-25 20:52 J -28030874.79 -28030874.63 -28030874.47 0.0493 0.0216  
 Mercury -81452-01-16 21:35 J -28028903.67 -28028903.60 -28028903.52 0.0536 0.0420  
 Mercury -81452-04-16 05:30 J -28028814.40 -28028814.27 -28028814.14 0.0535 0.0030  
 Mercury -81452-07-14 14:08 J -28028724.97 -28028724.91 -28028724.86 0.0533 0.0482  
 Venus -81447-07-14 22:04 J -28026898.72 -28026898.58 -28026898.44 0.0489 0.0367  
 Mercury -81446-03-15 12:56 J -28026655.05 -28026654.96 -28026654.86 0.0491 0.0417  
 Mercury -81446-06-13 19:11 J -28026564.88 -28026564.70 -28026564.52 0.0492 0.0090  
 Moon -81446-09-17 13:40 J -28026469.07 -28026468.93 -28026468.80 0.0494 0.0400  
 Earth -81446-09-17 15:20 J -28026468.98 -28026468.86 -28026468.71 0.0494 0.0405 \*  
 Mars -81444-04-30 04:04 J -28025878.38 -28025878.33 -28025878.28 0.0512 0.0502  
 Venus -81441-05-18 11:59 J -28024764.17 -28024764.00 -28024763.83 0.0539 0.0271  
 Mercury -81440-02-02 08:23 J -28024504.28 -28024504.15 -28024504.02 0.0536 0.0096  
 Mercury -81440-05-02 16:47 J -28024414.90 -28024414.80 -28024414.70 0.0534 0.0358  
 Venus -81435-03-19 22:04 J -28022632.79 -28022632.58 -28022632.37 0.0488 0.0036  
 Mercury -81434-04-01 17:30 J -28022254.95 -28022254.77 -28022254.59 0.0492 0.0035  
 Mercury -81434-06-30 22:18 J -28022164.62 -28022164.57 -28022164.50 0.0494 0.0465  
 Earth -81434-09-22 07:40 J -28022081.40 -28022081.18 -28022080.95 0.0495 0.0177  
 Moon -81434-09-22 11:30 J -28022081.25 -28022081.02 -28022080.79 0.0495 0.0147 \*  
 Venus -81429-01-22 04:47 J -28020498.48 -28020498.30 -28020498.13 0.0539 0.0248  
 Mercury -81429-11-21 11:59 J -28020194.12 -28020194.00 -28020193.88 0.0536 0.0210  
 Mercury -81428-02-18 20:08 J -28020104.77 -28020104.66 -28020104.54 0.0534 0.0243  
 Moon -81428-03-16 07:25 J -28020079.28 -28020079.19 -28020079.09 0.0534 0.0484  
 Earth -81428-03-16 08:23 J -28020079.21 -28020079.15 -28020079.09 0.0534 0.0513 \*

Venus -81424-11-22 21:35 J -28018366.68 -28018366.60 -28018366.51 0.0488 0.0440  
 Mercury -81422-01-18 15:06 J -28017945.04 -28017944.87 -28017944.70 0.0491 0.0164  
 Mercury -81422-04-18 20:23 J -28017854.77 -28017854.65 -28017854.52 0.0493 0.0337  
 Moon -81422-09-26 18:42 J -28017693.96 -28017693.72 -28017693.48 0.0497 0.0044  
 Earth -81422-09-26 22:47 J -28017693.79 -28017693.55 -28017693.31 0.0497 0.0051 \*  
 Mercury -81417-09-09 15:49 J -28015883.94 -28015883.84 -28015883.74 0.0537 0.0319  
 Mercury -81417-12-07 23:59 J -28015794.63 -28015794.50 -28015794.37 0.0535 0.0133  
 Moon -81416-03-21 03:49 J -28015691.53 -28015691.34 -28015691.15 0.0532 0.0258  
 Earth -81416-03-21 05:16 J -28015691.48 -28015691.28 -28015691.08 0.0532 0.0239 \*  
 Mercury -81411-11-06 12:56 J -28013635.10 -28013634.96 -28013634.81 0.0491 0.0291  
 Mercury -81410-02-04 18:42 J -28013544.88 -28013544.72 -28013544.55 0.0493 0.0213  
 Earth -81410-10-01 15:49 J -28013306.03 -28013305.84 -28013305.64 0.0498 0.0285  
 Moon -81410-10-01 19:25 J -28013305.89 -28013305.69 -28013305.49 0.0498 0.0254 \*  
 Mercury -81405-06-28 19:54 J -28011573.75 -28011573.67 -28011573.59 0.0537 0.0426  
 Mercury -81405-09-26 03:49 J -28011484.47 -28011484.34 -28011484.21 0.0535 0.0023  
 Mercury -81405-12-24 12:13 J -28011395.04 -28011394.99 -28011394.93 0.0533 0.0478  
 Earth -81404-03-26 01:11 J -28011303.68 -28011303.45 -28011303.23 0.0530 0.0035  
 Moon -81404-03-26 04:18 J -28011303.55 -28011303.32 -28011303.09 0.0530 0.0015 \*  
 Venus -81400-11-25 07:25 J -28009598.38 -28009598.19 -28009597.99 0.0488 0.0190  
 Mercury -81399-08-25 10:18 J -28009325.16 -28009325.07 -28009324.98 0.0491 0.0424  
 Mercury -81399-11-23 16:32 J -28009234.99 -28009234.81 -28009234.63 0.0492 0.0083  
 Venus -81394-09-29 21:49 J -28007463.78 -28007463.59 -28007463.39 0.0539 0.0061  
 Mercury -81393-07-15 07:25 J -28007174.32 -28007174.19 -28007174.06 0.0535 0.0091  
 Mercury -81393-10-12 15:49 J -28007084.94 -28007084.84 -28007084.75 0.0533 0.0363  
 Moon -81392-03-30 14:08 J -28006916.09 -28006915.91 -28006915.73 0.0529 0.0313  
 Earth -81392-03-30 17:59 J -28006915.93 -28006915.75 -28006915.56 0.0529 0.0295 \*  
 Venus -81388-07-31 07:25 J -28005332.38 -28005332.19 -28005332.00 0.0488 0.0215  
 Mercury -81387-09-11 14:52 J -28004925.06 -28004924.88 -28004924.70 0.0492 0.0042  
 Mercury -81387-12-10 19:54 J -28004834.73 -28004834.67 -28004834.60 0.0494 0.0457  
 Venus -81382-06-04 11:59 J -28003198.09 -28003198.00 -28003197.91 0.0539 0.0475

Mercury -81381-05-03 10:04 J -28002864.19 -28002864.08 -28002863.96 0.0536 0.0216

Mercury -81381-07-31 18:28 J -28002774.85 -28002774.73 -28002774.62 0.0534 0.0237

Mars -81379-02-04 18:13 J -28002222.00 -28002221.74 -28002221.47 0.0516 0.0214

Mercury -81375-06-30 13:11 J -28000615.12 -28000614.95 -28000614.78 0.0491 0.0166

Mercury -81375-09-28 18:42 J -28000524.85 -28000524.72 -28000524.59 0.0493 0.0336

Mercury -81369-02-20 13:40 J -27998554.03 -27998553.93 -27998553.82 0.0537 0.0329

Mercury -81369-05-19 21:49 J -27998464.72 -27998464.59 -27998464.46 0.0535 0.0122

Venus -81364-08-02 19:40 J -27996563.78 -27996563.68 -27996563.58 0.0488 0.0427

Mercury -81363-04-18 10:32 J -27996305.20 -27996305.06 -27996304.91 0.0491 0.0296

Mercury -81363-07-17 16:32 J -27996214.97 -27996214.81 -27996214.65 0.0492 0.0208

Earth -81363-09-16 16:47 J -27996153.91 -27996153.80 -27996153.68 0.0494 0.0429

Moon -81363-09-16 20:23 J -27996153.78 -27996153.65 -27996153.52 0.0494 0.0414 \*

Venus -81358-06-07 09:35 J -27994429.25 -27994429.10 -27994428.94 0.0539 0.0338

Mercury -81358-12-09 17:44 J -27994243.83 -27994243.76 -27994243.69 0.0537 0.0437

Mercury -81357-03-08 01:40 J -27994154.56 -27994154.43 -27994154.30 0.0536 0.0012

Mercury -81357-06-05 10:04 J -27994065.13 -27994065.08 -27994065.01 0.0533 0.0469

Venus -81352-04-07 19:11 J -27992297.91 -27992297.70 -27992297.49 0.0488 0.0023

Mercury -81351-02-04 08:37 J -27991995.23 -27991995.14 -27991995.05 0.0491 0.0423

Mercury -81351-05-05 14:37 J -27991905.06 -27991904.89 -27991904.71 0.0492 0.0084

Moon -81351-09-21 04:32 J -27991766.53 -27991766.31 -27991766.08 0.0495 0.0177

Earth -81351-09-21 08:37 J -27991766.36 -27991766.14 -27991765.92 0.0495 0.0204 \*

Venus -81346-02-10 04:32 J -27990163.50 -27990163.31 -27990163.12 0.0539 0.0170

Mercury -81346-12-26 05:44 J -27989844.39 -27989844.26 -27989844.14 0.0536 0.0097

Moon -81345-03-15 12:13 J -27989764.03 -27989763.99 -27989763.94 0.0534 0.0518

Mercury -81345-03-24 13:54 J -27989755.01 -27989754.92 -27989754.82 0.0534 0.0358

Venus -81341-12-11 17:44 J -27988031.89 -27988031.76 -27988031.63 0.0488 0.0388

Mercury -81339-02-21 12:28 J -27987595.16 -27987594.98 -27987594.80 0.0492 0.0047

Mercury -81339-05-22 17:30 J -27987504.83 -27987504.77 -27987504.70 0.0494 0.0453

Earth -81339-09-26 00:13 J -27987378.73 -27987378.49 -27987378.25 0.0497 0.0028

Moon -81339-09-26 03:49 J -27987378.58 -27987378.34 -27987378.11 0.0497 0.0018 \*

Mercury -81334-10-14 09:20 J -27985534.23 -27985534.11 -27985533.99 0.0536 0.0208

Mercury -81333-01-11 17:30 J -27985444.89 -27985444.77 -27985444.66 0.0534 0.0244

Earth -81333-03-20 08:23 J -27985376.35 -27985376.15 -27985375.96 0.0532 0.0268

Moon -81333-03-20 11:16 J -27985376.22 -27985376.03 -27985375.83 0.0532 0.0294 \*

Mercury -81328-12-10 10:47 J -27983285.22 -27983285.05 -27983284.88 0.0491 0.0172

Mercury -81327-03-10 16:18 J -27983194.95 -27983194.82 -27983194.69 0.0493 0.0331

Moon -81327-09-30 15:20 J -27982991.07 -27982990.86 -27982990.63 0.0498 0.0231

Earth -81327-09-30 17:59 J -27982990.95 -27982990.75 -27982990.54 0.0498 0.0262 \*

Mars -81326-10-20 11:59 J -27982606.25 -27982606.00 -27982605.74 0.0510 0.0062

Mercury -81322-08-02 11:59 J -27981224.09 -27981224.00 -27981223.89 0.0536 0.0333

Mercury -81322-10-30 20:08 J -27981134.79 -27981134.66 -27981134.53 0.0535 0.0119

Moon -81321-03-24 18:28 J -27980988.96 -27980988.73 -27980988.51 0.0531 0.0036

Earth -81321-03-24 22:18 J -27980988.80 -27980988.57 -27980988.35 0.0531 0.0012 \*

Venus -81317-12-14 06:28 J -27979263.40 -27979263.23 -27979263.04 0.0488 0.0258

Mercury -81316-09-28 09:06 J -27978975.27 -27978975.12 -27978974.98 0.0491 0.0294

Mercury -81316-12-27 14:52 J -27978885.04 -27978884.88 -27978884.72 0.0493 0.0210

Earth -81315-10-05 12:28 J -27978603.00 -27978602.98 -27978602.96 0.0499 0.0497

Venus -81311-10-18 16:18 J -27977129.01 -27977128.82 -27977128.63 0.0539 0.0108

Mercury -81310-05-21 15:49 J -27976913.91 -27976913.84 -27976913.77 0.0537 0.0445

Mercury -81310-08-18 23:44 J -27976824.64 -27976824.51 -27976824.38 0.0535 0.0016

Mercury -81310-11-16 08:08 J -27976735.22 -27976735.16 -27976735.09 0.0533 0.0459

Earth -81309-03-29 16:04 J -27976601.03 -27976600.83 -27976600.63 0.0530 0.0253

Moon -81309-03-29 19:54 J -27976600.86 -27976600.67 -27976600.48 0.0530 0.0274 \*

Venus -81305-08-19 05:59 J -27974997.44 -27974997.25 -27974997.04 0.0488 0.0149

Mercury -81304-07-17 06:28 J -27974665.31 -27974665.23 -27974665.13 0.0490 0.0424

Mercury -81304-10-15 12:42 J -27974575.14 -27974574.97 -27974574.79 0.0492 0.0082

Venus -81299-06-23 09:49 J -27972863.21 -27972863.09 -27972862.96 0.0539 0.0407

Mercury -81298-06-07 03:35 J -27972514.48 -27972514.35 -27972514.23 0.0536 0.0106

Mercury -81298-09-04 11:59 J -27972425.10 -27972425.00 -27972424.91 0.0534 0.0349

Earth -81297-04-03 11:44 J -27972213.05 -27972213.01 -27972212.96 0.0528 0.0517

Mercury -81292-08-03 10:47 J -27970265.23 -27970265.05 -27970264.86 0.0492 0.0045

Mercury -81292-11-01 16:04 J -27970174.90 -27970174.83 -27970174.76 0.0493 0.0455

Mercury -81286-03-26 07:40 J -27968204.30 -27968204.18 -27968204.06 0.0536 0.0212

Mercury -81286-06-23 15:49 J -27968114.96 -27968114.84 -27968114.72 0.0534 0.0241

Venus -81281-08-21 16:47 J -27966228.82 -27966228.80 -27966228.77 0.0488 0.0485

Mercury -81280-05-22 08:37 J -27965955.31 -27965955.14 -27965954.97 0.0491 0.0174

Mercury -81280-08-20 14:08 J -27965865.04 -27965864.91 -27965864.78 0.0493 0.0329

Moon -81280-09-15 15:49 J -27965838.95 -27965838.84 -27965838.72 0.0494 0.0432

Earth -81280-09-15 19:54 J -27965838.77 -27965838.67 -27965838.57 0.0494 0.0451 \*

Venus -81275-06-26 10:18 J -27964094.19 -27964094.07 -27964093.95 0.0539 0.0422

Mercury -81274-01-12 11:30 J -27963894.12 -27963894.02 -27963893.92 0.0537 0.0323

Mercury -81274-04-11 19:25 J -27963804.81 -27963804.69 -27963804.56 0.0535 0.0129

Venus -81269-04-26 17:01 J -27961963.00 -27961962.79 -27961962.58 0.0488 0.0083

Mercury -81268-03-10 06:56 J -27961645.36 -27961645.21 -27961645.07 0.0491 0.0297

Mercury -81268-06-08 12:56 J -27961555.13 -27961554.96 -27961554.80 0.0493 0.0208

Earth -81268-09-20 12:42 J -27961451.18 -27961450.97 -27961450.75 0.0495 0.0222

Moon -81268-09-20 16:32 J -27961451.03 -27961450.81 -27961450.59 0.0495 0.0195 \*

Venus -81263-03-01 00:42 J -27959828.66 -27959828.47 -27959828.28 0.0539 0.0111

Mercury -81263-10-31 14:23 J -27959583.97 -27959583.90 -27959583.83 0.0537 0.0445

Mercury -81262-01-28 22:18 J -27959494.70 -27959494.57 -27959494.44 0.0535 0.0017

Mercury -81262-04-28 06:42 J -27959405.29 -27959405.22 -27959405.16 0.0533 0.0458

Mars -81261-07-23 23:30 J -27958952.72 -27958952.52 -27958952.31 0.0519 0.0366

Venus -81258-12-31 17:30 J -27957696.92 -27957696.77 -27957696.60 0.0488 0.0316

Mercury -81257-12-27 05:16 J -27957335.37 -27957335.28 -27957335.19 0.0491 0.0420

Mercury -81256-03-27 11:30 J -27957245.20 -27957245.02 -27957244.84 0.0492 0.0087

Moon -81256-09-25 04:04 J -27957063.58 -27957063.33 -27957063.08 0.0496 0.0004

Earth -81256-09-25 06:42 J -27957063.46 -27957063.22 -27957062.98 0.0496 0.0011 \*

Mercury -81251-11-17 01:40 J -27955184.55 -27955184.43 -27955184.30 0.0536 0.0112

Mercury -81250-02-14 10:04 J -27955095.18 -27955095.08 -27955094.98 0.0534 0.0343

Moon -81250-03-20 02:37 J -27955061.56 -27955061.39 -27955061.22 0.0533 0.0343

Earth -81250-03-20 06:13 J -27955061.42 -27955061.24 -27955061.05 0.0533 0.0312 \*  
 Mercury -81244-01-13 09:20 J -27952935.29 -27952935.11 -27952934.93 0.0492 0.0041  
 Mercury -81244-04-13 14:23 J -27952844.96 -27952844.90 -27952844.83 0.0493 0.0457  
 Earth -81244-09-29 22:04 J -27952675.79 -27952675.58 -27952675.37 0.0497 0.0240  
 Moon -81244-09-29 22:32 J -27952675.76 -27952675.56 -27952675.34 0.0497 0.0214 \*  
 Mercury -81239-09-05 05:44 J -27950874.38 -27950874.26 -27950874.15 0.0537 0.0221  
 Mercury -81239-12-03 13:54 J -27950785.04 -27950784.92 -27950784.80 0.0535 0.0233  
 Earth -81238-03-25 03:06 J -27950673.59 -27950673.37 -27950673.14 0.0532 0.0040  
 Moon -81238-03-25 07:11 J -27950673.43 -27950673.20 -27950672.98 0.0532 0.0059 \*  
 Venus -81233-01-03 05:30 J -27948928.42 -27948928.27 -27948928.11 0.0488 0.0324  
 Mercury -81233-11-01 07:25 J -27948625.36 -27948625.19 -27948625.02 0.0491 0.0167  
 Mercury -81232-01-30 12:42 J -27948535.09 -27948534.97 -27948534.83 0.0493 0.0335  
 Earth -81232-10-04 15:20 J -27948287.92 -27948287.86 -27948287.77 0.0499 0.0472  
 Moon -81232-10-04 17:01 J -27948287.83 -27948287.79 -27948287.72 0.0499 0.0485 \*  
 Venus -81228-11-06 17:30 J -27946793.95 -27946793.77 -27946793.58 0.0539 0.0196  
 Mercury -81227-06-24 09:49 J -27946564.19 -27946564.09 -27946563.99 0.0537 0.0326  
 Mercury -81227-09-21 17:59 J -27946474.88 -27946474.75 -27946474.63 0.0535 0.0127  
 Moon -81226-03-29 21:20 J -27946285.81 -27946285.61 -27946285.41 0.0530 0.0255  
 Earth -81226-03-30 00:28 J -27946285.68 -27946285.48 -27946285.27 0.0530 0.0234 \*  
 Mars -81225-04-30 22:32 J -27945887.65 -27945887.56 -27945887.44 0.0516 0.0480  
 Venus -81222-09-08 04:18 J -27944662.52 -27944662.32 -27944662.11 0.0488 0.0086  
 Mercury -81221-08-20 05:01 J -27944315.43 -27944315.29 -27944315.14 0.0491 0.0297  
 Mercury -81221-11-18 11:01 J -27944225.20 -27944225.04 -27944224.88 0.0493 0.0208  
 Venus -81216-07-12 11:44 J -27942528.17 -27942528.01 -27942527.85 0.0539 0.0315  
 Mercury -81215-04-12 13:40 J -27942254.00 -27942253.93 -27942253.85 0.0537 0.0434  
 Mercury -81215-07-10 21:35 J -27942164.73 -27942164.60 -27942164.47 0.0535 0.0021  
 Mercury -81215-10-08 06:13 J -27942075.30 -27942075.24 -27942075.18 0.0533 0.0470  
 Earth -81214-04-03 18:56 J -27941897.78 -27941897.71 -27941897.63 0.0528 0.0495  
 Moon -81214-04-03 20:08 J -27941897.70 -27941897.66 -27941897.61 0.0528 0.0516 \*  
 Venus -81210-05-14 05:01 J -27940396.32 -27940396.29 -27940396.27 0.0488 0.0484

Mercury -81209-06-08 03:20 J -27940005.45 -27940005.36 -27940005.26 0.0491 0.0420

Mercury -81209-09-06 09:35 J -27939915.27 -27939915.10 -27939914.92 0.0492 0.0088

Mars -81207-04-11 02:52 J -27939333.57 -27939333.38 -27939333.20 0.0508 0.0354

Mercury -81203-04-29 00:28 J -27937854.61 -27937854.48 -27937854.35 0.0536 0.0109

Mercury -81203-07-27 08:52 J -27937765.23 -27937765.13 -27937765.03 0.0534 0.0345

Mercury -81197-06-25 08:23 J -27935605.33 -27935605.15 -27935604.97 0.0492 0.0035

Earth -81197-09-15 05:01 J -27935523.37 -27935523.29 -27935523.21 0.0493 0.0461

Moon -81197-09-15 08:37 J -27935523.25 -27935523.14 -27935523.03 0.0493 0.0434 \*

Mercury -81197-09-23 13:25 J -27935514.99 -27935514.94 -27935514.88 0.0493 0.0465

Venus -81192-07-15 06:28 J -27933759.31 -27933759.23 -27933759.14 0.0539 0.0481

Mercury -81191-02-15 04:04 J -27933544.45 -27933544.33 -27933544.21 0.0536 0.0222

Mercury -81191-05-15 12:13 J -27933455.11 -27933454.99 -27933454.87 0.0534 0.0230

Venus -81186-05-16 17:44 J -27931627.96 -27931627.76 -27931627.56 0.0488 0.0160

Mercury -81185-04-13 06:13 J -27931295.41 -27931295.24 -27931295.07 0.0491 0.0162

Mercury -81185-07-12 11:44 J -27931205.14 -27931205.01 -27931204.88 0.0493 0.0340

Moon -81185-09-19 17:01 J -27931136.02 -27931135.79 -27931135.57 0.0494 0.0213

Earth -81185-09-19 19:40 J -27931135.88 -27931135.68 -27931135.46 0.0494 0.0237 \*

Venus -81180-03-20 00:13 J -27929493.69 -27929493.49 -27929493.29 0.0539 0.0033

Mercury -81180-12-04 07:54 J -27929234.27 -27929234.17 -27929234.07 0.0537 0.0332

Mercury -81179-03-03 16:04 J -27929144.96 -27929144.83 -27929144.70 0.0535 0.0120

Venus -81174-01-19 17:44 J -27927361.94 -27927361.76 -27927361.58 0.0488 0.0243

Mercury -81173-01-31 04:04 J -27926985.47 -27926985.33 -27926985.18 0.0491 0.0288

Mercury -81173-04-30 10:04 J -27926895.24 -27926895.08 -27926894.92 0.0492 0.0216

Earth -81173-09-24 11:59 J -27926748.24 -27926748.00 -27926747.76 0.0495 0.0010

Moon -81173-09-24 13:11 J -27926748.19 -27926747.95 -27926747.72 0.0495 0.0027 \*

Mars -81171-01-13 11:16 J -27926272.25 -27926272.03 -27926271.81 0.0510 0.0267

Mercury -81168-09-22 12:13 J -27924924.06 -27924923.99 -27924923.92 0.0537 0.0436

Mercury -81168-12-20 20:08 J -27924834.79 -27924834.66 -27924834.53 0.0536 0.0014

Earth -81167-03-19 15:35 J -27924746.02 -27924745.85 -27924745.67 0.0534 0.0328

Moon -81167-03-19 19:40 J -27924745.85 -27924745.68 -27924745.52 0.0534 0.0361 \*



Mercury -81167-03-20 04:32 J -27924745.36 -27924745.31 -27924745.24 0.0534 0.0470

Mercury -81162-11-19 01:54 J -27922675.52 -27922675.42 -27922675.33 0.0491 0.0417

Mercury -81161-02-17 08:08 J -27922585.34 -27922585.16 -27922584.98 0.0492 0.0090

Earth -81161-09-29 04:18 J -27922360.53 -27922360.32 -27922360.10 0.0497 0.0222

Moon -81161-09-29 05:44 J -27922360.49 -27922360.26 -27922360.03 0.0497 0.0201 \*

Mercury -81156-10-08 23:59 J -27920524.62 -27920524.50 -27920524.37 0.0536 0.0096

Mercury -81155-01-06 08:23 J -27920435.24 -27920435.15 -27920435.05 0.0534 0.0359

Moon -81155-03-24 09:06 J -27920358.35 -27920358.12 -27920357.89 0.0532 0.0075

Earth -81155-03-24 12:28 J -27920358.20 -27920357.98 -27920357.75 0.0532 0.0057 \*

Venus -81150-01-22 05:44 J -27918593.38 -27918593.26 -27918593.14 0.0488 0.0397

Mercury -81150-12-06 06:42 J -27918275.40 -27918275.22 -27918275.04 0.0492 0.0032

Mercury -81149-03-05 11:59 J -27918185.05 -27918185.00 -27918184.94 0.0493 0.0468

Moon -81149-10-03 20:37 J -27917972.70 -27917972.64 -27917972.57 0.0499 0.0480

Earth -81149-10-03 23:59 J -27917972.59 -27917972.50 -27917972.41 0.0499 0.0458 \*

Venus -81145-11-25 16:18 J -27916458.98 -27916458.82 -27916458.64 0.0539 0.0272

Mercury -81144-07-28 03:06 J -27916214.49 -27916214.37 -27916214.26 0.0536 0.0218

Mercury -81144-10-25 11:01 J -27916125.15 -27916125.04 -27916124.92 0.0534 0.0235

Earth -81143-03-29 02:08 J -27915970.62 -27915970.41 -27915970.20 0.0530 0.0198

Moon -81143-03-29 03:49 J -27915970.53 -27915970.34 -27915970.14 0.0530 0.0225 \*

Venus -81139-09-27 05:59 J -27914327.46 -27914327.25 -27914327.03 0.0489 0.0011

Mercury -81138-09-24 05:16 J -27913965.45 -27913965.28 -27913965.10 0.0491 0.0152

Mercury -81138-12-23 11:01 J -27913875.17 -27913875.04 -27913874.92 0.0493 0.0350

Venus -81133-07-31 09:20 J -27912193.28 -27912193.11 -27912192.93 0.0539 0.0247

Mercury -81132-05-16 06:42 J -27911904.32 -27911904.22 -27911904.12 0.0536 0.0331

Mercury -81132-08-13 14:37 J -27911815.02 -27911814.89 -27911814.76 0.0535 0.0120

Earth -81131-04-02 20:08 J -27911582.77 -27911582.66 -27911582.55 0.0529 0.0458

Moon -81131-04-02 20:37 J -27911582.74 -27911582.64 -27911582.53 0.0529 0.0470 \*

Venus -81127-06-02 06:13 J -27910061.35 -27910061.24 -27910061.12 0.0488 0.0405

Mercury -81126-07-13 03:06 J -27909655.51 -27909655.37 -27909655.21 0.0491 0.0280

Mercury -81126-10-11 09:06 J -27909565.28 -27909565.12 -27909564.96 0.0492 0.0224

Mercury -81120-03-04 10:32 J -27907594.13 -27907594.06 -27907593.99 0.0537 0.0440

Mercury -81120-06-01 18:28 J -27907504.86 -27907504.73 -27907504.60 0.0536 0.0010

Mercury -81120-08-30 02:52 J -27907415.44 -27907415.38 -27907415.31 0.0534 0.0465

Mercury -81114-05-01 01:11 J -27905345.55 -27905345.45 -27905345.35 0.0490 0.0406

Mercury -81114-07-30 07:25 J -27905255.37 -27905255.19 -27905255.01 0.0492 0.0101

Moon -81114-09-15 09:20 J -27905208.20 -27905208.11 -27905208.00 0.0493 0.0445

Earth -81114-09-15 12:28 J -27905208.04 -27905207.98 -27905207.92 0.0493 0.0473 \*

Mercury -81108-03-20 22:32 J -27903194.68 -27903194.56 -27903194.43 0.0536 0.0097

Mercury -81108-06-18 06:56 J -27903105.30 -27903105.21 -27903105.11 0.0534 0.0359

Mars -81107-10-18 16:47 J -27902618.08 -27902617.80 -27902617.51 0.0518 0.0067

Venus -81103-06-04 17:59 J -27901292.93 -27901292.75 -27901292.56 0.0488 0.0234

Mercury -81102-05-18 05:30 J -27900945.45 -27900945.27 -27900945.09 0.0492 0.0028

Mercury -81102-08-16 10:32 J -27900855.10 -27900855.06 -27900855.01 0.0493 0.0472

Earth -81102-09-20 03:20 J -27900820.56 -27900820.36 -27900820.15 0.0494 0.0251

Moon -81102-09-20 04:32 J -27900820.51 -27900820.31 -27900820.10 0.0494 0.0233 \*

Venus -81097-04-08 03:49 J -27899158.53 -27899158.34 -27899158.14 0.0539 0.0072

Mercury -81096-01-07 02:37 J -27898884.51 -27898884.39 -27898884.27 0.0536 0.0204

Mercury -81096-04-06 10:47 J -27898795.16 -27898795.05 -27898794.93 0.0535 0.0250

Venus -81091-02-07 18:28 J -27897026.92 -27897026.73 -27897026.53 0.0488 0.0166

Mercury -81090-03-06 04:04 J -27896635.50 -27896635.33 -27896635.16 0.0491 0.0147

Mercury -81090-06-04 09:35 J -27896545.22 -27896545.10 -27896544.97 0.0493 0.0356

Earth -81090-09-24 21:49 J -27896432.83 -27896432.59 -27896432.34 0.0495 0.0020

Moon -81090-09-24 23:01 J -27896432.79 -27896432.54 -27896432.29 0.0495 0.0041 \*

Venus -81086-12-12 19:40 J -27894892.78 -27894892.68 -27894892.57 0.0538 0.0454

Mercury -81085-10-26 05:44 J -27894574.36 -27894574.26 -27894574.16 0.0536 0.0324

Mercury -81084-01-23 13:40 J -27894485.06 -27894484.93 -27894484.80 0.0535 0.0126

Moon -81084-03-18 15:20 J -27894431.01 -27894430.86 -27894430.70 0.0533 0.0393

Earth -81084-03-18 18:56 J -27894430.87 -27894430.71 -27894430.54 0.0533 0.0360 \*

Mercury -81079-12-23 02:23 J -27892325.54 -27892325.40 -27892325.24 0.0491 0.0270

Mercury -81078-03-23 08:23 J -27892235.30 -27892235.15 -27892234.99 0.0493 0.0237

Moon -81078-09-29 13:25 J -27892045.15 -27892044.94 -27892044.72 0.0497 0.0201  
 Earth -81078-09-29 16:32 J -27892045.02 -27892044.81 -27892044.59 0.0497 0.0216 \*  
 Mercury -81073-08-14 09:20 J -27890264.18 -27890264.11 -27890264.04 0.0537 0.0436  
 Mercury -81073-11-11 17:16 J -27890174.91 -27890174.78 -27890174.65 0.0535 0.0015  
 Mercury -81072-02-09 01:40 J -27890085.49 -27890085.43 -27890085.37 0.0533 0.0467  
 Earth -81072-03-23 13:54 J -27890043.14 -27890042.92 -27890042.69 0.0532 0.0093  
 Moon -81072-03-23 16:04 J -27890043.05 -27890042.83 -27890042.62 0.0532 0.0103 \*  
 Venus -81067-02-10 07:25 J -27888258.22 -27888258.19 -27888258.15 0.0489 0.0479  
 Mercury -81067-10-11 00:13 J -27888015.59 -27888015.49 -27888015.38 0.0491 0.0397  
 Mercury -81066-01-09 06:42 J -27887925.40 -27887925.22 -27887925.05 0.0492 0.0110  
 Earth -81066-10-04 08:37 J -27887657.24 -27887657.14 -27887657.03 0.0498 0.0445  
 Moon -81066-10-04 12:42 J -27887657.04 -27887656.97 -27887656.89 0.0498 0.0473 \*  
 Venus -81062-12-15 17:01 J -27886123.93 -27886123.79 -27886123.64 0.0539 0.0356  
 Mercury -81061-08-30 21:06 J -27885864.75 -27885864.62 -27885864.50 0.0536 0.0100  
 Mercury -81061-11-28 05:16 J -27885775.37 -27885775.28 -27885775.18 0.0534 0.0356  
 Earth -81060-03-28 10:18 J -27885655.28 -27885655.07 -27885654.85 0.0531 0.0178  
 Moon -81060-03-28 10:32 J -27885655.27 -27885655.06 -27885654.84 0.0531 0.0207 \*  
 Venus -81056-10-16 07:25 J -27883992.39 -27883992.19 -27883991.98 0.0488 0.0077  
 Mercury -81055-10-28 04:47 J -27883615.48 -27883615.30 -27883615.12 0.0492 0.0017  
 Mercury -81054-01-26 10:04 J -27883525.11 -27883525.08 -27883525.05 0.0493 0.0484  
 Mars -81053-07-05 11:59 J -27882999.25 -27882999.00 -27882998.74 0.0508 0.0122  
 Venus -81050-08-20 11:59 J -27881858.19 -27881858.00 -27881857.81 0.0539 0.0151  
 Mercury -81049-06-19 01:11 J -27881554.57 -27881554.45 -27881554.33 0.0537 0.0204  
 Mercury -81049-09-16 09:20 J -27881465.22 -27881465.11 -27881464.99 0.0535 0.0250  
 Moon -81048-04-02 05:30 J -27881267.37 -27881267.27 -27881267.15 0.0529 0.0454  
 Earth -81048-04-02 07:54 J -27881267.29 -27881267.17 -27881267.05 0.0529 0.0448 \*  
 Venus -81044-06-21 07:11 J -27879726.35 -27879726.20 -27879726.04 0.0488 0.0327  
 Mercury -81043-08-16 02:52 J -27879305.56 -27879305.38 -27879305.21 0.0491 0.0142  
 Mercury -81043-11-14 08:23 J -27879215.27 -27879215.15 -27879215.03 0.0493 0.0360  
 Mercury -81037-04-07 05:16 J -27877244.38 -27877244.28 -27877244.17 0.0537 0.0311

Mercury -81037-07-05 13:25 J -27877155.07 -27877154.94 -27877154.82 0.0535 0.0142

Mercury -81031-06-04 01:25 J -27874995.59 -27874995.44 -27874995.29 0.0491 0.0262

Mercury -81031-09-02 07:25 J -27874905.35 -27874905.19 -27874905.04 0.0493 0.0243

Earth -81031-09-14 23:01 J -27874892.59 -27874892.54 -27874892.49 0.0493 0.0480

Moon -81031-09-15 00:13 J -27874892.57 -27874892.49 -27874892.39 0.0493 0.0453 \*

Mercury -81025-01-25 08:37 J -27872934.22 -27872934.14 -27872934.07 0.0537 0.0429

Mercury -81025-04-23 16:18 J -27872844.95 -27872844.82 -27872844.69 0.0535 0.0022

Mercury -81025-07-22 00:42 J -27872755.52 -27872755.47 -27872755.41 0.0533 0.0474

Venus -81020-06-23 20:23 J -27870957.81 -27870957.65 -27870957.49 0.0489 0.0319

Mercury -81019-03-22 23:44 J -27870685.62 -27870685.51 -27870685.40 0.0491 0.0386

Mercury -81019-06-21 05:59 J -27870595.42 -27870595.25 -27870595.07 0.0492 0.0122

Earth -81019-09-19 16:18 J -27870505.02 -27870504.82 -27870504.61 0.0494 0.0254

Moon -81019-09-19 17:16 J -27870504.99 -27870504.78 -27870504.56 0.0494 0.0245 \*

Venus -81014-04-28 03:20 J -27868823.55 -27868823.36 -27868823.17 0.0538 0.0149

Mercury -81013-02-10 19:54 J -27868534.80 -27868534.67 -27868534.54 0.0535 0.0094

Mercury -81013-05-10 04:04 J -27868445.42 -27868445.33 -27868445.23 0.0534 0.0360

Venus -81008-02-26 20:08 J -27866691.87 -27866691.66 -27866691.45 0.0489 0.0085

Mercury -81007-04-09 04:04 J -27866285.51 -27866285.33 -27866285.15 0.0492 0.0007

Moon -81007-09-24 04:47 J -27866117.53 -27866117.30 -27866117.06 0.0495 0.0056

Earth -81007-09-24 07:54 J -27866117.41 -27866117.17 -27866116.93 0.0495 0.0027 \*

Venus -81003-12-31 20:23 J -27864557.79 -27864557.65 -27864557.50 0.0539 0.0369

Mercury -81002-11-29 23:44 J -27864224.63 -27864224.51 -27864224.39 0.0536 0.0206

Mercury -81001-02-27 07:54 J -27864135.29 -27864135.17 -27864135.06 0.0535 0.0247

Earth -81001-03-18 02:23 J -27864115.56 -27864115.40 -27864115.24 0.0534 0.0380

Moon -81001-03-18 04:32 J -27864115.44 -27864115.31 -27864115.17 0.0534 0.0413

# 81ST MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 81st millennium BCE.**

PLANET	MAX-	C	START	MAX	END	SUNRAD	DEPTH	S
TRANSIT								
TIME								
Venus	-80997-11-01 20:23 J	-27862425.67	-27862425.65	-27862425.63	0.0489	0.0486		
Mercury	-80995-01-26 02:08 J	-27861975.58	-27861975.41	-27861975.23	0.0491	0.0131		
Mercury	-80995-04-26 07:40 J	-27861885.29	-27861885.18	-27861885.06	0.0493	0.0372		
Earth	-80995-09-29 00:13 J	-27861729.70	-27861729.49	-27861729.26	0.0496	0.0202		
Moon	-80995-09-29 04:32 J	-27861729.54	-27861729.31	-27861729.09	0.0496	0.0193	*	
Mercury	-80990-09-18 03:49 J	-27859914.44	-27859914.34	-27859914.23	0.0537	0.0312		
Mercury	-80990-12-16 11:59 J	-27859825.13	-27859825.00	-27859824.88	0.0535	0.0141		
Moon	-80989-03-23 01:11 J	-27859727.68	-27859727.45	-27859727.22	0.0533	0.0102		
Earth	-80989-03-23 01:11 J	-27859727.67	-27859727.45	-27859727.23	0.0533	0.0104	*	
Mercury	-80984-11-13 23:59 J	-27857665.65	-27857665.50	-27857665.34	0.0491	0.0258		
Mercury	-80983-02-12 05:59 J	-27857575.40	-27857575.25	-27857575.09	0.0492	0.0247		
Moon	-80983-10-03 13:11 J	-27857342.04	-27857341.95	-27857341.86	0.0498	0.0458		
Earth	-80983-10-03 17:01 J	-27857341.89	-27857341.79	-27857341.66	0.0498	0.0432	*	
Venus	-80978-01-03 21:20 J	-27855788.70	-27855788.61	-27855788.51	0.0539	0.0463		
Mercury	-80978-07-07 07:54 J	-27855604.24	-27855604.17	-27855604.08	0.0537	0.0417		
Mercury	-80978-10-04 15:49 J	-27855514.96	-27855514.84	-27855514.71	0.0535	0.0039		
Mercury	-80977-01-02 00:28 J	-27855425.53	-27855425.48	-27855425.43	0.0533	0.0489		
Moon	-80977-03-27 20:23 J	-27855339.85	-27855339.65	-27855339.45	0.0531	0.0198		
Earth	-80977-03-27 22:32 J	-27855339.77	-27855339.56	-27855339.34	0.0531	0.0166	*	
Venus	-80973-11-04 09:06 J	-27853657.32	-27853657.12	-27853656.92	0.0488	0.0158		
Mercury	-80972-09-01 22:32 J	-27853355.67	-27853355.56	-27853355.44	0.0491	0.0379		

Mercury -80972-12-01 04:47 J -27853265.47 -27853265.30 -27853265.12 0.0492 0.0129

Venus -80967-09-08 13:54 J -27851523.11 -27851522.92 -27851522.72 0.0538 0.0059

Mercury -80966-04-25 11:16 J -27851294.04 -27851294.03 -27851294.01 0.0537 0.0533

Mercury -80966-07-23 19:11 J -27851204.83 -27851204.70 -27851204.58 0.0535 0.0088

Mercury -80966-10-21 03:20 J -27851115.45 -27851115.36 -27851115.27 0.0534 0.0366

Earth -80965-04-01 12:42 J -27850952.10 -27850951.97 -27850951.82 0.0529 0.0419

Moon -80965-04-01 16:18 J -27850951.96 -27850951.82 -27850951.68 0.0529 0.0419 \*

Venus -80961-07-10 08:37 J -27849391.32 -27849391.14 -27849390.95 0.0489 0.0248

Mercury -80960-09-19 03:20 J -27848955.54 -27848955.36 -27848955.18 0.0492 0.0009

Mercury -80954-05-11 22:47 J -27846894.67 -27846894.55 -27846894.43 0.0536 0.0201

Mercury -80954-08-09 06:42 J -27846805.33 -27846805.22 -27846805.10 0.0534 0.0252

Mars -80952-01-11 20:37 J -27846283.90 -27846283.64 -27846283.36 0.0518 0.0190

Mercury -80948-07-08 01:25 J -27844645.62 -27844645.44 -27844645.27 0.0491 0.0121

Moon -80948-09-14 09:20 J -27844577.19 -27844577.11 -27844577.01 0.0493 0.0457

Earth -80948-09-14 08:52 J -27844577.16 -27844577.13 -27844577.09 0.0493 0.0486 \*

Mercury -80948-10-06 06:56 J -27844555.32 -27844555.21 -27844555.10 0.0493 0.0381

Mercury -80942-02-28 02:23 J -27842584.50 -27842584.40 -27842584.30 0.0537 0.0313

Mercury -80942-05-28 10:18 J -27842495.19 -27842495.07 -27842494.94 0.0535 0.0139

Venus -80937-07-12 21:35 J -27840622.71 -27840622.60 -27840622.47 0.0489 0.0398

Mercury -80936-04-25 23:30 J -27840335.68 -27840335.52 -27840335.36 0.0491 0.0247

Mercury -80936-07-25 05:16 J -27840245.43 -27840245.28 -27840245.12 0.0492 0.0258

Moon -80936-09-18 21:49 J -27840189.78 -27840189.59 -27840189.39 0.0494 0.0267

Earth -80936-09-19 00:28 J -27840189.68 -27840189.48 -27840189.27 0.0494 0.0264 \*

Mars -80935-12-26 12:28 J -27839725.98 -27839725.98 -27839725.95 0.0506 0.0506

Venus -80931-05-17 05:16 J -27838488.45 -27838488.28 -27838488.10 0.0539 0.0241

Mercury -80931-12-17 06:28 J -27838274.31 -27838274.23 -27838274.15 0.0537 0.0419

Mercury -80930-03-16 14:23 J -27838185.03 -27838184.90 -27838184.77 0.0536 0.0032

Mercury -80930-06-13 22:47 J -27838095.60 -27838095.55 -27838095.49 0.0534 0.0488

Venus -80925-03-17 21:06 J -27836356.83 -27836356.62 -27836356.41 0.0488 0.0011

Mercury -80924-02-11 21:06 J -27836025.73 -27836025.62 -27836025.50 0.0491 0.0375

Mercury -80924-05-13 03:20 J -27835935.53 -27835935.36 -27835935.18 0.0492 0.0133

Earth -80924-09-23 15:49 J -27835802.08 -27835801.84 -27835801.60 0.0495 0.0040

Moon -80924-09-23 19:54 J -27835801.91 -27835801.67 -27835801.43 0.0495 0.0071 \*

Venus -80919-01-20 00:28 J -27834222.65 -27834222.48 -27834222.31 0.0539 0.0264

Mercury -80919-10-05 10:47 J -27833964.08 -27833964.05 -27833964.03 0.0537 0.0523

Mercury -80918-01-02 18:28 J -27833874.86 -27833874.73 -27833874.60 0.0536 0.0076

Moon -80918-03-18 13:40 J -27833800.07 -27833799.93 -27833799.78 0.0534 0.0420

Earth -80918-03-18 13:54 J -27833800.06 -27833799.92 -27833799.76 0.0534 0.0393 \*

Mercury -80918-04-02 02:52 J -27833785.47 -27833785.38 -27833785.29 0.0534 0.0379

Venus -80914-11-21 21:35 J -27832090.71 -27832090.60 -27832090.48 0.0489 0.0407

Mercury -80912-03-01 02:08 J -27831625.59 -27831625.41 -27831625.23 0.0492 0.0012

Moon -80912-09-28 06:28 J -27831414.45 -27831414.23 -27831414.00 0.0496 0.0184

Earth -80912-09-28 10:32 J -27831414.27 -27831414.06 -27831413.83 0.0496 0.0192 \*

Mercury -80907-10-21 21:49 J -27829564.71 -27829564.59 -27829564.47 0.0536 0.0193

Mercury -80906-01-19 05:59 J -27829475.37 -27829475.25 -27829475.14 0.0534 0.0259

Moon -80906-03-23 05:01 J -27829412.50 -27829412.29 -27829412.08 0.0532 0.0120

Earth -80906-03-23 06:42 J -27829412.43 -27829412.22 -27829412.00 0.0532 0.0131 \*

Mercury -80901-12-18 00:28 J -27827315.66 -27827315.48 -27827315.31 0.0492 0.0113

Mercury -80900-03-18 05:59 J -27827225.35 -27827225.25 -27827225.14 0.0493 0.0391

Earth -80900-10-03 04:47 J -27827026.41 -27827026.30 -27827026.17 0.0498 0.0425

Moon -80900-10-03 08:08 J -27827026.25 -27827026.16 -27827026.07 0.0498 0.0455 \*

Mars -80899-09-30 08:23 J -27826664.40 -27826664.15 -27826663.90 0.0509 0.0142

Mercury -80895-08-10 01:25 J -27825254.54 -27825254.44 -27825254.34 0.0536 0.0306

Mercury -80895-11-07 09:20 J -27825165.24 -27825165.11 -27825164.99 0.0534 0.0144

Earth -80894-03-28 00:56 J -27825024.68 -27825024.46 -27825024.24 0.0531 0.0132

Moon -80894-03-28 04:18 J -27825024.54 -27825024.32 -27825024.10 0.0531 0.0166 \*

Venus -80890-11-24 09:35 J -27823322.28 -27823322.10 -27823321.91 0.0489 0.0231

Mercury -80889-10-05 22:18 J -27823005.73 -27823005.57 -27823005.41 0.0491 0.0241

Mercury -80888-01-04 04:18 J -27822915.47 -27822915.32 -27822915.17 0.0493 0.0264

Venus -80884-09-27 13:54 J -27821188.12 -27821187.92 -27821187.72 0.0538 0.0021

Mercury -80883-05-29 05:01 J -27820944.37 -27820944.29 -27820944.21 0.0537 0.0420  
 Mercury -80883-08-26 12:56 J -27820855.09 -27820854.96 -27820854.83 0.0535 0.0032  
 Mercury -80883-11-23 21:20 J -27820765.66 -27820765.61 -27820765.56 0.0533 0.0484  
 Moon -80882-04-01 15:35 J -27820636.99 -27820636.85 -27820636.69 0.0530 0.0395  
 Earth -80882-04-01 19:25 J -27820636.83 -27820636.69 -27820636.53 0.0530 0.0397 \*  
 Venus -80878-07-30 09:49 J -27819056.29 -27819056.09 -27819055.90 0.0489 0.0171  
 Mercury -80877-07-24 20:23 J -27818695.77 -27818695.65 -27818695.53 0.0491 0.0367  
 Mercury -80877-10-23 02:37 J -27818605.57 -27818605.39 -27818605.22 0.0492 0.0140  
 Venus -80872-06-02 08:08 J -27816922.24 -27816922.16 -27816922.08 0.0538 0.0489  
 Mercury -80871-03-17 09:06 J -27816634.14 -27816634.12 -27816634.10 0.0537 0.0526  
 Mercury -80871-06-14 16:47 J -27816544.92 -27816544.80 -27816544.67 0.0536 0.0081  
 Mercury -80871-09-12 01:11 J -27816455.54 -27816455.45 -27816455.36 0.0534 0.0376  
 Mercury -80865-08-11 00:28 J -27814295.66 -27814295.48 -27814295.30 0.0492 0.0014  
 Moon -80865-09-13 13:54 J -27814261.98 -27814261.92 -27814261.86 0.0492 0.0474  
 Mercury -80859-04-02 20:52 J -27812234.75 -27812234.63 -27812234.50 0.0536 0.0186  
 Mercury -80859-07-01 05:01 J -27812145.40 -27812145.29 -27812145.17 0.0534 0.0268  
 Venus -80854-08-01 22:18 J -27810287.62 -27810287.57 -27810287.52 0.0489 0.0473  
 Mercury -80853-05-29 23:01 J -27809985.72 -27809985.54 -27809985.36 0.0492 0.0109  
 Mercury -80853-08-28 04:32 J -27809895.41 -27809895.31 -27809895.20 0.0493 0.0394  
 Earth -80853-09-18 09:20 J -27809874.31 -27809874.11 -27809873.91 0.0494 0.0275  
 Moon -80853-09-18 13:11 J -27809874.14 -27809873.95 -27809873.75 0.0494 0.0287 \*  
 Venus -80848-06-05 07:25 J -27808153.34 -27808153.19 -27808153.04 0.0538 0.0331  
 Mercury -80847-01-20 00:28 J -27807924.59 -27807924.48 -27807924.38 0.0536 0.0301  
 Mercury -80847-04-19 08:23 J -27807835.28 -27807835.15 -27807835.03 0.0534 0.0149  
 Venus -80842-04-06 21:06 J -27806021.83 -27806021.62 -27806021.41 0.0489 0.0063  
 Mercury -80841-03-17 20:52 J -27805675.78 -27805675.63 -27805675.46 0.0492 0.0237  
 Mercury -80841-06-16 03:06 J -27805585.52 -27805585.37 -27805585.22 0.0493 0.0271  
 Moon -80841-09-22 21:49 J -27805486.83 -27805486.59 -27805486.35 0.0495 0.0081  
 Earth -80841-09-23 01:54 J -27805486.66 -27805486.42 -27805486.18 0.0495 0.0048 \*  
 Venus -80836-02-08 00:42 J -27803887.66 -27803887.47 -27803887.29 0.0538 0.0184



Mercury -80836-11-08 04:04 J -27803614.41 -27803614.33 -27803614.25 0.0536 0.0414  
 Mercury -80835-02-05 11:44 J -27803525.14 -27803525.01 -27803524.88 0.0535 0.0036  
 Moon -80835-03-17 14:52 J -27803484.99 -27803484.88 -27803484.76 0.0534 0.0450  
 Earth -80835-03-17 16:18 J -27803484.95 -27803484.82 -27803484.68 0.0534 0.0423 \*  
 Mercury -80835-05-05 20:08 J -27803435.71 -27803435.66 -27803435.61 0.0533 0.0487  
 Mars -80834-07-01 17:44 J -27803013.97 -27803013.76 -27803013.55 0.0520 0.0355  
 Venus -80831-12-10 20:52 J -27801755.78 -27801755.63 -27801755.48 0.0489 0.0342  
 Mercury -80829-01-04 18:42 J -27801365.84 -27801365.72 -27801365.59 0.0491 0.0365  
 Mercury -80829-04-04 01:11 J -27801275.62 -27801275.45 -27801275.28 0.0492 0.0144  
 Earth -80829-09-27 17:30 J -27801098.99 -27801098.77 -27801098.55 0.0496 0.0180  
 Moon -80829-09-27 20:52 J -27801098.85 -27801098.63 -27801098.41 0.0496 0.0179 \*  
 Mercury -80824-08-27 07:25 J -27799304.20 -27799304.19 -27799304.17 0.0537 0.0529  
 Mercury -80824-11-24 15:20 J -27799214.99 -27799214.86 -27799214.74 0.0536 0.0083  
 Mercury -80823-02-21 23:30 J -27799125.61 -27799125.52 -27799125.43 0.0534 0.0371  
 Earth -80823-03-22 11:01 J -27799097.26 -27799097.04 -27799096.82 0.0533 0.0157  
 Moon -80823-03-22 14:08 J -27799097.13 -27799096.91 -27799096.68 0.0533 0.0137 \*  
 Mercury -80817-01-21 23:16 J -27796965.71 -27796965.53 -27796965.35 0.0492 0.0019  
 Moon -80817-10-02 08:08 J -27796711.27 -27796711.16 -27796711.03 0.0497 0.0433  
 Earth -80817-10-02 09:49 J -27796711.22 -27796711.09 -27796710.95 0.0497 0.0406 \*  
 Mercury -80812-09-12 19:11 J -27794904.82 -27794904.70 -27794904.58 0.0536 0.0191  
 Mercury -80812-12-11 03:20 J -27794815.47 -27794815.36 -27794815.25 0.0534 0.0262  
 Moon -80811-03-27 04:18 J -27794709.53 -27794709.32 -27794709.10 0.0532 0.0146  
 Earth -80811-03-27 08:08 J -27794709.38 -27794709.16 -27794708.93 0.0532 0.0113 \*  
 Venus -80807-12-13 09:06 J -27792987.28 -27792987.12 -27792986.95 0.0489 0.0302  
 Mercury -80806-11-09 21:06 J -27792655.80 -27792655.62 -27792655.44 0.0491 0.0110  
 Mercury -80805-02-08 02:37 J -27792565.49 -27792565.39 -27792565.28 0.0493 0.0393  
 Venus -80801-10-16 16:04 J -27790853.02 -27790852.83 -27790852.64 0.0539 0.0115  
 Mercury -80800-07-01 23:16 J -27790594.63 -27790594.53 -27790594.42 0.0537 0.0298  
 Mercury -80800-09-29 07:11 J -27790505.32 -27790505.20 -27790505.07 0.0535 0.0155  
 Earth -80799-04-01 04:47 J -27790321.45 -27790321.30 -27790321.14 0.0530 0.0379

Moon -80799-04-01 08:23 J -27790321.31 -27790321.15 -27790320.99 0.0530 0.0370 \*  
 Mars -80798-04-08 14:52 J -27789948.96 -27789948.88 -27789948.78 0.0518 0.0490  
 Venus -80795-08-18 09:20 J -27788721.32 -27788721.11 -27788720.90 0.0489 0.0101  
 Mercury -80794-08-28 19:25 J -27788345.85 -27788345.69 -27788345.53 0.0491 0.0233  
 Mercury -80794-11-27 01:25 J -27788255.59 -27788255.44 -27788255.29 0.0493 0.0272  
 Venus -80789-06-21 10:04 J -27786587.21 -27786587.08 -27786586.95 0.0538 0.0398  
 Mercury -80788-04-20 02:52 J -27786284.46 -27786284.38 -27786284.30 0.0536 0.0411  
 Mercury -80788-07-18 10:47 J -27786195.18 -27786195.05 -27786194.92 0.0535 0.0040  
 Mercury -80788-10-15 18:56 J -27786105.75 -27786105.71 -27786105.66 0.0533 0.0491  
 Mercury -80782-06-16 17:01 J -27784035.91 -27784035.79 -27784035.67 0.0491 0.0364  
 Moon -80782-09-14 03:20 J -27783946.39 -27783946.36 -27783946.32 0.0493 0.0486  
 Mercury -80782-09-14 23:30 J -27783945.69 -27783945.52 -27783945.35 0.0493 0.0146  
 Mars -80780-03-22 00:13 J -27783391.71 -27783391.49 -27783391.27 0.0507 0.0265  
 Mercury -80776-02-06 06:28 J -27781974.25 -27781974.23 -27781974.20 0.0536 0.0523  
 Mercury -80776-05-06 14:08 J -27781885.04 -27781884.91 -27781884.78 0.0535 0.0078  
 Mercury -80776-08-03 22:18 J -27781795.66 -27781795.57 -27781795.48 0.0533 0.0375  
 Mercury -80770-07-03 21:35 J -27779635.78 -27779635.60 -27779635.42 0.0492 0.0019  
 Moon -80770-09-18 10:18 J -27779559.26 -27779559.07 -27779558.88 0.0493 0.0303  
 Earth -80770-09-18 14:37 J -27779559.09 -27779558.89 -27779558.70 0.0493 0.0289 \*  
 Venus -80765-06-24 05:01 J -27777818.42 -27777818.29 -27777818.16 0.0538 0.0396  
 Mercury -80764-02-22 17:30 J -27777574.89 -27777574.77 -27777574.65 0.0536 0.0196  
 Mercury -80764-05-23 01:40 J -27777485.55 -27777485.43 -27777485.32 0.0534 0.0257  
 Venus -80759-04-25 20:23 J -27775686.85 -27775686.65 -27775686.45 0.0489 0.0130  
 Mercury -80758-04-21 19:40 J -27775325.86 -27775325.68 -27775325.51 0.0492 0.0109  
 Mercury -80758-07-21 01:11 J -27775235.55 -27775235.45 -27775235.34 0.0493 0.0395  
 Earth -80758-09-23 05:44 J -27775171.49 -27775171.26 -27775171.02 0.0494 0.0067  
 Moon -80758-09-23 09:20 J -27775171.34 -27775171.11 -27775170.87 0.0494 0.0096 \*  
 Venus -80753-02-27 22:47 J -27773552.74 -27773552.55 -27773552.36 0.0538 0.0116  
 Mercury -80753-12-11 21:20 J -27773264.71 -27773264.61 -27773264.50 0.0536 0.0306  
 Mercury -80752-03-11 05:16 J -27773175.40 -27773175.28 -27773175.15 0.0535 0.0147

Earth -80752-03-16 20:08 J -27773169.78 -27773169.66 -27773169.54 0.0535 0.0450  
 Moon -80752-03-16 23:01 J -27773169.64 -27773169.54 -27773169.43 0.0535 0.0471 \*  
 Venus -80748-12-29 19:54 J -27771420.85 -27771420.67 -27771420.50 0.0489 0.0275  
 Mercury -80746-02-07 17:01 J -27771015.94 -27771015.79 -27771015.62 0.0491 0.0239  
 Mercury -80746-05-08 23:16 J -27770925.68 -27770925.53 -27770925.38 0.0493 0.0268  
 Moon -80746-09-27 18:42 J -27770783.95 -27770783.72 -27770783.48 0.0496 0.0160  
 Earth -80746-09-27 21:06 J -27770783.85 -27770783.62 -27770783.40 0.0496 0.0157 \*  
 Mars -80745-12-24 04:18 J -27770330.51 -27770330.32 -27770330.13 0.0509 0.0341  
 Mercury -80741-09-30 01:25 J -27768954.52 -27768954.44 -27768954.36 0.0537 0.0412  
 Mercury -80741-12-28 09:20 J -27768865.24 -27768865.11 -27768864.98 0.0535 0.0038  
 Moon -80740-03-21 14:23 J -27768782.11 -27768781.90 -27768781.68 0.0533 0.0158  
 Earth -80740-03-21 18:13 J -27768781.95 -27768781.74 -27768781.52 0.0533 0.0178 \*  
 Mercury -80740-03-27 17:44 J -27768775.81 -27768775.76 -27768775.71 0.0533 0.0492  
 Mercury -80735-11-26 15:20 J -27766705.98 -27766705.86 -27766705.74 0.0491 0.0363  
 Mercury -80734-02-24 21:35 J -27766615.77 -27766615.60 -27766615.42 0.0492 0.0146  
 Earth -80734-10-02 14:37 J -27766396.03 -27766395.89 -27766395.73 0.0497 0.0386  
 Moon -80734-10-02 14:23 J -27766396.02 -27766395.90 -27766395.77 0.0497 0.0414 \*  
 Mercury -80729-07-19 05:16 J -27764644.30 -27764644.28 -27764644.25 0.0536 0.0522  
 Mercury -80729-10-16 12:56 J -27764555.09 -27764554.96 -27764554.83 0.0535 0.0078  
 Mercury -80728-01-13 21:06 J -27764465.71 -27764465.62 -27764465.53 0.0533 0.0376  
 Earth -80728-03-26 12:13 J -27764394.21 -27764393.99 -27764393.77 0.0531 0.0085  
 Moon -80728-03-26 15:49 J -27764394.05 -27764393.84 -27764393.62 0.0531 0.0116 \*  
 Venus -80723-01-01 06:42 J -27762652.36 -27762652.22 -27762652.08 0.0489 0.0358  
 Mercury -80723-12-13 19:25 J -27762305.87 -27762305.69 -27762305.51 0.0492 0.0017  
 Venus -80718-11-05 15:06 J -27760518.05 -27760517.87 -27760517.68 0.0538 0.0188  
 Mercury -80717-08-04 16:18 J -27760244.94 -27760244.82 -27760244.70 0.0535 0.0192  
 Mercury -80717-11-02 00:28 J -27760155.60 -27760155.48 -27760155.37 0.0534 0.0260  
 Moon -80716-03-31 02:23 J -27760006.57 -27760006.40 -27760006.21 0.0530 0.0328  
 Earth -80716-03-31 05:16 J -27760006.45 -27760006.28 -27760006.11 0.0530 0.0343 \*  
 Venus -80712-09-06 05:59 J -27758386.46 -27758386.25 -27758386.04 0.0489 0.0049

Mercury -80711-10-01 17:16 J -27757995.95 -27757995.78 -27757995.60 0.0492 0.0113

Mercury -80711-12-30 23:01 J -27757905.64 -27757905.54 -27757905.43 0.0493 0.0392

Venus -80706-07-11 06:13 J -27756252.38 -27756252.24 -27756252.08 0.0538 0.0341

Mercury -80705-05-23 19:40 J -27755934.79 -27755934.68 -27755934.58 0.0536 0.0311

Mercury -80705-08-21 03:35 J -27755845.48 -27755845.35 -27755845.23 0.0535 0.0140

Venus -80700-05-12 06:13 J -27754120.32 -27754120.24 -27754120.16 0.0489 0.0449

Mercury -80699-07-20 15:20 J -27753686.02 -27753685.86 -27753685.70 0.0491 0.0239

Mercury -80699-10-18 21:20 J -27753595.76 -27753595.61 -27753595.46 0.0493 0.0267

Mercury -80693-03-11 23:30 J -27751624.60 -27751624.52 -27751624.45 0.0537 0.0422

Mercury -80693-06-09 07:11 J -27751535.33 -27751535.20 -27751535.07 0.0535 0.0028

Mercury -80693-09-06 15:35 J -27751445.90 -27751445.85 -27751445.80 0.0533 0.0482

Mercury -80687-05-08 12:42 J -27749376.09 -27749375.97 -27749375.85 0.0491 0.0370

Mercury -80687-08-06 19:11 J -27749285.87 -27749285.70 -27749285.53 0.0492 0.0139

Earth -80687-09-17 16:32 J -27749243.99 -27749243.81 -27749243.62 0.0493 0.0312

Moon -80687-09-17 20:08 J -27749243.83 -27749243.66 -27749243.48 0.0493 0.0329 \*

Venus -80682-07-14 04:47 J -27747483.39 -27747483.30 -27747483.21 0.0538 0.0474

Mercury -80682-12-30 03:35 J -27747314.37 -27747314.35 -27747314.33 0.0537 0.0528

Mercury -80681-03-28 11:16 J -27747225.16 -27747225.03 -27747224.91 0.0536 0.0082

Mercury -80681-06-25 19:25 J -27747135.78 -27747135.69 -27747135.60 0.0534 0.0373

Mars -80680-09-24 20:37 J -27746679.93 -27746679.64 -27746679.36 0.0520 0.0095

Venus -80676-05-14 17:59 J -27745351.94 -27745351.75 -27745351.56 0.0489 0.0190

Mercury -80675-05-25 17:30 J -27744975.96 -27744975.77 -27744975.59 0.0492 0.0018

Moon -80675-09-22 06:13 J -27744856.48 -27744856.24 -27744856.00 0.0494 0.0116

Earth -80675-09-22 08:37 J -27744856.37 -27744856.14 -27744855.90 0.0494 0.0089 \*

Venus -80670-03-18 23:01 J -27743217.73 -27743217.54 -27743217.34 0.0538 0.0036

Mercury -80669-01-15 14:52 J -27742915.00 -27742914.88 -27742914.76 0.0535 0.0194

Moon -80669-03-15 20:23 J -27742854.73 -27742854.65 -27742854.58 0.0534 0.0498

Earth -80669-03-15 23:59 J -27742854.60 -27742854.50 -27742854.40 0.0534 0.0474 \*

Mercury -80669-04-13 22:47 J -27742825.66 -27742825.55 -27742825.43 0.0534 0.0259

Venus -80664-01-17 15:35 J -27741086.03 -27741085.85 -27741085.66 0.0489 0.0227

Mercury -80663-03-13 14:52 J -27740666.05 -27740665.88 -27740665.70 0.0492 0.0118

Mercury -80663-06-11 20:52 J -27740575.74 -27740575.63 -27740575.52 0.0494 0.0388

Earth -80663-09-26 23:59 J -27740468.73 -27740468.50 -27740468.27 0.0496 0.0136

Moon -80663-09-26 23:59 J -27740468.72 -27740468.50 -27740468.28 0.0496 0.0149 \*

Mercury -80658-11-03 18:28 J -27738604.83 -27738604.73 -27738604.63 0.0536 0.0308

Mercury -80657-02-01 02:23 J -27738515.53 -27738515.40 -27738515.28 0.0534 0.0143

Earth -80657-03-20 18:13 J -27738466.94 -27738466.74 -27738466.53 0.0533 0.0213

Moon -80657-03-20 22:04 J -27738466.79 -27738466.58 -27738466.37 0.0533 0.0189 \*

Mercury -80652-12-30 12:42 J -27736356.13 -27736355.97 -27736355.81 0.0491 0.0247

Mercury -80651-03-30 18:56 J -27736265.86 -27736265.71 -27736265.56 0.0493 0.0261

Earth -80651-10-01 15:35 J -27736081.00 -27736080.85 -27736080.68 0.0497 0.0364

Moon -80651-10-01 17:59 J -27736080.90 -27736080.75 -27736080.60 0.0497 0.0389 \*

Mercury -80646-08-22 21:35 J -27734294.67 -27734294.60 -27734294.52 0.0536 0.0428

Mercury -80646-11-20 05:16 J -27734205.41 -27734205.28 -27734205.15 0.0535 0.0024

Mercury -80645-02-17 13:40 J -27734115.99 -27734115.93 -27734115.87 0.0533 0.0474

Moon -80645-03-25 07:11 J -27734079.42 -27734079.20 -27734078.97 0.0532 0.0072

Earth -80645-03-25 10:18 J -27734079.29 -27734079.07 -27734078.84 0.0532 0.0048 \*

Venus -80640-01-20 04:18 J -27732317.43 -27732317.32 -27732317.21 0.0489 0.0417

Mercury -80640-10-18 10:32 J -27732046.17 -27732046.06 -27732045.94 0.0491 0.0374

Mercury -80639-01-16 17:01 J -27731955.96 -27731955.79 -27731955.61 0.0492 0.0136

Venus -80635-11-24 10:32 J -27730183.24 -27730183.06 -27730182.89 0.0538 0.0239

Mercury -80634-09-08 09:06 J -27729895.25 -27729895.12 -27729895.00 0.0536 0.0095

Mercury -80634-12-06 17:16 J -27729805.88 -27729805.78 -27729805.69 0.0534 0.0361

Earth -80633-03-30 05:30 J -27729691.45 -27729691.27 -27729691.09 0.0531 0.0309

Moon -80633-03-30 06:28 J -27729691.41 -27729691.23 -27729691.04 0.0531 0.0288 \*

Venus -80629-09-25 03:20 J -27728051.57 -27728051.36 -27728051.15 0.0489 0.0010

Mercury -80628-11-04 14:37 J -27727646.07 -27727645.89 -27727645.70 0.0492 0.0014

Mars -80626-06-15 08:52 J -27727058.39 -27727058.13 -27727057.87 0.0507 0.0095

Venus -80623-07-30 04:32 J -27725917.48 -27725917.31 -27725917.14 0.0538 0.0271

Mercury -80622-06-27 12:56 J -27725585.08 -27725584.96 -27725584.84 0.0536 0.0202

Mercury -80622-09-24 21:06 J -27725495.74 -27725495.62 -27725495.51 0.0534 0.0252

Venus -80617-05-31 02:52 J -27723785.50 -27723785.38 -27723785.25 0.0489 0.0394

Mercury -80616-08-23 12:42 J -27723336.14 -27723335.97 -27723335.79 0.0492 0.0121

Mercury -80616-11-21 18:28 J -27723245.84 -27723245.73 -27723245.61 0.0493 0.0384

Mercury -80610-04-15 16:47 J -27721274.90 -27721274.80 -27721274.69 0.0536 0.0312

Mercury -80610-07-14 00:42 J -27721185.60 -27721185.47 -27721185.35 0.0534 0.0138

Mercury -80604-06-11 10:04 J -27719026.24 -27719026.08 -27719025.92 0.0492 0.0255

Mercury -80604-09-09 16:18 J -27718935.97 -27718935.82 -27718935.66 0.0493 0.0254

Moon -80604-09-16 14:37 J -27718929.06 -27718928.89 -27718928.72 0.0493 0.0351

Earth -80604-09-16 17:30 J -27718928.95 -27718928.77 -27718928.59 0.0493 0.0335 \*

Mercury -80598-02-01 20:23 J -27716964.72 -27716964.65 -27716964.57 0.0536 0.0425

Mercury -80598-05-02 04:04 J -27716875.46 -27716875.33 -27716875.20 0.0535 0.0025

Mercury -80598-07-30 12:28 J -27716786.04 -27716785.98 -27716785.93 0.0533 0.0476

Venus -80593-06-02 12:56 J -27715017.14 -27715016.96 -27715016.77 0.0489 0.0235

Mercury -80592-03-30 07:54 J -27714716.29 -27714716.17 -27714716.06 0.0491 0.0383

Mercury -80592-06-28 14:23 J -27714626.07 -27714625.90 -27714625.72 0.0492 0.0127

Earth -80592-09-21 08:37 J -27714541.37 -27714541.14 -27714540.90 0.0494 0.0112

Moon -80592-09-21 09:20 J -27714541.33 -27714541.11 -27714540.89 0.0494 0.0134 \*

Venus -80587-04-06 17:30 J -27712882.97 -27712882.77 -27712882.58 0.0538 0.0015

Mercury -80586-02-18 06:56 J -27712565.33 -27712565.21 -27712565.08 0.0535 0.0103

Earth -80586-03-15 19:40 J -27712539.73 -27712539.68 -27712539.63 0.0535 0.0519

Mercury -80586-05-18 15:06 J -27712475.96 -27712475.87 -27712475.77 0.0534 0.0353

Venus -80581-02-06 12:56 J -27710751.15 -27710750.96 -27710750.76 0.0489 0.0168

Mercury -80580-04-16 12:28 J -27710316.16 -27710315.98 -27710315.80 0.0492 0.0006

Earth -80580-09-26 00:28 J -27710153.71 -27710153.48 -27710153.25 0.0495 0.0111

Moon -80580-09-26 02:08 J -27710153.65 -27710153.41 -27710153.17 0.0495 0.0131 \*

Venus -80576-12-10 10:18 J -27708617.13 -27708617.07 -27708617.01 0.0538 0.0505

Mercury -80575-12-07 10:47 J -27708255.17 -27708255.05 -27708254.94 0.0536 0.0214

Mercury -80574-03-06 18:42 J -27708165.84 -27708165.72 -27708165.60 0.0534 0.0239

Moon -80574-03-20 11:59 J -27708152.20 -27708152.00 -27708151.79 0.0534 0.0232

Earth -80574-03-20 15:35 J -27708152.05 -27708151.85 -27708151.65 0.0534 0.0255 \*  
 Mercury -80568-02-02 10:04 J -27706006.26 -27706006.08 -27706005.91 0.0491 0.0130  
 Mercury -80568-05-03 15:49 J -27705915.95 -27705915.84 -27705915.72 0.0493 0.0374  
 Moon -80568-09-30 11:59 J -27705766.16 -27705766.00 -27705765.84 0.0496 0.0359  
 Earth -80568-09-30 14:52 J -27705766.05 -27705765.88 -27705765.69 0.0496 0.0332 \*  
 Mercury -80563-09-25 14:37 J -27703944.99 -27703944.89 -27703944.79 0.0536 0.0323  
 Mercury -80563-12-23 22:32 J -27703855.69 -27703855.56 -27703855.43 0.0535 0.0129  
 Earth -80562-03-25 12:42 J -27703764.20 -27703763.97 -27703763.74 0.0533 0.0014  
 Moon -80562-03-25 14:23 J -27703764.12 -27703763.90 -27703763.69 0.0533 0.0034 \*  
 Venus -80557-02-09 00:28 J -27701982.53 -27701982.48 -27701982.42 0.0489 0.0470  
 Mercury -80557-11-21 07:54 J -27701696.33 -27701696.17 -27701696.01 0.0491 0.0257  
 Mercury -80556-02-19 13:54 J -27701606.07 -27701605.92 -27701605.76 0.0493 0.0251  
 Venus -80552-12-13 09:49 J -27699848.25 -27699848.09 -27699847.93 0.0538 0.0313  
 Mercury -80551-07-14 18:42 J -27699634.80 -27699634.72 -27699634.65 0.0536 0.0431  
 Mercury -80551-10-12 02:23 J -27699545.53 -27699545.40 -27699545.27 0.0535 0.0017  
 Mercury -80550-01-09 10:32 J -27699456.11 -27699456.06 -27699456.00 0.0533 0.0471  
 Earth -80550-03-30 08:23 J -27699376.34 -27699376.15 -27699375.96 0.0531 0.0280  
 Moon -80550-03-30 08:37 J -27699376.34 -27699376.14 -27699375.93 0.0531 0.0252 \*  
 Venus -80546-10-14 22:04 J -27697716.79 -27697716.58 -27697716.37 0.0489 0.0055  
 Mercury -80545-09-09 05:01 J -27697386.40 -27697386.29 -27697386.18 0.0491 0.0392  
 Mercury -80545-12-08 11:44 J -27697296.19 -27697296.01 -27697295.84 0.0493 0.0119  
 Venus -80540-08-18 02:52 J -27695582.56 -27695582.38 -27695582.19 0.0538 0.0202  
 Mercury -80539-07-31 05:59 J -27695235.38 -27695235.25 -27695235.13 0.0535 0.0098  
 Mercury -80539-10-28 13:54 J -27695146.01 -27695145.92 -27695145.82 0.0533 0.0356  
 Moon -80538-04-03 23:30 J -27694988.57 -27694988.52 -27694988.47 0.0529 0.0511  
 Venus -80534-06-19 21:35 J -27693450.74 -27693450.60 -27693450.45 0.0489 0.0351  
 Mercury -80533-09-26 09:35 J -27692986.28 -27692986.10 -27692985.91 0.0492 0.0015  
 Mercury -80533-12-25 15:20 J -27692895.86 -27692895.86 -27692895.86 0.0494 0.0494  
 Mercury -80527-05-19 08:52 J -27690925.25 -27690925.13 -27690925.01 0.0536 0.0221  
 Mercury -80527-08-16 16:47 J -27690835.92 -27690835.80 -27690835.68 0.0534 0.0231

Mars -80526-12-18 16:47 J -27690347.08 -27690346.80 -27690346.51 0.0520 0.0087  
 Mercury -80521-07-15 07:40 J -27688676.35 -27688676.18 -27688676.00 0.0492 0.0135  
 Earth -80521-09-15 18:56 J -27688613.87 -27688613.71 -27688613.54 0.0493 0.0356  
 Moon -80521-09-15 20:23 J -27688613.80 -27688613.65 -27688613.51 0.0493 0.0378 \*  
 Mercury -80521-10-13 13:40 J -27688586.04 -27688585.93 -27688585.81 0.0493 0.0371  
 Mercury -80515-03-07 12:28 J -27686615.08 -27686614.98 -27686614.88 0.0536 0.0334  
 Mercury -80515-06-04 20:23 J -27686525.78 -27686525.65 -27686525.53 0.0535 0.0117  
 Venus -80510-06-22 09:49 J -27684682.25 -27684682.09 -27684681.91 0.0489 0.0292  
 Mercury -80509-05-03 05:16 J -27684366.43 -27684366.28 -27684366.13 0.0491 0.0265  
 Mercury -80509-08-01 11:30 J -27684276.18 -27684276.02 -27684275.86 0.0492 0.0242  
 Earth -80509-09-20 08:37 J -27684226.37 -27684226.14 -27684225.91 0.0493 0.0140  
 Moon -80509-09-20 09:49 J -27684226.33 -27684226.09 -27684225.85 0.0493 0.0155 \*  
 Venus -80504-04-25 14:23 J -27682548.10 -27682547.90 -27682547.70 0.0538 0.0073  
 Mercury -80504-12-24 16:32 J -27682304.88 -27682304.81 -27682304.74 0.0537 0.0443  
 Mercury -80503-03-24 00:13 J -27682215.62 -27682215.49 -27682215.36 0.0535 0.0013  
 Mercury -80503-06-21 08:23 J -27682126.21 -27682126.15 -27682126.08 0.0534 0.0461  
 Venus -80498-02-25 09:20 J -27680416.31 -27680416.11 -27680415.90 0.0489 0.0114  
 Mercury -80497-02-20 02:52 J -27680056.48 -27680056.38 -27680056.27 0.0491 0.0394  
 Mercury -80497-05-20 09:35 J -27679966.28 -27679966.10 -27679965.93 0.0492 0.0116  
 Moon -80497-09-24 21:20 J -27679838.84 -27679838.61 -27679838.38 0.0495 0.0105  
 Earth -80497-09-25 00:13 J -27679838.73 -27679838.49 -27679838.25 0.0495 0.0082 \*  
 Venus -80493-12-29 09:20 J -27678282.23 -27678282.11 -27678281.99 0.0538 0.0432  
 Mercury -80491-01-10 04:04 J -27677905.45 -27677905.33 -27677905.20 0.0535 0.0104  
 Earth -80491-03-19 18:42 J -27677836.90 -27677836.72 -27677836.52 0.0534 0.0282  
 Moon -80491-03-19 20:52 J -27677836.82 -27677836.63 -27677836.43 0.0534 0.0254 \*  
 Mercury -80491-04-09 12:13 J -27677816.09 -27677815.99 -27677815.89 0.0534 0.0350  
 Mercury -80485-03-08 06:56 J -27675656.39 -27675656.21 -27675656.03 0.0492 0.0017  
 Mercury -80485-06-06 12:28 J -27675566.00 -27675565.98 -27675565.94 0.0494 0.0487  
 Earth -80485-09-29 14:52 J -27675451.07 -27675450.88 -27675450.69 0.0496 0.0305  
 Moon -80485-09-29 18:42 J -27675450.90 -27675450.72 -27675450.54 0.0496 0.0331 \*



Mercury -80480-10-29 07:40 J -27673595.29 -27673595.18 -27673595.06 0.0536 0.0217  
 Mercury -80479-01-26 15:35 J -27673505.96 -27673505.85 -27673505.73 0.0534 0.0236  
 Moon -80479-03-24 13:54 J -27673449.16 -27673448.92 -27673448.69 0.0533 0.0007  
 Earth -80479-03-24 13:54 J -27673449.15 -27673448.92 -27673448.69 0.0533 0.0018 \*  
 Mercury -80474-12-26 05:01 J -27671346.46 -27671346.29 -27671346.11 0.0492 0.0143  
 Mercury -80473-03-25 11:01 J -27671256.16 -27671256.04 -27671255.92 0.0493 0.0363  
 Mars -80472-09-07 19:54 J -27670724.93 -27670724.67 -27670724.41 0.0507 0.0084  
 Venus -80468-01-01 03:49 J -27669513.49 -27669513.34 -27669513.20 0.0538 0.0358  
 Mercury -80468-08-17 10:32 J -27669285.15 -27669285.06 -27669284.96 0.0536 0.0340  
 Mercury -80468-11-14 18:28 J -27669195.86 -27669195.73 -27669195.60 0.0535 0.0110  
 Moon -80467-03-29 02:37 J -27669061.59 -27669061.39 -27669061.19 0.0532 0.0205  
 Earth -80467-03-29 04:04 J -27669061.53 -27669061.33 -27669061.12 0.0532 0.0234 \*  
 Venus -80463-11-02 19:54 J -27667381.87 -27667381.67 -27667381.47 0.0489 0.0116  
 Mercury -80462-10-14 03:06 J -27667036.52 -27667036.37 -27667036.21 0.0491 0.0268  
 Mercury -80461-01-12 09:20 J -27666946.26 -27666946.11 -27666945.95 0.0493 0.0241  
 Venus -80457-09-05 20:23 J -27665247.83 -27665247.65 -27665247.45 0.0538 0.0159  
 Mercury -80456-06-05 14:23 J -27664974.97 -27664974.90 -27664974.84 0.0537 0.0453  
 Mercury -80456-09-02 22:04 J -27664885.71 -27664885.58 -27664885.45 0.0535 0.0013  
 Mercury -80456-12-01 06:13 J -27664796.31 -27664796.24 -27664796.17 0.0533 0.0449  
 Earth -80455-04-02 22:04 J -27664673.66 -27664673.58 -27664673.49 0.0530 0.0491  
 Moon -80455-04-03 00:56 J -27664673.56 -27664673.46 -27664673.35 0.0530 0.0470 \*  
 Venus -80451-07-08 19:25 J -27663115.86 -27663115.69 -27663115.52 0.0489 0.0289  
 Mercury -80450-08-02 00:28 J -27662726.58 -27662726.48 -27662726.37 0.0491 0.0399  
 Mercury -80450-10-31 07:11 J -27662636.38 -27662636.20 -27662636.02 0.0492 0.0111  
 Mercury -80444-06-22 01:54 J -27660575.55 -27660575.42 -27660575.30 0.0536 0.0115  
 Mercury -80444-09-19 10:04 J -27660486.18 -27660486.08 -27660485.98 0.0534 0.0339  
 Mercury -80438-08-19 05:01 J -27658326.47 -27658326.29 -27658326.10 0.0492 0.0020  
 Earth -80438-09-15 19:54 J -27658298.82 -27658298.67 -27658298.52 0.0492 0.0381  
 Moon -80438-09-15 20:37 J -27658298.78 -27658298.64 -27658298.50 0.0492 0.0405 \*  
 Mercury -80438-11-17 10:32 J -27658236.08 -27658236.06 -27658236.02 0.0493 0.0486

Mercury -80432-04-10 05:59 J -27656265.37 -27656265.25 -27656265.13 0.0536 0.0222

Mercury -80432-07-08 13:54 J -27656176.04 -27656175.92 -27656175.80 0.0534 0.0230

Venus -80427-07-11 05:44 J -27654347.41 -27654347.26 -27654347.11 0.0489 0.0341

Mercury -80426-06-07 02:23 J -27654016.57 -27654016.40 -27654016.22 0.0492 0.0150

Mercury -80426-09-05 08:23 J -27653926.27 -27653926.15 -27653926.02 0.0493 0.0357

Moon -80426-09-20 06:28 J -27653911.44 -27653911.23 -27653911.00 0.0493 0.0180

Earth -80426-09-20 09:20 J -27653911.34 -27653911.11 -27653910.89 0.0493 0.0165 \*

Venus -80421-05-14 13:40 J -27652213.11 -27652212.93 -27652212.74 0.0538 0.0150

Mercury -80420-01-27 09:35 J -27651955.19 -27651955.10 -27651954.99 0.0536 0.0335

Mercury -80420-04-26 17:30 J -27651865.90 -27651865.77 -27651865.64 0.0535 0.0116

Venus -80415-03-16 05:16 J -27650081.49 -27650081.28 -27650081.07 0.0489 0.0063

Mercury -80414-03-26 00:28 J -27649706.63 -27649706.48 -27649706.32 0.0491 0.0275

Mercury -80414-06-24 06:56 J -27649616.37 -27649616.21 -27649616.05 0.0493 0.0234

Earth -80414-09-25 01:25 J -27649523.68 -27649523.44 -27649523.20 0.0494 0.0060

Moon -80414-09-25 05:16 J -27649523.52 -27649523.28 -27649523.04 0.0494 0.0087 \*

Venus -80409-01-18 04:18 J -27647947.46 -27647947.32 -27647947.18 0.0538 0.0380

Mercury -80409-11-15 12:42 J -27647645.04 -27647644.97 -27647644.91 0.0537 0.0456

Mercury -80408-02-12 20:23 J -27647555.78 -27647555.65 -27647555.52 0.0535 0.0013

Moon -80408-03-18 13:54 J -27647522.11 -27647521.92 -27647521.72 0.0534 0.0298

Earth -80408-03-18 14:37 J -27647522.06 -27647521.89 -27647521.71 0.0534 0.0329 \*

Mercury -80408-05-13 04:32 J -27647466.38 -27647466.31 -27647466.24 0.0533 0.0445

Mars -80407-06-05 23:44 J -27647077.58 -27647077.51 -27647077.42 0.0522 0.0499

Venus -80404-11-19 05:30 J -27645815.33 -27645815.27 -27645815.19 0.0489 0.0462

Mercury -80402-01-11 22:47 J -27645396.66 -27645396.55 -27645396.45 0.0491 0.0399

Mercury -80402-04-12 05:16 J -27645306.45 -27645306.28 -27645306.10 0.0492 0.0112

Moon -80402-09-29 14:37 J -27645136.08 -27645135.89 -27645135.70 0.0495 0.0307

Earth -80402-09-29 18:42 J -27645135.92 -27645135.72 -27645135.52 0.0495 0.0284 \*

Mercury -80397-12-01 23:44 J -27643245.63 -27643245.51 -27643245.38 0.0536 0.0125

Mercury -80396-03-01 07:54 J -27643156.27 -27643156.17 -27643156.07 0.0534 0.0330

Moon -80396-03-23 08:52 J -27643134.35 -27643134.13 -27643133.92 0.0534 0.0056

Earth -80396-03-23 10:04 J -27643134.31 -27643134.08 -27643133.86 0.0534 0.0065 \*  
 Mercury -80390-01-29 03:06 J -27640996.55 -27640996.37 -27640996.19 0.0492 0.0019  
 Mercury -80390-04-29 08:37 J -27640906.17 -27640906.14 -27640906.10 0.0493 0.0483  
 Moon -80390-10-04 12:42 J -27640748.01 -27640747.97 -27640747.93 0.0497 0.0487  
 Venus -80385-01-21 01:25 J -27639178.56 -27639178.44 -27639178.32 0.0538 0.0424  
 Mercury -80385-09-20 03:49 J -27638935.46 -27638935.34 -27638935.23 0.0536 0.0233  
 Mercury -80385-12-18 11:44 J -27638846.13 -27638846.01 -27638845.89 0.0535 0.0219  
 Earth -80384-03-28 06:56 J -27638746.42 -27638746.21 -27638746.00 0.0532 0.0203  
 Moon -80384-03-28 09:35 J -27638746.32 -27638746.10 -27638745.88 0.0532 0.0172 \*  
 Venus -80380-11-21 17:30 J -27637046.96 -27637046.77 -27637046.57 0.0489 0.0177  
 Mercury -80379-11-17 00:56 J -27636686.63 -27636686.46 -27636686.28 0.0491 0.0146  
 Mercury -80378-02-15 06:56 J -27636596.33 -27636596.21 -27636596.09 0.0493 0.0359  
 Venus -80374-09-25 20:23 J -27634912.85 -27634912.65 -27634912.46 0.0538 0.0080  
 Mercury -80373-07-09 07:54 J -27634625.26 -27634625.17 -27634625.07 0.0537 0.0339  
 Mercury -80373-10-06 15:49 J -27634535.97 -27634535.84 -27634535.71 0.0535 0.0111  
 Moon -80372-04-02 00:28 J -27634358.59 -27634358.48 -27634358.36 0.0531 0.0454  
 Earth -80372-04-02 03:49 J -27634358.43 -27634358.34 -27634358.22 0.0531 0.0469 \*  
 Mars -80371-03-13 12:42 J -27634013.18 -27634012.97 -27634012.74 0.0519 0.0326  
 Venus -80368-07-27 16:04 J -27632781.01 -27632780.83 -27632780.65 0.0489 0.0234  
 Mercury -80367-09-04 22:18 J -27632376.72 -27632376.57 -27632376.42 0.0491 0.0279  
 Mercury -80367-12-04 04:47 J -27632286.46 -27632286.30 -27632286.14 0.0493 0.0230  
 Mercury -80361-04-27 11:44 J -27630315.07 -27630315.01 -27630314.94 0.0537 0.0449  
 Mercury -80361-07-25 19:40 J -27630225.81 -27630225.68 -27630225.56 0.0535 0.0019  
 Mercury -80361-10-23 03:49 J -27630136.41 -27630136.34 -27630136.27 0.0533 0.0454  
 Mercury -80355-06-23 20:23 J -27628066.75 -27628066.65 -27628066.54 0.0491 0.0404  
 Moon -80355-09-14 20:52 J -27627983.73 -27627983.63 -27627983.51 0.0492 0.0431  
 Earth -80355-09-14 23:16 J -27627983.66 -27627983.53 -27627983.38 0.0492 0.0400 \*  
 Mercury -80355-09-22 03:06 J -27627976.55 -27627976.37 -27627976.19 0.0492 0.0107  
 Mars -80353-02-27 23:59 J -27627452.69 -27627452.50 -27627452.31 0.0505 0.0347  
 Mercury -80349-05-13 22:18 J -27625915.69 -27625915.57 -27625915.44 0.0536 0.0126

Mercury -80349-08-11 06:28 J -27625826.33 -27625826.23 -27625826.13 0.0534 0.0328

Venus -80344-07-30 05:16 J -27624012.39 -27624012.28 -27624012.17 0.0489 0.0412

Mercury -80343-07-11 01:40 J -27623666.61 -27623666.43 -27623666.25 0.0492 0.0017

Earth -80343-09-19 15:49 J -27623596.06 -27623595.84 -27623595.61 0.0493 0.0179

Moon -80343-09-19 19:40 J -27623595.91 -27623595.68 -27623595.45 0.0493 0.0187 \*

Mercury -80343-10-09 07:11 J -27623576.22 -27623576.20 -27623576.17 0.0493 0.0487

Venus -80338-06-03 08:52 J -27621878.31 -27621878.13 -27621877.95 0.0538 0.0201

Mercury -80337-03-02 01:54 J -27621605.53 -27621605.42 -27621605.30 0.0536 0.0239

Mercury -80337-05-30 09:49 J -27621516.20 -27621516.09 -27621515.97 0.0534 0.0214

Venus -80332-04-04 04:47 J -27619746.51 -27619746.30 -27619746.09 0.0489 0.0007

Mercury -80331-04-28 23:16 J -27619356.70 -27619356.53 -27619356.35 0.0491 0.0145

Mercury -80331-07-28 05:16 J -27619266.40 -27619266.28 -27619266.16 0.0493 0.0360

Moon -80331-09-24 01:54 J -27619208.65 -27619208.42 -27619208.18 0.0494 0.0067

Earth -80331-09-24 06:13 J -27619208.48 -27619208.24 -27619208.00 0.0494 0.0041 \*

Venus -80326-02-06 02:23 J -27617612.56 -27617612.40 -27617612.24 0.0538 0.0312

Mercury -80326-12-20 05:59 J -27617295.35 -27617295.25 -27617295.16 0.0537 0.0348

Moon -80325-03-17 17:01 J -27617206.96 -27617206.79 -27617206.62 0.0535 0.0326

Earth -80325-03-17 17:59 J -27617206.92 -27617206.75 -27617206.58 0.0535 0.0358 \*

Mercury -80325-03-18 13:40 J -27617206.05 -27617205.93 -27617205.80 0.0535 0.0104

Venus -80321-12-08 04:32 J -27615480.43 -27615480.31 -27615480.18 0.0489 0.0395

Mercury -80319-02-14 21:06 J -27615046.77 -27615046.62 -27615046.47 0.0491 0.0272

Mercury -80319-05-16 03:20 J -27614956.51 -27614956.36 -27614956.20 0.0492 0.0236

Earth -80319-09-28 21:49 J -27614820.79 -27614820.59 -27614820.39 0.0495 0.0262

Moon -80319-09-29 01:11 J -27614820.64 -27614820.45 -27614820.25 0.0495 0.0279 \*

Mars -80318-12-02 11:16 J -27614391.25 -27614391.03 -27614390.80 0.0507 0.0269

Mercury -80314-10-08 10:04 J -27612985.14 -27612985.08 -27612985.01 0.0537 0.0453

Mercury -80313-01-05 17:59 J -27612895.88 -27612895.75 -27612895.63 0.0536 0.0017

Earth -80313-03-22 17:16 J -27612819.01 -27612818.78 -27612818.56 0.0534 0.0084

Moon -80313-03-22 19:40 J -27612818.91 -27612818.68 -27612818.45 0.0534 0.0080 \*

Mercury -80313-04-04 02:08 J -27612806.48 -27612806.41 -27612806.34 0.0534 0.0451

Mercury -80308-12-03 18:28 J -27610736.83 -27610736.73 -27610736.62 0.0491 0.0404

Mercury -80307-03-04 01:11 J -27610646.63 -27610646.45 -27610646.27 0.0492 0.0106

Moon -80307-10-03 11:16 J -27610433.11 -27610433.03 -27610432.93 0.0496 0.0459

Earth -80307-10-03 13:11 J -27610432.99 -27610432.95 -27610432.90 0.0497 0.0486 \*

Venus -80302-02-09 02:37 J -27608843.44 -27608843.39 -27608843.33 0.0538 0.0513

Mercury -80302-10-24 21:49 J -27608585.72 -27608585.59 -27608585.47 0.0536 0.0114

Mercury -80301-01-22 05:44 J -27608496.36 -27608496.26 -27608496.16 0.0534 0.0340

Moon -80301-03-27 10:18 J -27608431.28 -27608431.07 -27608430.85 0.0532 0.0150

Earth -80301-03-27 13:54 J -27608431.13 -27608430.92 -27608430.71 0.0532 0.0182 \*

Venus -80297-12-10 16:04 J -27606712.01 -27606711.83 -27606711.64 0.0489 0.0242

Mercury -80296-12-20 23:44 J -27606336.70 -27606336.51 -27606336.33 0.0492 0.0019

Mercury -80295-03-21 05:16 J -27606246.30 -27606246.28 -27606246.25 0.0493 0.0486

Venus -80291-10-14 17:59 J -27604577.95 -27604577.75 -27604577.56 0.0538 0.0016

Mercury -80290-08-13 00:42 J -27604275.58 -27604275.47 -27604275.36 0.0536 0.0237

Mercury -80290-11-10 08:37 J -27604186.26 -27604186.14 -27604186.02 0.0534 0.0215

Earth -80289-04-01 03:35 J -27604043.48 -27604043.35 -27604043.22 0.0531 0.0429

Moon -80289-04-01 06:56 J -27604043.33 -27604043.21 -27604043.07 0.0531 0.0425 \*

Venus -80285-08-15 16:18 J -27602446.01 -27602445.82 -27602445.62 0.0489 0.0159

Mercury -80284-10-08 22:04 J -27602026.75 -27602026.58 -27602026.40 0.0492 0.0139

Mercury -80283-01-07 04:04 J -27601936.44 -27601936.33 -27601936.21 0.0493 0.0367

Venus -80279-06-19 11:01 J -27600312.07 -27600312.04 -27600312.00 0.0537 0.0526

Mercury -80278-06-01 04:18 J -27599965.41 -27599965.32 -27599965.22 0.0536 0.0350

Mercury -80278-08-29 12:13 J -27599876.12 -27599875.99 -27599875.87 0.0535 0.0101

Mercury -80272-07-27 19:40 J -27597716.83 -27597716.68 -27597716.52 0.0491 0.0268

Earth -80272-09-14 06:28 J -27597668.35 -27597668.23 -27597668.09 0.0492 0.0412

Moon -80272-09-14 10:32 J -27597668.17 -27597668.06 -27597667.96 0.0492 0.0442 \*

Mercury -80272-10-26 02:08 J -27597626.57 -27597626.41 -27597626.25 0.0492 0.0240

Mercury -80266-03-20 08:23 J -27595655.22 -27595655.15 -27595655.09 0.0537 0.0460

Mercury -80266-06-17 16:04 J -27595565.96 -27595565.83 -27595565.70 0.0536 0.0015

Mercury -80266-09-15 00:13 J -27595476.56 -27595476.49 -27595476.42 0.0534 0.0444

Venus -80261-08-18 04:47 J -27593677.32 -27593677.30 -27593677.26 0.0489 0.0483

Mercury -80260-05-15 17:44 J -27593406.87 -27593406.76 -27593406.66 0.0491 0.0395

Mercury -80260-08-14 00:13 J -27593316.66 -27593316.49 -27593316.31 0.0492 0.0115

Moon -80260-09-18 17:30 J -27593280.99 -27593280.77 -27593280.55 0.0492 0.0204

Earth -80260-09-18 21:35 J -27593280.82 -27593280.60 -27593280.38 0.0492 0.0195 \*

Venus -80255-06-22 10:18 J -27591543.24 -27591543.07 -27591542.90 0.0538 0.0289

Mercury -80254-04-05 20:08 J -27591255.78 -27591255.66 -27591255.53 0.0536 0.0117

Mercury -80254-07-04 04:18 J -27591166.42 -27591166.32 -27591166.22 0.0534 0.0338

Mars -80253-08-30 08:52 J -27590743.38 -27590743.13 -27590742.87 0.0522 0.0227

Venus -80249-04-23 03:49 J -27589411.54 -27589411.34 -27589411.13 0.0489 0.0077

Mercury -80248-06-01 22:04 J -27589006.76 -27589006.58 -27589006.40 0.0492 0.0014

Mercury -80248-08-31 03:35 J -27588916.37 -27588916.35 -27588916.32 0.0493 0.0488

Earth -80248-09-23 11:44 J -27588893.25 -27588893.01 -27588892.77 0.0494 0.0023

Moon -80248-09-23 15:20 J -27588893.09 -27588892.86 -27588892.62 0.0494 0.0052 \*

Venus -80243-02-25 05:01 J -27587277.47 -27587277.29 -27587277.11 0.0538 0.0216

Mercury -80242-01-23 00:13 J -27586945.61 -27586945.49 -27586945.37 0.0536 0.0225

Earth -80242-03-18 02:37 J -27586891.54 -27586891.39 -27586891.22 0.0535 0.0375

Moon -80242-03-18 05:16 J -27586891.46 -27586891.28 -27586891.10 0.0535 0.0340 \*

Mercury -80242-04-22 08:08 J -27586856.28 -27586856.16 -27586856.04 0.0535 0.0228

Venus -80238-12-28 04:18 J -27585145.48 -27585145.32 -27585145.16 0.0489 0.0324

Mercury -80236-03-20 20:37 J -27584696.82 -27584696.64 -27584696.47 0.0491 0.0137

Mercury -80236-06-19 02:23 J -27584606.51 -27584606.40 -27584606.27 0.0493 0.0370

Moon -80236-09-28 03:35 J -27584505.56 -27584505.35 -27584505.14 0.0495 0.0256

Earth -80236-09-28 05:44 J -27584505.47 -27584505.26 -27584505.05 0.0495 0.0249 \*

Mercury -80231-11-11 03:20 J -27582635.46 -27582635.36 -27582635.27 0.0536 0.0346

Mercury -80230-02-08 11:01 J -27582546.17 -27582546.04 -27582545.91 0.0535 0.0104

Moon -80230-03-22 15:20 J -27582504.08 -27582503.86 -27582503.65 0.0534 0.0119

Earth -80230-03-22 18:28 J -27582503.95 -27582503.73 -27582503.51 0.0534 0.0119 \*

Mercury -80224-01-06 18:56 J -27580386.87 -27580386.71 -27580386.56 0.0491 0.0259

Mercury -80224-04-07 01:11 J -27580296.60 -27580296.45 -27580296.29 0.0493 0.0250

Moon -80224-10-02 23:44 J -27580117.60 -27580117.51 -27580117.41 0.0496 0.0448  
 Earth -80224-10-02 23:44 J -27580117.57 -27580117.51 -27580117.44 0.0496 0.0476 \*  
 Mercury -80219-08-30 06:56 J -27578325.27 -27578325.21 -27578325.14 0.0537 0.0458  
 Mercury -80219-11-27 14:37 J -27578236.02 -27578235.89 -27578235.76 0.0535 0.0010  
 Mercury -80218-02-24 22:47 J -27578146.62 -27578146.55 -27578146.48 0.0533 0.0444  
 Earth -80218-03-27 13:40 J -27578116.14 -27578115.93 -27578115.71 0.0533 0.0143  
 Moon -80218-03-27 17:16 J -27578115.99 -27578115.78 -27578115.55 0.0533 0.0112 \*  
 Venus -80214-12-30 17:16 J -27576376.93 -27576376.78 -27576376.62 0.0489 0.0320  
 Mercury -80213-10-25 16:32 J -27576076.92 -27576076.81 -27576076.69 0.0491 0.0388  
 Mercury -80212-01-23 23:16 J -27575986.70 -27575986.53 -27575986.35 0.0492 0.0122  
 Venus -80208-11-02 17:44 J -27574242.95 -27574242.76 -27574242.56 0.0538 0.0066  
 Mercury -80207-09-15 18:28 J -27573925.86 -27573925.73 -27573925.60 0.0536 0.0121  
 Mercury -80207-12-14 02:37 J -27573836.49 -27573836.39 -27573836.29 0.0534 0.0333  
 Moon -80206-04-01 07:25 J -27573728.33 -27573728.19 -27573728.04 0.0532 0.0408  
 Earth -80206-04-01 10:18 J -27573728.21 -27573728.07 -27573727.92 0.0532 0.0408 \*  
 Venus -80202-09-04 17:16 J -27572110.99 -27572110.78 -27572110.57 0.0489 0.0083  
 Mercury -80201-11-11 21:20 J -27571676.79 -27571676.61 -27571676.43 0.0492 0.0006  
 Mars -80199-05-24 04:47 J -27571118.56 -27571118.30 -27571118.05 0.0505 0.0128  
 Venus -80196-07-08 12:42 J -27569977.08 -27569976.97 -27569976.85 0.0538 0.0437  
 Mercury -80195-07-04 22:47 J -27569615.67 -27569615.55 -27569615.44 0.0536 0.0227  
 Mercury -80195-10-02 06:42 J -27569526.34 -27569526.22 -27569526.10 0.0535 0.0227  
 Venus -80190-05-10 16:32 J -27567844.82 -27567844.81 -27567844.79 0.0489 0.0487  
 Mercury -80189-08-30 19:11 J -27567366.88 -27567366.70 -27567366.53 0.0491 0.0132  
 Moon -80189-09-13 10:04 J -27567353.16 -27567353.08 -27567352.99 0.0492 0.0457  
 Earth -80189-09-13 14:08 J -27567353.02 -27567352.91 -27567352.78 0.0492 0.0424 \*  
 Mercury -80189-11-29 00:56 J -27567276.57 -27567276.46 -27567276.34 0.0493 0.0374  
 Mercury -80183-04-23 02:52 J -27565305.48 -27565305.38 -27565305.28 0.0537 0.0333  
 Mercury -80183-07-21 10:32 J -27565216.18 -27565216.06 -27565215.93 0.0535 0.0119  
 Mercury -80177-06-18 17:30 J -27563056.92 -27563056.77 -27563056.61 0.0491 0.0254  
 Mercury -80177-09-16 23:59 J -27562966.66 -27562966.50 -27562966.35 0.0493 0.0254

Earth -80177-09-18 06:56 J -27562965.43 -27562965.21 -27562964.99 0.0493 0.0205  
 Moon -80177-09-18 10:32 J -27562965.27 -27562965.06 -27562964.84 0.0493 0.0205 \*  
 Venus -80172-07-11 10:32 J -27561208.20 -27561208.06 -27561207.92 0.0538 0.0371  
 Mercury -80171-02-09 05:59 J -27560995.31 -27560995.25 -27560995.18 0.0536 0.0452  
 Mercury -80171-05-09 13:40 J -27560906.06 -27560905.93 -27560905.80 0.0535 0.0005  
 Mercury -80171-08-06 21:49 J -27560816.66 -27560816.59 -27560816.52 0.0533 0.0449  
 Venus -80166-05-13 05:44 J -27559076.45 -27559076.26 -27559076.06 0.0489 0.0159  
 Mercury -80165-04-06 15:49 J -27558746.95 -27558746.84 -27558746.72 0.0491 0.0378  
 Mercury -80165-07-05 22:32 J -27558656.73 -27558656.56 -27558656.38 0.0492 0.0134  
 Moon -80165-09-22 21:49 J -27558577.84 -27558577.59 -27558577.34 0.0494 0.0047  
 Earth -80165-09-23 00:13 J -27558577.73 -27558577.49 -27558577.25 0.0494 0.0019 \*  
 Venus -80160-03-16 03:49 J -27556942.52 -27556942.34 -27556942.14 0.0537 0.0142  
 Mercury -80159-02-25 17:16 J -27556595.90 -27556595.78 -27556595.65 0.0535 0.0118  
 Moon -80159-03-17 00:42 J -27556576.62 -27556576.47 -27556576.30 0.0535 0.0377  
 Earth -80159-03-17 04:04 J -27556576.47 -27556576.33 -27556576.18 0.0535 0.0409 \*  
 Mercury -80159-05-26 01:11 J -27556506.55 -27556506.45 -27556506.34 0.0534 0.0336  
 Venus -80154-01-16 05:44 J -27554810.44 -27554810.26 -27554810.08 0.0489 0.0246  
 Mercury -80153-04-23 20:37 J -27554346.82 -27554346.64 -27554346.46 0.0492 0.0008  
 Earth -80153-09-27 15:20 J -27554190.07 -27554189.86 -27554189.65 0.0494 0.0240  
 Moon -80153-09-27 15:20 J -27554190.05 -27554189.86 -27554189.65 0.0494 0.0239 \*  
 Mercury -80148-12-14 21:06 J -27552285.73 -27552285.62 -27552285.50 0.0536 0.0229  
 Mercury -80147-03-14 05:01 J -27552196.41 -27552196.29 -27552196.17 0.0535 0.0224  
 Earth -80147-03-22 01:11 J -27552188.66 -27552188.45 -27552188.23 0.0535 0.0140  
 Moon -80147-03-22 05:01 J -27552188.51 -27552188.29 -27552188.08 0.0535 0.0148 \*  
 Mercury -80141-02-10 18:42 J -27550036.90 -27550036.72 -27550036.55 0.0491 0.0120  
 Mercury -80141-05-11 00:28 J -27549946.58 -27549946.48 -27549946.36 0.0493 0.0386  
 Earth -80141-10-02 07:25 J -27549802.27 -27549802.19 -27549802.10 0.0496 0.0463  
 Moon -80141-10-02 09:06 J -27549802.24 -27549802.12 -27549802.00 0.0496 0.0430 \*  
 Mercury -80136-10-03 01:25 J -27547975.54 -27547975.44 -27547975.34 0.0537 0.0334  
 Mercury -80136-12-31 09:06 J -27547886.24 -27547886.12 -27547885.99 0.0535 0.0119



Moon -80135-03-26 21:35 J -27547800.82 -27547800.60 -27547800.37 0.0533 0.0101  
 Earth -80135-03-27 00:42 J -27547800.69 -27547800.47 -27547800.25 0.0533 0.0132 \*  
 Venus -80130-01-18 18:13 J -27546041.86 -27546041.74 -27546041.61 0.0489 0.0397  
 Mercury -80130-11-29 16:18 J -27545726.98 -27545726.82 -27545726.66 0.0491 0.0249  
 Mercury -80129-02-27 22:47 J -27545636.71 -27545636.55 -27545636.40 0.0492 0.0260  
 Venus -80125-11-21 22:04 J -27543907.77 -27543907.58 -27543907.40 0.0538 0.0172  
 Mercury -80124-07-22 05:44 J -27543665.34 -27543665.26 -27543665.19 0.0537 0.0439  
 Mercury -80124-10-19 13:11 J -27543576.08 -27543575.95 -27543575.82 0.0535 0.0019  
 Mercury -80123-01-16 21:35 J -27543486.66 -27543486.60 -27543486.54 0.0534 0.0465  
 Earth -80123-03-31 22:04 J -27543412.72 -27543412.58 -27543412.42 0.0532 0.0396  
 Moon -80123-03-31 23:30 J -27543412.65 -27543412.52 -27543412.38 0.0532 0.0408 \*  
 Venus -80119-09-23 18:42 J -27541775.93 -27541775.72 -27541775.51 0.0489 0.0005  
 Mercury -80118-09-17 14:37 J -27541417.00 -27541416.89 -27541416.77 0.0491 0.0371  
 Mercury -80118-12-16 21:20 J -27541326.78 -27541326.61 -27541326.43 0.0492 0.0140  
 Venus -80113-07-27 14:37 J -27539642.04 -27539641.89 -27539641.74 0.0537 0.0345  
 Mercury -80112-08-07 16:32 J -27539265.94 -27539265.81 -27539265.69 0.0535 0.0111  
 Mercury -80112-11-05 00:28 J -27539176.58 -27539176.48 -27539176.38 0.0534 0.0342  
 Venus -80107-05-29 18:13 J -27537509.85 -27537509.74 -27537509.62 0.0490 0.0408  
 Earth -80106-09-14 02:52 J -27537037.49 -27537037.38 -27537037.26 0.0492 0.0427  
 Moon -80106-09-14 06:28 J -27537037.30 -27537037.23 -27537037.13 0.0492 0.0456 \*  
 Mercury -80106-10-04 19:54 J -27537016.85 -27537016.67 -27537016.49 0.0492 0.0018  
 Mercury -80100-05-26 20:08 J -27534955.78 -27534955.66 -27534955.54 0.0536 0.0223  
 Mercury -80100-08-24 04:04 J -27534866.45 -27534866.33 -27534866.22 0.0534 0.0229  
 Mars -80099-11-24 12:28 J -27534409.27 -27534408.98 -27534408.70 0.0521 0.0023  
 Mercury -80094-07-23 17:59 J -27532706.93 -27532706.75 -27532706.58 0.0492 0.0111  
 Moon -80094-09-18 15:06 J -27532650.09 -27532649.87 -27532649.64 0.0492 0.0201  
 Earth -80094-09-18 17:30 J -27532649.98 -27532649.77 -27532649.55 0.0492 0.0210 \*  
 Mercury -80094-10-21 23:44 J -27532616.61 -27532616.51 -27532616.40 0.0493 0.0396  
 Venus -80089-07-30 11:16 J -27530873.13 -27530873.03 -27530872.92 0.0538 0.0455  
 Mercury -80088-03-14 23:59 J -27530645.60 -27530645.50 -27530645.40 0.0536 0.0335

Mercury -80088-06-12 07:40 J -27530556.30 -27530556.18 -27530556.05 0.0535 0.0116

Venus -80083-06-01 07:40 J -27528741.36 -27528741.18 -27528740.99 0.0489 0.0239

Mercury -80082-05-11 15:49 J -27528397.00 -27528396.84 -27528396.68 0.0491 0.0237

Mercury -80082-08-09 22:04 J -27528306.72 -27528306.58 -27528306.42 0.0492 0.0272

Earth -80082-09-23 09:06 J -27528262.36 -27528262.12 -27528261.88 0.0493 0.0011

Moon -80082-09-23 09:20 J -27528262.34 -27528262.11 -27528261.88 0.0493 0.0037 \*

Venus -80077-04-04 06:13 J -27526607.44 -27526607.24 -27526607.05 0.0538 0.0048

Mercury -80076-01-01 04:18 J -27526335.40 -27526335.32 -27526335.25 0.0537 0.0440

Earth -80076-03-16 14:08 J -27526261.05 -27526260.91 -27526260.77 0.0536 0.0421

Moon -80076-03-16 17:44 J -27526260.91 -27526260.76 -27526260.60 0.0536 0.0391 \*

Mercury -80076-03-31 11:44 J -27526246.13 -27526246.01 -27526245.88 0.0536 0.0021

Mercury -80076-06-28 20:08 J -27526156.72 -27526156.66 -27526156.60 0.0534 0.0465

Venus -80071-02-04 07:11 J -27524475.40 -27524475.20 -27524475.00 0.0489 0.0166

Mercury -80070-02-27 13:25 J -27524087.06 -27524086.94 -27524086.82 0.0491 0.0366

Mercury -80070-05-28 20:08 J -27523996.83 -27523996.66 -27523996.49 0.0492 0.0145

Earth -80070-09-28 00:13 J -27523874.71 -27523874.49 -27523874.28 0.0494 0.0229

Moon -80070-09-28 01:40 J -27523874.65 -27523874.43 -27523874.20 0.0494 0.0219 \*

Mercury -80064-01-17 16:04 J -27521935.96 -27521935.83 -27521935.71 0.0536 0.0098

Moon -80064-03-21 10:18 J -27521873.28 -27521873.07 -27521872.84 0.0535 0.0168

Earth -80064-03-21 13:40 J -27521873.15 -27521872.93 -27521872.72 0.0535 0.0150 \*

Mercury -80064-04-16 23:59 J -27521846.59 -27521846.50 -27521846.40 0.0534 0.0357

Mercury -80059-12-16 11:44 J -27519777.02 -27519777.01 -27519776.99 0.0491 0.0488

Mercury -80058-03-16 18:42 J -27519686.90 -27519686.72 -27519686.53 0.0492 0.0028

Moon -80058-10-02 15:49 J -27519486.96 -27519486.84 -27519486.72 0.0496 0.0424

Earth -80058-10-02 18:28 J -27519486.81 -27519486.73 -27519486.63 0.0496 0.0455 \*

Mercury -80053-11-05 19:11 J -27517625.81 -27517625.70 -27517625.58 0.0536 0.0216

Mercury -80052-02-03 03:06 J -27517536.48 -27517536.37 -27517536.25 0.0534 0.0236

Earth -80052-03-26 06:28 J -27517485.45 -27517485.23 -27517485.01 0.0533 0.0108

Moon -80052-03-26 07:54 J -27517485.38 -27517485.17 -27517484.95 0.0533 0.0081 \*

Venus -80047-02-06 19:54 J -27515706.70 -27515706.67 -27515706.61 0.0490 0.0479

Mercury -80046-01-02 17:01 J -27515376.96 -27515376.79 -27515376.61 0.0492 0.0100

Mercury -80046-04-02 23:16 J -27515286.63 -27515286.53 -27515286.43 0.0493 0.0407

Mars -80045-08-18 03:20 J -27514783.61 -27514783.36 -27514783.10 0.0506 0.0141

Venus -80042-12-11 22:18 J -27513572.74 -27513572.57 -27513572.39 0.0537 0.0253

Mercury -80041-08-24 23:01 J -27513315.64 -27513315.54 -27513315.44 0.0536 0.0328

Mercury -80041-11-22 06:42 J -27513226.35 -27513226.22 -27513226.09 0.0534 0.0122

Moon -80040-03-31 00:56 J -27513097.62 -27513097.46 -27513097.29 0.0532 0.0377

Earth -80040-03-31 01:11 J -27513097.61 -27513097.45 -27513097.29 0.0532 0.0364 \*

Venus -80036-10-12 19:54 J -27511440.88 -27511440.67 -27511440.46 0.0490 0.0074

Mercury -80035-10-21 14:52 J -27511067.04 -27511066.88 -27511066.71 0.0491 0.0229

Mercury -80034-01-19 21:20 J -27510976.75 -27510976.61 -27510976.46 0.0493 0.0281

Venus -80030-08-16 15:20 J -27509307.04 -27509306.86 -27509306.69 0.0537 0.0263

Mercury -80029-06-13 02:37 J -27509005.45 -27509005.39 -27509005.31 0.0537 0.0441

Mercury -80029-09-10 10:18 J -27508916.20 -27508916.07 -27508915.94 0.0535 0.0018

Mercury -80029-12-08 18:42 J -27508826.79 -27508826.72 -27508826.66 0.0534 0.0463

Venus -80024-06-17 20:08 J -27507174.81 -27507174.66 -27507174.50 0.0490 0.0327

Mercury -80023-08-09 12:56 J -27506757.09 -27506756.96 -27506756.83 0.0491 0.0355

Moon -80023-09-13 09:35 J -27506722.18 -27506722.10 -27506722.00 0.0491 0.0457

Earth -80023-09-13 12:28 J -27506722.09 -27506721.98 -27506721.87 0.0491 0.0433 \*

Mercury -80023-11-07 19:40 J -27506666.85 -27506666.68 -27506666.51 0.0492 0.0156

Mercury -80017-06-29 14:37 J -27504606.02 -27504605.89 -27504605.77 0.0536 0.0100

Mercury -80017-09-26 22:32 J -27504516.65 -27504516.56 -27504516.46 0.0534 0.0356

Mercury -80011-05-28 10:32 J -27502447.09 -27502447.06 -27502447.03 0.0491 0.0484

Mercury -80011-08-26 17:30 J -27502356.95 -27502356.77 -27502356.59 0.0492 0.0029

Earth -80011-09-18 02:23 J -27502334.61 -27502334.40 -27502334.18 0.0492 0.0220

Moon -80011-09-18 02:52 J -27502334.59 -27502334.38 -27502334.17 0.0492 0.0202 \*

Mercury -80005-04-17 18:42 J -27500295.84 -27500295.72 -27500295.60 0.0536 0.0205

Mercury -80005-07-16 02:37 J -27500206.50 -27500206.39 -27500206.28 0.0535 0.0248

# 80TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 80th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Venus	-80000-06-20 09:06 J		-27498406.27	-27498406.12	-27498405.95	0.0489	0.0319	
Mercury	-79999-06-14 16:04 J		-27498047.01	-27498046.83	-27498046.65	0.0492	0.0093	
Mercury	-79999-09-12 22:04 J		-27497956.67	-27497956.58	-27497956.48	0.0493	0.0413	
Earth	-79999-09-22 19:25 J		-27497946.93	-27497946.69	-27497946.45	0.0493	0.0003	
Moon	-79999-09-22 21:06 J		-27497946.87	-27497946.62	-27497946.37	0.0493	0.0027	*
Venus	-79994-04-24 08:52 J		-27496272.32	-27496272.13	-27496271.93	0.0537	0.0049	
Mercury	-79993-02-04 22:18 J		-27495985.68	-27495985.57	-27495985.47	0.0536	0.0321	
Moon	-79993-03-15 17:44 J		-27495945.90	-27495945.76	-27495945.62	0.0535	0.0415	
Earth	-79993-03-15 21:06 J		-27495945.75	-27495945.62	-27495945.49	0.0535	0.0439	*
Mercury	-79993-05-04 05:59 J		-27495896.38	-27495896.25	-27495896.13	0.0534	0.0130	
Venus	-79988-02-23 07:54 J		-27494140.37	-27494140.17	-27494139.96	0.0490	0.0091	
Mercury	-79987-04-02 14:08 J		-27493737.08	-27493736.91	-27493736.75	0.0492	0.0220	
Mercury	-79987-07-01 20:23 J		-27493646.79	-27493646.65	-27493646.50	0.0493	0.0291	
Moon	-79987-09-27 09:06 J		-27493559.32	-27493559.12	-27493558.90	0.0495	0.0213	
Earth	-79987-09-27 11:59 J		-27493559.21	-27493559.00	-27493558.78	0.0495	0.0226	*
Venus	-79983-12-28 02:37 J		-27492006.49	-27492006.39	-27492006.29	0.0537	0.0461	
Mercury	-79982-11-24 01:54 J		-27491675.49	-27491675.42	-27491675.35	0.0536	0.0432	
Mercury	-79981-02-21 09:35 J		-27491586.23	-27491586.10	-27491585.98	0.0535	0.0025	
Earth	-79981-03-20 16:47 J		-27491558.01	-27491557.80	-27491557.58	0.0534	0.0178	

Moon -79981-03-20 18:42 J -27491557.92 -27491557.72 -27491557.51 0.0534 0.0202 \*  
 Mercury -79981-05-20 17:30 J -27491496.83 -27491496.77 -27491496.71 0.0533 0.0468  
 Mars -79980-05-13 22:32 J -27491138.63 -27491138.56 -27491138.46 0.0523 0.0497  
 Mercury -79975-01-19 11:44 J -27489427.13 -27489427.01 -27489426.88 0.0491 0.0349  
 Mercury -79975-04-19 18:42 J -27489336.89 -27489336.72 -27489336.55 0.0492 0.0164  
 Earth -79975-10-02 03:35 J -27489171.44 -27489171.35 -27489171.24 0.0495 0.0447  
 Moon -79975-10-02 07:25 J -27489171.31 -27489171.19 -27489171.06 0.0495 0.0419 \*  
 Mercury -79970-12-10 13:11 J -27487276.08 -27487275.95 -27487275.83 0.0535 0.0101  
 Mercury -79969-03-08 21:06 J -27487186.72 -27487186.62 -27487186.52 0.0534 0.0354  
 Moon -79969-03-25 12:13 J -27487170.22 -27487169.99 -27487169.76 0.0534 0.0061  
 Earth -79969-03-25 12:28 J -27487170.20 -27487169.98 -27487169.75 0.0534 0.0087 \*  
 Mercury -79964-11-07 09:35 J -27485117.14 -27485117.10 -27485117.05 0.0491 0.0475  
 Mercury -79963-02-05 16:47 J -27485026.98 -27485026.80 -27485026.62 0.0492 0.0039  
 Venus -79959-12-30 23:30 J -27483237.67 -27483237.52 -27483237.37 0.0538 0.0339  
 Mercury -79958-09-28 17:16 J -27482965.90 -27482965.78 -27482965.67 0.0536 0.0208  
 Mercury -79958-12-27 00:56 J -27482876.57 -27482876.46 -27482876.34 0.0535 0.0246  
 Moon -79957-03-30 08:52 J -27482782.28 -27482782.13 -27482781.96 0.0533 0.0371  
 Earth -79957-03-30 10:18 J -27482782.23 -27482782.07 -27482781.89 0.0533 0.0351 \*  
 Venus -79953-10-31 20:52 J -27481105.83 -27481105.63 -27481105.43 0.0489 0.0151  
 Mercury -79952-11-24 14:23 J -27480717.08 -27480716.90 -27480716.72 0.0492 0.0091  
 Mercury -79951-02-22 20:23 J -27480626.74 -27480626.65 -27480626.55 0.0493 0.0416  
 Venus -79947-09-04 18:28 J -27478971.91 -27478971.73 -27478971.54 0.0538 0.0163  
 Mercury -79946-07-17 21:20 J -27478655.71 -27478655.61 -27478655.51 0.0536 0.0313  
 Mercury -79946-10-15 05:01 J -27478566.41 -27478566.29 -27478566.16 0.0535 0.0139  
 Mars -79944-02-18 14:08 J -27478074.12 -27478073.91 -27478073.69 0.0521 0.0339  
 Venus -79941-07-06 21:06 J -27476839.80 -27476839.62 -27476839.44 0.0490 0.0250  
 Mercury -79940-09-12 12:42 J -27476407.13 -27476406.97 -27476406.80 0.0491 0.0214  
 Earth -79940-09-12 21:35 J -27476406.70 -27476406.60 -27476406.49 0.0491 0.0442  
 Moon -79940-09-12 22:04 J -27476406.65 -27476406.58 -27476406.49 0.0491 0.0458 \*  
 Mercury -79940-12-11 19:11 J -27476316.84 -27476316.70 -27476316.55 0.0493 0.0296

Mercury -79934-05-06 00:56 J -27474345.53 -27474345.46 -27474345.38 0.0536 0.0427

Mercury -79934-08-03 08:37 J -27474256.27 -27474256.14 -27474256.02 0.0535 0.0027

Mercury -79934-10-31 16:32 J -27474166.86 -27474166.81 -27474166.75 0.0533 0.0474

Mercury -79928-07-01 10:32 J -27472097.19 -27472097.06 -27472096.93 0.0492 0.0343

Earth -79928-09-17 12:13 J -27472019.20 -27472018.99 -27472018.77 0.0493 0.0226

Moon -79928-09-17 13:40 J -27472019.15 -27472018.93 -27472018.69 0.0493 0.0200 \*

Mercury -79928-09-29 17:30 J -27472006.94 -27472006.77 -27472006.60 0.0493 0.0170

Mars -79926-02-07 21:20 J -27471510.83 -27471510.61 -27471510.37 0.0505 0.0248

Mercury -79922-05-22 12:13 J -27469946.12 -27469945.99 -27469945.87 0.0535 0.0094

Mercury -79922-08-19 19:54 J -27469856.76 -27469856.67 -27469856.57 0.0533 0.0360

Venus -79917-07-09 08:52 J -27468071.26 -27468071.13 -27468071.00 0.0490 0.0386

Mercury -79916-04-19 08:08 J -27467787.20 -27467787.16 -27467787.11 0.0491 0.0473

Mercury -79916-07-18 15:20 J -27467697.04 -27467696.86 -27467696.68 0.0492 0.0042

Moon -79916-09-22 00:28 J -27467631.71 -27467631.48 -27467631.25 0.0493 0.0016

Earth -79916-09-22 03:20 J -27467631.60 -27467631.36 -27467631.12 0.0493 0.0009 \*

Venus -79911-05-13 08:08 J -27465937.35 -27465937.16 -27465936.96 0.0537 0.0122

Mercury -79910-03-10 15:35 J -27465635.97 -27465635.85 -27465635.73 0.0536 0.0210

Earth -79910-03-16 00:56 J -27465630.57 -27465630.46 -27465630.35 0.0536 0.0464

Moon -79910-03-16 03:06 J -27465630.49 -27465630.37 -27465630.25 0.0536 0.0449 \*

Mercury -79910-06-07 23:30 J -27465546.64 -27465546.52 -27465546.41 0.0534 0.0242

Venus -79905-03-14 08:37 J -27463805.35 -27463805.14 -27463804.93 0.0490 0.0016

Mercury -79904-05-06 13:25 J -27463387.12 -27463386.94 -27463386.76 0.0492 0.0085

Mercury -79904-08-04 19:25 J -27463296.78 -27463296.69 -27463296.60 0.0493 0.0422

Earth -79904-09-26 18:28 J -27463243.94 -27463243.73 -27463243.51 0.0494 0.0213

Moon -79904-09-26 22:18 J -27463243.79 -27463243.57 -27463243.34 0.0494 0.0194 \*

Venus -79899-01-16 02:23 J -27461671.54 -27461671.40 -27461671.26 0.0537 0.0385

Mercury -79899-12-27 19:40 J -27461325.78 -27461325.68 -27461325.58 0.0536 0.0318

Moon -79898-03-20 23:01 J -27461242.75 -27461242.54 -27461242.33 0.0535 0.0225

Earth -79898-03-20 23:30 J -27461242.73 -27461242.52 -27461242.31 0.0535 0.0197 \*

Mercury -79898-03-27 03:20 J -27461236.48 -27461236.36 -27461236.23 0.0535 0.0133

Venus -79894-11-18 08:08 J -27459539.26 -27459539.16 -27459539.05 0.0490 0.0420

Mercury -79892-02-22 11:01 J -27459077.20 -27459077.04 -27459076.88 0.0491 0.0214

Mercury -79892-05-23 17:16 J -27458986.92 -27458986.78 -27458986.63 0.0493 0.0296

Moon -79892-10-01 05:59 J -27458856.39 -27458856.25 -27458856.11 0.0495 0.0404

Earth -79892-10-01 09:35 J -27458856.21 -27458856.10 -27458855.97 0.0495 0.0430 \*

Mars -79891-11-12 08:08 J -27458449.34 -27458449.16 -27458448.97 0.0506 0.0364

Mercury -79887-10-15 23:59 J -27457015.58 -27457015.50 -27457015.43 0.0537 0.0424

Mercury -79886-01-13 07:25 J -27456926.32 -27456926.19 -27456926.06 0.0535 0.0028

Moon -79886-03-25 20:52 J -27456854.85 -27456854.63 -27456854.41 0.0534 0.0050

Earth -79886-03-25 22:04 J -27456854.80 -27456854.58 -27456854.35 0.0534 0.0071 \*

Mercury -79886-04-12 15:35 J -27456836.90 -27456836.85 -27456836.79 0.0533 0.0480

Mercury -79881-12-11 09:06 J -27454767.25 -27454767.12 -27454766.99 0.0491 0.0339

Mercury -79880-03-11 15:49 J -27454677.01 -27454676.84 -27454676.67 0.0492 0.0174

Venus -79875-01-19 01:25 J -27452902.55 -27452902.44 -27452902.31 0.0537 0.0429

Mercury -79875-08-04 03:35 J -27452705.35 -27452705.35 -27452705.34 0.0536 0.0535

Mercury -79875-11-01 11:01 J -27452616.17 -27452616.04 -27452615.91 0.0535 0.0090

Mercury -79874-01-29 18:56 J -27452526.80 -27452526.71 -27452526.61 0.0533 0.0362

Earth -79874-03-30 16:04 J -27452467.00 -27452466.83 -27452466.65 0.0532 0.0328

Moon -79874-03-30 18:56 J -27452466.88 -27452466.71 -27452466.53 0.0532 0.0354 \*

Venus -79870-11-20 19:25 J -27450770.87 -27450770.69 -27450770.50 0.0490 0.0215

Mercury -79869-09-29 06:28 J -27450457.27 -27450457.23 -27450457.18 0.0491 0.0472

Mercury -79869-12-28 13:40 J -27450367.11 -27450366.93 -27450366.74 0.0492 0.0046

Venus -79864-09-23 19:11 J -27448636.90 -27448636.70 -27448636.51 0.0537 0.0081

Mercury -79863-08-20 14:37 J -27448306.01 -27448305.89 -27448305.77 0.0535 0.0204

Mercury -79863-11-17 22:32 J -27448216.68 -27448216.56 -27448216.45 0.0534 0.0248

Venus -79858-07-26 18:56 J -27446504.90 -27446504.71 -27446504.51 0.0490 0.0191

Earth -79857-09-12 03:20 J -27446091.45 -27446091.36 -27446091.26 0.0492 0.0451

Moon -79857-09-12 04:47 J -27446091.38 -27446091.30 -27446091.21 0.0492 0.0458 \*

Mercury -79857-10-16 11:44 J -27446057.19 -27446057.01 -27446056.83 0.0492 0.0085

Mercury -79856-01-14 17:44 J -27445966.85 -27445966.76 -27445966.67 0.0493 0.0423

Mercury -79851-06-08 18:13 J -27443995.85 -27443995.74 -27443995.64 0.0536 0.0321

Mercury -79851-09-06 01:40 J -27443906.55 -27443906.43 -27443906.30 0.0534 0.0130

Mercury -79845-08-04 09:35 J -27441747.27 -27441747.10 -27441746.94 0.0491 0.0212

Moon -79845-09-16 15:20 J -27441704.07 -27441703.86 -27441703.65 0.0492 0.0211

Earth -79845-09-16 17:59 J -27441703.96 -27441703.75 -27441703.54 0.0492 0.0238 \*

Mercury -79845-11-02 16:04 J -27441656.97 -27441656.83 -27441656.69 0.0493 0.0298

Mercury -79839-03-27 22:04 J -27439685.66 -27439685.58 -27439685.51 0.0536 0.0430

Mercury -79839-06-25 05:30 J -27439596.39 -27439596.27 -27439596.14 0.0535 0.0027

Mercury -79839-09-22 13:40 J -27439506.98 -27439506.93 -27439506.87 0.0533 0.0473

Venus -79834-07-29 07:54 J -27437736.24 -27437736.17 -27437736.09 0.0489 0.0454

Mercury -79833-05-23 06:56 J -27437437.34 -27437437.21 -27437437.08 0.0491 0.0343

Mercury -79833-08-21 13:40 J -27437347.09 -27437346.93 -27437346.75 0.0492 0.0170

Earth -79833-09-21 07:54 J -27437316.41 -27437316.17 -27437315.93 0.0493 0.0025

Moon -79833-09-21 11:30 J -27437316.26 -27437316.02 -27437315.77 0.0493 0.0009 \*

Venus -79828-06-01 09:20 J -27435602.29 -27435602.11 -27435601.93 0.0538 0.0208

Mercury -79827-01-14 02:08 J -27435375.41 -27435375.41 -27435375.40 0.0537 0.0536

Moon -79827-03-15 07:25 J -27435315.29 -27435315.19 -27435315.07 0.0536 0.0472

Earth -79827-03-15 08:08 J -27435315.25 -27435315.16 -27435315.06 0.0536 0.0483 \*

Mercury -79827-04-13 09:35 J -27435286.22 -27435286.10 -27435285.97 0.0536 0.0091

Mercury -79827-07-11 17:44 J -27435196.86 -27435196.76 -27435196.67 0.0534 0.0364

Mars -79826-08-08 11:44 J -27434804.26 -27434804.01 -27434803.75 0.0523 0.0214

Venus -79822-04-03 07:40 J -27433470.39 -27433470.18 -27433469.97 0.0490 0.0051

Mercury -79821-03-11 04:47 J -27433127.34 -27433127.30 -27433127.24 0.0491 0.0469

Mercury -79821-06-09 11:59 J -27433037.18 -27433037.00 -27433036.82 0.0492 0.0047

Moon -79821-09-25 20:08 J -27432928.88 -27432928.66 -27432928.43 0.0494 0.0172

Earth -79821-09-26 00:13 J -27432928.71 -27432928.49 -27432928.27 0.0494 0.0195 \*

Venus -79816-02-04 04:04 J -27431336.49 -27431336.33 -27431336.17 0.0537 0.0297

Mercury -79815-01-30 13:25 J -27430976.06 -27430975.94 -27430975.82 0.0535 0.0202

Moon -79815-03-20 04:04 J -27430927.52 -27430927.33 -27430927.14 0.0534 0.0248

Earth -79815-03-20 04:47 J -27430927.50 -27430927.30 -27430927.09 0.0534 0.0217 \*



Mercury -79815-04-29 21:06 J -27430886.73 -27430886.62 -27430886.50 0.0534 0.0249

Venus -79811-12-07 05:16 J -27429204.42 -27429204.28 -27429204.14 0.0490 0.0366

Mercury -79809-03-28 09:35 J -27428727.28 -27428727.10 -27428726.92 0.0492 0.0087

Mercury -79809-06-26 15:49 J -27428636.93 -27428636.84 -27428636.75 0.0494 0.0422

Earth -79809-09-30 15:06 J -27428540.99 -27428540.87 -27428540.73 0.0495 0.0417

Moon -79809-09-30 17:59 J -27428540.88 -27428540.75 -27428540.61 0.0495 0.0400 \*

Mercury -79804-11-18 17:01 J -27426665.89 -27426665.79 -27426665.69 0.0535 0.0316

Mercury -79803-02-16 00:42 J -27426576.60 -27426576.47 -27426576.35 0.0534 0.0133

Earth -79803-03-24 23:44 J -27426539.73 -27426539.51 -27426539.28 0.0533 0.0041

Moon -79803-03-25 02:23 J -27426539.63 -27426539.40 -27426539.17 0.0533 0.0028 \*

Mercury -79797-01-15 07:25 J -27424417.36 -27424417.19 -27424417.03 0.0492 0.0216

Mercury -79797-04-14 13:54 J -27424327.06 -27424326.92 -27424326.77 0.0493 0.0295

Venus -79792-02-06 22:18 J -27422567.64 -27422567.57 -27422567.48 0.0537 0.0488

Mercury -79792-09-06 20:23 J -27422355.72 -27422355.65 -27422355.58 0.0536 0.0434

Mercury -79792-12-05 03:49 J -27422266.47 -27422266.34 -27422266.21 0.0535 0.0017

Mercury -79791-03-04 11:59 J -27422177.06 -27422177.00 -27422176.94 0.0533 0.0467

Moon -79791-03-29 13:11 J -27422152.12 -27422151.95 -27422151.77 0.0533 0.0324

Earth -79791-03-29 16:47 J -27422151.99 -27422151.80 -27422151.61 0.0533 0.0295 \*

Venus -79787-12-09 18:13 J -27420435.90 -27420435.74 -27420435.56 0.0490 0.0280

Mercury -79786-11-03 05:01 J -27420107.41 -27420107.29 -27420107.15 0.0491 0.0344

Mercury -79785-02-01 11:59 J -27420017.17 -27420017.00 -27420016.83 0.0492 0.0169

Venus -79781-10-12 16:04 J -27418302.03 -27418301.83 -27418301.64 0.0537 0.0023

Mercury -79780-09-23 07:40 J -27417956.31 -27417956.18 -27417956.05 0.0535 0.0099

Mercury -79780-12-21 15:35 J -27417866.94 -27417866.85 -27417866.75 0.0534 0.0355

Venus -79775-08-14 17:30 J -27416169.97 -27416169.77 -27416169.56 0.0490 0.0127

Mercury -79774-08-22 02:23 J -27415797.44 -27415797.40 -27415797.35 0.0491 0.0475

Moon -79774-09-12 04:18 J -27415776.37 -27415776.32 -27415776.26 0.0491 0.0477

Earth -79774-09-12 06:56 J -27415776.27 -27415776.21 -27415776.14 0.0491 0.0470 \*

Mercury -79774-11-20 09:35 J -27415707.28 -27415707.10 -27415706.92 0.0492 0.0040

Mars -79772-05-03 14:23 J -27415177.16 -27415176.90 -27415176.63 0.0505 0.0054

Venus -79769-06-17 10:18 J -27414036.10 -27414036.07 -27414036.02 0.0537 0.0525  
 Mercury -79768-07-12 11:44 J -27413646.13 -27413646.01 -27413645.89 0.0536 0.0207  
 Mercury -79768-10-09 19:25 J -27413556.80 -27413556.69 -27413556.57 0.0534 0.0247  
 Mercury -79762-09-08 07:40 J -27411397.36 -27411397.18 -27411397.00 0.0492 0.0087  
 Earth -79762-09-16 21:20 J -27411388.81 -27411388.61 -27411388.40 0.0492 0.0258  
 Moon -79762-09-17 00:56 J -27411388.67 -27411388.46 -27411388.24 0.0492 0.0227 \*  
 Mercury -79762-12-07 13:40 J -27411307.01 -27411306.93 -27411306.83 0.0493 0.0422  
 Mercury -79756-04-30 15:35 J -27409335.95 -27409335.85 -27409335.75 0.0536 0.0317  
 Mercury -79756-07-28 23:16 J -27409246.66 -27409246.53 -27409246.41 0.0534 0.0132  
 Mercury -79750-06-27 04:47 J -27407087.46 -27407087.30 -27407087.13 0.0492 0.0222  
 Moon -79750-09-21 06:56 J -27407001.45 -27407001.21 -27407000.97 0.0493 0.0029  
 Earth -79750-09-21 10:47 J -27407001.29 -27407001.05 -27407000.81 0.0493 0.0043 \*  
 Mercury -79750-09-25 11:30 J -27406997.16 -27406997.02 -27406996.87 0.0493 0.0291  
 Venus -79745-06-20 08:23 J -27405267.31 -27405267.15 -27405266.97 0.0537 0.0281  
 Mercury -79744-02-16 19:11 J -27405025.77 -27405025.70 -27405025.62 0.0536 0.0431  
 Moon -79744-03-14 09:06 J -27405000.19 -27405000.12 -27405000.05 0.0535 0.0506  
 Earth -79744-03-14 09:35 J -27405000.16 -27405000.10 -27405000.03 0.0535 0.0510 \*  
 Mercury -79744-05-17 02:52 J -27404936.51 -27404936.38 -27404936.26 0.0534 0.0024  
 Mercury -79744-08-14 10:47 J -27404847.11 -27404847.05 -27404846.99 0.0533 0.0469  
 Venus -79739-04-22 03:20 J -27403135.57 -27403135.36 -27403135.15 0.0490 0.0098  
 Mercury -79738-04-15 02:37 J -27402777.52 -27402777.39 -27402777.26 0.0491 0.0351  
 Mercury -79738-07-14 09:35 J -27402687.27 -27402687.10 -27402686.93 0.0493 0.0163  
 Earth -79738-09-26 01:25 J -27402613.66 -27402613.44 -27402613.21 0.0494 0.0177  
 Moon -79738-09-26 04:32 J -27402613.53 -27402613.31 -27402613.08 0.0494 0.0150 \*  
 Venus -79733-02-23 23:44 J -27401001.69 -27401001.51 -27401001.34 0.0537 0.0244  
 Mercury -79732-03-05 05:59 J -27400626.38 -27400626.25 -27400626.13 0.0535 0.0106  
 Earth -79732-03-19 02:37 J -27400612.59 -27400612.39 -27400612.19 0.0535 0.0256  
 Moon -79732-03-19 04:47 J -27400612.50 -27400612.30 -27400612.10 0.0535 0.0287 \*  
 Mercury -79732-06-02 13:40 J -27400537.02 -27400536.93 -27400536.83 0.0534 0.0348  
 Venus -79728-12-26 03:20 J -27398869.52 -27398869.36 -27398869.20 0.0490 0.0304

Mercury -79726-02-01 00:13 J -27398467.52 -27398467.49 -27398467.45 0.0491 0.0479

Mercury -79726-05-02 07:40 J -27398377.37 -27398377.18 -27398377.00 0.0492 0.0038

Moon -79726-09-30 15:35 J -27398226.01 -27398225.85 -27398225.69 0.0495 0.0378

Earth -79726-09-30 17:16 J -27398225.92 -27398225.78 -27398225.63 0.0495 0.0394 \*

Mercury -79721-12-22 09:35 J -27396316.22 -27396316.10 -27396315.98 0.0536 0.0217

Mercury -79720-03-21 17:16 J -27396226.89 -27396226.78 -27396226.66 0.0534 0.0235

Moon -79720-03-23 19:25 J -27396224.91 -27396224.69 -27396224.46 0.0534 0.0009

Earth -79720-03-23 23:01 J -27396224.77 -27396224.54 -27396224.32 0.0534 0.0012 \*

Mercury -79714-02-18 05:01 J -27394067.47 -27394067.29 -27394067.11 0.0492 0.0095

Mercury -79714-05-19 11:16 J -27393977.13 -27393977.03 -27393976.93 0.0493 0.0412

Mercury -79709-10-10 13:40 J -27392006.03 -27392005.93 -27392005.83 0.0536 0.0326

Mercury -79708-01-07 21:20 J -27391916.74 -27391916.61 -27391916.49 0.0535 0.0125

Earth -79708-03-28 20:23 J -27391836.85 -27391836.65 -27391836.45 0.0533 0.0268

Moon -79708-03-28 23:59 J -27391836.68 -27391836.50 -27391836.32 0.0533 0.0302 \*

Venus -79704-12-28 15:20 J -27390101.01 -27390100.86 -27390100.71 0.0489 0.0335

Mercury -79703-12-07 02:52 J -27389757.54 -27389757.38 -27389757.22 0.0491 0.0223

Mercury -79702-03-07 09:20 J -27389667.25 -27389667.11 -27389666.96 0.0493 0.0288

Venus -79698-11-01 15:49 J -27387967.03 -27387966.84 -27387966.64 0.0537 0.0057

Mercury -79697-07-29 17:30 J -27387695.84 -27387695.77 -27387695.69 0.0536 0.0435

Mercury -79697-10-27 01:11 J -27387606.58 -27387606.45 -27387606.32 0.0535 0.0015

Mercury -79696-01-24 09:06 J -27387517.18 -27387517.12 -27387517.06 0.0533 0.0466

Earth -79696-04-02 15:35 J -27387448.87 -27387448.85 -27387448.81 0.0531 0.0525

Venus -79692-09-02 12:28 J -27385835.18 -27385834.98 -27385834.77 0.0490 0.0083

Mercury -79691-09-24 23:44 J -27385447.63 -27385447.51 -27385447.38 0.0492 0.0360

Mercury -79691-12-24 06:56 J -27385357.38 -27385357.21 -27385357.04 0.0493 0.0155

Venus -79686-07-07 09:20 J -27383701.21 -27383701.11 -27383701.00 0.0537 0.0453

Mercury -79685-08-15 04:47 J -27383296.43 -27383296.30 -27383296.18 0.0535 0.0102

Mercury -79685-11-12 12:28 J -27383207.07 -27383206.98 -27383206.88 0.0533 0.0350

Venus -79680-05-08 11:44 J -27381569.02 -27381569.01 -27381568.99 0.0490 0.0488

Mercury -79679-07-13 21:35 J -27381137.61 -27381137.60 -27381137.59 0.0491 0.0490

Moon -79679-09-15 17:44 J -27381073.97 -27381073.76 -27381073.56 0.0492 0.0250  
 Earth -79679-09-15 21:35 J -27381073.80 -27381073.60 -27381073.40 0.0492 0.0279 \*  
 Mercury -79679-10-12 04:47 J -27381047.48 -27381047.30 -27381047.12 0.0492 0.0027  
 Mercury -79673-06-03 07:40 J -27378986.29 -27378986.18 -27378986.06 0.0535 0.0225  
 Mercury -79673-08-31 15:20 J -27378896.97 -27378896.86 -27378896.74 0.0534 0.0228  
 Mars -79672-10-31 13:11 J -27378471.23 -27378470.95 -27378470.67 0.0522 0.0025  
 Mercury -79667-07-31 02:37 J -27376737.56 -27376737.39 -27376737.21 0.0492 0.0101  
 Earth -79667-09-20 12:28 J -27376686.22 -27376685.98 -27376685.74 0.0493 0.0064  
 Moon -79667-09-20 15:35 J -27376686.08 -27376685.85 -27376685.61 0.0493 0.0060 \*  
 Mercury -79667-10-29 09:06 J -27376647.22 -27376647.12 -27376647.02 0.0493 0.0408  
 Venus -79662-07-10 02:52 J -27374932.54 -27374932.38 -27374932.22 0.0537 0.0326  
 Mercury -79661-03-22 11:30 J -27374676.12 -27374676.02 -27374675.92 0.0536 0.0337  
 Mercury -79661-06-19 18:56 J -27374586.83 -27374586.71 -27374586.58 0.0535 0.0114  
 Venus -79656-05-11 00:28 J -27372800.68 -27372800.48 -27372800.28 0.0490 0.0156  
 Mercury -79655-05-18 23:59 J -27372427.66 -27372427.50 -27372427.33 0.0491 0.0233  
 Mercury -79655-08-17 06:42 J -27372337.37 -27372337.22 -27372337.07 0.0493 0.0279  
 Moon -79655-09-24 23:44 J -27372298.75 -27372298.51 -27372298.26 0.0493 0.0120  
 Earth -79655-09-25 01:54 J -27372298.65 -27372298.42 -27372298.19 0.0493 0.0150 \*  
 Mars -79654-10-23 08:52 J -27371905.16 -27371905.13 -27371905.08 0.0503 0.0496  
 Venus -79650-03-14 20:52 J -27370666.82 -27370666.63 -27370666.45 0.0537 0.0181  
 Mercury -79649-01-09 15:20 J -27370365.92 -27370365.86 -27370365.79 0.0536 0.0446  
 Moon -79649-03-18 00:56 J -27370297.64 -27370297.46 -27370297.28 0.0535 0.0321  
 Earth -79649-03-18 03:49 J -27370297.52 -27370297.34 -27370297.14 0.0535 0.0289 \*  
 Mercury -79649-04-07 23:01 J -27370276.67 -27370276.54 -27370276.41 0.0535 0.0006  
 Mercury -79649-07-06 06:56 J -27370187.27 -27370187.21 -27370187.14 0.0533 0.0457  
 Venus -79644-01-13 23:44 J -27368534.69 -27368534.51 -27368534.33 0.0490 0.0250  
 Mercury -79643-03-06 21:35 J -27368117.72 -27368117.60 -27368117.47 0.0491 0.0362  
 Mercury -79643-06-05 04:47 J -27368027.48 -27368027.30 -27368027.13 0.0492 0.0152  
 Earth -79643-09-29 17:01 J -27367910.94 -27367910.79 -27367910.62 0.0494 0.0367  
 Moon -79643-09-29 17:30 J -27367910.92 -27367910.77 -27367910.60 0.0494 0.0356 \*

Mercury -79637-01-26 02:52 J -27365966.50 -27365966.38 -27365966.25 0.0535 0.0108

Earth -79637-03-23 01:54 J -27365909.65 -27365909.42 -27365909.19 0.0534 0.0021

Moon -79637-03-23 05:30 J -27365909.49 -27365909.27 -27365909.04 0.0534 0.0020 \*

Mercury -79637-04-24 10:47 J -27365877.15 -27365877.05 -27365876.95 0.0533 0.0345

Mercury -79631-03-24 01:54 J -27363717.60 -27363717.42 -27363717.23 0.0492 0.0019

Mercury -79626-11-14 06:42 J -27361656.34 -27361656.22 -27361656.11 0.0535 0.0222

Mercury -79625-02-11 14:23 J -27361567.02 -27361566.90 -27361566.79 0.0534 0.0230

Moon -79625-03-27 17:30 J -27361521.96 -27361521.77 -27361521.56 0.0533 0.0269

Earth -79625-03-27 20:52 J -27361521.83 -27361521.63 -27361521.43 0.0533 0.0235 \*

Venus -79620-01-16 10:04 J -27359766.22 -27359766.08 -27359765.95 0.0490 0.0378

Mercury -79619-01-09 23:44 J -27359407.69 -27359407.51 -27359407.33 0.0492 0.0111

Mercury -79619-04-10 06:13 J -27359317.34 -27359317.24 -27359317.14 0.0493 0.0399

Mars -79618-07-28 01:54 J -27358843.68 -27358843.42 -27358843.17 0.0505 0.0129

Venus -79615-11-20 10:04 J -27357632.28 -27357632.08 -27357631.89 0.0537 0.0101

Mercury -79614-09-02 09:35 J -27357346.20 -27357346.10 -27357346.00 0.0536 0.0344

Mercury -79614-11-30 17:16 J -27357256.91 -27357256.78 -27357256.66 0.0534 0.0106

Earth -79613-04-01 11:30 J -27357134.12 -27357134.02 -27357133.93 0.0532 0.0481

Moon -79613-04-01 13:25 J -27357134.02 -27357133.94 -27357133.86 0.0532 0.0492 \*

Venus -79609-09-21 09:49 J -27355500.30 -27355500.09 -27355499.88 0.0490 0.0023

Mercury -79608-10-28 21:49 J -27355097.75 -27355097.59 -27355097.43 0.0491 0.0238

Mercury -79607-01-27 04:18 J -27355007.46 -27355007.32 -27355007.16 0.0493 0.0275

Venus -79603-07-26 02:52 J -27353366.50 -27353366.38 -27353366.25 0.0537 0.0412

Mercury -79602-06-21 13:11 J -27353036.01 -27353035.95 -27353035.88 0.0536 0.0457

Mercury -79602-09-18 20:37 J -27352946.76 -27352946.64 -27352946.51 0.0535 0.0022

Mercury -79602-12-17 04:47 J -27352857.37 -27352857.30 -27352857.23 0.0533 0.0444

Venus -79597-05-27 09:06 J -27351234.22 -27351234.12 -27351234.02 0.0490 0.0429

Mercury -79596-08-16 18:56 J -27350787.82 -27350787.71 -27350787.58 0.0491 0.0370

Earth -79596-09-14 22:32 J -27350758.75 -27350758.56 -27350758.37 0.0491 0.0303

Moon -79596-09-15 01:54 J -27350758.61 -27350758.42 -27350758.22 0.0491 0.0273 \*

Mercury -79596-11-15 01:54 J -27350697.59 -27350697.42 -27350697.24 0.0492 0.0145

Mercury -79590-07-08 00:42 J -27348636.60 -27348636.47 -27348636.35 0.0536 0.0120  
 Mercury -79590-10-05 08:23 J -27348547.24 -27348547.15 -27348547.04 0.0534 0.0334  
 Mercury -79584-09-02 23:59 J -27346387.69 -27346387.50 -27346387.32 0.0492 0.0020  
 Moon -79584-09-19 10:04 J -27346371.32 -27346371.08 -27346370.83 0.0492 0.0090  
 Earth -79584-09-19 12:28 J -27346371.22 -27346370.98 -27346370.74 0.0492 0.0090 \*  
 Venus -79579-07-29 01:40 J -27344597.56 -27344597.43 -27344597.30 0.0537 0.0397  
 Mercury -79578-04-26 04:47 J -27344326.42 -27344326.30 -27344326.19 0.0536 0.0228  
 Mercury -79578-07-24 12:28 J -27344237.10 -27344236.98 -27344236.86 0.0534 0.0223  
 Venus -79573-05-29 19:11 J -27342465.89 -27342465.70 -27342465.51 0.0490 0.0200  
 Mercury -79572-06-21 21:06 J -27342077.80 -27342077.62 -27342077.45 0.0492 0.0120  
 Mercury -79572-09-20 03:20 J -27341987.46 -27341987.36 -27341987.25 0.0493 0.0390  
 Earth -79572-09-24 00:56 J -27341983.69 -27341983.46 -27341983.22 0.0493 0.0124  
 Moon -79572-09-24 01:40 J -27341983.65 -27341983.43 -27341983.20 0.0493 0.0093 \*  
 Venus -79567-04-02 19:25 J -27340331.88 -27340331.69 -27340331.50 0.0537 0.0110  
 Mercury -79566-02-12 08:23 J -27340016.24 -27340016.15 -27340016.05 0.0536 0.0341  
 Earth -79566-03-18 05:01 J -27339982.46 -27339982.29 -27339982.10 0.0535 0.0319  
 Moon -79566-03-18 08:52 J -27339982.30 -27339982.13 -27339981.96 0.0535 0.0350 \*  
 Mercury -79566-05-12 16:04 J -27339926.96 -27339926.83 -27339926.70 0.0534 0.0109  
 Venus -79561-02-02 18:28 J -27338199.92 -27338199.73 -27338199.54 0.0490 0.0206  
 Mercury -79560-04-09 18:42 J -27337767.87 -27337767.72 -27337767.56 0.0492 0.0249  
 Mercury -79560-07-09 01:40 J -27337677.58 -27337677.43 -27337677.28 0.0493 0.0265  
 Earth -79560-09-28 16:47 J -27337595.97 -27337595.80 -27337595.63 0.0494 0.0341  
 Moon -79560-09-28 17:30 J -27337595.95 -27337595.77 -27337595.58 0.0494 0.0332 \*  
 Mercury -79555-12-01 11:30 J -27335706.08 -27335706.02 -27335705.96 0.0536 0.0463  
 Mercury -79554-02-28 18:56 J -27335616.84 -27335616.71 -27335616.58 0.0535 0.0017  
 Moon -79554-03-22 17:16 J -27335595.01 -27335594.78 -27335594.55 0.0534 0.0067  
 Earth -79554-03-22 20:37 J -27335594.86 -27335594.64 -27335594.41 0.0534 0.0069 \*  
 Mercury -79554-05-29 02:52 J -27335527.45 -27335527.38 -27335527.31 0.0533 0.0437  
 Mercury -79548-01-26 16:47 J -27333457.92 -27333457.80 -27333457.68 0.0491 0.0374  
 Mercury -79548-04-26 23:44 J -27333367.68 -27333367.51 -27333367.33 0.0492 0.0141

Mercury -79543-12-17 22:32 J -27331306.69 -27331306.56 -27331306.44 0.0535 0.0131

Mercury -79542-03-17 06:13 J -27331217.34 -27331217.24 -27331217.13 0.0534 0.0323

Earth -79542-03-27 15:49 J -27331207.05 -27331206.84 -27331206.63 0.0534 0.0189

Moon -79542-03-27 18:13 J -27331206.94 -27331206.74 -27331206.54 0.0534 0.0224 \*

Venus -79537-02-05 07:11 J -27329431.28 -27329431.20 -27329431.10 0.0490 0.0437

Mercury -79536-02-12 21:20 J -27329057.79 -27329057.61 -27329057.43 0.0492 0.0010

Venus -79532-12-09 06:28 J -27327297.42 -27327297.23 -27327297.04 0.0537 0.0160

Mercury -79531-10-06 02:23 J -27326996.51 -27326996.40 -27326996.28 0.0536 0.0241

Mercury -79530-01-03 10:04 J -27326907.19 -27326907.08 -27326906.96 0.0534 0.0211

Moon -79530-04-01 11:59 J -27326819.12 -27326819.00 -27326818.87 0.0533 0.0452

Earth -79530-04-01 12:42 J -27326819.09 -27326818.97 -27326818.85 0.0533 0.0449 \*

Venus -79526-10-11 06:28 J -27325165.44 -27325165.23 -27325165.02 0.0490 0.0032

Mercury -79525-12-01 19:11 J -27324747.88 -27324747.70 -27324747.53 0.0492 0.0120

Mercury -79524-03-02 01:25 J -27324657.55 -27324657.44 -27324657.33 0.0493 0.0389

Venus -79520-08-14 01:25 J -27323031.59 -27323031.44 -27323031.28 0.0537 0.0341

Mercury -79519-07-25 06:42 J -27322686.32 -27322686.22 -27322686.13 0.0536 0.0348

Mercury -79519-10-22 14:08 J -27322597.03 -27322596.91 -27322596.78 0.0535 0.0102

Mars -79517-01-25 03:06 J -27322137.63 -27322137.37 -27322137.10 0.0522 0.0195

Venus -79514-06-16 04:18 J -27320899.45 -27320899.32 -27320899.19 0.0490 0.0381

Moon -79513-09-13 19:25 J -27320443.88 -27320443.69 -27320443.49 0.0491 0.0299

Earth -79513-09-13 22:04 J -27320443.75 -27320443.58 -27320443.40 0.0491 0.0328 \*

Mercury -79513-09-19 16:04 J -27320437.98 -27320437.83 -27320437.67 0.0491 0.0256

Mercury -79513-12-18 23:01 J -27320347.70 -27320347.54 -27320347.39 0.0493 0.0257

Mercury -79507-05-13 10:32 J -27318376.13 -27318376.06 -27318376.00 0.0536 0.0458

Mercury -79507-08-10 17:59 J -27318286.88 -27318286.75 -27318286.62 0.0535 0.0015

Mercury -79507-11-08 01:54 J -27318197.49 -27318197.42 -27318197.35 0.0533 0.0442

Mercury -79501-07-08 13:54 J -27316128.03 -27316127.92 -27316127.80 0.0491 0.0383

Earth -79501-09-18 12:56 J -27316056.19 -27316055.96 -27316055.72 0.0492 0.0114

Moon -79501-09-18 13:54 J -27316056.14 -27316055.92 -27316055.69 0.0492 0.0118 \*

Mercury -79501-10-06 21:06 J -27316037.79 -27316037.62 -27316037.44 0.0492 0.0132

Mars -79499-01-15 18:42 J -27315571.92 -27315571.72 -27315571.50 0.0503 0.0317  
 Venus -79496-08-16 20:08 J -27314262.76 -27314262.66 -27314262.55 0.0537 0.0446  
 Mercury -79495-05-29 20:52 J -27313976.76 -27313976.63 -27313976.51 0.0535 0.0135  
 Mercury -79495-08-27 04:32 J -27313887.41 -27313887.31 -27313887.20 0.0534 0.0317  
 Venus -79490-06-18 17:16 J -27312130.95 -27312130.78 -27312130.60 0.0490 0.0263  
 Mercury -79489-07-25 19:25 J -27311727.87 -27311727.69 -27311727.51 0.0492 0.0008  
 Earth -79489-09-23 05:01 J -27311668.52 -27311668.29 -27311668.05 0.0493 0.0104  
 Moon -79489-09-23 05:44 J -27311668.51 -27311668.26 -27311668.01 0.0493 0.0073 \*  
 Venus -79484-04-21 13:11 J -27309997.14 -27309996.95 -27309996.75 0.0537 0.0066  
 Moon -79483-03-16 20:08 J -27309667.81 -27309667.66 -27309667.51 0.0536 0.0400  
 Earth -79483-03-16 23:44 J -27309667.67 -27309667.51 -27309667.35 0.0536 0.0367 \*  
 Mercury -79483-03-18 00:28 J -27309666.59 -27309666.48 -27309666.37 0.0536 0.0249  
 Mercury -79483-06-15 08:08 J -27309577.28 -27309577.16 -27309577.04 0.0534 0.0202  
 Venus -79478-02-21 16:32 J -27307865.01 -27307864.81 -27307864.61 0.0490 0.0143  
 Mercury -79477-05-13 17:01 J -27307417.97 -27307417.79 -27307417.62 0.0491 0.0124  
 Mercury -79477-08-11 23:16 J -27307327.64 -27307327.53 -27307327.42 0.0493 0.0386  
 Moon -79477-09-27 16:18 J -27307280.99 -27307280.82 -27307280.63 0.0494 0.0316  
 Earth -79477-09-27 18:56 J -27307280.90 -27307280.71 -27307280.53 0.0494 0.0318 \*  
 Mercury -79471-01-04 04:18 J -27305356.41 -27305356.32 -27305356.22 0.0536 0.0360  
 Earth -79471-03-21 21:35 J -27305279.82 -27305279.60 -27305279.38 0.0535 0.0102  
 Moon -79471-03-22 00:13 J -27305279.71 -27305279.49 -27305279.28 0.0535 0.0095 \*  
 Mercury -79471-04-03 11:59 J -27305267.13 -27305267.00 -27305266.87 0.0535 0.0091  
 Mercury -79465-03-01 14:37 J -27303108.05 -27303107.89 -27303107.73 0.0491 0.0253  
 Mercury -79465-05-30 21:20 J -27303017.76 -27303017.61 -27303017.46 0.0492 0.0259  
 Mars -79464-10-20 10:04 J -27302510.29 -27302510.08 -27302509.87 0.0505 0.0296  
 Mercury -79460-10-23 08:37 J -27301046.20 -27301046.14 -27301046.08 0.0536 0.0465  
 Mercury -79459-01-20 16:04 J -27300956.96 -27300956.83 -27300956.70 0.0535 0.0018  
 Moon -79459-03-26 19:25 J -27300891.90 -27300891.69 -27300891.47 0.0534 0.0197  
 Earth -79459-03-26 20:37 J -27300891.86 -27300891.64 -27300891.43 0.0534 0.0166 \*  
 Mercury -79459-04-19 23:59 J -27300867.57 -27300867.50 -27300867.42 0.0534 0.0437



Mercury -79454-12-19 11:30 J -27298798.12 -27298798.02 -27298797.90 0.0491 0.0388

Mercury -79453-03-18 18:42 J -27298707.89 -27298707.72 -27298707.54 0.0492 0.0128

Venus -79449-12-28 06:28 J -27296962.41 -27296962.23 -27296962.05 0.0537 0.0240

Mercury -79448-11-08 19:54 J -27296646.79 -27296646.67 -27296646.54 0.0535 0.0128

Mercury -79447-02-06 03:49 J -27296557.44 -27296557.34 -27296557.24 0.0534 0.0325

Moon -79447-03-31 15:35 J -27296503.98 -27296503.85 -27296503.71 0.0533 0.0418

Earth -79447-03-31 16:47 J -27296503.93 -27296503.80 -27296503.66 0.0533 0.0422 \*

Venus -79443-10-30 03:06 J -27294830.58 -27294830.37 -27294830.16 0.0490 0.0087

Mercury -79441-01-05 17:01 J -27294397.97 -27294397.79 -27294397.61 0.0492 0.0006

Venus -79437-09-01 21:35 J -27292696.77 -27292696.60 -27292696.43 0.0537 0.0283

Mercury -79436-08-27 22:47 J -27292336.66 -27292336.55 -27292336.43 0.0536 0.0252

Mercury -79436-11-25 06:28 J -27292247.35 -27292247.23 -27292247.11 0.0534 0.0200

Venus -79431-07-05 03:06 J -27290564.53 -27290564.37 -27290564.21 0.0490 0.0314

Earth -79430-09-14 04:32 J -27290128.48 -27290128.31 -27290128.14 0.0491 0.0342

Moon -79430-09-14 05:30 J -27290128.45 -27290128.27 -27290128.09 0.0491 0.0316 \*

Mercury -79430-10-24 15:06 J -27290088.04 -27290087.87 -27290087.69 0.0492 0.0123

Mercury -79429-01-22 21:49 J -27289997.70 -27289997.59 -27289997.48 0.0493 0.0388

Mercury -79424-06-16 02:37 J -27288026.48 -27288026.39 -27288026.30 0.0536 0.0365

Mercury -79424-09-13 10:04 J -27287937.21 -27287937.08 -27287936.95 0.0535 0.0085

Mercury -79418-08-12 12:42 J -27285778.12 -27285777.97 -27285777.81 0.0491 0.0253

Earth -79418-09-18 17:59 J -27285740.98 -27285740.75 -27285740.52 0.0492 0.0130

Moon -79418-09-18 18:28 J -27285740.97 -27285740.73 -27285740.49 0.0492 0.0138 \*

Mercury -79418-11-10 19:40 J -27285687.84 -27285687.68 -27285687.53 0.0492 0.0260

Venus -79413-09-04 17:44 J -27283927.81 -27283927.76 -27283927.70 0.0537 0.0512

Mercury -79412-04-04 06:28 J -27283716.28 -27283716.23 -27283716.17 0.0537 0.0475

Mercury -79412-07-02 13:54 J -27283627.05 -27283626.92 -27283626.79 0.0535 0.0028

Mercury -79412-09-29 21:49 J -27283537.66 -27283537.59 -27283537.51 0.0534 0.0428

Venus -79407-07-07 15:49 J -27281796.00 -27281795.84 -27281795.69 0.0490 0.0327

Mercury -79406-05-31 10:18 J -27281468.18 -27281468.07 -27281467.95 0.0491 0.0382

Mercury -79406-08-29 17:30 J -27281377.95 -27281377.77 -27281377.60 0.0492 0.0133

Moon -79406-09-23 06:13 J -27281353.47 -27281353.24 -27281353.01 0.0492 0.0054  
 Earth -79406-09-23 08:23 J -27281353.39 -27281353.15 -27281352.92 0.0492 0.0083 \*  
 Venus -79401-05-10 13:11 J -27279662.15 -27279661.95 -27279661.75 0.0537 0.0013  
 Earth -79400-03-16 05:16 J -27279352.43 -27279352.28 -27279352.12 0.0536 0.0388  
 Moon -79400-03-16 08:08 J -27279352.30 -27279352.16 -27279352.02 0.0536 0.0420 \*  
 Mercury -79400-04-20 18:13 J -27279316.87 -27279316.74 -27279316.62 0.0536 0.0133  
 Mercury -79400-07-19 01:54 J -27279227.52 -27279227.42 -27279227.31 0.0534 0.0321  
 Mars -79399-07-14 00:13 J -27278867.68 -27278867.49 -27278867.28 0.0524 0.0364  
 Venus -79395-03-12 14:08 J -27277530.12 -27277529.91 -27277529.70 0.0490 0.0083  
 Mercury -79394-06-17 14:52 J -27277068.06 -27277067.88 -27277067.69 0.0492 0.0009  
 Earth -79394-09-27 21:35 J -27276965.78 -27276965.60 -27276965.40 0.0494 0.0297  
 Moon -79394-09-28 01:11 J -27276965.63 -27276965.45 -27276965.25 0.0494 0.0304 \*  
 Venus -79389-01-14 07:40 J -27275396.25 -27275396.18 -27275396.09 0.0537 0.0488  
 Mercury -79388-02-06 22:04 J -27275006.69 -27275006.58 -27275006.46 0.0536 0.0243  
 Moon -79388-03-21 02:23 J -27274964.63 -27274964.40 -27274964.17 0.0535 0.0114  
 Earth -79388-03-21 03:49 J -27274964.56 -27274964.34 -27274964.12 0.0535 0.0124 \*  
 Mercury -79388-05-07 05:44 J -27274917.37 -27274917.26 -27274917.14 0.0534 0.0211  
 Venus -79384-11-15 13:54 J -27273263.95 -27273263.92 -27273263.89 0.0490 0.0484  
 Mercury -79382-04-05 13:11 J -27272758.13 -27272757.95 -27272757.77 0.0492 0.0124  
 Mercury -79382-07-04 19:40 J -27272667.79 -27272667.68 -27272667.57 0.0493 0.0386  
 Mercury -79377-11-26 01:11 J -27270696.54 -27270696.45 -27270696.35 0.0536 0.0364  
 Mercury -79376-02-23 08:52 J -27270607.26 -27270607.13 -27270607.01 0.0535 0.0087  
 Moon -79376-03-25 18:56 J -27270576.92 -27270576.71 -27270576.50 0.0534 0.0155  
 Earth -79376-03-25 19:25 J -27270576.91 -27270576.69 -27270576.47 0.0534 0.0125 \*  
 Mercury -79370-01-22 11:16 J -27268448.18 -27268448.03 -27268447.87 0.0491 0.0249  
 Mercury -79370-04-22 18:13 J -27268357.89 -27268357.74 -27268357.59 0.0493 0.0265  
 Venus -79365-01-17 02:23 J -27266627.56 -27266627.40 -27266627.23 0.0537 0.0297  
 Mercury -79365-09-14 05:01 J -27266386.35 -27266386.29 -27266386.24 0.0536 0.0476  
 Mercury -79365-12-12 12:28 J -27266297.11 -27266296.98 -27266296.86 0.0535 0.0033  
 Mercury -79364-03-11 20:23 J -27266207.73 -27266207.65 -27266207.58 0.0533 0.0424

Earth -79364-03-30 14:37 J -27266189.04 -27266188.89 -27266188.73 0.0533 0.0381  
 Moon -79364-03-30 17:30 J -27266188.94 -27266188.77 -27266188.60 0.0533 0.0366 \*  
 Mars -79363-04-19 12:28 J -27265804.17 -27265803.98 -27265803.80 0.0522 0.0393  
 Venus -79360-11-18 03:06 J -27264495.57 -27264495.37 -27264495.17 0.0490 0.0159  
 Mercury -79359-11-10 09:06 J -27264138.24 -27264138.12 -27264138.01 0.0491 0.0378  
 Mercury -79358-02-08 16:04 J -27264048.00 -27264047.83 -27264047.65 0.0492 0.0136  
 Venus -79354-09-21 19:54 J -27262361.85 -27262361.67 -27262361.49 0.0537 0.0213  
 Mercury -79353-09-30 16:18 J -27261986.95 -27261986.82 -27261986.70 0.0536 0.0141  
 Mercury -79353-12-28 23:59 J -27261897.60 -27261897.50 -27261897.39 0.0534 0.0313  
 Venus -79348-07-24 02:52 J -27260229.56 -27260229.38 -27260229.20 0.0490 0.0244  
 Earth -79347-09-13 10:18 J -27259813.23 -27259813.07 -27259812.90 0.0491 0.0356  
 Moon -79347-09-13 10:47 J -27259813.22 -27259813.05 -27259812.86 0.0491 0.0330 \*  
 Mercury -79347-11-27 13:54 J -27259738.10 -27259737.92 -27259737.73 0.0492 0.0014  
 Mars -79345-04-10 15:06 J -27259238.13 -27259237.87 -27259237.61 0.0503 0.0117  
 Mercury -79341-07-19 20:37 J -27257676.76 -27257676.64 -27257676.53 0.0536 0.0246  
 Mercury -79341-10-17 04:18 J -27257587.44 -27257587.32 -27257587.20 0.0535 0.0206  
 Mercury -79335-09-15 11:30 J -27255428.20 -27255428.02 -27255427.84 0.0492 0.0122  
 Moon -79335-09-17 21:06 J -27255425.84 -27255425.62 -27255425.40 0.0492 0.0161  
 Earth -79335-09-17 23:01 J -27255425.76 -27255425.54 -27255425.31 0.0492 0.0147 \*  
 Mercury -79335-12-14 17:59 J -27255337.86 -27255337.75 -27255337.64 0.0493 0.0388  
 Mercury -79329-05-08 00:42 J -27253366.57 -27253366.47 -27253366.38 0.0536 0.0353  
 Mercury -79329-08-05 08:08 J -27253277.28 -27253277.16 -27253277.03 0.0535 0.0097  
 Venus -79324-07-26 15:06 J -27251460.99 -27251460.87 -27251460.75 0.0490 0.0396  
 Mercury -79323-07-04 09:35 J -27251118.25 -27251118.10 -27251117.94 0.0491 0.0247  
 Earth -79323-09-22 15:20 J -27251038.10 -27251037.86 -27251037.62 0.0492 0.0070  
 Moon -79323-09-22 18:42 J -27251037.96 -27251037.72 -27251037.47 0.0492 0.0045 \*  
 Mercury -79323-10-02 16:32 J -27251027.96 -27251027.81 -27251027.66 0.0493 0.0267  
 Venus -79318-05-30 12:13 J -27249327.19 -27249326.99 -27249326.80 0.0537 0.0087  
 Mercury -79317-02-25 03:49 J -27249056.40 -27249056.34 -27249056.28 0.0536 0.0473  
 Moon -79317-03-15 04:32 J -27249037.43 -27249037.31 -27249037.17 0.0536 0.0450

Earth -79317-03-15 06:28 J -27249037.36 -27249037.23 -27249037.08 0.0536 0.0421 \*  
 Mercury -79317-05-24 11:16 J -27248967.16 -27248967.03 -27248966.90 0.0535 0.0027  
 Mercury -79317-08-21 19:11 J -27248877.78 -27248877.70 -27248877.63 0.0533 0.0427  
 Venus -79312-03-31 14:52 J -27247195.09 -27247194.88 -27247194.67 0.0490 0.0007  
 Mercury -79311-04-22 07:54 J -27246808.29 -27246808.17 -27246808.05 0.0491 0.0371  
 Mercury -79311-07-21 15:06 J -27246718.05 -27246717.87 -27246717.70 0.0492 0.0145  
 Moon -79311-09-27 04:04 J -27246650.51 -27246650.33 -27246650.13 0.0493 0.0302  
 Earth -79311-09-27 08:08 J -27246650.35 -27246650.16 -27246649.96 0.0493 0.0288 \*  
 Venus -79306-02-02 05:30 J -27245061.38 -27245061.27 -27245061.14 0.0536 0.0421  
 Mercury -79305-03-12 14:52 J -27244657.00 -27244656.88 -27244656.75 0.0535 0.0140  
 Earth -79305-03-20 03:06 J -27244649.58 -27244649.37 -27244649.15 0.0535 0.0162  
 Moon -79305-03-20 03:06 J -27244649.58 -27244649.37 -27244649.16 0.0535 0.0148 \*  
 Mercury -79305-06-09 22:47 J -27244567.66 -27244567.55 -27244567.45 0.0534 0.0313  
 Venus -79301-12-04 14:37 J -27242929.00 -27242928.89 -27242928.77 0.0491 0.0410  
 Mercury -79299-05-09 12:56 J -27242408.14 -27242407.96 -27242407.78 0.0492 0.0016  
 Mercury -79294-12-30 18:42 J -27240346.83 -27240346.72 -27240346.60 0.0536 0.0251  
 Earth -79293-03-25 00:28 J -27240261.70 -27240261.48 -27240261.25 0.0535 0.0103  
 Moon -79293-03-25 03:06 J -27240261.60 -27240261.37 -27240261.15 0.0535 0.0127 \*  
 Mercury -79293-03-29 02:23 J -27240257.52 -27240257.40 -27240257.28 0.0535 0.0202  
 Mercury -79287-02-25 10:47 J -27238098.23 -27238098.05 -27238097.87 0.0491 0.0112  
 Mercury -79287-05-26 17:16 J -27238007.88 -27238007.78 -27238007.67 0.0493 0.0398  
 Venus -79282-02-05 04:04 J -27236292.47 -27236292.33 -27236292.20 0.0537 0.0385  
 Mercury -79282-10-18 23:01 J -27236036.63 -27236036.54 -27236036.44 0.0536 0.0356  
 Mercury -79281-01-16 06:42 J -27235947.35 -27235947.22 -27235947.09 0.0535 0.0095  
 Moon -79281-03-29 20:23 J -27235873.81 -27235873.65 -27235873.48 0.0534 0.0347  
 Earth -79281-03-30 00:13 J -27235873.65 -27235873.49 -27235873.33 0.0534 0.0368 \*  
 Venus -79277-12-07 03:06 J -27234160.55 -27234160.37 -27234160.18 0.0490 0.0232  
 Mercury -79276-12-14 08:23 J -27233788.31 -27233788.15 -27233787.99 0.0491 0.0243  
 Mercury -79275-03-14 15:06 J -27233698.02 -27233697.87 -27233697.72 0.0492 0.0270  
 Venus -79271-10-10 23:16 J -27232026.73 -27232026.53 -27232026.34 0.0537 0.0114

Mercury -79270-08-07 03:20 J -27231726.42 -27231726.36 -27231726.30 0.0536 0.0461

Mercury -79270-11-04 10:47 J -27231637.18 -27231637.05 -27231636.92 0.0535 0.0013

Mercury -79269-02-01 18:42 J -27231547.79 -27231547.72 -27231547.65 0.0534 0.0441

Venus -79265-08-12 03:20 J -27229894.56 -27229894.36 -27229894.16 0.0490 0.0169

Moon -79264-09-12 17:30 J -27229497.93 -27229497.77 -27229497.61 0.0491 0.0345

Earth -79264-09-12 19:25 J -27229497.85 -27229497.69 -27229497.53 0.0491 0.0366 \*

Mercury -79264-10-02 06:28 J -27229478.35 -27229478.23 -27229478.11 0.0491 0.0367

Mercury -79264-12-31 13:40 J -27229388.10 -27229387.93 -27229387.76 0.0492 0.0149

Mercury -79258-08-23 13:54 J -27227327.04 -27227326.92 -27227326.79 0.0535 0.0134

Mercury -79258-11-20 21:35 J -27227237.70 -27227237.60 -27227237.49 0.0534 0.0319

Earth -79252-09-17 11:01 J -27225110.27 -27225110.04 -27225109.81 0.0492 0.0150

Moon -79252-09-17 14:23 J -27225110.13 -27225109.90 -27225109.67 0.0492 0.0171 \*

Mercury -79252-10-19 12:13 J -27225078.18 -27225077.99 -27225077.81 0.0492 0.0028

Mercury -79246-06-11 17:44 J -27223016.88 -27223016.76 -27223016.65 0.0535 0.0247

Mercury -79246-09-09 01:11 J -27222927.56 -27222927.45 -27222927.33 0.0534 0.0205

Mars -79245-10-06 21:06 J -27222533.88 -27222533.62 -27222533.34 0.0524 0.0136

Venus -79241-08-14 16:32 J -27221125.85 -27221125.81 -27221125.76 0.0490 0.0475

Mercury -79240-08-07 09:49 J -27220768.26 -27220768.09 -27220767.90 0.0492 0.0104

Moon -79240-09-21 21:49 J -27220722.83 -27220722.59 -27220722.35 0.0492 0.0042

Earth -79240-09-22 01:40 J -27220722.67 -27220722.43 -27220722.19 0.0492 0.0064 \*

Mercury -79240-11-05 16:18 J -27220677.91 -27220677.82 -27220677.71 0.0493 0.0408

Venus -79235-06-18 12:28 J -27218992.17 -27218991.98 -27218991.79 0.0537 0.0168

Earth -79234-03-15 12:13 J -27218722.11 -27218721.99 -27218721.86 0.0536 0.0442

Moon -79234-03-15 12:42 J -27218722.08 -27218721.97 -27218721.87 0.0536 0.0468 \*

Mercury -79234-03-30 21:35 J -27218706.69 -27218706.60 -27218706.51 0.0536 0.0358

Mercury -79234-06-28 05:01 J -27218617.41 -27218617.29 -27218617.16 0.0535 0.0093

Venus -79229-04-19 16:32 J -27216860.02 -27216859.81 -27216859.61 0.0490 0.0073

Mercury -79228-05-26 07:54 J -27216458.33 -27216458.17 -27216458.01 0.0491 0.0230

Mercury -79228-08-24 14:37 J -27216368.04 -27216367.89 -27216367.74 0.0492 0.0282

Earth -79228-09-26 16:32 J -27216335.01 -27216334.81 -27216334.61 0.0493 0.0278

Moon -79228-09-26 19:54 J -27216334.85 -27216334.67 -27216334.48 0.0493 0.0300 \*  
 Venus -79223-02-21 07:25 J -27214726.34 -27214726.19 -27214726.03 0.0537 0.0331  
 Mercury -79222-01-17 01:54 J -27214396.48 -27214396.42 -27214396.36 0.0537 0.0463  
 Earth -79222-03-20 12:42 J -27214334.18 -27214333.97 -27214333.75 0.0536 0.0175  
 Moon -79222-03-20 14:52 J -27214334.10 -27214333.88 -27214333.65 0.0536 0.0150 \*  
 Mercury -79222-04-16 09:20 J -27214307.24 -27214307.11 -27214306.98 0.0535 0.0014  
 Mercury -79222-07-14 17:16 J -27214217.85 -27214217.78 -27214217.71 0.0534 0.0441  
 Venus -79218-12-24 15:49 J -27212593.99 -27212593.84 -27212593.68 0.0490 0.0331  
 Mercury -79216-03-14 05:16 J -27212148.40 -27212148.28 -27212148.15 0.0491 0.0361  
 Mercury -79216-06-12 12:28 J -27212058.15 -27212057.98 -27212057.81 0.0492 0.0154  
 Earth -79216-10-01 07:11 J -27211947.21 -27211947.20 -27211947.16 0.0494 0.0491  
 Mercury -79210-02-02 13:25 J -27209997.06 -27209996.94 -27209996.81 0.0536 0.0121  
 Moon -79210-03-25 08:52 J -27209946.35 -27209946.13 -27209945.91 0.0535 0.0112  
 Earth -79210-03-25 12:28 J -27209946.21 -27209945.98 -27209945.76 0.0535 0.0092 \*  
 Mercury -79210-05-02 21:20 J -27209907.71 -27209907.61 -27209907.51 0.0534 0.0333  
 Mercury -79205-12-31 03:20 J -27207838.38 -27207838.36 -27207838.33 0.0491 0.0485  
 Mercury -79204-03-31 11:01 J -27207748.22 -27207748.04 -27207747.86 0.0492 0.0033  
 Venus -79199-02-24 05:30 J -27205957.35 -27205957.27 -27205957.17 0.0537 0.0472  
 Mercury -79199-11-21 16:47 J -27205686.91 -27205686.80 -27205686.68 0.0535 0.0240  
 Mercury -79198-02-19 00:28 J -27205597.60 -27205597.48 -27205597.36 0.0534 0.0211  
 Earth -79198-03-30 05:16 J -27205558.46 -27205558.28 -27205558.11 0.0533 0.0343  
 Moon -79198-03-30 09:06 J -27205558.30 -27205558.12 -27205557.94 0.0533 0.0318 \*  
 Venus -79194-12-27 05:01 J -27203825.45 -27203825.29 -27203825.13 0.0490 0.0313  
 Mercury -79192-01-17 09:06 J -27203438.29 -27203438.12 -27203437.93 0.0492 0.0093  
 Mercury -79192-04-17 15:49 J -27203347.93 -27203347.84 -27203347.75 0.0493 0.0419  
 Mars -79191-07-06 10:04 J -27202903.33 -27202903.08 -27202902.82 0.0503 0.0145  
 Venus -79188-10-29 23:30 J -27201691.71 -27201691.52 -27201691.32 0.0536 0.0034  
 Mercury -79187-09-09 20:37 J -27201376.74 -27201376.64 -27201376.55 0.0536 0.0351  
 Mercury -79187-12-08 04:04 J -27201287.46 -27201287.33 -27201287.20 0.0534 0.0098  
 Venus -79182-09-01 04:47 J -27199559.50 -27199559.30 -27199559.09 0.0491 0.0092

Earth -79181-09-12 06:28 J -27199182.38 -27199182.23 -27199182.07 0.0491 0.0367  
 Moon -79181-09-12 09:49 J -27199182.25 -27199182.09 -27199181.91 0.0491 0.0353 \*  
 Mercury -79181-11-05 06:56 J -27199128.37 -27199128.21 -27199128.04 0.0492 0.0221  
 Mercury -79180-02-03 13:54 J -27199038.06 -27199037.92 -27199037.77 0.0493 0.0293  
 Mercury -79175-06-29 00:28 J -27197066.54 -27197066.48 -27197066.42 0.0536 0.0463  
 Mercury -79175-09-26 07:54 J -27196977.30 -27196977.17 -27196977.04 0.0535 0.0017  
 Mercury -79175-12-24 15:49 J -27196887.91 -27196887.84 -27196887.77 0.0534 0.0439  
 Mercury -79169-08-24 05:01 J -27194818.42 -27194818.29 -27194818.17 0.0491 0.0349  
 Moon -79169-09-16 17:16 J -27194795.01 -27194794.78 -27194794.56 0.0491 0.0183  
 Earth -79169-09-16 21:06 J -27194794.85 -27194794.62 -27194794.39 0.0491 0.0156 \*  
 Mercury -79169-11-22 11:59 J -27194728.17 -27194728.00 -27194727.83 0.0492 0.0167  
 Mercury -79163-07-15 11:59 J -27192667.12 -27192667.00 -27192666.87 0.0536 0.0123  
 Mercury -79163-10-12 19:54 J -27192577.77 -27192577.67 -27192577.57 0.0534 0.0333  
 Mercury -79157-06-12 02:23 J -27190508.44 -27190508.40 -27190508.36 0.0491 0.0479  
 Mercury -79157-09-10 09:49 J -27190418.27 -27190418.09 -27190417.91 0.0492 0.0039  
 Earth -79157-09-21 10:47 J -27190407.29 -27190407.05 -27190406.81 0.0492 0.0055  
 Moon -79157-09-21 14:08 J -27190407.14 -27190406.91 -27190406.67 0.0492 0.0040 \*  
 Venus -79152-07-07 16:47 J -27188656.97 -27188656.80 -27188656.63 0.0537 0.0274  
 Earth -79151-03-15 00:28 J -27188406.60 -27188406.48 -27188406.36 0.0536 0.0450  
 Moon -79151-03-15 02:23 J -27188406.52 -27188406.40 -27188406.29 0.0536 0.0463 \*  
 Mercury -79151-05-03 16:18 J -27188356.93 -27188356.82 -27188356.70 0.0536 0.0227  
 Mercury -79151-07-31 23:59 J -27188267.62 -27188267.50 -27188267.38 0.0534 0.0225  
 Venus -79146-05-09 18:13 J -27186524.93 -27186524.74 -27186524.54 0.0490 0.0155  
 Mercury -79145-06-29 08:08 J -27186108.34 -27186108.16 -27186107.98 0.0492 0.0085  
 Moon -79145-09-26 01:25 J -27186019.64 -27186019.44 -27186019.24 0.0493 0.0293  
 Earth -79145-09-26 03:35 J -27186019.55 -27186019.35 -27186019.14 0.0493 0.0271 \*  
 Mercury -79145-09-27 14:37 J -27186017.97 -27186017.89 -27186017.80 0.0493 0.0427  
 Venus -79140-03-12 10:32 J -27184391.24 -27184391.06 -27184390.88 0.0536 0.0235  
 Mercury -79139-02-19 19:54 J -27184046.77 -27184046.67 -27184046.58 0.0535 0.0344  
 Moon -79139-03-19 16:32 J -27184019.02 -27184018.81 -27184018.60 0.0535 0.0164

Earth -79139-03-19 19:54 J -27184018.88 -27184018.67 -27184018.46 0.0535 0.0193 \*  
 Mercury -79139-05-20 03:20 J -27183957.49 -27183957.36 -27183957.24 0.0534 0.0106  
 Venus -79134-01-12 17:16 J -27182258.96 -27182258.78 -27182258.60 0.0491 0.0255  
 Mercury -79133-04-17 06:13 J -27181798.40 -27181798.24 -27181798.07 0.0492 0.0211  
 Mercury -79133-07-16 13:11 J -27181708.09 -27181707.95 -27181707.81 0.0493 0.0304  
 Earth -79133-09-30 20:37 J -27181631.67 -27181631.64 -27181631.61 0.0494 0.0490  
 Mercury -79128-12-08 23:44 J -27179736.58 -27179736.51 -27179736.45 0.0536 0.0455  
 Mercury -79127-03-08 06:56 J -27179647.34 -27179647.21 -27179647.08 0.0535 0.0012  
 Earth -79127-03-24 16:04 J -27179631.05 -27179630.83 -27179630.60 0.0534 0.0066  
 Moon -79127-03-24 20:08 J -27179630.89 -27179630.66 -27179630.44 0.0534 0.0083 \*  
 Mercury -79127-06-05 14:52 J -27179557.95 -27179557.88 -27179557.81 0.0533 0.0445  
 Mercury -79121-02-04 04:04 J -27177488.46 -27177488.33 -27177488.20 0.0491 0.0340  
 Mercury -79121-05-04 11:16 J -27177398.20 -27177398.03 -27177397.86 0.0492 0.0177  
 Mercury -79116-12-25 10:47 J -27175337.18 -27175337.05 -27175336.93 0.0535 0.0122  
 Mercury -79115-03-24 18:28 J -27175247.83 -27175247.73 -27175247.63 0.0534 0.0332  
 Moon -79115-03-29 08:52 J -27175243.32 -27175243.13 -27175242.93 0.0534 0.0298  
 Earth -79115-03-29 12:28 J -27175243.16 -27175242.98 -27175242.80 0.0534 0.0325 \*  
 Venus -79110-01-15 07:11 J -27173490.32 -27173490.20 -27173490.07 0.0490 0.0394  
 Mercury -79110-11-23 01:54 J -27173178.47 -27173178.42 -27173178.37 0.0491 0.0467  
 Mercury -79109-02-21 09:20 J -27173088.29 -27173088.11 -27173087.93 0.0492 0.0051  
 Venus -79105-11-18 01:25 J -27171356.63 -27171356.44 -27171356.24 0.0537 0.0058  
 Mercury -79104-10-13 14:52 J -27171026.99 -27171026.88 -27171026.76 0.0536 0.0228  
 Mercury -79103-01-10 22:32 J -27170937.68 -27170937.56 -27170937.44 0.0535 0.0225  
 Venus -79099-09-20 06:42 J -27169224.43 -27169224.22 -27169224.01 0.0490 0.0014  
 Moon -79098-09-12 12:13 J -27168867.14 -27168866.99 -27168866.82 0.0491 0.0369  
 Earth -79098-09-12 16:18 J -27168866.97 -27168866.82 -27168866.67 0.0491 0.0374 \*  
 Mercury -79098-12-10 06:56 J -27168778.39 -27168778.21 -27168778.02 0.0492 0.0080  
 Mercury -79097-03-09 13:25 J -27168688.02 -27168687.94 -27168687.85 0.0493 0.0432  
 Venus -79093-07-23 20:52 J -27167090.74 -27167090.63 -27167090.52 0.0536 0.0439  
 Mercury -79092-08-01 19:11 J -27166716.80 -27166716.70 -27166716.60 0.0536 0.0333



Mercury -79092-10-30 02:37 J -27166627.51 -27166627.39 -27166627.26 0.0535 0.0119  
 Mars -79090-01-02 00:56 J -27166198.72 -27166198.46 -27166198.19 0.0524 0.0184  
 Venus -79087-05-26 06:42 J -27164958.33 -27164958.22 -27164958.10 0.0491 0.0411  
 Earth -79086-09-17 07:54 J -27164479.40 -27164479.17 -27164478.95 0.0491 0.0162  
 Moon -79086-09-17 11:01 J -27164479.25 -27164479.04 -27164478.82 0.0491 0.0192 \*  
 Mercury -79086-09-28 05:16 J -27164468.44 -27164468.28 -27164468.11 0.0492 0.0202  
 Mercury -79086-12-27 12:13 J -27164378.13 -27164377.99 -27164377.85 0.0493 0.0312  
 Mercury -79080-05-20 22:47 J -27162406.61 -27162406.55 -27162406.48 0.0536 0.0447  
 Mercury -79080-08-18 06:13 J -27162317.37 -27162317.24 -27162317.11 0.0534 0.0005  
 Mercury -79080-11-15 13:54 J -27162227.98 -27162227.92 -27162227.85 0.0533 0.0453  
 Mercury -79074-07-17 03:06 J -27160158.50 -27160158.37 -27160158.23 0.0492 0.0332  
 Moon -79074-09-21 20:37 J -27160091.89 -27160091.64 -27160091.39 0.0493 0.0041  
 Earth -79074-09-21 22:47 J -27160091.78 -27160091.55 -27160091.31 0.0493 0.0054 \*  
 Mercury -79074-10-15 10:18 J -27160068.23 -27160068.07 -27160067.90 0.0493 0.0187  
 Mars -79073-12-26 02:37 J -27159630.63 -27159630.39 -27159630.15 0.0502 0.0233  
 Venus -79069-07-26 18:13 J -27158321.88 -27158321.74 -27158321.59 0.0536 0.0358  
 Moon -79068-03-14 02:08 J -27158091.49 -27158091.41 -27158091.30 0.0536 0.0479  
 Earth -79068-03-14 05:30 J -27158091.37 -27158091.27 -27158091.16 0.0536 0.0470 \*  
 Mercury -79068-06-06 09:49 J -27158007.21 -27158007.09 -27158006.96 0.0535 0.0114  
 Mercury -79068-09-03 17:30 J -27157917.87 -27157917.77 -27157917.67 0.0533 0.0339  
 Venus -79063-05-28 19:11 J -27156189.89 -27156189.70 -27156189.52 0.0491 0.0228  
 Mercury -79062-05-05 00:56 J -27155848.52 -27155848.46 -27155848.40 0.0491 0.0461  
 Mercury -79062-08-03 08:23 J -27155758.33 -27155758.15 -27155757.97 0.0492 0.0058  
 Earth -79062-09-26 13:54 J -27155704.12 -27155703.92 -27155703.72 0.0493 0.0268  
 Moon -79062-09-26 14:23 J -27155704.08 -27155703.90 -27155703.71 0.0493 0.0295 \*  
 Venus -79057-03-31 11:01 J -27154056.23 -27154056.04 -27154055.85 0.0536 0.0153  
 Earth -79056-03-19 01:40 J -27153703.63 -27153703.43 -27153703.22 0.0536 0.0212  
 Moon -79056-03-19 05:44 J -27153703.48 -27153703.26 -27153703.05 0.0536 0.0177 \*  
 Mercury -79056-03-25 13:40 J -27153697.05 -27153696.93 -27153696.82 0.0535 0.0228  
 Mercury -79056-06-22 21:06 J -27153607.73 -27153607.62 -27153607.50 0.0534 0.0224

Venus -79051-01-31 18:56 J -27151923.90 -27151923.71 -27151923.51 0.0491 0.0175  
 Mercury -79050-05-22 06:13 J -27151448.42 -27151448.24 -27151448.05 0.0492 0.0070  
 Mercury -79050-08-20 12:56 J -27151358.04 -27151357.96 -27151357.88 0.0493 0.0442  
 Earth -79050-10-01 05:16 J -27151316.32 -27151316.28 -27151316.22 0.0494 0.0482  
 Moon -79050-10-01 06:56 J -27151316.21 -27151316.21 -27151316.19 0.0494 0.0493  
 Mercury -79044-01-11 17:44 J -27149386.86 -27149386.76 -27149386.66 0.0536 0.0335  
 Moon -79044-03-23 21:20 J -27149315.84 -27149315.61 -27149315.38 0.0535 0.0066  
 Earth -79044-03-24 00:56 J -27149315.69 -27149315.46 -27149315.24 0.0535 0.0052 \*  
 Mercury -79044-04-11 01:11 J -27149297.57 -27149297.45 -27149297.32 0.0535 0.0116  
 Mercury -79038-03-10 04:04 J -27147138.50 -27147138.33 -27147138.17 0.0491 0.0199  
 Mercury -79038-06-08 10:47 J -27147048.19 -27147048.05 -27147047.91 0.0493 0.0315  
 Mars -79037-09-29 20:52 J -27146568.79 -27146568.63 -27146568.44 0.0504 0.0386  
 Mercury -79033-10-30 22:04 J -27145076.65 -27145076.58 -27145076.51 0.0536 0.0440  
 Mercury -79032-01-28 05:30 J -27144987.40 -27144987.27 -27144987.14 0.0535 0.0016  
 Earth -79032-03-28 23:59 J -27144927.68 -27144927.50 -27144927.31 0.0534 0.0316  
 Moon -79032-03-29 02:08 J -27144927.59 -27144927.41 -27144927.22 0.0534 0.0288 \*  
 Mercury -79032-04-27 13:25 J -27144898.00 -27144897.94 -27144897.88 0.0533 0.0463  
 Venus -79027-02-03 08:37 J -27143155.19 -27143155.14 -27143155.09 0.0490 0.0472  
 Mercury -79027-12-27 02:08 J -27142828.55 -27142828.41 -27142828.27 0.0491 0.0324  
 Mercury -79026-03-27 09:20 J -27142738.28 -27142738.11 -27142737.94 0.0493 0.0193  
 Venus -79022-12-08 04:47 J -27141021.49 -27141021.30 -27141021.11 0.0536 0.0154  
 Mercury -79021-11-16 09:06 J -27140677.25 -27140677.12 -27140677.00 0.0535 0.0107  
 Mercury -79020-02-13 16:47 J -27140587.90 -27140587.80 -27140587.70 0.0533 0.0345  
 Venus -79016-10-09 06:42 J -27138889.43 -27138889.22 -27138889.01 0.0491 0.0060  
 Earth -79015-09-12 01:54 J -27138551.57 -27138551.42 -27138551.26 0.0491 0.0378  
 Moon -79015-09-12 05:01 J -27138551.42 -27138551.29 -27138551.13 0.0491 0.0384 \*  
 Mercury -79015-10-14 23:30 J -27138518.58 -27138518.52 -27138518.45 0.0492 0.0456  
 Mercury -79014-01-13 07:11 J -27138428.38 -27138428.20 -27138428.02 0.0493 0.0065  
 Venus -79010-08-12 22:47 J -27136755.70 -27136755.55 -27136755.40 0.0535 0.0350  
 Mercury -79009-09-04 12:42 J -27136367.08 -27136366.97 -27136366.85 0.0535 0.0220

Mercury -79009-12-02 20:23 J -27136277.77 -27136277.65 -27136277.54 0.0534 0.0231

Venus -79004-06-14 06:13 J -27134623.39 -27134623.24 -27134623.09 0.0491 0.0345

Moon -79003-09-16 14:08 J -27134164.13 -27134163.91 -27134163.68 0.0492 0.0198

Earth -79003-09-16 16:18 J -27134164.04 -27134163.82 -27134163.59 0.0492 0.0167 \*

Mercury -79003-11-01 05:01 J -27134118.47 -27134118.29 -27134118.10 0.0492 0.0065

Mercury -79002-01-30 11:44 J -27134028.08 -27134028.01 -27134027.94 0.0493 0.0448

# 79TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 79th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-78997-06-23 16:18 J	-27132056.92	-27132056.82	-27132056.72	0.0536	0.0335		
Mercury	-78997-09-20 23:44 J	-27131967.63	-27131967.51	-27131967.38	0.0534	0.0116		
Mercury	-78991-08-20 03:06 J	-27129808.54	-27129808.37	-27129808.21	0.0492	0.0192		
Earth	-78991-09-21 07:11 J	-27129776.44	-27129776.20	-27129775.96	0.0492	0.0046		
Moon	-78991-09-21 07:54 J	-27129776.40	-27129776.17	-27129775.94	0.0492	0.0041 *		
Mercury	-78991-11-18 09:49 J	-27129718.22	-27129718.09	-27129717.95	0.0493	0.0323		
Venus	-78986-08-15 18:28 J	-27127986.84	-27127986.73	-27127986.62	0.0537	0.0438		
Earth	-78985-03-13 11:30 J	-27127776.11	-27127776.02	-27127775.93	0.0536	0.0490		
Moon	-78985-03-13 15:06 J	-27127775.95	-27127775.87	-27127775.77	0.0536	0.0487 *		
Mercury	-78985-04-11 20:23 J	-27127746.72	-27127746.65	-27127746.58	0.0536	0.0443		
Mercury	-78985-07-10 03:49 J	-27127657.47	-27127657.34	-27127657.21	0.0535	0.0005		
Mercury	-78985-10-07 11:44 J	-27127568.07	-27127568.01	-27127567.95	0.0533	0.0460		

Venus -78980-06-16 19:54 J -27125854.83 -27125854.67 -27125854.50 0.0490 0.0303  
 Mercury -78979-06-08 00:28 J -27125498.62 -27125498.48 -27125498.34 0.0491 0.0323  
 Mercury -78979-09-06 07:40 J -27125408.35 -27125408.18 -27125408.01 0.0492 0.0194  
 Earth -78979-09-25 21:06 J -27125388.82 -27125388.62 -27125388.41 0.0493 0.0256  
 Moon -78979-09-25 22:32 J -27125388.76 -27125388.56 -27125388.35 0.0493 0.0283 \*  
 Venus -78974-04-20 13:40 J -27123721.13 -27123720.93 -27123720.73 0.0536 0.0059  
 Moon -78973-03-18 07:54 J -27123388.38 -27123388.17 -27123387.95 0.0536 0.0190  
 Earth -78973-03-18 11:44 J -27123388.21 -27123388.01 -27123387.80 0.0536 0.0224 \*  
 Mercury -78973-04-28 07:54 J -27123347.29 -27123347.17 -27123347.04 0.0535 0.0104  
 Mercury -78973-07-26 15:49 J -27123257.94 -27123257.84 -27123257.75 0.0534 0.0352  
 Mars -78972-06-21 15:06 J -27122928.08 -27122927.87 -27122927.65 0.0525 0.0333  
 Venus -78968-02-19 19:40 J -27121588.89 -27121588.68 -27121588.47 0.0491 0.0099  
 Mercury -78967-03-26 22:18 J -27121188.64 -27121188.57 -27121188.49 0.0491 0.0449  
 Mercury -78967-06-25 05:59 J -27121098.43 -27121098.25 -27121098.07 0.0492 0.0070  
 Moon -78967-09-30 10:32 J -27121001.12 -27121001.06 -27121001.00 0.0494 0.0475  
 Earth -78967-09-30 13:40 J -27121000.99 -27121000.93 -27121000.85 0.0494 0.0471  
 Mercury -78961-02-15 11:44 J -27119037.13 -27119037.01 -27119036.89 0.0535 0.0215  
 Earth -78961-03-23 08:23 J -27119000.38 -27119000.15 -27118999.93 0.0534 0.0037  
 Moon -78961-03-23 10:47 J -27119000.27 -27119000.05 -27118999.83 0.0534 0.0044 \*  
 Mercury -78961-05-14 19:11 J -27118947.81 -27118947.70 -27118947.58 0.0534 0.0237  
 Mercury -78955-04-13 03:35 J -27116788.53 -27116788.35 -27116788.17 0.0492 0.0061  
 Mercury -78955-07-12 10:18 J -27116698.14 -27116698.07 -27116698.00 0.0494 0.0452  
 Mercury -78950-12-04 15:35 J -27114726.95 -27114726.85 -27114726.75 0.0535 0.0327  
 Mercury -78949-03-02 22:47 J -27114637.67 -27114637.55 -27114637.42 0.0534 0.0123  
 Moon -78949-03-28 03:20 J -27114612.56 -27114612.36 -27114612.15 0.0533 0.0261  
 Earth -78949-03-28 03:49 J -27114612.53 -27114612.34 -27114612.15 0.0533 0.0291 \*  
 Mercury -78943-01-30 01:25 J -27112478.61 -27112478.44 -27112478.27 0.0492 0.0191  
 Mercury -78943-04-30 08:23 J -27112388.29 -27112388.15 -27112388.02 0.0493 0.0325  
 Venus -78939-12-27 03:35 J -27110686.53 -27110686.35 -27110686.17 0.0536 0.0224  
 Mercury -78938-09-22 18:56 J -27110416.78 -27110416.71 -27110416.64 0.0536 0.0444

Mercury -78938-12-21 02:23 J -27110327.53 -27110327.40 -27110327.27 0.0535 0.0009

Mercury -78937-03-19 10:04 J -27110238.14 -27110238.08 -27110238.01 0.0533 0.0457

Mars -78936-03-27 23:30 J -27109864.68 -27109864.52 -27109864.35 0.0523 0.0424

Venus -78933-10-28 06:56 J -27108554.41 -27108554.21 -27108554.01 0.0491 0.0133

Moon -78932-09-11 07:11 J -27108236.34 -27108236.20 -27108236.05 0.0491 0.0395

Earth -78932-09-11 09:35 J -27108236.25 -27108236.10 -27108235.96 0.0491 0.0386 \*

Mercury -78932-11-17 23:01 J -27108168.68 -27108168.54 -27108168.40 0.0492 0.0319

Mercury -78931-02-16 06:13 J -27108078.40 -27108078.24 -27108078.07 0.0493 0.0199

Venus -78927-08-31 21:20 J -27106420.77 -27106420.61 -27106420.44 0.0536 0.0279

Mercury -78926-10-09 06:13 J -27106017.36 -27106017.24 -27106017.11 0.0535 0.0107

Mercury -78925-01-06 13:54 J -27105928.01 -27105927.92 -27105927.82 0.0534 0.0346

Venus -78921-07-03 06:13 J -27104288.41 -27104288.24 -27104288.06 0.0491 0.0273

Mercury -78920-09-05 20:23 J -27103858.72 -27103858.65 -27103858.58 0.0491 0.0451

Earth -78920-09-15 22:32 J -27103848.78 -27103848.56 -27103848.33 0.0491 0.0179

Moon -78920-09-15 23:16 J -27103848.73 -27103848.53 -27103848.32 0.0491 0.0210 \*

Mercury -78920-12-05 04:04 J -27103768.51 -27103768.33 -27103768.15 0.0492 0.0068

Mars -78918-03-22 04:47 J -27103296.57 -27103296.30 -27103296.03 0.0502 0.0011

Mercury -78914-07-28 10:18 J -27101707.18 -27101707.07 -27101706.95 0.0535 0.0215

Mercury -78914-10-25 17:59 J -27101617.86 -27101617.75 -27101617.63 0.0534 0.0238

Earth -78908-09-20 13:25 J -27099461.18 -27099460.94 -27099460.70 0.0492 0.0032

Moon -78908-09-20 14:37 J -27099461.14 -27099460.89 -27099460.64 0.0492 0.0034 \*

Mercury -78908-09-23 02:08 J -27099458.59 -27099458.41 -27099458.23 0.0492 0.0058

Mercury -78908-12-22 08:37 J -27099368.20 -27099368.14 -27099368.07 0.0493 0.0454

Venus -78903-09-03 20:23 J -27097651.68 -27097651.65 -27097651.61 0.0536 0.0526

Moon -78902-03-13 14:52 J -27097460.96 -27097460.88 -27097460.79 0.0536 0.0497

Earth -78902-03-13 18:28 J -27097460.79 -27097460.73 -27097460.64 0.0536 0.0503 \*

Mercury -78902-05-16 14:23 J -27097397.00 -27097396.90 -27097396.80 0.0535 0.0326

Mercury -78902-08-13 21:49 J -27097307.72 -27097307.59 -27097307.47 0.0534 0.0124

Venus -78897-07-05 17:30 J -27095519.91 -27095519.77 -27095519.63 0.0491 0.0361

Mercury -78896-07-11 23:16 J -27095148.69 -27095148.53 -27095148.36 0.0492 0.0193

Moon -78896-09-24 23:59 J -27095073.69 -27095073.50 -27095073.30 0.0493 0.0273  
 Earth -78896-09-25 02:52 J -27095073.58 -27095073.38 -27095073.16 0.0493 0.0244 \*  
 Mercury -78896-10-10 06:28 J -27095058.37 -27095058.23 -27095058.10 0.0493 0.0324  
 Venus -78891-05-09 14:23 J -27093386.10 -27093385.90 -27093385.70 0.0536 0.0023  
 Mercury -78890-03-04 17:59 J -27093086.82 -27093086.75 -27093086.67 0.0535 0.0438  
 Earth -78890-03-18 15:06 J -27093073.07 -27093072.87 -27093072.67 0.0535 0.0247  
 Moon -78890-03-18 17:59 J -27093072.95 -27093072.75 -27093072.55 0.0535 0.0213 \*  
 Mercury -78890-06-02 01:25 J -27092997.57 -27092997.44 -27092997.31 0.0534 0.0013  
 Mercury -78890-08-30 09:06 J -27092908.18 -27092908.12 -27092908.06 0.0533 0.0461  
 Venus -78885-03-10 16:32 J -27091254.02 -27091253.81 -27091253.60 0.0491 0.0046  
 Mercury -78884-04-29 21:06 J -27090838.76 -27090838.62 -27090838.49 0.0492 0.0323  
 Mercury -78884-07-29 04:18 J -27090748.48 -27090748.32 -27090748.15 0.0493 0.0196  
 Earth -78884-09-29 17:44 J -27090685.83 -27090685.76 -27090685.66 0.0494 0.0459  
 Moon -78884-09-29 22:04 J -27090685.67 -27090685.58 -27090685.49 0.0494 0.0456 \*  
 Venus -78879-01-12 06:13 J -27089120.31 -27089120.24 -27089120.16 0.0535 0.0492  
 Mercury -78878-03-21 04:47 J -27088687.43 -27088687.30 -27088687.18 0.0535 0.0112  
 Moon -78878-03-23 08:08 J -27088685.40 -27088685.16 -27088684.92 0.0535 0.0007  
 Earth -78878-03-23 09:06 J -27088685.34 -27088685.12 -27088684.89 0.0535 0.0008 \*  
 Mercury -78878-06-18 12:13 J -27088598.08 -27088597.99 -27088597.89 0.0533 0.0342  
 Venus -78874-11-14 16:32 J -27086987.90 -27086987.81 -27086987.73 0.0491 0.0448  
 Mercury -78872-02-15 18:42 J -27086528.79 -27086528.72 -27086528.65 0.0491 0.0451  
 Mercury -78872-05-17 02:23 J -27086438.58 -27086438.40 -27086438.22 0.0492 0.0069  
 Mercury -78866-01-07 08:37 J -27084377.26 -27084377.14 -27084377.03 0.0535 0.0222  
 Moon -78866-03-28 04:32 J -27084297.51 -27084297.31 -27084297.11 0.0534 0.0233  
 Earth -78866-03-28 05:59 J -27084297.45 -27084297.25 -27084297.05 0.0534 0.0264 \*  
 Mercury -78866-04-06 16:04 J -27084287.94 -27084287.83 -27084287.71 0.0534 0.0230  
 Mercury -78860-03-04 23:44 J -27082128.69 -27082128.51 -27082128.33 0.0492 0.0063  
 Mercury -78860-06-03 06:13 J -27082038.30 -27082038.24 -27082038.16 0.0493 0.0450  
 Venus -78855-01-15 03:20 J -27080351.51 -27080351.36 -27080351.19 0.0537 0.0304  
 Mercury -78855-10-26 12:42 J -27080067.07 -27080066.97 -27080066.87 0.0536 0.0330

Mercury -78854-01-23 20:08 J -27079977.79 -27079977.66 -27079977.53 0.0534 0.0121  
 Earth -78854-04-02 04:04 J -27079909.38 -27079909.33 -27079909.28 0.0533 0.0520  
 Moon -78854-04-02 06:56 J -27079909.23 -27079909.21 -27079909.16 0.0533 0.0526  
 Venus -78850-11-17 05:16 J -27078219.47 -27078219.28 -27078219.08 0.0490 0.0196  
 Earth -78849-09-10 13:54 J -27077921.05 -27077920.92 -27077920.78 0.0491 0.0402  
 Moon -78849-09-10 14:37 J -27077921.00 -27077920.89 -27077920.76 0.0491 0.0417 \*  
 Mercury -78849-12-21 21:35 J -27077818.77 -27077818.60 -27077818.43 0.0492 0.0191  
 Mercury -78848-03-22 04:32 J -27077728.44 -27077728.31 -27077728.17 0.0493 0.0325  
 Venus -78844-09-19 22:47 J -27076085.74 -27076085.55 -27076085.37 0.0536 0.0195  
 Mercury -78843-08-14 16:32 J -27075756.87 -27075756.81 -27075756.73 0.0535 0.0440  
 Mercury -78843-11-11 23:59 J -27075667.63 -27075667.50 -27075667.37 0.0534 0.0008  
 Mercury -78842-02-09 07:40 J -27075578.24 -27075578.18 -27075578.11 0.0533 0.0461  
 Venus -78838-07-23 02:23 J -27073953.58 -27073953.40 -27073953.21 0.0491 0.0223  
 Earth -78837-09-15 01:25 J -27073533.66 -27073533.44 -27073533.22 0.0492 0.0196  
 Moon -78837-09-15 02:08 J -27073533.63 -27073533.41 -27073533.18 0.0492 0.0223 \*  
 Mercury -78837-10-09 18:42 J -27073508.86 -27073508.72 -27073508.59 0.0492 0.0328  
 Mercury -78836-01-08 01:54 J -27073418.58 -27073418.42 -27073418.25 0.0493 0.0192  
 Mercury -78831-08-31 03:35 J -27071357.47 -27071357.35 -27071357.22 0.0534 0.0106  
 Mercury -78831-11-28 11:16 J -27071268.13 -27071268.03 -27071267.93 0.0533 0.0345  
 Mercury -78825-07-28 16:04 J -27069198.89 -27069198.83 -27069198.76 0.0492 0.0459  
 Moon -78825-09-19 12:56 J -27069146.20 -27069145.96 -27069145.73 0.0492 0.0025  
 Earth -78825-09-19 15:35 J -27069146.09 -27069145.85 -27069145.61 0.0492 0.0015 \*  
 Mercury -78825-10-26 23:44 J -27069108.69 -27069108.51 -27069108.32 0.0493 0.0063  
 Moon -78819-03-12 19:40 J -27067145.70 -27067145.68 -27067145.65 0.0536 0.0532  
 Mercury -78819-06-19 06:56 J -27067047.33 -27067047.21 -27067047.10 0.0535 0.0227  
 Mercury -78819-09-16 14:23 J -27066958.02 -27066957.90 -27066957.78 0.0534 0.0224  
 Mars -78818-09-15 00:56 J -27066594.73 -27066594.46 -27066594.19 0.0525 0.0124  
 Venus -78814-07-25 15:49 J -27065184.94 -27065184.84 -27065184.73 0.0491 0.0424  
 Mercury -78813-08-14 21:35 J -27064798.78 -27064798.60 -27064798.41 0.0492 0.0067  
 Earth -78813-09-24 06:13 J -27064758.45 -27064758.24 -27064758.02 0.0493 0.0227

Moon -78813-09-24 10:18 J -27064758.27 -27064758.07 -27064757.86 0.0493 0.0256 \*  
 Mercury -78813-11-13 04:18 J -27064708.39 -27064708.32 -27064708.24 0.0493 0.0447  
 Venus -78808-05-28 10:04 J -27063051.27 -27063051.08 -27063050.88 0.0536 0.0077  
 Moon -78807-03-17 11:59 J -27062758.20 -27062758.00 -27062757.78 0.0536 0.0252  
 Earth -78807-03-17 13:40 J -27062758.12 -27062757.93 -27062757.73 0.0536 0.0283 \*  
 Mercury -78807-04-07 10:32 J -27062737.15 -27062737.06 -27062736.96 0.0535 0.0339  
 Mercury -78807-07-05 17:59 J -27062647.87 -27062647.75 -27062647.62 0.0534 0.0111  
 Venus -78802-03-30 14:52 J -27060919.09 -27060918.88 -27060918.67 0.0491 0.0019  
 Mercury -78801-06-02 18:56 J -27060488.87 -27060488.71 -27060488.54 0.0492 0.0199  
 Mercury -78801-09-01 02:08 J -27060398.55 -27060398.41 -27060398.28 0.0493 0.0317  
 Moon -78801-09-28 15:35 J -27060370.95 -27060370.85 -27060370.72 0.0493 0.0432  
 Earth -78801-09-28 19:54 J -27060370.78 -27060370.67 -27060370.56 0.0493 0.0436 \*  
 Mars -78800-09-09 23:01 J -27060024.66 -27060024.54 -27060024.40 0.0501 0.0438  
 Venus -78796-01-31 04:32 J -27058785.43 -27058785.31 -27058785.19 0.0536 0.0424  
 Mercury -78795-01-24 14:37 J -27058426.95 -27058426.89 -27058426.82 0.0536 0.0448  
 Moon -78795-03-22 11:30 J -27058370.23 -27058370.02 -27058369.80 0.0535 0.0031  
 Earth -78795-03-22 12:28 J -27058370.20 -27058369.98 -27058369.75 0.0535 0.0021 \*  
 Mercury -78795-04-23 22:04 J -27058337.71 -27058337.58 -27058337.45 0.0535 0.0003  
 Mercury -78795-07-22 05:44 J -27058248.32 -27058248.26 -27058248.19 0.0533 0.0455  
 Venus -78791-12-03 13:54 J -27056653.04 -27056652.92 -27056652.79 0.0491 0.0389  
 Mercury -78789-03-21 16:32 J -27056178.94 -27056178.81 -27056178.67 0.0492 0.0329  
 Mercury -78789-06-19 23:59 J -27056088.67 -27056088.50 -27056088.33 0.0493 0.0190  
 Mercury -78783-02-10 01:54 J -27054027.54 -27054027.42 -27054027.29 0.0535 0.0112  
 Earth -78783-03-27 10:04 J -27053982.28 -27053982.08 -27053981.87 0.0534 0.0242  
 Moon -78783-03-27 13:11 J -27053982.16 -27053981.95 -27053981.74 0.0534 0.0211 \*  
 Mercury -78783-05-10 09:35 J -27053938.20 -27053938.10 -27053938.00 0.0533 0.0342  
 Mercury -78777-01-08 13:25 J -27051868.99 -27051868.94 -27051868.89 0.0492 0.0467  
 Mercury -78777-04-07 21:06 J -27051778.80 -27051778.62 -27051778.43 0.0493 0.0055  
 Venus -78772-02-03 02:37 J -27050016.53 -27050016.39 -27050016.25 0.0536 0.0375  
 Mercury -78772-11-29 05:44 J -27049717.38 -27049717.26 -27049717.14 0.0535 0.0223



Mercury -78771-02-26 13:11 J -27049628.07 -27049627.95 -27049627.83 0.0533 0.0227

Moon -78771-04-01 01:25 J -27049594.51 -27049594.44 -27049594.36 0.0533 0.0496

Earth -78771-04-01 05:01 J -27049594.36 -27049594.29 -27049594.19 0.0533 0.0491 \*

Venus -78767-12-06 00:13 J -27047884.67 -27047884.49 -27047884.31 0.0491 0.0240

Earth -78766-09-10 13:54 J -27047606.04 -27047605.92 -27047605.80 0.0491 0.0422

Moon -78766-09-10 14:23 J -27047606.01 -27047605.90 -27047605.78 0.0491 0.0437 \*

Mercury -78765-01-25 18:56 J -27047468.89 -27047468.71 -27047468.53 0.0492 0.0076

Mercury -78765-04-25 01:40 J -27047378.51 -27047378.43 -27047378.35 0.0494 0.0439

Mars -78764-06-14 21:20 J -27046962.86 -27046962.61 -27046962.36 0.0503 0.0190

Venus -78761-10-08 17:44 J -27045750.95 -27045750.76 -27045750.57 0.0536 0.0145

Mercury -78760-09-17 08:52 J -27045407.23 -27045407.13 -27045407.03 0.0535 0.0345

Mercury -78760-12-15 16:18 J -27045317.95 -27045317.82 -27045317.70 0.0534 0.0105

Venus -78755-08-10 23:59 J -27043618.70 -27043618.50 -27043618.30 0.0491 0.0163

Moon -78754-09-15 01:54 J -27043218.62 -27043218.42 -27043218.21 0.0491 0.0240

Earth -78754-09-15 04:18 J -27043218.53 -27043218.32 -27043218.10 0.0491 0.0215 \*

Mercury -78754-11-13 16:47 J -27043158.97 -27043158.80 -27043158.64 0.0492 0.0204

Mercury -78753-02-11 23:44 J -27043068.65 -27043068.51 -27043068.37 0.0493 0.0313

Mercury -78748-07-06 12:42 J -27041097.04 -27041096.97 -27041096.91 0.0536 0.0458

Mercury -78748-10-03 19:54 J -27041007.80 -27041007.67 -27041007.54 0.0535 0.0010

Mercury -78747-01-01 03:35 J -27040918.42 -27040918.35 -27040918.28 0.0533 0.0443

Mercury -78742-09-01 13:54 J -27038849.05 -27038848.92 -27038848.78 0.0491 0.0337

Earth -78742-09-19 17:01 J -27038831.03 -27038830.79 -27038830.55 0.0492 0.0008

Moon -78742-09-19 20:52 J -27038830.87 -27038830.63 -27038830.39 0.0492 0.0012 \*

Mercury -78742-11-30 21:20 J -27038758.78 -27038758.61 -27038758.44 0.0492 0.0181

Mercury -78736-07-22 23:44 J -27036697.63 -27036697.51 -27036697.38 0.0535 0.0122

Mercury -78736-10-20 07:25 J -27036608.29 -27036608.19 -27036608.08 0.0534 0.0333

Venus -78731-08-13 12:28 J -27034850.03 -27034849.98 -27034849.94 0.0490 0.0477

Mercury -78730-06-20 11:16 J -27034539.08 -27034539.03 -27034538.97 0.0491 0.0469

Mercury -78730-09-18 19:11 J -27034448.89 -27034448.70 -27034448.52 0.0492 0.0053

Moon -78730-09-24 02:52 J -27034443.59 -27034443.38 -27034443.16 0.0492 0.0231

Earth -78730-09-24 06:56 J -27034443.42 -27034443.21 -27034442.98 0.0492 0.0203 \*  
 Venus -78725-06-16 09:20 J -27032716.29 -27032716.11 -27032715.92 0.0536 0.0150  
 Moon -78724-03-16 16:47 J -27032442.99 -27032442.80 -27032442.62 0.0536 0.0280  
 Earth -78724-03-16 17:01 J -27032442.97 -27032442.79 -27032442.60 0.0536 0.0306 \*  
 Mercury -78724-05-11 04:04 J -27032387.45 -27032387.33 -27032387.22 0.0535 0.0230  
 Mercury -78724-08-08 11:30 J -27032298.14 -27032298.02 -27032297.91 0.0534 0.0222  
 Venus -78719-04-18 09:20 J -27030584.32 -27030584.11 -27030583.90 0.0491 0.0060  
 Mercury -78718-07-07 16:04 J -27030139.01 -27030138.83 -27030138.65 0.0492 0.0085  
 Earth -78718-09-28 19:11 J -27030055.83 -27030055.70 -27030055.57 0.0493 0.0411  
 Moon -78718-09-28 22:47 J -27030055.68 -27030055.55 -27030055.42 0.0493 0.0406 \*  
 Mercury -78718-10-05 22:47 J -27030048.63 -27030048.55 -27030048.46 0.0494 0.0430  
 Venus -78713-02-20 03:20 J -27028450.50 -27028450.36 -27028450.21 0.0535 0.0353  
 Mercury -78712-02-27 07:40 J -27028077.27 -27028077.18 -27028077.08 0.0535 0.0342  
 Earth -78712-03-21 13:40 J -27028055.15 -27028054.93 -27028054.70 0.0535 0.0049  
 Moon -78712-03-21 16:18 J -27028055.05 -27028054.82 -27028054.59 0.0535 0.0067 \*  
 Mercury -78712-05-27 15:06 J -27027988.00 -27027987.87 -27027987.75 0.0534 0.0107  
 Venus -78708-12-22 08:08 J -27026318.30 -27026318.16 -27026318.01 0.0491 0.0348  
 Mercury -78706-04-25 13:40 J -27025829.09 -27025828.93 -27025828.76 0.0492 0.0216  
 Mercury -78706-07-24 20:52 J -27025738.77 -27025738.63 -27025738.49 0.0493 0.0302  
 Mercury -78701-12-16 10:47 J -27023767.11 -27023767.05 -27023766.99 0.0535 0.0464  
 Mercury -78700-03-15 17:59 J -27023677.88 -27023677.75 -27023677.62 0.0534 0.0020  
 Moon -78700-03-26 01:54 J -27023667.63 -27023667.42 -27023667.21 0.0534 0.0164  
 Earth -78700-03-26 05:30 J -27023667.48 -27023667.27 -27023667.06 0.0534 0.0198 \*  
 Mercury -78700-06-13 01:40 J -27023588.50 -27023588.43 -27023588.35 0.0533 0.0436  
 Mercury -78694-02-11 11:30 J -27021519.15 -27021519.02 -27021518.89 0.0492 0.0344  
 Mercury -78694-05-12 18:56 J -27021428.88 -27021428.71 -27021428.54 0.0493 0.0176  
 Venus -78689-02-22 20:08 J -27019681.78 -27019681.66 -27019681.53 0.0536 0.0417  
 Mercury -78688-01-01 21:35 J -27019367.72 -27019367.60 -27019367.47 0.0535 0.0133  
 Earth -78688-03-31 00:28 J -27019279.59 -27019279.48 -27019279.35 0.0534 0.0448  
 Moon -78688-03-31 04:18 J -27019279.43 -27019279.32 -27019279.20 0.0534 0.0457 \*

Mercury -78688-04-01 05:16 J -27019278.38 -27019278.28 -27019278.18 0.0534 0.0320  
 Venus -78684-12-24 21:20 J -27017549.77 -27017549.61 -27017549.44 0.0491 0.0297  
 Moon -78683-09-09 13:54 J -27017290.99 -27017290.92 -27017290.85 0.0491 0.0464  
 Earth -78683-09-09 15:49 J -27017290.93 -27017290.84 -27017290.73 0.0491 0.0443 \*  
 Mercury -78683-11-30 08:37 J -27017209.18 -27017209.14 -27017209.10 0.0491 0.0477  
 Mercury -78682-02-28 16:18 J -27017119.00 -27017118.82 -27017118.64 0.0492 0.0044  
 Venus -78678-10-28 14:08 J -27015416.10 -27015415.91 -27015415.71 0.0536 0.0087  
 Mercury -78677-10-21 01:40 J -27015057.54 -27015057.43 -27015057.32 0.0535 0.0242  
 Mercury -78676-01-18 09:06 J -27014968.24 -27014968.12 -27014968.00 0.0534 0.0209  
 Venus -78672-08-29 20:23 J -27013283.86 -27013283.65 -27013283.45 0.0491 0.0110  
 Earth -78671-09-14 04:47 J -27012903.51 -27012903.30 -27012903.09 0.0491 0.0238  
 Moon -78671-09-14 08:23 J -27012903.36 -27012903.15 -27012902.94 0.0491 0.0257 \*  
 Mercury -78671-12-17 13:54 J -27012809.10 -27012808.92 -27012808.74 0.0492 0.0087  
 Mercury -78670-03-17 20:37 J -27012718.72 -27012718.64 -27012718.54 0.0493 0.0427  
 Mercury -78665-08-09 05:44 J -27010747.35 -27010747.26 -27010747.16 0.0535 0.0350  
 Mercury -78665-11-06 13:11 J -27010658.08 -27010657.95 -27010657.82 0.0534 0.0100  
 Mars -78664-12-08 15:06 J -27010261.14 -27010260.87 -27010260.59 0.0524 0.0093  
 Moon -78659-09-18 11:30 J -27008516.26 -27008516.02 -27008515.78 0.0492 0.0015  
 Earth -78659-09-18 15:35 J -27008516.09 -27008515.85 -27008515.61 0.0492 0.0035 \*  
 Mercury -78659-10-05 10:47 J -27008499.21 -27008499.05 -27008498.89 0.0492 0.0225  
 Mercury -78658-01-03 17:59 J -27008408.89 -27008408.75 -27008408.60 0.0493 0.0293  
 Mercury -78653-05-28 09:35 J -27006437.16 -27006437.10 -27006437.03 0.0535 0.0461  
 Mercury -78653-08-25 16:47 J -27006347.92 -27006347.80 -27006347.67 0.0534 0.0021  
 Mercury -78653-11-23 00:28 J -27006258.55 -27006258.48 -27006258.40 0.0533 0.0439  
 Mercury -78647-07-24 08:23 J -27004189.27 -27004189.15 -27004189.02 0.0492 0.0355  
 Earth -78647-09-23 05:59 J -27004128.47 -27004128.25 -27004128.02 0.0492 0.0177  
 Moon -78647-09-23 09:49 J -27004128.30 -27004128.09 -27004127.88 0.0492 0.0206 \*  
 Mercury -78647-10-22 15:49 J -27004099.01 -27004098.84 -27004098.66 0.0493 0.0166  
 Mars -78646-12-04 05:44 J -27003691.49 -27003691.26 -27003691.03 0.0501 0.0263  
 Venus -78642-07-06 03:35 J -27002381.53 -27002381.35 -27002381.16 0.0536 0.0195

Earth -78641-03-15 11:16 J -27002128.20 -27002128.03 -27002127.86 0.0536 0.0353  
 Moon -78641-03-15 13:11 J -27002128.13 -27002127.95 -27002127.76 0.0536 0.0327 \*  
 Mercury -78641-06-13 19:54 J -27002037.80 -27002037.67 -27002037.55 0.0535 0.0138  
 Mercury -78641-09-11 03:20 J -27001948.46 -27001948.36 -27001948.25 0.0533 0.0314  
 Venus -78636-05-07 06:28 J -27000249.43 -27000249.23 -27000249.02 0.0491 0.0119  
 Mercury -78635-05-12 05:59 J -26999879.27 -26999879.25 -26999879.21 0.0491 0.0484  
 Mercury -78635-08-10 13:54 J -26999789.10 -26999788.92 -26999788.73 0.0492 0.0041  
 Moon -78635-09-27 19:11 J -26999740.86 -26999740.70 -26999740.54 0.0493 0.0379  
 Earth -78635-09-27 21:35 J -26999740.74 -26999740.60 -26999740.45 0.0493 0.0389 \*  
 Venus -78630-03-10 20:37 J -26998115.80 -26998115.64 -26998115.48 0.0535 0.0313  
 Moon -78629-03-20 04:04 J -26997740.54 -26997740.33 -26997740.11 0.0535 0.0118  
 Earth -78629-03-20 07:25 J -26997740.41 -26997740.19 -26997739.97 0.0535 0.0098 \*  
 Mercury -78629-04-01 23:30 J -26997727.63 -26997727.52 -26997727.41 0.0535 0.0253  
 Mercury -78629-06-30 06:56 J -26997638.33 -26997638.21 -26997638.09 0.0534 0.0198  
 Venus -78624-01-10 05:44 J -26995983.43 -26995983.26 -26995983.09 0.0491 0.0289  
 Mercury -78623-05-29 11:16 J -26995479.21 -26995479.03 -26995478.84 0.0492 0.0095  
 Mercury -78623-08-27 17:59 J -26995388.83 -26995388.75 -26995388.65 0.0493 0.0420  
 Mercury -78617-01-20 03:20 J -26993417.45 -26993417.36 -26993417.26 0.0536 0.0364  
 Earth -78617-03-25 05:01 J -26993352.51 -26993352.29 -26993352.08 0.0535 0.0163  
 Moon -78617-03-25 08:52 J -26993352.35 -26993352.13 -26993351.91 0.0535 0.0132 \*  
 Mercury -78617-04-18 10:47 J -26993328.18 -26993328.05 -26993327.92 0.0535 0.0087  
 Mercury -78611-03-17 08:52 J -26991169.29 -26991169.13 -26991168.97 0.0492 0.0226  
 Mercury -78611-06-15 16:04 J -26991078.98 -26991078.83 -26991078.68 0.0493 0.0292  
 Mars -78610-09-08 02:23 J -26990629.59 -26990629.40 -26990629.20 0.0503 0.0351  
 Venus -78606-03-13 18:28 J -26989346.80 -26989346.73 -26989346.64 0.0537 0.0486  
 Mercury -78606-11-08 07:40 J -26989107.24 -26989107.18 -26989107.12 0.0536 0.0469  
 Mercury -78605-02-05 14:52 J -26989018.00 -26989017.88 -26989017.75 0.0535 0.0027  
 Moon -78605-03-30 00:28 J -26988964.61 -26988964.48 -26988964.35 0.0534 0.0432  
 Earth -78605-03-30 03:49 J -26988964.47 -26988964.34 -26988964.20 0.0534 0.0422 \*  
 Mercury -78605-05-04 22:47 J -26988928.63 -26988928.55 -26988928.48 0.0533 0.0432

Venus -78600-01-12 16:18 J -26987214.97 -26987214.82 -26987214.67 0.0490 0.0342  
 Earth -78600-09-08 14:52 J -26986975.94 -26986975.88 -26986975.81 0.0491 0.0469  
 Mercury -78599-01-03 05:44 J -26986859.39 -26986859.26 -26986859.14 0.0492 0.0364  
 Mercury -78599-04-03 13:11 J -26986769.12 -26986768.95 -26986768.78 0.0493 0.0157  
 Venus -78595-11-16 13:11 J -26985081.15 -26985080.95 -26985080.76 0.0536 0.0016  
 Mercury -78594-11-24 18:42 J -26984707.84 -26984707.72 -26984707.59 0.0535 0.0135  
 Mercury -78593-02-22 02:23 J -26984618.50 -26984618.40 -26984618.30 0.0533 0.0318  
 Venus -78589-09-17 15:20 J -26982949.07 -26982948.86 -26982948.65 0.0491 0.0063  
 Moon -78588-09-13 00:28 J -26982588.67 -26982588.48 -26982588.28 0.0491 0.0281  
 Earth -78588-09-13 04:32 J -26982588.51 -26982588.31 -26982588.10 0.0491 0.0263 \*  
 Mercury -78587-01-20 11:01 J -26982459.22 -26982459.04 -26982458.85 0.0492 0.0031  
 Venus -78583-07-22 04:18 J -26980815.34 -26980815.32 -26980815.30 0.0535 0.0531  
 Mercury -78582-09-12 21:49 J -26980397.70 -26980397.59 -26980397.48 0.0535 0.0258  
 Mercury -78582-12-11 05:16 J -26980308.40 -26980308.28 -26980308.16 0.0534 0.0193  
 Venus -78577-05-23 14:52 J -26978682.94 -26978682.88 -26978682.81 0.0492 0.0466  
 Earth -78576-09-17 19:25 J -26978200.92 -26978200.69 -26978200.45 0.0492 0.0054  
 Moon -78576-09-17 23:16 J -26978200.76 -26978200.53 -26978200.29 0.0492 0.0029 \*  
 Mercury -78576-11-08 09:06 J -26978149.30 -26978149.12 -26978148.94 0.0492 0.0098  
 Mercury -78575-02-06 16:04 J -26978058.92 -26978058.83 -26978058.73 0.0493 0.0418  
 Mercury -78570-07-02 01:25 J -26976087.53 -26976087.44 -26976087.35 0.0535 0.0372  
 Mercury -78570-09-29 08:52 J -26975998.26 -26975998.13 -26975998.01 0.0534 0.0079  
 Mercury -78570-12-27 16:32 J -26975908.81 -26975908.81 -26975908.80 0.0533 0.0531  
 Mercury -78564-08-27 06:28 J -26973839.39 -26973839.23 -26973839.06 0.0492 0.0230  
 Moon -78564-09-22 05:59 J -26973813.48 -26973813.25 -26973813.02 0.0492 0.0181  
 Earth -78564-09-22 08:37 J -26973813.36 -26973813.14 -26973812.91 0.0492 0.0156 \*  
 Mercury -78564-11-25 13:40 J -26973749.07 -26973748.93 -26973748.78 0.0493 0.0287  
 Venus -78559-07-24 23:59 J -26972046.67 -26972046.50 -26972046.33 0.0536 0.0252  
 Moon -78558-03-15 07:11 J -26971813.35 -26971813.20 -26971813.03 0.0536 0.0366  
 Earth -78558-03-15 10:18 J -26971813.22 -26971813.07 -26971812.91 0.0536 0.0388 \*  
 Mercury -78558-04-20 05:16 J -26971777.33 -26971777.28 -26971777.22 0.0536 0.0483

Mercury -78558-07-18 12:42 J -26971688.10 -26971687.97 -26971687.84 0.0535 0.0036

Mercury -78558-10-15 20:23 J -26971598.73 -26971598.65 -26971598.57 0.0534 0.0419

Venus -78553-05-26 03:35 J -26969914.54 -26969914.35 -26969914.15 0.0491 0.0176

Mercury -78552-06-15 04:04 J -26969529.46 -26969529.33 -26969529.21 0.0491 0.0362

Mercury -78552-09-13 11:30 J -26969439.19 -26969439.02 -26969438.85 0.0492 0.0158

Earth -78552-09-26 22:32 J -26969425.72 -26969425.56 -26969425.40 0.0493 0.0365

Moon -78552-09-26 23:16 J -26969425.69 -26969425.53 -26969425.37 0.0493 0.0351 \*

Venus -78547-03-29 18:56 J -26967780.88 -26967780.71 -26967780.53 0.0536 0.0244

Earth -78546-03-20 10:47 J -26967425.27 -26967425.05 -26967424.83 0.0536 0.0122

Moon -78546-03-20 14:37 J -26967425.11 -26967424.89 -26967424.67 0.0536 0.0145 \*

Mercury -78546-05-06 16:47 J -26967377.92 -26967377.80 -26967377.67 0.0535 0.0142

Mercury -78546-08-04 00:28 J -26967288.58 -26967288.48 -26967288.38 0.0534 0.0311

Mars -78545-05-27 16:18 J -26966990.94 -26966990.82 -26966990.69 0.0527 0.0466

Venus -78541-01-30 01:25 J -26965648.62 -26965648.44 -26965648.25 0.0491 0.0237

Mercury -78540-07-02 08:37 J -26965129.32 -26965129.14 -26965128.96 0.0492 0.0023

Mercury -78534-02-22 20:52 J -26963067.74 -26963067.63 -26963067.52 0.0535 0.0252

Moon -78534-03-25 05:01 J -26963037.52 -26963037.29 -26963037.07 0.0535 0.0106

Earth -78534-03-25 08:37 J -26963037.36 -26963037.14 -26963036.92 0.0535 0.0136 \*

Mercury -78534-05-23 04:18 J -26962978.44 -26962978.32 -26962978.20 0.0534 0.0199

Mercury -78528-04-20 06:28 J -26960819.41 -26960819.23 -26960819.05 0.0492 0.0105

Mercury -78528-07-19 13:25 J -26960729.03 -26960728.94 -26960728.84 0.0493 0.0411

Mercury -78523-12-11 23:44 J -26958757.59 -26958757.51 -26958757.41 0.0535 0.0375

Mercury -78522-03-11 07:11 J -26958668.33 -26958668.20 -26958668.07 0.0534 0.0074

Earth -78522-03-29 23:44 J -26958649.66 -26958649.51 -26958649.34 0.0534 0.0379

Moon -78522-03-30 02:08 J -26958649.55 -26958649.41 -26958649.26 0.0534 0.0398 \*

Mercury -78522-06-08 14:52 J -26958578.89 -26958578.88 -26958578.86 0.0533 0.0528

Venus -78517-02-01 14:52 J -26956880.00 -26956879.88 -26956879.77 0.0491 0.0407

Earth -78517-09-07 20:37 J -26956660.67 -26956660.64 -26956660.60 0.0491 0.0484

Mercury -78516-02-06 04:32 J -26956509.47 -26956509.31 -26956509.14 0.0492 0.0231

Mercury -78516-05-07 11:59 J -26956419.15 -26956419.00 -26956418.86 0.0493 0.0288

Venus -78512-12-05 07:40 J -26954746.38 -26954746.18 -26954745.98 0.0536 0.0034  
 Mercury -78511-09-30 03:35 J -26954447.40 -26954447.35 -26954447.30 0.0536 0.0488  
 Mercury -78511-12-28 10:47 J -26954358.18 -26954358.05 -26954357.92 0.0535 0.0041  
 Mercury -78510-03-27 18:28 J -26954268.81 -26954268.73 -26954268.65 0.0533 0.0412  
 Mars -78509-03-02 16:32 J -26953928.05 -26953927.81 -26953927.57 0.0525 0.0262  
 Venus -78506-10-07 13:54 J -26952614.13 -26952613.92 -26952613.71 0.0491 0.0006  
 Earth -78505-09-12 09:20 J -26952273.30 -26952273.11 -26952272.91 0.0491 0.0278  
 Moon -78505-09-12 13:11 J -26952273.13 -26952272.95 -26952272.75 0.0491 0.0291 \*  
 Mercury -78505-11-25 01:54 J -26952199.54 -26952199.42 -26952199.29 0.0491 0.0363  
 Mercury -78504-02-23 09:35 J -26952109.27 -26952109.10 -26952108.93 0.0492 0.0157  
 Venus -78500-08-10 01:11 J -26950480.54 -26950480.45 -26950480.36 0.0535 0.0472  
 Mercury -78499-10-16 14:37 J -26950048.01 -26950047.89 -26950047.76 0.0535 0.0153  
 Mercury -78498-01-13 22:18 J -26949958.68 -26949958.57 -26949958.47 0.0534 0.0300  
 Venus -78494-06-12 13:25 J -26948348.06 -26948347.94 -26948347.82 0.0491 0.0403  
 Moon -78493-09-16 19:54 J -26947885.92 -26947885.67 -26947885.43 0.0491 0.0050  
 Earth -78493-09-16 22:47 J -26947885.79 -26947885.55 -26947885.31 0.0491 0.0072 \*  
 Mercury -78493-12-12 07:11 J -26947799.38 -26947799.20 -26947799.01 0.0492 0.0029  
 Mars -78491-02-26 17:30 J -26947358.04 -26947357.77 -26947357.50 0.0501 0.0084  
 Mercury -78487-08-04 18:56 J -26945737.82 -26945737.71 -26945737.60 0.0536 0.0259  
 Mercury -78487-11-02 02:23 J -26945648.52 -26945648.40 -26945648.28 0.0534 0.0193  
 Earth -78481-09-21 10:32 J -26943498.28 -26943498.06 -26943497.82 0.0492 0.0134  
 Moon -78481-09-21 11:44 J -26943498.23 -26943498.01 -26943497.79 0.0492 0.0153 \*  
 Mercury -78481-09-30 04:18 J -26943489.49 -26943489.32 -26943489.14 0.0492 0.0108  
 Mercury -78481-12-29 11:16 J -26943399.12 -26943399.03 -26943398.92 0.0493 0.0408  
 Venus -78476-08-13 00:28 J -26941711.64 -26941711.48 -26941711.33 0.0536 0.0335  
 Earth -78475-03-14 15:35 J -26941497.99 -26941497.85 -26941497.70 0.0536 0.0411  
 Moon -78475-03-14 19:25 J -26941497.84 -26941497.69 -26941497.53 0.0536 0.0389 \*  
 Mercury -78475-05-23 23:01 J -26941427.63 -26941427.54 -26941427.45 0.0536 0.0367  
 Mercury -78475-08-21 06:28 J -26941338.36 -26941338.23 -26941338.11 0.0534 0.0084  
 Venus -78470-06-15 01:11 J -26939579.63 -26939579.45 -26939579.27 0.0491 0.0235

Mercury -78469-07-19 02:23 J -26939179.56 -26939179.40 -26939179.24 0.0492 0.0234

Earth -78469-09-26 02:08 J -26939110.58 -26939110.41 -26939110.24 0.0493 0.0345

Moon -78469-09-26 03:35 J -26939110.54 -26939110.35 -26939110.16 0.0493 0.0322 \*

Mercury -78469-10-17 09:35 J -26939089.24 -26939089.10 -26939088.95 0.0493 0.0284

Venus -78464-04-17 16:18 J -26937446.00 -26937445.82 -26937445.63 0.0535 0.0179

Mercury -78463-03-12 02:08 J -26937117.46 -26937117.41 -26937117.36 0.0536 0.0488

Moon -78463-03-19 05:01 J -26937110.50 -26937110.29 -26937110.07 0.0535 0.0184

Earth -78463-03-19 08:52 J -26937110.34 -26937110.13 -26937109.91 0.0535 0.0161 \*

Mercury -78463-06-09 09:20 J -26937028.24 -26937028.11 -26937027.98 0.0535 0.0042

Mercury -78463-09-06 17:01 J -26936938.87 -26936938.79 -26936938.71 0.0533 0.0412

Venus -78458-02-18 00:28 J -26935313.67 -26935313.48 -26935313.28 0.0492 0.0170

Mercury -78457-05-07 00:28 J -26934869.60 -26934869.48 -26934869.36 0.0492 0.0361

Mercury -78457-08-05 08:08 J -26934779.34 -26934779.16 -26934778.99 0.0493 0.0161

Earth -78451-03-24 05:16 J -26932722.51 -26932722.28 -26932722.06 0.0535 0.0093

Moon -78451-03-24 07:54 J -26932722.39 -26932722.17 -26932721.95 0.0535 0.0071 \*

Mercury -78451-03-28 12:56 J -26932718.08 -26932717.96 -26932717.83 0.0535 0.0157

Mercury -78451-06-25 20:37 J -26932628.75 -26932628.64 -26932628.53 0.0534 0.0297

Mercury -78445-05-24 05:44 J -26930469.44 -26930469.26 -26930469.08 0.0492 0.0030

Mercury -78439-01-14 17:01 J -26928407.90 -26928407.79 -26928407.68 0.0536 0.0267

Moon -78439-03-29 01:54 J -26928334.59 -26928334.42 -26928334.26 0.0535 0.0374

Earth -78439-03-29 02:37 J -26928334.56 -26928334.39 -26928334.22 0.0535 0.0351 \*

Mercury -78439-04-14 00:28 J -26928318.60 -26928318.48 -26928318.36 0.0534 0.0185

Venus -78434-02-20 13:54 J -26926544.96 -26926544.92 -26926544.86 0.0491 0.0474

Mercury -78433-03-12 03:20 J -26926159.54 -26926159.36 -26926159.18 0.0492 0.0100

Mercury -78433-06-10 10:18 J -26926069.16 -26926069.07 -26926068.97 0.0493 0.0415

Venus -78429-12-24 07:40 J -26924411.38 -26924411.18 -26924410.99 0.0536 0.0112

Mercury -78428-11-02 21:20 J -26924097.70 -26924097.61 -26924097.52 0.0536 0.0373

Mercury -78427-01-31 04:32 J -26924008.43 -26924008.31 -26924008.18 0.0535 0.0080

Mercury -78427-04-30 12:28 J -26923918.98 -26923918.98 -26923918.98 0.0533 0.0533

Venus -78423-10-26 12:28 J -26922279.19 -26922278.98 -26922278.78 0.0491 0.0067



Moon -78422-09-12 11:01 J -26921958.23 -26921958.04 -26921957.85 0.0491 0.0307  
 Earth -78422-09-12 14:08 J -26921958.10 -26921957.91 -26921957.72 0.0491 0.0295 \*  
 Mercury -78422-12-30 00:42 J -26921849.64 -26921849.47 -26921849.31 0.0492 0.0234  
 Mercury -78421-03-29 07:54 J -26921759.32 -26921759.17 -26921759.02 0.0493 0.0284  
 Venus -78417-08-29 02:37 J -26920145.53 -26920145.39 -26920145.25 0.0536 0.0383  
 Mercury -78416-08-22 01:25 J -26919787.49 -26919787.44 -26919787.38 0.0536 0.0479  
 Mercury -78416-11-19 08:37 J -26919698.26 -26919698.14 -26919698.01 0.0535 0.0034  
 Mercury -78415-02-16 16:18 J -26919608.89 -26919608.82 -26919608.74 0.0533 0.0423  
 Venus -78411-07-01 11:59 J -26918013.14 -26918013.00 -26918012.84 0.0491 0.0336  
 Earth -78410-09-17 04:47 J -26917570.54 -26917570.30 -26917570.07 0.0491 0.0087  
 Moon -78410-09-17 05:59 J -26917570.48 -26917570.25 -26917570.02 0.0491 0.0062 \*  
 Mercury -78410-10-17 22:32 J -26917539.68 -26917539.56 -26917539.43 0.0491 0.0360  
 Mercury -78409-01-16 06:13 J -26917449.41 -26917449.24 -26917449.07 0.0493 0.0161  
 Mercury -78404-09-07 11:59 J -26915388.13 -26915388.00 -26915387.88 0.0535 0.0154  
 Mercury -78404-12-05 19:25 J -26915298.80 -26915298.69 -26915298.59 0.0534 0.0299  
 Mercury -78398-08-05 20:37 J -26913229.66 -26913229.64 -26913229.62 0.0492 0.0487  
 Earth -78398-09-21 20:23 J -26913182.89 -26913182.65 -26913182.42 0.0492 0.0126  
 Moon -78398-09-21 21:35 J -26913182.84 -26913182.60 -26913182.36 0.0492 0.0135 \*  
 Mercury -78398-11-04 04:32 J -26913139.49 -26913139.31 -26913139.13 0.0492 0.0037  
 Venus -78393-08-31 21:35 J -26911376.73 -26911376.60 -26911376.46 0.0536 0.0397  
 Moon -78392-03-13 10:32 J -26911183.19 -26911183.06 -26911182.92 0.0536 0.0426  
 Earth -78392-03-13 14:37 J -26911183.01 -26911182.89 -26911182.76 0.0536 0.0446 \*  
 Mercury -78392-06-26 15:35 J -26911077.96 -26911077.85 -26911077.74 0.0535 0.0266  
 Mercury -78392-09-23 23:01 J -26910988.66 -26910988.54 -26910988.42 0.0534 0.0184  
 Mars -78391-08-21 03:49 J -26910657.56 -26910657.34 -26910657.09 0.0527 0.0271  
 Venus -78387-07-04 01:25 J -26909244.59 -26909244.44 -26909244.27 0.0491 0.0308  
 Mercury -78386-08-23 02:08 J -26908829.59 -26908829.41 -26908829.23 0.0492 0.0094  
 Moon -78386-09-26 07:40 J -26908795.36 -26908795.18 -26908795.00 0.0492 0.0309  
 Earth -78386-09-26 10:32 J -26908795.23 -26908795.06 -26908794.88 0.0492 0.0337 \*  
 Mercury -78386-11-21 09:06 J -26908739.21 -26908739.12 -26908739.03 0.0493 0.0421

Venus -78381-05-06 15:06 J -26907111.06 -26907110.87 -26907110.67 0.0535 0.0109  
 Earth -78380-03-18 12:13 J -26906795.20 -26906794.99 -26906794.77 0.0536 0.0187  
 Moon -78380-03-18 15:20 J -26906795.06 -26906794.86 -26906794.65 0.0536 0.0213 \*  
 Mercury -78380-04-14 19:25 J -26906767.77 -26906767.69 -26906767.60 0.0536 0.0378  
 Mercury -78380-07-13 02:52 J -26906678.51 -26906678.38 -26906678.25 0.0535 0.0072  
 Mercury -78380-10-10 10:32 J -26906589.07 -26906589.06 -26906589.04 0.0533 0.0527  
 Venus -78375-03-09 00:56 J -26904978.66 -26904978.46 -26904978.25 0.0491 0.0096  
 Mercury -78374-06-10 23:59 J -26904519.67 -26904519.50 -26904519.34 0.0492 0.0224  
 Mercury -78374-09-09 07:11 J -26904429.35 -26904429.20 -26904429.06 0.0493 0.0294  
 Mars -78373-08-17 18:28 J -26904085.76 -26904085.73 -26904085.67 0.0499 0.0492  
 Mercury -78368-01-31 23:44 J -26902457.56 -26902457.51 -26902457.45 0.0536 0.0483  
 Moon -78368-03-23 11:44 J -26902407.24 -26902407.01 -26902406.77 0.0536 0.0063  
 Earth -78368-03-23 12:56 J -26902407.19 -26902406.96 -26902406.74 0.0536 0.0077 \*  
 Mercury -78368-05-01 07:11 J -26902368.33 -26902368.20 -26902368.07 0.0535 0.0035  
 Mercury -78368-07-29 14:52 J -26902278.96 -26902278.88 -26902278.80 0.0534 0.0420  
 Mercury -78362-03-29 21:06 J -26900209.74 -26900209.62 -26900209.49 0.0491 0.0357  
 Mercury -78362-06-28 04:32 J -26900119.48 -26900119.31 -26900119.13 0.0492 0.0165  
 Mercury -78356-02-17 11:16 J -26898058.15 -26898058.03 -26898057.90 0.0535 0.0142  
 Moon -78356-03-28 11:01 J -26898019.19 -26898019.04 -26898018.88 0.0535 0.0368  
 Earth -78356-03-28 11:59 J -26898019.17 -26898019.00 -26898018.82 0.0535 0.0337 \*  
 Mercury -78356-05-17 18:56 J -26897968.82 -26897968.71 -26897968.61 0.0534 0.0312  
 Mercury -78350-01-15 18:56 J -26895899.73 -26895899.71 -26895899.67 0.0491 0.0483  
 Mercury -78350-04-16 03:06 J -26895809.56 -26895809.37 -26895809.19 0.0492 0.0041  
 Venus -78345-01-13 07:54 J -26894076.35 -26894076.17 -26894075.98 0.0535 0.0192  
 Mercury -78345-12-06 14:37 J -26893748.00 -26893747.89 -26893747.78 0.0535 0.0261  
 Mercury -78344-03-05 22:04 J -26893658.70 -26893658.58 -26893658.46 0.0534 0.0190  
 Venus -78340-11-14 13:11 J -26891944.15 -26891943.95 -26891943.75 0.0491 0.0142  
 Earth -78339-09-12 00:42 J -26891642.65 -26891642.47 -26891642.27 0.0491 0.0300  
 Moon -78339-09-12 02:08 J -26891642.59 -26891642.41 -26891642.23 0.0491 0.0304 \*  
 Mercury -78338-02-02 01:11 J -26891499.63 -26891499.45 -26891499.27 0.0492 0.0086

Mercury -78338-05-03 08:08 J -26891409.24 -26891409.16 -26891409.07 0.0493 0.0431  
 Mars -78337-05-23 05:01 J -26891023.54 -26891023.29 -26891023.03 0.0501 0.0158  
 Venus -78334-09-18 01:54 J -26889810.58 -26889810.42 -26889810.26 0.0535 0.0308  
 Mercury -78333-09-24 18:28 J -26889437.82 -26889437.73 -26889437.64 0.0535 0.0373  
 Mercury -78333-12-23 01:40 J -26889348.56 -26889348.43 -26889348.30 0.0534 0.0075  
 Mercury -78332-03-22 09:20 J -26889259.12 -26889259.11 -26889259.09 0.0533 0.0529  
 Venus -78328-07-20 12:56 J -26887678.14 -26887677.96 -26887677.78 0.0492 0.0262  
 Earth -78327-09-16 14:52 J -26887255.11 -26887254.88 -26887254.64 0.0491 0.0091  
 Moon -78327-09-16 15:49 J -26887255.09 -26887254.84 -26887254.59 0.0491 0.0063 \*  
 Mercury -78327-11-20 23:01 J -26887189.71 -26887189.54 -26887189.38 0.0492 0.0216  
 Mercury -78326-02-19 06:13 J -26887099.38 -26887099.24 -26887099.10 0.0493 0.0303  
 Mercury -78321-07-13 22:18 J -26885127.62 -26885127.57 -26885127.52 0.0536 0.0485  
 Mercury -78321-10-11 05:30 J -26885038.40 -26885038.27 -26885038.14 0.0535 0.0038  
 Mercury -78320-01-08 13:11 J -26884949.03 -26884948.95 -26884948.87 0.0534 0.0417  
 Mercury -78315-09-08 20:23 J -26882879.77 -26882879.65 -26882879.51 0.0491 0.0346  
 Moon -78315-09-21 02:08 J -26882867.63 -26882867.41 -26882867.18 0.0492 0.0120  
 Earth -78315-09-21 05:01 J -26882867.52 -26882867.29 -26882867.05 0.0492 0.0118 \*  
 Mercury -78315-12-08 04:04 J -26882789.50 -26882789.33 -26882789.15 0.0492 0.0176  
 Venus -78310-09-20 23:01 J -26881041.62 -26881041.54 -26881041.45 0.0536 0.0485  
 Earth -78309-03-12 22:32 J -26880867.67 -26880867.56 -26880867.45 0.0536 0.0460  
 Moon -78309-03-13 01:54 J -26880867.54 -26880867.42 -26880867.30 0.0536 0.0448 \*  
 Mercury -78309-07-30 09:49 J -26880728.21 -26880728.09 -26880727.97 0.0535 0.0143  
 Mercury -78309-10-27 17:16 J -26880638.88 -26880638.78 -26880638.67 0.0534 0.0311  
 Venus -78304-07-23 02:23 J -26878909.53 -26878909.40 -26878909.27 0.0491 0.0384  
 Mercury -78303-06-27 17:44 J -26878569.79 -26878569.76 -26878569.71 0.0491 0.0478  
 Earth -78303-09-25 18:28 J -26878479.91 -26878479.73 -26878479.55 0.0492 0.0325  
 Moon -78303-09-25 22:32 J -26878479.76 -26878479.56 -26878479.37 0.0492 0.0294 \*  
 Mercury -78303-09-26 01:40 J -26878479.61 -26878479.43 -26878479.24 0.0492 0.0046 \*  
 Venus -78298-05-26 18:56 J -26876775.91 -26876775.71 -26876775.52 0.0536 0.0013  
 Moon -78297-03-17 21:49 J -26876479.80 -26876479.59 -26876479.37 0.0536 0.0226

Earth -78297-03-17 23:16 J -26876479.73 -26876479.53 -26876479.31 0.0536 0.0197 \*  
 Mercury -78297-05-18 14:08 J -26876418.02 -26876417.91 -26876417.80 0.0535 0.0250  
 Mercury -78297-08-15 21:35 J -26876328.72 -26876328.60 -26876328.48 0.0534 0.0203  
 Venus -78292-03-28 02:08 J -26874643.62 -26874643.41 -26874643.20 0.0491 0.0018  
 Mercury -78291-07-14 23:59 J -26874169.68 -26874169.50 -26874169.32 0.0492 0.0079  
 Mercury -78291-10-13 06:56 J -26874079.29 -26874079.21 -26874079.12 0.0493 0.0437  
 Venus -78286-01-29 12:28 J -26872510.03 -26872509.98 -26872509.92 0.0534 0.0510  
 Mercury -78285-03-06 17:30 J -26872107.86 -26872107.77 -26872107.68 0.0535 0.0367  
 Moon -78285-03-22 17:44 J -26872091.98 -26872091.76 -26872091.54 0.0535 0.0050  
 Earth -78285-03-22 18:28 J -26872091.96 -26872091.73 -26872091.50 0.0535 0.0057 \*  
 Mercury -78285-06-04 00:42 J -26872018.59 -26872018.47 -26872018.34 0.0534 0.0083  
 Venus -78281-12-01 00:56 J -26870377.56 -26870377.46 -26870377.36 0.0492 0.0427  
 Mercury -78279-05-02 22:04 J -26869859.75 -26869859.58 -26869859.41 0.0492 0.0206  
 Mercury -78279-08-01 05:16 J -26869769.41 -26869769.28 -26869769.13 0.0493 0.0315  
 Mercury -78274-12-24 21:20 J -26867797.66 -26867797.61 -26867797.55 0.0535 0.0478  
 Mercury -78273-03-23 04:32 J -26867708.44 -26867708.31 -26867708.18 0.0534 0.0031  
 Earth -78273-03-27 14:52 J -26867704.06 -26867703.88 -26867703.69 0.0534 0.0309  
 Moon -78273-03-27 17:01 J -26867703.96 -26867703.79 -26867703.60 0.0534 0.0341 \*  
 Mercury -78273-06-20 12:13 J -26867619.07 -26867618.99 -26867618.91 0.0533 0.0422  
 Mercury -78267-02-18 19:40 J -26865549.81 -26865549.68 -26865549.54 0.0492 0.0337  
 Mercury -78267-05-20 03:20 J -26865459.53 -26865459.36 -26865459.19 0.0493 0.0186  
 Venus -78262-02-01 08:37 J -26863741.31 -26863741.14 -26863740.97 0.0536 0.0274  
 Mercury -78261-01-10 08:23 J -26863398.27 -26863398.15 -26863398.03 0.0535 0.0144  
 Mercury -78261-04-08 15:49 J -26863308.94 -26863308.84 -26863308.73 0.0534 0.0309  
 Venus -78257-12-03 15:20 J -26861609.04 -26861608.86 -26861608.67 0.0491 0.0223  
 Earth -78256-09-11 11:16 J -26861327.21 -26861327.03 -26861326.84 0.0491 0.0303  
 Moon -78256-09-11 11:59 J -26861327.19 -26861327.00 -26861326.79 0.0491 0.0295 \*  
 Mercury -78256-12-07 17:16 J -26861239.83 -26861239.78 -26861239.71 0.0491 0.0466  
 Mercury -78255-03-08 01:25 J -26861149.62 -26861149.44 -26861149.26 0.0492 0.0058  
 Venus -78251-10-07 03:35 J -26859475.53 -26859475.35 -26859475.17 0.0535 0.0221

Mercury -78250-10-29 12:42 J -26859088.08 -26859087.97 -26859087.86 0.0535 0.0250

Mercury -78249-01-26 20:08 J -26858998.78 -26858998.66 -26858998.54 0.0534 0.0202

Venus -78245-08-08 14:37 J -26857343.08 -26857342.89 -26857342.69 0.0491 0.0181

Moon -78244-09-15 21:35 J -26856939.83 -26856939.60 -26856939.36 0.0491 0.0071

Earth -78244-09-16 00:28 J -26856939.72 -26856939.48 -26856939.24 0.0491 0.0098 \*

Mercury -78244-12-24 23:01 J -26856839.73 -26856839.54 -26856839.36 0.0492 0.0074

Mercury -78243-03-25 05:44 J -26856749.33 -26856749.26 -26856749.18 0.0493 0.0443

Mercury -78238-08-17 17:01 J -26854777.88 -26854777.79 -26854777.70 0.0536 0.0355

Mercury -78238-11-15 00:13 J -26854688.61 -26854688.49 -26854688.36 0.0535 0.0096

Mars -78237-11-15 05:16 J -26854322.55 -26854322.28 -26854322.01 0.0526 0.0035

Earth -78232-09-20 15:35 J -26852552.08 -26852551.85 -26852551.61 0.0492 0.0113

Moon -78232-09-20 19:40 J -26852551.91 -26852551.68 -26852551.44 0.0492 0.0108 \*

Mercury -78232-10-12 21:06 J -26852529.79 -26852529.62 -26852529.45 0.0492 0.0198

Mercury -78231-01-11 04:18 J -26852439.45 -26852439.32 -26852439.18 0.0493 0.0322

Moon -78226-03-13 04:32 J -26850552.42 -26850552.31 -26850552.20 0.0536 0.0468

Earth -78226-03-13 06:28 J -26850552.33 -26850552.23 -26850552.12 0.0536 0.0473 \*

Mercury -78226-06-05 20:37 J -26850467.70 -26850467.64 -26850467.58 0.0535 0.0470

Mercury -78226-09-03 03:49 J -26850378.47 -26850378.34 -26850378.21 0.0534 0.0026

Mercury -78226-12-01 11:16 J -26850289.10 -26850289.03 -26850288.95 0.0533 0.0430

Venus -78221-08-11 03:49 J -26848574.41 -26848574.34 -26848574.27 0.0491 0.0461

Mercury -78220-07-31 18:56 J -26848219.85 -26848219.71 -26848219.57 0.0492 0.0327

Moon -78220-09-25 03:06 J -26848164.56 -26848164.37 -26848164.18 0.0493 0.0293

Earth -78220-09-25 06:56 J -26848164.38 -26848164.21 -26848164.02 0.0493 0.0326 \*

Mercury -78220-10-30 02:37 J -26848129.55 -26848129.39 -26848129.22 0.0493 0.0196

Mars -78219-11-12 16:04 J -26847751.07 -26847750.83 -26847750.58 0.0500 0.0221

Venus -78215-06-14 20:23 J -26846440.84 -26846440.65 -26846440.45 0.0535 0.0078

Moon -78214-03-18 03:49 J -26846164.53 -26846164.34 -26846164.15 0.0535 0.0249

Earth -78214-03-18 04:04 J -26846164.53 -26846164.33 -26846164.12 0.0535 0.0217 \*

Mercury -78214-06-22 07:40 J -26846068.31 -26846068.18 -26846068.06 0.0534 0.0137

Mercury -78214-09-19 15:06 J -26845978.98 -26845978.87 -26845978.77 0.0533 0.0316

Venus -78209-04-16 03:20 J -26844308.57 -26844308.36 -26844308.15 0.0492 0.0058  
 Mercury -78208-05-19 16:32 J -26843909.87 -26843909.81 -26843909.74 0.0492 0.0457  
 Mercury -78208-08-18 00:28 J -26843819.66 -26843819.48 -26843819.29 0.0493 0.0069  
 Venus -78203-02-17 13:40 J -26842175.05 -26842174.93 -26842174.81 0.0534 0.0426  
 Earth -78202-03-23 00:56 J -26841776.68 -26841776.46 -26841776.23 0.0535 0.0039  
 Moon -78202-03-23 03:06 J -26841776.60 -26841776.37 -26841776.13 0.0535 0.0039 \*  
 Mercury -78202-04-10 11:16 J -26841758.14 -26841758.03 -26841757.91 0.0535 0.0250  
 Mercury -78202-07-08 18:42 J -26841668.84 -26841668.72 -26841668.60 0.0534 0.0202  
 Venus -78198-12-21 03:20 J -26840042.51 -26840042.36 -26840042.21 0.0492 0.0344  
 Mercury -78196-06-05 22:32 J -26839509.75 -26839509.56 -26839509.38 0.0492 0.0061  
 Mercury -78196-09-04 05:30 J -26839419.34 -26839419.27 -26839419.20 0.0493 0.0455  
 Mercury -78190-01-27 15:35 J -26837447.94 -26837447.85 -26837447.75 0.0536 0.0356  
 Moon -78190-03-27 21:06 J -26837388.78 -26837388.62 -26837388.44 0.0535 0.0332  
 Earth -78190-03-28 00:28 J -26837388.66 -26837388.48 -26837388.29 0.0535 0.0298 \*  
 Mercury -78190-04-26 22:47 J -26837358.67 -26837358.55 -26837358.42 0.0535 0.0096  
 Mercury -78184-03-24 19:54 J -26835199.83 -26835199.67 -26835199.50 0.0492 0.0192  
 Mercury -78184-06-23 03:20 J -26835109.50 -26835109.36 -26835109.23 0.0493 0.0327  
 Mars -78183-08-17 18:56 J -26834688.86 -26834688.71 -26834688.55 0.0502 0.0405  
 Venus -78179-02-20 12:42 J -26833406.11 -26833405.97 -26833405.83 0.0536 0.0377  
 Mercury -78179-11-15 19:54 J -26833137.73 -26833137.67 -26833137.60 0.0536 0.0461  
 Mercury -78178-02-13 03:06 J -26833048.50 -26833048.37 -26833048.24 0.0535 0.0017  
 Mercury -78178-05-13 10:47 J -26832959.12 -26832959.05 -26832958.98 0.0533 0.0442  
 Venus -78174-12-23 17:16 J -26831273.94 -26831273.78 -26831273.61 0.0491 0.0305  
 Moon -78173-09-10 19:40 J -26831011.87 -26831011.68 -26831011.49 0.0491 0.0291  
 Earth -78173-09-10 22:18 J -26831011.75 -26831011.57 -26831011.38 0.0491 0.0307 \*  
 Mercury -78172-01-10 17:59 J -26830889.88 -26830889.75 -26830889.60 0.0492 0.0318  
 Mercury -78172-04-11 01:40 J -26830799.59 -26830799.43 -26830799.26 0.0493 0.0205  
 Venus -78168-10-26 07:25 J -26829140.38 -26829140.19 -26829140.00 0.0535 0.0122  
 Mercury -78167-12-02 06:42 J -26828738.34 -26828738.22 -26828738.09 0.0534 0.0129  
 Mercury -78166-03-01 14:08 J -26828649.01 -26828648.91 -26828648.80 0.0533 0.0324

Venus -78162-08-28 15:20 J -26827008.06 -26827007.86 -26827007.65 0.0492 0.0109  
 Earth -78161-09-15 11:44 J -26826624.24 -26826624.01 -26826623.77 0.0492 0.0099  
 Moon -78161-09-15 15:49 J -26826624.08 -26826623.84 -26826623.60 0.0492 0.0071 \*  
 Mercury -78161-10-29 15:35 J -26826579.92 -26826579.85 -26826579.77 0.0492 0.0449  
 Mercury -78160-01-27 23:44 J -26826489.69 -26826489.51 -26826489.33 0.0493 0.0076  
 Mercury -78155-09-20 10:32 J -26824428.17 -26824428.06 -26824427.94 0.0534 0.0241  
 Mercury -78155-12-18 17:59 J -26824338.87 -26824338.75 -26824338.63 0.0533 0.0210  
 Moon -78149-09-19 22:18 J -26822236.81 -26822236.57 -26822236.34 0.0492 0.0105  
 Earth -78149-09-20 02:23 J -26822236.63 -26822236.40 -26822236.16 0.0492 0.0112 \*  
 Mercury -78149-11-15 21:35 J -26822179.78 -26822179.60 -26822179.42 0.0492 0.0053  
 Mercury -78148-02-14 04:32 J -26822089.36 -26822089.31 -26822089.25 0.0493 0.0464  
 Earth -78143-03-12 12:28 J -26820237.07 -26820236.98 -26820236.89 0.0536 0.0490  
 Moon -78143-03-12 12:13 J -26820237.06 -26820236.99 -26820236.91 0.0536 0.0500 \*  
 Mercury -78143-07-09 14:23 J -26820117.99 -26820117.90 -26820117.81 0.0535 0.0355  
 Mercury -78143-10-06 21:35 J -26820028.73 -26820028.60 -26820028.47 0.0534 0.0095  
 Mercury -78137-09-03 19:25 J -26817869.86 -26817869.69 -26817869.52 0.0492 0.0181  
 Earth -78137-09-24 17:16 J -26817848.96 -26817848.78 -26817848.60 0.0492 0.0320  
 Moon -78137-09-24 20:23 J -26817848.83 -26817848.65 -26817848.45 0.0492 0.0292 \*  
 Mercury -78137-12-03 02:37 J -26817779.52 -26817779.39 -26817779.25 0.0493 0.0339  
 Venus -78132-07-03 21:49 J -26816105.78 -26816105.59 -26816105.40 0.0535 0.0164  
 Earth -78131-03-17 11:59 J -26815849.20 -26815849.00 -26815848.79 0.0536 0.0231  
 Moon -78131-03-17 13:54 J -26815849.12 -26815848.92 -26815848.71 0.0536 0.0263 \*  
 Mercury -78131-04-27 18:28 J -26815807.79 -26815807.73 -26815807.66 0.0536 0.0462  
 Mercury -78131-07-26 01:40 J -26815718.55 -26815718.43 -26815718.30 0.0535 0.0020  
 Mercury -78131-10-23 09:20 J -26815629.18 -26815629.11 -26815629.04 0.0533 0.0441  
 Venus -78126-05-06 05:16 J -26813973.48 -26813973.28 -26813973.08 0.0491 0.0139  
 Mercury -78125-06-22 16:47 J -26813559.94 -26813559.80 -26813559.66 0.0492 0.0313  
 Mercury -78125-09-21 00:28 J -26813469.64 -26813469.48 -26813469.31 0.0493 0.0209  
 Venus -78120-03-08 17:16 J -26811839.93 -26811839.78 -26811839.62 0.0535 0.0328  
 Moon -78119-03-22 09:35 J -26811461.32 -26811461.10 -26811460.88 0.0535 0.0034

Earth -78119-03-22 12:42 J -26811461.20 -26811460.97 -26811460.74 0.0535 0.0031 \*  
 Mercury -78119-05-14 05:59 J -26811408.37 -26811408.25 -26811408.12 0.0535 0.0120  
 Mercury -78119-08-11 13:25 J -26811319.03 -26811318.94 -26811318.83 0.0534 0.0335  
 Mars -78118-05-06 09:35 J -26811051.23 -26811051.10 -26811050.95 0.0528 0.0453  
 Venus -78114-01-09 05:01 J -26809707.46 -26809707.29 -26809707.11 0.0492 0.0264  
 Mercury -78113-04-10 14:37 J -26809249.96 -26809249.89 -26809249.80 0.0492 0.0440  
 Mercury -78113-07-09 22:47 J -26809159.73 -26809159.55 -26809159.37 0.0493 0.0085  
 Mercury -78107-03-02 09:49 J -26807098.20 -26807098.09 -26807097.98 0.0534 0.0233  
 Earth -78107-03-27 09:06 J -26807073.30 -26807073.12 -26807072.92 0.0534 0.0287  
 Moon -78107-03-27 12:56 J -26807073.14 -26807072.96 -26807072.78 0.0534 0.0320 \*  
 Mercury -78107-05-30 17:01 J -26807008.90 -26807008.79 -26807008.67 0.0533 0.0217  
 Mercury -78101-04-27 20:23 J -26804849.83 -26804849.65 -26804849.46 0.0493 0.0047  
 Mercury -78101-07-27 03:35 J -26804759.40 -26804759.35 -26804759.30 0.0494 0.0472  
 Venus -78096-03-11 14:52 J -26803070.98 -26803070.88 -26803070.78 0.0535 0.0463  
 Mercury -78096-12-19 13:40 J -26802788.03 -26802787.93 -26802787.83 0.0535 0.0345  
 Mercury -78095-03-18 20:52 J -26802698.76 -26802698.63 -26802698.50 0.0534 0.0103  
 Moon -78095-04-01 02:08 J -26802685.43 -26802685.41 -26802685.37 0.0533 0.0528  
 Venus -78090-01-11 17:16 J -26800938.91 -26800938.78 -26800938.64 0.0492 0.0373  
 Earth -78090-09-11 07:11 J -26800696.39 -26800696.20 -26800696.02 0.0491 0.0310  
 Moon -78090-09-11 11:01 J -26800696.23 -26800696.04 -26800695.84 0.0491 0.0284 \*  
 Mercury -78089-02-14 18:13 J -26800539.91 -26800539.74 -26800539.57 0.0492 0.0176  
 Mercury -78089-05-15 01:40 J -26800449.56 -26800449.43 -26800449.30 0.0493 0.0345  
 Venus -78085-11-14 07:40 J -26798805.37 -26798805.18 -26798804.98 0.0535 0.0043  
 Mercury -78084-10-07 17:16 J -26798477.84 -26798477.78 -26798477.71 0.0535 0.0460  
 Mercury -78083-01-05 00:28 J -26798388.61 -26798388.48 -26798388.35 0.0534 0.0013  
 Mercury -78083-04-04 07:54 J -26798299.24 -26798299.17 -26798299.09 0.0533 0.0441  
 Mars -78082-02-09 10:32 J -26797988.28 -26797988.06 -26797987.83 0.0526 0.0288  
 Venus -78079-09-16 17:01 J -26796673.00 -26796672.79 -26796672.58 0.0492 0.0030  
 Moon -78078-09-15 17:16 J -26796309.01 -26796308.78 -26796308.54 0.0491 0.0078  
 Earth -78078-09-15 21:35 J -26796308.83 -26796308.60 -26796308.36 0.0491 0.0103 \*



Mercury -78078-12-03 15:49 J -26796229.98 -26796229.84 -26796229.69 0.0492 0.0306  
 Mercury -78077-03-02 23:30 J -26796139.68 -26796139.52 -26796139.35 0.0493 0.0218  
 Mercury -78072-10-24 04:32 J -26794078.44 -26794078.31 -26794078.19 0.0535 0.0122  
 Mercury -78071-01-21 11:59 J -26793989.10 -26793989.00 -26793988.90 0.0534 0.0331  
 Venus -78067-05-22 16:18 J -26792406.91 -26792406.82 -26792406.71 0.0492 0.0434  
 Earth -78066-09-20 10:47 J -26791921.28 -26791921.05 -26791920.81 0.0492 0.0104  
 Moon -78066-09-20 14:23 J -26791921.13 -26791920.90 -26791920.67 0.0492 0.0091 \*  
 Mercury -78066-09-21 13:11 J -26791920.03 -26791919.95 -26791919.86 0.0492 0.0438  
 Mercury -78066-12-20 21:20 J -26791829.79 -26791829.61 -26791829.43 0.0492 0.0088  
 Mars -78064-02-06 03:06 J -26791416.65 -26791416.37 -26791416.10 0.0500 0.0025  
 Earth -78060-03-11 22:04 J -26789921.65 -26789921.58 -26789921.49 0.0536 0.0500  
 Moon -78060-03-11 23:59 J -26789921.56 -26789921.50 -26789921.43 0.0536 0.0515 \*  
 Mercury -78060-08-12 08:52 J -26789768.25 -26789768.13 -26789768.02 0.0535 0.0228  
 Mercury -78060-11-09 16:04 J -26789678.94 -26789678.83 -26789678.71 0.0534 0.0225  
 Moon -78054-09-25 00:13 J -26787533.68 -26787533.49 -26787533.28 0.0492 0.0287  
 Earth -78054-09-25 02:08 J -26787533.59 -26787533.41 -26787533.22 0.0492 0.0312 \*  
 Mercury -78054-10-08 19:25 J -26787519.88 -26787519.69 -26787519.51 0.0492 0.0040  
 Mercury -78053-01-07 02:23 J -26787429.44 -26787429.40 -26787429.36 0.0493 0.0478  
 Venus -78049-07-23 01:11 J -26785770.62 -26785770.45 -26785770.28 0.0535 0.0259  
 Moon -78048-03-16 17:59 J -26785533.93 -26785533.75 -26785533.55 0.0535 0.0273  
 Earth -78048-03-16 21:06 J -26785533.82 -26785533.62 -26785533.41 0.0535 0.0239 \*  
 Mercury -78048-05-31 12:42 J -26785458.07 -26785457.97 -26785457.87 0.0535 0.0340  
 Mercury -78048-08-28 19:54 J -26785368.80 -26785368.67 -26785368.54 0.0534 0.0109  
 Venus -78043-05-25 04:32 J -26783638.51 -26783638.31 -26783638.12 0.0492 0.0203  
 Mercury -78042-07-27 16:47 J -26783209.98 -26783209.80 -26783209.63 0.0493 0.0174  
 Mercury -78042-10-26 00:13 J -26783119.62 -26783119.49 -26783119.36 0.0494 0.0349  
 Venus -78037-03-27 19:25 J -26781504.86 -26781504.69 -26781504.51 0.0534 0.0238  
 Mercury -78036-03-19 16:32 J -26781147.87 -26781147.81 -26781147.74 0.0535 0.0451  
 Earth -78036-03-21 18:13 J -26781145.97 -26781145.74 -26781145.51 0.0535 0.0014  
 Moon -78036-03-21 21:49 J -26781145.81 -26781145.59 -26781145.36 0.0535 0.0028 \*

Mercury -78036-06-16 23:44 J -26781058.64 -26781058.51 -26781058.39 0.0534 0.0019  
 Mercury -78036-09-14 07:11 J -26780969.27 -26780969.20 -26780969.13 0.0532 0.0447  
 Venus -78031-01-28 03:35 J -26779372.54 -26779372.35 -26779372.16 0.0492 0.0204  
 Mercury -78030-05-15 14:23 J -26778900.05 -26778899.90 -26778899.76 0.0492 0.0304  
 Mercury -78030-08-13 22:04 J -26778809.74 -26778809.58 -26778809.41 0.0493 0.0220  
 Moon -78024-03-26 09:35 J -26776758.29 -26776758.10 -26776757.91 0.0534 0.0293  
 Earth -78024-03-26 12:56 J -26776758.16 -26776757.96 -26776757.76 0.0534 0.0263 \*  
 Mercury -78024-04-05 03:06 J -26776748.49 -26776748.37 -26776748.24 0.0534 0.0123  
 Mercury -78024-07-03 10:32 J -26776659.16 -26776659.06 -26776658.96 0.0533 0.0330  
 Mercury -78018-03-03 11:59 J -26774590.08 -26774590.00 -26774589.91 0.0492 0.0433  
 Mercury -78018-06-01 19:54 J -26774499.85 -26774499.67 -26774499.49 0.0493 0.0093  
 Mercury -78012-01-22 07:11 J -26772438.32 -26772438.20 -26772438.09 0.0535 0.0233  
 Earth -78012-03-31 10:18 J -26772370.12 -26772370.07 -26772370.01 0.0534 0.0516  
 Moon -78012-03-31 12:13 J -26772370.06 -26772369.99 -26772369.92 0.0534 0.0503 \*  
 Mercury -78012-04-21 14:23 J -26772349.01 -26772348.90 -26772348.78 0.0534 0.0220  
 Venus -78007-01-30 17:44 J -26770603.84 -26770603.76 -26770603.67 0.0491 0.0446  
 Moon -78007-09-10 10:32 J -26770381.25 -26770381.06 -26770380.86 0.0491 0.0294  
 Earth -78007-09-10 14:52 J -26770381.06 -26770380.88 -26770380.70 0.0491 0.0319 \*  
 Mercury -78006-03-20 17:30 J -26770189.95 -26770189.77 -26770189.59 0.0492 0.0040  
 Mercury -78006-06-19 00:28 J -26770099.52 -26770099.48 -26770099.43 0.0493 0.0478  
 Venus -78002-12-04 09:20 J -26768470.30 -26768470.11 -26768469.91 0.0535 0.0046  
 Mercury -78001-11-10 11:30 J -26768128.12 -26768128.02 -26768127.93 0.0535 0.0339

# 78TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 78th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-78000-02-07 18:42 J	-26768038.85	-26768038.72	-26768038.60	0.0534	0.0112		
Venus	-77996-10-05 17:16 J	-26766337.99	-26766337.78	-26766337.58	0.0492	0.0044		
Earth	-77995-09-15 04:47 J	-26765993.54	-26765993.30	-26765993.07	0.0491	0.0114		
Moon	-77995-09-15 08:08 J	-26765993.39	-26765993.16	-26765992.93	0.0491	0.0091	*	
Mercury	-77994-01-06 15:20 J	-26765880.03	-26765879.86	-26765879.68	0.0492	0.0168		
Mercury	-77994-04-06 22:47 J	-26765789.67	-26765789.55	-26765789.42	0.0493	0.0353		
Venus	-77990-08-09 05:01 J	-26764204.40	-26764204.29	-26764204.19	0.0534	0.0446		
Mercury	-77989-08-29 15:20 J	-26763817.92	-26763817.86	-26763817.79	0.0535	0.0449		
Mercury	-77989-11-26 22:32 J	-26763728.69	-26763728.56	-26763728.43	0.0534	0.0004		
Mercury	-77988-02-24 05:59 J	-26763639.31	-26763639.25	-26763639.18	0.0532	0.0450		
Venus	-77984-06-10 13:54 J	-26762072.04	-26762071.92	-26762071.78	0.0493	0.0377		
Moon	-77983-09-19 14:23 J	-26761606.14	-26761605.90	-26761605.65	0.0492	0.0075		
Earth	-77983-09-19 16:32 J	-26761606.04	-26761605.81	-26761605.57	0.0492	0.0093	*	
Mercury	-77983-10-25 12:28 J	-26761570.13	-26761569.98	-26761569.84	0.0492	0.0305		
Mercury	-77982-01-23 20:08 J	-26761479.82	-26761479.66	-26761479.49	0.0493	0.0221		
Earth	-77977-03-11 03:35 J	-26759606.40	-26759606.35	-26759606.28	0.0535	0.0515		
Mercury	-77977-09-15 02:23 J	-26759418.53	-26759418.40	-26759418.28	0.0534	0.0116		
Mercury	-77977-12-13 09:35 J	-26759329.20	-26759329.10	-26759329.00	0.0533	0.0336		
Mercury	-77971-08-13 09:49 J	-26757260.17	-26757260.09	-26757260.00	0.0492	0.0437		
Moon	-77971-09-24 06:42 J	-26757218.41	-26757218.22	-26757218.03	0.0492	0.0283		
Earth	-77971-09-24 06:56 J	-26757218.40	-26757218.21	-26757218.02	0.0492	0.0302	*	
Mercury	-77971-11-11 17:59 J	-26757169.93	-26757169.75	-26757169.57	0.0493	0.0091		
Venus	-77966-08-11 23:16 J	-26755435.69	-26755435.53	-26755435.37	0.0535	0.0326		
Earth	-77965-03-15 22:18 J	-26755218.77	-26755218.57	-26755218.38	0.0535	0.0268		
Moon	-77965-03-16 01:54 J	-26755218.61	-26755218.42	-26755218.23	0.0535	0.0297	*	
Mercury	-77965-07-04 05:44 J	-26755108.38	-26755108.26	-26755108.15	0.0534	0.0234		

Mercury -77965-10-01 12:56 J -26755019.08 -26755018.96 -26755018.84 0.0533 0.0217  
 Mars -77964-07-30 05:59 J -26754717.50 -26754717.25 -26754717.00 0.0527 0.0221  
 Venus -77960-06-13 04:18 J -26753303.50 -26753303.32 -26753303.15 0.0492 0.0273  
 Mercury -77959-08-30 15:49 J -26752860.02 -26752859.84 -26752859.65 0.0493 0.0039  
 Mercury -77959-11-28 23:01 J -26752769.58 -26752769.54 -26752769.50 0.0494 0.0479  
 Venus -77954-04-16 17:01 J -26751169.97 -26751169.79 -26751169.60 0.0534 0.0173  
 Moon -77953-03-20 16:32 J -26750831.04 -26750830.81 -26750830.58 0.0535 0.0010  
 Earth -77953-03-20 19:54 J -26750830.90 -26750830.67 -26750830.44 0.0535 0.0014 \*  
 Mercury -77953-04-22 09:35 J -26750798.19 -26750798.10 -26750798.00 0.0535 0.0345  
 Mercury -77953-07-20 16:47 J -26750708.92 -26750708.80 -26750708.67 0.0534 0.0105  
 Venus -77948-02-16 03:20 J -26749037.56 -26749037.36 -26749037.16 0.0492 0.0133  
 Mercury -77947-06-18 13:11 J -26748550.12 -26748549.95 -26748549.78 0.0492 0.0172  
 Mercury -77947-09-16 20:37 J -26748459.77 -26748459.64 -26748459.51 0.0493 0.0349  
 Mars -77946-07-28 22:32 J -26748144.73 -26748144.56 -26748144.38 0.0499 0.0385  
 Mercury -77941-02-09 13:54 J -26746487.99 -26746487.92 -26746487.86 0.0535 0.0453  
 Earth -77941-03-25 18:56 J -26746442.91 -26746442.71 -26746442.51 0.0535 0.0245  
 Moon -77941-03-25 20:52 J -26746442.81 -26746442.63 -26746442.43 0.0535 0.0272 \*  
 Mercury -77941-05-08 20:52 J -26746398.75 -26746398.63 -26746398.50 0.0534 0.0014  
 Mercury -77941-08-06 04:32 J -26746309.38 -26746309.31 -26746309.24 0.0533 0.0450  
 Mercury -77935-04-06 10:47 J -26744240.19 -26744240.05 -26744239.90 0.0492 0.0302  
 Mercury -77935-07-05 18:42 J -26744149.88 -26744149.72 -26744149.56 0.0493 0.0222  
 Mercury -77929-02-26 00:56 J -26742088.59 -26742088.46 -26742088.34 0.0534 0.0115  
 Moon -77929-03-30 16:18 J -26742054.92 -26742054.82 -26742054.72 0.0534 0.0480  
 Earth -77929-03-30 16:47 J -26742054.88 -26742054.80 -26742054.73 0.0534 0.0500 \*  
 Mercury -77929-05-25 08:23 J -26741999.25 -26741999.15 -26741999.05 0.0533 0.0336  
 Earth -77924-09-09 17:16 J -26740065.95 -26740065.78 -26740065.60 0.0491 0.0335  
 Moon -77924-09-09 21:06 J -26740065.80 -26740065.62 -26740065.44 0.0491 0.0308 \*  
 Mercury -77923-01-23 07:40 J -26739930.26 -26739930.18 -26739930.10 0.0492 0.0442  
 Mercury -77923-04-23 15:49 J -26739840.02 -26739839.84 -26739839.66 0.0493 0.0086  
 Venus -77919-12-23 10:04 J -26738135.27 -26738135.08 -26738134.89 0.0535 0.0125

Mercury -77918-12-15 04:47 J -26737778.42 -26737778.30 -26737778.19 0.0534 0.0229  
 Mercury -77917-03-13 11:59 J -26737689.12 -26737689.00 -26737688.88 0.0533 0.0221  
 Venus -77913-10-24 13:11 J -26736003.16 -26736002.95 -26736002.75 0.0492 0.0092  
 Moon -77912-09-14 04:32 J -26735678.55 -26735678.31 -26735678.07 0.0492 0.0112  
 Earth -77912-09-14 06:56 J -26735678.44 -26735678.21 -26735677.98 0.0492 0.0129 \*  
 Mercury -77911-02-09 13:25 J -26735530.12 -26735529.94 -26735529.76 0.0493 0.0045  
 Mercury -77911-05-10 20:37 J -26735439.68 -26735439.64 -26735439.59 0.0494 0.0475  
 Mars -77910-05-03 05:16 J -26735082.51 -26735082.28 -26735082.04 0.0501 0.0253  
 Venus -77907-08-28 01:40 J -26733869.56 -26733869.43 -26733869.29 0.0534 0.0386  
 Mercury -77906-10-03 08:08 J -26733468.26 -26733468.16 -26733468.07 0.0535 0.0349  
 Mercury -77906-12-31 15:06 J -26733378.99 -26733378.87 -26733378.74 0.0534 0.0101  
 Venus -77901-06-29 12:42 J -26731737.13 -26731736.97 -26731736.80 0.0493 0.0311  
 Earth -77900-09-18 21:20 J -26731290.85 -26731290.61 -26731290.37 0.0492 0.0078  
 Moon -77900-09-18 21:20 J -26731290.84 -26731290.61 -26731290.38 0.0492 0.0055 \*  
 Mercury -77900-11-28 11:16 J -26731220.21 -26731220.03 -26731219.86 0.0492 0.0175  
 Mercury -77899-02-26 18:42 J -26731129.85 -26731129.72 -26731129.59 0.0493 0.0348  
 Mercury -77894-07-22 11:44 J -26729158.07 -26729158.01 -26729157.94 0.0535 0.0461  
 Mercury -77894-10-19 18:56 J -26729068.84 -26729068.71 -26729068.58 0.0534 0.0013  
 Mercury -77893-01-17 02:23 J -26728979.47 -26728979.40 -26728979.32 0.0533 0.0441  
 Mercury -77888-09-16 08:23 J -26726910.29 -26726910.15 -26726910.01 0.0492 0.0309  
 Earth -77888-09-23 10:18 J -26726903.26 -26726903.07 -26726902.87 0.0492 0.0284  
 Moon -77888-09-23 12:13 J -26726903.20 -26726902.99 -26726902.78 0.0492 0.0266 \*  
 Mercury -77888-12-15 16:04 J -26726819.99 -26726819.83 -26726819.66 0.0493 0.0216  
 Venus -77883-08-30 21:49 J -26725100.72 -26725100.59 -26725100.46 0.0535 0.0396  
 Moon -77882-03-15 21:35 J -26724903.77 -26724903.60 -26724903.41 0.0536 0.0320  
 Earth -77882-03-16 01:25 J -26724903.63 -26724903.44 -26724903.25 0.0536 0.0293 \*  
 Mercury -77882-08-07 23:01 J -26724758.66 -26724758.54 -26724758.41 0.0535 0.0123  
 Mercury -77882-11-05 06:28 J -26724669.33 -26724669.23 -26724669.13 0.0533 0.0330  
 Venus -77877-07-02 01:54 J -26722968.57 -26722968.42 -26722968.26 0.0491 0.0333  
 Mercury -77876-07-05 05:44 J -26722600.33 -26722600.26 -26722600.17 0.0492 0.0440

Earth -77876-09-28 00:42 J -26722515.49 -26722515.47 -26722515.44 0.0493 0.0489  
 Mercury -77876-10-03 13:54 J -26722510.10 -26722509.92 -26722509.74 0.0493 0.0086  
 Venus -77871-05-05 17:30 J -26720834.96 -26720834.77 -26720834.57 0.0535 0.0094  
 Earth -77870-03-21 00:56 J -26720515.68 -26720515.46 -26720515.23 0.0535 0.0032  
 Moon -77870-03-21 03:20 J -26720515.58 -26720515.36 -26720515.14 0.0535 0.0006 \*  
 Mercury -77870-05-27 03:06 J -26720448.48 -26720448.37 -26720448.25 0.0534 0.0232  
 Mercury -77870-08-24 10:18 J -26720359.18 -26720359.07 -26720358.95 0.0533 0.0220  
 Venus -77865-03-06 22:32 J -26718702.77 -26718702.56 -26718702.36 0.0492 0.0087  
 Mercury -77864-07-22 10:47 J -26718200.23 -26718200.05 -26718199.87 0.0493 0.0053  
 Mercury -77864-10-20 17:59 J -26718109.80 -26718109.75 -26718109.69 0.0494 0.0468  
 Mercury -77858-03-15 06:56 J -26716138.30 -26716138.21 -26716138.11 0.0534 0.0344  
 Moon -77858-03-25 20:52 J -26716127.84 -26716127.63 -26716127.42 0.0534 0.0243  
 Earth -77858-03-25 21:35 J -26716127.80 -26716127.60 -26716127.39 0.0534 0.0220 \*  
 Mercury -77858-06-12 14:08 J -26716049.04 -26716048.91 -26716048.79 0.0533 0.0104  
 Mercury -77852-05-10 08:23 J -26713890.32 -26713890.15 -26713889.98 0.0493 0.0184  
 Mercury -77852-08-08 15:49 J -26713799.96 -26713799.84 -26713799.70 0.0494 0.0340  
 Mercury -77846-01-01 10:18 J -26711828.13 -26711828.07 -26711828.01 0.0535 0.0465  
 Moon -77846-03-30 13:11 J -26711740.07 -26711739.95 -26711739.83 0.0534 0.0443  
 Earth -77846-03-30 13:54 J -26711740.03 -26711739.92 -26711739.81 0.0534 0.0461 \*  
 Mercury -77846-03-31 17:16 J -26711738.91 -26711738.78 -26711738.65 0.0534 0.0019  
 Mercury -77846-06-29 00:42 J -26711649.54 -26711649.47 -26711649.40 0.0533 0.0434  
 Moon -77841-09-08 18:42 J -26709750.90 -26709750.72 -26709750.53 0.0491 0.0324  
 Earth -77841-09-08 21:20 J -26709750.77 -26709750.61 -26709750.44 0.0491 0.0351 \*  
 Mercury -77840-02-26 05:59 J -26709580.39 -26709580.25 -26709580.11 0.0492 0.0314  
 Mercury -77840-05-27 13:54 J -26709490.08 -26709489.92 -26709489.75 0.0493 0.0211  
 Venus -77835-01-11 04:47 J -26707800.49 -26707800.30 -26707800.11 0.0535 0.0173  
 Mercury -77834-01-17 20:52 J -26707428.75 -26707428.63 -26707428.50 0.0534 0.0134  
 Mercury -77834-04-17 04:18 J -26707339.42 -26707339.32 -26707339.22 0.0533 0.0320  
 Venus -77830-11-13 10:47 J -26705668.24 -26705668.05 -26705667.85 0.0492 0.0152  
 Earth -77829-09-13 09:35 J -26705363.32 -26705363.10 -26705362.86 0.0491 0.0148

Moon -77829-09-13 10:04 J -26705363.30 -26705363.08 -26705362.86 0.0491 0.0141 \*  
 Mercury -77829-12-15 03:06 J -26705270.44 -26705270.37 -26705270.29 0.0492 0.0449  
 Mercury -77828-03-15 11:16 J -26705180.21 -26705180.03 -26705179.85 0.0493 0.0078  
 Venus -77824-09-15 22:47 J -26703534.70 -26703534.55 -26703534.39 0.0534 0.0325  
 Mercury -77823-11-06 00:56 J -26703118.57 -26703118.46 -26703118.34 0.0535 0.0243  
 Mercury -77822-02-03 08:23 J -26703029.27 -26703029.15 -26703029.04 0.0534 0.0209  
 Venus -77818-07-19 09:49 J -26701402.27 -26701402.09 -26701401.91 0.0492 0.0254  
 Earth -77817-09-17 22:47 J -26700975.79 -26700975.55 -26700975.31 0.0491 0.0057  
 Moon -77817-09-18 00:28 J -26700975.73 -26700975.48 -26700975.23 0.0491 0.0029 \*  
 Mercury -77816-01-01 08:52 J -26700870.31 -26700870.13 -26700869.95 0.0492 0.0053  
 Mercury -77816-04-01 16:04 J -26700779.89 -26700779.83 -26700779.77 0.0494 0.0466  
 Mercury -77811-08-25 05:16 J -26698808.38 -26698808.28 -26698808.19 0.0535 0.0350  
 Mercury -77811-11-22 12:13 J -26698719.11 -26698718.99 -26698718.86 0.0534 0.0100  
 Mars -77810-10-24 02:08 J -26698383.68 -26698383.41 -26698383.13 0.0526 0.0010  
 Moon -77805-09-22 06:28 J -26696588.43 -26696588.23 -26696588.02 0.0492 0.0243  
 Earth -77805-09-22 09:20 J -26696588.31 -26696588.11 -26696587.90 0.0492 0.0259 \*  
 Mercury -77805-10-20 05:30 J -26696560.44 -26696560.27 -26696560.10 0.0492 0.0194  
 Mercury -77804-01-18 13:11 J -26696470.08 -26696469.95 -26696469.82 0.0494 0.0330  
 Venus -77800-09-18 20:37 J -26694765.72 -26694765.64 -26694765.54 0.0535 0.0468  
 Earth -77799-03-15 03:20 J -26694588.54 -26694588.36 -26694588.17 0.0535 0.0319  
 Moon -77799-03-15 06:13 J -26694588.41 -26694588.24 -26694588.07 0.0535 0.0336 \*  
 Mercury -77799-06-13 09:06 J -26694498.18 -26694498.12 -26694498.06 0.0535 0.0462  
 Mercury -77799-09-10 16:04 J -26694408.96 -26694408.83 -26694408.70 0.0534 0.0016  
 Mercury -77799-12-08 23:30 J -26694319.59 -26694319.52 -26694319.45 0.0532 0.0437  
 Venus -77794-07-21 20:08 J -26692633.79 -26692633.66 -26692633.52 0.0492 0.0375  
 Mercury -77793-08-08 02:52 J -26692250.51 -26692250.38 -26692250.24 0.0492 0.0326  
 Earth -77793-09-26 23:44 J -26692200.59 -26692200.51 -26692200.43 0.0493 0.0465  
 Moon -77793-09-27 03:20 J -26692200.38 -26692200.36 -26692200.33 0.0493 0.0490  
 Mercury -77793-11-06 11:01 J -26692160.21 -26692160.04 -26692159.88 0.0493 0.0201  
 Mars -77792-10-21 08:37 J -26691811.39 -26691811.14 -26691810.88 0.0500 0.0197

Venus -77788-05-24 12:13 J -26690500.18 -26690499.99 -26690499.79 0.0534 0.0048  
 Moon -77787-03-19 18:56 J -26690200.95 -26690200.71 -26690200.48 0.0535 0.0049  
 Earth -77787-03-19 20:08 J -26690200.88 -26690200.66 -26690200.43 0.0535 0.0076 \*  
 Mercury -77787-06-29 19:11 J -26690098.82 -26690098.70 -26690098.58 0.0534 0.0138  
 Mercury -77787-09-27 02:23 J -26690009.50 -26690009.40 -26690009.29 0.0533 0.0314  
 Venus -77782-03-26 19:40 J -26688367.89 -26688367.68 -26688367.47 0.0492 0.0029  
 Mercury -77781-05-27 00:42 J -26687940.54 -26687940.47 -26687940.41 0.0492 0.0455  
 Mercury -77781-08-25 08:52 J -26687850.31 -26687850.13 -26687849.95 0.0493 0.0072  
 Moon -77775-03-24 16:04 J -26685813.03 -26685812.83 -26685812.63 0.0535 0.0199  
 Earth -77775-03-24 16:18 J -26685813.03 -26685812.82 -26685812.60 0.0535 0.0175 \*  
 Mercury -77775-04-17 22:47 J -26685788.66 -26685788.55 -26685788.43 0.0535 0.0254  
 Mercury -77775-07-16 05:59 J -26685699.36 -26685699.25 -26685699.13 0.0534 0.0199  
 Venus -77771-11-29 18:28 J -26684101.82 -26684101.73 -26684101.63 0.0493 0.0436  
 Mercury -77769-06-13 05:59 J -26683540.43 -26683540.25 -26683540.06 0.0492 0.0063  
 Mercury -77769-09-11 13:11 J -26683450.01 -26683449.95 -26683449.88 0.0493 0.0457  
 Mercury -77763-02-04 02:52 J -26681478.47 -26681478.38 -26681478.29 0.0535 0.0364  
 Earth -77763-03-29 13:54 J -26681425.05 -26681424.92 -26681424.79 0.0534 0.0430  
 Moon -77763-03-29 15:49 J -26681424.98 -26681424.84 -26681424.68 0.0534 0.0406 \*  
 Mercury -77763-05-04 10:04 J -26681389.21 -26681389.08 -26681388.95 0.0534 0.0086  
 Earth -77758-09-08 22:18 J -26679435.72 -26679435.57 -26679435.41 0.0491 0.0373  
 Moon -77758-09-08 23:16 J -26679435.69 -26679435.53 -26679435.37 0.0491 0.0346 \*  
 Mercury -77757-04-01 03:20 J -26679230.52 -26679230.36 -26679230.19 0.0492 0.0196  
 Mercury -77757-06-30 11:01 J -26679140.17 -26679140.04 -26679139.90 0.0493 0.0328  
 Mars -77756-07-26 11:44 J -26678749.14 -26678749.01 -26678748.85 0.0501 0.0422  
 Venus -77752-01-30 03:06 J -26677465.54 -26677465.37 -26677465.19 0.0535 0.0242  
 Mercury -77752-11-23 07:11 J -26677168.26 -26677168.20 -26677168.14 0.0535 0.0470  
 Mercury -77751-02-20 14:08 J -26677079.04 -26677078.91 -26677078.78 0.0534 0.0025  
 Mercury -77751-05-20 21:35 J -26676989.67 -26676989.60 -26676989.52 0.0533 0.0430  
 Venus -77747-12-02 05:16 J -26675333.47 -26675333.28 -26675333.09 0.0492 0.0195  
 Earth -77746-09-13 07:54 J -26675048.39 -26675048.17 -26675047.94 0.0491 0.0175



Moon -77746-09-13 09:20 J -26675048.35 -26675048.11 -26675047.88 0.0491 0.0173 \*  
 Mercury -77745-01-18 23:59 J -26674920.63 -26674920.50 -26674920.36 0.0492 0.0336  
 Mercury -77745-04-18 07:54 J -26674830.33 -26674830.17 -26674830.00 0.0493 0.0190  
 Venus -77741-10-04 21:35 J -26673199.77 -26673199.60 -26673199.43 0.0534 0.0254  
 Mercury -77740-12-09 17:59 J -26672768.87 -26672768.75 -26672768.63 0.0534 0.0136  
 Mercury -77739-03-09 01:25 J -26672679.55 -26672679.44 -26672679.34 0.0533 0.0316  
 Venus -77735-08-07 03:49 J -26671067.53 -26671067.34 -26671067.15 0.0492 0.0213  
 Moon -77734-09-17 18:42 J -26670660.95 -26670660.72 -26670660.48 0.0492 0.0004  
 Earth -77734-09-17 21:20 J -26670660.84 -26670660.61 -26670660.37 0.0492 0.0033 \*  
 Mercury -77734-11-06 21:20 J -26670610.66 -26670610.61 -26670610.55 0.0492 0.0468  
 Mercury -77733-02-05 05:44 J -26670520.44 -26670520.26 -26670520.08 0.0493 0.0060  
 Mercury -77728-09-27 21:06 J -26668458.73 -26668458.62 -26668458.51 0.0534 0.0259  
 Mercury -77728-12-26 04:18 J -26668369.44 -26668369.32 -26668369.20 0.0533 0.0191  
 Earth -77722-09-22 11:59 J -26666273.21 -26666273.00 -26666272.79 0.0492 0.0238  
 Moon -77722-09-22 15:49 J -26666273.06 -26666272.84 -26666272.63 0.0492 0.0226 \*  
 Mercury -77722-11-24 03:35 J -26666210.53 -26666210.35 -26666210.17 0.0493 0.0068  
 Mercury -77721-02-22 10:47 J -26666120.11 -26666120.05 -26666119.97 0.0494 0.0453  
 Venus -77717-10-07 13:54 J -26664430.97 -26664430.92 -26664430.85 0.0535 0.0507  
 Moon -77716-03-13 18:28 J -26664273.88 -26664273.73 -26664273.56 0.0535 0.0382  
 Earth -77716-03-13 20:23 J -26664273.81 -26664273.65 -26664273.48 0.0535 0.0367 \*  
 Mercury -77716-07-17 00:42 J -26664148.56 -26664148.47 -26664148.38 0.0535 0.0374  
 Mercury -77716-10-14 07:54 J -26664059.30 -26664059.17 -26664059.04 0.0534 0.0075  
 Mercury -77715-01-11 15:20 J -26663969.86 -26663969.86 -26663969.84 0.0532 0.0529  
 Venus -77711-08-09 17:30 J -26662298.87 -26662298.77 -26662298.67 0.0492 0.0432  
 Mercury -77710-09-12 00:42 J -26661900.63 -26661900.47 -26661900.30 0.0492 0.0203  
 Moon -77710-09-26 21:20 J -26661885.68 -26661885.61 -26661885.54 0.0492 0.0468  
 Earth -77710-09-27 00:56 J -26661885.55 -26661885.46 -26661885.35 0.0492 0.0443 \*  
 Mercury -77710-12-11 08:23 J -26661810.29 -26661810.15 -26661810.01 0.0493 0.0320  
 Venus -77705-06-12 08:08 J -26660165.36 -26660165.16 -26660164.96 0.0535 0.0009  
 Earth -77704-03-18 18:28 J -26659885.95 -26659885.73 -26659885.50 0.0536 0.0111

Moon -77704-03-18 18:42 J -26659885.94 -26659885.72 -26659885.50 0.0536 0.0082 \*  
 Mercury -77704-05-05 04:47 J -26659838.35 -26659838.30 -26659838.25 0.0535 0.0485  
 Mercury -77704-08-02 11:44 J -26659749.14 -26659749.01 -26659748.88 0.0534 0.0038  
 Mercury -77704-10-30 19:11 J -26659659.77 -26659659.70 -26659659.62 0.0533 0.0417  
 Venus -77699-04-14 16:04 J -26658033.04 -26658032.83 -26658032.62 0.0492 0.0026  
 Mercury -77698-06-30 22:04 J -26657590.71 -26657590.58 -26657590.44 0.0492 0.0336  
 Mercury -77698-09-29 05:59 J -26657500.42 -26657500.25 -26657500.08 0.0493 0.0189  
 Venus -77693-02-16 03:20 J -26655899.44 -26655899.36 -26655899.27 0.0534 0.0482  
 Earth -77692-03-23 18:28 J -26655497.94 -26655497.73 -26655497.51 0.0535 0.0150  
 Moon -77692-03-23 20:23 J -26655497.87 -26655497.65 -26655497.43 0.0535 0.0167 \*  
 Mercury -77692-05-21 16:04 J -26655438.95 -26655438.83 -26655438.71 0.0534 0.0145  
 Mercury -77692-08-18 23:16 J -26655349.63 -26655349.53 -26655349.42 0.0533 0.0308  
 Venus -77688-12-18 13:11 J -26653767.07 -26653766.95 -26653766.82 0.0493 0.0390  
 Mercury -77686-04-18 18:42 J -26653280.77 -26653280.72 -26653280.68 0.0492 0.0477  
 Mercury -77686-07-18 02:52 J -26653190.56 -26653190.38 -26653190.20 0.0493 0.0051  
 Mercury -77680-03-09 19:54 J -26651128.78 -26651128.67 -26651128.56 0.0535 0.0256  
 Moon -77680-03-28 12:42 J -26651110.12 -26651109.97 -26651109.81 0.0534 0.0374  
 Earth -77680-03-28 15:49 J -26651109.98 -26651109.84 -26651109.68 0.0534 0.0402 \*  
 Mercury -77680-06-07 03:06 J -26651039.49 -26651039.37 -26651039.25 0.0533 0.0195  
 Earth -77675-09-07 21:20 J -26649120.74 -26649120.61 -26649120.46 0.0491 0.0399  
 Moon -77675-09-07 22:32 J -26649120.72 -26649120.56 -26649120.39 0.0491 0.0370 \*  
 Mercury -77674-05-06 00:28 J -26648880.66 -26648880.48 -26648880.29 0.0493 0.0080  
 Mercury -77674-08-04 07:54 J -26648790.24 -26648790.17 -26648790.09 0.0494 0.0442  
 Venus -77669-02-18 21:49 J -26647130.75 -26647130.59 -26647130.42 0.0535 0.0289  
 Mercury -77669-12-26 23:01 J -26646818.63 -26646818.54 -26646818.45 0.0535 0.0379  
 Mercury -77668-03-26 06:13 J -26646729.37 -26646729.24 -26646729.12 0.0534 0.0072  
 Mercury -77668-06-23 13:40 J -26646639.95 -26646639.93 -26646639.91 0.0532 0.0523  
 Venus -77664-12-21 02:23 J -26644998.57 -26644998.40 -26644998.21 0.0492 0.0254  
 Moon -77663-09-12 08:52 J -26644733.33 -26644733.13 -26644732.91 0.0491 0.0197  
 Earth -77663-09-12 11:44 J -26644733.23 -26644733.01 -26644732.79 0.0491 0.0193 \*

Mercury -77662-02-21 22:18 J -26644570.73 -26644570.57 -26644570.40 0.0492 0.0208

Mercury -77662-05-23 06:13 J -26644480.38 -26644480.24 -26644480.10 0.0493 0.0317

Venus -77658-10-24 15:06 J -26642865.05 -26642864.87 -26642864.68 0.0534 0.0212

Mercury -77657-10-15 02:37 J -26642508.43 -26642508.39 -26642508.34 0.0535 0.0493

Mercury -77656-01-12 09:49 J -26642419.22 -26642419.09 -26642418.97 0.0534 0.0048

Mercury -77656-04-11 17:16 J -26642329.87 -26642329.78 -26642329.70 0.0533 0.0407

Mars -77655-01-16 00:13 J -26642050.75 -26642050.49 -26642050.23 0.0527 0.0162

Venus -77652-08-26 01:25 J -26640732.64 -26640732.44 -26640732.24 0.0492 0.0154

Earth -77651-09-17 00:28 J -26640345.72 -26640345.48 -26640345.24 0.0491 0.0012

Moon -77651-09-17 04:04 J -26640345.57 -26640345.33 -26640345.08 0.0491 0.0019 \*

Mercury -77651-12-10 19:40 J -26640260.81 -26640260.68 -26640260.55 0.0492 0.0342

Mercury -77650-03-11 03:35 J -26640170.52 -26640170.35 -26640170.18 0.0493 0.0184

Mercury -77645-10-31 13:40 J -26638109.05 -26638108.93 -26638108.81 0.0535 0.0158

Mercury -77644-01-28 20:52 J -26638019.73 -26638019.63 -26638019.52 0.0534 0.0296

Moon -77639-09-21 09:20 J -26635958.32 -26635958.11 -26635957.89 0.0492 0.0206

Earth -77639-09-21 13:25 J -26635958.16 -26635957.94 -26635957.73 0.0492 0.0216 \*

Mercury -77639-09-28 16:47 J -26635950.84 -26635950.80 -26635950.75 0.0492 0.0476

Mercury -77639-12-28 01:11 J -26635860.64 -26635860.45 -26635860.27 0.0492 0.0053

Mars -77637-01-14 13:40 J -26635478.21 -26635477.93 -26635477.65 0.0499 0.0031

Earth -77633-03-12 22:18 J -26633958.72 -26633958.57 -26633958.41 0.0536 0.0394

Moon -77633-03-12 22:47 J -26633958.68 -26633958.55 -26633958.40 0.0536 0.0406 \*

Mercury -77633-08-19 17:59 J -26633798.86 -26633798.75 -26633798.64 0.0535 0.0265

Mercury -77633-11-17 01:11 J -26633709.57 -26633709.45 -26633709.33 0.0534 0.0187

Venus -77628-08-28 12:42 J -26631964.01 -26631963.97 -26631963.92 0.0491 0.0480

Earth -77627-09-26 00:28 J -26631570.60 -26631570.48 -26631570.35 0.0492 0.0416

Moon -77627-09-26 03:35 J -26631570.44 -26631570.35 -26631570.24 0.0492 0.0446 \*

Mercury -77627-10-15 21:49 J -26631550.77 -26631550.59 -26631550.40 0.0492 0.0087

Mercury -77626-01-14 05:16 J -26631460.36 -26631460.28 -26631460.19 0.0493 0.0435

Venus -77622-07-02 07:11 J -26629830.39 -26629830.20 -26629830.00 0.0535 0.0082

Earth -77621-03-17 21:35 J -26629570.82 -26629570.60 -26629570.38 0.0535 0.0138

Moon -77621-03-17 22:47 J -26629570.78 -26629570.55 -26629570.32 0.0535 0.0106 \*  
 Mercury -77621-06-07 22:04 J -26629488.67 -26629488.58 -26629488.49 0.0535 0.0375  
 Mercury -77621-09-05 05:01 J -26629399.41 -26629399.29 -26629399.16 0.0534 0.0075  
 Mercury -77621-12-03 12:42 J -26629309.98 -26629309.97 -26629309.96 0.0532 0.0528  
 Venus -77616-05-03 11:44 J -26627698.22 -26627698.01 -26627697.80 0.0492 0.0075  
 Mercury -77615-08-03 19:40 J -26627240.85 -26627240.68 -26627240.52 0.0492 0.0216  
 Mercury -77615-11-02 03:20 J -26627150.50 -26627150.36 -26627150.22 0.0493 0.0308  
 Venus -77610-03-06 23:16 J -26625564.65 -26625564.53 -26625564.41 0.0534 0.0427  
 Moon -77609-03-22 11:44 J -26625183.23 -26625183.01 -26625182.80 0.0535 0.0120  
 Earth -77609-03-22 14:23 J -26625183.12 -26625182.90 -26625182.67 0.0535 0.0107 \*  
 Mercury -77609-03-27 01:11 J -26625178.49 -26625178.45 -26625178.41 0.0535 0.0496  
 Mercury -77609-06-24 08:08 J -26625089.29 -26625089.16 -26625089.03 0.0534 0.0050  
 Mercury -77609-09-21 15:35 J -26624999.94 -26624999.85 -26624999.77 0.0533 0.0403  
 Venus -77604-01-06 11:01 J -26623432.19 -26623432.04 -26623431.88 0.0493 0.0330  
 Mercury -77603-05-22 17:30 J -26622930.90 -26622930.77 -26622930.64 0.0492 0.0345  
 Mercury -77603-08-21 01:25 J -26622840.60 -26622840.44 -26622840.26 0.0493 0.0183  
 Earth -77597-03-27 10:18 J -26620795.24 -26620795.07 -26620794.90 0.0534 0.0356  
 Moon -77597-03-27 13:54 J -26620795.09 -26620794.92 -26620794.73 0.0534 0.0325 \*  
 Mercury -77597-04-12 11:44 J -26620779.13 -26620779.01 -26620778.89 0.0534 0.0165  
 Mercury -77597-07-10 18:56 J -26620689.81 -26620689.71 -26620689.60 0.0533 0.0289  
 Moon -77592-09-06 23:59 J -26618805.64 -26618805.50 -26618805.36 0.0491 0.0386  
 Earth -77592-09-07 02:23 J -26618805.52 -26618805.40 -26618805.26 0.0491 0.0413 \*  
 Mercury -77591-03-10 14:37 J -26618620.92 -26618620.89 -26618620.84 0.0492 0.0479  
 Mercury -77591-06-08 23:01 J -26618530.72 -26618530.54 -26618530.36 0.0492 0.0049  
 Venus -77586-03-09 18:13 J -26616795.89 -26616795.74 -26616795.59 0.0535 0.0346  
 Mercury -77585-01-30 15:49 J -26616468.95 -26616468.84 -26616468.74 0.0535 0.0277  
 Mercury -77585-04-28 23:01 J -26616379.66 -26616379.54 -26616379.42 0.0534 0.0175  
 Venus -77580-01-09 00:13 J -26614663.64 -26614663.49 -26614663.32 0.0492 0.0314  
 Earth -77580-09-11 14:52 J -26614418.09 -26614417.88 -26614417.66 0.0491 0.0211  
 Moon -77580-09-11 18:42 J -26614417.94 -26614417.72 -26614417.50 0.0491 0.0216 \*

Mercury -77579-03-27 20:23 J -26614220.83 -26614220.65 -26614220.46 0.0492 0.0084

Mercury -77579-06-26 03:49 J -26614130.42 -26614130.34 -26614130.26 0.0493 0.0438

Venus -77575-11-12 13:40 J -26612530.12 -26612529.93 -26612529.74 0.0535 0.0143

Mercury -77574-11-18 20:08 J -26612158.75 -26612158.66 -26612158.58 0.0535 0.0383

Mercury -77573-02-16 03:06 J -26612069.49 -26612069.37 -26612069.24 0.0534 0.0069

Mercury -77573-05-15 10:47 J -26611980.07 -26611980.05 -26611980.03 0.0533 0.0522

Venus -77569-09-13 22:04 J -26610397.78 -26610397.58 -26610397.37 0.0492 0.0099

Moon -77568-09-15 22:04 J -26610030.82 -26610030.58 -26610030.34 0.0491 0.0043

Earth -77568-09-16 01:54 J -26610030.66 -26610030.42 -26610030.18 0.0491 0.0011 \*

Mercury -77567-01-13 17:16 J -26609910.94 -26609910.78 -26609910.61 0.0492 0.0220

Mercury -77567-04-14 01:11 J -26609820.60 -26609820.45 -26609820.31 0.0493 0.0304

Mercury -77562-09-07 00:13 J -26607848.54 -26607848.49 -26607848.44 0.0535 0.0490

Mercury -77562-12-05 07:11 J -26607759.33 -26607759.20 -26607759.07 0.0534 0.0043

Mercury -77561-03-03 14:37 J -26607669.97 -26607669.89 -26607669.81 0.0533 0.0411

Earth -77556-09-20 16:04 J -26605643.05 -26605642.83 -26605642.61 0.0492 0.0195

Moon -77556-09-20 19:11 J -26605642.91 -26605642.70 -26605642.48 0.0492 0.0197 \*

Mercury -77556-11-01 15:06 J -26605601.00 -26605600.87 -26605600.74 0.0492 0.0350

Mercury -77555-01-30 23:01 J -26605510.71 -26605510.54 -26605510.36 0.0493 0.0178

Earth -77550-03-12 20:23 J -26603643.78 -26603643.65 -26603643.51 0.0535 0.0430

Moon -77550-03-12 21:06 J -26603643.75 -26603643.62 -26603643.48 0.0535 0.0436 \*

Mercury -77550-09-23 10:18 J -26603449.19 -26603449.07 -26603448.95 0.0534 0.0166

Mercury -77550-12-21 17:30 J -26603359.87 -26603359.77 -26603359.66 0.0533 0.0287

Mercury -77544-08-20 12:56 J -26601291.00 -26601290.96 -26601290.92 0.0492 0.0478

Moon -77544-09-25 05:16 J -26601255.38 -26601255.28 -26601255.15 0.0492 0.0433

Earth -77544-09-25 07:25 J -26601255.32 -26601255.19 -26601255.05 0.0492 0.0403 \*

Mercury -77544-11-18 21:20 J -26601200.79 -26601200.61 -26601200.43 0.0493 0.0051

Venus -77539-07-21 03:06 J -26599495.57 -26599495.37 -26599495.18 0.0534 0.0135

Moon -77538-03-17 15:20 J -26599256.07 -26599255.86 -26599255.65 0.0535 0.0149

Earth -77538-03-17 17:44 J -26599255.98 -26599255.76 -26599255.55 0.0535 0.0179 \*

Mercury -77538-07-12 14:08 J -26599139.02 -26599138.91 -26599138.80 0.0535 0.0280

Mercury -77538-10-09 21:20 J -26599049.74 -26599049.61 -26599049.49 0.0534 0.0172

Mars -77537-07-05 13:40 J -26598780.12 -26598779.93 -26598779.74 0.0528 0.0373

Venus -77533-05-22 11:01 J -26597363.24 -26597363.04 -26597362.84 0.0492 0.0142

Mercury -77532-09-06 18:42 J -26596890.90 -26596890.72 -26596890.53 0.0492 0.0082

Mercury -77532-12-06 02:08 J -26596800.49 -26596800.41 -26596800.33 0.0493 0.0440

Venus -77527-03-25 20:23 J -26595229.79 -26595229.65 -26595229.50 0.0534 0.0366

Earth -77526-03-22 15:06 J -26594868.09 -26594867.87 -26594867.64 0.0535 0.0077

Moon -77526-03-22 18:56 J -26594867.94 -26594867.71 -26594867.49 0.0535 0.0081 \*

Mercury -77526-04-30 17:59 J -26594828.83 -26594828.75 -26594828.66 0.0535 0.0392

Mercury -77526-07-29 01:11 J -26594739.58 -26594739.45 -26594739.32 0.0534 0.0059

Mercury -77526-10-26 08:37 J -26594650.17 -26594650.14 -26594650.10 0.0533 0.0513

Venus -77521-01-26 10:04 J -26593097.25 -26593097.08 -26593096.90 0.0493 0.0264

Mercury -77520-06-25 16:18 J -26592580.99 -26592580.82 -26592580.66 0.0492 0.0213

Mercury -77520-09-23 23:59 J -26592490.64 -26592490.50 -26592490.36 0.0493 0.0311

Mars -77519-07-04 22:47 J -26592206.65 -26592206.55 -26592206.45 0.0498 0.0464

Mercury -77514-02-16 22:18 J -26590518.61 -26590518.57 -26590518.52 0.0535 0.0497

Moon -77514-03-27 11:44 J -26590480.19 -26590480.01 -26590479.81 0.0535 0.0300

Earth -77514-03-27 15:35 J -26590480.03 -26590479.85 -26590479.68 0.0535 0.0335 \*

Mercury -77514-05-17 05:30 J -26590429.40 -26590429.27 -26590429.15 0.0535 0.0051

Mercury -77514-08-14 12:56 J -26590340.04 -26590339.96 -26590339.88 0.0533 0.0406

Earth -77509-09-06 06:28 J -26588490.34 -26588490.23 -26588490.11 0.0491 0.0430

Moon -77509-09-06 10:04 J -26588490.21 -26588490.08 -26588489.94 0.0491 0.0401 \*

Mercury -77508-04-13 13:11 J -26588271.08 -26588270.95 -26588270.82 0.0492 0.0350

Mercury -77508-07-12 21:20 J -26588180.78 -26588180.61 -26588180.44 0.0493 0.0177

Venus -77503-03-28 19:11 J -26586460.81 -26586460.70 -26586460.58 0.0535 0.0431

Mercury -77502-03-05 09:35 J -26586119.22 -26586119.10 -26586118.98 0.0535 0.0157

Mercury -77502-06-02 16:47 J -26586029.90 -26586029.80 -26586029.69 0.0533 0.0296

Mars -77501-04-11 02:52 J -26585716.55 -26585716.38 -26585716.20 0.0527 0.0401

Venus -77497-01-28 22:47 J -26584328.68 -26584328.55 -26584328.41 0.0492 0.0377

Moon -77497-09-10 16:04 J -26584103.03 -26584102.83 -26584102.61 0.0491 0.0236

Earth -77497-09-10 20:08 J -26584102.87 -26584102.66 -26584102.44 0.0491 0.0227 \*  
 Mercury -77496-01-30 10:47 J -26583961.08 -26583961.05 -26583961.00 0.0492 0.0479  
 Mercury -77496-04-30 19:25 J -26583870.88 -26583870.69 -26583870.51 0.0493 0.0052  
 Venus -77492-12-01 12:28 J -26582195.18 -26582194.98 -26582194.79 0.0534 0.0074  
 Mercury -77491-12-22 12:56 J -26581809.07 -26581808.96 -26581808.86 0.0534 0.0279  
 Mercury -77490-03-21 19:54 J -26581719.79 -26581719.67 -26581719.54 0.0533 0.0173  
 Venus -77486-10-03 21:35 J -26580062.81 -26580062.60 -26580062.39 0.0493 0.0031  
 Earth -77485-09-15 10:18 J -26579715.30 -26579715.07 -26579714.82 0.0492 0.0022  
 Moon -77485-09-15 13:54 J -26579715.16 -26579714.92 -26579714.69 0.0492 0.0047 \*  
 Mercury -77484-02-16 17:30 J -26579560.96 -26579560.77 -26579560.59 0.0493 0.0078  
 Mercury -77484-05-18 00:56 J -26579470.54 -26579470.46 -26579470.39 0.0494 0.0446  
 Mars -77483-04-09 14:08 J -26579144.16 -26579143.91 -26579143.65 0.0500 0.0185  
 Mercury -77479-10-10 16:32 J -26577498.89 -26577498.81 -26577498.72 0.0535 0.0392  
 Mercury -77478-01-07 23:44 J -26577409.64 -26577409.51 -26577409.38 0.0534 0.0058  
 Mercury -77478-04-07 07:11 J -26577320.23 -26577320.20 -26577320.17 0.0532 0.0512  
 Venus -77474-06-08 21:06 J -26575796.72 -26575796.62 -26575796.52 0.0493 0.0434  
 Moon -77473-09-19 22:18 J -26575327.80 -26575327.57 -26575327.35 0.0492 0.0195  
 Earth -77473-09-20 00:13 J -26575327.71 -26575327.49 -26575327.26 0.0492 0.0188 \*  
 Mercury -77473-12-05 14:52 J -26575251.04 -26575250.88 -26575250.71 0.0492 0.0209  
 Mercury -77472-03-05 22:32 J -26575160.69 -26575160.56 -26575160.41 0.0493 0.0316  
 Moon -77467-03-11 20:23 J -26573328.75 -26573328.65 -26573328.53 0.0535 0.0462  
 Earth -77467-03-11 22:18 J -26573328.68 -26573328.57 -26573328.44 0.0535 0.0456 \*  
 Mercury -77467-07-29 20:37 J -26573188.68 -26573188.64 -26573188.60 0.0535 0.0503  
 Mercury -77467-10-27 03:35 J -26573099.48 -26573099.35 -26573099.22 0.0534 0.0055  
 Mercury -77466-01-24 11:01 J -26573010.12 -26573010.04 -26573009.96 0.0533 0.0399  
 Mercury -77461-09-23 12:13 J -26570941.11 -26570940.99 -26570940.85 0.0492 0.0341  
 Earth -77461-09-24 13:54 J -26570940.05 -26570939.92 -26570939.77 0.0492 0.0392  
 Moon -77461-09-24 14:37 J -26570940.01 -26570939.89 -26570939.78 0.0492 0.0423 \*  
 Mercury -77461-12-22 20:23 J -26570850.82 -26570850.65 -26570850.48 0.0493 0.0187  
 Venus -77456-08-09 03:06 J -26569160.55 -26569160.37 -26569160.19 0.0535 0.0213

Earth -77455-03-16 23:16 J -26568940.74 -26568940.53 -26568940.31 0.0536 0.0198  
 Moon -77455-03-17 02:52 J -26568940.60 -26568940.38 -26568940.16 0.0536 0.0165 \*  
 Mercury -77455-08-15 07:54 J -26568789.29 -26568789.17 -26568789.05 0.0535 0.0161  
 Mercury -77455-11-12 15:20 J -26568699.97 -26568699.86 -26568699.76 0.0534 0.0293  
 Venus -77450-06-11 10:32 J -26567028.25 -26567028.06 -26567027.87 0.0492 0.0211  
 Mercury -77449-07-12 09:20 J -26566631.15 -26566631.11 -26566631.06 0.0492 0.0476  
 Mercury -77449-10-10 17:44 J -26566540.94 -26566540.76 -26566540.58 0.0492 0.0053  
 Venus -77444-04-13 22:32 J -26564894.73 -26564894.56 -26564894.39 0.0534 0.0275  
 Moon -77443-03-21 20:23 J -26564552.88 -26564552.65 -26564552.42 0.0535 0.0059  
 Earth -77443-03-21 23:59 J -26564552.72 -26564552.50 -26564552.27 0.0535 0.0062 \*  
 Mercury -77443-06-03 12:13 J -26564479.10 -26564478.99 -26564478.88 0.0535 0.0268  
 Mercury -77443-08-31 19:25 J -26564389.81 -26564389.69 -26564389.57 0.0534 0.0184  
 Venus -77438-02-14 09:49 J -26562762.28 -26562762.09 -26562761.89 0.0493 0.0193  
 Mercury -77437-07-29 15:49 J -26562231.02 -26562230.84 -26562230.66 0.0492 0.0074  
 Mercury -77437-10-27 23:16 J -26562140.60 -26562140.53 -26562140.45 0.0493 0.0448  
 Mercury -77431-03-22 15:35 J -26560168.93 -26560168.85 -26560168.76 0.0535 0.0387  
 Earth -77431-03-26 18:28 J -26560164.91 -26560164.73 -26560164.54 0.0535 0.0310  
 Moon -77431-03-26 21:20 J -26560164.80 -26560164.61 -26560164.42 0.0535 0.0276 \*  
 Mercury -77431-06-19 22:32 J -26560079.68 -26560079.56 -26560079.43 0.0534 0.0064  
 Mercury -77431-09-17 06:13 J -26559990.27 -26559990.24 -26559990.21 0.0532 0.0516  
 Moon -77426-09-06 12:13 J -26558175.12 -26558174.99 -26558174.86 0.0492 0.0410  
 Earth -77426-09-06 16:18 J -26558174.93 -26558174.82 -26558174.71 0.0492 0.0435 \*  
 Mercury -77425-05-17 13:40 J -26557921.09 -26557920.93 -26557920.76 0.0492 0.0203  
 Mercury -77425-08-15 21:35 J -26557830.73 -26557830.60 -26557830.46 0.0493 0.0324  
 Venus -77420-04-16 17:59 J -26556125.81 -26556125.75 -26556125.68 0.0534 0.0500  
 Mercury -77419-01-08 19:25 J -26555858.73 -26555858.69 -26555858.64 0.0535 0.0499  
 Mercury -77419-04-08 02:23 J -26555769.53 -26555769.40 -26555769.27 0.0534 0.0052  
 Mercury -77419-07-06 09:49 J -26555680.17 -26555680.09 -26555680.01 0.0533 0.0401  
 Venus -77414-02-16 23:30 J -26553993.60 -26553993.52 -26553993.43 0.0492 0.0451  
 Earth -77414-09-11 05:44 J -26553787.46 -26553787.26 -26553787.04 0.0491 0.0230



Moon -77414-09-11 09:20 J -26553787.31 -26553787.11 -26553786.90 0.0491 0.0246 \*  
 Mercury -77413-03-05 11:16 J -26553611.16 -26553611.03 -26553610.89 0.0492 0.0334  
 Mercury -77413-06-03 19:25 J -26553520.86 -26553520.69 -26553520.52 0.0493 0.0194  
 Venus -77409-12-20 11:59 J -26551860.20 -26551860.00 -26551859.80 0.0534 0.0003  
 Mercury -77407-01-25 06:13 J -26551459.36 -26551459.24 -26551459.11 0.0535 0.0166  
 Mercury -77407-04-24 13:40 J -26551370.04 -26551369.93 -26551369.82 0.0533 0.0289  
 Venus -77403-10-22 23:01 J -26549727.75 -26549727.54 -26549727.33 0.0493 0.0049  
 Moon -77402-09-15 17:30 J -26549400.02 -26549399.77 -26549399.52 0.0491 0.0049  
 Earth -77402-09-15 19:40 J -26549399.92 -26549399.68 -26549399.44 0.0491 0.0026 \*  
 Mercury -77402-12-23 08:52 J -26549301.19 -26549301.13 -26549301.07 0.0492 0.0465  
 Mercury -77401-03-22 17:16 J -26549210.96 -26549210.78 -26549210.60 0.0493 0.0065  
 Venus -77397-08-25 06:56 J -26547594.28 -26547594.21 -26547594.12 0.0533 0.0487  
 Mercury -77396-11-13 10:32 J -26547149.16 -26547149.06 -26547148.95 0.0535 0.0271  
 Mercury -77395-02-10 17:44 J -26547059.88 -26547059.76 -26547059.63 0.0534 0.0183  
 Venus -77391-06-27 22:04 J -26545461.72 -26545461.58 -26545461.44 0.0493 0.0357  
 Earth -77390-09-20 08:08 J -26545012.38 -26545012.16 -26545011.93 0.0491 0.0177  
 Moon -77390-09-20 08:37 J -26545012.35 -26545012.14 -26545011.93 0.0491 0.0192 \*  
 Mercury -77389-01-09 14:37 J -26544901.07 -26544900.89 -26544900.71 0.0492 0.0069  
 Mercury -77389-04-08 22:04 J -26544810.65 -26544810.58 -26544810.51 0.0493 0.0453  
 Earth -77384-03-11 08:37 J -26543013.25 -26543013.14 -26543013.03 0.0536 0.0466  
 Moon -77384-03-11 11:59 J -26543013.12 -26543013.00 -26543012.88 0.0536 0.0457 \*  
 Mercury -77384-09-01 15:06 J -26542838.96 -26542838.87 -26542838.78 0.0535 0.0376  
 Mercury -77384-11-29 22:04 J -26542749.71 -26542749.58 -26542749.45 0.0534 0.0075  
 Mercury -77383-02-27 05:44 J -26542660.27 -26542660.26 -26542660.25 0.0533 0.0529  
 Mars -77383-09-30 06:28 J -26542445.49 -26542445.23 -26542444.96 0.0528 0.0097  
 Earth -77378-09-24 23:16 J -26540624.67 -26540624.53 -26540624.38 0.0492 0.0383  
 Moon -77378-09-25 00:28 J -26540624.61 -26540624.48 -26540624.34 0.0492 0.0411 \*  
 Mercury -77378-10-28 12:42 J -26540591.14 -26540590.97 -26540590.80 0.0492 0.0196  
 Mercury -77377-01-26 20:23 J -26540500.78 -26540500.65 -26540500.51 0.0493 0.0330  
 Venus -77373-08-28 04:47 J -26538825.46 -26538825.30 -26538825.13 0.0534 0.0300

Moon -77372-03-16 01:54 J -26538625.63 -26538625.42 -26538625.20 0.0535 0.0182  
 Earth -77372-03-16 05:44 J -26538625.47 -26538625.26 -26538625.05 0.0535 0.0214 \*  
 Mercury -77372-06-20 18:28 J -26538528.77 -26538528.73 -26538528.68 0.0535 0.0493  
 Mercury -77372-09-18 01:40 J -26538439.56 -26538439.43 -26538439.31 0.0534 0.0049  
 Mercury -77372-12-16 08:52 J -26538350.21 -26538350.13 -26538350.05 0.0533 0.0408  
 Venus -77367-06-30 11:16 J -26536693.19 -26536693.03 -26536692.85 0.0493 0.0286  
 Mercury -77366-08-16 10:18 J -26536281.20 -26536281.07 -26536280.93 0.0492 0.0326  
 Mercury -77366-11-14 18:28 J -26536190.89 -26536190.73 -26536190.56 0.0493 0.0204  
 Mars -77365-09-28 14:08 J -26535872.16 -26535871.91 -26535871.65 0.0498 0.0208  
 Venus -77361-05-02 23:30 J -26534559.71 -26534559.52 -26534559.34 0.0533 0.0193  
 Earth -77360-03-21 03:20 J -26534237.59 -26534237.36 -26534237.13 0.0535 0.0039  
 Moon -77360-03-21 06:13 J -26534237.46 -26534237.24 -26534237.01 0.0535 0.0033 \*  
 Mercury -77360-07-07 05:30 J -26534129.40 -26534129.27 -26534129.15 0.0534 0.0159  
 Mercury -77360-10-04 12:42 J -26534040.08 -26534039.97 -26534039.87 0.0533 0.0294  
 Venus -77355-03-05 10:47 J -26532427.25 -26532427.05 -26532426.85 0.0493 0.0119  
 Mercury -77354-06-04 08:08 J -26531971.23 -26531971.16 -26531971.10 0.0492 0.0457  
 Mercury -77354-09-02 16:18 J -26531881.00 -26531880.82 -26531880.63 0.0493 0.0075  
 Moon -77348-03-25 22:47 J -26529849.76 -26529849.55 -26529849.35 0.0535 0.0257  
 Earth -77348-03-26 00:28 J -26529849.67 -26529849.48 -26529849.29 0.0535 0.0291 \*  
 Mercury -77348-04-25 09:20 J -26529819.22 -26529819.11 -26529819.00 0.0535 0.0271  
 Mercury -77348-07-23 16:18 J -26529729.94 -26529729.82 -26529729.69 0.0534 0.0182  
 Earth -77343-09-06 03:06 J -26527859.48 -26527859.37 -26527859.26 0.0491 0.0437  
 Moon -77343-09-06 06:42 J -26527859.34 -26527859.22 -26527859.10 0.0491 0.0419 \*  
 Mercury -77342-06-21 14:08 J -26527571.09 -26527570.91 -26527570.73 0.0492 0.0056  
 Mercury -77342-09-19 21:35 J -26527480.65 -26527480.60 -26527480.54 0.0493 0.0466  
 Mercury -77336-02-11 13:40 J -26525509.02 -26525508.93 -26525508.84 0.0535 0.0377  
 Mercury -77336-05-11 20:37 J -26525419.76 -26525419.64 -26525419.51 0.0534 0.0074  
 Mercury -77336-08-09 04:18 J -26525330.33 -26525330.32 -26525330.31 0.0533 0.0529  
 Moon -77331-09-10 13:25 J -26523472.14 -26523471.94 -26523471.72 0.0491 0.0258  
 Earth -77331-09-10 15:49 J -26523472.05 -26523471.84 -26523471.63 0.0491 0.0235 \*

Mercury -77330-04-09 11:30 J -26523261.19 -26523261.02 -26523260.85 0.0492 0.0189

Mercury -77330-07-08 19:25 J -26523170.83 -26523170.69 -26523170.56 0.0493 0.0336

Mars -77329-07-03 23:59 J -26522809.63 -26522809.50 -26522809.34 0.0500 0.0426

Venus -77325-01-09 15:49 J -26521525.04 -26521524.84 -26521524.65 0.0534 0.0102

Mercury -77325-11-30 17:59 J -26521198.80 -26521198.75 -26521198.70 0.0535 0.0482

Mercury -77324-02-28 00:56 J -26521109.59 -26521109.46 -26521109.33 0.0534 0.0034

Mercury -77324-05-28 08:23 J -26521020.23 -26521020.15 -26521020.07 0.0533 0.0421

Venus -77320-11-11 00:42 J -26519392.67 -26519392.47 -26519392.26 0.0492 0.0129

Earth -77319-09-15 06:13 J -26519084.48 -26519084.24 -26519084.00 0.0491 0.0030

Moon -77319-09-15 06:28 J -26519084.46 -26519084.23 -26519084.00 0.0491 0.0049 \*

Mercury -77318-01-26 09:35 J -26518951.24 -26518951.10 -26518950.96 0.0492 0.0316

Mercury -77318-04-26 17:44 J -26518860.93 -26518860.76 -26518860.60 0.0493 0.0212

Venus -77314-09-14 10:18 J -26517259.19 -26517259.07 -26517258.93 0.0533 0.0391

Mercury -77313-12-17 04:32 J -26516799.43 -26516799.31 -26516799.19 0.0534 0.0151

Mercury -77312-03-16 11:44 J -26516710.11 -26516710.01 -26516709.90 0.0533 0.0302

Venus -77308-07-16 22:47 J -26515126.72 -26515126.55 -26515126.38 0.0494 0.0285

Earth -77307-09-19 19:54 J -26514696.89 -26514696.67 -26514696.44 0.0492 0.0177

Moon -77307-09-19 21:20 J -26514696.84 -26514696.61 -26514696.38 0.0492 0.0197 \*

Mercury -77307-11-14 06:56 J -26514641.28 -26514641.21 -26514641.13 0.0492 0.0449

Mercury -77306-02-12 15:35 J -26514551.03 -26514550.85 -26514550.67 0.0493 0.0084

Moon -77301-03-10 11:16 J -26512698.14 -26512698.03 -26512697.92 0.0535 0.0465

Earth -77301-03-10 14:52 J -26512697.97 -26512697.88 -26512697.78 0.0535 0.0480 \*

Mercury -77301-10-05 08:37 J -26512489.25 -26512489.14 -26512489.03 0.0534 0.0262

Mercury -77300-01-02 15:35 J -26512399.97 -26512399.85 -26512399.73 0.0533 0.0188

Moon -77295-09-24 07:54 J -26510309.29 -26510309.17 -26510309.03 0.0492 0.0410

Earth -77295-09-24 10:32 J -26510309.20 -26510309.06 -26510308.90 0.0492 0.0385 \*

Mercury -77295-12-01 13:25 J -26510241.12 -26510240.94 -26510240.76 0.0493 0.0047

Mercury -77294-03-01 20:52 J -26510150.67 -26510150.63 -26510150.58 0.0494 0.0477

Venus -77290-09-17 05:44 J -26508490.39 -26508490.26 -26508490.12 0.0534 0.0383

Earth -77289-03-15 11:59 J -26508310.20 -26508310.00 -26508309.79 0.0535 0.0230

Moon -77289-03-15 15:06 J -26508310.08 -26508309.87 -26508309.66 0.0535 0.0200 \*  
 Mercury -77289-07-24 12:28 J -26508179.07 -26508178.98 -26508178.89 0.0535 0.0376  
 Mercury -77289-10-21 19:25 J -26508089.82 -26508089.69 -26508089.56 0.0534 0.0074  
 Mercury -77288-01-19 02:52 J -26508000.39 -26508000.38 -26508000.37 0.0533 0.0529  
 Venus -77284-07-19 13:54 J -26506358.05 -26506357.92 -26506357.78 0.0492 0.0369  
 Mercury -77283-09-19 11:01 J -26505931.21 -26505931.04 -26505930.86 0.0492 0.0177  
 Mercury -77283-12-18 18:56 J -26505840.84 -26505840.71 -26505840.58 0.0493 0.0349  
 Venus -77278-05-23 01:11 J -26504224.65 -26504224.45 -26504224.26 0.0534 0.0107  
 Moon -77277-03-20 10:04 J -26503922.31 -26503922.08 -26503921.84 0.0535 0.0015  
 Earth -77277-03-20 11:59 J -26503922.23 -26503922.00 -26503921.77 0.0535 0.0027 \*  
 Mercury -77277-05-12 16:32 J -26503868.86 -26503868.81 -26503868.75 0.0535 0.0482  
 Mercury -77277-08-09 23:30 J -26503779.64 -26503779.52 -26503779.39 0.0534 0.0039  
 Mercury -77277-11-07 06:56 J -26503690.28 -26503690.21 -26503690.13 0.0533 0.0422  
 Venus -77272-03-24 13:11 J -26502092.16 -26502091.95 -26502091.74 0.0493 0.0037  
 Mercury -77271-07-08 08:37 J -26501621.29 -26501621.14 -26501621.00 0.0492 0.0309  
 Mercury -77271-10-06 16:32 J -26501530.97 -26501530.81 -26501530.64 0.0493 0.0219  
 Moon -77265-03-25 12:28 J -26499534.17 -26499533.98 -26499533.79 0.0535 0.0259  
 Earth -77265-03-25 12:42 J -26499534.16 -26499533.97 -26499533.77 0.0535 0.0286 \*  
 Mercury -77265-05-29 04:04 J -26499469.46 -26499469.33 -26499469.21 0.0535 0.0140  
 Mercury -77265-08-26 11:16 J -26499380.13 -26499380.03 -26499379.93 0.0533 0.0314  
 Venus -77261-11-27 12:42 J -26497826.06 -26497825.97 -26497825.87 0.0494 0.0439  
 Moon -77260-09-05 12:13 J -26497544.10 -26497543.99 -26497543.87 0.0491 0.0429  
 Earth -77260-09-05 14:37 J -26497544.00 -26497543.89 -26497543.79 0.0491 0.0439 \*  
 Mercury -77259-04-26 06:13 J -26497311.31 -26497311.24 -26497311.15 0.0492 0.0437  
 Mercury -77259-07-25 14:52 J -26497221.06 -26497220.88 -26497220.70 0.0493 0.0094  
 Mercury -77253-03-17 07:40 J -26495159.29 -26495159.18 -26495159.06 0.0534 0.0255  
 Mercury -77253-06-14 14:52 J -26495070.00 -26495069.88 -26495069.76 0.0533 0.0197  
 Earth -77248-09-10 02:37 J -26493156.60 -26493156.39 -26493156.18 0.0492 0.0236  
 Moon -77248-09-10 02:52 J -26493156.58 -26493156.38 -26493156.19 0.0492 0.0265 \*  
 Mercury -77247-05-13 12:28 J -26492911.16 -26492910.98 -26492910.79 0.0493 0.0039

Mercury -77247-08-11 19:54 J -26492820.69 -26492820.67 -26492820.63 0.0494 0.0487

Venus -77242-01-28 18:28 J -26491189.91 -26491189.73 -26491189.55 0.0534 0.0193

Mercury -77241-01-04 11:44 J -26490849.10 -26490849.01 -26490848.92 0.0534 0.0365

Mercury -77241-04-02 18:42 J -26490759.85 -26490759.72 -26490759.59 0.0533 0.0084

Venus -77237-11-30 01:25 J -26489057.63 -26489057.44 -26489057.24 0.0493 0.0201

Earth -77236-09-14 16:47 J -26488769.04 -26488768.80 -26488768.56 0.0492 0.0031

Moon -77236-09-14 18:13 J -26488768.99 -26488768.74 -26488768.50 0.0492 0.0044 \*

Mercury -77235-03-01 10:18 J -26488601.24 -26488601.07 -26488600.90 0.0493 0.0169

Mercury -77235-05-30 18:13 J -26488510.87 -26488510.74 -26488510.62 0.0494 0.0359

Venus -77231-10-03 11:44 J -26486924.17 -26486924.01 -26486923.85 0.0533 0.0307

Mercury -77230-10-23 15:35 J -26486538.90 -26486538.85 -26486538.80 0.0535 0.0479

Mercury -77229-01-20 22:32 J -26486449.69 -26486449.56 -26486449.44 0.0534 0.0036

Mercury -77229-04-19 05:44 J -26486360.34 -26486360.26 -26486360.18 0.0533 0.0422

Mars -77229-12-24 13:11 J -26486111.20 -26486110.95 -26486110.69 0.0528 0.0157

Venus -77225-08-05 01:11 J -26484791.63 -26484791.45 -26484791.25 0.0493 0.0202

Moon -77224-09-19 04:32 J -26484381.52 -26484381.31 -26484381.09 0.0492 0.0200

Earth -77224-09-19 07:11 J -26484381.42 -26484381.20 -26484380.97 0.0492 0.0176 \*

Mercury -77224-12-18 07:54 J -26484291.31 -26484291.17 -26484291.02 0.0492 0.0298

Mercury -77223-03-18 16:04 J -26484200.99 -26484200.83 -26484200.67 0.0493 0.0231

Earth -77218-03-10 22:04 J -26482382.66 -26482382.58 -26482382.49 0.0535 0.0494

Moon -77218-03-11 01:25 J -26482382.54 -26482382.44 -26482382.33 0.0535 0.0470 \*

Mercury -77218-11-09 02:37 J -26482139.51 -26482139.39 -26482139.27 0.0534 0.0140

Mercury -77217-02-06 09:49 J -26482050.19 -26482050.09 -26482049.98 0.0533 0.0314

Earth -77212-09-23 20:37 J -26479993.78 -26479993.64 -26479993.48 0.0492 0.0379

Moon -77212-09-24 00:28 J -26479993.62 -26479993.48 -26479993.33 0.0492 0.0396 \*

Mercury -77212-10-06 05:16 J -26479981.36 -26479981.28 -26479981.19 0.0492 0.0431

Mercury -77211-01-04 13:40 J -26479891.11 -26479890.93 -26479890.75 0.0493 0.0099

Mars -77211-12-24 04:47 J -26479537.57 -26479537.30 -26479537.02 0.0499 0.0052

Venus -77207-10-06 09:49 J -26478155.17 -26478155.09 -26478155.01 0.0535 0.0483

Moon -77206-03-15 21:35 J -26477994.81 -26477994.60 -26477994.38 0.0535 0.0208

Earth -77206-03-15 23:44 J -26477994.71 -26477994.51 -26477994.31 0.0535 0.0236 \*  
 Mercury -77206-08-28 06:56 J -26477829.32 -26477829.21 -26477829.09 0.0535 0.0246  
 Mercury -77206-11-25 14:08 J -26477740.03 -26477739.91 -26477739.79 0.0534 0.0207  
 Venus -77201-08-07 15:49 J -26476022.92 -26476022.84 -26476022.75 0.0492 0.0450  
 Mercury -77200-10-23 11:44 J -26475581.19 -26475581.01 -26475580.83 0.0493 0.0028  
 Venus -77195-06-11 05:30 J -26473889.47 -26473889.27 -26473889.08 0.0533 0.0011  
 Earth -77194-03-20 22:18 J -26473606.79 -26473606.57 -26473606.34 0.0535 0.0023  
 Moon -77194-03-20 22:32 J -26473606.78 -26473606.56 -26473606.34 0.0535 0.0007 \*  
 Mercury -77194-06-16 11:01 J -26473519.14 -26473519.04 -26473518.95 0.0534 0.0358  
 Mercury -77194-09-13 17:59 J -26473429.88 -26473429.75 -26473429.63 0.0533 0.0092  
 Venus -77189-04-12 13:11 J -26471757.16 -26471756.95 -26471756.74 0.0493 0.0033  
 Mercury -77188-08-11 09:06 J -26471271.29 -26471271.12 -26471270.94 0.0493 0.0162  
 Mercury -77188-11-09 17:01 J -26471180.91 -26471180.79 -26471180.66 0.0494 0.0367  
 Venus -77183-02-14 00:13 J -26469623.55 -26469623.49 -26469623.41 0.0532 0.0495  
 Earth -77182-03-25 19:40 J -26469218.87 -26469218.68 -26469218.48 0.0534 0.0274  
 Moon -77182-03-25 22:04 J -26469218.78 -26469218.58 -26469218.37 0.0534 0.0251 \*  
 Mercury -77182-04-04 14:52 J -26469208.94 -26469208.88 -26469208.82 0.0534 0.0468  
 Mercury -77182-07-02 21:49 J -26469119.72 -26469119.59 -26469119.46 0.0533 0.0023  
 Mercury -77182-09-30 05:01 J -26469030.36 -26469030.29 -26469030.21 0.0532 0.0431  
 Venus -77178-12-17 12:28 J -26467491.12 -26467490.98 -26467490.84 0.0494 0.0373  
 Earth -77177-09-04 23:16 J -26467228.63 -26467228.53 -26467228.43 0.0492 0.0441  
 Moon -77177-09-04 23:16 J -26467228.62 -26467228.53 -26467228.42 0.0492 0.0444 \*  
 Mercury -77176-05-30 06:42 J -26466961.36 -26466961.22 -26466961.07 0.0493 0.0293  
 Mercury -77176-08-28 15:06 J -26466871.03 -26466870.87 -26466870.71 0.0493 0.0237  
 Earth -77170-03-30 15:06 J -26464830.91 -26464830.87 -26464830.81 0.0534 0.0517  
 Mercury -77170-04-21 01:25 J -26464809.56 -26464809.44 -26464809.32 0.0534 0.0137  
 Mercury -77170-07-19 08:37 J -26464720.24 -26464720.14 -26464720.04 0.0533 0.0315  
 Earth -77165-09-09 13:40 J -26462841.14 -26462840.93 -26462840.73 0.0492 0.0238  
 Moon -77165-09-09 15:06 J -26462841.08 -26462840.87 -26462840.66 0.0492 0.0268 \*  
 Mercury -77164-03-18 04:18 J -26462651.41 -26462651.32 -26462651.22 0.0492 0.0423

Mercury -77164-06-16 12:56 J -26462561.14 -26462560.96 -26462560.78 0.0493 0.0109

Venus -77159-02-16 19:11 J -26460854.87 -26460854.70 -26460854.53 0.0534 0.0274

Mercury -77158-02-07 05:30 J -26460499.38 -26460499.27 -26460499.15 0.0534 0.0247

Mercury -77158-05-07 12:42 J -26460410.09 -26460409.97 -26460409.85 0.0533 0.0205

Venus -77154-12-20 03:35 J -26458722.52 -26458722.35 -26458722.18 0.0493 0.0281

Moon -77153-09-13 23:59 J -26458453.73 -26458453.50 -26458453.27 0.0492 0.0045

Earth -77153-09-14 02:37 J -26458453.62 -26458453.39 -26458453.15 0.0492 0.0036 \*

Mercury -77152-04-04 10:18 J -26458251.25 -26458251.07 -26458250.88 0.0493 0.0025

Venus -77148-10-22 14:52 J -26456589.06 -26456588.88 -26456588.70 0.0533 0.0213

Mercury -77147-11-26 10:04 J -26456189.18 -26456189.08 -26456188.99 0.0535 0.0353

Mercury -77146-02-23 17:01 J -26456099.92 -26456099.79 -26456099.67 0.0534 0.0098

Venus -77142-08-25 02:52 J -26454456.58 -26454456.38 -26454456.18 0.0493 0.0122

Earth -77141-09-18 17:01 J -26454066.01 -26454065.79 -26454065.56 0.0492 0.0170

Moon -77141-09-18 20:52 J -26454065.85 -26454065.63 -26454065.41 0.0492 0.0199 \*

Mercury -77140-01-21 08:23 J -26453941.33 -26453941.15 -26453940.98 0.0493 0.0153

Mercury -77140-04-21 16:04 J -26453850.94 -26453850.83 -26453850.71 0.0494 0.0375

Moon -77135-03-10 06:28 J -26452067.33 -26452067.23 -26452067.11 0.0534 0.0469

Earth -77135-03-10 08:52 J -26452067.21 -26452067.13 -26452067.04 0.0534 0.0496 \*

Mercury -77135-09-14 13:54 J -26451878.98 -26451878.92 -26451878.85 0.0534 0.0463

Mercury -77135-12-12 20:52 J -26451789.76 -26451789.63 -26451789.50 0.0533 0.0015

Mercury -77134-03-12 04:04 J -26451700.40 -26451700.33 -26451700.25 0.0532 0.0437

Moon -77129-09-23 01:40 J -26449678.58 -26449678.43 -26449678.28 0.0493 0.0385

Earth -77129-09-23 05:16 J -26449678.43 -26449678.28 -26449678.12 0.0493 0.0375 \*

Mercury -77129-11-09 05:16 J -26449631.42 -26449631.28 -26449631.13 0.0493 0.0290

Mercury -77128-02-07 13:40 J -26449541.09 -26449540.93 -26449540.77 0.0494 0.0242

Earth -77123-03-15 07:11 J -26447679.39 -26447679.20 -26447678.99 0.0534 0.0247

Moon -77123-03-15 07:40 J -26447679.37 -26447679.18 -26447678.97 0.0534 0.0226 \*

Mercury -77123-10-01 00:42 J -26447479.59 -26447479.47 -26447479.34 0.0533 0.0128

Mercury -77123-12-29 07:54 J -26447390.27 -26447390.17 -26447390.07 0.0532 0.0323

Mercury -77117-08-28 02:52 J -26445321.47 -26445321.38 -26445321.28 0.0493 0.0422

Mercury -77117-11-26 11:30 J -26445231.20 -26445231.02 -26445230.84 0.0493 0.0112

Venus -77112-06-30 05:30 J -26443554.47 -26443554.27 -26443554.07 0.0533 0.0071

Earth -77111-03-20 02:37 J -26443291.61 -26443291.39 -26443291.16 0.0535 0.0007

Moon -77111-03-20 04:32 J -26443291.55 -26443291.31 -26443291.08 0.0535 0.0025 \*

Mercury -77111-07-20 04:18 J -26443169.43 -26443169.32 -26443169.20 0.0534 0.0245

Mercury -77111-10-17 11:30 J -26443080.14 -26443080.02 -26443079.90 0.0533 0.0206

Mars -77110-06-15 00:42 J -26442839.67 -26442839.47 -26442839.25 0.0529 0.0315

Venus -77106-05-02 14:37 J -26441422.10 -26441421.89 -26441421.69 0.0493 0.0111

Mercury -77105-09-14 09:20 J -26440921.30 -26440921.11 -26440920.93 0.0493 0.0021

Venus -77100-03-04 23:44 J -26439288.62 -26439288.51 -26439288.38 0.0533 0.0421

Moon -77099-03-24 21:35 J -26438903.80 -26438903.60 -26438903.40 0.0535 0.0235

Earth -77099-03-25 00:56 J -26438903.66 -26438903.46 -26438903.26 0.0535 0.0253 \*

Mercury -77099-05-08 08:23 J -26438859.24 -26438859.15 -26438859.05 0.0534 0.0355

Mercury -77099-08-05 15:20 J -26438769.98 -26438769.86 -26438769.73 0.0534 0.0096

Venus -77094-01-05 13:54 J -26437156.09 -26437155.92 -26437155.75 0.0494 0.0294

Earth -77094-09-05 08:23 J -26436913.24 -26436913.15 -26436913.05 0.0492 0.0447

Moon -77094-09-05 10:04 J -26436913.17 -26436913.08 -26436912.99 0.0492 0.0453 \*

Mercury -77093-07-03 06:42 J -26436611.40 -26436611.22 -26436611.05 0.0493 0.0152

Mercury -77093-10-01 14:23 J -26436521.01 -26436520.90 -26436520.78 0.0493 0.0376

Mars -77092-06-14 00:28 J -26436265.69 -26436265.48 -26436265.28 0.0498 0.0342

Mercury -77087-02-24 12:42 J -26434549.03 -26434548.97 -26434548.91 0.0535 0.0461

Earth -77087-03-30 00:13 J -26434515.55 -26434515.49 -26434515.41 0.0534 0.0507

Mercury -77087-05-24 19:40 J -26434459.81 -26434459.68 -26434459.55 0.0534 0.0013

Mercury -77087-08-22 03:06 J -26434370.44 -26434370.37 -26434370.30 0.0533 0.0442

Moon -77082-09-09 19:11 J -26432525.89 -26432525.70 -26432525.51 0.0492 0.0278

Earth -77082-09-09 21:49 J -26432525.79 -26432525.59 -26432525.38 0.0492 0.0245 \*

Mercury -77081-04-21 04:18 J -26432301.47 -26432301.32 -26432301.17 0.0492 0.0282

Mercury -77081-07-20 12:28 J -26432211.14 -26432210.98 -26432210.82 0.0493 0.0249

Venus -77076-03-07 22:18 J -26430519.71 -26430519.57 -26430519.42 0.0534 0.0367

Mercury -77075-03-12 23:44 J -26430149.64 -26430149.51 -26430149.39 0.0533 0.0124



Mercury -77075-06-10 06:56 J -26430060.31 -26430060.21 -26430060.11 0.0532 0.0328

Mars -77074-03-21 04:18 J -26429776.46 -26429776.32 -26429776.16 0.0527 0.0436

Venus -77070-01-08 01:25 J -26428387.58 -26428387.44 -26428387.28 0.0493 0.0341

Earth -77070-09-14 08:23 J -26428138.39 -26428138.15 -26428137.92 0.0492 0.0045

Moon -77070-09-14 11:59 J -26428138.24 -26428138.00 -26428137.76 0.0492 0.0046 \*

Mercury -77069-02-08 00:56 J -26427991.55 -26427991.46 -26427991.36 0.0493 0.0422

Mercury -77069-05-08 09:35 J -26427901.27 -26427901.10 -26427900.92 0.0494 0.0113

Venus -77065-11-10 17:16 J -26426253.97 -26426253.78 -26426253.59 0.0533 0.0122

Mercury -77064-12-30 03:35 J -26425839.46 -26425839.35 -26425839.24 0.0534 0.0236

Mercury -77063-03-29 10:32 J -26425750.17 -26425750.06 -26425749.94 0.0533 0.0214

Venus -77059-09-13 00:13 J -26424121.69 -26424121.49 -26424121.28 0.0494 0.0068

Moon -77058-09-18 18:28 J -26423750.95 -26423750.73 -26423750.50 0.0492 0.0190

Earth -77058-09-18 22:18 J -26423750.79 -26423750.57 -26423750.34 0.0492 0.0160 \*

Mercury -77057-02-25 07:25 J -26423591.38 -26423591.19 -26423591.01 0.0493 0.0020

Mars -77056-03-19 17:16 J -26423202.99 -26423202.78 -26423202.55 0.0499 0.0311

Earth -77052-03-09 11:01 J -26421752.08 -26421752.04 -26421751.99 0.0534 0.0522

Moon -77052-03-09 11:44 J -26421752.08 -26421752.01 -26421751.92 0.0534 0.0496 \*

Mercury -77052-10-18 07:11 J -26421529.30 -26421529.20 -26421529.11 0.0534 0.0355

Mercury -77051-01-15 14:08 J -26421440.04 -26421439.91 -26421439.79 0.0533 0.0097

Venus -77047-05-18 23:59 J -26419855.56 -26419855.50 -26419855.43 0.0494 0.0469

Earth -77046-09-23 12:56 J -26419363.12 -26419362.96 -26419362.80 0.0492 0.0366

Moon -77046-09-23 15:35 J -26419363.00 -26419362.85 -26419362.69 0.0492 0.0370 \*

Mercury -77046-12-14 05:01 J -26419281.46 -26419281.29 -26419281.11 0.0493 0.0150

Mercury -77045-03-13 12:56 J -26419191.07 -26419190.96 -26419190.84 0.0494 0.0379

Earth -77040-03-14 09:06 J -26417364.31 -26417364.12 -26417363.92 0.0535 0.0273

Moon -77040-03-14 10:18 J -26417364.27 -26417364.07 -26417363.86 0.0535 0.0257 \*

Mercury -77040-08-06 11:01 J -26417219.10 -26417219.04 -26417218.98 0.0534 0.0466

Mercury -77040-11-03 17:59 J -26417129.88 -26417129.75 -26417129.62 0.0534 0.0018

Mercury -77039-02-01 01:11 J -26417040.52 -26417040.45 -26417040.37 0.0533 0.0436

Mercury -77034-10-02 02:08 J -26414971.55 -26414971.41 -26414971.25 0.0492 0.0285

Mercury -77034-12-31 10:18 J -26414881.22 -26414881.07 -26414880.90 0.0493 0.0247  
 Venus -77029-07-19 05:59 J -26413219.44 -26413219.25 -26413219.06 0.0534 0.0151  
 Moon -77028-03-19 05:44 J -26412976.48 -26412976.26 -26412976.04 0.0535 0.0046  
 Earth -77028-03-19 08:52 J -26412976.35 -26412976.13 -26412975.90 0.0535 0.0017 \*  
 Mercury -77028-08-22 22:04 J -26412819.70 -26412819.58 -26412819.45 0.0534 0.0127  
 Mercury -77028-11-20 05:16 J -26412730.38 -26412730.28 -26412730.17 0.0533 0.0328  
 Venus -77023-05-21 14:08 J -26411087.10 -26411086.91 -26411086.71 0.0493 0.0180  
 Mercury -77022-07-20 23:44 J -26410661.60 -26410661.51 -26410661.41 0.0492 0.0416  
 Mercury -77022-10-19 08:23 J -26410571.33 -26410571.15 -26410570.98 0.0493 0.0117  
 Venus -77017-03-24 01:54 J -26408953.57 -26408953.42 -26408953.26 0.0533 0.0333  
 Earth -77016-03-24 08:23 J -26408588.35 -26408588.15 -26408587.94 0.0534 0.0242  
 Moon -77016-03-24 12:28 J -26408588.18 -26408587.98 -26408587.78 0.0534 0.0231 \*  
 Mercury -77016-06-11 02:23 J -26408509.52 -26408509.40 -26408509.29 0.0534 0.0236  
 Mercury -77016-09-08 09:20 J -26408420.23 -26408420.11 -26408419.99 0.0533 0.0215  
 Venus -77011-01-24 10:18 J -26406821.24 -26406821.07 -26406820.88 0.0494 0.0242  
 Moon -77011-09-04 08:37 J -26406598.20 -26406598.14 -26406598.08 0.0492 0.0474  
 Earth -77011-09-04 11:16 J -26406598.10 -26406598.03 -26406597.95 0.0492 0.0463 \*  
 Mercury -77010-08-07 05:16 J -26406261.47 -26406261.28 -26406261.10 0.0493 0.0025  
 Moon -77004-03-29 01:40 J -26404200.48 -26404200.43 -26404200.37 0.0534 0.0515  
 Earth -77004-03-29 05:16 J -26404200.36 -26404200.28 -26404200.18 0.0534 0.0488  
 Mercury -77004-03-30 06:13 J -26404199.33 -26404199.24 -26404199.14 0.0534 0.0348  
 Mercury -77004-06-27 13:11 J -26404110.08 -26404109.95 -26404109.83 0.0533 0.0101

# 77TH MILLENNIUM BCE

This is a list of transits visible from Jupiter in the 77th millennium BCE.

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Earth	-76999-09-08 23:59 J	-26402210.69	-26402210.50	-26402210.29	0.0492	0.0262		
Moon	-76999-09-09 03:35 J	-26402210.54	-26402210.35	-26402210.15	0.0492	0.0291	*	
Mercury	-76998-05-26 02:37 J	-26401951.56	-26401951.39	-26401951.21	0.0493	0.0156		
Mercury	-76998-08-24 10:47 J	-26401861.17	-26401861.05	-26401860.93	0.0494	0.0374		
Venus	-76993-03-26 19:40 J	-26400184.79	-26400184.68	-26400184.56	0.0534	0.0430		
Mercury	-76992-01-16 09:35 J	-26399889.16	-26399889.10	-26399889.04	0.0534	0.0467		
Mercury	-76992-04-15 16:32 J	-26399799.94	-26399799.81	-26399799.69	0.0533	0.0023		
Mercury	-76992-07-13 23:44 J	-26399710.58	-26399710.51	-26399710.44	0.0532	0.0433		
Venus	-76987-01-27 00:42 J	-26398052.58	-26398052.47	-26398052.35	0.0493	0.0408		
Moon	-76987-09-13 10:47 J	-26397823.29	-26397823.05	-26397822.82	0.0492	0.0053		
Earth	-76987-09-13 14:23 J	-26397823.13	-26397822.90	-26397822.66	0.0492	0.0058	*	
Mercury	-76986-03-14 00:13 J	-26397641.64	-26397641.49	-26397641.34	0.0493	0.0286		
Mercury	-76986-06-12 08:37 J	-26397551.30	-26397551.14	-26397550.98	0.0494	0.0245		
Venus	-76982-11-30 13:54 J	-26395919.12	-26395918.92	-26395918.72	0.0533	0.0064		
Mercury	-76980-02-01 20:23 J	-26395489.78	-26395489.65	-26395489.53	0.0534	0.0134		
Mercury	-76980-05-02 03:20 J	-26395400.46	-26395400.36	-26395400.25	0.0533	0.0320		
Venus	-76976-10-01 23:30 J	-26393786.73	-26393786.52	-26393786.31	0.0493	0.0011		
Earth	-76975-09-18 03:06 J	-26393435.59	-26393435.37	-26393435.14	0.0492	0.0146		
Moon	-76975-09-18 05:59 J	-26393435.46	-26393435.25	-26393435.03	0.0492	0.0178	*	
Mercury	-76975-12-30 21:20 J	-26393331.70	-26393331.61	-26393331.51	0.0492	0.0422		
Mercury	-76974-03-31 05:59 J	-26393241.43	-26393241.25	-26393241.07	0.0493	0.0111		
Moon	-76969-03-08 14:23 J	-26391436.95	-26391436.90	-26391436.83	0.0535	0.0515		
Mercury	-76969-11-21 00:28 J	-26391179.59	-26391179.48	-26391179.37	0.0534	0.0243		
Mercury	-76968-02-18 07:25 J	-26391090.30	-26391090.19	-26391090.07	0.0533	0.0210		
Venus	-76964-06-06 22:32 J	-26389520.68	-26389520.56	-26389520.44	0.0494	0.0405		
Moon	-76963-09-22 14:52 J	-26389048.05	-26389047.88	-26389047.70	0.0492	0.0349		

Earth -76963-09-22 16:47 J -26389047.97 -26389047.80 -26389047.63 0.0492 0.0349 \*  
 Mercury -76962-01-17 03:35 J -26388931.54 -26388931.35 -26388931.17 0.0493 0.0022  
 Moon -76957-03-13 12:13 J -26387049.18 -26387048.99 -26387048.80 0.0535 0.0282  
 Earth -76957-03-13 14:52 J -26387049.07 -26387048.88 -26387048.68 0.0535 0.0287 \*  
 Mercury -76957-09-09 04:47 J -26386869.40 -26386869.30 -26386869.21 0.0534 0.0351  
 Mercury -76957-12-07 11:30 J -26386780.14 -26386780.02 -26386779.89 0.0533 0.0101  
 Mars -76956-09-08 05:30 J -26386505.53 -26386505.27 -26386505.00 0.0528 0.0066  
 Mercury -76951-11-04 23:59 J -26384621.67 -26384621.50 -26384621.32 0.0493 0.0163  
 Mercury -76950-02-03 08:08 J -26384531.28 -26384531.16 -26384531.04 0.0494 0.0368  
 Venus -76946-08-08 06:13 J -26382884.41 -26382884.24 -26382884.06 0.0533 0.0230  
 Earth -76945-03-18 12:56 J -26382661.19 -26382660.96 -26382660.73 0.0534 0.0036  
 Moon -76945-03-18 16:47 J -26382661.02 -26382660.80 -26382660.57 0.0534 0.0070 \*  
 Mercury -76945-06-28 08:37 J -26382559.20 -26382559.14 -26382559.08 0.0534 0.0462  
 Mercury -76945-09-25 15:20 J -26382469.98 -26382469.86 -26382469.73 0.0533 0.0021  
 Mercury -76945-12-23 22:32 J -26382380.63 -26382380.56 -26382380.48 0.0532 0.0437  
 Venus -76940-06-09 09:06 J -26380752.30 -26380752.12 -26380751.93 0.0493 0.0225  
 Mercury -76939-08-23 21:35 J -26380311.75 -26380311.60 -26380311.46 0.0493 0.0296  
 Mercury -76939-11-22 05:59 J -26380221.41 -26380221.25 -26380221.09 0.0494 0.0237  
 Mars -76938-09-07 19:11 J -26379931.98 -26379931.70 -26379931.43 0.0498 0.0128  
 Venus -76934-04-12 22:18 J -26378618.74 -26378618.57 -26378618.40 0.0532 0.0275  
 Moon -76933-03-23 02:23 J -26378273.61 -26378273.40 -26378273.19 0.0534 0.0191  
 Earth -76933-03-23 06:13 J -26378273.45 -26378273.24 -26378273.03 0.0534 0.0205 \*  
 Mercury -76933-07-14 18:42 J -26378159.84 -26378159.72 -26378159.60 0.0533 0.0137  
 Mercury -76933-10-12 01:40 J -26378070.53 -26378070.43 -26378070.32 0.0532 0.0315  
 Venus -76928-02-12 08:23 J -26376486.34 -26376486.15 -26376485.95 0.0494 0.0180  
 Earth -76928-09-03 15:49 J -26376282.89 -26376282.84 -26376282.78 0.0492 0.0478  
 Mercury -76927-06-11 18:56 J -26376001.80 -26376001.71 -26376001.61 0.0493 0.0427  
 Mercury -76927-09-10 03:35 J -26375911.53 -26375911.35 -26375911.17 0.0493 0.0107  
 Earth -76921-03-28 02:23 J -26373885.52 -26373885.40 -26373885.28 0.0534 0.0450  
 Moon -76921-03-28 05:01 J -26373885.38 -26373885.29 -26373885.19 0.0534 0.0480 \*

Mercury -76921-05-02 22:32 J -26373849.67 -26373849.56 -26373849.45 0.0534 0.0251

Mercury -76921-07-31 05:30 J -26373760.39 -26373760.27 -26373760.15 0.0533 0.0200

Moon -76916-09-08 00:28 J -26371895.66 -26371895.48 -26371895.29 0.0492 0.0304

Earth -76916-09-08 04:18 J -26371895.51 -26371895.32 -26371895.12 0.0492 0.0277 \*

Mercury -76915-06-29 00:56 J -26371601.65 -26371601.46 -26371601.28 0.0493 0.0030

Venus -76910-04-15 17:16 J -26369849.85 -26369849.78 -26369849.71 0.0534 0.0492

Mercury -76909-02-20 02:37 J -26369539.48 -26369539.39 -26369539.30 0.0534 0.0361

Mercury -76909-05-19 09:35 J -26369450.23 -26369450.10 -26369449.98 0.0533 0.0089

Venus -76904-02-14 22:04 J -26367717.65 -26367717.58 -26367717.51 0.0493 0.0464

Earth -76904-09-12 16:47 J -26367508.04 -26367507.80 -26367507.56 0.0492 0.0077

Moon -76904-09-12 19:40 J -26367507.91 -26367507.68 -26367507.44 0.0492 0.0063 \*

Mercury -76903-04-16 22:18 J -26367291.75 -26367291.57 -26367291.40 0.0493 0.0162

Mercury -76903-07-16 06:13 J -26367201.36 -26367201.24 -26367201.12 0.0494 0.0367

Venus -76899-12-19 13:11 J -26365584.14 -26365583.95 -26365583.75 0.0533 0.0016

Mercury -76898-12-09 06:56 J -26365229.27 -26365229.21 -26365229.15 0.0534 0.0468

Mercury -76897-03-07 13:40 J -26365140.06 -26365139.93 -26365139.80 0.0533 0.0021

Mercury -76897-06-04 20:52 J -26365050.70 -26365050.63 -26365050.55 0.0532 0.0432

Venus -76893-10-20 18:13 J -26363451.95 -26363451.74 -26363451.53 0.0493 0.0045

Moon -76892-09-17 00:13 J -26363120.73 -26363120.49 -26363120.26 0.0492 0.0151

Earth -76892-09-17 02:08 J -26363120.64 -26363120.41 -26363120.17 0.0492 0.0122 \*

Mercury -76891-02-02 18:28 J -26362981.87 -26362981.73 -26362981.58 0.0493 0.0306

Mercury -76891-05-04 02:52 J -26362891.54 -26362891.38 -26362891.21 0.0494 0.0228

Venus -76887-08-24 07:40 J -26361318.25 -26361318.18 -26361318.09 0.0532 0.0480

Mercury -76886-12-25 17:30 J -26360829.89 -26360829.77 -26360829.64 0.0533 0.0134

Mercury -76885-03-24 00:42 J -26360740.57 -26360740.47 -26360740.37 0.0532 0.0318

Venus -76881-06-25 16:32 J -26359185.94 -26359185.81 -26359185.66 0.0494 0.0364

Earth -76880-09-21 15:35 J -26358733.03 -26358732.85 -26358732.67 0.0492 0.0325

Moon -76880-09-21 16:04 J -26358733.00 -26358732.83 -26358732.65 0.0492 0.0324 \*

Mercury -76880-11-21 15:49 J -26358671.92 -26358671.84 -26358671.75 0.0493 0.0440

Mercury -76879-02-20 00:42 J -26358581.65 -26358581.47 -26358581.29 0.0493 0.0096

Earth -76874-03-13 10:32 J -26356734.23 -26356734.06 -26356733.88 0.0534 0.0328  
 Moon -76874-03-13 14:23 J -26356734.08 -26356733.90 -26356733.72 0.0534 0.0328 \*  
 Mercury -76874-10-13 20:52 J -26356519.75 -26356519.63 -26356519.52 0.0534 0.0257  
 Mercury -76873-01-11 03:49 J -26356430.46 -26356430.34 -26356430.22 0.0533 0.0195  
 Mercury -76868-12-08 22:18 J -26354271.75 -26354271.57 -26354271.38 0.0493 0.0035  
 Mercury -76867-03-09 05:59 J -26354181.26 -26354181.25 -26354181.23 0.0494 0.0492  
 Venus -76863-08-27 00:13 J -26352549.66 -26352549.49 -26352549.32 0.0533 0.0273  
 Moon -76862-03-18 03:20 J -26352346.58 -26352346.36 -26352346.13 0.0534 0.0117  
 Earth -76862-03-18 07:25 J -26352346.42 -26352346.19 -26352345.96 0.0534 0.0080 \*  
 Mercury -76862-08-02 00:28 J -26352209.57 -26352209.48 -26352209.39 0.0534 0.0371  
 Mercury -76862-10-30 07:25 J -26352120.32 -26352120.19 -26352120.06 0.0533 0.0079  
 Venus -76857-06-28 06:42 J -26350417.39 -26350417.22 -26350417.05 0.0493 0.0283  
 Mercury -76856-09-26 19:25 J -26349961.86 -26349961.69 -26349961.51 0.0493 0.0171  
 Mercury -76856-12-26 03:20 J -26349871.48 -26349871.36 -26349871.23 0.0494 0.0359  
 Venus -76851-05-01 18:13 J -26348283.92 -26348283.74 -26348283.56 0.0533 0.0221  
 Earth -76850-03-23 05:16 J -26347958.50 -26347958.28 -26347958.07 0.0535 0.0173  
 Moon -76850-03-23 08:23 J -26347958.36 -26347958.15 -26347957.94 0.0535 0.0164 \*  
 Mercury -76850-05-21 04:32 J -26347899.36 -26347899.31 -26347899.26 0.0534 0.0482  
 Mercury -76850-08-18 11:30 J -26347810.15 -26347810.02 -26347809.90 0.0534 0.0038  
 Mercury -76850-11-15 18:42 J -26347720.80 -26347720.72 -26347720.64 0.0533 0.0420  
 Venus -76845-03-03 05:16 J -26346151.49 -26346151.28 -26346151.08 0.0494 0.0125  
 Mercury -76844-07-15 16:32 J -26345651.95 -26345651.81 -26345651.66 0.0492 0.0306  
 Mercury -76844-10-14 00:56 J -26345561.62 -26345561.46 -26345561.29 0.0493 0.0226  
 Moon -76838-03-28 03:49 J -26343570.46 -26343570.34 -26343570.21 0.0534 0.0455  
 Earth -76838-03-28 05:16 J -26343570.42 -26343570.28 -26343570.15 0.0534 0.0427 \*  
 Mercury -76838-06-06 15:35 J -26343499.97 -26343499.85 -26343499.72 0.0534 0.0142  
 Mercury -76838-09-03 22:47 J -26343410.65 -26343410.55 -26343410.45 0.0533 0.0311  
 Earth -76833-09-07 02:23 J -26341580.59 -26341580.40 -26341580.22 0.0492 0.0304  
 Moon -76833-09-07 05:30 J -26341580.44 -26341580.27 -26341580.09 0.0492 0.0327 \*  
 Mercury -76832-05-03 12:56 J -26341342.03 -26341341.96 -26341341.89 0.0493 0.0450

Mercury -76832-08-01 21:35 J -26341251.78 -26341251.60 -26341251.42 0.0493 0.0085  
 Mercury -76826-03-25 19:25 J -26339189.80 -26339189.69 -26339189.57 0.0534 0.0255  
 Mercury -76826-06-23 02:37 J -26339100.51 -26339100.39 -26339100.27 0.0533 0.0197  
 Moon -76821-09-11 12:42 J -26337193.21 -26337192.97 -26337192.72 0.0492 0.0088  
 Earth -76821-09-11 14:52 J -26337193.11 -26337192.88 -26337192.64 0.0492 0.0104 \*  
 Mercury -76820-05-20 19:11 J -26336941.89 -26336941.70 -26336941.52 0.0493 0.0048  
 Mercury -76820-08-19 02:52 J -26336851.41 -26336851.38 -26336851.33 0.0494 0.0480  
 Venus -76815-01-07 07:54 J -26335249.37 -26335249.17 -26335248.97 0.0533 0.0057  
 Mercury -76814-01-11 22:47 J -26334879.64 -26334879.55 -26334879.46 0.0534 0.0377  
 Mercury -76814-04-11 05:30 J -26334790.39 -26334790.27 -26334790.14 0.0533 0.0074  
 Mercury -76814-07-09 12:56 J -26334700.98 -26334700.96 -26334700.95 0.0532 0.0525  
 Venus -76810-11-09 15:06 J -26333117.08 -26333116.87 -26333116.67 0.0493 0.0102  
 Earth -76809-09-16 05:01 J -26332805.53 -26332805.29 -26332805.06 0.0492 0.0101  
 Moon -76809-09-16 05:30 J -26332805.49 -26332805.27 -26332805.04 0.0492 0.0130 \*  
 Mercury -76808-03-08 16:47 J -26332631.97 -26332631.80 -26332631.63 0.0493 0.0178  
 Mercury -76808-06-07 00:56 J -26332541.58 -26332541.46 -26332541.33 0.0494 0.0352  
 Venus -76804-09-12 01:11 J -26330983.55 -26330983.45 -26330983.33 0.0532 0.0438  
 Mercury -76803-10-31 02:23 J -26330569.44 -26330569.40 -26330569.35 0.0534 0.0491  
 Mercury -76802-01-28 09:20 J -26330480.24 -26330480.11 -26330479.99 0.0533 0.0045  
 Mercury -76802-04-27 16:32 J -26330390.89 -26330390.81 -26330390.73 0.0532 0.0410  
 Mars -76802-12-02 05:59 J -26330172.51 -26330172.25 -26330171.98 0.0528 0.0091  
 Venus -76798-07-15 13:54 J -26328851.08 -26328850.92 -26328850.76 0.0494 0.0306  
 Earth -76797-09-20 17:30 J -26328417.95 -26328417.77 -26328417.58 0.0492 0.0305  
 Moon -76797-09-20 18:42 J -26328417.91 -26328417.72 -26328417.51 0.0492 0.0296 \*  
 Mercury -76797-12-25 13:54 J -26328322.06 -26328321.92 -26328321.78 0.0492 0.0315  
 Mercury -76796-03-25 22:18 J -26328231.74 -26328231.57 -26328231.41 0.0493 0.0217  
 Moon -76791-03-12 03:49 J -26326419.50 -26326419.34 -26326419.18 0.0535 0.0367  
 Earth -76791-03-12 07:40 J -26326419.34 -26326419.18 -26326419.01 0.0535 0.0365 \*  
 Mercury -76791-11-16 13:11 J -26326170.07 -26326169.95 -26326169.83 0.0534 0.0156  
 Mercury -76790-02-13 20:23 J -26326080.76 -26326080.65 -26326080.55 0.0533 0.0297

Moon -76785-09-25 03:35 J -26324030.40 -26324030.35 -26324030.30 0.0492 0.0478  
 Mercury -76785-10-13 11:01 J -26324012.11 -26324012.04 -26324011.97 0.0492 0.0450  
 Mercury -76784-01-11 19:40 J -26323921.86 -26323921.68 -26323921.50 0.0493 0.0084  
 Mars -76784-11-30 21:49 J -26323598.87 -26323598.59 -26323598.31 0.0498 0.0038  
 Venus -76780-09-14 21:49 J -26322214.74 -26322214.59 -26322214.43 0.0534 0.0337  
 Earth -76779-03-17 08:37 J -26322031.36 -26322031.14 -26322030.92 0.0535 0.0107  
 Moon -76779-03-17 11:59 J -26322031.21 -26322031.00 -26322030.78 0.0535 0.0141 \*  
 Mercury -76779-09-04 17:30 J -26321859.88 -26321859.77 -26321859.66 0.0534 0.0264  
 Mercury -76779-12-03 00:28 J -26321770.60 -26321770.48 -26321770.36 0.0533 0.0188  
 Venus -76774-07-18 00:56 J -26320082.61 -26320082.46 -26320082.30 0.0493 0.0326  
 Mercury -76773-10-30 16:04 J -26319612.01 -26319611.83 -26319611.64 0.0493 0.0059  
 Mercury -76772-01-28 23:59 J -26319521.55 -26319521.50 -26319521.44 0.0494 0.0470  
 Venus -76768-05-20 16:47 J -26317948.99 -26317948.80 -26317948.61 0.0533 0.0152  
 Moon -76767-03-22 05:16 J -26317643.51 -26317643.28 -26317643.05 0.0535 0.0139  
 Earth -76767-03-22 07:11 J -26317643.42 -26317643.20 -26317642.98 0.0535 0.0144 \*  
 Mercury -76767-06-23 21:35 J -26317549.69 -26317549.60 -26317549.51 0.0534 0.0375  
 Mercury -76767-09-21 04:18 J -26317460.44 -26317460.32 -26317460.19 0.0533 0.0077  
 Mercury -76767-12-19 11:44 J -26317371.02 -26317371.01 -26317371.00 0.0532 0.0528  
 Venus -76762-03-22 23:30 J -26315816.73 -26315816.52 -26315816.32 0.0493 0.0082  
 Mercury -76761-08-18 13:40 J -26315302.10 -26315301.93 -26315301.76 0.0493 0.0191  
 Mercury -76761-11-16 21:49 J -26315211.72 -26315211.59 -26315211.46 0.0494 0.0340  
 Moon -76755-03-26 23:16 J -26313255.67 -26313255.53 -26313255.39 0.0534 0.0413  
 Earth -76755-03-26 23:44 J -26313255.67 -26313255.51 -26313255.35 0.0534 0.0382 \*  
 Mercury -76755-04-12 00:42 J -26313239.51 -26313239.47 -26313239.43 0.0534 0.0497  
 Mercury -76755-07-10 07:25 J -26313150.31 -26313150.19 -26313150.06 0.0533 0.0050  
 Mercury -76755-10-07 14:37 J -26313060.97 -26313060.89 -26313060.81 0.0532 0.0403  
 Venus -76751-11-25 22:18 J -26311550.60 -26311550.57 -26311550.54 0.0495 0.0488  
 Moon -76750-09-07 03:06 J -26311265.54 -26311265.37 -26311265.19 0.0492 0.0344  
 Earth -76750-09-07 05:30 J -26311265.45 -26311265.27 -26311265.09 0.0492 0.0323 \*  
 Mercury -76749-06-06 11:16 J -26310992.17 -26310992.03 -26310991.89 0.0493 0.0321



Mercury -76749-09-04 19:40 J -26310901.84 -26310901.68 -26310901.51 0.0493 0.0213

Mercury -76743-04-28 11:16 J -26308840.15 -26308840.03 -26308839.91 0.0534 0.0166

Mercury -76743-07-26 18:13 J -26308750.85 -26308750.74 -26308750.63 0.0533 0.0287

Earth -76738-09-11 17:59 J -26306877.98 -26306877.75 -26306877.52 0.0492 0.0121

Moon -76738-09-11 18:42 J -26306877.94 -26306877.72 -26306877.49 0.0492 0.0103 \*

Mercury -76737-03-25 08:23 J -26306682.21 -26306682.15 -26306682.08 0.0492 0.0458

Mercury -76737-06-23 17:01 J -26306591.97 -26306591.79 -26306591.61 0.0493 0.0077

Venus -76732-01-26 03:06 J -26304914.56 -26304914.37 -26304914.17 0.0533 0.0107

Mercury -76731-02-14 15:06 J -26304529.98 -26304529.87 -26304529.76 0.0534 0.0278

Mercury -76731-05-14 22:04 J -26304440.70 -26304440.58 -26304440.46 0.0533 0.0174

Venus -76727-11-28 11:44 J -26302782.21 -26302782.01 -26302781.81 0.0493 0.0156

Earth -76726-09-16 06:13 J -26302490.48 -26302490.24 -26302490.00 0.0492 0.0080

Moon -76726-09-16 07:11 J -26302490.45 -26302490.20 -26302489.96 0.0492 0.0105 \*

Mercury -76725-04-11 14:23 J -26302282.08 -26302281.90 -26302281.72 0.0493 0.0058

Mercury -76725-07-10 22:04 J -26302191.63 -26302191.58 -26302191.52 0.0494 0.0470

Venus -76721-09-30 22:32 J -26300648.70 -26300648.56 -26300648.42 0.0533 0.0378

Mercury -76720-12-03 19:25 J -26300219.77 -26300219.69 -26300219.60 0.0534 0.0385

Mercury -76719-03-03 02:23 J -26300130.53 -26300130.40 -26300130.27 0.0534 0.0066

Mercury -76719-05-31 09:35 J -26300041.12 -26300041.10 -26300041.07 0.0532 0.0520

Venus -76715-08-03 09:06 J -26298516.30 -26298516.12 -26298515.95 0.0494 0.0258

Moon -76714-09-20 13:54 J -26298103.12 -26298102.92 -26298102.72 0.0492 0.0264

Earth -76714-09-20 16:32 J -26298103.01 -26298102.81 -26298102.61 0.0492 0.0277 \*

Mercury -76713-01-29 10:47 J -26297972.21 -26297972.05 -26297971.88 0.0493 0.0199

Mercury -76713-04-28 18:56 J -26297881.84 -26297881.71 -26297881.57 0.0494 0.0332

Earth -76708-03-11 10:04 J -26296104.24 -26296104.08 -26296103.93 0.0535 0.0392

Moon -76708-03-11 13:40 J -26296104.08 -26296103.93 -26296103.78 0.0535 0.0397 \*

Mercury -76708-09-21 23:30 J -26295909.56 -26295909.52 -26295909.47 0.0534 0.0494

Mercury -76708-12-20 06:28 J -26295820.36 -26295820.23 -26295820.11 0.0534 0.0050

Mercury -76707-03-19 13:40 J -26295731.02 -26295730.93 -26295730.85 0.0532 0.0408

Earth -76702-09-25 05:59 J -26293715.30 -26293715.25 -26293715.20 0.0492 0.0479

Moon -76702-09-25 09:49 J -26293715.17 -26293715.09 -26293714.99 0.0492 0.0454  
 Mercury -76702-11-17 08:23 J -26293662.29 -26293662.15 -26293662.02 0.0493 0.0332  
 Mercury -76701-02-15 16:47 J -26293571.96 -26293571.80 -26293571.63 0.0493 0.0202  
 Venus -76697-10-03 17:16 J -26291879.92 -26291879.78 -26291879.65 0.0533 0.0387  
 Moon -76696-03-16 01:40 J -26291716.65 -26291716.43 -26291716.21 0.0534 0.0181  
 Earth -76696-03-16 04:18 J -26291716.54 -26291716.32 -26291716.10 0.0534 0.0149 \*  
 Mercury -76696-10-08 09:35 J -26291510.22 -26291510.10 -26291509.98 0.0534 0.0170  
 Mercury -76695-01-05 16:32 J -26291420.92 -26291420.81 -26291420.70 0.0533 0.0282  
 Venus -76691-08-05 22:18 J -26289747.69 -26289747.57 -26289747.44 0.0493 0.0385  
 Mercury -76690-09-05 05:59 J -26289352.31 -26289352.25 -26289352.19 0.0493 0.0462  
 Mercury -76690-12-04 14:52 J -26289262.06 -26289261.88 -26289261.70 0.0493 0.0074  
 Venus -76685-06-08 11:01 J -26287614.23 -26287614.04 -26287613.85 0.0532 0.0107  
 Earth -76684-03-21 00:42 J -26287328.69 -26287328.47 -26287328.24 0.0534 0.0099  
 Moon -76684-03-21 01:11 J -26287328.67 -26287328.45 -26287328.24 0.0534 0.0102 \*  
 Mercury -76684-07-27 13:11 J -26287200.05 -26287199.95 -26287199.84 0.0534 0.0285  
 Mercury -76684-10-24 20:08 J -26287110.78 -26287110.66 -26287110.54 0.0533 0.0166  
 Mars -76683-05-21 23:44 J -26286901.65 -26286901.51 -26286901.37 0.0530 0.0444  
 Venus -76679-04-10 21:06 J -26285481.83 -26285481.62 -26285481.41 0.0494 0.0022  
 Mercury -76678-09-22 11:59 J -26284952.18 -26284952.00 -26284951.81 0.0493 0.0063  
 Mercury -76678-12-21 19:54 J -26284861.72 -26284861.67 -26284861.61 0.0494 0.0466  
 Earth -76672-03-25 21:49 J -26282940.75 -26282940.59 -26282940.41 0.0535 0.0349  
 Moon -76672-03-25 23:59 J -26282940.66 -26282940.50 -26282940.33 0.0535 0.0379 \*  
 Mercury -76672-05-15 17:01 J -26282889.87 -26282889.79 -26282889.70 0.0534 0.0398  
 Mercury -76672-08-12 23:59 J -26282800.63 -26282800.50 -26282800.37 0.0534 0.0053  
 Mercury -76672-11-10 07:25 J -26282711.23 -26282711.19 -26282711.16 0.0532 0.0507  
 Venus -76668-12-14 19:54 J -26281215.77 -26281215.67 -26281215.57 0.0494 0.0429  
 Earth -76667-09-06 08:23 J -26280950.31 -26280950.15 -26280949.97 0.0492 0.0341  
 Moon -76667-09-06 09:20 J -26280950.26 -26280950.11 -26280949.95 0.0492 0.0359 \*  
 Mercury -76666-07-11 09:20 J -26280642.28 -26280642.11 -26280641.94 0.0493 0.0196  
 Mercury -76666-10-09 17:30 J -26280551.90 -26280551.77 -26280551.64 0.0493 0.0335

Mars -76665-05-20 14:08 J -26280328.05 -26280327.91 -26280327.76 0.0497 0.0424  
 Mercury -76660-03-03 21:35 J -26278579.64 -26278579.60 -26278579.56 0.0535 0.0503  
 Mercury -76660-06-01 04:18 J -26278490.45 -26278490.32 -26278490.19 0.0534 0.0055  
 Mercury -76660-08-29 11:30 J -26278401.10 -26278401.02 -26278400.93 0.0533 0.0399  
 Earth -76655-09-10 18:56 J -26276562.94 -26276562.71 -26276562.48 0.0492 0.0145  
 Moon -76655-09-10 19:25 J -26276562.93 -26276562.69 -26276562.45 0.0492 0.0124 \*  
 Mercury -76654-04-29 05:59 J -26276332.39 -26276332.25 -26276332.12 0.0492 0.0337  
 Mercury -76654-07-28 14:23 J -26276242.07 -26276241.90 -26276241.73 0.0493 0.0197  
 Venus -76649-02-15 02:37 J -26274579.58 -26274579.39 -26274579.21 0.0534 0.0182  
 Mercury -76648-03-20 08:23 J -26274180.27 -26274180.15 -26274180.03 0.0534 0.0165  
 Mercury -76648-06-17 15:35 J -26274090.96 -26274090.85 -26274090.74 0.0533 0.0288  
 Mars -76647-02-24 23:59 J -26273838.72 -26273838.50 -26273838.28 0.0528 0.0298  
 Venus -76644-12-17 08:08 J -26272447.35 -26272447.16 -26272446.97 0.0493 0.0209  
 Moon -76643-09-15 05:30 J -26272175.50 -26272175.27 -26272175.04 0.0492 0.0078  
 Earth -76643-09-15 07:54 J -26272175.41 -26272175.17 -26272174.93 0.0492 0.0058 \*  
 Mercury -76642-02-15 03:20 J -26272022.41 -26272022.36 -26272022.30 0.0492 0.0469  
 Mercury -76642-05-16 12:13 J -26271932.17 -26271931.99 -26271931.81 0.0493 0.0067  
 Venus -76638-10-20 19:25 J -26270313.85 -26270313.69 -26270313.53 0.0532 0.0318  
 Mercury -76636-01-06 11:44 J -26269870.12 -26269870.01 -26269869.90 0.0534 0.0287  
 Mercury -76636-04-05 18:42 J -26269780.84 -26269780.72 -26269780.60 0.0533 0.0164  
 Venus -76632-08-22 06:42 J -26268181.41 -26268181.22 -26268181.03 0.0494 0.0199  
 Earth -76631-09-19 22:04 J -26267787.77 -26267787.58 -26267787.37 0.0492 0.0264  
 Moon -76631-09-20 02:08 J -26267787.62 -26267787.41 -26267787.20 0.0492 0.0241 \*  
 Mercury -76630-03-04 10:04 J -26267622.26 -26267622.08 -26267621.89 0.0493 0.0063  
 Mercury -76630-06-02 17:59 J -26267531.80 -26267531.75 -26267531.69 0.0494 0.0467  
 Mars -76629-02-24 11:01 J -26267265.29 -26267265.04 -26267264.79 0.0498 0.0227  
 Moon -76625-03-10 02:37 J -26265789.52 -26265789.39 -26265789.25 0.0534 0.0434  
 Earth -76625-03-10 05:44 J -26265789.39 -26265789.26 -26265789.12 0.0534 0.0431 \*  
 Mercury -76625-10-25 15:35 J -26265559.93 -26265559.85 -26265559.77 0.0534 0.0401  
 Mercury -76624-01-22 22:18 J -26265470.70 -26265470.57 -26265470.44 0.0533 0.0049

Mercury -76624-04-22 05:30 J -26265381.30 -26265381.27 -26265381.23 0.0532 0.0502

Moon -76619-09-24 07:25 J -26263400.29 -26263400.19 -26263400.08 0.0492 0.0441

Earth -76619-09-24 11:44 J -26263400.08 -26263400.01 -26263399.94 0.0492 0.0467 \*

Mercury -76619-12-21 07:25 J -26263312.36 -26263312.19 -26263312.02 0.0493 0.0197

Mercury -76618-03-21 15:35 J -26263221.98 -26263221.85 -26263221.71 0.0493 0.0335

Venus -76614-10-23 13:54 J -26261545.03 -26261544.92 -26261544.81 0.0534 0.0444

Earth -76613-03-15 03:06 J -26261401.58 -26261401.37 -26261401.15 0.0535 0.0182

Moon -76613-03-15 04:18 J -26261401.52 -26261401.32 -26261401.12 0.0535 0.0211 \*

Mercury -76613-08-13 19:25 J -26261249.72 -26261249.69 -26261249.66 0.0534 0.0514

Mercury -76613-11-11 02:08 J -26261160.53 -26261160.41 -26261160.28 0.0534 0.0068

Mercury -76612-02-08 09:20 J -26261071.19 -26261071.11 -26261071.02 0.0533 0.0389

Venus -76608-08-24 20:52 J -26259412.71 -26259412.63 -26259412.54 0.0493 0.0447

Mercury -76607-10-09 04:32 J -26259002.44 -26259002.31 -26259002.17 0.0492 0.0332

Mercury -76606-01-07 13:11 J -26258912.12 -26258911.95 -26258911.78 0.0493 0.0202

Venus -76602-06-28 09:20 J -26257279.30 -26257279.11 -26257278.91 0.0533 0.0041

Earth -76601-03-20 03:49 J -26257013.57 -26257013.34 -26257013.12 0.0535 0.0075

Moon -76601-03-20 05:30 J -26257013.51 -26257013.27 -26257013.04 0.0535 0.0088 \*

Mercury -76601-08-30 06:28 J -26256850.35 -26256850.23 -26256850.10 0.0534 0.0173

Mercury -76601-11-27 13:40 J -26256761.04 -26256760.93 -26256760.82 0.0533 0.0281

Venus -76596-04-29 18:56 J -26255146.92 -26255146.71 -26255146.50 0.0493 0.0039

Mercury -76595-07-28 01:25 J -26254692.49 -26254692.44 -26254692.39 0.0492 0.0470

Mercury -76595-10-26 10:04 J -26254602.26 -26254602.08 -26254601.89 0.0493 0.0066

Venus -76590-03-03 04:47 J -26253013.33 -26253013.30 -26253013.26 0.0532 0.0522

Moon -76589-03-25 00:42 J -26252625.64 -26252625.47 -26252625.31 0.0535 0.0361

Earth -76589-03-25 03:49 J -26252625.52 -26252625.34 -26252625.16 0.0535 0.0328 \*

Mercury -76589-06-18 10:47 J -26252540.16 -26252540.05 -26252539.94 0.0534 0.0281

Mercury -76589-09-15 17:44 J -26252450.88 -26252450.76 -26252450.64 0.0533 0.0172

Venus -76584-01-02 17:44 J -26250880.89 -26250880.76 -26250880.61 0.0494 0.0367

Earth -76584-09-05 12:42 J -26250635.12 -26250634.97 -26250634.80 0.0492 0.0358

Moon -76584-09-05 13:25 J -26250635.10 -26250634.94 -26250634.78 0.0492 0.0370 \*

Mercury -76583-08-14 07:54 J -26250292.35 -26250292.17 -26250291.98 0.0493 0.0065

Mercury -76583-11-12 15:49 J -26250201.89 -26250201.84 -26250201.78 0.0494 0.0465

Mercury -76577-04-06 14:08 J -26248229.99 -26248229.91 -26248229.82 0.0534 0.0401

Mercury -76577-07-04 21:06 J -26248140.75 -26248140.62 -26248140.50 0.0533 0.0051

Mercury -76577-10-02 04:18 J -26248051.36 -26248051.32 -26248051.28 0.0532 0.0502

Moon -76572-09-09 23:44 J -26246247.73 -26246247.51 -26246247.28 0.0492 0.0131

Earth -76572-09-10 01:54 J -26246247.64 -26246247.42 -26246247.19 0.0492 0.0155 \*

Mercury -76571-06-02 05:44 J -26245982.43 -26245982.26 -26245982.09 0.0493 0.0195

Mercury -76571-08-31 14:08 J -26245892.04 -26245891.91 -26245891.78 0.0494 0.0338

Venus -76566-03-05 23:44 J -26244244.69 -26244244.51 -26244244.34 0.0533 0.0240

Mercury -76565-01-24 17:59 J -26243919.78 -26243919.75 -26243919.71 0.0534 0.0513

Mercury -76565-04-23 00:42 J -26243830.59 -26243830.47 -26243830.34 0.0533 0.0068

Mercury -76565-07-21 07:54 J -26243741.26 -26243741.17 -26243741.08 0.0532 0.0387

Venus -76560-01-05 07:40 J -26242112.36 -26242112.18 -26242112.01 0.0493 0.0276

Earth -76560-09-14 15:20 J -26241860.10 -26241859.86 -26241859.62 0.0492 0.0050

Moon -76560-09-14 19:11 J -26241859.94 -26241859.70 -26241859.46 0.0492 0.0063 \*

Mercury -76559-03-21 03:06 J -26241672.50 -26241672.37 -26241672.23 0.0493 0.0329

Mercury -76559-06-19 11:44 J -26241582.18 -26241582.01 -26241581.84 0.0493 0.0206

Venus -76555-11-08 17:16 J -26239978.95 -26239978.78 -26239978.60 0.0532 0.0254

Mercury -76553-02-10 04:47 J -26239520.42 -26239520.30 -26239520.18 0.0534 0.0180

Mercury -76553-05-09 11:44 J -26239431.12 -26239431.01 -26239430.90 0.0533 0.0274

Venus -76549-09-10 06:42 J -26237846.43 -26237846.22 -26237846.02 0.0494 0.0129

Moon -76548-09-19 00:42 J -26237472.68 -26237472.47 -26237472.25 0.0492 0.0226

Earth -76548-09-19 04:47 J -26237472.50 -26237472.30 -26237472.09 0.0492 0.0253 \*

Mercury -76547-01-07 00:28 J -26237362.54 -26237362.48 -26237362.42 0.0492 0.0462

Mercury -76547-04-07 09:20 J -26237272.30 -26237272.11 -26237271.93 0.0493 0.0074

Earth -76542-03-10 09:20 J -26235474.22 -26235474.11 -26235473.98 0.0534 0.0453

Moon -76542-03-10 11:01 J -26235474.15 -26235474.04 -26235473.93 0.0534 0.0464 \*

Mercury -76542-11-29 09:06 J -26235210.23 -26235210.12 -26235210.01 0.0534 0.0286

Mercury -76541-02-26 16:04 J -26235120.95 -26235120.83 -26235120.71 0.0533 0.0167

Earth -76536-09-23 16:32 J -26233084.89 -26233084.81 -26233084.71 0.0492 0.0452  
 Moon -76536-09-23 20:08 J -26233084.76 -26233084.66 -26233084.54 0.0492 0.0430 \*  
 Mercury -76535-01-24 06:13 J -26232962.42 -26232962.24 -26232962.05 0.0493 0.0064  
 Mercury -76535-04-24 14:08 J -26232871.96 -26232871.91 -26232871.85 0.0494 0.0466  
 Venus -76531-11-11 15:35 J -26231209.87 -26231209.85 -26231209.83 0.0534 0.0531  
 Earth -76530-03-15 10:32 J -26231086.27 -26231086.06 -26231085.84 0.0535 0.0197  
 Moon -76530-03-15 11:44 J -26231086.22 -26231086.01 -26231085.79 0.0535 0.0221 \*  
 Mercury -76530-09-17 13:25 J -26230900.03 -26230899.94 -26230899.86 0.0534 0.0393  
 Mercury -76530-12-15 20:23 J -26230810.78 -26230810.65 -26230810.53 0.0534 0.0061  
 Mercury -76529-03-14 03:35 J -26230721.38 -26230721.35 -26230721.32 0.0532 0.0513  
 Mars -76529-08-15 05:44 J -26230567.50 -26230567.26 -26230567.01 0.0530 0.0204  
 Mercury -76524-11-12 04:04 J -26228652.50 -26228652.33 -26228652.16 0.0493 0.0193  
 Mercury -76523-02-10 12:28 J -26228562.11 -26228561.98 -26228561.85 0.0494 0.0340  
 Venus -76519-07-17 09:35 J -26226944.30 -26226944.10 -26226943.90 0.0533 0.0037  
 Moon -76518-03-20 04:04 J -26226698.55 -26226698.33 -26226698.11 0.0534 0.0069  
 Earth -76518-03-20 06:56 J -26226698.44 -26226698.21 -26226697.98 0.0534 0.0052 \*  
 Mercury -76518-07-06 17:01 J -26226589.83 -26226589.79 -26226589.76 0.0534 0.0510  
 Mercury -76518-10-03 23:44 J -26226500.64 -26226500.51 -26226500.39 0.0533 0.0064  
 Mercury -76517-01-01 06:42 J -26226411.30 -26226411.22 -26226411.13 0.0532 0.0391  
 Venus -76513-05-18 18:28 J -26224811.93 -26224811.73 -26224811.52 0.0494 0.0106  
 Mercury -76512-08-31 01:54 J -26224342.56 -26224342.42 -26224342.28 0.0493 0.0324  
 Mercury -76512-11-29 10:18 J -26224252.23 -26224252.07 -26224251.90 0.0494 0.0213  
 Mars -76511-08-14 20:23 J -26223993.92 -26223993.65 -26223993.39 0.0497 0.0192  
 Venus -76507-03-22 04:04 J -26222678.43 -26222678.33 -26222678.22 0.0531 0.0450  
 Earth -76506-03-25 04:18 J -26222310.51 -26222310.32 -26222310.13 0.0534 0.0300  
 Moon -76506-03-25 08:08 J -26222310.34 -26222310.16 -26222309.98 0.0534 0.0332 \*  
 Mercury -76506-07-23 03:35 J -26222190.47 -26222190.35 -26222190.23 0.0533 0.0176  
 Mercury -76506-10-20 10:32 J -26222101.17 -26222101.06 -26222100.95 0.0533 0.0276  
 Venus -76501-01-22 17:44 J -26220545.93 -26220545.76 -26220545.60 0.0495 0.0300  
 Moon -76501-09-04 19:25 J -26220319.84 -26220319.69 -26220319.54 0.0493 0.0370

Earth -76501-09-04 21:35 J -26220319.76 -26220319.60 -26220319.44 0.0493 0.0362 \*  
 Mercury -76500-06-18 23:16 J -26220032.59 -26220032.53 -26220032.46 0.0493 0.0457  
 Mercury -76500-09-17 08:08 J -26219942.34 -26219942.16 -26219941.98 0.0493 0.0080  
 Mercury -76494-05-11 07:25 J -26217880.29 -26217880.19 -26217880.08 0.0534 0.0290  
 Mercury -76494-08-08 14:23 J -26217791.02 -26217790.90 -26217790.78 0.0533 0.0162  
 Mars -76493-05-20 15:49 J -26217504.92 -26217504.84 -26217504.75 0.0528 0.0498  
 Earth -76489-09-09 10:47 J -26215932.27 -26215932.05 -26215931.82 0.0492 0.0161  
 Moon -76489-09-09 14:37 J -26215932.12 -26215931.89 -26215931.66 0.0492 0.0131 \*  
 Mercury -76488-07-06 05:44 J -26215632.45 -26215632.26 -26215632.08 0.0493 0.0052  
 Mercury -76488-10-04 13:40 J -26215541.97 -26215541.93 -26215541.89 0.0494 0.0477  
 Venus -76483-03-24 23:59 J -26213909.66 -26213909.50 -26213909.34 0.0533 0.0319  
 Mercury -76482-02-27 11:44 J -26213570.09 -26213570.01 -26213569.92 0.0534 0.0396  
 Mercury -76482-05-27 18:42 J -26213480.85 -26213480.72 -26213480.59 0.0534 0.0055  
 Mercury -76482-08-25 01:54 J -26213391.45 -26213391.42 -26213391.38 0.0533 0.0511  
 Venus -76477-01-25 08:08 J -26211777.31 -26211777.16 -26211777.01 0.0493 0.0349  
 Moon -76477-09-13 19:11 J -26211544.93 -26211544.70 -26211544.46 0.0492 0.0049  
 Earth -76477-09-13 23:16 J -26211544.77 -26211544.53 -26211544.29 0.0492 0.0040 \*  
 Mercury -76476-04-24 02:52 J -26211322.55 -26211322.38 -26211322.21 0.0493 0.0188  
 Mercury -76476-07-23 11:01 J -26211232.17 -26211232.04 -26211231.91 0.0493 0.0344  
 Mars -76475-05-20 12:56 J -26210931.08 -26210930.96 -26210930.83 0.0498 0.0448  
 Venus -76472-11-27 19:54 J -26209643.86 -26209643.67 -26209643.48 0.0533 0.0162  
 Mercury -76471-12-16 16:18 J -26209259.86 -26209259.82 -26209259.78 0.0535 0.0501  
 Mercury -76470-03-15 23:01 J -26209170.67 -26209170.54 -26209170.41 0.0534 0.0052  
 Mercury -76470-06-13 06:13 J -26209081.32 -26209081.24 -26209081.16 0.0533 0.0403  
 Venus -76466-09-30 07:25 J -26207511.40 -26207511.19 -26207510.98 0.0494 0.0054  
 Earth -76465-09-18 13:25 J -26207157.15 -26207156.94 -26207156.73 0.0492 0.0244  
 Moon -76465-09-18 16:47 J -26207157.01 -26207156.80 -26207156.59 0.0492 0.0217 \*  
 Mercury -76464-02-10 00:28 J -26207012.61 -26207012.48 -26207012.33 0.0493 0.0318  
 Mercury -76464-05-11 09:06 J -26206922.28 -26206922.12 -26206921.95 0.0493 0.0218  
 Earth -76459-03-09 15:49 J -26205158.94 -26205158.84 -26205158.72 0.0534 0.0465

Moon -76459-03-09 16:18 J -26205158.91 -26205158.82 -26205158.71 0.0534 0.0483 \*  
 Mercury -76458-01-02 02:37 J -26204860.51 -26204860.39 -26204860.27 0.0533 0.0171  
 Mercury -76458-04-01 09:35 J -26204771.21 -26204771.10 -26204770.99 0.0532 0.0282  
 Venus -76454-06-05 05:01 J -26203245.35 -26203245.29 -26203245.22 0.0495 0.0468  
 Moon -76453-09-23 00:56 J -26202769.57 -26202769.46 -26202769.34 0.0493 0.0430  
 Earth -76453-09-23 03:20 J -26202769.45 -26202769.36 -26202769.26 0.0493 0.0450 \*  
 Mercury -76453-11-28 22:18 J -26202702.65 -26202702.57 -26202702.50 0.0493 0.0450  
 Mercury -76452-02-27 07:11 J -26202612.38 -26202612.20 -26202612.02 0.0494 0.0088  
 Moon -76447-03-14 12:13 J -26200771.19 -26200770.99 -26200770.79 0.0534 0.0239  
 Earth -76447-03-14 14:37 J -26200771.09 -26200770.89 -26200770.67 0.0534 0.0215 \*  
 Mercury -76447-10-21 06:28 J -26200550.33 -26200550.23 -26200550.12 0.0533 0.0283  
 Mercury -76446-01-18 13:25 J -26200461.06 -26200460.94 -26200460.82 0.0533 0.0168  
 Mercury -76441-12-16 04:47 J -26198302.48 -26198302.30 -26198302.11 0.0493 0.0044  
 Mercury -76440-03-16 12:56 J -26198211.99 -26198211.96 -26198211.94 0.0494 0.0486  
 Venus -76436-08-05 09:49 J -26196609.28 -26196609.09 -26196608.90 0.0533 0.0114  
 Earth -76435-03-19 11:44 J -26196383.23 -26196383.01 -26196382.78 0.0534 0.0034  
 Moon -76435-03-19 15:35 J -26196383.08 -26196382.85 -26196382.62 0.0534 0.0056 \*  
 Mercury -76435-08-09 10:32 J -26196240.15 -26196240.06 -26196239.98 0.0534 0.0396  
 Mercury -76435-11-06 17:16 J -26196150.91 -26196150.78 -26196150.65 0.0533 0.0054  
 Mercury -76434-02-04 00:28 J -26196061.51 -26196061.48 -26196061.44 0.0532 0.0509  
 Venus -76430-06-07 20:37 J -26194476.84 -26194476.64 -26194476.45 0.0494 0.0186  
 Mercury -76429-10-04 02:23 J -26193992.57 -26193992.40 -26193992.23 0.0493 0.0176  
 Mercury -76428-01-02 10:32 J -26193902.18 -26193902.06 -26193901.93 0.0494 0.0357  
 Venus -76424-04-10 05:01 J -26192343.43 -26192343.29 -26192343.14 0.0532 0.0369  
 Moon -76423-03-24 08:08 J -26191995.34 -26191995.16 -26191994.98 0.0535 0.0316  
 Earth -76423-03-24 11:59 J -26191995.19 -26191995.00 -26191994.81 0.0535 0.0287 \*  
 Mercury -76423-05-28 14:52 J -26191929.92 -26191929.88 -26191929.84 0.0534 0.0502  
 Mercury -76423-08-25 21:35 J -26191840.73 -26191840.60 -26191840.47 0.0534 0.0053  
 Mercury -76423-11-23 04:47 J -26191751.38 -26191751.30 -26191751.22 0.0533 0.0402  
 Venus -76418-02-10 19:25 J -26190210.87 -26190210.69 -26190210.50 0.0494 0.0220



Earth -76418-09-05 07:25 J -26190004.34 -26190004.19 -26190004.02 0.0492 0.0368  
 Moon -76418-09-05 11:16 J -26190004.19 -26190004.03 -26190003.87 0.0492 0.0360 \*  
 Mercury -76417-07-22 23:30 J -26189682.66 -26189682.52 -26189682.37 0.0492 0.0311  
 Mercury -76417-10-21 08:08 J -26189592.33 -26189592.16 -26189592.00 0.0493 0.0224  
 Moon -76411-03-29 15:06 J -26187606.91 -26187606.87 -26187606.82 0.0534 0.0522  
 Mercury -76411-06-14 01:54 J -26187530.54 -26187530.42 -26187530.30 0.0534 0.0160  
 Mercury -76411-09-11 09:06 J -26187441.23 -26187441.12 -26187441.02 0.0533 0.0294  
 Moon -76406-09-09 17:30 J -26185617.00 -26185616.77 -26185616.54 0.0492 0.0134  
 Earth -76406-09-09 21:20 J -26185616.83 -26185616.61 -26185616.38 0.0492 0.0165 \*  
 Mercury -76405-05-10 21:20 J -26185372.69 -26185372.61 -26185372.53 0.0492 0.0440  
 Mercury -76405-08-09 06:13 J -26185282.42 -26185282.24 -26185282.06 0.0493 0.0097  
 Venus -76400-04-13 02:52 J -26183574.50 -26183574.38 -26183574.25 0.0533 0.0410  
 Mercury -76399-04-02 05:44 J -26183220.37 -26183220.26 -26183220.15 0.0533 0.0276  
 Mercury -76399-06-30 12:28 J -26183131.10 -26183130.98 -26183130.85 0.0533 0.0177  
 Venus -76394-02-13 08:52 J -26181442.23 -26181442.13 -26181442.02 0.0494 0.0422  
 Earth -76394-09-14 09:49 J -26181229.33 -26181229.09 -26181228.85 0.0493 0.0040  
 Moon -76394-09-14 13:11 J -26181229.18 -26181228.95 -26181228.72 0.0493 0.0042 \*  
 Mercury -76393-05-28 03:49 J -26180972.52 -26180972.34 -26180972.15 0.0493 0.0036  
 Venus -76389-12-16 22:18 J -26179308.77 -26179308.57 -26179308.37 0.0532 0.0074  
 Mercury -76387-01-19 09:49 J -26178910.18 -26178910.09 -26178910.01 0.0533 0.0387  
 Mercury -76387-04-18 16:32 J -26178820.94 -26178820.81 -26178820.68 0.0533 0.0063  
 Mercury -76387-07-16 23:44 J -26178731.54 -26178731.51 -26178731.48 0.0532 0.0516  
 Venus -76383-10-19 08:08 J -26177176.37 -26177176.16 -26177175.95 0.0494 0.0020  
 Moon -76382-09-18 21:49 J -26176841.81 -26176841.59 -26176841.37 0.0492 0.0216  
 Earth -76382-09-19 00:13 J -26176841.70 -26176841.49 -26176841.28 0.0492 0.0246 \*  
 Mercury -76381-03-16 01:40 J -26176662.61 -26176662.43 -26176662.26 0.0493 0.0167  
 Mercury -76381-06-14 09:49 J -26176572.21 -26176572.09 -26176571.96 0.0494 0.0367  
 Moon -76376-03-08 19:54 J -26174843.73 -26174843.67 -26174843.60 0.0533 0.0508  
 Earth -76376-03-08 22:04 J -26174843.67 -26174843.58 -26174843.47 0.0533 0.0480 \*  
 Mercury -76376-11-07 13:40 J -26174599.97 -26174599.93 -26174599.89 0.0534 0.0500

Mercury -76375-02-04 20:23 J -26174510.78 -26174510.65 -26174510.52 0.0533 0.0052

Mercury -76375-05-05 03:20 J -26174421.44 -26174421.36 -26174421.27 0.0532 0.0403

Mars -76375-11-09 10:04 J -26174233.35 -26174233.08 -26174232.82 0.0529 0.0034

Venus -76371-06-24 07:40 J -26172910.31 -26172910.18 -26172910.05 0.0495 0.0385

Earth -76370-09-23 14:37 J -26172453.98 -26172453.89 -26172453.79 0.0492 0.0448

Moon -76370-09-23 14:52 J -26172453.98 -26172453.88 -26172453.78 0.0492 0.0441 \*

Mercury -76369-01-02 23:01 J -26172352.68 -26172352.54 -26172352.39 0.0493 0.0299

Mercury -76369-04-02 07:40 J -26172262.34 -26172262.18 -26172262.02 0.0493 0.0237

Earth -76364-03-13 22:18 J -26170455.78 -26170455.57 -26170455.37 0.0534 0.0228

Moon -76364-03-14 01:54 J -26170455.62 -26170455.42 -26170455.21 0.0534 0.0247 \*

Mercury -76364-11-24 00:42 J -26170200.59 -26170200.47 -26170200.35 0.0534 0.0160

Mercury -76363-02-21 07:40 J -26170111.29 -26170111.18 -26170111.07 0.0533 0.0294

Mercury -76358-10-21 20:08 J -26168042.74 -26168042.66 -26168042.56 0.0492 0.0434

Mercury -76357-01-20 05:16 J -26167952.46 -26167952.28 -26167952.10 0.0493 0.0104

Mars -76357-11-08 10:18 J -26167659.35 -26167659.07 -26167658.78 0.0497 0.0068

Venus -76353-08-24 13:40 J -26166274.11 -26166273.93 -26166273.75 0.0533 0.0214

Moon -76352-03-18 19:40 J -26166067.90 -26166067.68 -26166067.45 0.0535 0.0053

Earth -76352-03-18 23:44 J -26166067.74 -26166067.51 -26166067.28 0.0535 0.0029 \*

Mercury -76352-09-12 05:01 J -26165890.40 -26165890.29 -26165890.18 0.0534 0.0266

Mercury -76352-12-10 11:59 J -26165801.12 -26165801.00 -26165800.88 0.0533 0.0188

Venus -76347-06-26 22:47 J -26164141.72 -26164141.55 -26164141.37 0.0494 0.0268

Mercury -76346-11-08 03:06 J -26163642.55 -26163642.37 -26163642.18 0.0493 0.0025

Venus -76341-04-29 09:20 J -26162008.28 -26162008.11 -26162007.94 0.0532 0.0270

Earth -76340-03-23 22:04 J -26161679.78 -26161679.58 -26161679.39 0.0534 0.0282

Moon -76340-03-24 00:42 J -26161679.64 -26161679.47 -26161679.28 0.0534 0.0304 \*

Mercury -76340-07-01 09:06 J -26161580.21 -26161580.12 -26161580.04 0.0533 0.0379

Mercury -76340-09-28 15:49 J -26161490.97 -26161490.84 -26161490.72 0.0533 0.0071

Mercury -76340-12-26 23:01 J -26161401.56 -26161401.54 -26161401.53 0.0532 0.0524

Venus -76335-03-01 19:54 J -26159875.87 -26159875.67 -26159875.47 0.0495 0.0149

Moon -76335-09-04 13:40 J -26159689.09 -26159688.93 -26159688.77 0.0493 0.0356

Earth -76335-09-04 17:16 J -26159688.92 -26159688.78 -26159688.61 0.0493 0.0370 \*  
 Mercury -76334-08-27 00:42 J -26159332.65 -26159332.47 -26159332.30 0.0493 0.0159  
 Mercury -76334-11-25 09:06 J -26159242.24 -26159242.12 -26159242.00 0.0494 0.0377  
 Moon -76328-03-28 18:42 J -26157291.79 -26157291.72 -26157291.63 0.0534 0.0500  
 Earth -76328-03-28 19:40 J -26157291.70 -26157291.68 -26157291.64 0.0534 0.0528 \*  
 Mercury -76328-04-19 13:11 J -26157270.00 -26157269.95 -26157269.91 0.0533 0.0489  
 Mercury -76328-07-17 19:40 J -26157180.80 -26157180.68 -26157180.55 0.0533 0.0043  
 Mercury -76328-10-15 02:37 J -26157091.46 -26157091.39 -26157091.30 0.0532 0.0412  
 Earth -76323-09-09 07:11 J -26155301.42 -26155301.20 -26155300.97 0.0493 0.0166  
 Moon -76323-09-09 10:32 J -26155301.28 -26155301.06 -26155300.83 0.0493 0.0135 \*  
 Mercury -76322-06-14 22:18 J -26155022.72 -26155022.57 -26155022.42 0.0493 0.0291  
 Mercury -76322-09-13 06:56 J -26154932.37 -26154932.21 -26154932.05 0.0494 0.0247  
 Venus -76317-05-02 04:18 J -26153239.39 -26153239.32 -26153239.25 0.0533 0.0494  
 Mercury -76316-05-05 23:30 J -26152870.64 -26152870.52 -26152870.40 0.0533 0.0157  
 Mercury -76316-08-03 06:28 J -26152781.33 -26152781.23 -26152781.12 0.0532 0.0296  
 Moon -76311-09-13 19:25 J -26150913.93 -26150913.69 -26150913.44 0.0492 0.0038  
 Earth -76311-09-13 21:49 J -26150913.83 -26150913.59 -26150913.35 0.0492 0.0040 \*  
 Mercury -76310-04-02 19:54 J -26150712.77 -26150712.67 -26150712.58 0.0493 0.0422  
 Mercury -76310-07-02 04:47 J -26150622.48 -26150622.30 -26150622.12 0.0493 0.0117  
 Venus -76305-01-05 23:44 J -26148973.71 -26148973.51 -26148973.31 0.0532 0.0011  
 Mercury -76304-02-22 03:49 J -26148560.45 -26148560.34 -26148560.23 0.0534 0.0265  
 Mercury -76304-05-22 10:47 J -26148471.17 -26148471.05 -26148470.93 0.0533 0.0188  
 Venus -76300-11-07 10:47 J -26146841.25 -26146841.05 -26146840.84 0.0494 0.0102  
 Earth -76299-09-18 11:01 J -26146526.24 -26146526.04 -26146525.82 0.0492 0.0244  
 Moon -76299-09-18 11:30 J -26146526.22 -26146526.02 -26146525.81 0.0492 0.0216 \*  
 Mercury -76298-04-20 02:08 J -26146312.59 -26146312.41 -26146312.22 0.0493 0.0017  
 Venus -76294-09-10 19:25 J -26144707.78 -26144707.69 -26144707.59 0.0531 0.0468  
 Earth -76293-03-08 09:35 J -26144528.20 -26144528.10 -26144528.01 0.0534 0.0484  
 Moon -76293-03-08 13:11 J -26144528.01 -26144527.95 -26144527.90 0.0534 0.0516 \*  
 Mercury -76293-12-11 08:08 J -26144250.25 -26144250.16 -26144250.07 0.0534 0.0371

Mercury -76292-03-10 15:06 J -26144161.00 -26144160.87 -26144160.75 0.0533 0.0082

Venus -76288-07-13 10:18 J -26142575.24 -26142575.07 -26142574.91 0.0495 0.0301

Earth -76287-09-23 01:54 J -26142138.52 -26142138.42 -26142138.32 0.0492 0.0446

Moon -76287-09-23 03:49 J -26142138.43 -26142138.34 -26142138.23 0.0492 0.0449 \*

Mercury -76286-02-05 23:59 J -26142002.67 -26142002.50 -26142002.32 0.0493 0.0146

Mercury -76286-05-07 08:08 J -26141912.26 -26141912.16 -26141912.04 0.0494 0.0388

Moon -76281-03-13 05:59 J -26140140.45 -26140140.25 -26140140.05 0.0533 0.0247

Earth -76281-03-13 09:49 J -26140140.29 -26140140.09 -26140139.88 0.0533 0.0229 \*

Mercury -76281-09-29 12:13 J -26139940.04 -26139939.99 -26139939.93 0.0533 0.0481

Mercury -76281-12-27 18:56 J -26139850.84 -26139850.71 -26139850.58 0.0533 0.0034

Mercury -76280-03-27 01:54 J -26139761.49 -26139761.42 -26139761.34 0.0532 0.0420

Mercury -76275-11-24 21:06 J -26137692.77 -26137692.62 -26137692.46 0.0493 0.0284

Mercury -76274-02-23 05:59 J -26137602.41 -26137602.25 -26137602.09 0.0494 0.0255

Venus -76270-09-13 17:16 J -26135938.94 -26135938.78 -26135938.62 0.0532 0.0308

Earth -76269-03-18 08:37 J -26135752.37 -26135752.14 -26135751.91 0.0533 0.0022

Moon -76269-03-18 11:44 J -26135752.23 -26135752.01 -26135751.78 0.0533 0.0051 \*

Mercury -76269-10-15 23:01 J -26135540.66 -26135540.54 -26135540.42 0.0533 0.0145

Mercury -76268-01-13 05:59 J -26135451.36 -26135451.25 -26135451.15 0.0532 0.0307

Venus -76264-07-15 23:01 J -26133806.69 -26133806.54 -26133806.39 0.0494 0.0337

Mercury -76263-09-12 18:42 J -26133382.81 -26133382.72 -26133382.62 0.0493 0.0416

Mercury -76263-12-12 03:49 J -26133292.52 -26133292.34 -26133292.17 0.0494 0.0124

Venus -76258-05-19 10:47 J -26131673.24 -26131673.05 -26131672.87 0.0531 0.0185

Moon -76257-03-23 03:06 J -26131364.57 -26131364.37 -26131364.17 0.0534 0.0277

Earth -76257-03-23 04:32 J -26131364.51 -26131364.31 -26131364.11 0.0534 0.0266 \*

Mercury -76257-08-04 02:37 J -26131230.50 -26131230.39 -26131230.28 0.0533 0.0261

Mercury -76257-11-01 09:35 J -26131141.22 -26131141.10 -26131140.98 0.0533 0.0191

Mars -76256-04-30 11:16 J -26130961.19 -26130961.03 -26130960.86 0.0530 0.0409

Venus -76252-03-20 22:32 J -26129540.77 -26129540.56 -26129540.36 0.0495 0.0065

Earth -76252-09-04 05:16 J -26129373.43 -26129373.28 -26129373.12 0.0493 0.0370

Moon -76252-09-04 08:37 J -26129373.30 -26129373.14 -26129372.98 0.0493 0.0349 \*

Mercury -76251-09-30 01:25 J -26128982.62 -26128982.44 -26128982.25 0.0493 0.0008

Moon -76245-03-28 02:23 J -26126976.48 -26126976.40 -26126976.30 0.0534 0.0485

Earth -76245-03-28 03:20 J -26126976.42 -26126976.36 -26126976.30 0.0534 0.0514 \*

Mercury -76245-05-23 06:56 J -26126920.30 -26126920.21 -26126920.12 0.0534 0.0370

Mercury -76245-08-20 13:40 J -26126831.05 -26126830.93 -26126830.80 0.0533 0.0081

Venus -76241-11-23 21:49 J -26125274.65 -26125274.59 -26125274.53 0.0495 0.0469

Moon -76240-09-08 16:18 J -26124986.05 -26124985.82 -26124985.58 0.0493 0.0139

Earth -76240-09-08 18:42 J -26124985.95 -26124985.72 -26124985.50 0.0493 0.0167 \*

Mercury -76239-07-18 22:47 J -26124672.73 -26124672.55 -26124672.37 0.0493 0.0142

Mercury -76239-10-17 06:56 J -26124582.31 -26124582.21 -26124582.09 0.0494 0.0393

Mars -76238-04-30 04:04 J -26124387.54 -26124387.33 -26124387.10 0.0497 0.0317

Mercury -76233-03-11 11:16 J -26122610.08 -26122610.03 -26122609.97 0.0534 0.0476

Mercury -76233-06-08 17:59 J -26122520.87 -26122520.75 -26122520.62 0.0533 0.0031

Mercury -76233-09-06 01:11 J -26122431.52 -26122431.45 -26122431.37 0.0532 0.0429

Earth -76228-09-13 08:37 J -26120598.38 -26120598.14 -26120597.90 0.0492 0.0037

Moon -76228-09-13 08:52 J -26120598.36 -26120598.13 -26120597.90 0.0492 0.0027 \*

Mercury -76227-05-06 20:37 J -26120362.80 -26120362.64 -26120362.49 0.0493 0.0272

Mercury -76227-08-05 05:01 J -26120272.44 -26120272.29 -26120272.13 0.0494 0.0266

Venus -76222-01-25 04:04 J -26118638.52 -26118638.33 -26118638.13 0.0532 0.0111

Mercury -76221-03-27 22:04 J -26118210.70 -26118210.58 -26118210.45 0.0533 0.0139

Mercury -76221-06-25 05:01 J -26118121.39 -26118121.29 -26118121.19 0.0532 0.0314

Mars -76220-02-03 07:11 J -26117898.40 -26117898.20 -26117897.98 0.0528 0.0324

Venus -76217-11-26 10:18 J -26116506.27 -26116506.07 -26116505.88 0.0494 0.0168

Earth -76216-09-17 19:25 J -26116210.90 -26116210.69 -26116210.48 0.0493 0.0239

Moon -76216-09-17 21:20 J -26116210.83 -26116210.61 -26116210.39 0.0493 0.0213 \*

Mercury -76215-02-22 17:16 J -26116052.87 -26116052.78 -26116052.67 0.0493 0.0413

Mercury -76215-05-24 02:23 J -26115962.57 -26115962.40 -26115962.22 0.0494 0.0129

Venus -76211-09-29 23:16 J -26114372.66 -26114372.53 -26114372.38 0.0531 0.0371

Moon -76210-03-08 15:20 J -26114212.89 -26114212.86 -26114212.81 0.0533 0.0524

Earth -76210-03-08 19:25 J -26114212.77 -26114212.69 -26114212.60 0.0533 0.0488

Mercury -76209-01-15 02:08 J -26113900.52 -26113900.41 -26113900.30 0.0533 0.0250

Mercury -76209-04-13 08:52 J -26113811.25 -26113811.13 -26113811.01 0.0532 0.0201

Venus -76205-08-01 09:06 J -26112240.30 -26112240.12 -26112239.94 0.0495 0.0238

Moon -76204-09-22 06:28 J -26111823.31 -26111823.23 -26111823.14 0.0493 0.0453

Earth -76204-09-22 10:04 J -26111823.18 -26111823.08 -26111822.98 0.0493 0.0442 \*

Mercury -76203-03-12 00:13 J -26111652.68 -26111652.49 -26111652.31 0.0494 0.0011

Mars -76202-02-03 09:06 J -26111324.32 -26111324.12 -26111323.92 0.0498 0.0353

Earth -76198-03-13 15:20 J -26109825.07 -26109824.86 -26109824.66 0.0533 0.0247

Moon -76198-03-13 18:42 J -26109824.91 -26109824.72 -26109824.52 0.0533 0.0256 \*

Mercury -76198-11-03 05:44 J -26109590.35 -26109590.26 -26109590.16 0.0533 0.0367

Mercury -76197-01-31 12:28 J -26109501.10 -26109500.98 -26109500.85 0.0533 0.0085

Mercury -76192-12-28 21:49 J -26107342.77 -26107342.59 -26107342.41 0.0493 0.0135

Mercury -76191-03-29 05:59 J -26107252.35 -26107252.25 -26107252.14 0.0494 0.0401

Venus -76187-10-02 17:16 J -26105603.91 -26105603.78 -26105603.64 0.0532 0.0385

Moon -76186-03-18 11:59 J -26105437.23 -26105437.00 -26105436.76 0.0534 0.0033

Earth -76186-03-18 13:54 J -26105437.15 -26105436.92 -26105436.69 0.0534 0.0002 \*

Mercury -76186-08-22 10:04 J -26105280.14 -26105280.08 -26105280.03 0.0534 0.0476

Mercury -76186-11-19 16:32 J -26105190.93 -26105190.81 -26105190.68 0.0533 0.0031

Mercury -76185-02-16 23:44 J -26105101.59 -26105101.51 -26105101.44 0.0532 0.0427

Venus -76181-08-04 00:42 J -26103471.57 -26103471.47 -26103471.35 0.0494 0.0417

Mercury -76180-10-16 18:56 J -26103032.86 -26103032.71 -26103032.55 0.0493 0.0270

Mercury -76179-01-15 03:35 J -26102942.50 -26102942.35 -26102942.19 0.0494 0.0268

Venus -76175-06-07 12:56 J -26101338.15 -26101337.96 -26101337.76 0.0532 0.0097

Moon -76174-03-23 13:25 J -26101049.13 -26101048.94 -26101048.75 0.0534 0.0261

Earth -76174-03-23 13:54 J -26101049.12 -26101048.92 -26101048.72 0.0534 0.0257 \*

Mercury -76174-09-07 20:52 J -26100880.75 -26100880.63 -26100880.50 0.0533 0.0136

Mercury -76174-12-06 03:49 J -26100791.44 -26100791.34 -26100791.23 0.0533 0.0319

Venus -76169-04-08 23:44 J -26099205.72 -26099205.51 -26099205.30 0.0494 0.0013

Moon -76169-09-03 12:56 J -26099058.13 -26099057.96 -26099057.79 0.0493 0.0351

Earth -76169-09-03 15:06 J -26099058.02 -26099057.87 -26099057.72 0.0493 0.0374 \*

Mercury -76168-08-04 16:32 J -26098722.91 -26098722.81 -26098722.70 0.0493 0.0402

Mercury -76168-11-03 01:25 J -26098632.61 -26098632.44 -26098632.26 0.0494 0.0139

Earth -76162-03-28 13:25 J -26096661.00 -26096660.94 -26096660.87 0.0533 0.0510

Moon -76162-03-28 15:35 J -26096660.94 -26096660.85 -26096660.74 0.0533 0.0476 \*

Mercury -76162-06-27 01:11 J -26096570.56 -26096570.45 -26096570.34 0.0533 0.0245

Mercury -76162-09-24 07:54 J -26096481.29 -26096481.17 -26096481.05 0.0532 0.0206

Venus -76158-12-13 20:08 J -26094939.78 -26094939.66 -26094939.55 0.0496 0.0409

Earth -76157-09-08 00:13 J -26094670.71 -26094670.49 -26094670.26 0.0493 0.0177

Moon -76157-09-08 00:56 J -26094670.68 -26094670.46 -26094670.24 0.0493 0.0154 \*

Mercury -76156-08-21 22:32 J -26094322.75 -26094322.56 -26094322.38 0.0494 0.0008

Mercury -76150-04-15 05:01 J -26092260.38 -26092260.29 -26092260.19 0.0533 0.0357

Mercury -76150-07-13 11:44 J -26092171.13 -26092171.01 -26092170.88 0.0532 0.0095

Earth -76145-09-12 13:54 J -26090283.16 -26090282.92 -26090282.68 0.0493 0.0027

Moon -76145-09-12 15:35 J -26090283.09 -26090282.85 -26090282.60 0.0493 0.0011 \*

Mercury -76144-06-09 19:54 J -26090012.84 -26090012.67 -26090012.49 0.0494 0.0135

Mercury -76144-09-08 04:32 J -26089922.42 -26089922.31 -26089922.21 0.0494 0.0402

Venus -76139-02-13 03:49 J -26088303.53 -26088303.34 -26088303.16 0.0532 0.0186

Mercury -76138-02-01 08:52 J -26087950.19 -26087950.13 -26087950.08 0.0533 0.0474

Mercury -76138-05-01 15:20 J -26087860.99 -26087860.86 -26087860.73 0.0533 0.0027

Mercury -76138-07-29 22:18 J -26087771.64 -26087771.57 -26087771.49 0.0532 0.0428

Venus -76134-12-16 11:01 J -26086171.21 -26086171.04 -26086170.85 0.0494 0.0245

Moon -76133-09-17 00:56 J -26085895.66 -26085895.46 -26085895.24 0.0493 0.0209

Earth -76133-09-17 04:32 J -26085895.52 -26085895.31 -26085895.10 0.0493 0.0232 \*

Mercury -76132-03-28 17:30 J -26085702.92 -26085702.77 -26085702.61 0.0493 0.0267

Mercury -76132-06-27 02:23 J -26085612.55 -26085612.40 -26085612.25 0.0494 0.0272

Venus -76128-10-18 22:04 J -26084037.73 -26084037.58 -26084037.41 0.0531 0.0301

Earth -76127-03-07 21:49 J -26083897.65 -26083897.59 -26083897.53 0.0533 0.0513

Mercury -76126-02-17 19:25 J -26083550.81 -26083550.69 -26083550.57 0.0533 0.0138

Mercury -76126-05-18 02:23 J -26083461.50 -26083461.40 -26083461.30 0.0532 0.0315

Venus -76122-08-21 10:04 J -26081905.27 -26081905.08 -26081904.88 0.0495 0.0162

Earth -76121-09-21 17:44 J -26081507.86 -26081507.76 -26081507.64 0.0493 0.0434  
 Moon -76121-09-21 22:04 J -26081507.67 -26081507.58 -26081507.48 0.0493 0.0451 \*  
 Mercury -76120-01-14 14:37 J -26081392.99 -26081392.89 -26081392.78 0.0493 0.0403  
 Mercury -76120-04-14 23:44 J -26081302.69 -26081302.51 -26081302.34 0.0494 0.0137  
 Moon -76115-03-12 19:25 J -26079509.89 -26079509.69 -26079509.48 0.0534 0.0263  
 Earth -76115-03-12 21:49 J -26079509.79 -26079509.59 -26079509.39 0.0534 0.0262 \*  
 Mercury -76115-12-06 23:44 J -26079240.62 -26079240.51 -26079240.40 0.0534 0.0247  
 Mercury -76114-03-06 06:28 J -26079151.34 -26079151.23 -26079151.11 0.0533 0.0207  
 Mercury -76108-01-31 21:20 J -26076992.80 -26076992.61 -26076992.43 0.0493 0.0006  
 Venus -76104-10-21 19:54 J -26075268.75 -26075268.67 -26075268.58 0.0532 0.0475  
 Moon -76103-03-17 22:32 J -26075121.78 -26075121.56 -26075121.34 0.0533 0.0027  
 Earth -76103-03-17 22:47 J -26075121.78 -26075121.55 -26075121.32 0.0533 0.0005 \*  
 Mercury -76103-09-25 04:04 J -26074930.43 -26074930.33 -26074930.24 0.0533 0.0355  
 Mercury -76103-12-23 10:47 J -26074841.18 -26074841.05 -26074840.93 0.0532 0.0097  
 Mars -76102-07-26 01:54 J -26074626.67 -26074626.42 -26074626.16 0.0529 0.0137  
 Venus -76098-08-23 21:49 J -26073136.64 -26073136.59 -26073136.52 0.0494 0.0472  
 Mercury -76097-11-19 17:59 J -26072682.93 -26072682.75 -26072682.57 0.0494 0.0137  
 Mercury -76096-02-18 02:23 J -26072592.50 -26072592.40 -26072592.29 0.0495 0.0400  
 Venus -76092-06-26 15:20 J -26071003.06 -26071002.86 -26071002.66 0.0532 0.0007  
 Earth -76091-03-22 20:52 J -26070733.83 -26070733.63 -26070733.42 0.0533 0.0244  
 Moon -76091-03-22 23:01 J -26070733.75 -26070733.54 -26070733.33 0.0533 0.0241 \*  
 Mercury -76091-07-14 07:54 J -26070620.22 -26070620.17 -26070620.11 0.0533 0.0466  
 Mercury -76091-10-11 14:37 J -26070531.02 -26070530.89 -26070530.76 0.0532 0.0018  
 Mercury -76090-01-08 21:35 J -26070441.67 -26070441.60 -26070441.53 0.0531 0.0434  
 Venus -76086-04-28 20:23 J -26068870.86 -26068870.65 -26068870.44 0.0495 0.0065  
 Earth -76086-09-03 17:16 J -26068742.91 -26068742.78 -26068742.62 0.0494 0.0392  
 Moon -76086-09-03 17:59 J -26068742.89 -26068742.75 -26068742.59 0.0494 0.0369 \*  
 Mercury -76085-09-07 15:20 J -26068373.01 -26068372.86 -26068372.71 0.0494 0.0271  
 Mercury -76085-12-07 00:13 J -26068282.65 -26068282.49 -26068282.34 0.0494 0.0269  
 Mars -76084-07-24 11:44 J -26068053.29 -26068053.01 -26068052.72 0.0497 0.0069



Venus -76080-03-01 07:54 J -26066737.22 -26066737.17 -26066737.10 0.0530 0.0502  
 Moon -76079-03-27 11:59 J -26066346.12 -26066346.00 -26066345.88 0.0533 0.0449  
 Earth -76079-03-27 14:52 J -26066345.97 -26066345.88 -26066345.78 0.0533 0.0482 \*  
 Mercury -76079-07-30 17:59 J -26066220.87 -26066220.75 -26066220.62 0.0533 0.0139  
 Mercury -76079-10-28 00:56 J -26066131.56 -26066131.46 -26066131.36 0.0532 0.0314  
 Venus -76074-01-01 19:40 J -26064604.83 -26064604.68 -26064604.52 0.0496 0.0339  
 Earth -76074-09-08 07:40 J -26064355.40 -26064355.18 -26064354.96 0.0493 0.0187  
 Moon -76074-09-08 09:06 J -26064355.35 -26064355.12 -26064354.89 0.0493 0.0172 \*  
 Mercury -76073-06-26 12:56 J -26064063.07 -26064062.96 -26064062.86 0.0493 0.0404  
 Mercury -76073-09-24 21:49 J -26063972.76 -26063972.59 -26063972.41 0.0494 0.0138  
 Mercury -76067-05-18 22:04 J -26061910.70 -26061910.58 -26061910.47 0.0533 0.0252  
 Mercury -76067-08-16 04:47 J -26061821.42 -26061821.30 -26061821.18 0.0532 0.0201  
 Moon -76062-09-12 17:30 J -26059968.00 -26059967.77 -26059967.54 0.0493 0.0009  
 Earth -76062-09-12 20:37 J -26059967.87 -26059967.64 -26059967.40 0.0493 0.0019 \*  
 Mercury -76061-07-13 19:11 J -26059662.89 -26059662.70 -26059662.52 0.0493 0.0007  
 Venus -76056-03-04 03:06 J -26057968.54 -26057968.37 -26057968.20 0.0532 0.0258  
 Mercury -76055-03-07 02:08 J -26057600.50 -26057600.41 -26057600.32 0.0534 0.0361  
 Mercury -76055-06-04 08:52 J -26057511.25 -26057511.13 -26057511.00 0.0533 0.0091  
 Venus -76050-01-04 10:18 J -26055836.24 -26055836.07 -26055835.91 0.0494 0.0309  
 Earth -76050-09-17 09:35 J -26055580.31 -26055580.10 -26055579.88 0.0493 0.0218  
 Moon -76050-09-17 13:40 J -26055580.15 -26055579.93 -26055579.71 0.0493 0.0198 \*  
 Mercury -76049-05-01 16:32 J -26055352.99 -26055352.81 -26055352.63 0.0493 0.0133  
 Mercury -76049-07-31 00:56 J -26055262.56 -26055262.46 -26055262.35 0.0494 0.0403  
 Venus -76045-11-06 23:30 J -26053702.70 -26053702.52 -26053702.34 0.0531 0.0219  
 Earth -76044-03-07 04:18 J -26053582.35 -26053582.32 -26053582.28 0.0533 0.0526  
 Mercury -76044-12-24 06:28 J -26053290.28 -26053290.23 -26053290.17 0.0533 0.0468  
 Mercury -76043-03-23 13:11 J -26053201.08 -26053200.95 -26053200.82 0.0533 0.0020  
 Mercury -76043-06-20 20:08 J -26053111.73 -26053111.66 -26053111.59 0.0532 0.0434  
 Venus -76039-09-09 05:59 J -26051570.45 -26051570.25 -26051570.04 0.0495 0.0112  
 Moon -76038-09-21 15:20 J -26051192.98 -26051192.86 -26051192.75 0.0493 0.0429

Earth -76038-09-21 19:11 J -26051192.82 -26051192.70 -26051192.56 0.0493 0.0415 \*  
 Mercury -76037-02-18 12:56 J -26051043.12 -26051042.96 -26051042.81 0.0494 0.0278  
 Mercury -76037-05-18 21:35 J -26050952.75 -26050952.60 -26050952.44 0.0494 0.0263  
 Earth -76032-03-12 03:35 J -26049194.55 -26049194.35 -26049194.16 0.0533 0.0278  
 Moon -76032-03-12 03:49 J -26049194.53 -26049194.34 -26049194.15 0.0533 0.0270 \*  
 Mercury -76031-01-09 17:01 J -26048890.91 -26048890.79 -26048890.66 0.0533 0.0133  
 Mercury -76031-04-08 23:59 J -26048801.60 -26048801.50 -26048801.40 0.0532 0.0320  
 Mercury -76026-12-07 10:04 J -26046733.18 -26046733.08 -26046732.98 0.0493 0.0413  
 Mercury -76025-03-06 19:11 J -26046642.88 -26046642.70 -26046642.52 0.0494 0.0130  
 Earth -76020-03-16 21:35 J -26044806.83 -26044806.60 -26044806.37 0.0533 0.0039  
 Moon -76020-03-16 23:16 J -26044806.77 -26044806.53 -26044806.30 0.0533 0.0007 \*  
 Mercury -76020-10-28 20:23 J -26044580.76 -26044580.65 -26044580.54 0.0533 0.0254  
 Mercury -76019-01-26 03:06 J -26044491.48 -26044491.37 -26044491.25 0.0532 0.0199  
 Mercury -76014-12-24 16:47 J -26042332.98 -26042332.80 -26042332.61 0.0494 0.0010  
 Venus -76009-07-15 11:16 J -26040668.23 -26040668.03 -26040667.84 0.0532 0.0048  
 Moon -76008-03-21 15:35 J -26040419.05 -26040418.85 -26040418.64 0.0534 0.0205  
 Earth -76008-03-21 18:28 J -26040418.94 -26040418.73 -26040418.52 0.0534 0.0208 \*  
 Mercury -76008-08-17 00:13 J -26040270.58 -26040270.49 -26040270.39 0.0533 0.0368  
 Mercury -76008-11-14 06:56 J -26040181.33 -26040181.21 -26040181.08 0.0533 0.0084  
 Venus -76003-05-17 19:11 J -26038535.90 -26038535.70 -26038535.50 0.0494 0.0130  
 Earth -76003-09-02 23:01 J -26038427.67 -26038427.54 -26038427.40 0.0493 0.0404  
 Moon -76003-09-03 00:13 J -26038427.65 -26038427.49 -26038427.33 0.0493 0.0376 \*  
 Mercury -76002-10-12 13:54 J -26038023.09 -26038022.92 -26038022.74 0.0493 0.0140  
 Mercury -76001-01-10 22:18 J -26037932.67 -26037932.57 -26037932.46 0.0494 0.0397

# 76TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 76th millennium BCE.**

PLANET	MAX-	C	START	MAX	END	SUNRAD	DEPTH	S
	TRANSIT							
	TIME							
Venus	-75997-03-20 05:30 J	-26036402.38	-26036402.27	-26036402.16	0.0531	0.0440		
Earth	-75996-03-26 16:32 J	-26036030.92	-26036030.81	-26036030.69	0.0534	0.0457		
Moon	-75996-03-26 20:08 J	-26036030.79	-26036030.66	-26036030.52	0.0534	0.0425	*	
Mercury	-75996-06-05 04:32 J	-26035960.37	-26035960.31	-26035960.26	0.0534	0.0478		
Mercury	-75996-09-02 11:01 J	-26035871.16	-26035871.04	-26035870.91	0.0533	0.0032		
Mercury	-75996-11-30 18:13 J	-26035781.82	-26035781.74	-26035781.67	0.0532	0.0426		
Venus	-75991-01-20 17:44 J	-26034269.93	-26034269.76	-26034269.59	0.0495	0.0278		
Moon	-75991-09-07 08:23 J	-26034040.36	-26034040.15	-26034039.94	0.0493	0.0196		
Earth	-75991-09-07 11:16 J	-26034040.24	-26034040.03	-26034039.81	0.0493	0.0204	*	
Mercury	-75990-07-31 11:16 J	-26033713.19	-26033713.03	-26033712.88	0.0493	0.0275		
Mercury	-75990-10-29 19:54 J	-26033622.82	-26033622.67	-26033622.51	0.0494	0.0264		
Mercury	-75984-06-21 15:20 J	-26031560.98	-26031560.86	-26031560.73	0.0533	0.0138		
Mercury	-75984-09-18 22:18 J	-26031471.67	-26031471.57	-26031471.47	0.0532	0.0315		
Earth	-75979-09-11 19:54 J	-26029652.91	-26029652.67	-26029652.43	0.0493	0.0009		
Moon	-75979-09-11 23:59 J	-26029652.74	-26029652.50	-26029652.26	0.0493	0.0037	*	
Mercury	-75978-05-19 07:25 J	-26029403.29	-26029403.19	-26029403.10	0.0493	0.0422		
Mercury	-75978-08-17 16:32 J	-26029312.99	-26029312.81	-26029312.64	0.0494	0.0121		
Venus	-75973-03-23 02:52 J	-26027633.53	-26027633.38	-26027633.22	0.0532	0.0334		
Mercury	-75972-04-09 19:25 J	-26027250.80	-26027250.69	-26027250.58	0.0533	0.0249		
Mercury	-75972-07-08 02:08 J	-26027161.53	-26027161.41	-26027161.29	0.0532	0.0202		
Venus	-75967-01-23 04:32 J	-26025501.45	-26025501.31	-26025501.16	0.0494	0.0352		
Moon	-75967-09-16 04:32 J	-26025265.53	-26025265.31	-26025265.08	0.0493	0.0171		
Earth	-75967-09-16 08:37 J	-26025265.35	-26025265.14	-26025264.92	0.0493	0.0193	*	
Mercury	-75966-06-05 13:54 J	-26025003.11	-26025002.92	-26025002.74	0.0494	0.0016		

Venus -75962-11-26 19:25 J -26023367.88 -26023367.69 -26023367.50 0.0531 0.0164  
 Mercury -75960-01-26 22:47 J -26022940.64 -26022940.55 -26022940.46 0.0533 0.0371  
 Mercury -75960-04-26 05:16 J -26022851.40 -26022851.28 -26022851.15 0.0532 0.0080  
 Venus -75956-09-28 03:35 J -26021235.56 -26021235.35 -26021235.14 0.0495 0.0053  
 Earth -75955-09-20 22:47 J -26020877.68 -26020877.55 -26020877.40 0.0493 0.0397  
 Moon -75955-09-21 02:08 J -26020877.53 -26020877.41 -26020877.29 0.0493 0.0417 \*  
 Mercury -75954-03-24 11:30 J -26020693.20 -26020693.02 -26020692.85 0.0494 0.0146  
 Mercury -75954-06-22 19:54 J -26020602.78 -26020602.67 -26020602.56 0.0494 0.0392  
 Earth -75949-03-10 22:04 J -26018879.75 -26018879.58 -26018879.39 0.0533 0.0321  
 Moon -75949-03-10 23:16 J -26018879.72 -26018879.53 -26018879.34 0.0533 0.0305 \*  
 Mercury -75949-11-15 02:37 J -26018630.44 -26018630.39 -26018630.34 0.0533 0.0486  
 Mercury -75948-02-12 09:06 J -26018541.25 -26018541.12 -26018540.99 0.0533 0.0037  
 Mercury -75948-05-12 16:04 J -26018451.91 -26018451.83 -26018451.75 0.0532 0.0416  
 Mars -75948-10-18 11:30 J -26018293.28 -26018293.02 -26018292.76 0.0529 0.0040  
 Venus -75944-06-03 02:08 J -26016969.48 -26016969.41 -26016969.33 0.0496 0.0460  
 Mercury -75942-01-10 08:23 J -26016383.30 -26016383.15 -26016383.00 0.0493 0.0284  
 Mercury -75942-04-10 17:16 J -26016292.94 -26016292.78 -26016292.62 0.0494 0.0255  
 Moon -75937-03-15 17:44 J -26014491.98 -26014491.76 -26014491.54 0.0534 0.0039  
 Earth -75937-03-15 20:08 J -26014491.88 -26014491.66 -26014491.43 0.0534 0.0072 \*  
 Mercury -75937-12-01 13:11 J -26014231.07 -26014230.95 -26014230.83 0.0533 0.0150  
 Mercury -75936-02-28 19:54 J -26014141.77 -26014141.67 -26014141.56 0.0532 0.0304  
 Mercury -75931-10-29 05:30 J -26012073.37 -26012073.27 -26012073.18 0.0493 0.0421  
 Mercury -75930-01-27 14:37 J -26011983.07 -26011982.89 -26011982.72 0.0494 0.0121  
 Mars -75930-10-17 19:54 J -26011719.95 -26011719.67 -26011719.39 0.0497 0.0116  
 Venus -75926-08-04 09:35 J -26010333.30 -26010333.10 -26010332.91 0.0532 0.0113  
 Earth -75925-03-20 20:52 J -26010103.84 -26010103.63 -26010103.42 0.0534 0.0184  
 Moon -75925-03-21 00:28 J -26010103.70 -26010103.48 -26010103.26 0.0534 0.0175 \*  
 Mercury -75925-09-19 17:30 J -26009920.88 -26009920.77 -26009920.66 0.0533 0.0257  
 Mercury -75925-12-18 00:13 J -26009831.61 -26009831.49 -26009831.37 0.0532 0.0194  
 Venus -75920-06-05 13:25 J -26008201.13 -26008200.94 -26008200.74 0.0494 0.0174

Moon -75920-09-01 18:42 J -26008112.85 -26008112.72 -26008112.59 0.0493 0.0404  
 Earth -75920-09-01 21:20 J -26008112.72 -26008112.61 -26008112.49 0.0493 0.0431 \*  
 Mercury -75919-11-15 10:47 J -26007673.23 -26007673.05 -26007672.86 0.0494 0.0025  
 Venus -75914-04-09 04:18 J -26006067.46 -26006067.32 -26006067.17 0.0531 0.0369  
 Moon -75913-03-25 15:35 J -26005716.00 -26005715.85 -26005715.70 0.0534 0.0400  
 Earth -75913-03-25 19:11 J -26005715.83 -26005715.70 -26005715.57 0.0534 0.0432 \*  
 Mercury -75913-07-08 21:35 J -26005610.69 -26005610.60 -26005610.51 0.0533 0.0369  
 Mercury -75913-10-06 04:04 J -26005521.45 -26005521.33 -26005521.20 0.0532 0.0082  
 Venus -75908-02-08 11:30 J -26003935.20 -26003935.02 -26003934.83 0.0495 0.0237  
 Earth -75908-09-06 09:06 J -26003725.32 -26003725.12 -26003724.91 0.0493 0.0233  
 Moon -75908-09-06 13:11 J -26003725.16 -26003724.95 -26003724.74 0.0493 0.0228 \*  
 Mercury -75907-09-03 08:08 J -26003363.34 -26003363.16 -26003362.98 0.0494 0.0159  
 Mercury -75907-12-02 16:47 J -26003272.92 -26003272.80 -26003272.68 0.0494 0.0379  
 Mercury -75901-04-27 00:42 J -26001300.51 -26001300.47 -26001300.42 0.0533 0.0491  
 Mercury -75901-07-25 07:25 J -26001211.32 -26001211.19 -26001211.07 0.0533 0.0045  
 Mercury -75901-10-22 14:08 J -26001121.98 -26001121.91 -26001121.82 0.0532 0.0411  
 Moon -75896-09-10 18:42 J -25999337.96 -25999337.72 -25999337.48 0.0493 0.0058  
 Earth -75896-09-10 22:47 J -25999337.79 -25999337.55 -25999337.31 0.0493 0.0028 \*  
 Mercury -75895-06-22 05:30 J -25999053.41 -25999053.27 -25999053.11 0.0493 0.0293  
 Mercury -75895-09-20 14:37 J -25998963.05 -25998962.89 -25998962.73 0.0494 0.0249  
 Venus -75890-04-11 20:37 J -25997298.78 -25997298.64 -25997298.50 0.0532 0.0374  
 Mercury -75889-05-13 11:01 J -25996901.16 -25996901.04 -25996900.92 0.0533 0.0159  
 Mercury -75889-08-10 17:59 J -25996811.86 -25996811.75 -25996811.65 0.0532 0.0294  
 Venus -75884-02-11 01:54 J -25995166.53 -25995166.42 -25995166.30 0.0494 0.0408  
 Earth -75884-09-15 11:16 J -25994950.25 -25994950.03 -25994949.80 0.0493 0.0175  
 Moon -75884-09-15 14:52 J -25994950.10 -25994949.88 -25994949.66 0.0493 0.0159 \*  
 Mercury -75883-04-10 02:37 J -25994743.48 -25994743.39 -25994743.30 0.0493 0.0430  
 Mercury -75883-07-09 11:44 J -25994653.19 -25994653.01 -25994652.83 0.0494 0.0111  
 Venus -75879-12-15 14:37 J -25993033.08 -25993032.89 -25993032.69 0.0531 0.0115  
 Mercury -75877-03-01 15:06 J -25992590.98 -25992590.87 -25992590.76 0.0533 0.0272

Mercury -75877-05-29 21:49 J -25992501.71 -25992501.59 -25992501.47 0.0533 0.0180  
 Venus -75873-10-16 23:59 J -25990900.70 -25990900.50 -25990900.29 0.0495 0.0012  
 Moon -75872-09-19 21:49 J -25990562.74 -25990562.59 -25990562.44 0.0493 0.0395  
 Earth -75872-09-19 23:44 J -25990562.66 -25990562.51 -25990562.35 0.0493 0.0374 \*  
 Mercury -75871-04-27 08:52 J -25990343.31 -25990343.13 -25990342.94 0.0493 0.0025  
 Moon -75866-03-10 20:23 J -25988564.82 -25988564.65 -25988564.47 0.0533 0.0334  
 Earth -75866-03-10 22:32 J -25988564.73 -25988564.56 -25988564.38 0.0533 0.0349 \*  
 Mercury -75866-12-19 19:25 J -25988280.78 -25988280.69 -25988280.60 0.0533 0.0379  
 Mercury -75865-03-18 02:08 J -25988191.54 -25988191.41 -25988191.28 0.0533 0.0072  
 Mercury -75865-06-15 09:06 J -25988102.13 -25988102.12 -25988102.10 0.0532 0.0526  
 Venus -75861-06-21 20:37 J -25986634.74 -25986634.64 -25986634.52 0.0495 0.0416  
 Mercury -75859-02-13 05:01 J -25986033.46 -25986033.29 -25986033.11 0.0493 0.0171  
 Mercury -75859-05-14 13:40 J -25985943.05 -25985942.93 -25985942.80 0.0494 0.0369  
 Earth -75854-03-15 21:49 J -25984176.81 -25984176.59 -25984176.36 0.0533 0.0099  
 Moon -75854-03-16 01:11 J -25984176.68 -25984176.45 -25984176.21 0.0533 0.0069 \*  
 Mercury -75854-10-07 23:30 J -25983970.57 -25983970.52 -25983970.47 0.0533 0.0489  
 Mercury -75853-01-05 06:13 J -25983881.37 -25983881.24 -25983881.12 0.0533 0.0044  
 Mercury -75853-04-03 12:56 J -25983792.03 -25983791.96 -25983791.88 0.0532 0.0413  
 Mercury -75848-12-02 02:23 J -25981723.54 -25981723.40 -25981723.25 0.0493 0.0305  
 Mercury -75847-03-02 11:16 J -25981633.19 -25981633.03 -25981632.87 0.0494 0.0236  
 Venus -75843-08-23 04:18 J -25979998.51 -25979998.32 -25979998.13 0.0532 0.0160  
 Moon -75842-03-20 11:59 J -25979789.22 -25979789.00 -25979788.77 0.0533 0.0129  
 Earth -75842-03-20 15:49 J -25979789.06 -25979788.84 -25979788.62 0.0533 0.0142 \*  
 Mercury -75842-10-24 09:20 J -25979571.23 -25979571.11 -25979570.99 0.0533 0.0165  
 Mercury -75841-01-21 16:04 J -25979481.93 -25979481.83 -25979481.72 0.0532 0.0288  
 Venus -75837-06-24 10:18 J -25977866.26 -25977866.07 -25977865.89 0.0495 0.0227  
 Earth -75837-08-31 23:30 J -25977797.60 -25977797.52 -25977797.41 0.0494 0.0452  
 Moon -75837-09-01 03:35 J -25977797.47 -25977797.35 -25977797.22 0.0494 0.0420 \*  
 Mercury -75836-09-19 23:44 J -25977413.58 -25977413.51 -25977413.42 0.0493 0.0439  
 Mercury -75836-12-19 09:06 J -25977323.30 -25977323.12 -25977322.94 0.0494 0.0105

Venus -75831-04-27 22:04 J -25975732.74 -25975732.58 -25975732.42 0.0531 0.0327  
 Earth -75830-03-25 11:44 J -25975401.16 -25975401.01 -25975400.85 0.0533 0.0385  
 Moon -75830-03-25 14:37 J -25975401.06 -25975400.89 -25975400.73 0.0533 0.0358 \*  
 Mercury -75830-08-12 12:56 J -25975261.06 -25975260.96 -25975260.85 0.0533 0.0281  
 Mercury -75830-11-09 19:40 J -25975171.80 -25975171.68 -25975171.55 0.0532 0.0172  
 Mars -75829-04-07 12:28 J -25975022.08 -25975021.98 -25975021.87 0.0530 0.0482  
 Venus -75825-02-28 08:37 J -25973600.33 -25973600.14 -25973599.94 0.0495 0.0181  
 Moon -75825-09-05 08:08 J -25973410.36 -25973410.16 -25973409.95 0.0493 0.0247  
 Earth -75825-09-05 12:13 J -25973410.19 -25973409.99 -25973409.78 0.0493 0.0250 \*  
 Mercury -75824-10-07 06:13 J -25973013.43 -25973013.24 -25973013.06 0.0493 0.0033  
 Mercury -75818-05-31 17:01 J -25970950.87 -25970950.79 -25970950.71 0.0534 0.0394  
 Mercury -75818-08-28 23:44 J -25970861.64 -25970861.51 -25970861.39 0.0533 0.0057  
 Mercury -75818-11-26 06:42 J -25970772.25 -25970772.22 -25970772.19 0.0532 0.0512  
 Earth -75813-09-10 00:13 J -25969022.73 -25969022.49 -25969022.25 0.0493 0.0049  
 Moon -75813-09-10 03:49 J -25969022.57 -25969022.34 -25969022.11 0.0493 0.0078 \*  
 Mercury -75812-07-26 03:20 J -25968703.54 -25968703.36 -25968703.19 0.0493 0.0170  
 Mercury -75812-10-24 11:59 J -25968613.12 -25968613.00 -25968612.88 0.0494 0.0368  
 Mars -75811-04-05 21:49 J -25968449.78 -25968449.59 -25968449.39 0.0496 0.0367  
 Venus -75807-04-30 17:30 J -25966963.88 -25966963.77 -25966963.65 0.0533 0.0434  
 Mercury -75806-03-19 21:20 J -25966640.65 -25966640.61 -25966640.57 0.0534 0.0501  
 Mercury -75806-06-17 04:04 J -25966551.46 -25966551.33 -25966551.21 0.0533 0.0053  
 Mercury -75806-09-14 11:01 J -25966462.12 -25966462.04 -25966461.96 0.0532 0.0403  
 Venus -75801-03-01 20:23 J -25964831.72 -25964831.65 -25964831.56 0.0494 0.0454  
 Moon -75801-09-14 07:25 J -25964635.42 -25964635.19 -25964634.95 0.0493 0.0133  
 Earth -75801-09-14 09:49 J -25964635.31 -25964635.09 -25964634.86 0.0493 0.0147 \*  
 Mercury -75800-05-13 23:30 J -25964393.66 -25964393.52 -25964393.38 0.0493 0.0315  
 Mercury -75800-08-12 08:23 J -25964303.31 -25964303.15 -25964302.98 0.0494 0.0227  
 Venus -75795-01-03 12:56 J -25962698.16 -25962697.96 -25962697.76 0.0532 0.0047  
 Mercury -75794-04-05 08:08 J -25962241.28 -25962241.16 -25962241.04 0.0533 0.0163  
 Mercury -75794-07-03 14:52 J -25962151.98 -25962151.88 -25962151.77 0.0532 0.0291

Mars -75793-01-12 01:25 J -25961959.67 -25961959.44 -25961959.20 0.0529 0.0231  
 Venus -75790-11-05 18:42 J -25960565.92 -25960565.72 -25960565.51 0.0495 0.0048  
 Earth -75789-09-18 22:32 J -25960247.73 -25960247.56 -25960247.39 0.0493 0.0347  
 Moon -75789-09-18 22:32 J -25960247.70 -25960247.56 -25960247.41 0.0493 0.0374 \*  
 Mercury -75788-03-01 20:37 J -25960083.71 -25960083.64 -25960083.56 0.0493 0.0450  
 Mercury -75788-05-31 05:59 J -25959993.43 -25959993.25 -25959993.07 0.0494 0.0093  
 Earth -75783-03-09 18:13 J -25958249.89 -25958249.74 -25958249.58 0.0533 0.0387  
 Moon -75783-03-09 21:20 J -25958249.77 -25958249.61 -25958249.44 0.0533 0.0367 \*  
 Mercury -75782-01-22 11:16 J -25957931.13 -25957931.03 -25957930.92 0.0533 0.0286  
 Mercury -75782-04-21 17:59 J -25957841.87 -25957841.75 -25957841.63 0.0532 0.0166  
 Venus -75778-07-11 17:16 J -25956299.92 -25956299.78 -25956299.64 0.0496 0.0363  
 Mercury -75776-03-19 03:49 J -25955683.53 -25955683.34 -25955683.16 0.0494 0.0040  
 Mars -75775-01-09 23:44 J -25955386.73 -25955386.51 -25955386.26 0.0497 0.0287  
 Moon -75771-03-14 11:44 J -25953862.23 -25953862.01 -25953861.79 0.0533 0.0115  
 Earth -75771-03-14 15:20 J -25953862.07 -25953861.86 -25953861.63 0.0533 0.0143 \*  
 Mercury -75771-11-10 15:06 J -25953620.95 -25953620.87 -25953620.79 0.0533 0.0401  
 Mercury -75770-02-07 21:49 J -25953531.72 -25953531.59 -25953531.47 0.0533 0.0050  
 Mercury -75770-05-08 04:47 J -25953442.34 -25953442.30 -25953442.26 0.0532 0.0503  
 Mercury -75764-01-05 00:42 J -25951373.64 -25951373.47 -25951373.29 0.0493 0.0176  
 Mercury -75764-04-05 09:35 J -25951283.23 -25951283.10 -25951282.98 0.0494 0.0363  
 Venus -75760-09-10 23:30 J -25949663.70 -25949663.52 -25949663.34 0.0532 0.0210  
 Earth -75759-03-19 12:28 J -25949474.20 -25949473.98 -25949473.76 0.0534 0.0105  
 Moon -75759-03-19 15:35 J -25949474.07 -25949473.85 -25949473.63 0.0534 0.0086 \*  
 Mercury -75759-08-29 18:56 J -25949310.73 -25949310.71 -25949310.67 0.0534 0.0515  
 Mercury -75759-11-27 01:40 J -25949221.56 -25949221.43 -25949221.30 0.0533 0.0066  
 Mercury -75758-02-24 08:37 J -25949132.23 -25949132.14 -25949132.05 0.0532 0.0389  
 Venus -75754-07-14 07:11 J -25947531.36 -25947531.20 -25947531.02 0.0494 0.0283  
 Moon -75754-08-31 22:47 J -25947482.66 -25947482.55 -25947482.44 0.0494 0.0438  
 Earth -75754-09-01 02:52 J -25947482.45 -25947482.38 -25947482.31 0.0494 0.0469 \*  
 Mercury -75753-10-23 21:49 J -25947063.73 -25947063.59 -25947063.44 0.0493 0.0313



Mercury -75752-01-22 06:42 J -25946973.38 -25946973.22 -25946973.05 0.0494 0.0228

Venus -75748-05-16 18:56 J -25945397.88 -25945397.71 -25945397.54 0.0531 0.0269

Moon -75747-03-24 10:47 J -25945086.23 -25945086.05 -25945085.86 0.0534 0.0329

Earth -75747-03-24 12:28 J -25945086.14 -25945085.98 -25945085.80 0.0534 0.0358 \*

Mercury -75747-09-15 05:59 J -25944911.37 -25944911.25 -25944911.13 0.0533 0.0173

Mercury -75747-12-13 12:56 J -25944822.07 -25944821.96 -25944821.86 0.0532 0.0281

Venus -75742-03-19 04:32 J -25943265.51 -25943265.31 -25943265.11 0.0495 0.0130

Earth -75742-09-05 12:56 J -25943095.16 -25943094.96 -25943094.76 0.0493 0.0273

Moon -75742-09-05 16:32 J -25943095.00 -25943094.81 -25943094.61 0.0493 0.0273 \*

Mercury -75741-08-11 18:13 J -25942753.81 -25942753.74 -25942753.67 0.0493 0.0456

Mercury -75741-11-10 03:20 J -25942663.54 -25942663.36 -25942663.17 0.0494 0.0087

Mercury -75735-07-04 10:04 J -25940601.18 -25940601.08 -25940600.97 0.0533 0.0284

Mercury -75735-10-01 17:01 J -25940511.91 -25940511.79 -25940511.67 0.0533 0.0170

Moon -75730-09-09 22:32 J -25938707.80 -25938707.56 -25938707.32 0.0493 0.0101

Earth -75730-09-10 01:11 J -25938707.69 -25938707.45 -25938707.22 0.0493 0.0073 \*

Mercury -75729-08-29 00:56 J -25938353.64 -25938353.46 -25938353.28 0.0493 0.0046

Mercury -75729-11-27 09:20 J -25938263.13 -25938263.11 -25938263.09 0.0494 0.0490

Venus -75724-05-19 13:54 J -25936629.00 -25936628.92 -25936628.85 0.0532 0.0487

Mercury -75723-04-22 13:25 J -25936291.02 -25936290.94 -25936290.85 0.0533 0.0405

Mercury -75723-07-20 20:08 J -25936201.79 -25936201.66 -25936201.53 0.0532 0.0046

Mercury -75723-10-18 03:06 J -25936112.41 -25936112.37 -25936112.33 0.0531 0.0500

Earth -75718-09-14 14:23 J -25934320.13 -25934319.90 -25934319.67 0.0493 0.0132

Moon -75718-09-14 14:37 J -25934320.11 -25934319.89 -25934319.67 0.0493 0.0130 \*

Mercury -75717-06-16 22:32 J -25934043.73 -25934043.56 -25934043.38 0.0494 0.0179

Mercury -75717-09-15 07:25 J -25933953.32 -25933953.19 -25933953.07 0.0494 0.0362

Venus -75712-01-22 08:08 J -25932363.35 -25932363.16 -25932362.96 0.0531 0.0011

Mercury -75711-02-08 17:16 J -25931980.80 -25931980.78 -25931980.75 0.0533 0.0519

Mercury -75711-05-08 23:59 J -25931891.63 -25931891.50 -25931891.38 0.0533 0.0070

Mercury -75711-08-06 06:42 J -25931802.30 -25931802.22 -25931802.13 0.0532 0.0384

Venus -75707-11-24 16:47 J -25930231.01 -25930230.80 -25930230.60 0.0495 0.0105

Earth -75706-09-19 03:20 J -25929932.53 -25929932.36 -25929932.18 0.0493 0.0334  
 Moon -75706-09-19 05:01 J -25929932.45 -25929932.29 -25929932.12 0.0493 0.0364 \*  
 Mercury -75705-04-04 19:54 J -25929733.82 -25929733.67 -25929733.53 0.0493 0.0315  
 Mercury -75705-07-04 04:47 J -25929643.46 -25929643.30 -25929643.14 0.0494 0.0226  
 Venus -75701-09-27 01:40 J -25928097.50 -25928097.43 -25928097.35 0.0530 0.0486  
 Moon -75700-03-08 12:28 J -25927935.12 -25927934.98 -25927934.83 0.0533 0.0403  
 Earth -75700-03-08 16:04 J -25927934.97 -25927934.83 -25927934.69 0.0533 0.0421 \*  
 Mercury -75699-02-25 03:49 J -25927581.46 -25927581.34 -25927581.22 0.0533 0.0184  
 Mercury -75699-05-25 10:32 J -25927492.16 -25927492.06 -25927491.94 0.0532 0.0270  
 Venus -75695-07-30 15:20 J -25925965.02 -25925964.86 -25925964.69 0.0496 0.0301  
 Mercury -75693-01-22 16:47 J -25925423.87 -25925423.80 -25925423.72 0.0493 0.0452  
 Mercury -75693-04-22 02:08 J -25925333.60 -25925333.41 -25925333.23 0.0494 0.0092  
 Earth -75688-03-13 16:18 J -25923547.03 -25923546.82 -25923546.60 0.0533 0.0170  
 Moon -75688-03-13 19:54 J -25923546.89 -25923546.67 -25923546.46 0.0533 0.0147 \*  
 Mercury -75688-12-14 08:08 J -25923271.26 -25923271.16 -25923271.05 0.0534 0.0292  
 Mercury -75687-03-13 14:52 J -25923182.00 -25923181.88 -25923181.75 0.0533 0.0162  
 Mercury -75681-02-08 22:47 J -25921023.73 -25921023.55 -25921023.37 0.0493 0.0050  
 Mercury -75681-05-09 06:56 J -25920933.23 -25920933.21 -25920933.17 0.0494 0.0487  
 Venus -75677-09-29 23:01 J -25919328.70 -25919328.54 -25919328.37 0.0532 0.0285  
 Moon -75676-03-18 14:37 J -25919159.12 -25919158.89 -25919158.65 0.0534 0.0060  
 Earth -75676-03-18 17:01 J -25919159.02 -25919158.79 -25919158.57 0.0534 0.0084 \*  
 Mercury -75676-10-02 12:28 J -25918961.06 -25918960.98 -25918960.90 0.0534 0.0400  
 Mercury -75676-12-30 19:11 J -25918871.83 -25918871.70 -25918871.57 0.0533 0.0052  
 Mercury -75675-03-30 02:08 J -25918782.44 -25918782.41 -25918782.37 0.0532 0.0507  
 Mars -75675-07-02 08:08 J -25918688.38 -25918688.16 -25918687.94 0.0530 0.0276  
 Venus -75671-08-02 04:32 J -25917196.46 -25917196.31 -25917196.16 0.0494 0.0341  
 Earth -75671-08-31 06:13 J -25917167.27 -25917167.24 -25917167.20 0.0494 0.0487  
 Moon -75671-08-31 09:49 J -25917167.17 -25917167.09 -25917166.99 0.0494 0.0457  
 Mercury -75670-11-27 20:23 J -25916713.83 -25916713.65 -25916713.48 0.0493 0.0183  
 Mercury -75669-02-26 05:01 J -25916623.42 -25916623.29 -25916623.16 0.0494 0.0357

Venus -75665-06-04 17:01 J -25915062.97 -25915062.79 -25915062.61 0.0531 0.0206  
 Earth -75664-03-23 12:13 J -25914771.16 -25914770.99 -25914770.81 0.0533 0.0328  
 Moon -75664-03-23 12:42 J -25914771.14 -25914770.97 -25914770.78 0.0533 0.0305 \*  
 Mercury -75664-07-21 16:04 J -25914650.86 -25914650.83 -25914650.81 0.0533 0.0519  
 Mercury -75664-10-18 22:32 J -25914561.69 -25914561.56 -25914561.44 0.0533 0.0071  
 Mercury -75663-01-16 05:16 J -25914472.36 -25914472.28 -25914472.19 0.0532 0.0383  
 Venus -75659-04-07 02:23 J -25912930.60 -25912930.40 -25912930.19 0.0495 0.0072  
 Moon -75659-09-04 15:35 J -25912780.05 -25912779.85 -25912779.65 0.0494 0.0288  
 Earth -75659-09-04 18:13 J -25912779.93 -25912779.74 -25912779.54 0.0494 0.0286 \*  
 Mercury -75658-09-15 17:59 J -25912403.89 -25912403.75 -25912403.61 0.0493 0.0316  
 Mercury -75658-12-15 02:52 J -25912313.54 -25912313.38 -25912313.21 0.0494 0.0228  
 Mars -75657-06-29 14:08 J -25912116.18 -25912115.91 -25912115.63 0.0496 0.0166  
 Mercury -75652-08-07 02:23 J -25910251.52 -25910251.40 -25910251.28 0.0533 0.0185  
 Mercury -75652-11-04 09:06 J -25910162.23 -25910162.12 -25910162.01 0.0532 0.0268  
 Venus -75648-12-11 01:11 J -25908664.49 -25908664.45 -25908664.39 0.0496 0.0478  
 Earth -75647-09-09 07:25 J -25908392.42 -25908392.19 -25908391.95 0.0493 0.0082  
 Moon -75647-09-09 08:08 J -25908392.39 -25908392.16 -25908391.94 0.0493 0.0109 \*  
 Mercury -75646-07-04 15:06 J -25908093.94 -25908093.87 -25908093.79 0.0493 0.0451  
 Mercury -75646-10-03 00:28 J -25908003.66 -25908003.48 -25908003.30 0.0494 0.0093  
 Mercury -75640-05-26 06:13 J -25905941.34 -25905941.24 -25905941.13 0.0533 0.0300  
 Mercury -75640-08-23 12:56 J -25905852.08 -25905851.96 -25905851.84 0.0533 0.0153  
 Mars -75639-04-06 07:11 J -25905626.36 -25905626.20 -25905626.02 0.0529 0.0397  
 Earth -75635-09-13 20:37 J -25904004.87 -25904004.64 -25904004.41 0.0493 0.0120  
 Moon -75635-09-13 22:18 J -25904004.81 -25904004.57 -25904004.33 0.0493 0.0126 \*  
 Mercury -75634-07-21 21:49 J -25903693.78 -25903693.59 -25903693.41 0.0493 0.0044  
 Venus -75629-02-11 06:42 J -25902028.41 -25902028.22 -25902028.02 0.0532 0.0071  
 Mercury -75628-03-14 10:47 J -25901631.13 -25901631.05 -25901630.97 0.0534 0.0407  
 Mercury -75628-06-11 17:16 J -25901541.90 -25901541.78 -25901541.65 0.0533 0.0047  
 Mercury -75628-09-09 00:28 J -25901452.52 -25901452.48 -25901452.44 0.0532 0.0501  
 Venus -75624-12-13 15:35 J -25899896.05 -25899895.85 -25899895.65 0.0494 0.0170

Moon -75623-09-18 05:16 J -25899617.43 -25899617.28 -25899617.11 0.0493 0.0351  
 Earth -75623-09-18 08:08 J -25899617.33 -25899617.16 -25899616.97 0.0493 0.0319 \*  
 Mercury -75622-05-09 18:28 J -25899383.90 -25899383.73 -25899383.55 0.0493 0.0182  
 Mercury -75622-08-08 03:06 J -25899293.49 -25899293.37 -25899293.24 0.0494 0.0358  
 Mars -75621-04-04 13:11 J -25899053.01 -25899052.95 -25899052.87 0.0497 0.0479  
 Venus -75618-10-17 02:23 J -25897762.52 -25897762.40 -25897762.27 0.0531 0.0407  
 Earth -75617-03-07 21:35 J -25897619.72 -25897619.60 -25897619.46 0.0533 0.0439  
 Moon -75617-03-08 01:25 J -25897619.58 -25897619.44 -25897619.29 0.0533 0.0412 \*  
 Mercury -75617-12-31 14:52 J -25897320.90 -25897320.88 -25897320.84 0.0534 0.0514  
 Mercury -75616-03-30 21:35 J -25897231.72 -25897231.60 -25897231.47 0.0533 0.0064  
 Mercury -75616-06-28 04:32 J -25897142.39 -25897142.31 -25897142.22 0.0532 0.0392  
 Venus -75612-08-18 14:23 J -25895630.08 -25895629.90 -25895629.71 0.0495 0.0235  
 Mercury -75610-02-25 16:04 J -25895073.97 -25895073.83 -25895073.69 0.0493 0.0314  
 Mercury -75610-05-27 01:11 J -25894983.62 -25894983.45 -25894983.29 0.0494 0.0228  
 Moon -75605-03-12 17:01 J -25893232.01 -25893231.79 -25893231.57 0.0533 0.0171  
 Earth -75605-03-12 19:40 J -25893231.89 -25893231.68 -25893231.47 0.0533 0.0189 \*  
 Mercury -75604-01-17 01:11 J -25892921.57 -25892921.45 -25892921.33 0.0533 0.0184  
 Mercury -75604-04-16 07:54 J -25892832.28 -25892832.17 -25892832.06 0.0532 0.0269  
 Mercury -75599-12-14 13:40 J -25890764.01 -25890763.93 -25890763.86 0.0493 0.0449  
 Mercury -75598-03-14 23:01 J -25890673.72 -25890673.54 -25890673.36 0.0494 0.0097  
 Venus -75594-10-19 21:49 J -25888993.74 -25888993.59 -25888993.44 0.0531 0.0350  
 Earth -75593-03-17 17:44 J -25888843.99 -25888843.76 -25888843.53 0.0533 0.0059  
 Moon -75593-03-17 18:42 J -25888843.94 -25888843.72 -25888843.50 0.0533 0.0031 \*  
 Mercury -75593-11-05 05:01 J -25888611.39 -25888611.29 -25888611.18 0.0533 0.0297  
 Mercury -75592-02-02 11:44 J -25888522.13 -25888522.01 -25888521.89 0.0532 0.0155  
 Venus -75588-08-21 04:04 J -25886861.44 -25886861.33 -25886861.21 0.0495 0.0406  
 Moon -75588-08-30 10:47 J -25886852.13 -25886852.05 -25886851.97 0.0495 0.0466  
 Earth -75588-08-30 13:25 J -25886851.94 -25886851.94 -25886851.92 0.0495 0.0494  
 Mercury -75587-12-31 20:23 J -25886363.83 -25886363.65 -25886363.46 0.0494 0.0038  
 Venus -75582-06-24 15:49 J -25884728.03 -25884727.84 -25884727.65 0.0531 0.0137

Earth -75581-03-22 14:37 J -25884456.08 -25884455.89 -25884455.70 0.0533 0.0304  
 Moon -75581-03-22 15:20 J -25884456.06 -25884455.86 -25884455.65 0.0533 0.0282 \*  
 Mercury -75581-08-24 09:06 J -25884301.20 -25884301.12 -25884301.04 0.0533 0.0411  
 Mercury -75581-11-21 15:35 J -25884211.97 -25884211.85 -25884211.72 0.0533 0.0042  
 Mercury -75580-02-18 22:32 J -25884122.60 -25884122.56 -25884122.51 0.0532 0.0496  
 Venus -75576-04-26 03:06 J -25882595.58 -25882595.37 -25882595.16 0.0495 0.0008  
 Earth -75576-09-04 02:52 J -25882464.56 -25882464.38 -25882464.18 0.0494 0.0292  
 Moon -75576-09-04 03:35 J -25882464.52 -25882464.35 -25882464.17 0.0494 0.0306 \*  
 Mercury -75575-10-19 17:44 J -25882053.93 -25882053.76 -25882053.58 0.0493 0.0172  
 Mercury -75574-01-18 02:23 J -25881963.52 -25881963.40 -25881963.27 0.0494 0.0368  
 Mercury -75569-06-12 13:25 J -25879990.97 -25879990.94 -25879990.91 0.0534 0.0517  
 Mercury -75569-09-09 19:54 J -25879901.79 -25879901.67 -25879901.54 0.0533 0.0069  
 Mercury -75569-12-08 02:52 J -25879812.46 -25879812.38 -25879812.29 0.0532 0.0388  
 Venus -75565-12-30 01:54 J -25878329.54 -25878329.42 -25878329.30 0.0496 0.0403  
 Earth -75564-09-08 15:06 J -25878077.10 -25878076.87 -25878076.63 0.0493 0.0091  
 Moon -75564-09-08 16:47 J -25878077.04 -25878076.80 -25878076.56 0.0493 0.0115 \*  
 Mercury -75563-08-07 14:37 J -25877744.03 -25877743.89 -25877743.74 0.0493 0.0311  
 Mercury -75563-11-05 23:44 J -25877653.67 -25877653.51 -25877653.35 0.0494 0.0232  
 Mercury -75557-06-29 00:28 J -25875591.60 -25875591.48 -25875591.36 0.0533 0.0175  
 Mercury -75557-09-26 07:11 J -25875502.31 -25875502.20 -25875502.09 0.0532 0.0280  
 Moon -75552-09-13 01:40 J -25873689.65 -25873689.43 -25873689.20 0.0493 0.0122  
 Earth -75552-09-13 04:47 J -25873689.53 -25873689.30 -25873689.07 0.0493 0.0111 \*  
 Mercury -75551-05-26 12:13 J -25873434.06 -25873433.99 -25873433.91 0.0493 0.0443  
 Mercury -75551-08-24 21:35 J -25873343.78 -25873343.60 -25873343.42 0.0494 0.0102  
 Venus -75546-03-02 08:08 J -25871693.34 -25871693.16 -25871692.96 0.0531 0.0152  
 Mercury -75545-04-17 04:04 J -25871281.43 -25871281.33 -25871281.22 0.0533 0.0292  
 Mercury -75545-07-15 10:47 J -25871192.17 -25871192.05 -25871191.93 0.0532 0.0160  
 Venus -75540-01-01 15:20 J -25869561.04 -25869560.86 -25869560.68 0.0495 0.0237  
 Earth -75540-09-17 17:16 J -25869301.96 -25869301.78 -25869301.60 0.0493 0.0316  
 Moon -75540-09-17 20:52 J -25869301.79 -25869301.63 -25869301.45 0.0493 0.0347 \*

Mercury -75539-06-12 19:11 J -25869033.88 -25869033.70 -25869033.51 0.0494 0.0032

Venus -75535-11-05 03:35 J -25867427.51 -25867427.35 -25867427.20 0.0530 0.0327

Moon -75534-03-07 23:44 J -25867304.64 -25867304.51 -25867304.36 0.0532 0.0422

Earth -75534-03-08 02:37 J -25867304.50 -25867304.39 -25867304.26 0.0532 0.0452 \*

Mercury -75533-02-04 08:08 J -25866971.24 -25866971.16 -25866971.08 0.0533 0.0404

Mercury -75533-05-03 14:37 J -25866882.02 -25866881.89 -25866881.76 0.0532 0.0047

Mercury -75533-07-31 21:35 J -25866792.64 -25866792.60 -25866792.56 0.0531 0.0500

Venus -75529-09-06 14:08 J -25865295.10 -25865294.91 -25865294.71 0.0496 0.0169

Mercury -75527-03-31 16:47 J -25864723.98 -25864723.80 -25864723.63 0.0494 0.0166

Mercury -75527-06-30 01:25 J -25864633.55 -25864633.44 -25864633.32 0.0494 0.0376

Earth -75522-03-12 23:44 J -25862916.72 -25862916.51 -25862916.30 0.0532 0.0209

Moon -75522-03-13 00:56 J -25862916.66 -25862916.46 -25862916.25 0.0532 0.0197 \*

Mercury -75522-11-23 11:59 J -25862661.02 -25862661.00 -25862660.97 0.0533 0.0518

Mercury -75521-02-20 18:28 J -25862571.85 -25862571.73 -25862571.60 0.0533 0.0071

Mercury -75521-05-20 01:25 J -25862482.53 -25862482.44 -25862482.35 0.0532 0.0386

Mars -75521-09-25 03:49 J -25862354.60 -25862354.34 -25862354.08 0.0530 0.0069

Mercury -75515-01-17 14:08 J -25860414.06 -25860413.91 -25860413.76 0.0493 0.0299

Mercury -75515-04-17 23:16 J -25860323.69 -25860323.53 -25860323.37 0.0494 0.0244

Venus -75511-11-07 22:32 J -25858658.68 -25858658.56 -25858658.45 0.0532 0.0430

Earth -75510-03-17 23:44 J -25858528.74 -25858528.51 -25858528.28 0.0533 0.0043

Moon -75510-03-18 00:13 J -25858528.72 -25858528.49 -25858528.25 0.0533 0.0015 \*

Mercury -75510-12-09 23:01 J -25858261.66 -25858261.54 -25858261.42 0.0533 0.0177

Mercury -75509-03-08 05:44 J -25858172.37 -25858172.26 -25858172.15 0.0532 0.0278

Moon -75505-08-30 00:42 J -25856536.52 -25856536.47 -25856536.42 0.0494 0.0479

Venus -75505-09-09 05:30 J -25856526.30 -25856526.27 -25856526.22 0.0494 0.0483

Mercury -75504-11-05 11:01 J -25856104.12 -25856104.04 -25856103.95 0.0493 0.0437

Mercury -75503-02-03 20:23 J -25856013.83 -25856013.65 -25856013.47 0.0494 0.0108

Mars -75503-09-23 21:06 J -25855781.91 -25855781.62 -25855781.34 0.0496 0.0078

Venus -75499-07-13 18:42 J -25854392.92 -25854392.72 -25854392.52 0.0531 0.0045

Moon -75498-03-22 22:18 J -25854140.75 -25854140.57 -25854140.38 0.0534 0.0284

Earth -75498-03-23 00:42 J -25854140.65 -25854140.47 -25854140.28 0.0534 0.0297 \*  
 Mercury -75498-09-28 03:20 J -25853951.47 -25853951.36 -25853951.25 0.0533 0.0283  
 Mercury -75498-12-26 10:04 J -25853862.20 -25853862.08 -25853861.96 0.0533 0.0171  
 Venus -75493-05-15 04:47 J -25852260.51 -25852260.30 -25852260.09 0.0495 0.0081  
 Earth -75493-09-03 13:11 J -25852149.14 -25852148.95 -25852148.76 0.0494 0.0296  
 Moon -75493-09-03 14:37 J -25852149.07 -25852148.89 -25852148.70 0.0494 0.0317 \*  
 Mercury -75492-11-22 18:13 J -25851703.92 -25851703.74 -25851703.55 0.0494 0.0023  
 Venus -75487-03-18 14:23 J -25850126.93 -25850126.90 -25850126.87 0.0530 0.0522  
 Mercury -75486-07-17 07:11 J -25849641.28 -25849641.20 -25849641.11 0.0533 0.0398  
 Mercury -75486-10-14 13:54 J -25849552.05 -25849551.92 -25849551.80 0.0532 0.0055  
 Mercury -75485-01-11 20:37 J -25849462.67 -25849462.64 -25849462.60 0.0531 0.0508  
 Venus -75481-01-19 01:54 J -25847994.57 -25847994.42 -25847994.27 0.0497 0.0337  
 Moon -75481-09-07 21:20 J -25847761.83 -25847761.61 -25847761.38 0.0494 0.0119  
 Earth -75481-09-08 00:28 J -25847761.72 -25847761.48 -25847761.25 0.0494 0.0094 \*  
 Mercury -75480-09-10 15:49 J -25847394.02 -25847393.84 -25847393.67 0.0494 0.0158  
 Mercury -75480-12-10 00:42 J -25847303.59 -25847303.47 -25847303.36 0.0495 0.0385  
 Mercury -75474-05-05 11:16 J -25845331.06 -25845331.03 -25845330.99 0.0533 0.0508  
 Mercury -75474-08-02 17:44 J -25845241.88 -25845241.76 -25845241.63 0.0532 0.0062  
 Mercury -75474-10-31 00:42 J -25845152.56 -25845152.47 -25845152.39 0.0531 0.0394  
 Earth -75469-09-12 14:23 J -25843374.13 -25843373.90 -25843373.67 0.0494 0.0111  
 Moon -75469-09-12 18:13 J -25843373.97 -25843373.74 -25843373.51 0.0494 0.0127 \*  
 Mercury -75468-06-29 13:11 J -25843084.10 -25843083.95 -25843083.80 0.0494 0.0292  
 Mercury -75468-09-27 22:18 J -25842993.73 -25842993.57 -25842993.41 0.0494 0.0253  
 Venus -75463-03-21 09:06 J -25841358.29 -25841358.12 -25841357.94 0.0531 0.0233  
 Mercury -75462-05-21 21:35 J -25840931.71 -25840931.60 -25840931.47 0.0533 0.0176  
 Mercury -75462-08-19 04:32 J -25840842.42 -25840842.31 -25840842.20 0.0532 0.0279  
 Venus -75457-01-21 17:44 J -25839225.92 -25839225.76 -25839225.60 0.0495 0.0320  
 Moon -75457-09-17 00:56 J -25838986.63 -25838986.46 -25838986.29 0.0493 0.0342  
 Earth -75457-09-17 04:47 J -25838986.48 -25838986.30 -25838986.11 0.0493 0.0314 \*  
 Mercury -75456-04-17 10:32 J -25838774.14 -25838774.06 -25838773.96 0.0493 0.0425

Mercury -75456-07-16 19:54 J -25838683.84 -25838683.67 -25838683.49 0.0494 0.0121

Venus -75452-11-24 04:47 J -25837092.48 -25837092.30 -25837092.13 0.0530 0.0244

Earth -75451-03-07 09:06 J -25836989.22 -25836989.12 -25836989.01 0.0532 0.0467

Moon -75451-03-07 10:32 J -25836989.18 -25836989.06 -25836988.93 0.0532 0.0435 \*

Mercury -75450-03-10 02:08 J -25836621.52 -25836621.41 -25836621.31 0.0533 0.0283

Mercury -75450-06-07 08:37 J -25836532.26 -25836532.14 -25836532.01 0.0533 0.0172

Venus -75446-09-26 16:47 J -25834960.00 -25834959.80 -25834959.59 0.0496 0.0085

Mercury -75444-05-04 17:16 J -25834373.96 -25834373.78 -25834373.59 0.0494 0.0015

Earth -75439-03-12 10:32 J -25832601.27 -25832601.06 -25832600.85 0.0533 0.0214

Moon -75439-03-12 11:01 J -25832601.26 -25832601.04 -25832600.82 0.0533 0.0207 \*

Mercury -75439-12-27 06:28 J -25832311.31 -25832311.23 -25832311.14 0.0533 0.0389

Mercury -75438-03-26 13:11 J -25832222.08 -25832221.95 -25832221.82 0.0533 0.0064

Mercury -75438-06-23 20:08 J -25832132.68 -25832132.66 -25832132.63 0.0532 0.0520

Venus -75434-06-01 15:49 J -25830693.86 -25830693.84 -25830693.79 0.0497 0.0489

Mercury -75432-02-20 15:06 J -25830064.05 -25830063.87 -25830063.69 0.0494 0.0146

Mercury -75432-05-21 23:44 J -25829973.61 -25829973.51 -25829973.40 0.0494 0.0396

Venus -75428-11-27 02:23 J -25828323.42 -25828323.40 -25828323.36 0.0532 0.0525

Moon -75427-03-17 08:37 J -25828213.37 -25828213.14 -25828212.92 0.0533 0.0015

Earth -75427-03-17 10:32 J -25828213.28 -25828213.06 -25828212.83 0.0533 0.0042 \*

Mercury -75427-10-15 10:32 J -25828001.10 -25828001.06 -25828001.02 0.0533 0.0500

Mercury -75426-01-12 17:01 J -25827911.92 -25827911.79 -25827911.66 0.0532 0.0052

Mercury -75426-04-11 23:44 J -25827822.59 -25827822.51 -25827822.42 0.0531 0.0403

Moon -75422-08-30 09:49 J -25826221.12 -25826221.09 -25826221.06 0.0495 0.0490

Mercury -75421-12-09 12:13 J -25825754.14 -25825753.99 -25825753.84 0.0494 0.0284

Mercury -75420-03-09 21:20 J -25825663.76 -25825663.61 -25825663.45 0.0495 0.0262

Venus -75416-08-01 22:18 J -25824057.77 -25824057.57 -25824057.37 0.0530 0.0049

Earth -75415-03-22 09:20 J -25823825.30 -25823825.11 -25823824.92 0.0533 0.0289

Moon -75415-03-22 12:56 J -25823825.15 -25823824.96 -25823824.76 0.0533 0.0288 \*

Mercury -75415-10-31 21:06 J -25823601.74 -25823601.62 -25823601.50 0.0532 0.0164

Mercury -75414-01-29 03:49 J -25823512.45 -25823512.34 -25823512.23 0.0531 0.0289



Venus -75410-06-04 05:16 J -25821925.48 -25821925.28 -25821925.08 0.0496 0.0151  
 Moon -75410-09-03 19:11 J -25821833.87 -25821833.70 -25821833.53 0.0495 0.0327  
 Earth -75410-09-03 22:04 J -25821833.76 -25821833.58 -25821833.38 0.0495 0.0299 \*  
 Mercury -75409-09-27 09:35 J -25821444.19 -25821444.10 -25821443.99 0.0494 0.0418  
 Mercury -75409-12-26 19:11 J -25821353.88 -25821353.70 -25821353.52 0.0494 0.0130  
 Venus -75404-04-06 16:04 J -25819791.94 -25819791.83 -25819791.72 0.0529 0.0436  
 Earth -75403-03-27 05:44 J -25819437.28 -25819437.26 -25819437.24 0.0533 0.0529  
 Mercury -75403-08-20 00:56 J -25819291.57 -25819291.46 -25819291.35 0.0533 0.0279  
 Mercury -75403-11-17 07:40 J -25819202.30 -25819202.18 -25819202.06 0.0532 0.0174  
 Mars -75402-03-17 12:13 J -25819082.07 -25819081.99 -25819081.90 0.0531 0.0497  
 Venus -75398-02-07 04:32 J -25817659.48 -25817659.31 -25817659.13 0.0496 0.0252  
 Earth -75398-09-08 12:42 J -25817446.21 -25817445.97 -25817445.74 0.0494 0.0094  
 Moon -75398-09-08 16:32 J -25817446.04 -25817445.81 -25817445.57 0.0494 0.0113 \*  
 Mercury -75397-10-14 16:47 J -25817043.98 -25817043.80 -25817043.61 0.0494 0.0004  
 Mercury -75391-06-08 05:16 J -25814981.36 -25814981.28 -25814981.19 0.0533 0.0387  
 Mercury -75391-09-05 11:59 J -25814892.13 -25814892.00 -25814891.88 0.0533 0.0067  
 Mercury -75391-12-03 18:56 J -25814802.73 -25814802.71 -25814802.69 0.0532 0.0520  
 Moon -75386-09-12 22:18 J -25813058.80 -25813058.57 -25813058.34 0.0493 0.0129  
 Earth -75386-09-13 02:23 J -25813058.63 -25813058.40 -25813058.17 0.0493 0.0110 \*  
 Mercury -75385-08-02 14:08 J -25812734.09 -25812733.91 -25812733.73 0.0494 0.0139  
 Mercury -75385-10-31 22:47 J -25812643.65 -25812643.55 -25812643.44 0.0494 0.0403  
 Mars -75384-03-14 07:11 J -25812510.43 -25812510.20 -25812509.98 0.0496 0.0311  
 Venus -75380-04-09 12:56 J -25811023.11 -25811022.96 -25811022.80 0.0532 0.0329  
 Mercury -75379-03-27 09:49 J -25810671.14 -25810671.09 -25810671.05 0.0533 0.0492  
 Mercury -75379-06-24 16:18 J -25810581.95 -25810581.82 -25810581.69 0.0533 0.0042  
 Mercury -75379-09-21 23:16 J -25810492.61 -25810492.53 -25810492.45 0.0532 0.0413  
 Venus -75374-02-09 20:23 J -25808890.77 -25808890.65 -25808890.53 0.0495 0.0402  
 Earth -75374-09-17 16:18 J -25808671.00 -25808670.82 -25808670.63 0.0493 0.0313  
 Moon -75374-09-17 19:11 J -25808670.87 -25808670.70 -25808670.53 0.0493 0.0335 \*  
 Mercury -75373-05-21 11:44 J -25808424.16 -25808424.01 -25808423.85 0.0493 0.0270

Mercury -75373-08-19 20:52 J -25808333.78 -25808333.63 -25808333.48 0.0494 0.0274

Venus -75369-12-13 09:35 J -25806757.29 -25806757.10 -25806756.91 0.0530 0.0144

Moon -75368-03-06 21:35 J -25806673.73 -25806673.60 -25806673.46 0.0531 0.0429

Earth -75368-03-06 21:35 J -25806673.71 -25806673.60 -25806673.49 0.0531 0.0464 \*

Mercury -75367-04-12 20:23 J -25806271.77 -25806271.65 -25806271.53 0.0532 0.0155

Mercury -75367-07-11 03:06 J -25806182.48 -25806182.37 -25806182.27 0.0531 0.0298

Mars -75367-12-21 00:13 J -25806019.73 -25806019.49 -25806019.25 0.0529 0.0216

Venus -75363-10-15 16:47 J -25804625.01 -25804624.80 -25804624.59 0.0496 0.0018

Mercury -75361-03-09 08:37 J -25804114.24 -25804114.14 -25804114.03 0.0494 0.0411

Mercury -75361-06-07 18:13 J -25804023.92 -25804023.74 -25804023.56 0.0494 0.0138

Moon -75356-03-11 19:25 J -25802285.89 -25802285.69 -25802285.48 0.0532 0.0218

Earth -75356-03-11 21:20 J -25802285.82 -25802285.61 -25802285.40 0.0532 0.0216 \*

Mercury -75355-01-30 00:28 J -25801961.59 -25801961.48 -25801961.37 0.0532 0.0266

Mercury -75355-04-29 07:11 J -25801872.32 -25801872.20 -25801872.08 0.0532 0.0186

Venus -75351-06-20 15:49 J -25800358.95 -25800358.84 -25800358.73 0.0497 0.0422

Mercury -75349-03-26 15:49 J -25799714.02 -25799713.84 -25799713.65 0.0494 0.0005

Mars -75349-12-18 23:16 J -25799446.72 -25799446.53 -25799446.34 0.0497 0.0377

Earth -75344-03-16 17:30 J -25797898.00 -25797897.77 -25797897.54 0.0532 0.0028

Moon -75344-03-16 21:06 J -25797897.86 -25797897.62 -25797897.39 0.0532 0.0007 \*

Mercury -75344-11-18 04:18 J -25797651.41 -25797651.32 -25797651.23 0.0533 0.0382

Mercury -75343-02-15 10:47 J -25797562.17 -25797562.05 -25797561.92 0.0532 0.0070

Mercury -75343-05-15 17:44 J -25797472.78 -25797472.76 -25797472.74 0.0531 0.0524

Mercury -75337-01-13 13:25 J -25795404.12 -25795403.94 -25795403.76 0.0494 0.0128

Mercury -75337-04-12 22:18 J -25795313.67 -25795313.57 -25795313.47 0.0495 0.0415

Venus -75333-08-20 23:30 J -25793722.72 -25793722.52 -25793722.33 0.0531 0.0132

Moon -75332-03-21 12:42 J -25793510.16 -25793509.97 -25793509.77 0.0533 0.0278

Earth -75332-03-21 16:32 J -25793510.00 -25793509.81 -25793509.61 0.0533 0.0274 \*

Mercury -75332-09-06 08:37 J -25793341.19 -25793341.14 -25793341.10 0.0533 0.0491

Mercury -75332-12-04 15:06 J -25793252.00 -25793251.87 -25793251.74 0.0533 0.0042

Mercury -75331-03-03 21:49 J -25793162.67 -25793162.59 -25793162.51 0.0532 0.0414

Venus -75327-06-23 08:08 J -25791590.34 -25791590.16 -25791589.97 0.0495 0.0236  
 Earth -75327-09-03 10:18 J -25791518.25 -25791518.07 -25791517.87 0.0494 0.0299  
 Moon -75327-09-03 14:23 J -25791518.07 -25791517.90 -25791517.72 0.0494 0.0329 \*  
 Mercury -75326-11-01 10:32 J -25791094.21 -25791094.06 -25791093.90 0.0494 0.0265  
 Mercury -75325-01-30 19:40 J -25791003.83 -25791003.68 -25791003.52 0.0494 0.0281  
 Venus -75321-04-25 19:11 J -25789456.85 -25789456.70 -25789456.55 0.0530 0.0343  
 Earth -75320-03-26 16:47 J -25789121.83 -25789121.80 -25789121.76 0.0533 0.0525  
 Mercury -75320-09-22 19:25 J -25788941.81 -25788941.69 -25788941.57 0.0533 0.0149  
 Mercury -75320-12-21 02:08 J -25788852.51 -25788852.41 -25788852.30 0.0532 0.0307  
 Venus -75315-02-26 07:11 J -25787324.40 -25787324.20 -25787324.00 0.0496 0.0168  
 Moon -75315-09-07 20:08 J -25787130.89 -25787130.66 -25787130.42 0.0494 0.0113  
 Earth -75315-09-08 00:13 J -25787130.72 -25787130.49 -25787130.26 0.0494 0.0095 \*  
 Mercury -75314-08-20 08:23 J -25786784.26 -25786784.15 -25786784.04 0.0493 0.0397  
 Mercury -75314-11-18 17:30 J -25786693.94 -25786693.77 -25786693.59 0.0494 0.0150  
 Mercury -75308-07-11 23:44 J -25784631.62 -25784631.51 -25784631.40 0.0532 0.0259  
 Mercury -75308-10-09 06:13 J -25784542.36 -25784542.24 -25784542.12 0.0532 0.0193  
 Earth -75303-09-12 10:04 J -25782743.31 -25782743.08 -25782742.85 0.0494 0.0104  
 Moon -75303-09-12 12:56 J -25782743.18 -25782742.96 -25782742.73 0.0494 0.0130 \*  
 Mercury -75302-09-06 14:37 J -25782384.08 -25782383.89 -25782383.71 0.0494 0.0010  
 Venus -75297-04-28 17:01 J -25780687.90 -25780687.79 -25780687.67 0.0531 0.0426  
 Mercury -75296-04-30 03:49 J -25780321.43 -25780321.34 -25780321.25 0.0532 0.0369  
 Mercury -75296-07-28 10:18 J -25780232.20 -25780232.07 -25780231.94 0.0532 0.0081  
 Venus -75291-02-28 19:40 J -25778555.74 -25778555.68 -25778555.61 0.0495 0.0467  
 Moon -75291-09-16 22:32 J -25778355.73 -25778355.56 -25778355.36 0.0494 0.0323  
 Earth -75291-09-16 23:59 J -25778355.68 -25778355.50 -25778355.31 0.0494 0.0309 \*  
 Mercury -75290-06-25 12:13 J -25778074.17 -25778073.99 -25778073.81 0.0494 0.0124  
 Mercury -75290-09-23 21:06 J -25777983.71 -25777983.62 -25777983.52 0.0495 0.0421  
 Venus -75285-01-02 10:47 J -25776422.24 -25776422.05 -25776421.85 0.0530 0.0061  
 Moon -75285-03-06 02:23 J -25776358.51 -25776358.40 -25776358.27 0.0531 0.0450  
 Earth -75285-03-06 04:04 J -25776358.42 -25776358.33 -25776358.23 0.0531 0.0480 \*

Mercury -75284-02-16 07:40 J -25776011.23 -25776011.18 -25776011.13 0.0533 0.0486

Mercury -75284-05-16 13:54 J -25775922.04 -25775921.92 -25775921.79 0.0532 0.0042

Mercury -75284-08-13 20:52 J -25775832.71 -25775832.63 -25775832.55 0.0531 0.0417

Venus -75280-11-03 18:56 J -25774289.91 -25774289.71 -25774289.50 0.0496 0.0067

Moon -75279-09-21 14:23 J -25773967.92 -25773967.90 -25773967.87 0.0494 0.0490

Mercury -75278-04-13 09:35 J -25773764.25 -25773764.10 -25773763.94 0.0494 0.0257

Mercury -75278-07-12 18:56 J -25773673.86 -25773673.71 -25773673.56 0.0494 0.0290

Earth -75273-03-11 02:37 J -25771970.59 -25771970.39 -25771970.18 0.0532 0.0235

Moon -75273-03-11 05:59 J -25771970.46 -25771970.25 -25771970.04 0.0532 0.0244 \*

Mercury -75272-03-04 18:13 J -25771611.86 -25771611.74 -25771611.62 0.0533 0.0148

Mercury -75272-06-02 00:56 J -25771522.57 -25771522.46 -25771522.36 0.0532 0.0306

Venus -75268-07-09 18:13 J -25770023.88 -25770023.74 -25770023.58 0.0497 0.0339

Mercury -75266-01-30 06:56 J -25769454.32 -25769454.21 -25769454.10 0.0494 0.0393

Mercury -75266-04-30 16:18 J -25769364.00 -25769363.82 -25769363.65 0.0494 0.0154

Moon -75261-03-15 23:01 J -25767582.76 -25767582.54 -25767582.30 0.0533 0.0018

Earth -75261-03-16 02:52 J -25767582.61 -25767582.38 -25767582.15 0.0533 0.0019 \*

Mercury -75261-12-21 22:32 J -25767301.67 -25767301.56 -25767301.45 0.0533 0.0255

Mercury -75260-03-21 05:16 J -25767212.40 -25767212.28 -25767212.16 0.0532 0.0198

Mercury -75254-02-16 13:54 J -25765054.10 -25765053.92 -25765053.73 0.0494 0.0022

Venus -75250-09-10 03:35 J -25763387.53 -25763387.35 -25763387.17 0.0531 0.0229

Earth -75249-03-21 03:49 J -25763194.53 -25763194.34 -25763194.14 0.0532 0.0273

Moon -75249-03-21 06:56 J -25763194.40 -25763194.21 -25763194.02 0.0532 0.0287 \*

Mercury -75249-10-10 02:52 J -25762991.47 -25762991.38 -25762991.29 0.0532 0.0364

Mercury -75248-01-07 09:20 J -25762902.23 -25762902.11 -25762901.98 0.0532 0.0087

Mars -75248-06-11 08:52 J -25762747.36 -25762747.13 -25762746.89 0.0530 0.0211

Venus -75244-07-12 06:42 J -25761255.38 -25761255.22 -25761255.05 0.0495 0.0298

Moon -75244-09-02 12:13 J -25761203.16 -25761202.99 -25761202.81 0.0495 0.0341

Earth -75244-09-02 16:04 J -25761203.00 -25761202.83 -25761202.63 0.0495 0.0310 \*

Mercury -75243-12-05 10:32 J -25760744.24 -25760744.06 -25760743.88 0.0494 0.0122

Mercury -75242-03-05 19:25 J -25760653.78 -25760653.69 -25760653.59 0.0495 0.0424

Venus -75238-05-15 23:16 J -25759121.71 -25759121.53 -25759121.35 0.0530 0.0245  
 Earth -75237-03-26 02:23 J -25758806.44 -25758806.40 -25758806.35 0.0532 0.0518  
 Mercury -75237-07-29 06:56 J -25758681.26 -25758681.21 -25758681.15 0.0532 0.0474  
 Mercury -75237-10-26 13:25 J -25758592.07 -25758591.94 -25758591.81 0.0532 0.0026  
 Mercury -75236-01-23 20:08 J -25758502.73 -25758502.66 -25758502.58 0.0531 0.0427  
 Venus -75232-03-17 05:01 J -25756989.49 -25756989.29 -25756989.08 0.0496 0.0110  
 Earth -75232-09-07 05:30 J -25756815.50 -25756815.27 -25756815.04 0.0495 0.0107  
 Moon -75232-09-07 08:37 J -25756815.37 -25756815.14 -25756814.92 0.0495 0.0114 \*  
 Mercury -75231-09-23 07:54 J -25756434.32 -25756434.17 -25756434.01 0.0494 0.0257  
 Mercury -75231-12-22 17:16 J -25756343.93 -25756343.78 -25756343.63 0.0495 0.0291  
 Mars -75230-06-09 00:56 J -25756175.75 -25756175.46 -25756175.17 0.0497 0.0033  
 Mercury -75225-08-14 17:01 J -25754281.91 -25754281.79 -25754281.67 0.0532 0.0144  
 Mercury -75225-11-11 23:44 J -25754192.61 -25754192.51 -25754192.41 0.0531 0.0309  
 Moon -75220-09-11 18:42 J -25752427.96 -25752427.72 -25752427.48 0.0494 0.0126  
 Earth -75220-09-11 19:54 J -25752427.90 -25752427.67 -25752427.43 0.0494 0.0099 \*  
 Mercury -75219-07-12 05:30 J -25752124.38 -25752124.27 -25752124.16 0.0494 0.0390  
 Mercury -75219-10-10 14:52 J -25752034.05 -25752033.88 -25752033.70 0.0494 0.0160  
 Venus -75214-05-18 16:18 J -25750352.88 -25750352.82 -25750352.75 0.0531 0.0498  
 Mercury -75213-06-02 21:06 J -25749971.73 -25749971.62 -25749971.51 0.0532 0.0256  
 Mercury -75213-08-31 03:49 J -25749882.46 -25749882.34 -25749882.22 0.0532 0.0197  
 Mars -75212-03-16 11:16 J -25749685.14 -25749685.03 -25749684.91 0.0529 0.0467  
 Moon -75208-09-16 09:06 J -25748040.29 -25748040.12 -25748039.94 0.0494 0.0314  
 Earth -75208-09-16 09:35 J -25748040.28 -25748040.10 -25748039.91 0.0494 0.0304 \*  
 Mercury -75207-07-29 12:13 J -25747724.18 -25747723.99 -25747723.81 0.0494 0.0022  
 Venus -75202-01-21 11:59 J -25746087.20 -25746087.00 -25746086.80 0.0530 0.0022  
 Earth -75202-03-06 10:32 J -25746043.14 -25746043.06 -25746042.97 0.0531 0.0494  
 Moon -75202-03-06 13:25 J -25746043.04 -25746042.94 -25746042.82 0.0531 0.0465 \*  
 Mercury -75201-03-22 01:25 J -25745661.53 -25745661.44 -25745661.35 0.0533 0.0365  
 Mercury -75201-06-19 07:54 J -25745572.29 -25745572.17 -25745572.04 0.0532 0.0089  
 Venus -75197-11-22 19:54 J -25743954.87 -25743954.67 -25743954.47 0.0496 0.0140

Moon -75196-09-21 01:11 J -25743652.51 -25743652.45 -25743652.39 0.0493 0.0476  
 Mercury -75195-05-17 09:35 J -25743414.28 -25743414.10 -25743413.91 0.0494 0.0112  
 Mercury -75195-08-15 18:28 J -25743323.81 -25743323.73 -25743323.64 0.0495 0.0432  
 Venus -75191-09-26 08:37 J -25741821.24 -25741821.14 -25741821.03 0.0529 0.0446  
 Moon -75190-03-11 08:52 J -25741655.33 -25741655.13 -25741654.93 0.0532 0.0259  
 Earth -75190-03-11 12:42 J -25741655.18 -25741654.97 -25741654.77 0.0532 0.0239 \*  
 Mercury -75189-01-09 05:44 J -25741351.31 -25741351.26 -25741351.20 0.0532 0.0472  
 Mercury -75189-04-07 12:13 J -25741262.11 -25741261.99 -25741261.86 0.0532 0.0025  
 Mercury -75189-07-05 18:56 J -25741172.78 -25741172.71 -25741172.63 0.0531 0.0431  
 Venus -75185-07-28 15:49 J -25739689.01 -25739688.84 -25739688.67 0.0497 0.0281  
 Mercury -75183-03-05 05:59 J -25739104.41 -25739104.25 -25739104.09 0.0494 0.0258  
 Mercury -75183-06-03 15:20 J -25739014.01 -25739013.86 -25739013.71 0.0495 0.0290  
 Earth -75178-03-16 11:44 J -25737267.23 -25737267.01 -25737266.78 0.0532 0.0014  
 Moon -75178-03-16 15:06 J -25737267.10 -25737266.87 -25737266.65 0.0532 0.0019 \*  
 Mercury -75177-01-25 16:18 J -25736951.94 -25736951.82 -25736951.70 0.0532 0.0135  
 Mercury -75177-04-23 23:01 J -25736862.64 -25736862.54 -25736862.44 0.0531 0.0318  
 Mercury -75172-12-22 03:20 J -25734794.47 -25734794.36 -25734794.25 0.0494 0.0393  
 Mercury -75171-03-22 12:56 J -25734704.14 -25734703.96 -25734703.79 0.0495 0.0157  
 Venus -75167-09-29 02:37 J -25733052.55 -25733052.39 -25733052.23 0.0530 0.0301  
 Moon -75166-03-21 04:18 J -25732879.52 -25732879.32 -25732879.11 0.0532 0.0261  
 Earth -75166-03-21 06:42 J -25732879.42 -25732879.22 -25732879.02 0.0532 0.0248 \*  
 Mercury -75166-11-13 19:54 J -25732641.78 -25732641.67 -25732641.56 0.0532 0.0255  
 Mercury -75165-02-11 02:23 J -25732552.52 -25732552.40 -25732552.28 0.0531 0.0198  
 Venus -75161-07-31 06:56 J -25730920.34 -25730920.21 -25730920.07 0.0496 0.0370  
 Earth -75161-09-02 00:13 J -25730887.66 -25730887.49 -25730887.30 0.0495 0.0320  
 Moon -75161-09-02 03:35 J -25730887.51 -25730887.35 -25730887.19 0.0495 0.0348 \*  
 Mercury -75159-01-08 10:32 J -25730394.25 -25730394.06 -25730393.88 0.0494 0.0025  
 Venus -75155-06-03 21:06 J -25728786.80 -25728786.62 -25728786.43 0.0530 0.0180  
 Earth -75154-03-26 03:35 J -25728491.43 -25728491.35 -25728491.26 0.0533 0.0491  
 Moon -75154-03-26 03:35 J -25728491.38 -25728491.35 -25728491.30 0.0533 0.0521 \*

Mercury -75154-09-01 23:59 J -25728331.59 -25728331.50 -25728331.41 0.0532 0.0368

Mercury -75154-11-30 06:28 J -25728242.36 -25728242.23 -25728242.11 0.0532 0.0085

Venus -75149-04-05 05:44 J -25726654.47 -25726654.26 -25726654.05 0.0496 0.0036

Moon -75149-09-06 12:13 J -25726500.23 -25726499.99 -25726499.75 0.0494 0.0113

Earth -75149-09-06 13:54 J -25726500.15 -25726499.92 -25726499.69 0.0494 0.0115 \*

Mercury -75148-10-27 07:40 J -25726084.36 -25726084.18 -25726084.00 0.0494 0.0115

Mercury -75147-01-25 16:18 J -25725993.90 -25725993.82 -25725993.72 0.0495 0.0430

Mercury -75142-06-21 04:04 J -25724021.38 -25724021.33 -25724021.27 0.0533 0.0477

Mercury -75142-09-18 10:32 J -25723932.18 -25723932.06 -25723931.93 0.0532 0.0029

Mercury -75142-12-16 17:16 J -25723842.85 -25723842.78 -25723842.70 0.0531 0.0429

Venus -75138-12-10 04:18 J -25722388.41 -25722388.32 -25722388.23 0.0497 0.0442

Moon -75137-09-11 02:08 J -25722112.63 -25722112.41 -25722112.19 0.0494 0.0118

Earth -75137-09-11 02:37 J -25722112.63 -25722112.39 -25722112.16 0.0494 0.0088 \*

Mercury -75136-08-15 04:47 J -25721774.46 -25721774.30 -25721774.14 0.0494 0.0251

Mercury -75136-11-13 13:54 J -25721684.06 -25721683.92 -25721683.77 0.0494 0.0297

Mercury -75130-07-07 14:52 J -25719622.00 -25719621.88 -25719621.75 0.0532 0.0137

Mercury -75130-10-04 21:35 J -25719532.70 -25719532.60 -25719532.50 0.0531 0.0318

Earth -75125-09-15 11:16 J -25717725.22 -25717725.03 -25717724.83 0.0494 0.0284

Moon -75125-09-15 13:11 J -25717725.14 -25717724.95 -25717724.75 0.0494 0.0289 \*

Mercury -75124-06-03 00:56 J -25717464.57 -25717464.46 -25717464.35 0.0494 0.0399

Mercury -75124-09-01 10:32 J -25717374.24 -25717374.06 -25717373.89 0.0495 0.0152

Venus -75119-02-09 13:40 J -25715752.12 -25715751.93 -25715751.73 0.0530 0.0108

Moon -75119-03-05 14:08 J -25715727.99 -25715727.91 -25715727.81 0.0531 0.0485

Earth -75119-03-05 17:59 J -25715727.81 -25715727.75 -25715727.68 0.0531 0.0507 \*

Mercury -75118-04-25 18:56 J -25715311.82 -25715311.71 -25715311.59 0.0532 0.0248

Mercury -75118-07-24 01:25 J -25715222.55 -25715222.44 -25715222.32 0.0531 0.0206

Venus -75114-12-12 15:35 J -25713620.04 -25713619.85 -25713619.65 0.0496 0.0190

Moon -75113-09-19 21:35 J -25713337.68 -25713337.60 -25713337.51 0.0494 0.0458

Earth -75113-09-20 00:28 J -25713337.51 -25713337.48 -25713337.44 0.0494 0.0486 \*

Mercury -75112-06-20 07:54 J -25713064.36 -25713064.17 -25713063.99 0.0495 0.0017

Mars -75112-11-26 06:42 J -25712905.25 -25712905.22 -25712905.16 0.0496 0.0490  
 Venus -75108-10-15 06:42 J -25711486.36 -25711486.22 -25711486.08 0.0529 0.0380  
 Earth -75107-03-10 12:56 J -25711340.16 -25711339.96 -25711339.76 0.0531 0.0269  
 Moon -75107-03-10 16:18 J -25711340.00 -25711339.82 -25711339.63 0.0531 0.0295 \*  
 Mercury -75106-02-11 22:32 J -25711001.65 -25711001.56 -25711001.47 0.0532 0.0368  
 Mercury -75106-05-12 05:01 J -25710912.42 -25710912.29 -25710912.17 0.0532 0.0083  
 Venus -75102-08-17 14:37 J -25709354.08 -25709353.89 -25709353.70 0.0497 0.0215  
 Mercury -75100-04-08 05:30 J -25708754.45 -25708754.27 -25708754.09 0.0494 0.0118  
 Mercury -75100-07-07 14:23 J -25708663.99 -25708663.90 -25708663.81 0.0495 0.0428  
 Moon -75095-03-15 07:40 J -25706952.42 -25706952.18 -25706951.95 0.0532 0.0054  
 Earth -75095-03-15 10:04 J -25706952.31 -25706952.08 -25706951.85 0.0532 0.0025 \*  
 Mercury -75095-12-01 02:23 J -25706691.45 -25706691.40 -25706691.35 0.0532 0.0482  
 Mercury -75094-02-28 08:52 J -25706602.26 -25706602.13 -25706602.00 0.0532 0.0033  
 Mercury -75094-05-28 15:35 J -25706512.93 -25706512.85 -25706512.77 0.0531 0.0422  
 Mars -75094-09-05 05:16 J -25706413.54 -25706413.28 -25706413.03 0.0530 0.0012  
 Mercury -75088-01-25 02:23 J -25704444.56 -25704444.40 -25704444.24 0.0494 0.0257  
 Mercury -75088-04-25 11:30 J -25704354.16 -25704354.02 -25704353.87 0.0494 0.0291  
 Venus -75084-10-18 00:28 J -25702717.61 -25702717.48 -25702717.33 0.0531 0.0365  
 Earth -75083-03-20 08:23 J -25702564.36 -25702564.15 -25702563.95 0.0532 0.0223  
 Moon -75083-03-20 08:52 J -25702564.32 -25702564.13 -25702563.93 0.0532 0.0241 \*  
 Mercury -75083-12-17 12:56 J -25702292.08 -25702291.96 -25702291.84 0.0532 0.0144  
 Mercury -75082-03-16 19:40 J -25702202.78 -25702202.68 -25702202.58 0.0532 0.0310  
 Venus -75078-08-20 05:01 J -25700585.38 -25700585.29 -25700585.18 0.0495 0.0433  
 Moon -75078-09-02 03:20 J -25700572.52 -25700572.36 -25700572.18 0.0495 0.0360  
 Earth -75078-09-02 05:16 J -25700572.45 -25700572.28 -25700572.10 0.0495 0.0334 \*  
 Mercury -75077-11-12 23:30 J -25700134.63 -25700134.52 -25700134.41 0.0494 0.0394  
 Mercury -75076-02-11 08:52 J -25700044.30 -25700044.13 -25700043.95 0.0494 0.0155  
 Mars -75076-09-01 19:40 J -25699841.95 -25699841.68 -25699841.41 0.0497 0.0181  
 Venus -75072-06-22 21:06 J -25698451.81 -25698451.62 -25698451.42 0.0530 0.0105  
 Earth -75071-03-25 08:52 J -25698176.23 -25698176.13 -25698176.03 0.0533 0.0475



Moon -75071-03-25 10:32 J -25698176.13 -25698176.06 -25698175.96 0.0533 0.0496 \*  
 Mercury -75071-10-05 17:16 J -25697981.89 -25697981.78 -25697981.66 0.0532 0.0253  
 Mercury -75070-01-02 23:59 J -25697892.62 -25697892.50 -25697892.38 0.0532 0.0201  
 Venus -75066-04-25 00:56 J -25696319.67 -25696319.46 -25696319.25 0.0496 0.0013  
 Moon -75066-09-06 13:25 J -25696185.16 -25696184.94 -25696184.72 0.0495 0.0132  
 Earth -75066-09-06 13:40 J -25696185.16 -25696184.93 -25696184.70 0.0495 0.0140 \*  
 Mercury -75065-11-30 05:01 J -25695734.47 -25695734.29 -25695734.10 0.0494 0.0015  
 Mercury -75059-07-24 21:20 J -25693671.70 -25693671.61 -25693671.51 0.0532 0.0364  
 Mercury -75059-10-22 03:49 J -25693582.46 -25693582.34 -25693582.21 0.0532 0.0089  
 Venus -75055-12-28 23:01 J -25692053.66 -25692053.54 -25692053.42 0.0497 0.0397  
 Earth -75054-09-11 01:40 J -25691797.66 -25691797.43 -25691797.19 0.0494 0.0062  
 Moon -75054-09-11 03:20 J -25691797.60 -25691797.36 -25691797.11 0.0494 0.0093 \*  
 Mercury -75053-09-18 02:23 J -25691424.58 -25691424.40 -25691424.22 0.0494 0.0129  
 Mercury -75053-12-17 11:16 J -25691334.12 -25691334.03 -25691333.92 0.0495 0.0418  
 Mercury -75047-05-13 00:56 J -25689361.51 -25689361.46 -25689361.41 0.0532 0.0484  
 Mercury -75047-08-10 07:11 J -25689272.32 -25689272.20 -25689272.07 0.0532 0.0037  
 Mercury -75047-11-07 13:54 J -25689182.99 -25689182.92 -25689182.84 0.0531 0.0418  
 Moon -75042-09-15 12:56 J -25687410.15 -25687409.96 -25687409.77 0.0494 0.0269  
 Earth -75042-09-15 15:35 J -25687410.04 -25687409.85 -25687409.64 0.0494 0.0267 \*  
 Mercury -75041-07-06 23:44 J -25687114.66 -25687114.51 -25687114.35 0.0494 0.0263  
 Mercury -75041-10-05 09:06 J -25687024.27 -25687024.12 -25687023.97 0.0495 0.0285  
 Venus -75036-02-28 08:37 J -25685417.33 -25685417.14 -25685416.95 0.0530 0.0156  
 Moon -75036-03-04 17:01 J -25685412.80 -25685412.79 -25685412.77 0.0530 0.0527  
 Mercury -75035-05-29 11:01 J -25684962.16 -25684962.04 -25684961.92 0.0532 0.0152  
 Mercury -75035-08-26 17:44 J -25684872.87 -25684872.76 -25684872.66 0.0531 0.0302  
 Venus -75031-12-31 13:54 J -25683285.10 -25683284.92 -25683284.74 0.0496 0.0251  
 Earth -75030-09-20 04:32 J -25683022.38 -25683022.31 -25683022.24 0.0494 0.0470  
 Moon -75030-09-20 08:23 J -25683022.26 -25683022.15 -25683022.04 0.0494 0.0441 \*  
 Mercury -75029-04-24 20:37 J -25682804.74 -25682804.64 -25682804.53 0.0494 0.0403  
 Mercury -75029-07-24 06:13 J -25682714.42 -25682714.24 -25682714.06 0.0494 0.0147

Venus -75025-11-03 02:52 J -25681151.53 -25681151.38 -25681151.22 0.0529 0.0326

Moon -75024-03-09 08:23 J -25681025.34 -25681025.15 -25681024.97 0.0531 0.0327

Earth -75024-03-09 11:16 J -25681025.22 -25681025.03 -25681024.84 0.0531 0.0302 \*

Mercury -75023-03-17 15:06 J -25680651.98 -25680651.87 -25680651.76 0.0533 0.0264

Mercury -75023-06-14 21:35 J -25680562.71 -25680562.60 -25680562.48 0.0532 0.0190

Venus -75019-09-05 11:59 J -25679019.20 -25679019.00 -25679018.80 0.0496 0.0157

Mercury -75017-05-12 03:20 J -25678404.55 -25678404.36 -25678404.17 0.0494 0.0009

Earth -75012-03-14 12:13 J -25676637.22 -25676636.99 -25676636.76 0.0532 0.0049

Moon -75012-03-14 13:25 J -25676637.16 -25676636.94 -25676636.72 0.0532 0.0072 \*

Mercury -75011-01-03 19:40 J -25676341.77 -25676341.68 -25676341.59 0.0533 0.0372

Mercury -75011-04-03 02:08 J -25676252.54 -25676252.41 -25676252.29 0.0532 0.0082

Mercury -75005-02-28 23:16 J -25674094.70 -25674094.53 -25674094.35 0.0494 0.0140

Mercury -75005-05-29 08:23 J -25674004.25 -25674004.15 -25674004.04 0.0495 0.0407

Venus -75001-11-05 23:44 J -25672382.61 -25672382.51 -25672382.39 0.0531 0.0437

# 75TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 75th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Earth	-75000-03-19 11:16 J	-25672249.24	-25672249.03	-25672248.81	0.0532	0.0199		
Moon	-75000-03-19 12:28 J	-25672249.19	-25672248.98	-25672248.76	0.0532	0.0222	*	
Mercury	-75000-10-22 23:44 J	-25672031.56	-25672031.51	-25672031.46	0.0532	0.0482		
Mercury	-74999-01-20 05:59 J	-25671942.37	-25671942.25	-25671942.12	0.0532	0.0035		

Mercury -74999-04-19 12:42 J -25671853.04 -25671852.97 -25671852.89 0.0531 0.0421

Earth -74995-09-01 03:20 J -25670257.52 -25670257.36 -25670257.20 0.0495 0.0363

Moon -74995-09-01 03:35 J -25670257.49 -25670257.35 -25670257.21 0.0495 0.0388 \*

Venus -74995-09-07 23:16 J -25670250.59 -25670250.53 -25670250.47 0.0495 0.0472

Mercury -74994-12-17 20:23 J -25669784.80 -25669784.65 -25669784.49 0.0494 0.0277

Mercury -74993-03-17 05:44 J -25669694.41 -25669694.26 -25669694.10 0.0495 0.0273

Venus -74989-07-11 16:47 J -25668117.00 -25668116.80 -25668116.60 0.0530 0.0053

Moon -74988-03-24 01:54 J -25667861.53 -25667861.42 -25667861.30 0.0532 0.0455

Earth -74988-03-24 05:01 J -25667861.41 -25667861.29 -25667861.16 0.0532 0.0436 \*

Mercury -74988-11-08 09:20 J -25667632.23 -25667632.11 -25667631.99 0.0532 0.0156

Mercury -74987-02-05 16:04 J -25667542.94 -25667542.83 -25667542.73 0.0531 0.0297

Venus -74983-05-13 21:49 J -25665984.80 -25665984.59 -25665984.38 0.0496 0.0068

Earth -74983-09-05 16:18 J -25665870.04 -25665869.82 -25665869.59 0.0495 0.0160

Moon -74983-09-05 17:59 J -25665869.98 -25665869.75 -25665869.51 0.0495 0.0146 \*

Mercury -74982-10-05 17:44 J -25665474.85 -25665474.76 -25665474.65 0.0494 0.0412

Mercury -74981-01-04 03:35 J -25665384.53 -25665384.35 -25665384.17 0.0495 0.0140

Mercury -74976-08-27 13:11 J -25663322.06 -25663321.95 -25663321.84 0.0532 0.0273

Mercury -74976-11-24 19:40 J -25663232.80 -25663232.68 -25663232.56 0.0532 0.0180

Mars -74975-02-23 17:16 J -25663141.85 -25663141.78 -25663141.70 0.0531 0.0504

Venus -74971-01-16 20:08 J -25661718.80 -25661718.66 -25661718.50 0.0497 0.0341

Moon -74971-09-10 02:23 J -25661482.63 -25661482.40 -25661482.17 0.0494 0.0074

Earth -74971-09-10 05:01 J -25661482.52 -25661482.29 -25661482.05 0.0494 0.0045 \*

Mercury -74970-10-23 00:28 J -25661074.66 -25661074.48 -25661074.29 0.0494 0.0008

Mercury -74964-06-15 17:01 J -25659011.87 -25659011.79 -25659011.70 0.0533 0.0387

Mercury -74964-09-12 23:44 J -25658922.64 -25658922.51 -25658922.39 0.0532 0.0067

Mercury -74964-12-11 06:28 J -25658833.25 -25658833.23 -25658833.21 0.0531 0.0521

Earth -74959-09-14 17:01 J -25657094.99 -25657094.79 -25657094.58 0.0494 0.0246

Moon -74959-09-14 20:52 J -25657094.84 -25657094.63 -25657094.42 0.0494 0.0241 \*

Mercury -74958-08-10 21:35 J -25656764.78 -25656764.60 -25656764.42 0.0494 0.0140

Mercury -74958-11-09 06:28 J -25656674.33 -25656674.23 -25656674.12 0.0495 0.0407

Mars -74957-02-19 11:59 J -25656572.22 -25656572.00 -25656571.76 0.0496 0.0310  
 Venus -74953-03-19 05:59 J -25655082.43 -25655082.25 -25655082.07 0.0531 0.0216  
 Mercury -74952-04-03 21:35 J -25654701.64 -25654701.60 -25654701.55 0.0533 0.0493  
 Mercury -74952-07-02 04:04 J -25654612.46 -25654612.33 -25654612.21 0.0532 0.0043  
 Mercury -74952-09-29 10:47 J -25654523.13 -25654523.05 -25654522.97 0.0531 0.0412  
 Venus -74947-01-19 08:08 J -25652950.33 -25652950.16 -25652949.99 0.0495 0.0293  
 Moon -74947-09-18 22:18 J -25652707.69 -25652707.57 -25652707.43 0.0493 0.0410  
 Earth -74947-09-19 02:08 J -25652707.51 -25652707.41 -25652707.30 0.0493 0.0440 \*  
 Mercury -74946-05-29 17:30 J -25652454.92 -25652454.77 -25652454.62 0.0494 0.0288  
 Mercury -74946-08-28 02:52 J -25652364.54 -25652364.38 -25652364.22 0.0495 0.0261  
 Venus -74942-11-23 01:11 J -25650816.62 -25650816.45 -25650816.27 0.0530 0.0259  
 Earth -74941-03-08 12:42 J -25650710.15 -25650709.97 -25650709.79 0.0531 0.0329  
 Moon -74941-03-08 14:23 J -25650710.06 -25650709.90 -25650709.73 0.0531 0.0357 \*  
 Mercury -74940-04-20 08:08 J -25650302.28 -25650302.16 -25650302.04 0.0532 0.0155  
 Mercury -74940-07-18 14:37 J -25650212.99 -25650212.89 -25650212.78 0.0531 0.0299  
 Mars -74940-11-28 21:35 J -25650079.84 -25650079.60 -25650079.36 0.0529 0.0184  
 Venus -74936-09-24 05:59 J -25648684.45 -25648684.25 -25648684.05 0.0496 0.0116  
 Mercury -74934-03-17 14:23 J -25648144.98 -25648144.90 -25648144.80 0.0494 0.0426  
 Mercury -74934-06-16 00:13 J -25648054.67 -25648054.49 -25648054.31 0.0494 0.0126  
 Earth -74929-03-13 07:40 J -25646322.41 -25646322.18 -25646321.96 0.0531 0.0089  
 Moon -74929-03-13 07:54 J -25646322.40 -25646322.17 -25646321.94 0.0531 0.0107 \*  
 Mercury -74928-02-06 11:16 J -25645992.13 -25645992.03 -25645991.92 0.0532 0.0279  
 Mercury -74928-05-06 17:59 J -25645902.87 -25645902.75 -25645902.63 0.0531 0.0175  
 Mercury -74922-04-03 21:49 J -25643744.78 -25643744.59 -25643744.41 0.0494 0.0012  
 Mars -74922-11-25 21:06 J -25643508.83 -25643508.62 -25643508.42 0.0497 0.0350  
 Venus -74918-11-25 17:16 J -25642047.86 -25642047.78 -25642047.68 0.0531 0.0476  
 Moon -74917-03-18 01:54 J -25641934.63 -25641934.42 -25641934.21 0.0532 0.0181  
 Earth -74917-03-18 04:18 J -25641934.54 -25641934.32 -25641934.10 0.0532 0.0154 \*  
 Mercury -74917-11-25 15:06 J -25641681.95 -25641681.87 -25641681.78 0.0532 0.0394  
 Mercury -74916-02-22 21:35 J -25641592.73 -25641592.60 -25641592.47 0.0532 0.0057

Mercury -74916-05-23 04:18 J -25641503.35 -25641503.32 -25641503.28 0.0531 0.0512  
 Earth -74912-08-31 05:59 J -25639942.39 -25639942.25 -25639942.09 0.0496 0.0382  
 Moon -74912-08-31 07:25 J -25639942.32 -25639942.19 -25639942.04 0.0496 0.0403 \*  
 Mercury -74910-01-20 18:42 J -25639434.90 -25639434.72 -25639434.54 0.0494 0.0148  
 Mercury -74910-04-21 03:35 J -25639344.45 -25639344.35 -25639344.23 0.0495 0.0399  
 Venus -74906-07-31 11:30 J -25637782.22 -25637782.02 -25637781.82 0.0530 0.0011  
 Earth -74905-03-23 00:56 J -25637546.61 -25637546.46 -25637546.31 0.0533 0.0398  
 Moon -74905-03-23 04:47 J -25637546.44 -25637546.30 -25637546.16 0.0533 0.0415 \*  
 Mercury -74905-09-13 19:11 J -25637371.74 -25637371.70 -25637371.67 0.0533 0.0508  
 Mercury -74905-12-12 01:40 J -25637282.56 -25637282.43 -25637282.31 0.0532 0.0061  
 Mercury -74904-03-11 08:08 J -25637193.24 -25637193.16 -25637193.07 0.0531 0.0398  
 Venus -74900-06-01 18:28 J -25635649.94 -25635649.73 -25635649.53 0.0496 0.0121  
 Moon -74900-09-04 15:35 J -25635555.07 -25635554.85 -25635554.63 0.0495 0.0166  
 Earth -74900-09-04 17:59 J -25635554.96 -25635554.75 -25635554.52 0.0495 0.0181 \*  
 Mercury -74899-11-08 15:35 J -25635125.00 -25635124.85 -25635124.70 0.0494 0.0288  
 Mercury -74898-02-07 00:56 J -25635034.62 -25635034.46 -25635034.30 0.0494 0.0261  
 Venus -74894-04-05 06:42 J -25633516.29 -25633516.22 -25633516.13 0.0529 0.0481  
 Mercury -74893-09-30 05:59 J -25632972.37 -25632972.25 -25632972.13 0.0532 0.0167  
 Mercury -74893-12-28 12:28 J -25632883.08 -25632882.98 -25632882.87 0.0532 0.0289  
 Venus -74888-02-04 15:06 J -25631384.03 -25631383.87 -25631383.70 0.0497 0.0295  
 Earth -74888-09-09 03:20 J -25631167.59 -25631167.36 -25631167.12 0.0494 0.0018  
 Moon -74888-09-09 06:56 J -25631167.45 -25631167.21 -25631166.97 0.0494 0.0045 \*  
 Mercury -74887-08-27 11:30 J -25630815.10 -25630815.02 -25630814.93 0.0494 0.0436  
 Mercury -74887-11-25 21:06 J -25630724.80 -25630724.62 -25630724.44 0.0494 0.0116  
 Mercury -74881-07-19 10:04 J -25628662.19 -25628662.08 -25628661.97 0.0532 0.0277  
 Mercury -74881-10-16 16:32 J -25628572.93 -25628572.81 -25628572.69 0.0532 0.0176  
 Moon -74876-09-13 11:44 J -25626780.23 -25626780.01 -25626779.79 0.0494 0.0207  
 Earth -74876-09-13 15:35 J -25626780.07 -25626779.85 -25626779.64 0.0494 0.0217 \*  
 Mercury -74875-09-13 18:28 J -25626414.92 -25626414.73 -25626414.54 0.0494 0.0021  
 Venus -74870-04-08 01:11 J -25624747.62 -25624747.45 -25624747.28 0.0530 0.0264

Mercury -74869-05-07 13:25 J -25624352.02 -25624351.94 -25624351.86 0.0532 0.0400

Mercury -74869-08-04 19:54 J -25624262.80 -25624262.67 -25624262.54 0.0532 0.0051

Mercury -74869-11-02 02:37 J -25624173.42 -25624173.39 -25624173.35 0.0531 0.0506

Venus -74864-02-07 04:32 J -25622615.46 -25622615.31 -25622615.16 0.0496 0.0345

Earth -74864-09-18 04:32 J -25622392.42 -25622392.31 -25622392.18 0.0494 0.0422

Moon -74864-09-18 07:40 J -25622392.32 -25622392.18 -25622392.04 0.0494 0.0394 \*

Mercury -74863-07-02 16:04 J -25622105.01 -25622104.83 -25622104.66 0.0494 0.0156

Mercury -74863-10-01 01:11 J -25622014.56 -25622014.45 -25622014.34 0.0495 0.0392

Venus -74859-12-11 19:25 J -25620481.87 -25620481.69 -25620481.51 0.0529 0.0217

Moon -74858-03-08 05:44 J -25620395.42 -25620395.26 -25620395.10 0.0530 0.0395

Earth -74858-03-08 06:28 J -25620395.40 -25620395.23 -25620395.07 0.0530 0.0370 \*

Mercury -74857-02-24 17:16 J -25620041.81 -25620041.78 -25620041.75 0.0532 0.0515

Mercury -74857-05-23 23:44 J -25619952.64 -25619952.51 -25619952.39 0.0532 0.0068

Mercury -74857-08-21 06:13 J -25619863.32 -25619863.24 -25619863.15 0.0531 0.0389

Venus -74853-10-13 02:52 J -25618349.59 -25618349.38 -25618349.17 0.0497 0.0063

Mercury -74851-04-20 12:56 J -25617795.11 -25617794.96 -25617794.81 0.0494 0.0295

Mercury -74851-07-19 22:18 J -25617704.72 -25617704.57 -25617704.41 0.0494 0.0255

Moon -74846-03-13 01:25 J -25616007.66 -25616007.44 -25616007.23 0.0531 0.0141

Earth -74846-03-13 03:06 J -25616007.59 -25616007.37 -25616007.14 0.0531 0.0127 \*

Mercury -74845-03-12 03:35 J -25615642.47 -25615642.35 -25615642.23 0.0532 0.0181

Mercury -74845-06-09 10:04 J -25615553.18 -25615553.08 -25615552.97 0.0532 0.0274

Venus -74841-06-18 01:11 J -25614083.51 -25614083.45 -25614083.38 0.0497 0.0469

Mercury -74839-02-06 09:49 J -25613485.17 -25613485.09 -25613485.00 0.0494 0.0435

Mercury -74839-05-07 19:25 J -25613394.87 -25613394.69 -25613394.51 0.0494 0.0116

Earth -74834-03-18 03:06 J -25611619.59 -25611619.37 -25611619.15 0.0532 0.0123

Moon -74834-03-18 06:42 J -25611619.44 -25611619.22 -25611619.00 0.0532 0.0156 \*

Mercury -74834-12-30 07:54 J -25611332.27 -25611332.17 -25611332.06 0.0533 0.0289

Mercury -74833-03-28 14:23 J -25611243.02 -25611242.90 -25611242.77 0.0532 0.0166

Moon -74829-08-30 04:04 J -25609627.44 -25609627.33 -25609627.21 0.0495 0.0428

Earth -74829-08-30 06:28 J -25609627.35 -25609627.23 -25609627.09 0.0495 0.0405 \*

Mercury -74827-02-23 15:49 J -25609085.03 -25609084.84 -25609084.66 0.0494 0.0029  
 Venus -74823-08-19 09:35 J -25607447.30 -25607447.10 -25607446.90 0.0530 0.0058  
 Moon -74822-03-22 22:47 J -25607231.70 -25607231.55 -25607231.39 0.0533 0.0389  
 Earth -74822-03-23 02:52 J -25607231.54 -25607231.38 -25607231.21 0.0533 0.0372 \*  
 Mercury -74822-10-18 12:13 J -25607022.07 -25607021.99 -25607021.91 0.0533 0.0399  
 Mercury -74821-01-15 18:42 J -25606932.85 -25606932.72 -25606932.60 0.0532 0.0055  
 Mercury -74821-04-14 01:25 J -25606843.47 -25606843.44 -25606843.41 0.0531 0.0509  
 Mars -74821-05-19 07:40 J -25606808.38 -25606808.18 -25606807.97 0.0531 0.0322  
 Venus -74817-06-20 13:54 J -25605315.12 -25605314.92 -25605314.72 0.0496 0.0168  
 Earth -74817-09-03 18:13 J -25605239.95 -25605239.74 -25605239.52 0.0495 0.0206  
 Moon -74817-09-03 21:49 J -25605239.81 -25605239.59 -25605239.37 0.0495 0.0186 \*  
 Mercury -74816-12-12 12:56 J -25604775.13 -25604774.96 -25604774.78 0.0494 0.0166  
 Mercury -74815-03-12 22:04 J -25604684.69 -25604684.58 -25604684.46 0.0495 0.0383  
 Venus -74811-04-24 03:06 J -25603181.48 -25603181.37 -25603181.25 0.0529 0.0426  
 Mercury -74810-08-06 15:35 J -25602711.87 -25602711.85 -25602711.82 0.0532 0.0519  
 Mercury -74810-11-03 22:04 J -25602622.71 -25602622.58 -25602622.46 0.0532 0.0072  
 Mercury -74809-02-01 04:32 J -25602533.39 -25602533.31 -25602533.22 0.0531 0.0385  
 Venus -74805-02-24 11:30 J -25601049.20 -25601049.02 -25601048.83 0.0497 0.0244  
 Moon -74805-09-08 02:37 J -25600852.62 -25600852.39 -25600852.15 0.0495 0.0025  
 Earth -74805-09-08 06:28 J -25600852.46 -25600852.23 -25600851.99 0.0495 0.0006 \*  
 Mercury -74804-09-30 10:32 J -25600465.21 -25600465.06 -25600464.91 0.0494 0.0301  
 Mercury -74804-12-29 19:54 J -25600374.82 -25600374.67 -25600374.51 0.0495 0.0251  
 Mars -74803-05-14 17:01 J -25600239.07 -25600238.79 -25600238.50 0.0496 0.0133  
 Mercury -74798-08-23 01:40 J -25598312.54 -25598312.43 -25598312.31 0.0532 0.0187  
 Mercury -74798-11-20 08:23 J -25598223.26 -25598223.15 -25598223.04 0.0531 0.0268  
 Earth -74793-09-12 19:25 J -25596464.91 -25596464.69 -25596464.48 0.0494 0.0204  
 Moon -74793-09-12 22:32 J -25596464.78 -25596464.56 -25596464.35 0.0494 0.0187 \*  
 Mercury -74792-07-19 07:40 J -25596155.27 -25596155.18 -25596155.10 0.0494 0.0439  
 Mercury -74792-10-17 17:16 J -25596064.96 -25596064.78 -25596064.60 0.0494 0.0113  
 Venus -74787-04-26 20:37 J -25594412.80 -25594412.64 -25594412.48 0.0530 0.0314

Mercury -74786-06-11 05:44 J -25594002.36 -25594002.26 -25594002.16 0.0533 0.0301

Mercury -74786-09-08 12:13 J -25593913.11 -25593912.99 -25593912.87 0.0532 0.0152

Mars -74785-02-21 20:37 J -25593746.84 -25593746.64 -25593746.43 0.0530 0.0324

Venus -74781-02-27 02:08 J -25592280.53 -25592280.41 -25592280.29 0.0496 0.0403

Moon -74781-09-17 05:59 J -25592077.40 -25592077.25 -25592077.08 0.0494 0.0375

Earth -74781-09-17 08:08 J -25592077.29 -25592077.16 -25592077.02 0.0494 0.0404 \*

Mercury -74780-08-05 14:23 J -25591755.09 -25591754.90 -25591754.72 0.0494 0.0027

Venus -74776-12-30 16:18 J -25590147.01 -25590146.82 -25590146.63 0.0530 0.0159

Moon -74775-03-07 04:18 J -25590080.44 -25590080.32 -25590080.19 0.0531 0.0430

Earth -74775-03-07 05:16 J -25590080.42 -25590080.28 -25590080.12 0.0531 0.0401 \*

Mercury -74774-03-30 10:04 J -25589692.16 -25589692.08 -25589692.00 0.0533 0.0409

Mercury -74774-06-27 16:32 J -25589602.94 -25589602.81 -25589602.68 0.0532 0.0044

Mercury -74774-09-24 23:16 J -25589513.56 -25589513.53 -25589513.48 0.0531 0.0501

Venus -74770-11-01 23:44 J -25588014.72 -25588014.51 -25588014.30 0.0496 0.0007

Mercury -74768-05-24 10:47 J -25587445.23 -25587445.05 -25587444.88 0.0494 0.0170

Mercury -74768-08-22 19:54 J -25587354.79 -25587354.67 -25587354.55 0.0494 0.0378

Earth -74763-03-12 05:59 J -25585692.47 -25585692.25 -25585692.03 0.0532 0.0151

Moon -74763-03-12 09:20 J -25585692.34 -25585692.11 -25585691.89 0.0532 0.0154 \*

Mercury -74762-01-16 14:23 J -25585381.92 -25585381.90 -25585381.87 0.0533 0.0517

Mercury -74762-04-15 20:52 J -25585292.76 -25585292.63 -25585292.51 0.0532 0.0067

Mercury -74762-07-14 03:35 J -25585203.44 -25585203.35 -25585203.27 0.0532 0.0390

Venus -74758-07-07 22:18 J -25583748.69 -25583748.57 -25583748.46 0.0497 0.0414

Mercury -74756-03-12 07:54 J -25583135.31 -25583135.17 -25583135.02 0.0494 0.0306

Mercury -74756-06-10 17:30 J -25583044.93 -25583044.77 -25583044.61 0.0494 0.0245

Moon -74751-03-16 22:47 J -25581304.77 -25581304.55 -25581304.33 0.0532 0.0129

Earth -74751-03-17 02:37 J -25581304.61 -25581304.39 -25581304.16 0.0532 0.0096 \*

Mercury -74750-02-02 00:13 J -25580982.60 -25580982.49 -25580982.37 0.0532 0.0189

Mercury -74750-05-02 06:56 J -25580893.32 -25580893.21 -25580893.10 0.0531 0.0266

Earth -74746-08-30 10:04 J -25579312.19 -25579312.08 -25579311.95 0.0496 0.0421

Moon -74746-08-30 13:40 J -25579312.03 -25579311.93 -25579311.81 0.0496 0.0437 \*



Mercury -74745-12-29 05:16 J -25578825.35 -25578825.28 -25578825.19 0.0494 0.0443

Mercury -74744-03-29 15:06 J -25578735.05 -25578734.87 -25578734.69 0.0495 0.0112

Venus -74740-09-07 06:13 J -25577112.43 -25577112.24 -25577112.05 0.0530 0.0113

Earth -74739-03-22 00:13 J -25576916.66 -25576916.49 -25576916.31 0.0532 0.0340

Moon -74739-03-22 03:49 J -25576916.50 -25576916.34 -25576916.17 0.0532 0.0355 \*

Mercury -74739-11-21 04:18 J -25576672.43 -25576672.32 -25576672.22 0.0532 0.0303

Mercury -74738-02-18 10:47 J -25576583.18 -25576583.05 -25576582.93 0.0532 0.0151

Venus -74734-07-10 11:44 J -25574980.19 -25574980.01 -25574979.82 0.0496 0.0227

Moon -74734-09-03 19:25 J -25574924.90 -25574924.69 -25574924.47 0.0496 0.0195

Earth -74734-09-03 23:16 J -25574924.74 -25574924.53 -25574924.32 0.0496 0.0217 \*

Mercury -74732-01-15 12:28 J -25574425.17 -25574424.98 -25574424.79 0.0494 0.0026

Venus -74728-05-12 23:59 J -25572846.64 -25572846.50 -25572846.36 0.0529 0.0369

Mercury -74727-09-09 08:08 J -25572362.24 -25572362.16 -25572362.08 0.0533 0.0418

Mercury -74727-12-07 14:37 J -25572273.02 -25572272.89 -25572272.76 0.0532 0.0035

Mercury -74726-03-06 21:20 J -25572183.66 -25572183.61 -25572183.56 0.0531 0.0491

Venus -74722-03-15 10:18 J -25570714.26 -25570714.07 -25570713.87 0.0497 0.0179

Earth -74722-09-08 12:13 J -25570537.22 -25570536.99 -25570536.75 0.0495 0.0014

Moon -74722-09-08 15:20 J -25570537.09 -25570536.86 -25570536.63 0.0495 0.0006 \*

Mercury -74721-11-03 09:35 J -25570115.28 -25570115.10 -25570114.92 0.0494 0.0164

Mercury -74720-02-01 18:42 J -25570024.83 -25570024.72 -25570024.60 0.0495 0.0385

Mercury -74715-06-28 12:28 J -25568051.99 -25568051.98 -25568051.96 0.0533 0.0525

Mercury -74715-09-25 18:56 J -25567962.84 -25567962.71 -25567962.58 0.0532 0.0074

Mercury -74715-12-24 01:40 J -25567873.52 -25567873.43 -25567873.34 0.0532 0.0382

Moon -74710-09-12 21:49 J -25566149.82 -25566149.59 -25566149.36 0.0494 0.0166

Earth -74710-09-12 23:59 J -25566149.72 -25566149.50 -25566149.28 0.0494 0.0188 \*

Mercury -74709-08-22 06:13 J -25565805.39 -25565805.24 -25565805.10 0.0494 0.0306

Mercury -74709-11-20 15:35 J -25565715.01 -25565714.85 -25565714.69 0.0494 0.0244

Venus -74704-05-15 20:37 J -25564077.77 -25564077.64 -25564077.50 0.0531 0.0389

Mercury -74703-07-14 23:16 J -25563652.65 -25563652.53 -25563652.41 0.0533 0.0183

Mercury -74703-10-12 05:59 J -25563563.36 -25563563.25 -25563563.14 0.0532 0.0273

Venus -74698-03-18 00:28 J -25561945.54 -25561945.48 -25561945.41 0.0495 0.0465  
 Earth -74698-09-17 12:56 J -25561762.10 -25561761.96 -25561761.81 0.0494 0.0390  
 Moon -74698-09-17 13:25 J -25561762.09 -25561761.94 -25561761.78 0.0494 0.0365 \*  
 Mercury -74697-06-10 03:35 J -25561495.43 -25561495.35 -25561495.27 0.0494 0.0442  
 Mercury -74697-09-08 13:11 J -25561405.13 -25561404.95 -25561404.77 0.0494 0.0111  
 Venus -74692-01-18 15:35 J -25559812.05 -25559811.85 -25559811.65 0.0529 0.0090  
 Earth -74692-03-06 08:23 J -25559765.29 -25559765.15 -25559765.01 0.0530 0.0418  
 Moon -74692-03-06 11:16 J -25559765.15 -25559765.03 -25559764.90 0.0530 0.0448 \*  
 Mercury -74691-05-03 02:52 J -25559342.48 -25559342.38 -25559342.27 0.0532 0.0302  
 Mercury -74691-07-31 09:20 J -25559253.23 -25559253.11 -25559252.99 0.0532 0.0151  
 Venus -74687-11-20 21:49 J -25557679.79 -25557679.59 -25557679.38 0.0497 0.0052  
 Mercury -74685-06-27 10:47 J -25557095.24 -25557095.05 -25557094.87 0.0494 0.0025  
 Moon -74680-03-11 03:35 J -25555377.57 -25555377.35 -25555377.14 0.0531 0.0176  
 Earth -74680-03-11 07:25 J -25555377.41 -25555377.19 -25555376.97 0.0531 0.0173 \*  
 Mercury -74679-02-19 06:56 J -25555032.29 -25555032.21 -25555032.13 0.0532 0.0415  
 Mercury -74679-05-19 13:25 J -25554943.07 -25554942.94 -25554942.82 0.0532 0.0039  
 Mercury -74679-08-16 19:54 J -25554853.71 -25554853.67 -25554853.62 0.0531 0.0492  
 Venus -74675-07-26 20:23 J -25553413.78 -25553413.65 -25553413.50 0.0498 0.0355  
 Mercury -74673-04-15 08:08 J -25552785.34 -25552785.16 -25552784.99 0.0494 0.0161  
 Mercury -74673-07-14 17:16 J -25552694.89 -25552694.78 -25552694.66 0.0495 0.0389  
 Earth -74668-03-16 03:49 J -25550989.56 -25550989.34 -25550989.11 0.0531 0.0071  
 Moon -74668-03-16 07:40 J -25550989.40 -25550989.18 -25550988.95 0.0531 0.0106 \*  
 Mercury -74668-12-08 10:47 J -25550722.05 -25550722.05 -25550722.04 0.0532 0.0530  
 Mercury -74667-03-07 17:16 J -25550632.91 -25550632.78 -25550632.66 0.0532 0.0079  
 Mercury -74667-06-04 23:59 J -25550543.59 -25550543.50 -25550543.41 0.0531 0.0377  
 Mars -74667-08-12 17:30 J -25550475.01 -25550474.77 -25550474.52 0.0531 0.0149  
 Moon -74663-08-29 14:23 J -25548996.99 -25548996.90 -25548996.78 0.0496 0.0443  
 Earth -74663-08-29 18:28 J -25548996.84 -25548996.73 -25548996.61 0.0496 0.0429 \*  
 Mercury -74661-02-02 05:16 J -25548475.43 -25548475.28 -25548475.13 0.0494 0.0298  
 Mercury -74661-05-02 14:37 J -25548385.04 -25548384.89 -25548384.73 0.0494 0.0254

Venus -74657-09-26 05:16 J -25546777.47 -25546777.28 -25546777.10 0.0530 0.0182  
 Moon -74656-03-21 00:56 J -25546601.64 -25546601.46 -25546601.27 0.0532 0.0328  
 Earth -74656-03-21 03:49 J -25546601.52 -25546601.34 -25546601.16 0.0532 0.0319 \*  
 Mercury -74656-12-24 21:35 J -25546322.72 -25546322.60 -25546322.48 0.0533 0.0188  
 Mercury -74655-03-24 04:04 J -25546233.43 -25546233.33 -25546233.21 0.0532 0.0269  
 Venus -74651-07-29 11:44 J -25544645.17 -25544645.01 -25544644.84 0.0496 0.0297  
 Earth -74651-09-03 06:42 J -25544609.42 -25544609.22 -25544609.00 0.0495 0.0226  
 Moon -74651-09-03 09:49 J -25544609.30 -25544609.09 -25544608.87 0.0495 0.0198 \*  
 Mercury -74650-11-21 02:08 J -25544165.50 -25544165.41 -25544165.33 0.0494 0.0439  
 Mercury -74649-02-19 11:44 J -25544075.19 -25544075.01 -25544074.83 0.0494 0.0114  
 Mars -74649-08-07 13:25 J -25543905.23 -25543904.94 -25543904.65 0.0496 0.0085  
 Venus -74645-06-01 00:56 J -25542511.62 -25542511.46 -25542511.29 0.0529 0.0290  
 Mercury -74644-10-13 02:08 J -25542012.52 -25542012.41 -25542012.31 0.0533 0.0296  
 Mercury -74643-01-10 08:37 J -25541923.26 -25541923.14 -25541923.02 0.0532 0.0160  
 Venus -74639-04-03 10:32 J -25540379.26 -25540379.06 -25540378.86 0.0497 0.0108  
 Moon -74639-09-07 17:59 J -25540221.99 -25540221.75 -25540221.50 0.0495 0.0009  
 Earth -74639-09-07 19:54 J -25540221.90 -25540221.67 -25540221.43 0.0495 0.0024 \*  
 Mercury -74638-12-08 09:20 J -25539765.30 -25539765.11 -25539764.93 0.0494 0.0020  
 Mercury -74632-08-01 05:44 J -25537702.33 -25537702.26 -25537702.18 0.0532 0.0412  
 Mercury -74632-10-29 12:13 J -25537613.12 -25537612.99 -25537612.86 0.0532 0.0040  
 Mercury -74631-01-26 18:56 J -25537523.75 -25537523.71 -25537523.67 0.0531 0.0495  
 Earth -74627-09-12 07:11 J -25535834.42 -25535834.20 -25535833.98 0.0495 0.0182  
 Moon -74627-09-12 07:40 J -25535834.39 -25535834.18 -25535833.96 0.0495 0.0159 \*  
 Mercury -74626-09-26 06:42 J -25535455.40 -25535455.22 -25535455.04 0.0494 0.0157  
 Mercury -74626-12-25 16:04 J -25535364.94 -25535364.83 -25535364.72 0.0495 0.0394  
 Venus -74621-06-03 21:06 J -25533742.71 -25533742.62 -25533742.52 0.0530 0.0463  
 Mercury -74620-05-20 10:04 J -25533392.10 -25533392.08 -25533392.06 0.0532 0.0523  
 Mercury -74620-08-17 16:18 J -25533302.95 -25533302.82 -25533302.70 0.0532 0.0074  
 Mercury -74620-11-14 22:47 J -25533213.63 -25533213.55 -25533213.46 0.0531 0.0381  
 Earth -74615-09-16 21:06 J -25531446.76 -25531446.62 -25531446.47 0.0494 0.0387

Moon -74615-09-16 22:32 J -25531446.73 -25531446.56 -25531446.40 0.0494 0.0366 \*  
 Mercury -74614-07-15 04:04 J -25531145.48 -25531145.33 -25531145.18 0.0494 0.0293  
 Mercury -74614-10-13 13:40 J -25531055.09 -25531054.93 -25531054.77 0.0495 0.0260  
 Venus -74609-02-07 15:20 J -25529477.06 -25529476.86 -25529476.66 0.0529 0.0016  
 Moon -74609-03-05 08:23 J -25529450.24 -25529450.15 -25529450.04 0.0530 0.0472  
 Earth -74609-03-05 12:28 J -25529450.11 -25529449.98 -25529449.86 0.0530 0.0437 \*  
 Mercury -74608-06-05 20:08 J -25528992.78 -25528992.66 -25528992.54 0.0532 0.0189  
 Mercury -74608-09-03 02:37 J -25528903.50 -25528903.39 -25528903.28 0.0531 0.0267  
 Venus -74604-12-09 23:16 J -25527344.73 -25527344.53 -25527344.33 0.0497 0.0129  
 Mercury -74602-05-03 01:11 J -25526835.53 -25526835.45 -25526835.35 0.0494 0.0429  
 Mercury -74602-08-01 11:01 J -25526745.22 -25526745.04 -25526744.86 0.0494 0.0125  
 Venus -74598-10-13 10:32 J -25525211.13 -25525211.06 -25525210.98 0.0528 0.0487  
 Earth -74597-03-10 11:59 J -25525062.22 -25525062.00 -25525061.79 0.0531 0.0192  
 Moon -74597-03-10 15:49 J -25525062.05 -25525061.84 -25525061.62 0.0531 0.0189 \*  
 Mercury -74596-03-25 00:28 J -25524682.58 -25524682.48 -25524682.37 0.0533 0.0298  
 Mercury -74596-06-22 07:11 J -25524593.33 -25524593.20 -25524593.08 0.0532 0.0158  
 Venus -74592-08-14 22:04 J -25523078.74 -25523078.58 -25523078.40 0.0497 0.0277  
 Mercury -74590-05-20 08:08 J -25522435.35 -25522435.16 -25522434.97 0.0494 0.0014  
 Moon -74585-03-15 09:49 J -25520674.32 -25520674.09 -25520673.86 0.0532 0.0093  
 Earth -74585-03-15 12:56 J -25520674.19 -25520673.96 -25520673.73 0.0532 0.0061 \*  
 Mercury -74584-01-11 05:01 J -25520372.37 -25520372.29 -25520372.21 0.0533 0.0404  
 Mercury -74584-04-10 11:30 J -25520283.15 -25520283.02 -25520282.89 0.0532 0.0049  
 Mercury -74584-07-08 18:13 J -25520193.77 -25520193.74 -25520193.70 0.0531 0.0506  
 Earth -74580-08-29 04:18 J -25518681.42 -25518681.32 -25518681.20 0.0496 0.0433  
 Moon -74580-08-29 07:40 J -25518681.29 -25518681.18 -25518681.07 0.0496 0.0434 \*  
 Mercury -74578-03-08 05:44 J -25518125.44 -25518125.26 -25518125.08 0.0494 0.0147  
 Mercury -74578-06-06 14:52 J -25518034.98 -25518034.88 -25518034.77 0.0495 0.0403  
 Venus -74574-10-16 07:54 J -25516442.34 -25516442.17 -25516442.00 0.0530 0.0269  
 Earth -74573-03-20 12:13 J -25516286.17 -25516285.99 -25516285.80 0.0532 0.0314  
 Moon -74573-03-20 12:56 J -25516286.13 -25516285.96 -25516285.77 0.0532 0.0313 \*

Mercury -74573-10-30 09:06 J -25516062.15 -25516062.12 -25516062.09 0.0532 0.0517  
 Mercury -74572-01-27 15:20 J -25515972.99 -25515972.86 -25515972.73 0.0532 0.0068  
 Mercury -74572-04-26 21:49 J -25515883.67 -25515883.59 -25515883.50 0.0531 0.0388  
 Venus -74568-08-17 11:44 J -25514310.15 -25514310.01 -25514309.87 0.0496 0.0363  
 Moon -74568-09-02 12:42 J -25514294.20 -25514293.97 -25514293.75 0.0496 0.0202  
 Earth -74568-09-02 14:37 J -25514294.10 -25514293.89 -25514293.68 0.0496 0.0232 \*  
 Mercury -74567-12-25 02:52 J -25513815.53 -25513815.38 -25513815.22 0.0494 0.0287  
 Mercury -74566-03-25 12:28 J -25513725.13 -25513724.98 -25513724.82 0.0495 0.0268  
 Venus -74562-06-21 03:49 J -25512176.52 -25512176.34 -25512176.15 0.0529 0.0201  
 Moon -74561-03-25 12:28 J -25511898.00 -25511897.98 -25511897.94 0.0532 0.0526  
 Mercury -74561-11-15 19:25 J -25511662.81 -25511662.69 -25511662.57 0.0532 0.0180  
 Mercury -74560-02-13 01:54 J -25511573.53 -25511573.42 -25511573.31 0.0531 0.0274  
 Venus -74556-04-22 10:18 J -25510044.27 -25510044.07 -25510043.86 0.0497 0.0042  
 Earth -74556-09-07 04:18 J -25509906.55 -25509906.32 -25509906.08 0.0496 0.0028  
 Moon -74556-09-07 04:47 J -25509906.53 -25509906.30 -25509906.07 0.0496 0.0019 \*  
 Mercury -74555-10-13 00:28 J -25509505.58 -25509505.48 -25509505.39 0.0494 0.0422  
 Mercury -74554-01-11 10:04 J -25509415.25 -25509415.08 -25509414.90 0.0495 0.0134  
 Mercury -74549-09-03 23:16 J -25507352.63 -25507352.53 -25507352.42 0.0532 0.0295  
 Mercury -74549-12-02 05:44 J -25507263.38 -25507263.26 -25507263.13 0.0532 0.0159  
 Venus -74545-12-26 09:35 J -25505778.18 -25505778.10 -25505778.00 0.0498 0.0444  
 Earth -74544-09-11 18:42 J -25505518.94 -25505518.72 -25505518.50 0.0495 0.0181  
 Moon -74544-09-11 19:54 J -25505518.90 -25505518.67 -25505518.43 0.0495 0.0154 \*  
 Mercury -74543-10-30 07:40 J -25505105.37 -25505105.18 -25505104.99 0.0494 0.0002  
 Mercury -74537-06-23 03:49 J -25503042.42 -25503042.34 -25503042.26 0.0532 0.0403  
 Mercury -74537-09-20 10:04 J -25502953.20 -25502953.08 -25502952.95 0.0532 0.0052  
 Mercury -74537-12-18 16:47 J -25502863.83 -25502863.80 -25502863.76 0.0531 0.0507  
 Moon -74532-09-16 05:30 J -25501131.42 -25501131.27 -25501131.12 0.0494 0.0373  
 Earth -74532-09-16 08:23 J -25501131.29 -25501131.15 -25501131.00 0.0494 0.0385 \*  
 Mercury -74531-08-18 04:47 J -25500795.48 -25500795.30 -25500795.12 0.0494 0.0140  
 Mercury -74531-11-16 14:08 J -25500705.02 -25500704.91 -25500704.81 0.0495 0.0410

Mars -74530-01-26 11:44 J -25500634.23 -25500634.01 -25500633.78 0.0495 0.0322  
 Venus -74526-02-26 18:28 J -25499141.93 -25499141.73 -25499141.53 0.0530 0.0076  
 Earth -74526-03-05 22:04 J -25499134.70 -25499134.58 -25499134.45 0.0530 0.0444  
 Moon -74526-03-06 02:08 J -25499134.51 -25499134.41 -25499134.31 0.0530 0.0476 \*  
 Mercury -74525-04-11 08:08 J -25498732.19 -25498732.16 -25498732.12 0.0533 0.0510  
 Mercury -74525-07-09 14:37 J -25498643.02 -25498642.89 -25498642.76 0.0532 0.0058  
 Mercury -74525-10-06 21:20 J -25498553.69 -25498553.61 -25498553.53 0.0531 0.0399  
 Venus -74521-12-29 01:40 J -25497009.61 -25497009.43 -25497009.24 0.0496 0.0211  
 Mercury -74519-06-06 02:23 J -25496485.55 -25496485.40 -25496485.24 0.0494 0.0273  
 Mercury -74519-09-04 11:44 J -25496395.16 -25496395.01 -25496394.85 0.0495 0.0280  
 Venus -74515-11-01 14:52 J -25494876.01 -25494875.88 -25494875.74 0.0528 0.0392  
 Moon -74514-03-10 19:54 J -25494746.89 -25494746.67 -25494746.45 0.0530 0.0186  
 Earth -74514-03-10 23:16 J -25494746.74 -25494746.53 -25494746.31 0.0530 0.0191 \*  
 Mercury -74513-04-27 18:42 J -25494332.84 -25494332.72 -25494332.60 0.0532 0.0172  
 Mercury -74513-07-26 01:11 J -25494243.56 -25494243.45 -25494243.34 0.0531 0.0282  
 Mars -74513-11-06 10:04 J -25494140.33 -25494140.08 -25494139.83 0.0530 0.0118  
 Venus -74509-09-02 22:04 J -25492743.76 -25492743.58 -25492743.39 0.0498 0.0209  
 Mercury -74507-03-24 23:16 J -25492175.62 -25492175.53 -25492175.43 0.0494 0.0415  
 Mercury -74507-06-23 09:06 J -25492085.29 -25492085.12 -25492084.94 0.0495 0.0142  
 Earth -74502-03-15 23:01 J -25490358.77 -25490358.54 -25490358.31 0.0531 0.0058  
 Moon -74502-03-16 00:13 J -25490358.71 -25490358.49 -25490358.27 0.0531 0.0087 \*  
 Mercury -74501-02-14 22:47 J -25490022.65 -25490022.55 -25490022.44 0.0532 0.0283  
 Mercury -74501-05-14 05:16 J -25489933.40 -25489933.28 -25489933.16 0.0531 0.0170  
 Moon -74497-08-28 10:32 J -25488366.17 -25488366.06 -25488365.94 0.0497 0.0432  
 Earth -74497-08-28 12:28 J -25488366.08 -25488365.98 -25488365.87 0.0497 0.0439 \*  
 Mercury -74495-04-11 06:42 J -25487775.40 -25487775.22 -25487775.03 0.0495 0.0015  
 Mars -74495-11-02 14:37 J -25487570.07 -25487569.89 -25487569.70 0.0497 0.0383  
 Venus -74491-11-04 09:49 J -25486107.24 -25486107.09 -25486106.95 0.0530 0.0354  
 Earth -74490-03-20 19:25 J -25485970.87 -25485970.69 -25485970.50 0.0531 0.0300  
 Moon -74490-03-20 20:37 J -25485970.83 -25485970.64 -25485970.43 0.0531 0.0286 \*

Mercury -74490-12-04 02:52 J -25485712.47 -25485712.38 -25485712.30 0.0532 0.0398

Mercury -74489-03-02 09:06 J -25485623.25 -25485623.12 -25485622.99 0.0532 0.0054

Mercury -74489-05-30 15:49 J -25485533.87 -25485533.84 -25485533.81 0.0531 0.0510

Earth -74485-09-02 03:06 J -25483978.58 -25483978.37 -25483978.16 0.0496 0.0233

Moon -74485-09-02 03:20 J -25483978.56 -25483978.36 -25483978.15 0.0496 0.0203 \*

Venus -74485-09-05 14:37 J -25483974.98 -25483974.89 -25483974.80 0.0496 0.0448

Mercury -74483-01-28 04:18 J -25483465.50 -25483465.32 -25483465.14 0.0494 0.0127

Mercury -74483-04-28 13:40 J -25483375.02 -25483374.93 -25483374.84 0.0495 0.0424

Venus -74479-07-10 05:16 J -25481841.47 -25481841.28 -25481841.08 0.0529 0.0117

Moon -74478-03-25 15:49 J -25481582.90 -25481582.84 -25481582.79 0.0532 0.0514

Mercury -74478-09-22 07:11 J -25481402.24 -25481402.20 -25481402.17 0.0532 0.0507

Mercury -74478-12-20 13:25 J -25481313.07 -25481312.94 -25481312.81 0.0532 0.0056

Mercury -74477-03-18 20:08 J -25481223.75 -25481223.66 -25481223.58 0.0531 0.0401

Venus -74473-05-11 13:40 J -25479709.13 -25479708.93 -25479708.72 0.0497 0.0046

Earth -74473-09-06 17:01 J -25479591.02 -25479590.79 -25479590.55 0.0495 0.0027

Moon -74473-09-06 18:28 J -25479590.98 -25479590.73 -25479590.48 0.0495 0.0023 \*

Mercury -74472-11-16 01:25 J -25479155.59 -25479155.44 -25479155.28 0.0494 0.0265

Mercury -74471-02-14 11:01 J -25479065.19 -25479065.04 -25479064.89 0.0495 0.0288

Mercury -74466-10-08 17:59 J -25477002.87 -25477002.75 -25477002.63 0.0532 0.0163

Mercury -74465-01-06 00:28 J -25476913.59 -25476913.48 -25476913.37 0.0532 0.0293

Venus -74461-01-15 12:42 J -25475443.11 -25475442.97 -25475442.82 0.0498 0.0359

Moon -74461-09-11 04:04 J -25475203.55 -25475203.33 -25475203.11 0.0495 0.0152

Earth -74461-09-11 06:56 J -25475203.43 -25475203.21 -25475202.99 0.0495 0.0181 \*

Mercury -74460-09-03 23:01 J -25474845.65 -25474845.54 -25474845.43 0.0494 0.0399

Mercury -74460-12-03 08:52 J -25474755.31 -25474755.13 -25474754.96 0.0495 0.0156

Mercury -74454-07-27 22:04 J -25472692.68 -25472692.58 -25472692.47 0.0532 0.0275

Mercury -74454-10-25 04:32 J -25472603.43 -25472603.31 -25472603.19 0.0531 0.0179

Earth -74449-09-15 17:01 J -25470815.93 -25470815.79 -25470815.63 0.0495 0.0382

Moon -74449-09-15 21:06 J -25470815.76 -25470815.62 -25470815.46 0.0495 0.0381 \*

Mercury -74448-09-21 05:44 J -25470445.44 -25470445.26 -25470445.07 0.0495 0.0018

Moon -74443-03-05 07:11 J -25468819.30 -25468819.20 -25468819.10 0.0529 0.0473  
 Earth -74443-03-05 10:32 J -25468819.18 -25468819.06 -25468818.93 0.0529 0.0443 \*  
 Venus -74443-03-17 23:16 J -25468806.72 -25468806.53 -25468806.34 0.0529 0.0175  
 Mercury -74442-05-16 02:23 J -25468382.49 -25468382.40 -25468382.32 0.0532 0.0385  
 Mercury -74442-08-13 08:37 J -25468293.27 -25468293.14 -25468293.01 0.0531 0.0067  
 Mercury -74442-11-10 15:20 J -25468203.88 -25468203.86 -25468203.84 0.0530 0.0521  
 Venus -74437-01-18 01:54 J -25466674.59 -25466674.42 -25466674.25 0.0497 0.0279  
 Mercury -74436-07-10 03:20 J -25466135.54 -25466135.36 -25466135.18 0.0495 0.0120  
 Mercury -74436-10-08 12:42 J -25466045.05 -25466044.97 -25466044.88 0.0495 0.0433  
 Venus -74432-11-20 17:16 J -25464540.94 -25464540.78 -25464540.61 0.0528 0.0302  
 Earth -74431-03-10 07:11 J -25464431.41 -25464431.20 -25464430.98 0.0530 0.0203  
 Moon -74431-03-10 08:52 J -25464431.33 -25464431.13 -25464430.92 0.0530 0.0190 \*  
 Mercury -74430-03-04 06:13 J -25464072.28 -25464072.24 -25464072.20 0.0532 0.0500  
 Mercury -74430-06-01 12:28 J -25463983.11 -25463982.98 -25463982.85 0.0531 0.0050  
 Mercury -74430-08-29 18:56 J -25463893.79 -25463893.71 -25463893.62 0.0531 0.0406  
 Venus -74426-09-23 01:11 J -25462408.65 -25462408.45 -25462408.25 0.0498 0.0123  
 Mercury -74424-04-28 00:56 J -25461825.62 -25461825.46 -25461825.30 0.0494 0.0254  
 Mercury -74424-07-27 10:32 J -25461735.21 -25461735.06 -25461734.92 0.0495 0.0300  
 Earth -74419-03-15 06:13 J -25460043.47 -25460043.24 -25460043.02 0.0531 0.0044  
 Moon -74419-03-15 06:56 J -25460043.44 -25460043.21 -25460042.97 0.0531 0.0068 \*  
 Mercury -74418-03-20 16:47 J -25459672.92 -25459672.80 -25459672.68 0.0532 0.0160  
 Mercury -74418-06-17 23:16 J -25459583.64 -25459583.53 -25459583.42 0.0531 0.0295  
 Earth -74414-08-29 01:54 J -25458050.53 -25458050.42 -25458050.31 0.0497 0.0437  
 Moon -74414-08-29 01:54 J -25458050.53 -25458050.42 -25458050.30 0.0497 0.0424 \*  
 Mercury -74412-02-13 22:04 J -25457515.69 -25457515.58 -25457515.47 0.0494 0.0392  
 Mercury -74412-05-15 07:40 J -25457425.35 -25457425.18 -25457425.00 0.0495 0.0164  
 Venus -74408-11-23 13:11 J -25455772.05 -25455771.95 -25455771.84 0.0530 0.0448  
 Moon -74407-03-20 03:35 J -25455655.53 -25455655.35 -25455655.15 0.0532 0.0276  
 Earth -74407-03-20 06:28 J -25455655.42 -25455655.23 -25455655.04 0.0532 0.0296 \*  
 Mercury -74406-01-06 21:06 J -25455362.72 -25455362.62 -25455362.51 0.0532 0.0268



Mercury -74406-04-06 03:35 J -25455273.46 -25455273.35 -25455273.23 0.0532 0.0188

Earth -74402-09-02 15:35 J -25453663.06 -25453662.85 -25453662.64 0.0496 0.0233

Moon -74402-09-02 17:01 J -25453663.01 -25453662.79 -25453662.57 0.0496 0.0203 \*

Mercury -74400-03-03 05:30 J -25453115.46 -25453115.27 -25453115.09 0.0495 0.0030

Venus -74396-07-29 10:32 J -25451506.26 -25451506.06 -25451505.87 0.0529 0.0019

Moon -74395-03-25 11:01 J -25451267.08 -25451267.04 -25451266.99 0.0531 0.0519

Mercury -74395-10-26 01:40 J -25451052.52 -25451052.43 -25451052.35 0.0532 0.0377

Mercury -74394-01-23 07:54 J -25450963.30 -25450963.17 -25450963.05 0.0531 0.0075

Mercury -74394-04-22 14:37 J -25450873.89 -25450873.89 -25450873.89 0.0530 0.0530

Mars -74394-04-29 06:13 J -25450867.45 -25450867.24 -25450867.02 0.0530 0.0285

Venus -74390-05-31 13:25 J -25449374.14 -25449373.94 -25449373.73 0.0497 0.0114

Moon -74390-09-06 22:04 J -25449275.81 -25449275.58 -25449275.35 0.0496 0.0039

Earth -74390-09-07 00:42 J -25449275.70 -25449275.47 -25449275.23 0.0496 0.0033 \*

Mercury -74389-12-20 02:08 J -25448805.59 -25448805.41 -25448805.23 0.0495 0.0114

Mercury -74388-03-20 11:30 J -25448715.09 -25448715.02 -25448714.93 0.0496 0.0441

Venus -74384-04-03 06:28 J -25447240.31 -25447240.23 -25447240.15 0.0528 0.0480

Mercury -74383-08-14 05:44 J -25446742.30 -25446742.26 -25446742.21 0.0531 0.0486

Mercury -74383-11-11 11:59 J -25446653.12 -25446653.00 -25446652.87 0.0531 0.0038

Mercury -74382-02-08 18:28 J -25446563.80 -25446563.73 -25446563.65 0.0530 0.0418

Venus -74378-02-03 11:59 J -25445108.16 -25445108.00 -25445107.83 0.0498 0.0294

Earth -74378-09-11 14:23 J -25444888.12 -25444887.90 -25444887.67 0.0496 0.0174

Moon -74378-09-11 18:13 J -25444887.96 -25444887.74 -25444887.51 0.0496 0.0145 \*

Mercury -74377-10-07 23:44 J -25444495.67 -25444495.51 -25444495.35 0.0495 0.0249

Mercury -74376-01-06 09:20 J -25444405.25 -25444405.11 -25444404.96 0.0495 0.0307

Mars -74376-04-22 14:08 J -25444299.21 -25444298.91 -25444298.62 0.0496 0.0022

Mercury -74371-08-30 15:49 J -25442342.96 -25442342.84 -25442342.72 0.0531 0.0154

Mercury -74371-11-27 22:18 J -25442253.67 -25442253.57 -25442253.46 0.0531 0.0301

Moon -74366-09-16 01:25 J -25440500.58 -25440500.44 -25440500.28 0.0495 0.0383

Earth -74366-09-16 05:30 J -25440500.42 -25440500.27 -25440500.12 0.0495 0.0380 \*

Mercury -74365-07-26 21:06 J -25440185.73 -25440185.62 -25440185.50 0.0495 0.0383

Mercury -74365-10-25 06:56 J -25440095.38 -25440095.21 -25440095.03 0.0495 0.0174  
 Earth -74360-03-04 16:32 J -25438503.92 -25438503.81 -25438503.69 0.0529 0.0459  
 Moon -74360-03-04 18:42 J -25438503.81 -25438503.72 -25438503.63 0.0529 0.0484 \*  
 Venus -74360-04-06 00:13 J -25438471.66 -25438471.49 -25438471.32 0.0529 0.0256  
 Mercury -74359-06-18 20:08 J -25438032.77 -25438032.66 -25438032.55 0.0532 0.0265  
 Mercury -74359-09-16 02:23 J -25437943.52 -25437943.40 -25437943.28 0.0531 0.0190  
 Mars -74358-02-01 03:20 J -25437805.53 -25437805.36 -25437805.18 0.0530 0.0381  
 Venus -74354-02-06 05:01 J -25436339.43 -25436339.29 -25436339.15 0.0496 0.0364  
 Mercury -74353-08-13 04:18 J -25435785.51 -25435785.32 -25435785.13 0.0495 0.0036  
 Venus -74349-12-09 20:08 J -25434205.84 -25434205.66 -25434205.48 0.0529 0.0213  
 Earth -74348-03-09 16:32 J -25434116.02 -25434115.81 -25434115.60 0.0530 0.0211  
 Moon -74348-03-09 17:01 J -25434116.01 -25434115.79 -25434115.57 0.0530 0.0188 \*  
 Mercury -74347-04-07 00:28 J -25433722.57 -25433722.48 -25433722.39 0.0532 0.0373  
 Mercury -74347-07-05 06:56 J -25433633.34 -25433633.21 -25433633.09 0.0532 0.0082  
 Venus -74343-10-12 03:35 J -25432073.55 -25432073.35 -25432073.14 0.0497 0.0041  
 Mercury -74341-06-01 01:54 J -25431475.61 -25431475.42 -25431475.24 0.0495 0.0100  
 Mercury -74341-08-30 11:01 J -25431385.11 -25431385.04 -25431384.96 0.0495 0.0453  
 Moon -74336-03-14 15:49 J -25429728.06 -25429727.84 -25429727.61 0.0530 0.0064  
 Earth -74336-03-14 18:28 J -25429727.96 -25429727.73 -25429727.50 0.0530 0.0045 \*  
 Mercury -74335-01-24 05:01 J -25429412.34 -25429412.29 -25429412.24 0.0532 0.0480  
 Mercury -74335-04-23 11:16 J -25429323.16 -25429323.03 -25429322.91 0.0531 0.0032  
 Mercury -74335-07-21 17:44 J -25429233.84 -25429233.76 -25429233.69 0.0530 0.0425  
 Venus -74331-06-16 23:30 J -25427807.59 -25427807.52 -25427807.44 0.0498 0.0461  
 Earth -74331-08-28 07:54 J -25427735.26 -25427735.17 -25427735.07 0.0497 0.0450  
 Moon -74331-08-28 09:20 J -25427735.23 -25427735.11 -25427734.99 0.0497 0.0430 \*  
 Mercury -74329-03-19 22:04 J -25427165.73 -25427165.58 -25427165.41 0.0495 0.0246  
 Mercury -74329-06-18 07:54 J -25427075.31 -25427075.17 -25427075.02 0.0495 0.0311  
 Earth -74324-03-19 17:59 J -25425339.93 -25425339.75 -25425339.55 0.0531 0.0294  
 Moon -74324-03-19 21:49 J -25425339.79 -25425339.59 -25425339.39 0.0531 0.0268 \*  
 Mercury -74323-02-09 15:20 J -25425012.98 -25425012.86 -25425012.74 0.0531 0.0141

Mercury -74323-05-09 21:49 J -25424923.69 -25424923.59 -25424923.49 0.0530 0.0312

Moon -74319-09-01 18:13 J -25423347.94 -25423347.74 -25423347.53 0.0497 0.0221

Earth -74319-09-01 21:06 J -25423347.82 -25423347.62 -25423347.41 0.0497 0.0246 \*

Mercury -74317-01-06 19:25 J -25422855.80 -25422855.69 -25422855.57 0.0495 0.0382

Mercury -74317-04-06 05:30 J -25422765.44 -25422765.27 -25422765.10 0.0495 0.0177

Venus -74313-08-17 11:44 J -25421171.21 -25421171.01 -25421170.81 0.0529 0.0068

Moon -74312-03-24 09:49 J -25420952.16 -25420952.09 -25420952.02 0.0531 0.0503

Earth -74312-03-24 13:40 J -25420951.93 -25420951.93 -25420951.93 0.0531 0.0531

Mercury -74312-11-28 19:11 J -25420702.81 -25420702.70 -25420702.59 0.0531 0.0260

Mercury -74311-02-26 01:25 J -25420613.56 -25420613.44 -25420613.32 0.0531 0.0194

Venus -74307-06-19 15:35 J -25419039.05 -25419038.85 -25419038.66 0.0497 0.0194

Earth -74307-09-06 11:30 J -25418960.25 -25418960.02 -25418959.78 0.0496 0.0037

Moon -74307-09-06 15:20 J -25418960.09 -25418959.86 -25418959.62 0.0496 0.0054 \*

Mercury -74305-01-24 03:06 J -25418455.55 -25418455.37 -25418455.18 0.0495 0.0042

Venus -74301-04-22 06:28 J -25416905.35 -25416905.23 -25416905.10 0.0528 0.0404

Mercury -74300-09-16 23:16 J -25416392.62 -25416392.53 -25416392.44 0.0532 0.0371

Mercury -74300-12-15 05:30 J -25416303.39 -25416303.27 -25416303.14 0.0531 0.0082

Venus -74295-02-22 14:23 J -25414773.08 -25414772.90 -25414772.71 0.0498 0.0211

Moon -74295-09-10 21:49 J -25414572.81 -25414572.59 -25414572.36 0.0495 0.0142

Earth -74295-09-11 01:40 J -25414572.65 -25414572.43 -25414572.21 0.0495 0.0171 \*

Mercury -74294-11-12 00:13 J -25414145.67 -25414145.49 -25414145.30 0.0495 0.0097

Mercury -74293-02-10 09:35 J -25414055.17 -25414055.10 -25414055.03 0.0495 0.0456

Mercury -74288-07-06 03:35 J -25412082.40 -25412082.35 -25412082.30 0.0532 0.0480

Mercury -74288-10-03 09:49 J -25411993.21 -25411993.09 -25411992.96 0.0532 0.0030

Mercury -74288-12-31 16:32 J -25411903.89 -25411903.81 -25411903.74 0.0531 0.0428

Earth -74283-09-15 15:06 J -25410185.02 -25410184.87 -25410184.72 0.0495 0.0375

Moon -74283-09-15 17:59 J -25410184.89 -25410184.75 -25410184.61 0.0495 0.0385 \*

Mercury -74282-08-30 21:35 J -25409835.76 -25409835.60 -25409835.43 0.0494 0.0233

Mercury -74282-11-29 07:11 J -25409745.34 -25409745.20 -25409745.06 0.0495 0.0322

Earth -74277-03-04 03:06 J -25408188.47 -25408188.37 -25408188.25 0.0529 0.0464

Moon -74277-03-04 03:06 J -25408188.46 -25408188.37 -25408188.26 0.0529 0.0477 \*  
 Venus -74277-04-25 03:49 J -25408136.49 -25408136.34 -25408136.19 0.0530 0.0350  
 Mercury -74276-07-22 14:23 J -25407683.03 -25407682.90 -25407682.78 0.0531 0.0138  
 Mercury -74276-10-19 20:37 J -25407593.74 -25407593.64 -25407593.53 0.0531 0.0318  
 Venus -74271-02-25 02:52 J -25406004.48 -25406004.38 -25406004.27 0.0496 0.0424  
 Mercury -74270-06-18 17:44 J -25405525.88 -25405525.76 -25405525.64 0.0495 0.0382  
 Mercury -74270-09-17 03:35 J -25405435.52 -25405435.35 -25405435.17 0.0495 0.0178  
 Venus -74266-12-29 23:59 J -25403870.70 -25403870.50 -25403870.31 0.0528 0.0117  
 Moon -74265-03-09 00:56 J -25403800.66 -25403800.46 -25403800.25 0.0529 0.0189  
 Earth -74265-03-09 03:20 J -25403800.57 -25403800.36 -25403800.15 0.0529 0.0217 \*  
 Mercury -74264-05-10 18:28 J -25403372.84 -25403372.73 -25403372.62 0.0531 0.0248  
 Mercury -74264-08-08 00:42 J -25403283.58 -25403283.47 -25403283.35 0.0531 0.0206  
 Venus -74260-10-31 00:56 J -25401738.66 -25401738.46 -25401738.25 0.0497 0.0020  
 Mercury -74258-07-06 01:11 J -25401125.64 -25401125.45 -25401125.27 0.0495 0.0041  
 Mars -74258-10-10 21:49 J -25401028.69 -25401028.59 -25401028.48 0.0496 0.0463  
 Earth -74253-03-13 23:01 J -25399412.77 -25399412.54 -25399412.31 0.0530 0.0023  
 Moon -74253-03-14 02:37 J -25399412.62 -25399412.39 -25399412.15 0.0530 0.0041 \*  
 Mercury -74252-02-26 22:04 J -25399062.67 -25399062.58 -25399062.49 0.0531 0.0367  
 Mercury -74252-05-27 04:18 J -25398973.44 -25398973.32 -25398973.19 0.0531 0.0087  
 Venus -74248-07-05 23:59 J -25397472.62 -25397472.50 -25397472.36 0.0499 0.0387  
 Moon -74248-08-27 14:23 J -25397420.01 -25397419.90 -25397419.79 0.0498 0.0438  
 Earth -74248-08-27 17:01 J -25397419.87 -25397419.79 -25397419.70 0.0498 0.0459 \*  
 Mercury -74246-04-23 22:32 J -25396815.74 -25396815.56 -25396815.37 0.0495 0.0095  
 Mercury -74246-07-23 08:08 J -25396725.23 -25396725.16 -25396725.10 0.0496 0.0460  
 Moon -74241-03-18 16:32 J -25395025.01 -25395024.81 -25395024.60 0.0531 0.0241  
 Earth -74241-03-18 20:23 J -25395024.84 -25395024.65 -25395024.45 0.0531 0.0268 \*  
 Mercury -74241-12-16 02:08 J -25394752.46 -25394752.41 -25394752.36 0.0532 0.0480  
 Mercury -74240-03-15 08:23 J -25394663.28 -25394663.15 -25394663.02 0.0531 0.0030  
 Mercury -74240-06-12 14:52 J -25394573.95 -25394573.88 -25394573.80 0.0531 0.0427  
 Mars -74240-07-23 13:40 J -25394533.18 -25394532.93 -25394532.68 0.0530 0.0054

Earth -74236-09-01 06:42 J -25393032.42 -25393032.22 -25393032.01 0.0497 0.0251  
 Moon -74236-09-01 10:32 J -25393032.27 -25393032.06 -25393031.85 0.0497 0.0232 \*  
 Mercury -74234-02-09 19:40 J -25392505.84 -25392505.68 -25392505.51 0.0495 0.0234  
 Mercury -74234-05-11 05:16 J -25392415.42 -25392415.28 -25392415.14 0.0495 0.0322  
 Venus -74230-09-06 11:44 J -25390836.20 -25390836.01 -25390835.82 0.0529 0.0143  
 Earth -74229-03-23 18:56 J -25390636.76 -25390636.71 -25390636.65 0.0531 0.0515  
 Moon -74229-03-23 22:04 J -25390636.66 -25390636.58 -25390636.51 0.0531 0.0499 \*  
 Mercury -74228-01-01 12:42 J -25390353.09 -25390352.97 -25390352.85 0.0532 0.0140  
 Mercury -74228-03-31 19:11 J -25390263.80 -25390263.70 -25390263.60 0.0531 0.0316  
 Venus -74224-07-08 15:49 J -25388704.02 -25388703.84 -25388703.66 0.0497 0.0265  
 Moon -74224-09-05 16:04 J -25388645.07 -25388644.83 -25388644.59 0.0496 0.0069  
 Earth -74224-09-05 19:40 J -25388644.91 -25388644.68 -25388644.44 0.0496 0.0048 \*  
 Mercury -74223-11-28 16:47 J -25388195.92 -25388195.80 -25388195.67 0.0494 0.0372  
 Mercury -74222-02-27 02:37 J -25388105.56 -25388105.39 -25388105.21 0.0495 0.0186  
 Mars -74222-07-17 23:59 J -25387964.76 -25387964.50 -25387964.23 0.0496 0.0232  
 Venus -74218-05-12 08:23 J -25386570.30 -25386570.15 -25386569.98 0.0528 0.0319  
 Mercury -74217-10-20 17:16 J -25386042.89 -25386042.78 -25386042.67 0.0531 0.0248  
 Mercury -74216-01-17 23:30 J -25385953.64 -25385953.52 -25385953.40 0.0531 0.0206  
 Venus -74212-03-13 11:16 J -25384438.22 -25384438.03 -25384437.83 0.0498 0.0155  
 Earth -74212-09-10 04:04 J -25384257.55 -25384257.33 -25384257.10 0.0496 0.0152  
 Moon -74212-09-10 07:11 J -25384257.43 -25384257.20 -25384256.98 0.0496 0.0126 \*  
 Mercury -74211-12-15 23:01 J -25383795.73 -25383795.54 -25383795.36 0.0495 0.0039  
 Mercury -74205-08-08 21:20 J -25381732.70 -25381732.61 -25381732.52 0.0531 0.0359  
 Mercury -74205-11-06 03:35 J -25381643.47 -25381643.35 -25381643.22 0.0531 0.0093  
 Moon -74200-09-14 15:06 J -25379870.04 -25379869.87 -25379869.70 0.0495 0.0363  
 Earth -74200-09-14 16:47 J -25379869.96 -25379869.80 -25379869.63 0.0495 0.0355 \*  
 Mercury -74199-10-03 20:08 J -25379485.84 -25379485.66 -25379485.48 0.0495 0.0100  
 Mercury -74198-01-02 05:44 J -25379395.33 -25379395.26 -25379395.19 0.0496 0.0455  
 Moon -74194-03-04 03:49 J -25377873.41 -25377873.34 -25377873.26 0.0528 0.0497  
 Earth -74194-03-04 05:44 J -25377873.35 -25377873.26 -25377873.18 0.0528 0.0488 \*

Venus -74194-05-15 02:23 J -25377801.52 -25377801.40 -25377801.28 0.0529 0.0418  
 Mercury -74193-05-28 00:56 J -25377422.51 -25377422.46 -25377422.41 0.0531 0.0478  
 Mercury -74193-08-25 07:11 J -25377333.33 -25377333.20 -25377333.07 0.0531 0.0029  
 Mercury -74193-11-22 13:40 J -25377244.00 -25377243.93 -25377243.86 0.0530 0.0427  
 Venus -74188-03-16 02:23 J -25375669.42 -25375669.40 -25375669.37 0.0497 0.0492  
 Mercury -74187-07-22 17:30 J -25375175.93 -25375175.77 -25375175.60 0.0495 0.0236  
 Mercury -74187-10-21 03:20 J -25375085.50 -25375085.36 -25375085.22 0.0495 0.0321  
 Venus -74182-01-17 21:06 J -25373535.82 -25373535.62 -25373535.42 0.0528 0.0056  
 Earth -74182-03-09 02:52 J -25373485.58 -25373485.38 -25373485.17 0.0529 0.0248  
 Moon -74182-03-09 06:28 J -25373485.45 -25373485.23 -25373485.02 0.0529 0.0214 \*  
 Mercury -74181-06-13 11:01 J -25373023.16 -25373023.04 -25373022.91 0.0531 0.0144  
 Mercury -74181-09-10 17:30 J -25372933.87 -25372933.77 -25372933.67 0.0531 0.0312  
 Venus -74177-11-19 00:56 J -25371403.66 -25371403.46 -25371403.25 0.0497 0.0087  
 Mercury -74175-05-10 14:37 J -25370866.01 -25370865.89 -25370865.77 0.0494 0.0376  
 Mercury -74175-08-09 00:28 J -25370775.65 -25370775.48 -25370775.31 0.0495 0.0182  
 Moon -74170-03-13 21:06 J -25369097.85 -25369097.62 -25369097.39 0.0530 0.0015  
 Earth -74170-03-14 00:56 J -25369097.69 -25369097.46 -25369097.23 0.0530 0.0009 \*  
 Mercury -74169-04-01 15:20 J -25368712.97 -25368712.86 -25368712.75 0.0532 0.0255  
 Mercury -74169-06-29 21:35 J -25368623.71 -25368623.60 -25368623.48 0.0531 0.0200  
 Venus -74165-07-24 23:16 J -25367137.68 -25367137.53 -25367137.36 0.0498 0.0319  
 Earth -74165-08-26 23:16 J -25367104.60 -25367104.53 -25367104.45 0.0498 0.0472  
 Moon -74165-08-27 03:06 J -25367104.48 -25367104.37 -25367104.26 0.0498 0.0443 \*  
 Mercury -74163-05-27 21:35 J -25366465.78 -25366465.60 -25366465.41 0.0495 0.0043  
 Earth -74158-03-19 01:54 J -25364709.62 -25364709.42 -25364709.21 0.0531 0.0253  
 Moon -74158-03-19 05:16 J -25364709.48 -25364709.28 -25364709.07 0.0531 0.0224 \*  
 Mercury -74157-01-19 19:40 J -25364402.77 -25364402.68 -25364402.58 0.0532 0.0363  
 Mercury -74157-04-18 02:08 J -25364313.54 -25364313.41 -25364313.29 0.0531 0.0092  
 Moon -74153-08-31 03:49 J -25362717.54 -25362717.34 -25362717.13 0.0497 0.0261  
 Earth -74153-08-31 07:40 J -25362717.37 -25362717.18 -25362716.98 0.0497 0.0276 \*  
 Mercury -74151-03-15 17:30 J -25362155.95 -25362155.77 -25362155.59 0.0495 0.0107

Mercury -74151-06-14 03:06 J -25362065.45 -25362065.37 -25362065.29 0.0496 0.0448

Venus -74147-09-25 12:42 J -25360501.15 -25360500.97 -25360500.79 0.0529 0.0225

Moon -74146-03-23 23:44 J -25360321.60 -25360321.51 -25360321.41 0.0531 0.0487

Earth -74146-03-24 01:25 J -25360321.52 -25360321.44 -25360321.37 0.0531 0.0498 \*

Mercury -74146-11-07 23:59 J -25360092.56 -25360092.50 -25360092.45 0.0531 0.0473

Mercury -74145-02-05 06:13 J -25360003.37 -25360003.24 -25360003.12 0.0531 0.0024

Mercury -74145-05-04 12:42 J -25359914.04 -25359913.97 -25359913.90 0.0530 0.0432

Venus -74141-07-27 10:47 J -25358369.21 -25358369.05 -25358368.88 0.0497 0.0312

Earth -74141-09-04 19:25 J -25358329.92 -25358329.69 -25358329.46 0.0496 0.0072

Moon -74141-09-04 22:18 J -25358329.79 -25358329.57 -25358329.34 0.0496 0.0098 \*

Mercury -74139-01-01 14:37 J -25357846.05 -25357845.89 -25357845.73 0.0495 0.0246

Mercury -74139-04-02 00:28 J -25357755.62 -25357755.48 -25357755.34 0.0496 0.0312

Venus -74135-05-31 05:59 J -25356235.42 -25356235.25 -25356235.07 0.0528 0.0257

Mercury -74134-11-24 09:35 J -25355693.22 -25355693.10 -25355692.98 0.0531 0.0145

Mercury -74133-02-21 16:04 J -25355603.93 -25355603.83 -25355603.73 0.0530 0.0310

Venus -74129-04-01 09:20 J -25354103.31 -25354103.11 -25354102.90 0.0498 0.0094

Moon -74129-09-09 07:11 J -25353942.44 -25353942.20 -25353941.96 0.0496 0.0111

Earth -74129-09-09 09:06 J -25353942.35 -25353942.12 -25353941.89 0.0496 0.0135 \*

Mercury -74128-10-20 11:59 J -25353536.11 -25353536.00 -25353535.88 0.0495 0.0383

Mercury -74127-01-18 22:04 J -25353445.76 -25353445.58 -25353445.41 0.0495 0.0177

Mercury -74122-09-12 13:25 J -25351383.05 -25351382.94 -25351382.83 0.0531 0.0261

Mercury -74122-12-10 19:54 J -25351293.79 -25351293.67 -25351293.55 0.0531 0.0194

Mars -74121-01-12 16:18 J -25351260.87 -25351260.82 -25351260.76 0.0530 0.0514

Earth -74117-09-13 22:04 J -25349554.75 -25349554.58 -25349554.40 0.0495 0.0341

Moon -74117-09-13 22:04 J -25349554.74 -25349554.58 -25349554.43 0.0495 0.0358 \*

Mercury -74116-11-06 18:56 J -25349135.89 -25349135.71 -25349135.52 0.0495 0.0036

Earth -74111-03-03 04:04 J -25347558.36 -25347558.33 -25347558.29 0.0528 0.0520

Moon -74111-03-03 07:25 J -25347558.23 -25347558.19 -25347558.16 0.0528 0.0521

Venus -74111-06-02 23:16 J -25347466.62 -25347466.53 -25347466.44 0.0530 0.0475

Mercury -74110-07-01 17:30 J -25347072.85 -25347072.77 -25347072.68 0.0532 0.0374

Mercury -74110-09-28 23:59 J -25346983.63 -25346983.50 -25346983.38 0.0531 0.0080

Mercury -74104-08-25 16:04 J -25344826.02 -25344825.83 -25344825.65 0.0495 0.0105

Mercury -74104-11-24 01:11 J -25344735.51 -25344735.45 -25344735.37 0.0495 0.0451

Mars -74103-01-03 13:25 J -25344695.19 -25344694.94 -25344694.68 0.0496 0.0254

Venus -74099-02-05 19:40 J -25343200.88 -25343200.68 -25343200.48 0.0529 0.0012

Moon -74099-03-08 01:11 J -25343170.65 -25343170.45 -25343170.24 0.0529 0.0239

Earth -74099-03-08 05:01 J -25343170.48 -25343170.29 -25343170.09 0.0529 0.0272 \*

Mercury -74098-04-19 22:04 J -25342762.63 -25342762.58 -25342762.53 0.0532 0.0480

Mercury -74098-07-18 04:18 J -25342673.45 -25342673.32 -25342673.19 0.0531 0.0029

Mercury -74098-10-15 10:47 J -25342584.12 -25342584.05 -25342583.97 0.0530 0.0427

Venus -74094-12-08 19:54 J -25341068.87 -25341068.67 -25341068.47 0.0497 0.0133

Mercury -74092-06-13 11:44 J -25340516.17 -25340516.01 -25340515.85 0.0495 0.0256

Mercury -74092-09-11 21:20 J -25340425.75 -25340425.61 -25340425.46 0.0495 0.0303

Venus -74088-10-11 15:06 J -25338934.97 -25338934.87 -25338934.77 0.0528 0.0456

Earth -74087-03-13 04:47 J -25338782.53 -25338782.30 -25338782.07 0.0530 0.0025

Moon -74087-03-13 08:23 J -25338782.38 -25338782.15 -25338781.93 0.0530 0.0016 \*

Mercury -74086-05-06 08:23 J -25338363.27 -25338363.15 -25338363.02 0.0531 0.0142

Mercury -74086-08-03 14:52 J -25338273.98 -25338273.88 -25338273.78 0.0530 0.0313

Mars -74086-10-17 14:37 J -25338199.13 -25338198.89 -25338198.65 0.0530 0.0158

Venus -74082-08-13 17:44 J -25336802.93 -25336802.76 -25336802.59 0.0498 0.0276

Moon -74082-08-26 18:13 J -25336789.81 -25336789.74 -25336789.66 0.0498 0.0471

Mercury -74080-04-01 08:37 J -25336206.25 -25336206.14 -25336206.02 0.0495 0.0396

Mercury -74080-06-30 18:42 J -25336115.89 -25336115.72 -25336115.54 0.0495 0.0164

Moon -74075-03-17 21:20 J -25334394.83 -25334394.61 -25334394.39 0.0530 0.0186

Earth -74075-03-17 23:30 J -25334394.73 -25334394.52 -25334394.31 0.0530 0.0217 \*

Mercury -74074-02-22 11:44 J -25334053.11 -25334053.01 -25334052.89 0.0531 0.0265

Mercury -74074-05-22 18:13 J -25333963.86 -25333963.74 -25333963.62 0.0531 0.0189

Earth -74070-08-31 10:18 J -25332402.25 -25332402.07 -25332401.87 0.0497 0.0297

Moon -74070-08-31 13:25 J -25332402.12 -25332401.94 -25332401.75 0.0497 0.0286 \*

Mercury -74068-04-18 16:18 J -25331806.01 -25331805.82 -25331805.64 0.0495 0.0029



Mars -74068-10-10 06:28 J -25331631.38 -25331631.23 -25331631.07 0.0497 0.0418  
 Venus -74064-10-14 07:11 J -25330166.37 -25330166.20 -25330166.02 0.0529 0.0269  
 Earth -74063-03-22 19:40 J -25330006.78 -25330006.68 -25330006.55 0.0531 0.0458  
 Moon -74063-03-22 19:54 J -25330006.78 -25330006.67 -25330006.55 0.0531 0.0454 \*  
 Mercury -74063-12-11 15:49 J -25329742.93 -25329742.84 -25329742.76 0.0531 0.0381  
 Mercury -74062-03-10 22:04 J -25329653.71 -25329653.58 -25329653.46 0.0531 0.0073  
 Mercury -74062-06-08 04:32 J -25329564.32 -25329564.31 -25329564.30 0.0530 0.0527  
 Venus -74058-08-16 08:23 J -25328034.29 -25328034.15 -25328034.01 0.0497 0.0369  
 Moon -74058-09-04 21:06 J -25328014.85 -25328014.62 -25328014.38 0.0497 0.0115  
 Earth -74058-09-04 23:16 J -25328014.76 -25328014.53 -25328014.30 0.0497 0.0089 \*  
 Mercury -74056-02-04 13:11 J -25327496.13 -25327495.95 -25327495.77 0.0495 0.0114  
 Mercury -74056-05-05 22:32 J -25327405.64 -25327405.56 -25327405.48 0.0495 0.0441  
 Venus -74052-06-19 01:25 J -25325900.62 -25325900.44 -25325900.26 0.0528 0.0208  
 Mercury -74051-09-29 19:40 J -25325432.72 -25325432.68 -25325432.63 0.0532 0.0495  
 Mercury -74051-12-28 01:54 J -25325343.54 -25325343.42 -25325343.29 0.0531 0.0045  
 Mercury -74050-03-27 08:23 J -25325254.22 -25325254.15 -25325254.07 0.0531 0.0414  
 Venus -74046-04-21 06:13 J -25323768.44 -25323768.24 -25323768.03 0.0498 0.0041  
 Earth -74046-09-09 11:30 J -25323627.25 -25323627.02 -25323626.79 0.0496 0.0115  
 Moon -74046-09-09 11:30 J -25323627.24 -25323627.02 -25323626.79 0.0496 0.0098 \*  
 Mercury -74045-11-23 09:49 J -25323186.24 -25323186.09 -25323185.93 0.0495 0.0256  
 Mercury -74044-02-21 19:40 J -25323095.83 -25323095.68 -25323095.53 0.0495 0.0302  
 Mercury -74039-10-16 06:28 J -25321033.35 -25321033.23 -25321033.11 0.0532 0.0152  
 Mercury -74038-01-13 12:42 J -25320944.07 -25320943.97 -25320943.86 0.0531 0.0305  
 Venus -74035-12-25 02:52 J -25319502.47 -25319502.38 -25319502.30 0.0498 0.0455  
 Earth -74034-09-13 20:08 J -25319239.84 -25319239.66 -25319239.47 0.0495 0.0311  
 Moon -74034-09-13 22:04 J -25319239.76 -25319239.58 -25319239.40 0.0495 0.0334 \*  
 Mercury -74033-09-11 05:44 J -25318876.37 -25318876.26 -25318876.16 0.0494 0.0407  
 Mercury -74033-12-10 15:35 J -25318786.02 -25318785.85 -25318785.67 0.0495 0.0153  
 Mercury -74027-08-04 10:32 J -25316723.17 -25316723.06 -25316722.95 0.0531 0.0263  
 Mercury -74027-11-01 16:47 J -25316633.91 -25316633.80 -25316633.68 0.0531 0.0192

Mercury -74021-09-28 12:42 J -25314476.15 -25314475.97 -25314475.78 0.0495 0.0016

Venus -74016-02-24 15:06 J -25312866.07 -25312865.87 -25312865.67 0.0529 0.0060

Earth -74016-03-07 01:11 J -25312855.63 -25312855.45 -25312855.26 0.0529 0.0308

Moon -74016-03-07 05:16 J -25312855.48 -25312855.28 -25312855.09 0.0529 0.0274 \*

Mercury -74015-05-23 13:54 J -25312413.00 -25312412.92 -25312412.83 0.0531 0.0386

Mercury -74015-08-20 20:08 J -25312323.78 -25312323.66 -25312323.53 0.0531 0.0067

Mercury -74015-11-18 02:37 J -25312234.40 -25312234.39 -25312234.36 0.0530 0.0522

Venus -74011-12-27 16:18 J -25310734.02 -25310733.82 -25310733.63 0.0497 0.0184

Mercury -74009-07-17 10:04 J -25310166.25 -25310166.08 -25310165.89 0.0495 0.0124

Mercury -74009-10-15 19:40 J -25310075.76 -25310075.68 -25310075.59 0.0496 0.0434

Venus -74005-10-30 09:06 J -25308600.23 -25308600.12 -25308599.99 0.0527 0.0414

Moon -74004-03-11 19:25 J -25308467.92 -25308467.69 -25308467.45 0.0529 0.0061

Earth -74004-03-11 22:18 J -25308467.80 -25308467.57 -25308467.34 0.0529 0.0066 \*

Mercury -74003-03-11 17:44 J -25308102.79 -25308102.76 -25308102.72 0.0531 0.0502

Mercury -74003-06-08 23:59 J -25308013.63 -25308013.50 -25308013.37 0.0531 0.0051

Mercury -74003-09-06 06:28 J -25307924.31 -25307924.23 -25307924.15 0.0530 0.0404

# 74TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 74th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Moon	-73999-08-26 03:20 J	-25306474.40	-25306474.36	-25306474.32	0.0498	0.0489		
Venus	-73999-09-01 14:23 J	-25306468.09	-25306467.90	-25306467.71	0.0498	0.0224		

Mercury -73997-05-05 06:56 J -25305856.36 -25305856.21 -25305856.05 0.0495 0.0265

Mercury -73997-08-03 16:47 J -25305765.95 -25305765.80 -25305765.65 0.0495 0.0293

Earth -73992-03-16 18:42 J -25304079.94 -25304079.72 -25304079.50 0.0530 0.0178

Moon -73992-03-16 19:25 J -25304079.90 -25304079.69 -25304079.48 0.0530 0.0147 \*

Mercury -73991-03-28 04:04 J -25303703.45 -25303703.33 -25303703.21 0.0532 0.0168

Mercury -73991-06-25 10:18 J -25303614.17 -25303614.07 -25303613.96 0.0531 0.0289

Moon -73987-08-30 10:18 J -25302087.26 -25302087.07 -25302086.88 0.0497 0.0307

Earth -73987-08-30 12:28 J -25302087.16 -25302086.98 -25302086.80 0.0497 0.0317 \*

Mercury -73985-02-22 03:35 J -25301546.44 -25301546.35 -25301546.24 0.0494 0.0408

Mercury -73985-05-22 13:40 J -25301456.10 -25301455.93 -25301455.75 0.0495 0.0153

Venus -73981-11-02 03:35 J -25299831.51 -25299831.35 -25299831.19 0.0529 0.0323

Earth -73980-03-21 18:42 J -25299691.86 -25299691.72 -25299691.59 0.0531 0.0427

Moon -73980-03-21 19:54 J -25299691.81 -25299691.67 -25299691.53 0.0531 0.0423 \*

Mercury -73979-01-14 08:23 J -25299393.26 -25299393.15 -25299393.04 0.0532 0.0275

Mercury -73979-04-13 14:37 J -25299304.01 -25299303.89 -25299303.77 0.0531 0.0181

Earth -73975-09-03 22:04 J -25297699.81 -25297699.58 -25297699.35 0.0496 0.0118

Moon -73975-09-03 22:32 J -25297699.78 -25297699.56 -25297699.34 0.0496 0.0144 \*

Venus -73975-09-04 02:52 J -25297699.49 -25297699.38 -25297699.26 0.0496 0.0411 \*

Mercury -73973-03-10 09:49 J -25297146.28 -25297146.09 -25297145.91 0.0495 0.0006

Venus -73969-07-07 23:01 J -25295565.73 -25295565.54 -25295565.35 0.0529 0.0146

Mercury -73968-11-02 12:28 J -25295083.06 -25295082.98 -25295082.89 0.0532 0.0387

Mercury -73967-01-30 18:56 J -25294993.84 -25294993.71 -25294993.59 0.0531 0.0068

Mars -73967-04-07 07:11 J -25294927.39 -25294927.20 -25294927.00 0.0531 0.0336

Mercury -73967-04-30 01:25 J -25294904.46 -25294904.44 -25294904.42 0.0530 0.0523

Venus -73963-05-10 00:42 J -25293433.68 -25293433.47 -25293433.26 0.0497 0.0005

Earth -73963-09-08 09:20 J -25293312.34 -25293312.11 -25293311.87 0.0496 0.0086

Moon -73963-09-08 11:01 J -25293312.28 -25293312.04 -25293311.79 0.0496 0.0075 \*

Mercury -73962-12-28 06:42 J -25292836.39 -25292836.22 -25292836.04 0.0495 0.0137

Mercury -73961-03-27 16:32 J -25292745.91 -25292745.81 -25292745.72 0.0495 0.0420

Mercury -73956-08-21 16:04 J -25290772.86 -25290772.83 -25290772.80 0.0531 0.0508

Mercury -73956-11-18 22:18 J -25290683.70 -25290683.57 -25290683.45 0.0531 0.0059  
 Mercury -73955-02-16 04:32 J -25290594.39 -25290594.31 -25290594.22 0.0530 0.0399  
 Venus -73951-01-12 22:18 J -25289167.68 -25289167.57 -25289167.45 0.0499 0.0408  
 Moon -73951-09-12 18:28 J -25288924.90 -25288924.73 -25288924.54 0.0496 0.0319  
 Earth -73951-09-12 21:49 J -25288924.78 -25288924.59 -25288924.39 0.0496 0.0291 \*  
 Mercury -73950-10-16 04:04 J -25288526.48 -25288526.33 -25288526.17 0.0495 0.0275  
 Mercury -73949-01-14 13:54 J -25288436.07 -25288435.92 -25288435.76 0.0495 0.0285  
 Mars -73949-03-28 11:44 J -25288362.30 -25288362.01 -25288361.71 0.0496 0.0090  
 Mercury -73944-09-07 02:08 J -25286373.53 -25286373.41 -25286373.29 0.0531 0.0175  
 Mercury -73944-12-05 08:23 J -25286284.26 -25286284.15 -25286284.04 0.0531 0.0280  
 Earth -73939-09-17 10:32 J -25284537.06 -25284537.06 -25284537.05 0.0495 0.0495  
 Mercury -73938-08-04 00:56 J -25284216.55 -25284216.46 -25284216.36 0.0494 0.0416  
 Mercury -73938-11-02 11:01 J -25284126.22 -25284126.04 -25284125.86 0.0495 0.0144  
 Moon -73933-03-05 16:18 J -25282541.00 -25282540.82 -25282540.62 0.0529 0.0317  
 Earth -73933-03-05 19:54 J -25282540.84 -25282540.67 -25282540.50 0.0529 0.0348 \*  
 Venus -73933-03-15 09:35 J -25282531.30 -25282531.10 -25282530.91 0.0529 0.0104  
 Mercury -73932-06-26 05:59 J -25282063.36 -25282063.25 -25282063.15 0.0532 0.0291  
 Mercury -73932-09-23 12:13 J -25281974.11 -25281973.99 -25281973.87 0.0531 0.0165  
 Mars -73931-01-09 11:44 J -25281866.22 -25281866.01 -25281865.79 0.0530 0.0287  
 Venus -73927-01-15 12:42 J -25280399.15 -25280398.97 -25280398.78 0.0497 0.0237  
 Mercury -73926-08-21 07:54 J -25279816.36 -25279816.17 -25279815.98 0.0495 0.0003  
 Venus -73922-11-19 05:01 J -25278265.43 -25278265.29 -25278265.15 0.0528 0.0364  
 Earth -73921-03-10 19:40 J -25278152.91 -25278152.68 -25278152.46 0.0530 0.0100  
 Moon -73921-03-10 20:52 J -25278152.85 -25278152.63 -25278152.41 0.0530 0.0104 \*  
 Mercury -73920-04-14 10:18 J -25277753.15 -25277753.07 -25277752.98 0.0532 0.0399  
 Mercury -73920-07-12 16:32 J -25277663.93 -25277663.81 -25277663.68 0.0531 0.0058  
 Mercury -73920-10-09 23:16 J -25277574.56 -25277574.53 -25277574.50 0.0531 0.0512  
 Venus -73916-09-20 09:49 J -25276133.28 -25276133.09 -25276132.90 0.0498 0.0176  
 Mercury -73914-06-09 04:04 J -25275506.51 -25275506.33 -25275506.15 0.0495 0.0146  
 Mercury -73914-09-07 13:25 J -25275416.03 -25275415.94 -25275415.83 0.0495 0.0411

Earth -73909-03-15 19:11 J -25273764.91 -25273764.70 -25273764.47 0.0531 0.0151  
 Moon -73909-03-15 19:54 J -25273764.90 -25273764.67 -25273764.43 0.0531 0.0117 \*  
 Mercury -73908-01-31 14:37 J -25273442.92 -25273442.89 -25273442.86 0.0532 0.0509  
 Mercury -73908-04-30 20:52 J -25273353.76 -25273353.63 -25273353.50 0.0531 0.0057  
 Mercury -73908-07-29 03:20 J -25273264.44 -25273264.36 -25273264.28 0.0531 0.0400  
 Earth -73904-08-29 12:13 J -25271772.16 -25271771.99 -25271771.82 0.0497 0.0342  
 Moon -73904-08-29 12:56 J -25271772.12 -25271771.96 -25271771.79 0.0497 0.0339 \*  
 Mercury -73902-03-28 00:56 J -25271196.61 -25271196.46 -25271196.30 0.0495 0.0286  
 Mercury -73902-06-26 10:47 J -25271106.20 -25271106.05 -25271105.89 0.0495 0.0274  
 Venus -73898-11-21 23:16 J -25269496.66 -25269496.53 -25269496.38 0.0529 0.0372  
 Moon -73897-03-20 13:11 J -25269377.10 -25269376.95 -25269376.80 0.0531 0.0393  
 Earth -73897-03-20 15:06 J -25269377.01 -25269376.87 -25269376.71 0.0531 0.0394 \*  
 Mercury -73896-02-17 00:13 J -25269043.61 -25269043.49 -25269043.37 0.0531 0.0180  
 Mercury -73896-05-17 06:42 J -25268954.33 -25268954.22 -25268954.11 0.0531 0.0275  
 Earth -73892-09-02 23:16 J -25267384.75 -25267384.53 -25267384.30 0.0497 0.0138  
 Moon -73892-09-03 00:42 J -25267384.70 -25267384.47 -25267384.24 0.0497 0.0165 \*  
 Venus -73892-09-22 23:01 J -25267364.61 -25267364.54 -25267364.46 0.0497 0.0460  
 Mercury -73890-01-13 22:18 J -25266886.66 -25266886.57 -25266886.48 0.0495 0.0424  
 Mercury -73890-04-14 08:23 J -25266796.33 -25266796.15 -25266795.97 0.0495 0.0138  
 Venus -73886-07-27 17:59 J -25265230.94 -25265230.75 -25265230.55 0.0528 0.0102  
 Mercury -73885-12-06 04:18 J -25264733.43 -25264733.32 -25264733.22 0.0531 0.0297  
 Mercury -73884-03-05 10:32 J -25264644.18 -25264644.06 -25264643.94 0.0531 0.0158  
 Venus -73880-05-28 21:20 J -25263098.82 -25263098.61 -25263098.40 0.0498 0.0055  
 Moon -73880-09-07 09:06 J -25262997.35 -25262997.12 -25262996.89 0.0496 0.0064  
 Earth -73880-09-07 12:13 J -25262997.23 -25262996.99 -25262996.76 0.0496 0.0069 \*  
 Mercury -73878-01-31 05:30 J -25262486.46 -25262486.27 -25262486.09 0.0495 0.0006  
 Mercury -73873-09-24 08:08 J -25260423.24 -25260423.16 -25260423.08 0.0532 0.0412  
 Mercury -73873-12-22 14:23 J -25260334.03 -25260333.90 -25260333.77 0.0531 0.0041  
 Mercury -73872-03-21 20:52 J -25260244.67 -25260244.63 -25260244.59 0.0530 0.0499  
 Venus -73868-01-31 19:40 J -25258832.83 -25258832.68 -25258832.53 0.0499 0.0352

Earth -73868-09-12 00:42 J -25258609.67 -25258609.47 -25258609.27 0.0496 0.0272  
 Moon -73868-09-12 04:47 J -25258609.49 -25258609.30 -25258609.11 0.0496 0.0304 \*  
 Mercury -73867-11-19 02:23 J -25258176.58 -25258176.40 -25258176.22 0.0495 0.0144  
 Mercury -73866-02-17 11:59 J -25258086.10 -25258086.00 -25258085.90 0.0495 0.0413  
 Mercury -73861-07-13 12:28 J -25256113.00 -25256112.98 -25256112.96 0.0532 0.0521  
 Mercury -73861-10-10 18:42 J -25256023.85 -25256023.72 -25256023.59 0.0532 0.0068  
 Mercury -73860-01-08 01:11 J -25255934.53 -25255934.45 -25255934.36 0.0531 0.0389  
 Moon -73856-09-16 07:25 J -25254222.21 -25254222.19 -25254222.15 0.0495 0.0491  
 Earth -73856-09-16 11:44 J -25254222.08 -25254222.01 -25254221.94 0.0495 0.0472  
 Mercury -73855-09-06 22:32 J -25253866.71 -25253866.56 -25253866.41 0.0494 0.0292  
 Mercury -73855-12-06 08:23 J -25253776.30 -25253776.15 -25253775.99 0.0495 0.0267  
 Earth -73850-03-05 20:52 J -25252225.79 -25252225.63 -25252225.47 0.0529 0.0374  
 Moon -73850-03-05 22:47 J -25252225.72 -25252225.55 -25252225.38 0.0529 0.0345 \*  
 Venus -73850-04-04 07:40 J -25252196.37 -25252196.18 -25252195.99 0.0529 0.0167  
 Mercury -73849-07-29 23:01 J -25251713.66 -25251713.54 -25251713.42 0.0532 0.0179  
 Mercury -73849-10-27 05:30 J -25251624.38 -25251624.27 -25251624.16 0.0531 0.0278  
 Venus -73844-02-03 09:06 J -25250064.29 -25250064.12 -25250063.95 0.0497 0.0288  
 Mercury -73843-06-25 19:40 J -25249556.77 -25249556.68 -25249556.59 0.0494 0.0431  
 Mercury -73843-09-24 05:44 J -25249466.44 -25249466.26 -25249466.08 0.0495 0.0130  
 Venus -73839-12-08 02:08 J -25247930.57 -25247930.41 -25247930.24 0.0528 0.0307  
 Earth -73838-03-10 18:42 J -25247837.95 -25247837.72 -25247837.50 0.0529 0.0126  
 Moon -73838-03-10 18:42 J -25247837.95 -25247837.72 -25247837.49 0.0529 0.0134 \*  
 Mercury -73837-05-18 02:37 J -25247403.49 -25247403.39 -25247403.29 0.0531 0.0300  
 Mercury -73837-08-15 08:52 J -25247314.25 -25247314.13 -25247314.01 0.0531 0.0154  
 Venus -73833-10-09 06:13 J -25245798.44 -25245798.24 -25245798.04 0.0498 0.0126  
 Mercury -73831-07-13 03:06 J -25245156.56 -25245156.37 -25245156.18 0.0495 0.0008  
 Moon -73826-03-15 14:52 J -25243450.10 -25243449.88 -25243449.66 0.0530 0.0086  
 Earth -73826-03-15 16:32 J -25243450.03 -25243449.81 -25243449.58 0.0530 0.0120 \*  
 Mercury -73825-03-06 06:28 J -25243093.30 -25243093.23 -25243093.15 0.0531 0.0415  
 Mercury -73825-06-03 12:42 J -25243004.09 -25243003.97 -25243003.84 0.0531 0.0040

Mercury -73825-08-31 19:11 J -25242914.74 -25242914.70 -25242914.65 0.0530 0.0495

Earth -73821-08-28 15:06 J -25241457.03 -25241456.87 -25241456.70 0.0498 0.0359

Moon -73821-08-28 16:18 J -25241456.99 -25241456.82 -25241456.65 0.0498 0.0360 \*

Mercury -73819-05-01 00:13 J -25240846.67 -25240846.49 -25240846.31 0.0495 0.0147

Mercury -73819-07-30 09:49 J -25240756.19 -25240756.09 -25240755.98 0.0495 0.0411

Venus -73815-12-10 19:25 J -25239161.80 -25239161.69 -25239161.57 0.0529 0.0424

Earth -73814-03-20 12:56 J -25239062.13 -25239061.96 -25239061.80 0.0530 0.0361

Moon -73814-03-20 15:49 J -25239062.00 -25239061.84 -25239061.66 0.0530 0.0365 \*

Mercury -73814-12-24 10:32 J -25238783.07 -25238783.06 -25238783.06 0.0532 0.0530

Mercury -73813-03-22 16:47 J -25238693.93 -25238693.80 -25238693.68 0.0531 0.0081

Mercury -73813-06-19 23:01 J -25238604.62 -25238604.54 -25238604.45 0.0531 0.0379

Mars -73813-06-30 07:11 J -25238594.43 -25238594.20 -25238593.96 0.0531 0.0196

Moon -73809-09-02 01:25 J -25237069.65 -25237069.44 -25237069.22 0.0497 0.0182

Earth -73809-09-02 04:18 J -25237069.54 -25237069.32 -25237069.09 0.0497 0.0153 \*

Mercury -73807-02-16 21:06 J -25236536.77 -25236536.62 -25236536.47 0.0495 0.0288

Mercury -73807-05-18 06:56 J -25236446.36 -25236446.21 -25236446.05 0.0495 0.0272

Venus -73803-08-15 15:06 J -25234896.07 -25234895.87 -25234895.67 0.0528 0.0045

Mercury -73801-01-09 21:06 J -25234383.74 -25234383.62 -25234383.50 0.0532 0.0188

Mercury -73801-04-08 03:20 J -25234294.46 -25234294.36 -25234294.25 0.0531 0.0270

Venus -73797-06-16 19:11 J -25232763.90 -25232763.70 -25232763.49 0.0497 0.0115

Earth -73797-09-06 16:04 J -25232682.06 -25232681.83 -25232681.59 0.0496 0.0053

Moon -73797-09-06 20:08 J -25232681.90 -25232681.66 -25232681.42 0.0496 0.0054 \*

Mercury -73796-12-05 17:30 J -25232226.85 -25232226.77 -25232226.68 0.0494 0.0433

Mercury -73795-03-06 03:35 J -25232136.53 -25232136.35 -25232136.17 0.0495 0.0128

Mars -73795-06-21 17:16 J -25232029.07 -25232028.78 -25232028.48 0.0496 0.0096

Venus -73791-04-20 10:18 J -25230630.11 -25230630.07 -25230630.01 0.0527 0.0510

Mercury -73790-10-29 01:25 J -25230073.54 -25230073.44 -25230073.34 0.0532 0.0297

Mercury -73789-01-26 07:40 J -25229984.30 -25229984.18 -25229984.05 0.0531 0.0160

Venus -73785-02-20 17:30 J -25228497.93 -25228497.77 -25228497.60 0.0498 0.0292

Moon -73785-09-11 00:42 J -25228294.66 -25228294.47 -25228294.28 0.0496 0.0286

Earth -73785-09-11 04:47 J -25228294.50 -25228294.30 -25228294.10 0.0496 0.0256 \*  
 Mercury -73784-12-23 00:56 J -25227826.65 -25227826.46 -25227826.27 0.0495 0.0010  
 Mercury -73778-08-17 05:01 J -25225763.36 -25225763.29 -25225763.21 0.0531 0.0416  
 Mercury -73778-11-14 11:16 J -25225674.15 -25225674.03 -25225673.90 0.0531 0.0040  
 Mercury -73777-02-11 17:44 J -25225584.80 -25225584.76 -25225584.71 0.0530 0.0494  
 Mars -73777-04-04 01:54 J -25225532.53 -25225532.42 -25225532.30 0.0530 0.0467  
 Earth -73773-09-15 16:04 J -25223906.91 -25223906.83 -25223906.74 0.0496 0.0461  
 Moon -73773-09-15 19:25 J -25223906.75 -25223906.69 -25223906.63 0.0496 0.0475 \*  
 Mercury -73772-10-10 22:18 J -25223516.75 -25223516.57 -25223516.39 0.0495 0.0148  
 Mercury -73771-01-09 07:54 J -25223426.27 -25223426.17 -25223426.06 0.0496 0.0411  
 Moon -73767-03-04 21:49 J -25221910.75 -25221910.59 -25221910.41 0.0528 0.0365  
 Earth -73767-03-04 22:32 J -25221910.72 -25221910.56 -25221910.41 0.0528 0.0394 \*  
 Venus -73767-04-23 05:44 J -25221861.44 -25221861.26 -25221861.08 0.0528 0.0229  
 Mercury -73766-06-05 09:20 J -25221453.12 -25221453.11 -25221453.11 0.0531 0.0529  
 Mercury -73766-09-02 15:20 J -25221363.98 -25221363.86 -25221363.73 0.0531 0.0078  
 Mercury -73766-11-30 21:49 J -25221274.68 -25221274.59 -25221274.50 0.0530 0.0379  
 Venus -73761-02-23 06:56 J -25219729.35 -25219729.21 -25219729.05 0.0497 0.0345  
 Mercury -73760-07-29 19:25 J -25219206.84 -25219206.69 -25219206.54 0.0495 0.0287  
 Mercury -73760-10-28 05:16 J -25219116.43 -25219116.28 -25219116.12 0.0495 0.0274  
 Venus -73756-12-26 23:44 J -25217595.68 -25217595.51 -25217595.33 0.0527 0.0246  
 Moon -73755-03-09 17:30 J -25217522.98 -25217522.77 -25217522.56 0.0529 0.0166  
 Earth -73755-03-09 18:56 J -25217522.93 -25217522.71 -25217522.49 0.0529 0.0154 \*  
 Mercury -73754-06-21 19:11 J -25217053.81 -25217053.70 -25217053.58 0.0531 0.0194  
 Mercury -73754-09-19 01:40 J -25216964.54 -25216964.43 -25216964.32 0.0531 0.0262  
 Venus -73750-10-29 05:44 J -25215463.47 -25215463.26 -25215463.05 0.0498 0.0058  
 Mercury -73748-05-17 16:32 J -25214896.90 -25214896.81 -25214896.72 0.0495 0.0427  
 Mercury -73748-08-16 02:37 J -25214806.57 -25214806.39 -25214806.21 0.0495 0.0135  
 Earth -73743-03-14 18:13 J -25213134.97 -25213134.74 -25213134.52 0.0530 0.0094  
 Moon -73743-03-14 21:06 J -25213134.86 -25213134.62 -25213134.39 0.0530 0.0063 \*  
 Mercury -73742-04-09 23:30 J -25212743.62 -25212743.52 -25212743.41 0.0532 0.0304



Mercury -73742-07-08 05:59 J -25212654.37 -25212654.25 -25212654.13 0.0531 0.0153

Venus -73738-07-04 04:18 J -25211197.39 -25211197.32 -25211197.24 0.0499 0.0464

Moon -73738-08-28 19:40 J -25211141.82 -25211141.68 -25211141.53 0.0498 0.0382

Earth -73738-08-28 22:32 J -25211141.71 -25211141.56 -25211141.40 0.0498 0.0368 \*

Mercury -73736-06-03 23:16 J -25210496.71 -25210496.53 -25210496.34 0.0495 0.0010

Venus -73732-12-29 19:54 J -25208826.73 -25208826.67 -25208826.60 0.0530 0.0500

Moon -73731-03-19 14:37 J -25208747.05 -25208746.89 -25208746.72 0.0531 0.0356

Earth -73731-03-19 18:13 J -25208746.90 -25208746.74 -25208746.56 0.0531 0.0346 \*

Mercury -73730-01-27 04:04 J -25208433.41 -25208433.33 -25208433.25 0.0532 0.0411

Mercury -73730-04-26 10:18 J -25208344.19 -25208344.07 -25208343.94 0.0531 0.0046

Mercury -73730-07-24 17:01 J -25208254.83 -25208254.79 -25208254.75 0.0531 0.0502

Earth -73726-09-02 11:16 J -25206754.25 -25206754.03 -25206753.80 0.0497 0.0163

Moon -73726-09-02 15:20 J -25206754.08 -25206753.86 -25206753.64 0.0497 0.0192 \*

Mercury -73724-03-22 20:37 J -25206186.82 -25206186.64 -25206186.46 0.0495 0.0145

Mercury -73724-06-21 06:13 J -25206096.33 -25206096.24 -25206096.13 0.0495 0.0414

Venus -73720-09-03 15:35 J -25204561.05 -25204560.85 -25204560.65 0.0528 0.0031

Mercury -73719-11-15 07:54 J -25204123.18 -25204123.17 -25204123.15 0.0531 0.0527

Mercury -73718-02-12 14:08 J -25204034.03 -25204033.91 -25204033.78 0.0531 0.0076

Mercury -73718-05-12 20:37 J -25203944.73 -25203944.64 -25203944.55 0.0530 0.0381

Venus -73714-07-06 17:30 J -25202428.96 -25202428.77 -25202428.57 0.0498 0.0173

Moon -73714-09-06 17:30 J -25202367.01 -25202366.77 -25202366.53 0.0497 0.0043

Earth -73714-09-06 21:35 J -25202366.83 -25202366.60 -25202366.36 0.0497 0.0042 \*

Mercury -73712-01-08 17:44 J -25201876.91 -25201876.76 -25201876.60 0.0495 0.0286

Mercury -73712-04-09 03:49 J -25201786.49 -25201786.34 -25201786.19 0.0496 0.0277

Venus -73708-05-09 11:01 J -25200295.14 -25200295.04 -25200294.92 0.0527 0.0433

Mercury -73707-12-01 18:13 J -25199723.86 -25199723.74 -25199723.62 0.0531 0.0189

Mercury -73706-03-01 00:28 J -25199634.59 -25199634.48 -25199634.37 0.0530 0.0267

Venus -73702-03-11 16:04 J -25198163.02 -25198162.83 -25198162.65 0.0499 0.0233

Earth -73702-09-11 11:01 J -25197979.24 -25197979.04 -25197978.83 0.0496 0.0249

Moon -73702-09-11 14:23 J -25197979.09 -25197978.90 -25197978.71 0.0496 0.0280 \*

Mercury -73701-10-27 15:06 J -25197566.96 -25197566.87 -25197566.78 0.0495 0.0423

Mercury -73700-01-26 01:11 J -25197476.62 -25197476.45 -25197476.27 0.0495 0.0141

Mercury -73695-09-19 22:04 J -25195413.68 -25195413.58 -25195413.47 0.0531 0.0306

Mercury -73695-12-18 04:32 J -25195324.44 -25195324.31 -25195324.19 0.0531 0.0151

Moon -73690-09-15 23:30 J -25193591.61 -25193591.52 -25193591.43 0.0496 0.0457

Earth -73690-09-16 01:11 J -25193591.54 -25193591.45 -25193591.36 0.0496 0.0455 \*

Mercury -73689-11-13 22:32 J -25193166.75 -25193166.56 -25193166.37 0.0495 0.0003

Moon -73684-03-04 00:42 J -25191595.62 -25191595.47 -25191595.32 0.0528 0.0390

Earth -73684-03-04 01:40 J -25191595.57 -25191595.43 -25191595.29 0.0528 0.0415 \*

Venus -73684-05-12 05:01 J -25191526.45 -25191526.29 -25191526.12 0.0529 0.0301

Mercury -73683-07-09 02:37 J -25191103.47 -25191103.39 -25191103.31 0.0532 0.0414

Mercury -73683-10-06 08:52 J -25191014.26 -25191014.13 -25191014.00 0.0531 0.0041

Mercury -73682-01-03 15:20 J -25190924.90 -25190924.86 -25190924.82 0.0531 0.0499

Venus -73678-03-14 08:08 J -25189394.27 -25189394.16 -25189394.05 0.0497 0.0419

Mercury -73677-09-01 19:25 J -25188856.87 -25188856.69 -25188856.51 0.0495 0.0140

Mercury -73677-12-01 05:01 J -25188766.38 -25188766.29 -25188766.19 0.0495 0.0419

Mars -73677-12-08 21:49 J -25188758.80 -25188758.59 -25188758.36 0.0495 0.0343

Venus -73672-01-15 01:11 J -25187260.63 -25187260.45 -25187260.25 0.0528 0.0165

Earth -73672-03-09 01:54 J -25187207.63 -25187207.42 -25187207.20 0.0529 0.0166

Moon -73672-03-09 04:47 J -25187207.52 -25187207.30 -25187207.08 0.0529 0.0182 \*

Mercury -73671-04-27 07:11 J -25186793.22 -25186793.20 -25186793.18 0.0532 0.0521

Mercury -73671-07-25 13:11 J -25186704.07 -25186703.95 -25186703.82 0.0532 0.0070

Mercury -73671-10-22 19:40 J -25186614.76 -25186614.68 -25186614.59 0.0531 0.0390

Venus -73667-11-17 06:42 J -25185128.42 -25185128.22 -25185128.01 0.0498 0.0018

Mercury -73665-06-20 16:47 J -25184546.95 -25184546.80 -25184546.64 0.0495 0.0276

Mercury -73665-09-19 02:37 J -25184456.54 -25184456.39 -25184456.23 0.0495 0.0285

Moon -73660-03-13 22:47 J -25182819.77 -25182819.55 -25182819.32 0.0529 0.0061

Earth -73660-03-14 02:37 J -25182819.62 -25182819.39 -25182819.17 0.0529 0.0089 \*

Mercury -73659-05-13 17:16 J -25182393.90 -25182393.78 -25182393.66 0.0531 0.0184

Mercury -73659-08-10 23:30 J -25182304.63 -25182304.52 -25182304.41 0.0530 0.0272

Mars -73659-09-24 13:40 J -25182260.18 -25182259.93 -25182259.68 0.0530 0.0036  
 Venus -73655-07-23 03:06 J -25180862.49 -25180862.37 -25180862.24 0.0499 0.0402  
 Earth -73655-08-28 04:32 J -25180826.46 -25180826.31 -25180826.16 0.0499 0.0379  
 Moon -73655-08-28 08:08 J -25180826.29 -25180826.16 -25180826.01 0.0499 0.0400 \*  
 Mercury -73653-04-08 13:40 J -25180237.02 -25180236.93 -25180236.83 0.0495 0.0419  
 Mercury -73653-07-07 23:59 J -25180146.68 -25180146.50 -25180146.32 0.0496 0.0146  
 Earth -73648-03-19 01:40 J -25178431.60 -25178431.43 -25178431.25 0.0530 0.0336  
 Moon -73648-03-19 05:01 J -25178431.45 -25178431.29 -25178431.12 0.0530 0.0359 \*  
 Mercury -73647-03-01 21:20 J -25178083.71 -25178083.61 -25178083.50 0.0531 0.0297  
 Mercury -73647-05-30 03:35 J -25177994.47 -25177994.35 -25177994.23 0.0530 0.0159  
 Moon -73643-09-01 13:54 J -25176439.13 -25176438.92 -25176438.69 0.0498 0.0203  
 Earth -73643-09-01 18:13 J -25176438.96 -25176438.74 -25176438.52 0.0498 0.0171 \*  
 Mercury -73641-04-25 21:35 J -25175836.79 -25175836.60 -25175836.42 0.0495 0.0015  
 Mars -73641-09-15 09:06 J -25175694.30 -25175694.12 -25175693.91 0.0496 0.0374  
 Venus -73637-09-22 16:18 J -25174226.02 -25174225.82 -25174225.63 0.0528 0.0110  
 Mercury -73636-12-19 01:25 J -25173773.52 -25173773.44 -25173773.36 0.0531 0.0411  
 Mercury -73635-03-18 07:40 J -25173684.31 -25173684.18 -25173684.06 0.0531 0.0045  
 Mercury -73635-06-15 14:08 J -25173594.95 -25173594.91 -25173594.87 0.0530 0.0499  
 Venus -73631-07-25 19:25 J -25172093.86 -25172093.69 -25172093.51 0.0498 0.0253  
 Earth -73631-09-06 08:23 J -25172051.38 -25172051.15 -25172050.91 0.0497 0.0039  
 Moon -73631-09-06 11:44 J -25172051.24 -25172051.01 -25172050.78 0.0497 0.0048 \*  
 Mercury -73629-02-12 18:42 J -25171526.90 -25171526.72 -25171526.54 0.0495 0.0129  
 Mercury -73629-05-13 04:32 J -25171436.40 -25171436.31 -25171436.22 0.0496 0.0431  
 Venus -73625-05-28 11:44 J -25169960.16 -25169960.01 -25169959.86 0.0527 0.0356  
 Mercury -73624-10-07 05:44 J -25169463.28 -25169463.26 -25169463.24 0.0532 0.0520  
 Mercury -73623-01-04 11:59 J -25169374.13 -25169374.00 -25169373.88 0.0531 0.0068  
 Mercury -73623-04-03 18:13 J -25169284.82 -25169284.74 -25169284.65 0.0531 0.0391  
 Venus -73619-03-30 18:28 J -25167827.93 -25167827.73 -25167827.53 0.0498 0.0151  
 Moon -73619-09-10 20:37 J -25167663.84 -25167663.64 -25167663.43 0.0496 0.0274  
 Earth -73619-09-10 22:32 J -25167663.76 -25167663.56 -25167663.36 0.0496 0.0247 \*

Mercury -73618-12-01 15:49 J -25167217.00 -25167216.84 -25167216.68 0.0495 0.0269  
 Mercury -73617-03-01 01:40 J -25167126.58 -25167126.43 -25167126.28 0.0495 0.0292  
 Mercury -73612-10-23 16:32 J -25165063.93 -25165063.81 -25165063.69 0.0532 0.0176  
 Mercury -73611-01-20 22:47 J -25164974.66 -25164974.55 -25164974.44 0.0531 0.0282  
 Moon -73607-09-15 11:44 J -25163276.11 -25163276.01 -25163275.91 0.0496 0.0446  
 Earth -73607-09-15 12:13 J -25163276.08 -25163275.99 -25163275.90 0.0496 0.0453 \*  
 Mercury -73606-09-19 13:11 J -25162907.05 -25162906.95 -25162906.84 0.0495 0.0406  
 Mercury -73606-12-18 23:16 J -25162816.70 -25162816.53 -25162816.35 0.0495 0.0158  
 Earth -73601-03-03 12:28 J -25161280.11 -25161279.98 -25161279.83 0.0527 0.0416  
 Moon -73601-03-03 15:06 J -25161280.02 -25161279.87 -25161279.70 0.0527 0.0391 \*  
 Venus -73601-05-31 08:52 J -25161191.26 -25161191.13 -25161190.99 0.0529 0.0392  
 Mercury -73600-08-11 20:37 J -25160753.75 -25160753.64 -25160753.53 0.0531 0.0289  
 Mercury -73600-11-09 02:52 J -25160664.50 -25160664.38 -25160664.26 0.0530 0.0166  
 Venus -73595-04-02 07:54 J -25159059.21 -25159059.17 -25159059.13 0.0497 0.0486  
 Mercury -73594-10-06 20:23 J -25158506.84 -25158506.65 -25158506.46 0.0496 0.0016  
 Venus -73589-02-04 05:16 J -25156925.47 -25156925.28 -25156925.08 0.0527 0.0070  
 Moon -73589-03-08 09:35 J -25156892.31 -25156892.10 -25156891.88 0.0528 0.0190  
 Earth -73589-03-08 13:11 J -25156892.17 -25156891.95 -25156891.73 0.0528 0.0167 \*  
 Mercury -73588-05-31 00:56 J -25156443.54 -25156443.46 -25156443.38 0.0531 0.0399  
 Mercury -73588-08-28 06:56 J -25156354.33 -25156354.21 -25156354.08 0.0530 0.0054  
 Mercury -73588-11-25 13:25 J -25156264.97 -25156264.94 -25156264.91 0.0530 0.0509  
 Venus -73584-12-06 06:28 J -25154793.43 -25154793.23 -25154793.02 0.0498 0.0082  
 Mercury -73582-07-25 17:44 J -25154196.94 -25154196.76 -25154196.57 0.0495 0.0121  
 Mercury -73582-10-24 03:35 J -25154106.43 -25154106.35 -25154106.26 0.0496 0.0441  
 Earth -73577-03-13 09:49 J -25152504.32 -25152504.09 -25152503.86 0.0529 0.0075  
 Moon -73577-03-13 13:25 J -25152504.17 -25152503.94 -25152503.72 0.0529 0.0056 \*  
 Mercury -73576-03-19 04:47 J -25152133.33 -25152133.30 -25152133.27 0.0531 0.0515  
 Mercury -73576-06-16 11:01 J -25152044.17 -25152044.04 -25152043.92 0.0531 0.0064  
 Mercury -73576-09-13 17:16 J -25151954.86 -25151954.78 -25151954.69 0.0530 0.0394  
 Venus -73572-08-11 05:44 J -25150527.41 -25150527.26 -25150527.10 0.0499 0.0319

Moon -73572-08-27 12:42 J -25150511.10 -25150510.97 -25150510.83 0.0499 0.0406  
 Earth -73572-08-27 16:47 J -25150510.95 -25150510.80 -25150510.65 0.0499 0.0382 \*  
 Mercury -73570-05-13 15:20 J -25149887.02 -25149886.86 -25149886.70 0.0495 0.0257  
 Mercury -73570-08-12 01:11 J -25149796.59 -25149796.45 -25149796.30 0.0496 0.0306  
 Moon -73565-03-18 06:13 J -25148116.41 -25148116.24 -25148116.06 0.0530 0.0346  
 Earth -73565-03-18 08:52 J -25148116.31 -25148116.13 -25148115.95 0.0530 0.0322 \*  
 Mercury -73564-04-04 15:20 J -25147733.98 -25147733.86 -25147733.74 0.0531 0.0173  
 Mercury -73564-07-02 21:35 J -25147644.71 -25147644.60 -25147644.49 0.0531 0.0284  
 Earth -73560-09-01 07:11 J -25146123.42 -25146123.20 -25146122.98 0.0498 0.0170  
 Moon -73560-09-01 10:32 J -25146123.27 -25146123.06 -25146122.85 0.0498 0.0195 \*  
 Mercury -73558-03-01 12:13 J -25145577.09 -25145576.99 -25145576.87 0.0495 0.0397  
 Mercury -73558-05-30 22:18 J -25145486.74 -25145486.57 -25145486.39 0.0495 0.0167  
 Venus -73554-10-12 19:25 J -25143890.87 -25143890.69 -25143890.51 0.0528 0.0201  
 Mercury -73552-01-21 19:40 J -25143423.78 -25143423.68 -25143423.57 0.0531 0.0282  
 Mercury -73552-04-21 02:08 J -25143334.53 -25143334.41 -25143334.29 0.0531 0.0176  
 Venus -73548-08-13 22:18 J -25141758.72 -25141758.57 -25141758.41 0.0497 0.0336  
 Moon -73548-09-05 19:11 J -25141735.94 -25141735.70 -25141735.45 0.0497 0.0052  
 Earth -73548-09-05 21:06 J -25141735.86 -25141735.62 -25141735.39 0.0497 0.0039 \*  
 Mercury -73546-03-18 20:08 J -25141176.85 -25141176.66 -25141176.48 0.0495 0.0033  
 Venus -73542-06-17 16:32 J -25139624.98 -25139624.81 -25139624.64 0.0527 0.0258  
 Mercury -73541-11-09 23:59 J -25139113.58 -25139113.50 -25139113.41 0.0531 0.0392  
 Mercury -73540-02-07 06:13 J -25139024.36 -25139024.24 -25139024.11 0.0530 0.0062  
 Mars -73540-03-16 13:54 J -25138987.10 -25138986.92 -25138986.73 0.0530 0.0358  
 Mercury -73540-05-07 12:42 J -25138934.99 -25138934.97 -25138934.95 0.0530 0.0518  
 Venus -73536-04-18 18:13 J -25137492.94 -25137492.74 -25137492.53 0.0499 0.0084  
 Moon -73536-09-10 05:59 J -25137348.43 -25137348.25 -25137348.05 0.0497 0.0265  
 Earth -73536-09-10 06:28 J -25137348.43 -25137348.23 -25137348.02 0.0497 0.0241 \*  
 Mercury -73534-01-04 16:47 J -25136866.98 -25136866.80 -25136866.62 0.0496 0.0113  
 Mercury -73534-04-05 02:37 J -25136776.46 -25136776.39 -25136776.31 0.0496 0.0449  
 Mercury -73529-08-29 04:18 J -25134803.35 -25134803.32 -25134803.28 0.0531 0.0501

Mercury -73529-11-26 10:32 J -25134714.19 -25134714.06 -25134713.94 0.0530 0.0050

Mercury -73528-02-23 16:47 J -25134624.88 -25134624.80 -25134624.72 0.0530 0.0406

Venus -73525-12-22 16:47 J -25133226.83 -25133226.80 -25133226.75 0.0500 0.0488

Earth -73524-09-14 20:37 J -25132960.74 -25132960.64 -25132960.54 0.0496 0.0449

Moon -73524-09-14 22:47 J -25132960.66 -25132960.55 -25132960.43 0.0496 0.0432 \*

Mercury -73523-10-23 14:08 J -25132557.07 -25132556.91 -25132556.74 0.0495 0.0250

Mercury -73522-01-22 00:13 J -25132466.63 -25132466.49 -25132466.34 0.0496 0.0315

Mars -73522-03-05 23:59 J -25132423.80 -25132423.50 -25132423.20 0.0496 0.0040

Moon -73518-03-03 18:13 J -25130964.88 -25130964.74 -25130964.60 0.0527 0.0409

Earth -73518-03-03 21:35 J -25130964.73 -25130964.60 -25130964.46 0.0527 0.0426 \*

Venus -73518-06-20 11:16 J -25130856.11 -25130856.03 -25130855.94 0.0528 0.0479

Mercury -73517-09-14 14:23 J -25130404.02 -25130403.90 -25130403.78 0.0531 0.0166

Mercury -73517-12-12 20:37 J -25130314.74 -25130314.64 -25130314.53 0.0530 0.0290

Mercury -73511-08-11 11:44 J -25128247.13 -25128247.01 -25128246.90 0.0495 0.0386

Mercury -73511-11-09 21:49 J -25128156.76 -25128156.59 -25128156.41 0.0496 0.0180

Venus -73506-02-23 06:56 J -25126590.41 -25126590.21 -25126590.01 0.0527 0.0015

Earth -73506-03-08 20:08 J -25126576.87 -25126576.66 -25126576.44 0.0528 0.0182

Moon -73506-03-08 23:59 J -25126576.71 -25126576.50 -25126576.29 0.0528 0.0210 \*

Mercury -73505-07-03 18:42 J -25126093.83 -25126093.72 -25126093.61 0.0531 0.0277

Mercury -73505-10-01 00:56 J -25126004.58 -25126004.46 -25126004.34 0.0531 0.0179

Mars -73505-12-19 05:44 J -25125925.46 -25125925.26 -25125925.04 0.0530 0.0293

Venus -73501-12-25 10:18 J -25124458.27 -25124458.07 -25124457.88 0.0498 0.0170

Mercury -73499-08-28 19:11 J -25123846.89 -25123846.70 -25123846.52 0.0495 0.0040

Venus -73495-10-29 02:37 J -25122324.49 -25122324.39 -25122324.28 0.0527 0.0449

Moon -73494-03-13 17:44 J -25122189.00 -25122188.76 -25122188.52 0.0529 0.0055

Earth -73494-03-13 20:23 J -25122188.88 -25122188.65 -25122188.42 0.0529 0.0070 \*

Mercury -73493-04-21 23:16 J -25121783.62 -25121783.53 -25121783.45 0.0531 0.0384

Mercury -73493-07-20 05:30 J -25121694.40 -25121694.27 -25121694.15 0.0531 0.0072

Mercury -73493-10-17 11:59 J -25121605.01 -25121605.00 -25121605.00 0.0530 0.0528

Earth -73489-08-27 05:44 J -25120195.40 -25120195.26 -25120195.10 0.0499 0.0382

Moon -73489-08-27 08:52 J -25120195.25 -25120195.13 -25120194.99 0.0499 0.0409 \*  
 Venus -73489-08-30 09:06 J -25120192.30 -25120192.12 -25120191.94 0.0499 0.0232  
 Mercury -73487-06-16 16:32 J -25119536.99 -25119536.81 -25119536.62 0.0495 0.0097  
 Mercury -73487-09-15 02:23 J -25119446.46 -25119446.40 -25119446.34 0.0496 0.0465  
 Earth -73482-03-18 22:04 J -25117800.76 -25117800.58 -25117800.40 0.0529 0.0325  
 Moon -73482-03-18 22:47 J -25117800.71 -25117800.55 -25117800.38 0.0529 0.0356 \*  
 Mercury -73481-02-09 03:35 J -25117473.39 -25117473.35 -25117473.30 0.0531 0.0493  
 Mercury -73481-05-08 09:49 J -25117384.22 -25117384.09 -25117383.97 0.0530 0.0043  
 Mercury -73481-08-05 16:04 J -25117294.91 -25117294.83 -25117294.75 0.0530 0.0415  
 Moon -73477-08-31 12:42 J -25115808.19 -25115807.97 -25115807.74 0.0498 0.0200  
 Earth -73477-08-31 14:37 J -25115808.10 -25115807.89 -25115807.67 0.0498 0.0181 \*  
 Mercury -73475-04-04 13:11 J -25115227.11 -25115226.95 -25115226.79 0.0496 0.0243  
 Mercury -73475-07-03 23:16 J -25115136.67 -25115136.53 -25115136.39 0.0496 0.0322  
 Venus -73471-11-01 00:56 J -25113555.62 -25113555.46 -25113555.30 0.0528 0.0303  
 Mercury -73469-02-25 14:08 J -25113074.04 -25113073.91 -25113073.79 0.0530 0.0153  
 Mercury -73469-05-24 20:08 J -25112984.76 -25112984.66 -25112984.55 0.0530 0.0304  
 Venus -73465-09-01 21:49 J -25111423.70 -25111423.59 -25111423.46 0.0498 0.0403  
 Moon -73465-09-05 03:49 J -25111420.57 -25111420.34 -25111420.11 0.0498 0.0051  
 Earth -73465-09-05 04:04 J -25111420.56 -25111420.33 -25111420.09 0.0498 0.0030 \*  
 Mercury -73463-01-21 10:32 J -25110917.18 -25110917.06 -25110916.94 0.0495 0.0380  
 Mercury -73463-04-21 20:52 J -25110826.80 -25110826.63 -25110826.46 0.0496 0.0187  
 Venus -73459-07-06 19:11 J -25109289.89 -25109289.70 -25109289.51 0.0527 0.0168  
 Mercury -73458-12-14 17:59 J -25108763.86 -25108763.75 -25108763.64 0.0531 0.0269  
 Mercury -73457-03-12 23:59 J -25108674.61 -25108674.50 -25108674.38 0.0530 0.0187  
 Venus -73453-05-07 21:20 J -25107157.82 -25107157.61 -25107157.41 0.0499 0.0008  
 Earth -73453-09-09 19:11 J -25107032.91 -25107032.70 -25107032.50 0.0497 0.0239  
 Moon -73453-09-09 21:35 J -25107032.81 -25107032.60 -25107032.39 0.0497 0.0257 \*  
 Mercury -73451-02-07 18:28 J -25106516.92 -25106516.73 -25106516.55 0.0496 0.0051  
 Mercury -73446-10-02 22:04 J -25104453.66 -25104453.58 -25104453.49 0.0531 0.0380  
 Mercury -73446-12-31 04:18 J -25104364.45 -25104364.32 -25104364.19 0.0531 0.0074

Venus -73441-01-11 20:37 J -25102891.76 -25102891.64 -25102891.52 0.0500 0.0400  
 Moon -73441-09-14 06:13 J -25102645.35 -25102645.24 -25102645.12 0.0496 0.0430  
 Earth -73441-09-14 09:35 J -25102645.19 -25102645.10 -25102645.00 0.0496 0.0450 \*  
 Mercury -73440-11-26 15:35 J -25102207.03 -25102206.85 -25102206.67 0.0495 0.0089  
 Mercury -73439-02-25 01:25 J -25102116.50 -25102116.44 -25102116.39 0.0496 0.0472  
 Earth -73435-03-03 06:42 J -25100649.35 -25100649.22 -25100649.09 0.0527 0.0435  
 Moon -73435-03-03 10:18 J -25100649.20 -25100649.07 -25100648.93 0.0527 0.0427 \*  
 Mercury -73434-07-22 02:37 J -25100143.44 -25100143.39 -25100143.34 0.0531 0.0488  
 Mercury -73434-10-19 08:52 J -25100054.26 -25100054.13 -25100054.01 0.0531 0.0039  
 Mercury -73433-01-16 15:06 J -25099964.94 -25099964.87 -25099964.79 0.0530 0.0423  
 Mercury -73428-09-14 12:56 J -25097897.12 -25097896.96 -25097896.79 0.0495 0.0226  
 Mercury -73428-12-13 22:47 J -25097806.68 -25097806.55 -25097806.41 0.0496 0.0338  
 Moon -73423-03-08 06:13 J -25096261.45 -25096261.24 -25096261.01 0.0528 0.0214  
 Earth -73423-03-08 09:06 J -25096261.33 -25096261.12 -25096260.90 0.0528 0.0181 \*  
 Venus -73423-03-14 11:44 J -25096255.20 -25096255.01 -25096254.81 0.0528 0.0114  
 Mercury -73422-08-07 13:11 J -25095744.07 -25095743.95 -25095743.83 0.0531 0.0144  
 Mercury -73422-11-04 19:25 J -25095654.79 -25095654.69 -25095654.59 0.0530 0.0311  
 Venus -73417-01-14 09:35 J -25094123.28 -25094123.10 -25094122.92 0.0498 0.0237  
 Mercury -73416-07-03 09:06 J -25093587.24 -25093587.12 -25093587.00 0.0496 0.0376  
 Mercury -73416-10-01 19:25 J -25093496.86 -25093496.69 -25093496.51 0.0496 0.0192  
 Venus -73412-11-17 08:23 J -25091989.30 -25091989.15 -25091989.00 0.0526 0.0344  
 Earth -73411-03-13 09:35 J -25091873.33 -25091873.10 -25091872.87 0.0528 0.0070  
 Moon -73411-03-13 10:32 J -25091873.28 -25091873.06 -25091872.83 0.0528 0.0064 \*  
 Mercury -73410-05-26 17:30 J -25091433.88 -25091433.77 -25091433.66 0.0530 0.0255  
 Mercury -73410-08-23 23:44 J -25091344.63 -25091344.51 -25091344.40 0.0530 0.0200  
 Moon -73406-08-27 09:35 J -25089880.22 -25089880.10 -25089879.97 0.0499 0.0423  
 Earth -73406-08-27 11:30 J -25089880.16 -25089880.02 -25089879.87 0.0499 0.0397 \*  
 Venus -73406-09-19 07:54 J -25089857.37 -25089857.17 -25089856.98 0.0499 0.0169  
 Mercury -73404-07-20 17:01 J -25089186.98 -25089186.79 -25089186.61 0.0496 0.0055  
 Mars -73404-08-23 06:56 J -25089153.29 -25089153.21 -25089153.11 0.0496 0.0472



Earth -73399-03-18 05:44 J -25087485.44 -25087485.26 -25087485.07 0.0529 0.0311  
 Moon -73399-03-18 06:28 J -25087485.41 -25087485.23 -25087485.05 0.0529 0.0341 \*  
 Mercury -73398-03-14 21:20 J -25087123.70 -25087123.61 -25087123.52 0.0531 0.0372  
 Mercury -73398-06-12 03:20 J -25087034.48 -25087034.36 -25087034.23 0.0530 0.0082  
 Moon -73394-09-01 01:40 J -25085492.63 -25085492.43 -25085492.22 0.0499 0.0194  
 Earth -73394-09-01 02:08 J -25085492.63 -25085492.41 -25085492.19 0.0499 0.0185 \*  
 Mercury -73392-05-08 14:23 J -25084877.08 -25084876.90 -25084876.71 0.0496 0.0082  
 Mercury -73392-08-07 00:13 J -25084786.53 -25084786.49 -25084786.44 0.0496 0.0481  
 Venus -73388-11-20 01:25 J -25083220.57 -25083220.44 -25083220.30 0.0528 0.0382  
 Mercury -73386-01-01 01:25 J -25082813.49 -25082813.44 -25082813.39 0.0531 0.0484  
 Mercury -73386-03-31 07:40 J -25082724.31 -25082724.18 -25082724.06 0.0531 0.0035  
 Mars -73386-06-11 04:18 J -25082652.56 -25082652.32 -25082652.07 0.0530 0.0111  
 Mercury -73386-06-28 13:54 J -25082634.99 -25082634.92 -25082634.84 0.0530 0.0425  
 Earth -73382-09-05 16:32 J -25081105.05 -25081104.81 -25081104.57 0.0498 0.0027  
 Moon -73382-09-05 18:56 J -25081104.95 -25081104.71 -25081104.46 0.0498 0.0058 \*  
 Venus -73382-09-22 00:42 J -25081088.50 -25081088.47 -25081088.42 0.0498 0.0486  
 Mercury -73380-02-24 11:30 J -25080567.18 -25080567.02 -25080566.85 0.0495 0.0222  
 Mercury -73380-05-25 21:35 J -25080476.73 -25080476.60 -25080476.46 0.0496 0.0342  
 Venus -73376-07-25 21:06 J -25078954.81 -25078954.62 -25078954.42 0.0527 0.0084  
 Mercury -73374-01-17 11:59 J -25078414.12 -25078414.00 -25078413.88 0.0531 0.0142  
 Mercury -73374-04-16 18:13 J -25078324.84 -25078324.74 -25078324.64 0.0530 0.0315  
 Venus -73370-05-27 23:30 J -25076822.72 -25076822.52 -25076822.31 0.0498 0.0084  
 Moon -73370-09-10 02:37 J -25076717.59 -25076717.39 -25076717.19 0.0497 0.0252  
 Earth -73370-09-10 06:13 J -25076717.45 -25076717.24 -25076717.03 0.0497 0.0236 \*  
 Mercury -73369-12-13 08:52 J -25076257.26 -25076257.13 -25076257.00 0.0495 0.0361  
 Mercury -73368-03-13 18:56 J -25076166.87 -25076166.71 -25076166.54 0.0496 0.0206  
 Mars -73368-05-30 21:20 J -25076088.86 -25076088.61 -25076088.34 0.0496 0.0246  
 Mercury -73363-11-05 16:32 J -25074103.92 -25074103.81 -25074103.70 0.0531 0.0250  
 Mercury -73362-02-02 22:32 J -25074014.67 -25074014.56 -25074014.44 0.0530 0.0206  
 Venus -73358-01-30 19:11 J -25072556.85 -25072556.70 -25072556.55 0.0499 0.0336

Earth -73358-09-14 14:37 J -25072329.99 -25072329.89 -25072329.77 0.0497 0.0436  
 Moon -73358-09-14 18:42 J -25072329.85 -25072329.72 -25072329.58 0.0497 0.0412 \*  
 Mercury -73357-12-30 15:20 J -25071857.05 -25071856.86 -25071856.68 0.0496 0.0057  
 Moon -73352-03-02 16:04 J -25070333.96 -25070333.83 -25070333.70 0.0526 0.0440  
 Earth -73352-03-02 18:56 J -25070333.83 -25070333.71 -25070333.58 0.0526 0.0438 \*  
 Mercury -73351-08-24 20:52 J -25069793.72 -25069793.63 -25069793.54 0.0530 0.0360  
 Mercury -73351-11-22 02:52 J -25069704.50 -25069704.38 -25069704.25 0.0530 0.0093  
 Mercury -73345-10-18 12:42 J -25067547.16 -25067546.97 -25067546.79 0.0496 0.0082  
 Mercury -73344-01-16 22:32 J -25067456.60 -25067456.56 -25067456.52 0.0496 0.0482  
 Earth -73340-03-07 15:20 J -25065946.07 -25065945.86 -25065945.64 0.0527 0.0198  
 Moon -73340-03-07 16:47 J -25065946.00 -25065945.80 -25065945.60 0.0527 0.0231 \*  
 Venus -73340-04-02 12:56 J -25065920.15 -25065919.96 -25065919.78 0.0528 0.0195  
 Mercury -73339-06-13 00:28 J -25065483.53 -25065483.48 -25065483.42 0.0531 0.0478  
 Mercury -73339-09-10 06:42 J -25065394.35 -25065394.22 -25065394.10 0.0530 0.0033  
 Mercury -73339-12-08 12:56 J -25065305.03 -25065304.96 -25065304.89 0.0530 0.0430  
 Venus -73334-02-02 10:47 J -25063788.20 -25063788.05 -25063787.88 0.0498 0.0314  
 Mercury -73333-08-06 10:04 J -25063237.25 -25063237.08 -25063236.91 0.0496 0.0219  
 Mercury -73333-11-04 20:08 J -25063146.79 -25063146.66 -25063146.53 0.0496 0.0347  
 Venus -73329-12-06 07:54 J -25061654.34 -25061654.17 -25061654.00 0.0526 0.0271  
 Earth -73328-03-12 13:11 J -25061558.18 -25061557.95 -25061557.72 0.0528 0.0047  
 Moon -73328-03-12 13:25 J -25061558.17 -25061557.94 -25061557.70 0.0528 0.0046 \*  
 Mercury -73327-06-29 10:47 J -25061084.18 -25061084.05 -25061083.93 0.0531 0.0141  
 Mercury -73327-09-26 17:01 J -25060994.90 -25060994.79 -25060994.69 0.0530 0.0316  
 Earth -73323-08-26 22:32 J -25059564.70 -25059564.56 -25059564.42 0.0500 0.0401  
 Moon -73323-08-26 22:04 J -25059564.69 -25059564.58 -25059564.46 0.0500 0.0430 \*  
 Venus -73323-10-08 09:49 J -25059522.30 -25059522.09 -25059521.89 0.0499 0.0090  
 Mercury -73321-05-25 06:57 J -25058927.33 -25058927.21 -25058927.08 0.0495 0.0360  
 Mercury -73321-08-23 17:16 J -25058836.94 -25058836.78 -25058836.61 0.0496 0.0207  
 Moon -73316-03-17 09:06 J -25057170.29 -25057170.12 -25057169.94 0.0529 0.0326  
 Earth -73316-03-17 11:30 J -25057170.21 -25057170.02 -25057169.83 0.0529 0.0295 \*

Mercury -73315-04-17 15:06 J -25056773.98 -25056773.87 -25056773.76 0.0531 0.0252

Mercury -73315-07-15 21:06 J -25056684.73 -25056684.62 -25056684.50 0.0530 0.0205

Venus -73311-06-13 08:23 J -25055256.18 -25055256.15 -25055256.12 0.0500 0.0493

Earth -73311-08-31 11:45 J -25055177.23 -25055177.01 -25055176.79 0.0499 0.0193

Moon -73311-08-31 14:09 J -25055177.13 -25055176.91 -25055176.68 0.0499 0.0189 \*

Mercury -73309-06-11 14:37 J -25054527.08 -25054526.89 -25054526.71 0.0496 0.0068

Venus -73305-12-09 04:18 J -25052885.41 -25052885.32 -25052885.23 0.0528 0.0470

Mercury -73303-02-03 19:25 J -25052463.78 -25052463.69 -25052463.59 0.0531 0.0359

Mercury -73303-05-04 01:40 J -25052374.55 -25052374.43 -25052374.30 0.0530 0.0096

Moon -73299-09-04 16:47 J -25050790.03 -25050789.80 -25050789.57 0.0498 0.0039

Earth -73299-09-04 20:09 J -25050789.89 -25050789.66 -25050789.42 0.0498 0.0007 \*

Mercury -73297-03-30 10:33 J -25050217.24 -25050217.06 -25050216.87 0.0496 0.0084

Mercury -73297-06-28 20:37 J -25050126.69 -25050126.64 -25050126.60 0.0496 0.0481

Venus -73293-08-14 00:28 J -25048619.68 -25048619.48 -25048619.28 0.0527 0.0010

Mercury -73292-11-22 23:45 J -25048153.56 -25048153.51 -25048153.45 0.0531 0.0469

Mercury -73291-02-20 05:59 J -25048064.38 -25048064.25 -25048064.13 0.0530 0.0024

Mercury -73291-05-20 12:13 J -25047975.06 -25047974.99 -25047974.92 0.0529 0.0439

Venus -73287-06-15 20:23 J -25046487.85 -25046487.65 -25046487.45 0.0498 0.0138

Earth -73287-09-09 08:23 J -25046402.36 -25046402.15 -25046401.93 0.0497 0.0215

Moon -73287-09-09 12:28 J -25046402.19 -25046401.98 -25046401.77 0.0497 0.0228 \*

Mercury -73285-01-17 07:40 J -25045907.34 -25045907.18 -25045907.01 0.0496 0.0223

Mercury -73285-04-16 17:45 J -25045816.88 -25045816.76 -25045816.62 0.0496 0.0344

Venus -73281-04-18 18:13 J -25044353.83 -25044353.74 -25044353.65 0.0526 0.0461

Mercury -73280-12-09 09:35 J -25043754.22 -25043754.10 -25043753.98 0.0530 0.0137

Mercury -73279-03-08 15:49 J -25043664.95 -25043664.84 -25043664.74 0.0530 0.0319

Venus -73275-02-18 18:57 J -25042221.88 -25042221.71 -25042221.53 0.0500 0.0267

Moon -73275-09-13 19:11 J -25042014.84 -25042014.70 -25042014.55 0.0497 0.0398

Earth -73275-09-13 22:47 J -25042014.66 -25042014.55 -25042014.42 0.0497 0.0425 \*

Mercury -73274-11-05 05:01 J -25041597.41 -25041597.29 -25041597.16 0.0496 0.0361

Mercury -73273-02-03 15:21 J -25041507.02 -25041506.86 -25041506.69 0.0496 0.0208

Earth -73269-03-01 20:09 J -25040018.77 -25040018.66 -25040018.55 0.0526 0.0465  
 Moon -73269-03-01 21:35 J -25040018.68 -25040018.60 -25040018.50 0.0526 0.0475 \*  
 Mercury -73268-09-27 13:25 J -25039444.05 -25039443.94 -25039443.82 0.0531 0.0253  
 Mercury -73268-12-25 19:40 J -25039354.80 -25039354.68 -25039354.56 0.0530 0.0203  
 Mercury -73262-11-22 12:28 J -25037197.16 -25037196.98 -25037196.79 0.0496 0.0066  
 Earth -73257-03-06 17:59 J -25035630.96 -25035630.75 -25035630.54 0.0527 0.0222  
 Moon -73257-03-06 17:59 J -25035630.96 -25035630.75 -25035630.54 0.0527 0.0254 \*  
 Venus -73257-04-21 11:45 J -25035585.18 -25035585.01 -25035584.84 0.0528 0.0263  
 Mercury -73256-07-16 17:45 J -25035133.85 -25035133.76 -25035133.67 0.0531 0.0364  
 Mercury -73256-10-13 23:59 J -25035044.63 -25035044.50 -25035044.38 0.0530 0.0092  
 Venus -73251-02-21 10:33 J -25033453.19 -25033453.06 -25033452.92 0.0498 0.0382  
 Mercury -73250-09-10 09:35 J -25032887.29 -25032887.10 -25032886.92 0.0495 0.0076  
 Mars -73250-11-17 12:42 J -25032819.24 -25032818.97 -25032818.70 0.0496 0.0225  
 Mercury -73250-12-09 19:11 J -25032796.72 -25032796.70 -25032796.66 0.0496 0.0488  
 Venus -73246-12-26 08:37 J -25031319.33 -25031319.14 -25031318.96 0.0527 0.0193  
 Moon -73245-03-11 17:16 J -25031243.00 -25031242.78 -25031242.56 0.0528 0.0035  
 Earth -73245-03-11 19:11 J -25031242.93 -25031242.70 -25031242.47 0.0528 0.0031 \*  
 Mercury -73244-05-04 22:18 J -25030823.62 -25030823.57 -25030823.51 0.0531 0.0471  
 Mercury -73244-08-02 04:18 J -25030734.44 -25030734.32 -25030734.19 0.0530 0.0024  
 Mercury -73244-10-30 10:47 J -25030645.12 -25030645.05 -25030644.98 0.0530 0.0439  
 Earth -73240-08-26 00:28 J -25029249.59 -25029249.48 -25029249.35 0.0499 0.0425  
 Moon -73240-08-26 02:37 J -25029249.48 -25029249.39 -25029249.27 0.0499 0.0451 \*  
 Venus -73240-10-27 06:13 J -25029187.45 -25029187.24 -25029187.03 0.0499 0.0036  
 Mercury -73238-06-29 05:16 J -25028577.45 -25028577.28 -25028577.11 0.0496 0.0229  
 Mercury -73238-09-27 15:21 J -25028486.99 -25028486.86 -25028486.72 0.0496 0.0338  
 Earth -73233-03-16 18:57 J -25026854.90 -25026854.71 -25026854.51 0.0529 0.0280  
 Moon -73233-03-16 22:33 J -25026854.74 -25026854.56 -25026854.37 0.0529 0.0311 \*  
 Mercury -73232-05-21 08:37 J -25026424.26 -25026424.14 -25026424.02 0.0530 0.0130  
 Mercury -73232-08-18 14:52 J -25026334.98 -25026334.88 -25026334.78 0.0530 0.0326  
 Mars -73232-09-04 15:35 J -25026318.10 -25026317.85 -25026317.61 0.0529 0.0128

Venus -73228-07-02 04:04 J -25024921.42 -25024921.33 -25024921.23 0.0500 0.0443  
 Moon -73228-08-30 08:52 J -25024862.33 -25024862.13 -25024861.91 0.0499 0.0216  
 Earth -73228-08-30 12:28 J -25024862.19 -25024861.98 -25024861.77 0.0499 0.0219 \*  
 Mercury -73226-04-17 02:09 J -25024267.53 -25024267.41 -25024267.28 0.0496 0.0370  
 Mercury -73226-07-16 12:42 J -25024177.14 -25024176.97 -25024176.80 0.0496 0.0199  
 Moon -73221-03-21 10:18 J -25022467.13 -25022467.07 -25022467.01 0.0529 0.0511  
 Earth -73221-03-21 14:09 J -25022466.95 -25022466.91 -25022466.87 0.0529 0.0520  
 Mercury -73220-03-09 12:13 J -25022114.10 -25022113.99 -25022113.88 0.0530 0.0252  
 Mercury -73220-06-06 18:13 J -25022024.85 -25022024.74 -25022024.62 0.0530 0.0204  
 Earth -73216-09-04 01:40 J -25020474.67 -25020474.43 -25020474.20 0.0498 0.0010  
 Moon -73216-09-04 05:30 J -25020474.50 -25020474.27 -25020474.03 0.0498 0.0027 \*  
 Mercury -73214-05-04 10:04 J -25019867.26 -25019867.08 -25019866.89 0.0496 0.0062  
 Mars -73214-08-24 16:04 J -25019754.93 -25019754.83 -25019754.72 0.0497 0.0464  
 Venus -73210-09-02 20:52 J -25018284.82 -25018284.63 -25018284.43 0.0527 0.0066  
 Mercury -73209-12-26 16:04 J -25017803.92 -25017803.83 -25017803.74 0.0531 0.0368  
 Mercury -73208-03-25 22:18 J -25017714.70 -25017714.57 -25017714.45 0.0530 0.0088  
 Venus -73204-07-04 19:25 J -25016152.88 -25016152.69 -25016152.50 0.0498 0.0203  
 Moon -73204-09-08 11:16 J -25016087.25 -25016087.03 -25016086.82 0.0497 0.0210  
 Earth -73204-09-08 14:52 J -25016087.09 -25016086.88 -25016086.66 0.0497 0.0203 \*  
 Mercury -73202-02-20 06:57 J -25015557.39 -25015557.21 -25015557.02 0.0495 0.0082  
 Mercury -73202-05-21 16:47 J -25015466.83 -25015466.80 -25015466.75 0.0496 0.0483  
 Venus -73198-05-08 15:06 J -25014018.99 -25014018.87 -25014018.74 0.0526 0.0403  
 Mercury -73197-10-14 20:23 J -25013493.70 -25013493.65 -25013493.60 0.0531 0.0481  
 Mercury -73196-01-12 02:23 J -25013404.53 -25013404.40 -25013404.27 0.0531 0.0028  
 Mercury -73196-04-11 08:37 J -25013315.21 -25013315.14 -25013315.07 0.0530 0.0430  
 Venus -73192-03-09 17:30 J -25011886.96 -25011886.77 -25011886.58 0.0499 0.0203  
 Earth -73192-09-13 03:35 J -25011699.48 -25011699.35 -25011699.22 0.0497 0.0409  
 Moon -73192-09-13 05:59 J -25011699.40 -25011699.25 -25011699.11 0.0497 0.0382 \*  
 Mercury -73191-12-09 03:49 J -25011247.50 -25011247.34 -25011247.17 0.0495 0.0224  
 Mercury -73190-03-09 13:54 J -25011157.05 -25011156.92 -25011156.78 0.0496 0.0342

Moon -73186-03-01 21:49 J -25009703.66 -25009703.59 -25009703.51 0.0526 0.0500  
 Earth -73186-03-01 22:18 J -25009703.65 -25009703.57 -25009703.48 0.0526 0.0490 \*  
 Mercury -73185-10-31 06:57 J -25009094.34 -25009094.21 -25009094.09 0.0531 0.0137  
 Mercury -73184-01-28 13:11 J -25009005.05 -25009004.95 -25009004.85 0.0530 0.0321  
 Mercury -73179-09-26 23:30 J -25006937.64 -25006937.52 -25006937.40 0.0495 0.0378  
 Mercury -73179-12-26 09:49 J -25006847.26 -25006847.09 -25006846.92 0.0496 0.0190  
 Moon -73174-03-06 20:52 J -25005315.82 -25005315.63 -25005315.44 0.0527 0.0274  
 Earth -73174-03-06 22:18 J -25005315.77 -25005315.57 -25005315.36 0.0527 0.0243 \*  
 Venus -73174-05-11 11:45 J -25005250.16 -25005250.01 -25005249.85 0.0528 0.0339  
 Mercury -73173-08-19 11:01 J -25004784.15 -25004784.04 -25004783.93 0.0531 0.0248  
 Mercury -73173-11-16 17:16 J -25004694.90 -25004694.78 -25004694.67 0.0530 0.0208  
 Venus -73168-03-12 05:16 J -25003118.38 -25003118.28 -25003118.17 0.0498 0.0426  
 Mercury -73167-10-14 06:57 J -25002537.40 -25002537.21 -25002537.03 0.0496 0.0050  
 Venus -73162-01-14 05:30 J -25000984.46 -25000984.27 -25000984.08 0.0527 0.0136  
 Earth -73162-03-11 17:59 J -25000927.98 -25000927.75 -25000927.52 0.0528 0.0006  
 Moon -73162-03-11 21:21 J -25000927.85 -25000927.61 -25000927.37 0.0528 0.0014 \*  
 Mercury -73161-06-07 14:37 J -25000473.98 -25000473.89 -25000473.80 0.0530 0.0370  
 Mercury -73161-09-04 20:37 J -25000384.76 -25000384.64 -25000384.51 0.0530 0.0084  
 Moon -73157-08-25 00:28 J -24998934.55 -24998934.48 -24998934.41 0.0500 0.0474  
 Earth -73157-08-25 03:49 J -24998934.44 -24998934.34 -24998934.23 0.0500 0.0445 \*  
 Venus -73157-11-15 03:21 J -24998852.56 -24998852.36 -24998852.15 0.0499 0.0023  
 Mercury -73155-08-02 04:18 J -24998227.51 -24998227.32 -24998227.14 0.0496 0.0089  
 Mercury -73155-10-31 14:09 J -24998136.95 -24998136.91 -24998136.86 0.0496 0.0477  
 Moon -73150-03-16 11:01 J -24996540.23 -24996540.04 -24996539.84 0.0528 0.0273  
 Earth -73150-03-16 15:06 J -24996540.08 -24996539.87 -24996539.67 0.0528 0.0243 \*  
 Mercury -73149-03-26 18:28 J -24996163.78 -24996163.73 -24996163.68 0.0531 0.0486  
 Mercury -73149-06-24 00:28 J -24996074.60 -24996074.48 -24996074.35 0.0530 0.0035  
 Mercury -73149-09-21 06:42 J -24995985.29 -24995985.22 -24995985.14 0.0530 0.0423  
 Venus -73145-07-21 01:54 J -24994586.55 -24994586.42 -24994586.29 0.0500 0.0386  
 Earth -73145-08-29 16:33 J -24994547.02 -24994546.81 -24994546.60 0.0499 0.0236

Moon -73145-08-29 20:23 J -24994546.85 -24994546.65 -24994546.43 0.0499 0.0227 \*  
 Mercury -73143-05-21 00:57 J -24993917.62 -24993917.46 -24993917.29 0.0495 0.0233  
 Mercury -73143-08-19 11:16 J -24993827.17 -24993827.03 -24993826.90 0.0496 0.0334  
 Earth -73138-03-21 11:16 J -24992152.11 -24992152.03 -24992151.94 0.0529 0.0486  
 Moon -73138-03-21 14:37 J -24992151.98 -24992151.89 -24992151.79 0.0529 0.0477 \*  
 Mercury -73137-04-12 04:33 J -24991764.43 -24991764.31 -24991764.19 0.0531 0.0149  
 Mercury -73137-07-10 10:47 J -24991675.15 -24991675.05 -24991674.95 0.0530 0.0308  
 Moon -73133-09-03 01:11 J -24990159.69 -24990159.45 -24990159.21 0.0498 0.0004  
 Earth -73133-09-03 05:01 J -24990159.52 -24990159.29 -24990159.05 0.0498 0.0028 \*  
 Mercury -73131-03-08 21:49 J -24989607.71 -24989607.59 -24989607.47 0.0495 0.0376  
 Mercury -73131-06-07 08:09 J -24989517.33 -24989517.16 -24989516.99 0.0496 0.0192  
 Venus -73127-09-21 18:13 J -24987949.93 -24987949.74 -24987949.55 0.0528 0.0125  
 Mercury -73125-01-30 09:06 J -24987454.23 -24987454.12 -24987454.01 0.0531 0.0258  
 Mercury -73125-04-28 15:06 J -24987364.98 -24987364.87 -24987364.75 0.0530 0.0200  
 Venus -73121-07-23 14:09 J -24985818.08 -24985817.91 -24985817.72 0.0498 0.0248  
 Earth -73121-09-07 13:54 J -24985772.14 -24985771.92 -24985771.70 0.0497 0.0174  
 Moon -73121-09-07 16:33 J -24985772.02 -24985771.81 -24985771.59 0.0497 0.0174 \*  
 Mercury -73119-03-26 03:49 J -24985207.52 -24985207.34 -24985207.15 0.0496 0.0039  
 Venus -73115-05-27 13:40 J -24983684.08 -24983683.93 -24983683.78 0.0527 0.0338  
 Mercury -73114-11-18 13:11 J -24983144.04 -24983143.95 -24983143.86 0.0531 0.0370  
 Mercury -73113-02-15 19:25 J -24983054.82 -24983054.69 -24983054.57 0.0530 0.0086  
 Mars -73113-02-24 18:42 J -24983045.91 -24983045.72 -24983045.53 0.0530 0.0339  
 Venus -73109-03-28 11:45 J -24981552.20 -24981552.01 -24981551.81 0.0499 0.0161  
 Moon -73109-09-12 00:28 J -24981384.65 -24981384.48 -24981384.30 0.0497 0.0348  
 Earth -73109-09-12 01:25 J -24981384.58 -24981384.44 -24981384.28 0.0497 0.0379 \*  
 Mercury -73107-01-12 00:42 J -24980897.65 -24980897.47 -24980897.28 0.0496 0.0104  
 Mercury -73107-04-12 10:47 J -24980807.11 -24980807.05 -24980806.98 0.0496 0.0462  
 Earth -73103-02-28 19:40 J -24979388.70 -24979388.68 -24979388.65 0.0526 0.0521  
 Mercury -73102-09-06 16:47 J -24978833.84 -24978833.80 -24978833.75 0.0531 0.0492  
 Mercury -73102-12-04 22:47 J -24978744.68 -24978744.55 -24978744.42 0.0530 0.0039

Mercury -73101-03-03 05:01 J -24978655.36 -24978655.29 -24978655.21 0.0529 0.0418  
 Mercury -73096-10-30 22:04 J -24976587.74 -24976587.58 -24976587.42 0.0496 0.0243  
 Mercury -73095-01-29 08:23 J -24976497.29 -24976497.15 -24976497.01 0.0496 0.0326  
 Mars -73095-02-09 13:54 J -24976486.22 -24976485.92 -24976485.62 0.0496 0.0052  
 Earth -73091-03-05 17:01 J -24975000.98 -24975000.79 -24975000.59 0.0526 0.0281  
 Moon -73091-03-05 19:54 J -24975000.86 -24975000.67 -24975000.48 0.0526 0.0307 \*  
 Venus -73091-05-30 05:59 J -24974915.38 -24974915.25 -24974915.11 0.0528 0.0380  
 Mercury -73090-09-23 02:37 J -24974434.51 -24974434.39 -24974434.27 0.0530 0.0157  
 Mercury -73090-12-21 08:52 J -24974345.23 -24974345.13 -24974345.03 0.0530 0.0300  
 Venus -73085-03-31 02:09 J -24972783.46 -24972783.41 -24972783.35 0.0498 0.0479  
 Mercury -73084-08-18 18:57 J -24972277.83 -24972277.71 -24972277.60 0.0495 0.0387  
 Mercury -73084-11-17 05:16 J -24972187.45 -24972187.28 -24972187.11 0.0496 0.0182  
 Venus -73079-02-01 23:59 J -24970649.69 -24970649.50 -24970649.30 0.0527 0.0092  
 Moon -73079-03-10 09:21 J -24970613.34 -24970613.11 -24970612.88 0.0528 0.0024  
 Earth -73079-03-10 13:11 J -24970613.18 -24970612.95 -24970612.72 0.0528 0.0040 \*  
 Mercury -73078-07-12 06:42 J -24970124.33 -24970124.22 -24970124.11 0.0531 0.0273  
 Mercury -73078-10-09 12:42 J -24970035.08 -24970034.97 -24970034.85 0.0530 0.0184  
 Mars -73078-11-28 18:13 J -24969984.96 -24969984.74 -24969984.53 0.0530 0.0268  
 Earth -73074-08-25 05:59 J -24968619.32 -24968619.25 -24968619.16 0.0500 0.0467  
 Moon -73074-08-25 10:04 J -24968619.11 -24968619.08 -24968619.04 0.0500 0.0493  
 Venus -73074-12-04 23:59 J -24968517.70 -24968517.50 -24968517.29 0.0499 0.0074  
 Mercury -73072-09-05 01:54 J -24967877.60 -24967877.42 -24967877.23 0.0495 0.0040  
 Earth -73067-03-15 12:42 J -24966225.18 -24966224.97 -24966224.75 0.0529 0.0210  
 Moon -73067-03-15 16:18 J -24966225.02 -24966224.82 -24966224.61 0.0529 0.0241 \*  
 Mercury -73066-04-30 11:01 J -24965814.12 -24965814.04 -24965813.95 0.0531 0.0382  
 Mercury -73066-07-28 17:16 J -24965724.91 -24965724.78 -24965724.66 0.0530 0.0075  
 Venus -73062-08-09 20:37 J -24964251.78 -24964251.64 -24964251.48 0.0499 0.0341  
 Moon -73062-08-29 12:13 J -24964232.19 -24964231.99 -24964231.79 0.0499 0.0255  
 Earth -73062-08-29 16:04 J -24964232.03 -24964231.83 -24964231.63 0.0499 0.0263 \*  
 Mercury -73060-06-23 21:49 J -24963567.77 -24963567.59 -24963567.41 0.0495 0.0115



Mercury -73060-09-22 07:40 J -24963477.25 -24963477.18 -24963477.10 0.0496 0.0451

Moon -73055-03-20 09:35 J -24961837.22 -24961837.10 -24961836.97 0.0529 0.0446

Earth -73055-03-20 11:59 J -24961837.10 -24961837.00 -24961836.88 0.0529 0.0460 \*

Mercury -73054-02-16 15:21 J -24961503.90 -24961503.86 -24961503.81 0.0531 0.0493

Mercury -73054-05-16 21:21 J -24961414.73 -24961414.61 -24961414.48 0.0531 0.0040

Mercury -73054-08-14 03:35 J -24961325.42 -24961325.35 -24961325.27 0.0530 0.0419

Earth -73050-09-03 03:21 J -24959844.59 -24959844.36 -24959844.13 0.0498 0.0058

Moon -73050-09-03 06:13 J -24959844.47 -24959844.24 -24959844.01 0.0498 0.0029 \*

Mercury -73048-04-11 18:42 J -24959257.88 -24959257.72 -24959257.56 0.0495 0.0257

Mercury -73048-07-11 04:47 J -24959167.44 -24959167.30 -24959167.15 0.0496 0.0311

Venus -73044-10-10 13:25 J -24957615.12 -24957614.94 -24957614.74 0.0527 0.0173

Mercury -73042-03-05 00:57 J -24957104.58 -24957104.46 -24957104.34 0.0530 0.0163

Mercury -73042-06-02 06:57 J -24957015.31 -24957015.21 -24957015.10 0.0530 0.0294

Venus -73038-08-12 09:49 J -24955483.25 -24955483.09 -24955482.92 0.0498 0.0295

Moon -73038-09-07 13:40 J -24955457.17 -24955456.93 -24955456.70 0.0498 0.0144

Earth -73038-09-07 14:52 J -24955457.10 -24955456.88 -24955456.66 0.0498 0.0152 \*

Mercury -73036-01-28 15:49 J -24954947.95 -24954947.84 -24954947.73 0.0495 0.0398

Mercury -73036-04-29 02:23 J -24954857.58 -24954857.40 -24954857.23 0.0496 0.0173

Venus -73032-06-15 08:09 J -24953349.33 -24953349.16 -24953349.00 0.0526 0.0295

Mercury -73031-12-22 04:47 J -24952794.41 -24952794.30 -24952794.20 0.0530 0.0280

Mercury -73030-03-21 10:47 J -24952705.17 -24952705.05 -24952704.93 0.0530 0.0176

Venus -73026-04-17 07:54 J -24951217.37 -24951217.17 -24951216.97 0.0499 0.0112

Moon -73026-09-12 02:52 J -24951069.54 -24951069.38 -24951069.20 0.0497 0.0332

Earth -73026-09-12 03:35 J -24951069.51 -24951069.35 -24951069.19 0.0497 0.0360 \*

Mercury -73024-02-14 23:16 J -24950547.72 -24950547.53 -24950547.35 0.0496 0.0031

Mercury -73019-10-10 08:37 J -24948484.22 -24948484.14 -24948484.06 0.0531 0.0397

Mercury -73018-01-07 14:52 J -24948395.01 -24948394.88 -24948394.76 0.0530 0.0061

Mercury -73018-04-06 21:06 J -24948305.64 -24948305.62 -24948305.59 0.0530 0.0516

Mercury -73013-12-03 19:54 J -24946237.85 -24946237.67 -24946237.49 0.0495 0.0115

Mercury -73012-03-04 05:45 J -24946147.33 -24946147.26 -24946147.18 0.0496 0.0451

Moon	-73008-03-04 09:35 J	-24944686.27	-24944686.10	-24944685.92	0.0527	0.0344
Earth	-73008-03-04 13:11 J	-24944686.13	-24944685.95	-24944685.76	0.0527	0.0318 *
Venus	-73008-06-18 01:40 J	-24944580.54	-24944580.43	-24944580.32	0.0528	0.0429
Mercury	-73007-07-29 13:11 J	-24944173.99	-24944173.95	-24944173.92	0.0531	0.0506
Mercury	-73007-10-26 19:11 J	-24944084.83	-24944084.70	-24944084.57	0.0531	0.0052
Mercury	-73006-01-24 01:25 J	-24943995.52	-24943995.44	-24943995.36	0.0530	0.0407
Mercury	-73001-09-21 15:49 J	-24941928.00	-24941927.84	-24941927.69	0.0495	0.0267
Mercury	-73001-12-21 01:54 J	-24941837.57	-24941837.42	-24941837.27	0.0496	0.0301

# 73RD MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 73rd millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Venus	-72996-02-20 21:06 J	-24940314.82	-24940314.62	-24940314.42	0.0528	0.0034		
Earth	-72996-03-09 12:28 J	-24940298.21	-24940297.98	-24940297.75	0.0528	0.0070		
Moon	-72996-03-09 16:18 J	-24940298.05	-24940297.82	-24940297.59	0.0528	0.0046 *		
Mercury	-72995-08-14 23:30 J	-24939774.64	-24939774.52	-24939774.40	0.0531	0.0164		
Mercury	-72995-11-12 05:30 J	-24939685.37	-24939685.27	-24939685.16	0.0530	0.0295		
Earth	-72991-08-24 05:59 J	-24938304.29	-24938304.25	-24938304.21	0.0500	0.0492		
Venus	-72991-12-23 18:57 J	-24938182.91	-24938182.71	-24938182.51	0.0498	0.0117		
Mercury	-72989-07-10 12:28 J	-24937618.08	-24937617.98	-24937617.87	0.0495	0.0410		
Mercury	-72989-10-08 23:01 J	-24937527.72	-24937527.54	-24937527.37	0.0496	0.0160		
Venus	-72985-10-26 15:21 J	-24936048.91	-24936048.86	-24936048.80	0.0526	0.0503		

Moon -72984-03-14 06:28 J -24935910.45 -24935910.23 -24935910.01 0.0528 0.0207  
 Earth -72984-03-14 09:35 J -24935910.32 -24935910.10 -24935909.88 0.0528 0.0178 \*  
 Mercury -72983-06-03 02:52 J -24935464.48 -24935464.38 -24935464.27 0.0530 0.0287  
 Mercury -72983-08-31 09:06 J -24935375.24 -24935375.12 -24935375.00 0.0530 0.0170  
 Earth -72979-08-28 16:04 J -24933917.01 -24933916.83 -24933916.63 0.0500 0.0287  
 Venus -72979-08-28 16:04 J -24933916.99 -24933916.83 -24933916.66 0.0500 0.0296 \*  
 Moon -72979-08-28 19:11 J -24933916.88 -24933916.70 -24933916.50 0.0500 0.0273 \*  
 Mercury -72977-07-27 20:23 J -24933217.84 -24933217.65 -24933217.47 0.0496 0.0022  
 Earth -72972-03-19 06:42 J -24931522.35 -24931522.22 -24931522.08 0.0529 0.0423  
 Moon -72972-03-19 08:09 J -24931522.30 -24931522.16 -24931522.02 0.0529 0.0409 \*  
 Mercury -72971-03-22 06:57 J -24931154.29 -24931154.21 -24931154.13 0.0530 0.0403  
 Mercury -72971-06-19 12:57 J -24931065.09 -24931064.96 -24931064.83 0.0530 0.0052  
 Mercury -72971-09-16 19:11 J -24930975.73 -24930975.70 -24930975.67 0.0529 0.0509  
 Moon -72967-09-02 03:21 J -24929529.61 -24929529.36 -24929529.12 0.0499 0.0053  
 Earth -72967-09-02 04:47 J -24929529.53 -24929529.30 -24929529.07 0.0499 0.0078 \*  
 Mercury -72965-05-15 17:16 J -24928907.96 -24928907.78 -24928907.60 0.0495 0.0123  
 Mercury -72965-08-14 03:21 J -24928817.44 -24928817.36 -24928817.28 0.0496 0.0444  
 Venus -72961-10-29 08:09 J -24927280.34 -24927280.16 -24927279.98 0.0527 0.0215  
 Mercury -72959-01-08 10:47 J -24926844.07 -24926844.05 -24926844.03 0.0531 0.0520  
 Mercury -72959-04-07 16:47 J -24926754.92 -24926754.80 -24926754.67 0.0531 0.0066  
 Mars -72959-05-19 15:21 J -24926713.09 -24926712.86 -24926712.63 0.0530 0.0217  
 Mercury -72959-07-05 23:01 J -24926665.62 -24926665.54 -24926665.45 0.0530 0.0393  
 Venus -72955-08-31 06:42 J -24925148.36 -24925148.22 -24925148.07 0.0498 0.0348  
 Moon -72955-09-06 17:01 J -24925142.01 -24925141.79 -24925141.57 0.0498 0.0119  
 Earth -72955-09-06 17:16 J -24925142.00 -24925141.78 -24925141.55 0.0498 0.0132 \*  
 Mercury -72953-03-03 13:54 J -24924598.08 -24924597.92 -24924597.76 0.0495 0.0267  
 Mercury -72953-06-02 00:13 J -24924507.64 -24924507.49 -24924507.35 0.0496 0.0302  
 Venus -72949-07-04 03:35 J -24923014.52 -24923014.35 -24923014.17 0.0527 0.0247  
 Mercury -72947-01-24 21:06 J -24922444.73 -24922444.62 -24922444.50 0.0531 0.0177  
 Mercury -72947-04-24 03:21 J -24922355.46 -24922355.36 -24922355.25 0.0530 0.0283

Venus -72943-05-06 04:18 J -24920882.53 -24920882.32 -24920882.11 0.0499 0.0061  
 Earth -72943-09-11 04:18 J -24920754.48 -24920754.32 -24920754.14 0.0497 0.0338  
 Moon -72943-09-11 06:13 J -24920754.43 -24920754.24 -24920754.05 0.0497 0.0306 \*  
 Mercury -72942-12-21 10:04 J -24920288.18 -24920288.08 -24920287.98 0.0495 0.0417  
 Mercury -72941-03-20 20:23 J -24920197.83 -24920197.65 -24920197.47 0.0495 0.0152  
 Mars -72941-05-04 08:23 J -24920153.45 -24920153.15 -24920152.85 0.0496 0.0110  
 Mercury -72936-11-13 01:25 J -24918134.54 -24918134.44 -24918134.33 0.0531 0.0288  
 Mercury -72935-02-10 07:40 J -24918045.30 -24918045.18 -24918045.06 0.0530 0.0171  
 Venus -72931-01-09 02:23 J -24916616.47 -24916616.40 -24916616.33 0.0500 0.0467  
 Mercury -72929-01-07 17:30 J -24915887.96 -24915887.77 -24915887.59 0.0495 0.0014  
 Earth -72925-03-03 11:30 J -24914371.19 -24914371.02 -24914370.84 0.0526 0.0344  
 Moon -72925-03-03 15:35 J -24914371.01 -24914370.85 -24914370.68 0.0526 0.0364 \*  
 Venus -72925-07-06 22:18 J -24914245.65 -24914245.57 -24914245.49 0.0528 0.0480  
 Mercury -72924-09-01 05:16 J -24913824.36 -24913824.28 -24913824.20 0.0531 0.0408  
 Mercury -72924-11-29 11:16 J -24913735.16 -24913735.03 -24913734.90 0.0530 0.0047  
 Mars -72923-02-21 01:40 J -24913651.58 -24913651.43 -24913651.28 0.0529 0.0423  
 Mercury -72923-02-26 17:30 J -24913645.80 -24913645.77 -24913645.73 0.0529 0.0505  
 Mercury -72918-10-26 14:37 J -24911578.07 -24911577.89 -24911577.71 0.0496 0.0129  
 Mercury -72917-01-25 00:42 J -24911487.55 -24911487.47 -24911487.38 0.0496 0.0439  
 Moon -72913-03-08 06:42 J -24909983.45 -24909983.22 -24909982.98 0.0527 0.0078  
 Earth -72913-03-08 10:18 J -24909983.30 -24909983.07 -24909982.84 0.0527 0.0099 \*  
 Venus -72913-03-11 17:30 J -24909979.97 -24909979.77 -24909979.57 0.0527 0.0019  
 Mercury -72912-06-20 09:21 J -24909514.13 -24909514.11 -24909514.10 0.0530 0.0523  
 Mercury -72912-09-17 15:06 J -24909424.99 -24909424.87 -24909424.74 0.0530 0.0071  
 Mercury -72912-12-15 21:21 J -24909335.69 -24909335.61 -24909335.52 0.0530 0.0388  
 Venus -72907-01-11 15:35 J -24907848.05 -24907847.85 -24907847.66 0.0499 0.0167  
 Mercury -72906-08-14 11:30 J -24907268.17 -24907268.02 -24907267.86 0.0495 0.0272  
 Mercury -72906-11-12 21:49 J -24907177.73 -24907177.59 -24907177.44 0.0496 0.0298  
 Venus -72902-11-15 11:01 J -24905714.13 -24905714.04 -24905713.93 0.0526 0.0453  
 Earth -72901-03-13 06:13 J -24905595.46 -24905595.24 -24905595.02 0.0528 0.0143

Moon -72901-03-13 08:09 J -24905595.37 -24905595.16 -24905594.95 0.0528 0.0170 \*  
 Mercury -72900-07-06 19:11 J -24905114.82 -24905114.70 -24905114.58 0.0531 0.0187  
 Mercury -72900-10-04 01:11 J -24905025.55 -24905025.45 -24905025.34 0.0530 0.0271  
 Moon -72896-08-27 18:42 J -24903601.92 -24903601.72 -24903601.52 0.0500 0.0284  
 Earth -72896-08-27 20:09 J -24903601.84 -24903601.66 -24903601.47 0.0500 0.0305 \*  
 Venus -72896-09-16 13:54 J -24903582.10 -24903581.92 -24903581.74 0.0500 0.0238  
 Mercury -72894-06-02 08:23 J -24902958.25 -24902958.15 -24902958.05 0.0495 0.0415  
 Mercury -72894-08-31 18:42 J -24902867.89 -24902867.72 -24902867.54 0.0496 0.0156  
 Earth -72889-03-18 05:01 J -24901207.44 -24901207.29 -24901207.13 0.0529 0.0391  
 Moon -72889-03-18 05:30 J -24901207.43 -24901207.27 -24901207.09 0.0529 0.0370 \*  
 Mercury -72888-04-24 23:30 J -24900804.62 -24900804.52 -24900804.42 0.0531 0.0297  
 Mercury -72888-07-23 05:45 J -24900715.38 -24900715.26 -24900715.14 0.0531 0.0161  
 Moon -72884-09-01 08:23 J -24899214.38 -24899214.15 -24899213.93 0.0499 0.0073  
 Earth -72884-09-01 08:37 J -24899214.37 -24899214.14 -24899213.91 0.0499 0.0094 \*  
 Mercury -72882-06-19 15:06 J -24898558.05 -24898557.87 -24898557.68 0.0495 0.0014  
 Venus -72878-11-18 06:28 J -24896945.40 -24896945.23 -24896945.06 0.0528 0.0279  
 Mercury -72876-02-11 03:49 J -24896494.42 -24896494.34 -24896494.26 0.0531 0.0408  
 Mercury -72876-05-11 10:04 J -24896405.21 -24896405.08 -24896404.96 0.0531 0.0051  
 Mercury -72876-08-08 16:18 J -24896315.85 -24896315.82 -24896315.79 0.0530 0.0509  
 Earth -72872-09-05 20:52 J -24894826.86 -24894826.63 -24894826.40 0.0498 0.0114  
 Moon -72872-09-05 22:33 J -24894826.80 -24894826.56 -24894826.32 0.0498 0.0097 \*  
 Venus -72872-09-19 04:04 J -24894813.45 -24894813.33 -24894813.20 0.0498 0.0403  
 Mercury -72870-04-07 12:13 J -24894248.17 -24894247.99 -24894247.81 0.0495 0.0133  
 Mercury -72870-07-06 22:18 J -24894157.65 -24894157.57 -24894157.48 0.0496 0.0435  
 Venus -72866-07-24 01:54 J -24892679.61 -24892679.42 -24892679.23 0.0526 0.0186  
 Mercury -72865-11-30 07:40 J -24892184.19 -24892184.18 -24892184.16 0.0531 0.0526  
 Mercury -72864-02-27 13:40 J -24892095.05 -24892094.93 -24892094.80 0.0530 0.0072  
 Mercury -72864-05-27 19:54 J -24892005.76 -24892005.67 -24892005.58 0.0530 0.0386  
 Venus -72860-05-25 00:57 J -24890547.67 -24890547.46 -24890547.26 0.0499 0.0014  
 Moon -72860-09-10 04:18 J -24890439.50 -24890439.32 -24890439.13 0.0498 0.0294

Earth -72860-09-10 07:11 J -24890439.38 -24890439.20 -24890439.02 0.0498 0.0322 \*  
 Mercury -72858-01-24 09:21 J -24889938.26 -24889938.11 -24889937.95 0.0496 0.0276  
 Mercury -72858-04-24 19:40 J -24889847.82 -24889847.68 -24889847.53 0.0496 0.0296  
 Mercury -72853-12-16 17:45 J -24887784.88 -24887784.76 -24887784.64 0.0530 0.0187  
 Mercury -72852-03-15 23:45 J -24887695.61 -24887695.51 -24887695.39 0.0530 0.0271  
 Venus -72848-01-27 23:01 J -24886281.65 -24886281.54 -24886281.42 0.0500 0.0417  
 Mercury -72847-11-12 06:28 J -24885628.33 -24885628.23 -24885628.13 0.0495 0.0417  
 Mercury -72846-02-10 17:01 J -24885537.97 -24885537.79 -24885537.62 0.0496 0.0155  
 Moon -72842-03-03 07:25 J -24884056.34 -24884056.19 -24884056.03 0.0525 0.0395  
 Earth -72842-03-03 11:16 J -24884056.19 -24884056.03 -24884055.86 0.0525 0.0373 \*  
 Mercury -72841-10-04 21:35 J -24883474.70 -24883474.60 -24883474.49 0.0531 0.0305  
 Mercury -72840-01-02 03:49 J -24883385.46 -24883385.34 -24883385.22 0.0530 0.0153  
 Mercury -72835-11-29 13:54 J -24881228.10 -24881227.92 -24881227.73 0.0496 0.0016  
 Earth -72830-03-08 10:04 J -24879668.31 -24879668.08 -24879667.86 0.0527 0.0128  
 Moon -72830-03-08 12:28 J -24879668.20 -24879667.98 -24879667.76 0.0527 0.0104 \*  
 Venus -72830-03-31 14:52 J -24879645.08 -24879644.88 -24879644.68 0.0527 0.0076  
 Mercury -72829-07-24 02:09 J -24879164.49 -24879164.41 -24879164.33 0.0531 0.0414  
 Mercury -72829-10-21 08:09 J -24879075.29 -24879075.16 -24879075.03 0.0531 0.0042  
 Mercury -72828-01-18 14:23 J -24878985.93 -24878985.90 -24878985.86 0.0530 0.0502  
 Venus -72824-01-30 14:37 J -24877513.07 -24877512.89 -24877512.70 0.0498 0.0231  
 Mercury -72823-09-17 10:33 J -24876918.24 -24876918.06 -24876917.88 0.0495 0.0133  
 Mars -72823-10-21 17:59 J -24876883.95 -24876883.75 -24876883.54 0.0495 0.0366  
 Mercury -72823-12-16 20:37 J -24876827.73 -24876827.64 -24876827.55 0.0496 0.0435  
 Venus -72819-12-04 10:33 J -24875379.20 -24875379.06 -24875378.93 0.0526 0.0385  
 Moon -72818-03-13 09:35 J -24875280.33 -24875280.10 -24875279.87 0.0528 0.0143  
 Earth -72818-03-13 09:49 J -24875280.32 -24875280.09 -24875279.87 0.0528 0.0124 \*  
 Mercury -72817-05-12 06:28 J -24874854.24 -24874854.23 -24874854.21 0.0531 0.0524  
 Mercury -72817-08-09 12:28 J -24874765.10 -24874764.98 -24874764.85 0.0531 0.0071  
 Mercury -72817-11-06 18:42 J -24874675.80 -24874675.72 -24874675.63 0.0530 0.0392  
 Moon -72813-08-27 02:37 J -24873286.57 -24873286.39 -24873286.21 0.0500 0.0291

Earth -72813-08-27 02:37 J -24873286.56 -24873286.39 -24873286.20 0.0500 0.0317 \*  
 Venus -72813-10-05 12:57 J -24873247.15 -24873246.96 -24873246.76 0.0499 0.0173  
 Mercury -72811-07-06 07:40 J -24872608.33 -24872608.18 -24872608.02 0.0495 0.0273  
 Mercury -72811-10-04 17:59 J -24872517.90 -24872517.75 -24872517.60 0.0496 0.0297  
 Moon -72806-03-18 06:57 J -24870892.37 -24870892.21 -24870892.04 0.0528 0.0351  
 Earth -72806-03-18 09:21 J -24870892.27 -24870892.11 -24870891.95 0.0528 0.0377 \*  
 Mercury -72805-05-28 16:33 J -24870454.93 -24870454.81 -24870454.69 0.0530 0.0187  
 Mars -72805-08-12 11:01 J -24870379.29 -24870379.04 -24870378.80 0.0530 0.0023  
 Mercury -72805-08-25 22:33 J -24870365.67 -24870365.56 -24870365.45 0.0530 0.0271  
 Earth -72801-08-31 11:59 J -24868899.22 -24868899.00 -24868898.77 0.0500 0.0111  
 Moon -72801-08-31 13:54 J -24868899.16 -24868898.92 -24868898.68 0.0500 0.0090 \*  
 Mercury -72799-04-24 04:33 J -24868298.41 -24868298.31 -24868298.21 0.0496 0.0417  
 Mercury -72799-07-23 15:06 J -24868208.04 -24868207.87 -24868207.69 0.0496 0.0157  
 Venus -72795-12-07 06:28 J -24866610.37 -24866610.23 -24866610.08 0.0527 0.0350  
 Mercury -72793-03-16 20:37 J -24866144.74 -24866144.64 -24866144.54 0.0530 0.0300  
 Mercury -72793-06-14 02:37 J -24866055.51 -24866055.39 -24866055.27 0.0530 0.0156  
 Moon -72789-09-04 22:33 J -24864511.78 -24864511.56 -24864511.33 0.0499 0.0081  
 Earth -72789-09-05 01:25 J -24864511.67 -24864511.44 -24864511.21 0.0499 0.0101 \*  
 Venus -72789-10-08 02:09 J -24864478.48 -24864478.41 -24864478.33 0.0498 0.0460  
 Mercury -72787-05-11 12:28 J -24863898.17 -24863897.98 -24863897.79 0.0496 0.0016  
 Mars -72787-07-29 11:59 J -24863819.20 -24863819.00 -24863818.78 0.0496 0.0358  
 Venus -72783-08-12 00:42 J -24862344.66 -24862344.47 -24862344.27 0.0526 0.0119  
 Mercury -72781-01-04 00:28 J -24861834.55 -24861834.48 -24861834.40 0.0531 0.0417  
 Mercury -72781-04-02 06:42 J -24861745.35 -24861745.22 -24861745.10 0.0530 0.0043  
 Mercury -72781-06-30 12:57 J -24861656.00 -24861655.96 -24861655.92 0.0530 0.0498  
 Venus -72777-06-13 01:11 J -24860212.66 -24860212.45 -24860212.24 0.0499 0.0060  
 Earth -72777-09-09 15:21 J -24860124.04 -24860123.86 -24860123.68 0.0498 0.0313  
 Moon -72777-09-09 18:57 J -24860123.90 -24860123.71 -24860123.51 0.0498 0.0291 \*  
 Mercury -72775-02-27 09:35 J -24859588.28 -24859588.10 -24859587.92 0.0496 0.0124  
 Mercury -72775-05-28 19:40 J -24859497.76 -24859497.68 -24859497.60 0.0496 0.0444

Mercury -72770-10-23 04:47 J -24857524.30 -24857524.30 -24857524.28 0.0531 0.0527  
 Mercury -72769-01-20 11:01 J -24857435.17 -24857435.04 -24857434.92 0.0531 0.0072  
 Mercury -72769-04-18 17:16 J -24857345.87 -24857345.78 -24857345.70 0.0530 0.0388  
 Venus -72765-02-16 23:59 J -24855946.65 -24855946.50 -24855946.35 0.0500 0.0344  
 Mercury -72764-12-16 06:13 J -24855278.39 -24855278.24 -24855278.08 0.0495 0.0269  
 Mercury -72763-03-16 16:33 J -24855187.95 -24855187.81 -24855187.66 0.0496 0.0301  
 Earth -72759-03-02 16:33 J -24853740.96 -24853740.81 -24853740.65 0.0526 0.0388  
 Moon -72759-03-02 19:11 J -24853740.84 -24853740.70 -24853740.55 0.0526 0.0406 \*  
 Mercury -72758-11-08 15:21 J -24853124.97 -24853124.86 -24853124.74 0.0531 0.0182  
 Mercury -72757-02-05 21:35 J -24853035.70 -24853035.60 -24853035.49 0.0530 0.0279  
 Mercury -72752-10-04 03:35 J -24850968.46 -24850968.35 -24850968.25 0.0495 0.0409  
 Mercury -72751-01-02 13:54 J -24850878.09 -24850877.92 -24850877.74 0.0496 0.0164  
 Moon -72747-03-07 17:01 J -24849353.03 -24849352.79 -24849352.55 0.0526 0.0109  
 Earth -72747-03-07 17:45 J -24849352.98 -24849352.76 -24849352.54 0.0526 0.0135 \*  
 Venus -72747-04-19 16:33 J -24849310.00 -24849309.81 -24849309.62 0.0527 0.0156  
 Mercury -72746-08-27 19:40 J -24848814.79 -24848814.68 -24848814.58 0.0530 0.0297  
 Mercury -72746-11-25 01:40 J -24848725.55 -24848725.43 -24848725.31 0.0530 0.0161  
 Venus -72741-02-19 13:11 J -24847178.12 -24847177.95 -24847177.78 0.0499 0.0291  
 Mercury -72740-10-21 11:01 J -24846568.23 -24846568.04 -24846567.85 0.0496 0.0020  
 Venus -72736-12-23 12:57 J -24845044.12 -24845043.96 -24845043.80 0.0526 0.0299  
 Moon -72735-03-12 15:49 J -24844965.06 -24844964.84 -24844964.62 0.0527 0.0125  
 Earth -72735-03-12 17:45 J -24844964.99 -24844964.76 -24844964.54 0.0527 0.0115 \*  
 Mercury -72734-06-15 23:45 J -24844504.59 -24844504.51 -24844504.43 0.0530 0.0408  
 Mercury -72734-09-13 05:45 J -24844415.38 -24844415.26 -24844415.13 0.0530 0.0048  
 Mercury -72734-12-11 11:59 J -24844326.03 -24844326.00 -24844325.96 0.0529 0.0505  
 Earth -72730-08-27 07:54 J -24842971.35 -24842971.17 -24842971.00 0.0501 0.0331  
 Moon -72730-08-27 09:35 J -24842971.29 -24842971.10 -24842970.90 0.0501 0.0300 \*  
 Venus -72730-10-25 11:30 J -24842912.22 -24842912.02 -24842911.82 0.0500 0.0113  
 Mercury -72728-08-09 08:23 J -24842258.33 -24842258.15 -24842257.97 0.0496 0.0119  
 Mercury -72728-11-07 18:28 J -24842167.80 -24842167.73 -24842167.65 0.0496 0.0452



Earth -72723-03-17 14:09 J -24840577.07 -24840576.91 -24840576.74 0.0528 0.0359  
 Moon -72723-03-17 17:59 J -24840576.94 -24840576.75 -24840576.57 0.0528 0.0326 \*  
 Mercury -72722-04-04 03:49 J -24840194.36 -24840194.34 -24840194.33 0.0530 0.0524  
 Mercury -72722-07-02 09:49 J -24840105.22 -24840105.09 -24840104.97 0.0530 0.0072  
 Mercury -72722-09-29 15:49 J -24840015.92 -24840015.84 -24840015.75 0.0530 0.0389  
 Moon -72718-08-31 19:25 J -24838583.91 -24838583.69 -24838583.46 0.0500 0.0101  
 Earth -72718-08-31 22:18 J -24838583.80 -24838583.57 -24838583.34 0.0500 0.0117 \*  
 Mercury -72716-05-28 05:30 J -24837948.43 -24837948.27 -24837948.11 0.0496 0.0259  
 Mercury -72716-08-26 15:49 J -24837857.98 -24837857.84 -24837857.69 0.0496 0.0313  
 Venus -72712-12-26 06:42 J -24836275.34 -24836275.22 -24836275.10 0.0527 0.0423  
 Mercury -72710-04-20 14:09 J -24835795.03 -24835794.91 -24835794.79 0.0531 0.0181  
 Mercury -72710-07-18 20:09 J -24835705.76 -24835705.66 -24835705.55 0.0530 0.0279  
 Earth -72706-09-05 12:28 J -24834196.20 -24834195.98 -24834195.74 0.0499 0.0100  
 Moon -72706-09-05 16:18 J -24834196.05 -24834195.82 -24834195.58 0.0499 0.0074 \*  
 Mercury -72704-03-16 02:23 J -24833638.50 -24833638.40 -24833638.29 0.0495 0.0402  
 Mercury -72704-06-14 12:57 J -24833548.13 -24833547.96 -24833547.79 0.0496 0.0170  
 Venus -72700-08-31 02:37 J -24832009.59 -24832009.39 -24832009.19 0.0527 0.0036  
 Mercury -72698-02-06 18:42 J -24831484.83 -24831484.72 -24831484.62 0.0531 0.0290  
 Mercury -72698-05-07 00:42 J -24831395.59 -24831395.47 -24831395.35 0.0530 0.0169  
 Venus -72694-07-03 03:06 J -24829877.57 -24829877.37 -24829877.17 0.0499 0.0139  
 Moon -72694-09-09 22:33 J -24829808.75 -24829808.56 -24829808.36 0.0498 0.0292  
 Earth -72694-09-10 02:09 J -24829808.59 -24829808.41 -24829808.22 0.0498 0.0310 \*  
 Mercury -72692-04-02 10:18 J -24829238.25 -24829238.07 -24829237.88 0.0496 0.0033  
 Venus -72688-05-05 23:30 J -24827743.59 -24827743.52 -24827743.45 0.0525 0.0488  
 Mercury -72687-11-25 22:47 J -24827174.63 -24827174.55 -24827174.46 0.0530 0.0402  
 Mars -72686-02-02 11:01 J -24827106.18 -24827106.04 -24827105.88 0.0530 0.0420  
 Mercury -72686-02-23 04:47 J -24827085.42 -24827085.30 -24827085.17 0.0530 0.0056  
 Mercury -72686-05-23 11:01 J -24826996.06 -24826996.04 -24826996.01 0.0529 0.0512  
 Venus -72682-03-07 23:01 J -24825611.71 -24825611.54 -24825611.37 0.0500 0.0280  
 Mercury -72680-01-19 07:11 J -24824928.38 -24824928.20 -24824928.02 0.0496 0.0113

Mercury -72680-04-19 17:16 J -24824837.84 -24824837.78 -24824837.70 0.0497 0.0459

Moon -72676-03-02 03:21 J -24823425.51 -24823425.36 -24823425.20 0.0525 0.0398

Earth -72676-03-02 04:18 J -24823425.47 -24823425.32 -24823425.16 0.0525 0.0390 \*

Mercury -72675-09-14 03:21 J -24822864.39 -24822864.36 -24822864.33 0.0530 0.0512

Mercury -72675-12-12 09:06 J -24822775.24 -24822775.12 -24822774.99 0.0530 0.0059

Mercury -72674-03-11 15:21 J -24822685.94 -24822685.86 -24822685.78 0.0529 0.0399

Mercury -72669-11-07 04:33 J -24820618.47 -24820618.31 -24820618.15 0.0496 0.0252

Mars -72668-01-15 13:54 J -24820549.22 -24820548.92 -24820548.62 0.0496 0.0078

Mercury -72668-02-05 14:52 J -24820528.02 -24820527.88 -24820527.74 0.0496 0.0322

Moon -72664-03-06 23:59 J -24819037.71 -24819037.50 -24819037.28 0.0526 0.0120

Earth -72664-03-07 01:25 J -24819037.66 -24819037.44 -24819037.21 0.0526 0.0148 \*

Venus -72664-05-08 18:28 J -24818974.91 -24818974.73 -24818974.56 0.0527 0.0240

Mercury -72663-09-30 13:11 J -24818465.07 -24818464.95 -24818464.83 0.0530 0.0176

Mercury -72663-12-28 19:11 J -24818375.81 -24818375.70 -24818375.59 0.0530 0.0282

Venus -72658-03-10 15:35 J -24816842.98 -24816842.85 -24816842.71 0.0499 0.0373

Mercury -72657-08-26 01:40 J -24816308.54 -24816308.43 -24816308.31 0.0496 0.0391

Mercury -72657-11-24 12:13 J -24816218.16 -24816217.99 -24816217.81 0.0496 0.0184

Venus -72652-01-11 13:54 J -24814709.10 -24814708.92 -24814708.73 0.0526 0.0220

Earth -72652-03-11 23:59 J -24814649.73 -24814649.50 -24814649.27 0.0527 0.0100

Moon -72652-03-12 03:35 J -24814649.58 -24814649.35 -24814649.12 0.0527 0.0101 \*

Mercury -72651-07-19 17:30 J -24814154.88 -24814154.77 -24814154.67 0.0530 0.0286

Mercury -72651-10-16 23:30 J -24814065.64 -24814065.52 -24814065.40 0.0530 0.0172

Mars -72651-11-06 21:49 J -24814044.81 -24814044.59 -24814044.35 0.0530 0.0215

Moon -72647-08-26 18:13 J -24812655.92 -24812655.74 -24812655.56 0.0501 0.0300

Earth -72647-08-26 21:06 J -24812655.79 -24812655.62 -24812655.44 0.0501 0.0331 \*

Venus -72647-11-13 14:52 J -24812577.09 -24812576.88 -24812576.67 0.0500 0.0028

Mercury -72645-09-12 09:35 J -24811908.29 -24811908.10 -24811907.92 0.0496 0.0043

Moon -72640-03-16 19:54 J -24810261.85 -24810261.67 -24810261.49 0.0528 0.0318

Earth -72640-03-16 23:59 J -24810261.67 -24810261.50 -24810261.33 0.0528 0.0352 \*

Mercury -72639-05-07 22:04 J -24809844.66 -24809844.58 -24809844.50 0.0531 0.0395

Mercury -72639-08-05 04:04 J -24809755.46 -24809755.33 -24809755.20 0.0530 0.0063  
 Mercury -72639-11-02 10:18 J -24809666.08 -24809666.07 -24809666.05 0.0530 0.0522  
 Venus -72635-07-19 13:54 J -24808311.03 -24808310.92 -24808310.82 0.0501 0.0429  
 Earth -72635-08-31 10:47 J -24808268.27 -24808268.05 -24808267.82 0.0500 0.0118  
 Moon -72635-08-31 14:37 J -24808268.12 -24808267.89 -24808267.66 0.0500 0.0110 \*  
 Mercury -72633-07-01 06:57 J -24807598.40 -24807598.21 -24807598.03 0.0496 0.0097  
 Mercury -72633-09-29 17:01 J -24807507.84 -24807507.79 -24807507.74 0.0496 0.0473  
 Venus -72628-01-14 11:01 J -24805940.07 -24805940.04 -24805940.00 0.0528 0.0519  
 Mercury -72627-02-24 02:23 J -24805534.43 -24805534.40 -24805534.36 0.0530 0.0505  
 Mercury -72627-05-24 08:23 J -24805445.28 -24805445.15 -24805445.02 0.0530 0.0050  
 Mercury -72627-08-21 14:23 J -24805355.97 -24805355.90 -24805355.81 0.0529 0.0408  
 Moon -72623-09-04 16:18 J -24803881.05 -24803880.82 -24803880.58 0.0499 0.0060  
 Earth -72623-09-04 19:54 J -24803880.90 -24803880.67 -24803880.43 0.0499 0.0089 \*  
 Mercury -72621-04-19 03:21 J -24803288.52 -24803288.36 -24803288.19 0.0496 0.0245  
 Mercury -72621-07-18 13:54 J -24803198.06 -24803197.92 -24803197.78 0.0497 0.0330  
 Venus -72617-09-19 07:54 J -24801674.37 -24801674.17 -24801673.97 0.0526 0.0066  
 Mercury -72615-03-12 12:42 J -24801135.09 -24801134.97 -24801134.85 0.0530 0.0161  
 Mercury -72615-06-09 18:42 J -24801045.82 -24801045.72 -24801045.61 0.0529 0.0296  
 Venus -72611-07-22 02:52 J -24799542.57 -24799542.38 -24799542.19 0.0499 0.0205  
 Earth -72611-09-09 09:35 J -24799493.29 -24799493.10 -24799492.91 0.0499 0.0301  
 Moon -72611-09-09 11:59 J -24799493.18 -24799493.00 -24799492.81 0.0499 0.0293 \*  
 Mercury -72609-02-06 00:42 J -24798978.58 -24798978.47 -24798978.35 0.0496 0.0384  
 Mercury -72609-05-06 11:30 J -24798888.19 -24798888.02 -24798887.85 0.0496 0.0192  
 Venus -72605-05-25 02:23 J -24797408.53 -24797408.40 -24797408.27 0.0525 0.0397  
 Mercury -72604-12-29 16:33 J -24796824.91 -24796824.81 -24796824.70 0.0530 0.0279  
 Mercury -72603-03-28 22:33 J -24796735.67 -24796735.56 -24796735.43 0.0530 0.0180  
 Venus -72599-03-27 01:54 J -24795276.61 -24795276.42 -24795276.23 0.0500 0.0195  
 Mercury -72597-02-23 08:52 J -24794578.31 -24794578.13 -24794577.94 0.0496 0.0054  
 Moon -72593-03-01 10:47 J -24793110.19 -24793110.05 -24793109.91 0.0524 0.0404  
 Earth -72593-03-01 11:45 J -24793110.15 -24793110.01 -24793109.86 0.0524 0.0404 \*

Mercury -72592-10-17 21:06 J -24792514.71 -24792514.62 -24792514.54 0.0530 0.0390

Mercury -72591-01-15 03:06 J -24792425.50 -24792425.37 -24792425.25 0.0530 0.0069

Mercury -72591-04-14 09:06 J -24792336.12 -24792336.12 -24792336.10 0.0529 0.0526

Mercury -72586-12-12 05:59 J -24790268.43 -24790268.25 -24790268.06 0.0496 0.0088

Mercury -72585-03-11 16:04 J -24790177.86 -24790177.83 -24790177.78 0.0496 0.0483

Earth -72581-03-06 11:16 J -24788722.25 -24788722.03 -24788721.81 0.0526 0.0156

Moon -72581-03-06 14:23 J -24788722.13 -24788721.90 -24788721.66 0.0526 0.0124 \*

Venus -72581-05-27 21:35 J -24788639.75 -24788639.60 -24788639.44 0.0527 0.0330

Mercury -72580-08-06 01:40 J -24788204.48 -24788204.43 -24788204.39 0.0531 0.0498

Mercury -72580-11-03 07:25 J -24788115.31 -24788115.19 -24788115.06 0.0530 0.0046

Mercury -72579-01-31 13:40 J -24788026.00 -24788025.93 -24788025.85 0.0530 0.0418

Venus -72575-03-29 18:57 J -24786507.79 -24786507.71 -24786507.63 0.0499 0.0458

Mercury -72574-09-30 03:21 J -24785958.52 -24785958.36 -24785958.19 0.0496 0.0226

Mercury -72574-12-29 13:40 J -24785868.06 -24785867.93 -24785867.79 0.0496 0.0347

Venus -72569-01-31 18:57 J -24784373.90 -24784373.71 -24784373.51 0.0526 0.0120

Moon -72569-03-11 09:21 J -24784334.33 -24784334.11 -24784333.88 0.0527 0.0099

Earth -72569-03-11 13:25 J -24784334.16 -24784333.94 -24784333.71 0.0527 0.0102 \*

Mercury -72568-08-22 11:59 J -24783805.12 -24783805.00 -24783804.88 0.0530 0.0153

Mercury -72568-11-19 17:59 J -24783715.85 -24783715.75 -24783715.64 0.0529 0.0305

Earth -72564-08-26 04:33 J -24782340.48 -24782340.31 -24782340.14 0.0501 0.0344

Moon -72564-08-26 08:09 J -24782340.34 -24782340.16 -24782339.97 0.0501 0.0312 \*

Venus -72564-12-02 14:37 J -24782242.10 -24782241.89 -24782241.68 0.0500 0.0041

Mercury -72562-07-18 23:45 J -24781648.63 -24781648.51 -24781648.39 0.0496 0.0377

Mercury -72562-10-17 10:18 J -24781558.24 -24781558.07 -24781557.90 0.0497 0.0200

Earth -72557-03-16 14:09 J -24779946.07 -24779945.91 -24779945.73 0.0527 0.0354

Moon -72557-03-16 17:45 J -24779945.93 -24779945.76 -24779945.57 0.0527 0.0322 \*

Mercury -72556-06-10 16:18 J -24779494.93 -24779494.82 -24779494.71 0.0530 0.0263

Mercury -72556-09-07 22:18 J -24779405.69 -24779405.57 -24779405.45 0.0529 0.0193

Venus -72552-08-07 13:11 J -24777976.09 -24777975.95 -24777975.81 0.0501 0.0363

Moon -72552-08-30 14:09 J -24777953.13 -24777952.91 -24777952.68 0.0500 0.0132

Earth -72552-08-30 17:45 J -24777952.98 -24777952.76 -24777952.53 0.0500 0.0130 \*  
 Mercury -72550-08-05 07:54 J -24777248.36 -24777248.17 -24777247.99 0.0496 0.0062  
 Mercury -72544-03-29 20:23 J -24775184.74 -24775184.65 -24775184.57 0.0530 0.0380  
 Mercury -72544-06-27 02:09 J -24775095.53 -24775095.41 -24775095.28 0.0530 0.0077  
 Earth -72540-09-04 08:37 J -24773565.37 -24773565.14 -24773564.90 0.0500 0.0087  
 Moon -72540-09-04 11:01 J -24773565.27 -24773565.04 -24773564.81 0.0500 0.0056 \*  
 Mercury -72538-05-24 05:16 J -24772938.46 -24772938.28 -24772938.09 0.0496 0.0076  
 Mercury -72538-08-22 15:35 J -24772847.86 -24772847.85 -24772847.84 0.0497 0.0496  
 Venus -72534-10-09 09:35 J -24771339.29 -24771339.10 -24771338.91 0.0526 0.0150  
 Mercury -72532-01-16 00:28 J -24770874.52 -24770874.48 -24770874.43 0.0530 0.0492  
 Mercury -72532-04-15 06:28 J -24770785.36 -24770785.23 -24770785.10 0.0530 0.0037  
 Mars -72532-04-29 05:01 J -24770771.53 -24770771.29 -24770771.05 0.0530 0.0169  
 Mercury -72532-07-13 12:42 J -24770696.05 -24770695.97 -24770695.90 0.0529 0.0422  
 Venus -72528-08-10 06:42 J -24769207.39 -24769207.22 -24769207.05 0.0499 0.0293  
 Moon -72528-09-08 22:18 J -24769177.76 -24769177.57 -24769177.37 0.0499 0.0299  
 Earth -72528-09-08 23:30 J -24769177.70 -24769177.52 -24769177.33 0.0499 0.0303 \*  
 Mercury -72526-03-12 02:23 J -24768628.57 -24768628.40 -24768628.23 0.0496 0.0218  
 Mercury -72526-06-10 12:57 J -24768538.09 -24768537.96 -24768537.84 0.0496 0.0356  
 Venus -72522-06-14 05:16 J -24767073.44 -24767073.28 -24767073.12 0.0525 0.0309  
 Mercury -72520-02-01 11:01 J -24766475.16 -24766475.04 -24766474.92 0.0530 0.0146  
 Mercury -72520-05-01 17:01 J -24766385.89 -24766385.79 -24766385.68 0.0530 0.0313  
 Venus -72516-04-15 05:30 J -24764941.48 -24764941.27 -24764941.07 0.0500 0.0108  
 Mercury -72515-12-28 23:30 J -24764318.64 -24764318.52 -24764318.38 0.0496 0.0358  
 Mercury -72514-03-29 10:18 J -24764228.24 -24764228.07 -24764227.90 0.0496 0.0218  
 Mars -72514-04-12 18:28 J -24764214.00 -24764213.73 -24764213.46 0.0496 0.0226  
 Earth -72510-03-02 00:28 J -24762794.62 -24762794.48 -24762794.33 0.0524 0.0405  
 Moon -72510-03-02 03:35 J -24762794.50 -24762794.35 -24762794.18 0.0524 0.0389 \*  
 Mercury -72509-11-20 15:35 J -24762164.96 -24762164.85 -24762164.74 0.0530 0.0255  
 Mercury -72508-02-17 21:35 J -24762075.72 -24762075.60 -24762075.48 0.0529 0.0202  
 Mercury -72502-01-15 06:42 J -24759918.41 -24759918.22 -24759918.04 0.0497 0.0069

Moon -72498-03-06 21:49 J -24758406.81 -24758406.59 -24758406.36 0.0525 0.0123  
 Earth -72498-03-07 01:54 J -24758406.64 -24758406.42 -24758406.20 0.0525 0.0155 \*  
 Venus -72498-06-17 03:21 J -24758304.47 -24758304.36 -24758304.25 0.0527 0.0434  
 Mercury -72497-09-08 19:54 J -24757854.76 -24757854.67 -24757854.58 0.0530 0.0365  
 Mercury -72497-12-07 01:54 J -24757765.55 -24757765.42 -24757765.30 0.0529 0.0091  
 Mars -72496-01-31 23:01 J -24757709.62 -24757709.54 -24757709.45 0.0529 0.0494  
 Mercury -72491-11-03 03:49 J -24755608.52 -24755608.34 -24755608.15 0.0496 0.0073  
 Venus -72486-02-19 21:49 J -24754038.78 -24754038.59 -24754038.39 0.0526 0.0032  
 Earth -72486-03-11 22:47 J -24754018.78 -24754018.55 -24754018.33 0.0526 0.0092  
 Moon -72486-03-12 02:37 J -24754018.62 -24754018.39 -24754018.17 0.0526 0.0084 \*  
 Mercury -72485-06-27 23:45 J -24753544.55 -24753544.51 -24753544.46 0.0530 0.0482  
 Mercury -72485-09-25 05:45 J -24753455.39 -24753455.26 -24753455.13 0.0529 0.0028  
 Mercury -72485-12-23 11:45 J -24753366.08 -24753366.01 -24753365.93 0.0529 0.0430  
 Moon -72481-08-25 12:42 J -24752025.15 -24752024.97 -24752024.79 0.0502 0.0321  
 Earth -72481-08-25 16:18 J -24752024.98 -24752024.82 -24752024.65 0.0502 0.0349 \*  
 Venus -72481-12-21 17:16 J -24751906.98 -24751906.78 -24751906.57 0.0500 0.0125  
 Mercury -72479-08-22 01:25 J -24751298.61 -24751298.44 -24751298.27 0.0496 0.0210  
 Mercury -72479-11-20 11:45 J -24751208.13 -24751208.01 -24751207.88 0.0497 0.0366  
 Venus -72475-10-25 17:01 J -24749772.86 -24749772.79 -24749772.72 0.0525 0.0487  
 Moon -72474-03-16 18:13 J -24749630.93 -24749630.74 -24749630.54 0.0527 0.0306  
 Earth -72474-03-16 20:37 J -24749630.81 -24749630.64 -24749630.45 0.0527 0.0338 \*  
 Mercury -72473-07-14 09:49 J -24749145.21 -24749145.09 -24749144.96 0.0530 0.0143  
 Mercury -72473-10-11 16:04 J -24749055.93 -24749055.83 -24749055.73 0.0529 0.0317  
 Venus -72469-08-26 16:33 J -24747640.98 -24747640.81 -24747640.63 0.0501 0.0276  
 Earth -72469-08-30 06:57 J -24747637.43 -24747637.21 -24747636.98 0.0501 0.0131  
 Moon -72469-08-30 09:21 J -24747637.33 -24747637.11 -24747636.89 0.0501 0.0143 \*  
 Mercury -72467-06-09 22:18 J -24746988.69 -24746988.57 -24746988.43 0.0496 0.0352  
 Mercury -72467-09-08 09:06 J -24746898.29 -24746898.12 -24746897.95 0.0496 0.0224  
 Mercury -72461-05-02 14:23 J -24744835.01 -24744834.90 -24744834.79 0.0530 0.0252  
 Mercury -72461-07-30 20:23 J -24744745.76 -24744745.65 -24744745.53 0.0530 0.0207

Moon -72457-09-03 20:09 J -24743249.91 -24743249.66 -24743249.42 0.0500 0.0054  
 Earth -72457-09-03 20:52 J -24743249.86 -24743249.63 -24743249.39 0.0500 0.0085 \*  
 Mercury -72455-03-28 19:40 J -24742678.70 -24742678.68 -24742678.66 0.0496 0.0492  
 Mercury -72455-06-27 06:28 J -24742588.42 -24742588.23 -24742588.05 0.0496 0.0085  
 Venus -72451-10-28 13:54 J -24741004.10 -24741003.92 -24741003.75 0.0527 0.0246  
 Mercury -72449-02-19 18:57 J -24740524.80 -24740524.71 -24740524.62 0.0530 0.0359  
 Mercury -72449-05-19 00:57 J -24740435.58 -24740435.46 -24740435.34 0.0529 0.0097  
 Venus -72445-08-29 05:30 J -24738872.41 -24738872.27 -24738872.12 0.0499 0.0358  
 Moon -72445-09-08 05:01 J -24738862.47 -24738862.29 -24738862.11 0.0499 0.0290  
 Earth -72445-09-08 05:30 J -24738862.46 -24738862.27 -24738862.08 0.0499 0.0288 \*  
 Mercury -72443-04-15 02:23 J -24738278.58 -24738278.40 -24738278.21 0.0496 0.0068  
 Venus -72439-07-03 10:33 J -24736738.24 -24736738.06 -24736737.88 0.0526 0.0206  
 Mercury -72438-12-08 23:16 J -24736214.58 -24736214.53 -24736214.47 0.0530 0.0469  
 Mercury -72437-03-07 05:16 J -24736125.41 -24736125.28 -24736125.15 0.0529 0.0015  
 Mercury -72437-06-04 11:16 J -24736036.09 -24736036.03 -24736035.96 0.0529 0.0443  
 Venus -72433-05-04 03:49 J -24734606.55 -24734606.34 -24734606.14 0.0500 0.0047  
 Earth -72433-09-12 18:28 J -24734474.73 -24734474.73 -24734474.71 0.0498 0.0497  
 Mercury -72431-01-31 23:45 J -24733968.68 -24733968.51 -24733968.35 0.0496 0.0209  
 Mercury -72431-05-02 10:04 J -24733878.20 -24733878.08 -24733877.95 0.0497 0.0368  
 Moon -72427-03-01 05:01 J -24732479.44 -24732479.29 -24732479.14 0.0524 0.0399  
 Earth -72427-03-01 08:52 J -24732479.27 -24732479.13 -24732478.99 0.0524 0.0418 \*  
 Mercury -72426-12-25 09:06 J -24731815.24 -24731815.12 -24731815.00 0.0529 0.0134  
 Mercury -72425-03-23 15:06 J -24731725.97 -24731725.87 -24731725.77 0.0529 0.0324  
 Venus -72421-01-08 02:52 J -24730340.47 -24730340.38 -24730340.29 0.0501 0.0448  
 Mercury -72420-11-19 20:52 J -24729658.76 -24729658.63 -24729658.49 0.0496 0.0348  
 Mercury -72419-02-18 07:40 J -24729568.34 -24729568.18 -24729568.01 0.0497 0.0230  
 Earth -72415-03-06 06:42 J -24728091.44 -24728091.22 -24728091.00 0.0525 0.0174  
 Moon -72415-03-06 10:33 J -24728091.28 -24728091.06 -24728090.84 0.0525 0.0143 \*  
 Venus -72415-07-06 03:35 J -24727969.40 -24727969.35 -24727969.30 0.0527 0.0509  
 Mercury -72414-10-13 13:11 J -24727505.06 -24727504.95 -24727504.84 0.0530 0.0248

Mercury -72413-01-10 19:11 J -24727415.82 -24727415.70 -24727415.58 0.0529 0.0209  
 Mercury -72408-09-07 17:59 J -24725348.77 -24725348.75 -24725348.72 0.0496 0.0489  
 Mercury -72408-12-07 04:47 J -24725258.48 -24725258.30 -24725258.11 0.0496 0.0088  
 Venus -72403-03-10 22:47 J -24723703.74 -24723703.55 -24723703.35 0.0526 0.0051  
 Moon -72403-03-11 01:54 J -24723703.66 -24723703.42 -24723703.18 0.0526 0.0063 \*  
 Earth -72403-03-11 04:47 J -24723703.53 -24723703.30 -24723703.07 0.0526 0.0075 \*  
 Mercury -72402-08-01 17:30 J -24723194.86 -24723194.77 -24723194.67 0.0530 0.0360  
 Mercury -72402-10-29 23:30 J -24723105.64 -24723105.52 -24723105.39 0.0530 0.0098  
 Earth -72398-08-26 03:06 J -24721709.53 -24721709.37 -24721709.20 0.0502 0.0355  
 Moon -72398-08-26 05:16 J -24721709.44 -24721709.28 -24721709.11 0.0502 0.0334 \*  
 Venus -72397-01-10 19:11 J -24721571.89 -24721571.70 -24721571.51 0.0499 0.0203  
 Mercury -72396-09-25 01:54 J -24720948.60 -24720948.42 -24720948.23 0.0496 0.0054  
 Mars -72396-09-29 13:11 J -24720944.21 -24720943.95 -24720943.67 0.0496 0.0228  
 Venus -72392-11-13 19:54 J -24719437.80 -24719437.67 -24719437.54 0.0525 0.0399  
 Earth -72391-03-16 06:28 J -24719315.41 -24719315.23 -24719315.05 0.0527 0.0331  
 Moon -72391-03-16 06:42 J -24719315.39 -24719315.22 -24719315.03 0.0527 0.0308 \*  
 Mercury -72390-05-20 22:18 J -24718884.63 -24718884.57 -24718884.52 0.0530 0.0466  
 Mercury -72390-08-18 04:04 J -24718795.45 -24718795.33 -24718795.20 0.0530 0.0016  
 Mercury -72390-11-15 10:18 J -24718706.14 -24718706.07 -24718706.01 0.0529 0.0447  
 Moon -72386-08-30 10:47 J -24717322.27 -24717322.05 -24717321.82 0.0500 0.0167  
 Earth -72386-08-30 11:45 J -24717322.23 -24717322.01 -24717321.78 0.0500 0.0150 \*  
 Venus -72386-09-15 14:37 J -24717306.07 -24717305.89 -24717305.70 0.0500 0.0215  
 Mercury -72384-07-13 21:49 J -24716638.76 -24716638.59 -24716638.42 0.0496 0.0209  
 Mercury -72384-10-12 08:23 J -24716548.28 -24716548.15 -24716548.03 0.0497 0.0368  
 Mercury -72378-06-06 08:23 J -24714485.27 -24714485.15 -24714485.02 0.0529 0.0123  
 Mars -72378-07-25 01:25 J -24714436.69 -24714436.44 -24714436.20 0.0529 0.0094  
 Mercury -72378-09-03 14:23 J -24714395.99 -24714395.90 -24714395.80 0.0529 0.0335  
 Moon -72374-09-03 23:45 J -24712934.74 -24712934.51 -24712934.29 0.0500 0.0034  
 Earth -72374-09-04 00:13 J -24712934.72 -24712934.49 -24712934.26 0.0500 0.0063 \*  
 Mercury -72372-05-01 18:42 J -24712328.85 -24712328.72 -24712328.58 0.0496 0.0351



Mercury -72372-07-31 05:30 J -24712238.43 -24712238.27 -24712238.10 0.0497 0.0228  
 Venus -72368-11-16 14:23 J -24710669.05 -24710668.90 -24710668.74 0.0527 0.0324  
 Mercury -72366-03-25 12:13 J -24710175.10 -24710174.99 -24710174.88 0.0530 0.0243  
 Mercury -72366-06-22 18:13 J -24710085.86 -24710085.74 -24710085.63 0.0529 0.0214  
 Earth -72362-09-08 14:09 J -24708547.11 -24708546.91 -24708546.72 0.0499 0.0277  
 Moon -72362-09-08 16:18 J -24708547.01 -24708546.82 -24708546.62 0.0499 0.0288 \*  
 Venus -72362-09-18 06:13 J -24708537.34 -24708537.24 -24708537.14 0.0499 0.0430  
 Mercury -72360-02-17 16:04 J -24708018.85 -24708018.83 -24708018.80 0.0496 0.0490  
 Mercury -72360-05-19 03:06 J -24707928.56 -24707928.37 -24707928.19 0.0497 0.0090  
 Mars -72360-07-07 03:35 J -24707879.41 -24707879.35 -24707879.26 0.0497 0.0481  
 Venus -72356-07-22 09:35 J -24706403.30 -24706403.10 -24706402.91 0.0525 0.0138  
 Mercury -72354-01-11 16:18 J -24705864.91 -24705864.82 -24705864.73 0.0530 0.0358  
 Mercury -72354-04-10 22:18 J -24705775.70 -24705775.57 -24705775.45 0.0529 0.0100  
 Venus -72350-05-24 05:01 J -24704271.50 -24704271.29 -24704271.09 0.0500 0.0030  
 Earth -72350-09-13 04:04 J -24704159.36 -24704159.33 -24704159.29 0.0498 0.0491  
 Mercury -72348-03-06 23:59 J -24703618.68 -24703618.50 -24703618.31 0.0496 0.0054  
 Earth -72344-02-28 11:45 J -24702164.13 -24702164.01 -24702163.88 0.0524 0.0442  
 Moon -72344-02-28 15:49 J -24702163.98 -24702163.84 -24702163.70 0.0524 0.0417 \*  
 Mercury -72343-10-30 20:23 J -24701554.70 -24701554.65 -24701554.59 0.0530 0.0471  
 Mercury -72342-01-28 02:23 J -24701465.52 -24701465.40 -24701465.27 0.0530 0.0020  
 Mercury -72342-04-27 08:37 J -24701376.21 -24701376.14 -24701376.07 0.0529 0.0444  
 Venus -72338-01-27 03:21 J -24700005.49 -24700005.36 -24700005.22 0.0501 0.0374  
 Mercury -72337-12-23 20:52 J -24699308.80 -24699308.63 -24699308.46 0.0496 0.0198  
 Mercury -72336-03-24 07:25 J -24699218.31 -24699218.19 -24699218.07 0.0497 0.0378  
 Moon -72332-03-05 09:49 J -24697776.32 -24697776.09 -24697775.87 0.0525 0.0163  
 Earth -72332-03-05 12:57 J -24697776.17 -24697775.96 -24697775.74 0.0525 0.0190 \*  
 Mercury -72331-11-16 06:57 J -24697155.33 -24697155.21 -24697155.08 0.0530 0.0124  
 Mercury -72330-02-13 12:57 J -24697066.05 -24697065.96 -24697065.86 0.0529 0.0336  
 Mercury -72325-10-11 16:33 J -24694998.94 -24694998.81 -24694998.68 0.0496 0.0354  
 Mercury -72324-01-10 03:21 J -24694908.53 -24694908.36 -24694908.20 0.0497 0.0224

Earth -72320-03-10 13:11 J -24693388.18 -24693387.95 -24693387.72 0.0526 0.0062  
 Moon -72320-03-10 14:09 J -24693388.13 -24693387.91 -24693387.69 0.0526 0.0042 \*  
 Venus -72320-03-30 01:11 J -24693368.64 -24693368.45 -24693368.25 0.0527 0.0136  
 Mercury -72319-09-04 11:16 J -24692845.14 -24692845.03 -24692844.91 0.0530 0.0235  
 Mercury -72319-12-02 17:16 J -24692755.89 -24692755.78 -24692755.66 0.0529 0.0223  
 Moon -72315-08-25 04:04 J -24691394.50 -24691394.33 -24691394.16 0.0502 0.0360  
 Earth -72315-08-25 04:47 J -24691394.44 -24691394.30 -24691394.14 0.0502 0.0381 \*  
 Venus -72314-01-29 15:21 J -24691237.04 -24691236.86 -24691236.68 0.0499 0.0254  
 Mercury -72313-10-29 00:13 J -24690598.67 -24690598.49 -24690598.30 0.0497 0.0083  
 Venus -72309-12-02 19:11 J -24689102.85 -24689102.70 -24689102.54 0.0525 0.0329  
 Earth -72308-03-15 09:21 J -24689000.29 -24689000.11 -24688999.92 0.0527 0.0308  
 Moon -72308-03-15 10:47 J -24689000.25 -24689000.05 -24688999.84 0.0527 0.0287 \*  
 Mercury -72307-06-23 15:06 J -24688534.96 -24688534.87 -24688534.78 0.0530 0.0356  
 Mercury -72307-09-20 20:52 J -24688445.75 -24688445.63 -24688445.50 0.0529 0.0102  
 Moon -72303-08-29 17:16 J -24687006.98 -24687006.78 -24687006.56 0.0501 0.0187  
 Earth -72303-08-29 17:45 J -24687006.97 -24687006.76 -24687006.53 0.0501 0.0166 \*  
 Venus -72303-10-04 13:40 J -24686971.12 -24686970.93 -24686970.73 0.0500 0.0150  
 Mercury -72301-08-16 21:35 J -24686288.78 -24686288.60 -24686288.41 0.0496 0.0059  
 Mercury -72295-04-11 18:57 J -24684224.76 -24684224.71 -24684224.65 0.0530 0.0472  
 Mercury -72295-07-10 00:57 J -24684135.59 -24684135.46 -24684135.33 0.0529 0.0017  
 Mercury -72295-10-07 06:57 J -24684046.28 -24684046.21 -24684046.14 0.0529 0.0442  
 Earth -72291-09-03 07:11 J -24682619.43 -24682619.20 -24682618.96 0.0500 0.0051  
 Moon -72291-09-03 09:35 J -24682619.35 -24682619.10 -24682618.86 0.0500 0.0028 \*  
 Mercury -72289-06-04 18:28 J -24681978.90 -24681978.73 -24681978.56 0.0496 0.0203  
 Mercury -72289-09-03 05:01 J -24681888.41 -24681888.29 -24681888.17 0.0497 0.0374  
 Venus -72285-12-05 12:13 J -24680334.12 -24680333.99 -24680333.85 0.0527 0.0384  
 Mercury -72283-04-28 05:01 J -24679825.41 -24679825.29 -24679825.16 0.0530 0.0132  
 Mercury -72283-07-26 11:01 J -24679736.13 -24679736.04 -24679735.94 0.0529 0.0328  
 Moon -72279-09-07 16:47 J -24678231.99 -24678231.80 -24678231.61 0.0499 0.0280  
 Earth -72279-09-07 20:09 J -24678231.85 -24678231.66 -24678231.45 0.0499 0.0263 \*

Venus -72279-10-07 05:16 J -24678202.31 -24678202.28 -24678202.26 0.0499 0.0494

Mercury -72277-03-23 15:21 J -24677668.99 -24677668.86 -24677668.73 0.0496 0.0347

Mercury -72277-06-22 01:54 J -24677578.58 -24677578.42 -24677578.25 0.0496 0.0231

Venus -72273-08-10 08:52 J -24676068.33 -24676068.13 -24676067.94 0.0526 0.0069

Mercury -72271-02-14 09:35 J -24675515.21 -24675515.10 -24675514.98 0.0530 0.0240

Mercury -72271-05-14 15:35 J -24675425.96 -24675425.85 -24675425.73 0.0529 0.0219

Venus -72267-06-12 00:57 J -24673936.66 -24673936.46 -24673936.25 0.0499 0.0080

Earth -72267-09-12 04:47 J -24673844.38 -24673844.30 -24673844.21 0.0498 0.0465

Moon -72267-09-12 08:37 J -24673844.16 -24673844.14 -24673844.10 0.0498 0.0493

Mercury -72265-04-09 21:35 J -24673268.78 -24673268.60 -24673268.41 0.0496 0.0075

Moon -72261-02-28 12:42 J -24671849.09 -24671848.97 -24671848.83 0.0524 0.0439

Earth -72261-02-28 16:33 J -24671848.92 -24671848.81 -24671848.70 0.0524 0.0462 \*

Venus -72261-04-15 04:04 J -24671802.33 -24671802.33 -24671802.30 0.0525 0.0523

Mercury -72260-12-03 13:54 J -24671205.01 -24671204.92 -24671204.82 0.0530 0.0351

Mars -72259-01-13 17:16 J -24671163.97 -24671163.78 -24671163.59 0.0530 0.0340

Mercury -72259-03-02 19:54 J -24671115.80 -24671115.67 -24671115.55 0.0529 0.0106

Venus -72255-02-14 22:47 J -24669670.71 -24669670.55 -24669670.40 0.0500 0.0327

Mercury -72253-01-27 18:28 J -24668958.91 -24668958.73 -24668958.54 0.0496 0.0070

Earth -72249-03-04 13:11 J -24667461.15 -24667460.95 -24667460.73 0.0525 0.0218

Moon -72249-03-04 15:06 J -24667461.08 -24667460.87 -24667460.67 0.0525 0.0198 \*

Mercury -72248-09-21 17:30 J -24666894.82 -24666894.77 -24666894.71 0.0530 0.0473

Mercury -72248-12-19 23:30 J -24666805.65 -24666805.52 -24666805.39 0.0529 0.0018

Mercury -72247-03-19 05:30 J -24666716.34 -24666716.27 -24666716.20 0.0529 0.0440

Mercury -72242-11-15 15:49 J -24664649.01 -24664648.84 -24664648.67 0.0496 0.0210

Mars -72242-12-24 00:57 J -24664610.77 -24664610.46 -24664610.16 0.0497 0.0028

Mercury -72241-02-14 02:23 J -24664558.52 -24664558.40 -24664558.27 0.0497 0.0368

Earth -72237-03-09 10:33 J -24663073.29 -24663073.06 -24663072.83 0.0526 0.0029

Moon -72237-03-09 11:30 J -24663073.26 -24663073.02 -24663072.78 0.0526 0.0007 \*

Venus -72237-04-17 21:06 J -24663033.81 -24663033.62 -24663033.43 0.0526 0.0187

Mercury -72236-10-08 03:21 J -24662495.48 -24662495.36 -24662495.24 0.0529 0.0136

Mercury -72235-01-05 09:21 J -24662406.21 -24662406.11 -24662406.01 0.0529 0.0323  
 Moon -72232-08-24 08:52 J -24661079.27 -24661079.13 -24661078.98 0.0502 0.0383  
 Earth -72232-08-24 09:21 J -24661079.25 -24661079.11 -24661078.97 0.0502 0.0398 \*  
 Venus -72231-02-17 13:40 J -24660902.09 -24660901.93 -24660901.77 0.0499 0.0314  
 Mercury -72230-09-03 12:42 J -24660339.10 -24660338.97 -24660338.84 0.0496 0.0355  
 Mercury -72230-12-02 23:16 J -24660248.69 -24660248.53 -24660248.36 0.0496 0.0223  
 Venus -72226-12-22 15:06 J -24658768.03 -24658767.87 -24658767.69 0.0525 0.0278  
 Moon -72225-03-14 04:18 J -24658685.51 -24658685.32 -24658685.12 0.0527 0.0253  
 Earth -72225-03-14 06:57 J -24658685.41 -24658685.21 -24658685.01 0.0527 0.0273 \*  
 Mercury -72224-07-27 07:25 J -24658185.30 -24658185.19 -24658185.08 0.0530 0.0252  
 Mars -72224-10-17 14:23 J -24658103.12 -24658102.90 -24658102.68 0.0529 0.0258  
 Mercury -72224-10-24 13:25 J -24658096.06 -24658095.94 -24658095.82 0.0529 0.0207  
 Earth -72220-08-28 22:04 J -24656691.79 -24656691.58 -24656691.36 0.0501 0.0185  
 Moon -72220-08-28 23:59 J -24656691.71 -24656691.50 -24656691.27 0.0501 0.0208 \*  
 Venus -72220-10-23 11:30 J -24656636.22 -24656636.02 -24656635.81 0.0500 0.0091  
 Mercury -72218-09-20 20:09 J -24655938.85 -24655938.66 -24655938.48 0.0496 0.0078  
 Earth -72213-03-19 06:42 J -24654297.24 -24654297.22 -24654297.19 0.0528 0.0523  
 Mercury -72212-05-15 11:59 J -24653875.09 -24653875.00 -24653874.91 0.0530 0.0360  
 Mercury -72212-08-12 17:59 J -24653785.88 -24653785.75 -24653785.63 0.0530 0.0098  
 Moon -72208-09-02 04:18 J -24652304.55 -24652304.32 -24652304.09 0.0500 0.0003  
 Earth -72208-09-02 07:40 J -24652304.42 -24652304.18 -24652303.95 0.0500 0.0024 \*  
 Mercury -72206-07-09 15:35 J -24651629.03 -24651628.85 -24651628.66 0.0496 0.0079  
 Mercury -72206-10-08 01:54 J -24651538.42 -24651538.42 -24651538.41 0.0497 0.0496  
 Venus -72202-12-25 11:16 J -24649999.13 -24649999.03 -24649998.93 0.0527 0.0452  
 Mercury -72200-03-03 16:18 J -24649564.87 -24649564.82 -24649564.77 0.0530 0.0472  
 Mercury -72200-05-31 22:18 J -24649475.70 -24649475.57 -24649475.45 0.0530 0.0025  
 Mercury -72200-08-29 04:18 J -24649386.39 -24649386.32 -24649386.25 0.0529 0.0443  
 Earth -72196-09-06 18:57 J -24647916.92 -24647916.71 -24647916.50 0.0499 0.0232  
 Moon -72196-09-06 22:47 J -24647916.75 -24647916.55 -24647916.35 0.0499 0.0257 \*  
 Mercury -72194-04-27 12:28 J -24647319.15 -24647318.98 -24647318.82 0.0496 0.0224

Mercury -72194-07-26 23:01 J -24647228.67 -24647228.54 -24647228.41 0.0497 0.0354

Venus -72190-08-30 05:01 J -24645733.48 -24645733.29 -24645733.08 0.0526 0.0021

Mercury -72188-03-20 01:40 J -24645165.55 -24645165.43 -24645165.31 0.0529 0.0140

Mercury -72188-06-17 07:40 J -24645076.28 -24645076.18 -24645076.08 0.0529 0.0319

Venus -72184-06-30 21:21 J -24643601.81 -24643601.61 -24643601.41 0.0500 0.0130

Moon -72184-09-11 03:06 J -24643529.44 -24643529.37 -24643529.29 0.0499 0.0471

Earth -72184-09-11 06:57 J -24643529.31 -24643529.21 -24643529.10 0.0499 0.0445 \*

Mercury -72182-02-13 09:35 J -24643009.23 -24643009.10 -24643008.98 0.0496 0.0366

Mercury -72182-05-14 20:23 J -24642918.82 -24642918.65 -24642918.48 0.0497 0.0214

Earth -72178-02-27 12:28 J -24641534.04 -24641533.98 -24641533.90 0.0523 0.0497

Moon -72178-02-27 15:06 J -24641533.97 -24641533.87 -24641533.78 0.0523 0.0472 \*

Venus -72178-05-04 23:16 J -24641467.60 -24641467.53 -24641467.44 0.0524 0.0477

Mercury -72176-01-06 05:30 J -24640855.37 -24640855.27 -24640855.15 0.0530 0.0259

Mercury -72176-04-05 11:30 J -24640766.13 -24640766.02 -24640765.90 0.0529 0.0200

Venus -72172-03-05 19:25 J -24639335.86 -24639335.69 -24639335.52 0.0501 0.0275

Mercury -72170-03-02 17:01 J -24638608.97 -24638608.79 -24638608.60 0.0496 0.0069

Moon -72166-03-04 08:23 J -24637146.36 -24637146.15 -24637145.93 0.0524 0.0242

Earth -72166-03-04 08:37 J -24637146.35 -24637146.14 -24637145.94 0.0524 0.0257 \*

Mercury -72165-10-25 09:35 J -24636545.19 -24636545.10 -24636545.01 0.0530 0.0375

Mercury -72164-01-22 15:35 J -24636455.98 -24636455.85 -24636455.73 0.0530 0.0083

Mercury -72159-12-19 13:40 J -24634299.11 -24634298.93 -24634298.74 0.0496 0.0080

Mercury -72158-03-20 00:13 J -24634208.49 -24634208.49 -24634208.49 0.0497 0.0496

Moon -72154-03-09 05:45 J -24632758.48 -24632758.26 -24632758.03 0.0526 0.0037

Earth -72154-03-09 07:54 J -24632758.40 -24632758.17 -24632757.94 0.0526 0.0007 \*

Venus -72154-05-07 17:01 J -24632698.96 -24632698.79 -24632698.61 0.0527 0.0239

Mercury -72153-08-13 14:09 J -24632234.96 -24632234.91 -24632234.86 0.0530 0.0484

Mercury -72153-11-10 19:54 J -24632145.79 -24632145.67 -24632145.54 0.0530 0.0032

Mercury -72152-02-08 02:09 J -24632056.48 -24632056.41 -24632056.34 0.0529 0.0432

Earth -72149-08-23 09:49 J -24630764.21 -24630764.09 -24630763.97 0.0502 0.0424

Moon -72149-08-23 11:30 J -24630764.15 -24630764.02 -24630763.88 0.0502 0.0411 \*

Venus -72148-03-08 08:23 J -24630567.29 -24630567.15 -24630567.01 0.0499 0.0357  
 Mercury -72147-10-07 09:21 J -24629989.27 -24629989.11 -24629988.95 0.0496 0.0235  
 Mercury -72146-01-05 19:54 J -24629898.80 -24629898.67 -24629898.53 0.0496 0.0342  
 Venus -72142-01-10 12:28 J -24628433.16 -24628432.98 -24628432.79 0.0526 0.0220  
 Earth -72142-03-14 06:57 J -24628370.41 -24628370.21 -24628370.01 0.0527 0.0245  
 Moon -72142-03-14 10:18 J -24628370.28 -24628370.07 -24628369.85 0.0527 0.0227 \*  
 Mercury -72141-08-30 00:13 J -24627835.61 -24627835.49 -24627835.37 0.0530 0.0141  
 Mercury -72141-11-27 06:13 J -24627746.34 -24627746.24 -24627746.14 0.0529 0.0319  
 Moon -72137-08-27 17:59 J -24626376.95 -24626376.75 -24626376.55 0.0501 0.0241  
 Earth -72137-08-27 21:06 J -24626376.83 -24626376.62 -24626376.41 0.0501 0.0214 \*  
 Venus -72137-11-11 05:59 J -24626301.46 -24626301.25 -24626301.05 0.0500 0.0049  
 Mercury -72135-07-26 05:59 J -24625679.37 -24625679.25 -24625679.13 0.0496 0.0381  
 Mercury -72135-10-24 16:47 J -24625588.97 -24625588.80 -24625588.63 0.0496 0.0198  
 Moon -72130-03-18 23:45 J -24623982.55 -24623982.51 -24623982.46 0.0527 0.0516  
 Earth -72130-03-19 03:35 J -24623982.43 -24623982.35 -24623982.27 0.0527 0.0491  
 Mercury -72129-06-18 03:49 J -24623525.45 -24623525.34 -24623525.23 0.0530 0.0264  
 Mercury -72129-09-15 09:49 J -24623436.21 -24623436.09 -24623435.97 0.0529 0.0194  
 Venus -72125-07-17 03:06 J -24622035.44 -24622035.37 -24622035.28 0.0501 0.0460  
 Earth -72125-09-01 07:40 J -24621989.41 -24621989.18 -24621988.94 0.0500 0.0005  
 Moon -72125-09-01 11:30 J -24621989.25 -24621989.02 -24621988.78 0.0500 0.0015 \*  
 Mercury -72123-08-12 14:09 J -24621279.10 -24621278.91 -24621278.73 0.0496 0.0057  
 Venus -72118-01-13 05:30 J -24619664.34 -24619664.27 -24619664.20 0.0527 0.0491  
 Mercury -72117-04-06 07:40 J -24619215.26 -24619215.18 -24619215.09 0.0530 0.0382  
 Mercury -72117-07-04 13:40 J -24619126.06 -24619125.93 -24619125.81 0.0529 0.0075  
 Moon -72113-09-05 16:18 J -24617602.02 -24617601.82 -24617601.60 0.0500 0.0237  
 Earth -72113-09-05 20:09 J -24617601.87 -24617601.66 -24617601.44 0.0500 0.0212 \*  
 Mercury -72111-05-31 10:47 J -24616969.23 -24616969.05 -24616968.86 0.0496 0.0089  
 Mercury -72111-08-29 21:21 J -24616878.65 -24616878.61 -24616878.58 0.0497 0.0487  
 Venus -72107-09-17 23:16 J -24615398.73 -24615398.53 -24615398.33 0.0526 0.0027  
 Mercury -72105-01-24 11:45 J -24614905.05 -24614905.01 -24614904.97 0.0530 0.0500

Mars -72105-04-07 16:33 J -24614831.03 -24614830.81 -24614830.58 0.0530 0.0216  
 Mercury -72105-04-22 17:30 J -24614815.89 -24614815.77 -24614815.64 0.0530 0.0045  
 Mercury -72105-07-20 23:30 J -24614726.59 -24614726.52 -24614726.44 0.0529 0.0417  
 Venus -72101-07-19 17:45 J -24613266.95 -24613266.76 -24613266.57 0.0500 0.0181  
 Earth -72101-09-10 08:37 J -24613214.26 -24613214.14 -24613214.02 0.0499 0.0422  
 Moon -72101-09-10 11:16 J -24613214.12 -24613214.03 -24613213.93 0.0499 0.0448 \*  
 Mercury -72099-03-19 07:25 J -24612659.36 -24612659.19 -24612659.03 0.0496 0.0236  
 Mercury -72099-06-17 17:59 J -24612568.88 -24612568.75 -24612568.62 0.0496 0.0342  
 Moon -72095-02-26 06:57 J -24611219.26 -24611219.21 -24611219.14 0.0523 0.0507  
 Venus -72095-05-23 18:13 J -24611132.85 -24611132.74 -24611132.62 0.0525 0.0431  
 Mercury -72093-02-09 22:04 J -24610505.70 -24610505.58 -24610505.46 0.0530 0.0154  
 Mercury -72093-05-09 04:04 J -24610416.43 -24610416.33 -24610416.23 0.0529 0.0306  
 Venus -72089-03-24 14:37 J -24609001.07 -24609000.89 -24609000.70 0.0500 0.0230  
 Mercury -72087-01-05 03:06 J -24608349.48 -24608349.37 -24608349.26 0.0496 0.0392  
 Mars -72087-03-17 15:06 J -24608278.16 -24608277.87 -24608277.57 0.0496 0.0126  
 Mercury -72087-04-05 13:54 J -24608259.10 -24608258.92 -24608258.75 0.0496 0.0187  
 Moon -72083-03-03 05:16 J -24606831.47 -24606831.28 -24606831.09 0.0525 0.0280  
 Earth -72083-03-03 06:42 J -24606831.41 -24606831.22 -24606831.02 0.0525 0.0288 \*  
 Mercury -72082-11-29 02:23 J -24606195.51 -24606195.40 -24606195.29 0.0530 0.0267  
 Mercury -72081-02-26 08:23 J -24606106.27 -24606106.15 -24606106.04 0.0530 0.0193  
 Mercury -72075-01-22 10:47 J -24603949.24 -24603949.05 -24603948.87 0.0496 0.0044  
 Earth -72071-03-08 04:33 J -24602443.54 -24602443.31 -24602443.08 0.0525 0.0038  
 Moon -72071-03-08 07:40 J -24602443.41 -24602443.18 -24602442.94 0.0525 0.0070 \*  
 Venus -72071-05-26 12:28 J -24602364.14 -24602363.98 -24602363.81 0.0527 0.0284  
 Mercury -72070-09-17 05:59 J -24601885.33 -24601885.25 -24601885.17 0.0530 0.0389  
 Mercury -72070-12-15 11:45 J -24601796.13 -24601796.01 -24601795.88 0.0529 0.0070  
 Mars -72069-01-10 20:37 J -24601769.79 -24601769.64 -24601769.47 0.0529 0.0406  
 Mercury -72069-03-13 17:59 J -24601706.76 -24601706.75 -24601706.75 0.0529 0.0527  
 Moon -72066-08-23 05:59 J -24600449.35 -24600449.25 -24600449.15 0.0503 0.0445  
 Earth -72066-08-23 08:37 J -24600449.23 -24600449.14 -24600449.03 0.0503 0.0452 \*

Venus -72065-03-27 03:35 J -24600232.47 -24600232.35 -24600232.23 0.0499 0.0400

Mercury -72064-11-10 07:40 J -24599639.36 -24599639.18 -24599638.99 0.0496 0.0101

Mercury -72063-02-08 18:13 J -24599548.78 -24599548.74 -24599548.69 0.0497 0.0477

Venus -72059-01-29 07:25 J -24598098.38 -24598098.19 -24598098.00 0.0525 0.0176

Moon -72059-03-12 22:33 J -24598055.77 -24598055.56 -24598055.34 0.0526 0.0191

Earth -72059-03-13 02:23 J -24598055.61 -24598055.40 -24598055.19 0.0526 0.0209 \*

Mercury -72058-07-06 09:49 J -24597575.12 -24597575.09 -24597575.05 0.0530 0.0506

Mercury -72058-10-03 15:49 J -24597485.97 -24597485.84 -24597485.72 0.0529 0.0051

Mercury -72058-12-31 21:49 J -24597396.67 -24597396.59 -24597396.51 0.0529 0.0409

Earth -72054-08-27 20:52 J -24596061.83 -24596061.63 -24596061.42 0.0502 0.0239

Moon -72054-08-28 00:57 J -24596061.66 -24596061.46 -24596061.27 0.0502 0.0268 \*

Venus -72054-12-01 01:25 J -24595966.65 -24595966.44 -24595966.23 0.0500 0.0005

Mercury -72052-08-29 04:33 J -24595329.47 -24595329.31 -24595329.15 0.0496 0.0246

Mercury -72052-11-27 15:06 J -24595239.00 -24595238.87 -24595238.73 0.0497 0.0333

Earth -72047-03-17 21:49 J -24593667.70 -24593667.59 -24593667.47 0.0527 0.0451

Moon -72047-03-18 01:25 J -24593667.53 -24593667.44 -24593667.35 0.0527 0.0480 \*

Mercury -72046-07-22 19:40 J -24593175.80 -24593175.68 -24593175.56 0.0530 0.0169

Mercury -72046-10-20 01:40 J -24593086.54 -24593086.43 -24593086.32 0.0529 0.0291

Venus -72042-08-05 23:45 J -24591700.63 -24591700.51 -24591700.39 0.0501 0.0408

Moon -72042-09-01 05:59 J -24591674.48 -24591674.25 -24591674.01 0.0501 0.0037

Earth -72042-09-01 09:49 J -24591674.32 -24591674.09 -24591673.86 0.0501 0.0024 \*

Mercury -72040-06-17 00:57 J -24591019.56 -24591019.46 -24591019.34 0.0496 0.0393

Mercury -72040-09-15 11:59 J -24590929.17 -24590929.00 -24590928.83 0.0496 0.0187

Mercury -72034-05-10 23:59 J -24588865.60 -24588865.50 -24588865.39 0.0530 0.0280

Mercury -72034-08-08 05:59 J -24588776.37 -24588776.25 -24588776.13 0.0530 0.0180

Earth -72030-09-05 21:21 J -24587286.83 -24587286.61 -24587286.39 0.0499 0.0188

Moon -72030-09-06 00:13 J -24587286.70 -24587286.49 -24587286.28 0.0499 0.0216 \*

Mercury -72028-07-04 07:54 J -24586619.36 -24586619.17 -24586618.98 0.0496 0.0034

Venus -72024-10-06 19:54 J -24585063.87 -24585063.67 -24585063.48 0.0526 0.0080

Mercury -72022-02-27 04:18 J -24584555.40 -24584555.32 -24584555.23 0.0530 0.0392



Mercury -72022-05-27 10:18 J -24584466.19 -24584466.07 -24584465.94 0.0530 0.0067

Mercury -72022-08-24 16:33 J -24584376.82 -24584376.81 -24584376.81 0.0529 0.0528

Venus -72018-08-08 13:11 J -24582932.13 -24582931.95 -24582931.76 0.0499 0.0227

Moon -72018-09-10 07:25 J -24582899.32 -24582899.19 -24582899.06 0.0499 0.0417

Earth -72018-09-10 08:52 J -24582899.27 -24582899.13 -24582898.99 0.0499 0.0398 \*

Mercury -72016-04-22 04:47 J -24582309.48 -24582309.30 -24582309.12 0.0496 0.0111

Mercury -72016-07-21 15:06 J -24582218.93 -24582218.87 -24582218.80 0.0497 0.0466

Venus -72012-06-11 14:37 J -24580798.02 -24580797.89 -24580797.75 0.0525 0.0382

Mercury -72011-12-16 08:09 J -24580245.19 -24580245.16 -24580245.13 0.0530 0.0512

Mercury -72010-03-15 13:54 J -24580156.04 -24580155.92 -24580155.79 0.0529 0.0058

Mercury -72010-06-12 19:54 J -24580066.75 -24580066.67 -24580066.58 0.0529 0.0404

Venus -72006-04-13 09:49 J -24578666.28 -24578666.09 -24578665.90 0.0501 0.0187

Mercury -72004-02-08 01:40 J -24577999.59 -24577999.43 -24577999.27 0.0496 0.0255

Mercury -72004-05-09 12:28 J -24577909.12 -24577908.98 -24577908.84 0.0497 0.0325

# 72ND MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 72nd millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Earth	-72000-03-02 04:33 J	-24576516.49	-24576516.31	-24576516.12	0.0524	0.0317		
Moon	-72000-03-02 07:25 J	-24576516.38	-24576516.19	-24576515.99	0.0524	0.0310	*	
Mercury	-71998-01-01 17:59 J	-24575845.87	-24575845.75	-24575845.63	0.0529	0.0173		
Mercury	-71998-03-31 23:59 J	-24575756.61	-24575756.50	-24575756.40	0.0529	0.0286		

Mercury -71993-11-26 22:33 J -24573689.67 -24573689.56 -24573689.45 0.0496 0.0400

Mercury -71992-02-25 09:21 J -24573599.28 -24573599.11 -24573598.93 0.0496 0.0181

Moon -71988-03-06 21:06 J -24572128.85 -24572128.62 -24572128.40 0.0525 0.0108

Earth -71988-03-07 00:42 J -24572128.70 -24572128.47 -24572128.24 0.0525 0.0076 \*

Venus -71988-06-14 07:40 J -24572029.33 -24572029.18 -24572029.02 0.0526 0.0329

Mercury -71987-10-20 21:49 J -24571535.69 -24571535.59 -24571535.48 0.0530 0.0292

Mercury -71986-01-18 03:49 J -24571446.46 -24571446.34 -24571446.22 0.0529 0.0167

Earth -71983-08-22 11:45 J -24570134.08 -24570134.01 -24570133.93 0.0503 0.0473

Moon -71983-08-22 15:35 J -24570133.93 -24570133.85 -24570133.78 0.0503 0.0475 \*

Venus -71982-04-16 00:28 J -24569897.55 -24569897.48 -24569897.39 0.0499 0.0455

Mercury -71981-12-14 06:13 J -24569289.43 -24569289.24 -24569289.06 0.0496 0.0036

Venus -71976-02-17 02:52 J -24567763.57 -24567763.38 -24567763.18 0.0525 0.0128

Earth -71976-03-11 22:47 J -24567740.76 -24567740.55 -24567740.33 0.0526 0.0174

Moon -71976-03-12 02:23 J -24567740.61 -24567740.40 -24567740.17 0.0526 0.0164 \*

Mercury -71975-08-09 02:09 J -24567225.48 -24567225.41 -24567225.32 0.0530 0.0404

Mercury -71975-11-06 08:09 J -24567136.28 -24567136.16 -24567136.03 0.0530 0.0057

Mercury -71974-02-03 14:23 J -24567046.92 -24567046.90 -24567046.88 0.0529 0.0517

Moon -71971-08-26 20:52 J -24565746.82 -24565746.63 -24565746.43 0.0502 0.0290

Earth -71971-08-27 00:42 J -24565746.67 -24565746.47 -24565746.27 0.0502 0.0257 \*

Venus -71971-12-19 22:47 J -24565631.76 -24565631.55 -24565631.35 0.0500 0.0050

Mars -71969-09-02 05:59 J -24565009.43 -24565009.25 -24565009.05 0.0496 0.0388

Mercury -71969-10-02 02:23 J -24564979.58 -24564979.40 -24564979.22 0.0496 0.0116

Mercury -71969-12-31 12:42 J -24564889.03 -24564888.97 -24564888.90 0.0496 0.0461

Moon -71964-03-16 19:25 J -24563352.81 -24563352.69 -24563352.57 0.0527 0.0454

Earth -71964-03-16 21:49 J -24563352.72 -24563352.59 -24563352.45 0.0527 0.0425 \*

Mercury -71963-05-28 06:42 J -24562915.25 -24562915.22 -24562915.19 0.0530 0.0514

Mercury -71963-08-25 12:28 J -24562826.10 -24562825.98 -24562825.85 0.0530 0.0059

Mercury -71963-11-22 18:42 J -24562736.80 -24562736.72 -24562736.64 0.0529 0.0405

Venus -71959-08-24 20:52 J -24561365.77 -24561365.63 -24561365.49 0.0501 0.0354

Earth -71959-08-31 12:42 J -24561359.20 -24561358.97 -24561358.74 0.0501 0.0044

Moon -71959-08-31 15:35 J -24561359.08 -24561358.85 -24561358.62 0.0501 0.0051 \*  
 Mercury -71957-07-20 23:16 J -24560669.69 -24560669.53 -24560669.37 0.0496 0.0260  
 Mercury -71957-10-19 09:49 J -24560579.23 -24560579.09 -24560578.94 0.0496 0.0319  
 Mercury -71951-06-13 16:18 J -24558515.94 -24558515.82 -24558515.70 0.0530 0.0178  
 Mars -71951-07-02 02:23 J -24558497.65 -24558497.40 -24558497.16 0.0529 0.0053  
 Mercury -71951-09-10 22:18 J -24558426.68 -24558426.57 -24558426.46 0.0529 0.0282  
 Moon -71947-09-04 20:23 J -24556971.87 -24556971.65 -24556971.42 0.0500 0.0192  
 Earth -71947-09-04 22:04 J -24556971.79 -24556971.58 -24556971.35 0.0500 0.0167 \*  
 Mercury -71945-05-08 20:09 J -24556359.77 -24556359.66 -24556359.56 0.0496 0.0406  
 Mercury -71945-08-07 06:57 J -24556269.38 -24556269.21 -24556269.03 0.0497 0.0176  
 Venus -71941-10-25 17:30 J -24554728.96 -24554728.77 -24554728.58 0.0526 0.0136  
 Mercury -71939-04-01 20:23 J -24554205.75 -24554205.65 -24554205.54 0.0529 0.0293  
 Mercury -71939-06-30 02:23 J -24554116.52 -24554116.40 -24554116.28 0.0529 0.0166  
 Venus -71935-08-27 09:35 J -24552597.27 -24552597.10 -24552596.92 0.0500 0.0276  
 Moon -71935-09-09 10:18 J -24552584.20 -24552584.07 -24552583.92 0.0500 0.0394  
 Earth -71935-09-09 10:47 J -24552584.20 -24552584.05 -24552583.89 0.0500 0.0381 \*  
 Mercury -71933-05-26 04:04 J -24551959.52 -24551959.33 -24551959.14 0.0496 0.0033  
 Mars -71933-06-10 04:18 J -24551944.53 -24551944.32 -24551944.09 0.0497 0.0341  
 Venus -71929-06-30 11:30 J -24550463.18 -24550463.02 -24550462.87 0.0525 0.0326  
 Mercury -71927-01-19 00:28 J -24549895.56 -24549895.48 -24549895.40 0.0530 0.0411  
 Mercury -71927-04-18 06:13 J -24549806.36 -24549806.24 -24549806.11 0.0529 0.0048  
 Mercury -71927-07-16 12:28 J -24549717.02 -24549716.98 -24549716.95 0.0529 0.0508  
 Venus -71923-05-02 08:09 J -24548331.36 -24548331.16 -24548330.96 0.0501 0.0126  
 Mercury -71921-03-14 00:57 J -24547649.64 -24547649.46 -24547649.28 0.0496 0.0112  
 Mercury -71921-06-12 11:30 J -24547559.08 -24547559.02 -24547558.96 0.0497 0.0466  
 Moon -71917-02-29 23:30 J -24546201.68 -24546201.52 -24546201.34 0.0523 0.0344  
 Earth -71917-03-01 03:06 J -24546201.54 -24546201.37 -24546201.20 0.0523 0.0350 \*  
 Mercury -71916-11-07 04:47 J -24545585.32 -24545585.30 -24545585.28 0.0530 0.0522  
 Mercury -71915-02-04 10:33 J -24545496.18 -24545496.06 -24545495.93 0.0530 0.0067  
 Mercury -71915-05-04 16:33 J -24545406.89 -24545406.81 -24545406.72 0.0529 0.0398

Mercury -71910-12-31 21:21 J -24543339.77 -24543339.61 -24543339.45 0.0496 0.0262  
 Mercury -71909-03-31 07:54 J -24543249.31 -24543249.17 -24543249.03 0.0496 0.0318  
 Earth -71905-03-06 01:54 J -24541813.65 -24541813.42 -24541813.19 0.0525 0.0099  
 Moon -71905-03-06 05:45 J -24541813.49 -24541813.26 -24541813.04 0.0525 0.0130 \*  
 Venus -71905-07-03 06:13 J -24541694.37 -24541694.24 -24541694.10 0.0527 0.0394  
 Mercury -71904-11-23 15:06 J -24541185.99 -24541185.87 -24541185.75 0.0530 0.0176  
 Mercury -71903-02-20 21:06 J -24541096.73 -24541096.62 -24541096.51 0.0530 0.0286  
 Moon -71900-08-21 14:09 J -24539818.95 -24539818.91 -24539818.88 0.0503 0.0496  
 Earth -71900-08-21 17:45 J -24539818.81 -24539818.76 -24539818.70 0.0503 0.0488  
 Mercury -71898-10-19 18:13 J -24539029.84 -24539029.74 -24539029.63 0.0496 0.0405  
 Mercury -71897-01-18 05:01 J -24538939.46 -24538939.29 -24538939.11 0.0496 0.0176  
 Venus -71893-03-08 02:23 J -24537428.60 -24537428.40 -24537428.20 0.0525 0.0063  
 Moon -71893-03-10 23:01 J -24537425.76 -24537425.54 -24537425.30 0.0525 0.0153  
 Earth -71893-03-11 02:09 J -24537425.63 -24537425.41 -24537425.19 0.0525 0.0157 \*  
 Mercury -71892-09-11 18:57 J -24536875.81 -24536875.71 -24536875.60 0.0530 0.0295  
 Mercury -71892-12-10 00:57 J -24536786.58 -24536786.46 -24536786.34 0.0529 0.0165  
 Earth -71888-08-26 02:23 J -24535431.59 -24535431.40 -24535431.20 0.0502 0.0279  
 Moon -71888-08-26 05:16 J -24535431.45 -24535431.28 -24535431.10 0.0502 0.0311 \*  
 Venus -71887-01-07 19:25 J -24535296.89 -24535296.69 -24535296.48 0.0500 0.0101  
 Mercury -71886-11-06 02:09 J -24534629.60 -24534629.41 -24534629.23 0.0497 0.0033  
 Venus -71882-11-11 22:04 J -24533162.61 -24533162.58 -24533162.54 0.0524 0.0512  
 Earth -71881-03-16 01:25 J -24533037.58 -24533037.44 -24533037.29 0.0526 0.0407  
 Moon -71881-03-16 02:37 J -24533037.51 -24533037.39 -24533037.27 0.0526 0.0441 \*  
 Mercury -71880-06-30 23:16 J -24532565.61 -24532565.53 -24532565.45 0.0529 0.0408  
 Mercury -71880-09-28 05:01 J -24532476.41 -24532476.29 -24532476.16 0.0529 0.0051  
 Mercury -71880-12-26 11:01 J -24532387.06 -24532387.04 -24532387.00 0.0528 0.0510  
 Moon -71876-08-30 13:25 J -24531044.18 -24531043.94 -24531043.70 0.0502 0.0069  
 Earth -71876-08-30 15:21 J -24531044.09 -24531043.86 -24531043.63 0.0502 0.0064 \*  
 Venus -71876-09-12 17:45 J -24531030.93 -24531030.76 -24531030.60 0.0501 0.0304  
 Mercury -71874-08-24 23:01 J -24530319.72 -24530319.54 -24530319.35 0.0496 0.0112

Mercury -71874-11-23 09:35 J -24530229.15 -24530229.10 -24530229.03 0.0497 0.0468

Mercury -71868-04-19 03:06 J -24528255.38 -24528255.37 -24528255.35 0.0530 0.0525

Mercury -71868-07-17 09:06 J -24528166.25 -24528166.12 -24528166.00 0.0529 0.0069

Mercury -71868-10-14 15:06 J -24528076.96 -24528076.87 -24528076.79 0.0529 0.0392

Moon -71864-09-04 05:01 J -24526656.50 -24526656.29 -24526656.08 0.0501 0.0182

Earth -71864-09-04 05:16 J -24526656.50 -24526656.28 -24526656.06 0.0501 0.0154 \*

Mercury -71862-06-12 20:09 J -24526009.82 -24526009.66 -24526009.50 0.0496 0.0255

Mercury -71862-09-11 06:57 J -24525919.35 -24525919.21 -24525919.07 0.0497 0.0326

Venus -71858-11-14 15:35 J -24524394.03 -24524393.85 -24524393.66 0.0526 0.0199

Mercury -71856-05-05 13:25 J -24523856.06 -24523855.94 -24523855.82 0.0530 0.0180

Mercury -71856-08-02 19:25 J -24523766.80 -24523766.69 -24523766.58 0.0529 0.0281

Earth -71852-09-08 19:11 J -24522268.86 -24522268.70 -24522268.55 0.0499 0.0372

Moon -71852-09-08 21:35 J -24522268.76 -24522268.60 -24522268.44 0.0499 0.0373 \*

Venus -71852-09-15 09:49 J -24522262.24 -24522262.09 -24522261.94 0.0499 0.0344

Mercury -71850-03-31 16:33 J -24521699.91 -24521699.81 -24521699.69 0.0496 0.0403

Mercury -71850-06-30 03:35 J -24521609.53 -24521609.35 -24521609.18 0.0496 0.0179

Venus -71846-07-20 11:16 J -24520128.21 -24520128.03 -24520127.86 0.0525 0.0256

Mercury -71844-02-21 17:59 J -24519545.86 -24519545.75 -24519545.65 0.0530 0.0291

Mercury -71844-05-21 23:59 J -24519456.62 -24519456.50 -24519456.38 0.0530 0.0171

Venus -71840-05-21 08:23 J -24517996.35 -24517996.15 -24517995.94 0.0500 0.0057

Mercury -71838-04-18 00:42 J -24517299.65 -24517299.47 -24517299.28 0.0496 0.0038

Earth -71834-03-01 09:21 J -24515886.27 -24515886.11 -24515885.94 0.0523 0.0361

Moon -71834-03-01 13:25 J -24515886.11 -24515885.94 -24515885.78 0.0523 0.0361 \*

Mercury -71833-12-10 22:04 J -24515235.66 -24515235.58 -24515235.50 0.0530 0.0406

Mars -71833-12-21 21:35 J -24515224.71 -24515224.60 -24515224.48 0.0529 0.0467

Mercury -71832-03-10 03:49 J -24515146.46 -24515146.34 -24515146.21 0.0529 0.0057

Mercury -71832-06-07 10:04 J -24515057.11 -24515057.08 -24515057.06 0.0529 0.0513

Venus -71828-01-24 04:18 J -24513730.38 -24513730.32 -24513730.25 0.0502 0.0474

Mercury -71826-02-03 21:35 J -24512989.79 -24512989.60 -24512989.42 0.0497 0.0110

Mercury -71826-05-05 08:09 J -24512899.21 -24512899.16 -24512899.10 0.0497 0.0471

Moon -71822-03-06 06:57 J -24511498.44 -24511498.21 -24511497.98 0.0524 0.0140  
 Earth -71822-03-06 10:04 J -24511498.31 -24511498.08 -24511497.85 0.0524 0.0108 \*  
 Venus -71822-07-23 08:09 J -24511359.25 -24511359.16 -24511359.08 0.0526 0.0473  
 Mercury -71821-09-29 02:23 J -24510925.42 -24510925.40 -24510925.38 0.0529 0.0517  
 Mercury -71821-12-27 08:09 J -24510836.28 -24510836.16 -24510836.03 0.0529 0.0062  
 Mercury -71820-03-26 14:09 J -24510746.99 -24510746.91 -24510746.83 0.0529 0.0399  
 Mercury -71815-11-22 18:42 J -24508679.88 -24508679.72 -24508679.56 0.0497 0.0252  
 Mars -71815-11-27 12:42 J -24508675.27 -24508674.97 -24508674.67 0.0497 0.0129  
 Mercury -71814-02-21 05:30 J -24508589.41 -24508589.27 -24508589.13 0.0497 0.0331  
 Earth -71810-03-11 06:57 J -24507110.44 -24507110.21 -24507109.99 0.0525 0.0137  
 Moon -71810-03-11 08:09 J -24507110.37 -24507110.16 -24507109.94 0.0525 0.0143 \*  
 Venus -71810-03-28 02:23 J -24507093.60 -24507093.40 -24507093.20 0.0525 0.0017  
 Mercury -71809-10-15 12:13 J -24506526.11 -24506525.99 -24506525.87 0.0529 0.0179  
 Mercury -71808-01-12 17:59 J -24506436.85 -24506436.75 -24506436.64 0.0529 0.0282  
 Moon -71805-08-25 09:35 J -24505116.28 -24505116.10 -24505115.91 0.0503 0.0320  
 Earth -71805-08-25 11:30 J -24505116.21 -24505116.02 -24505115.83 0.0503 0.0289 \*  
 Venus -71804-01-26 20:23 J -24504961.84 -24504961.65 -24504961.45 0.0500 0.0175  
 Mercury -71803-09-10 15:35 J -24504369.95 -24504369.85 -24504369.73 0.0496 0.0395  
 Mercury -71803-12-10 02:37 J -24504279.56 -24504279.39 -24504279.21 0.0497 0.0190  
 Venus -71799-11-30 21:35 J -24502827.70 -24502827.60 -24502827.48 0.0524 0.0442  
 Earth -71798-03-16 05:16 J -24502722.43 -24502722.28 -24502722.12 0.0526 0.0386  
 Moon -71798-03-16 05:30 J -24502722.40 -24502722.27 -24502722.12 0.0526 0.0418 \*  
 Mercury -71797-08-03 16:33 J -24502215.91 -24502215.81 -24502215.70 0.0530 0.0291  
 Mars -71797-09-25 03:21 J -24502163.60 -24502163.36 -24502163.12 0.0530 0.0150  
 Mercury -71797-10-31 22:33 J -24502126.68 -24502126.56 -24502126.44 0.0529 0.0170  
 Moon -71793-08-30 02:09 J -24500728.64 -24500728.41 -24500728.19 0.0502 0.0064  
 Earth -71793-08-30 02:23 J -24500728.63 -24500728.40 -24500728.17 0.0502 0.0068 \*  
 Venus -71793-10-01 19:25 J -24500695.87 -24500695.69 -24500695.50 0.0501 0.0226  
 Mercury -71791-09-27 23:30 J -24499969.70 -24499969.52 -24499969.33 0.0496 0.0044  
 Mercury -71785-05-22 21:06 J -24497905.70 -24497905.62 -24497905.54 0.0530 0.0400

Mercury -71785-08-20 02:52 J -24497816.50 -24497816.38 -24497816.25 0.0530 0.0063  
 Mercury -71785-11-17 09:06 J -24497727.14 -24497727.12 -24497727.10 0.0529 0.0521  
 Earth -71781-09-03 15:49 J -24496341.06 -24496340.84 -24496340.62 0.0501 0.0149  
 Moon -71781-09-03 18:13 J -24496340.96 -24496340.74 -24496340.51 0.0501 0.0177 \*  
 Mercury -71779-07-16 20:52 J -24495659.82 -24495659.63 -24495659.45 0.0496 0.0098  
 Mercury -71779-10-15 07:11 J -24495569.23 -24495569.20 -24495569.15 0.0497 0.0482  
 Venus -71775-12-03 18:28 J -24494058.89 -24494058.73 -24494058.56 0.0526 0.0285  
 Mercury -71773-03-11 01:25 J -24493595.47 -24493595.44 -24493595.41 0.0529 0.0512  
 Mercury -71773-06-08 07:11 J -24493506.32 -24493506.20 -24493506.07 0.0529 0.0056  
 Mercury -71773-09-05 13:11 J -24493417.03 -24493416.95 -24493416.87 0.0529 0.0404  
 Moon -71769-09-07 21:06 J -24491953.77 -24491953.62 -24491953.45 0.0500 0.0356  
 Earth -71769-09-08 00:57 J -24491953.62 -24491953.46 -24491953.30 0.0500 0.0358 \*  
 Venus -71769-10-04 08:37 J -24491927.26 -24491927.14 -24491927.02 0.0500 0.0406  
 Mercury -71767-05-04 17:16 J -24491349.94 -24491349.78 -24491349.61 0.0497 0.0247  
 Mercury -71767-08-03 04:04 J -24491259.46 -24491259.33 -24491259.19 0.0497 0.0337  
 Venus -71763-08-08 15:21 J -24489793.05 -24489792.86 -24489792.67 0.0525 0.0163  
 Mercury -71761-03-27 11:30 J -24489196.14 -24489196.02 -24489195.90 0.0529 0.0168  
 Mercury -71761-06-24 17:30 J -24489106.88 -24489106.77 -24489106.67 0.0529 0.0292  
 Venus -71757-06-09 07:11 J -24487661.41 -24487661.20 -24487660.99 0.0501 0.0005  
 Mercury -71755-02-20 14:37 J -24487040.01 -24487039.89 -24487039.78 0.0497 0.0388  
 Mercury -71755-05-22 01:40 J -24486949.60 -24486949.43 -24486949.26 0.0497 0.0197  
 Moon -71751-02-28 13:54 J -24485571.07 -24485570.92 -24485570.75 0.0522 0.0382  
 Earth -71751-02-28 17:30 J -24485570.93 -24485570.77 -24485570.60 0.0522 0.0374 \*  
 Mercury -71749-01-14 15:35 J -24484885.96 -24484885.85 -24484885.74 0.0529 0.0285  
 Mercury -71749-04-12 21:21 J -24484796.73 -24484796.61 -24484796.49 0.0529 0.0175  
 Venus -71745-02-13 06:28 J -24483395.36 -24483395.23 -24483395.11 0.0502 0.0394  
 Mercury -71743-03-09 22:47 J -24482639.73 -24482639.55 -24482639.36 0.0497 0.0057  
 Earth -71739-03-05 15:49 J -24481183.06 -24481182.84 -24481182.61 0.0524 0.0126  
 Moon -71739-03-05 17:30 J -24481182.98 -24481182.77 -24481182.55 0.0524 0.0156 \*  
 Mercury -71738-11-02 19:54 J -24480575.75 -24480575.67 -24480575.59 0.0530 0.0397

Mercury -71737-01-31 01:40 J -24480486.55 -24480486.43 -24480486.30 0.0529 0.0066

Mercury -71737-04-29 07:54 J -24480397.18 -24480397.17 -24480397.16 0.0529 0.0523

Mercury -71732-12-26 19:54 J -24478329.85 -24478329.67 -24478329.49 0.0496 0.0089

Mercury -71731-03-27 06:28 J -24478239.25 -24478239.23 -24478239.21 0.0497 0.0491

Earth -71727-03-10 15:06 J -24476795.09 -24476794.87 -24476794.64 0.0525 0.0127

Moon -71727-03-10 15:21 J -24476795.09 -24476794.86 -24476794.63 0.0525 0.0137 \*

Venus -71727-04-16 04:47 J -24476758.50 -24476758.30 -24476758.10 0.0526 0.0097

Mercury -71726-08-22 00:28 J -24476265.51 -24476265.48 -24476265.44 0.0530 0.0506

Mercury -71726-11-19 06:13 J -24476176.36 -24476176.24 -24476176.11 0.0530 0.0052

Mercury -71725-02-16 12:28 J -24476087.06 -24476086.98 -24476086.91 0.0529 0.0414

Earth -71722-08-26 00:13 J -24474800.68 -24474800.49 -24474800.30 0.0503 0.0292

Moon -71722-08-25 23:59 J -24474800.67 -24474800.50 -24474800.32 0.0503 0.0318 \*

Venus -71721-02-15 23:16 J -24474626.70 -24474626.53 -24474626.35 0.0500 0.0257

Mercury -71720-10-14 17:01 J -24474019.95 -24474019.79 -24474019.62 0.0496 0.0230

Mercury -71719-01-13 03:49 J -24473929.47 -24473929.34 -24473929.21 0.0497 0.0352

Venus -71716-12-20 02:09 J -24472492.56 -24472492.41 -24472492.26 0.0524 0.0348

Moon -71715-03-15 15:06 J -24472407.00 -24472406.87 -24472406.73 0.0526 0.0418

Earth -71715-03-15 17:01 J -24472406.94 -24472406.79 -24472406.63 0.0526 0.0385 \*

Mercury -71714-09-07 10:47 J -24471866.17 -24471866.05 -24471865.93 0.0529 0.0160

Mercury -71714-12-05 16:33 J -24471776.91 -24471776.81 -24471776.70 0.0529 0.0300

Earth -71710-08-30 08:52 J -24470413.36 -24470413.13 -24470412.89 0.0502 0.0083

Moon -71710-08-30 11:16 J -24470413.27 -24470413.03 -24470412.79 0.0502 0.0066 \*

Venus -71710-10-21 18:57 J -24470360.90 -24470360.71 -24470360.51 0.0501 0.0159

Mercury -71708-08-02 13:25 J -24469710.06 -24469709.94 -24469709.82 0.0497 0.0381

Mercury -71708-11-01 00:28 J -24469619.65 -24469619.48 -24469619.31 0.0497 0.0204

Mercury -71702-06-26 15:06 J -24467555.98 -24467555.87 -24467555.76 0.0529 0.0271

Mercury -71702-09-23 20:52 J -24467466.74 -24467466.63 -24467466.51 0.0529 0.0189

Moon -71698-09-03 18:42 J -24466025.93 -24466025.72 -24466025.50 0.0501 0.0164

Earth -71698-09-03 22:18 J -24466025.79 -24466025.57 -24466025.34 0.0501 0.0136 \*

Mercury -71696-08-19 21:49 J -24465309.77 -24465309.59 -24465309.40 0.0497 0.0065



Venus -71692-12-22 21:35 J -24463723.74 -24463723.60 -24463723.46 0.0526 0.0373  
 Mercury -71690-04-14 19:11 J -24463245.78 -24463245.70 -24463245.62 0.0529 0.0388  
 Mercury -71690-07-13 00:57 J -24463156.58 -24463156.46 -24463156.33 0.0529 0.0070  
 Earth -71686-09-08 13:11 J -24461638.11 -24461637.95 -24461637.78 0.0500 0.0356  
 Moon -71686-09-08 17:16 J -24461637.94 -24461637.78 -24461637.61 0.0500 0.0348 \*  
 Venus -71686-10-24 11:45 J -24461592.05 -24461592.01 -24461591.97 0.0500 0.0490  
 Mercury -71684-06-07 19:11 J -24460999.88 -24460999.70 -24460999.51 0.0497 0.0077  
 Venus -71680-08-27 17:01 J -24459457.99 -24459457.79 -24459457.59 0.0525 0.0081  
 Mercury -71678-01-31 23:30 J -24458935.56 -24458935.52 -24458935.48 0.0529 0.0500  
 Mars -71678-03-18 11:59 J -24458890.22 -24458890.00 -24458889.77 0.0529 0.0230  
 Mercury -71678-05-01 05:16 J -24458846.40 -24458846.28 -24458846.15 0.0529 0.0043  
 Mercury -71678-07-29 11:16 J -24458757.10 -24458757.03 -24458756.95 0.0529 0.0419  
 Venus -71674-06-29 11:01 J -24457326.24 -24457326.04 -24457325.83 0.0501 0.0094  
 Mercury -71672-03-26 16:18 J -24456689.99 -24456689.82 -24456689.65 0.0496 0.0220  
 Mercury -71672-06-25 03:06 J -24456599.50 -24456599.37 -24456599.24 0.0497 0.0363  
 Earth -71668-02-28 02:37 J -24455255.54 -24455255.39 -24455255.23 0.0523 0.0383  
 Moon -71668-02-28 04:33 J -24455255.45 -24455255.31 -24455255.16 0.0523 0.0403 \*  
 Mercury -71666-02-17 09:49 J -24454536.21 -24454536.09 -24454535.97 0.0530 0.0152  
 Mercury -71666-05-17 15:49 J -24454446.94 -24454446.84 -24454446.74 0.0529 0.0309  
 Venus -71662-03-04 10:04 J -24453060.24 -24453060.08 -24453059.92 0.0502 0.0306  
 Mercury -71660-01-12 13:25 J -24452380.06 -24452379.94 -24452379.81 0.0496 0.0362  
 Mars -71660-02-21 15:49 J -24452340.13 -24452339.84 -24452339.56 0.0496 0.0174  
 Mercury -71660-04-13 00:28 J -24452289.65 -24452289.48 -24452289.31 0.0497 0.0223  
 Earth -71656-03-05 05:01 J -24450867.52 -24450867.29 -24450867.07 0.0524 0.0127  
 Moon -71656-03-05 05:01 J -24450867.52 -24450867.29 -24450867.06 0.0524 0.0152 \*  
 Mercury -71655-12-06 14:23 J -24450226.01 -24450225.90 -24450225.79 0.0529 0.0262  
 Mercury -71654-03-05 20:09 J -24450136.77 -24450136.66 -24450136.54 0.0529 0.0198  
 Mercury -71648-01-29 20:52 J -24447979.82 -24447979.63 -24447979.45 0.0497 0.0072  
 Moon -71644-03-10 04:33 J -24446479.52 -24446479.31 -24446479.09 0.0525 0.0147  
 Earth -71644-03-10 06:28 J -24446479.45 -24446479.23 -24446479.00 0.0525 0.0129 \*

Venus -71644-05-05 10:47 J -24446423.23 -24446423.05 -24446422.86 0.0525 0.0203

Mercury -71643-09-24 18:57 J -24445915.80 -24445915.71 -24445915.62 0.0529 0.0372

Mars -71643-12-21 02:09 J -24445828.55 -24445828.41 -24445828.26 0.0529 0.0422

Mercury -71643-12-23 00:42 J -24445826.60 -24445826.47 -24445826.35 0.0529 0.0086

Earth -71639-08-25 06:57 J -24444485.39 -24444485.21 -24444485.02 0.0503 0.0308

Moon -71639-08-25 09:21 J -24444485.29 -24444485.11 -24444484.93 0.0503 0.0325 \*

Venus -71638-03-06 23:01 J -24444291.70 -24444291.54 -24444291.39 0.0500 0.0324

Mercury -71637-11-17 18:13 J -24443669.93 -24443669.74 -24443669.56 0.0497 0.0069

Venus -71632-01-08 05:45 J -24442157.43 -24442157.26 -24442157.08 0.0524 0.0254

Earth -71632-03-15 03:21 J -24442091.51 -24442091.36 -24442091.19 0.0525 0.0378

Moon -71632-03-15 06:42 J -24442091.36 -24442091.22 -24442091.06 0.0525 0.0404 \*

Mercury -71631-07-13 22:47 J -24441605.59 -24441605.55 -24441605.50 0.0529 0.0489

Mercury -71631-10-11 04:33 J -24441516.43 -24441516.31 -24441516.18 0.0529 0.0035

Mercury -71630-01-08 10:33 J -24441427.13 -24441427.06 -24441426.99 0.0528 0.0428

Moon -71627-08-29 18:13 J -24440097.97 -24440097.74 -24440097.51 0.0502 0.0063

Earth -71627-08-29 21:49 J -24440097.82 -24440097.59 -24440097.36 0.0502 0.0086 \*

Venus -71627-11-09 22:04 J -24440025.78 -24440025.58 -24440025.37 0.0501 0.0074

Mercury -71625-09-05 15:35 J -24439360.02 -24439359.85 -24439359.68 0.0497 0.0209

Mercury -71625-12-05 02:23 J -24439269.52 -24439269.40 -24439269.28 0.0497 0.0376

Mercury -71619-07-30 08:52 J -24437206.25 -24437206.13 -24437206.01 0.0529 0.0145

Mercury -71619-10-27 14:52 J -24437116.98 -24437116.88 -24437116.78 0.0529 0.0315

Venus -71615-07-15 21:35 J -24435759.66 -24435759.60 -24435759.52 0.0502 0.0472

Earth -71615-09-03 12:57 J -24435710.19 -24435709.96 -24435709.74 0.0501 0.0138

Moon -71615-09-03 17:01 J -24435710.01 -24435709.79 -24435709.57 0.0501 0.0164 \*

Mercury -71613-06-24 12:42 J -24435050.10 -24435049.97 -24435049.84 0.0496 0.0352

Mercury -71613-09-22 23:30 J -24434959.68 -24434959.52 -24434959.35 0.0497 0.0234

Venus -71608-01-11 00:28 J -24433388.57 -24433388.48 -24433388.38 0.0526 0.0462

Mercury -71607-05-18 13:25 J -24432896.05 -24432895.94 -24432895.83 0.0529 0.0255

Mercury -71607-08-15 19:25 J -24432806.81 -24432806.69 -24432806.58 0.0529 0.0206

Moon -71603-09-07 23:30 J -24431322.69 -24431322.52 -24431322.34 0.0500 0.0343

Earth -71603-09-08 03:06 J -24431322.53 -24431322.37 -24431322.20 0.0500 0.0357 \*  
 Mercury -71601-04-12 09:49 J -24430740.10 -24430740.09 -24430740.07 0.0496 0.0493  
 Mercury -71601-07-11 20:52 J -24430649.81 -24430649.63 -24430649.44 0.0497 0.0093  
 Venus -71597-09-15 22:04 J -24429122.78 -24429122.58 -24429122.38 0.0525 0.0020  
 Mercury -71595-03-06 17:59 J -24428585.84 -24428585.75 -24428585.65 0.0529 0.0364  
 Mercury -71595-06-03 23:59 J -24428496.63 -24428496.50 -24428496.38 0.0529 0.0096  
 Venus -71591-07-18 11:01 J -24426991.24 -24426991.04 -24426990.84 0.0500 0.0162  
 Mercury -71589-04-29 17:01 J -24426339.97 -24426339.79 -24426339.60 0.0497 0.0061  
 Earth -71585-02-28 18:13 J -24424939.90 -24424939.74 -24424939.58 0.0522 0.0382  
 Moon -71585-02-28 17:59 J -24424939.89 -24424939.75 -24424939.59 0.0522 0.0407 \*  
 Venus -71585-05-21 18:42 J -24424856.83 -24424856.72 -24424856.60 0.0524 0.0424  
 Mercury -71584-12-23 22:33 J -24424275.61 -24424275.56 -24424275.50 0.0529 0.0473  
 Mercury -71583-03-23 04:18 J -24424186.45 -24424186.32 -24424186.19 0.0529 0.0017  
 Mercury -71583-06-20 10:18 J -24424097.14 -24424097.07 -24424097.01 0.0528 0.0444  
 Venus -71579-03-23 09:21 J -24422725.29 -24422725.11 -24422724.93 0.0501 0.0240  
 Mercury -71577-02-16 14:23 J -24422030.07 -24422029.90 -24422029.73 0.0497 0.0203  
 Mercury -71577-05-17 01:11 J -24421939.56 -24421939.45 -24421939.33 0.0498 0.0384  
 Moon -71573-03-04 14:23 J -24420552.12 -24420551.90 -24420551.69 0.0523 0.0157  
 Earth -71573-03-04 15:49 J -24420552.06 -24420551.84 -24420551.61 0.0523 0.0135 \*  
 Mercury -71571-01-09 08:23 J -24419876.28 -24419876.15 -24419876.03 0.0529 0.0135  
 Mercury -71571-04-08 14:09 J -24419787.01 -24419786.91 -24419786.81 0.0528 0.0325  
 Mercury -71566-12-05 11:45 J -24417720.14 -24417720.01 -24417719.88 0.0497 0.0343  
 Mercury -71565-03-04 22:47 J -24417629.71 -24417629.55 -24417629.39 0.0497 0.0244  
 Earth -71561-03-09 14:09 J -24416164.14 -24416163.91 -24416163.68 0.0524 0.0115  
 Moon -71561-03-09 17:16 J -24416164.00 -24416163.78 -24416163.55 0.0524 0.0140 \*  
 Venus -71561-05-24 12:42 J -24416088.14 -24416087.97 -24416087.80 0.0525 0.0286  
 Mercury -71560-10-28 12:28 J -24415566.09 -24415565.98 -24415565.86 0.0529 0.0248  
 Mercury -71559-01-25 18:28 J -24415476.85 -24415476.73 -24415476.62 0.0529 0.0212  
 Moon -71556-08-24 17:16 J -24414169.95 -24414169.78 -24414169.59 0.0504 0.0321  
 Earth -71556-08-24 20:52 J -24414169.80 -24414169.63 -24414169.44 0.0504 0.0309 \*

Venus -71555-03-26 02:37 J -24413956.50 -24413956.39 -24413956.27 0.0500 0.0412  
 Mercury -71554-09-23 08:52 J -24413410.17 -24413410.13 -24413410.09 0.0497 0.0485  
 Mercury -71554-12-22 19:54 J -24413319.85 -24413319.67 -24413319.49 0.0497 0.0101  
 Venus -71549-01-28 08:09 J -24411822.35 -24411822.16 -24411821.97 0.0525 0.0168  
 Moon -71549-03-14 08:52 J -24411776.28 -24411776.13 -24411775.97 0.0525 0.0387  
 Earth -71549-03-14 12:28 J -24411776.14 -24411775.98 -24411775.81 0.0525 0.0368 \*  
 Mercury -71548-08-16 17:01 J -24411255.88 -24411255.79 -24411255.70 0.0529 0.0359  
 Mercury -71548-11-13 22:47 J -24411166.67 -24411166.55 -24411166.42 0.0529 0.0101  
 Earth -71544-08-29 11:16 J -24409782.26 -24409782.03 -24409781.80 0.0502 0.0088  
 Moon -71544-08-29 15:21 J -24409782.09 -24409781.86 -24409781.63 0.0502 0.0058 \*  
 Venus -71544-11-29 01:40 J -24409690.64 -24409690.43 -24409690.23 0.0501 0.0015  
 Mars -71542-08-11 12:42 J -24409070.22 -24409069.97 -24409069.70 0.0497 0.0268  
 Mercury -71542-10-10 17:01 J -24409009.97 -24409009.79 -24409009.60 0.0497 0.0043  
 Mercury -71536-06-04 21:35 J -24406945.65 -24406945.60 -24406945.54 0.0529 0.0466  
 Mercury -71536-09-02 03:21 J -24406856.48 -24406856.36 -24406856.23 0.0529 0.0022  
 Mercury -71536-11-30 09:21 J -24406767.17 -24406767.11 -24406767.04 0.0528 0.0452  
 Venus -71532-08-03 21:21 J -24405424.73 -24405424.61 -24405424.48 0.0502 0.0402  
 Moon -71532-09-02 16:18 J -24405395.05 -24405394.82 -24405394.59 0.0501 0.0146  
 Earth -71532-09-02 20:09 J -24405394.89 -24405394.66 -24405394.44 0.0501 0.0123 \*  
 Mercury -71530-07-29 12:57 J -24404700.13 -24404699.96 -24404699.79 0.0497 0.0197  
 Mercury -71530-10-27 23:59 J -24404609.62 -24404609.50 -24404609.39 0.0498 0.0389  
 Mars -71524-06-12 14:23 J -24402555.15 -24402554.90 -24402554.65 0.0529 0.0049  
 Mercury -71524-06-21 07:54 J -24402546.29 -24402546.17 -24402546.05 0.0529 0.0119  
 Mercury -71524-09-18 13:40 J -24402457.02 -24402456.93 -24402456.83 0.0528 0.0341  
 Earth -71520-09-07 08:52 J -24401007.29 -24401007.13 -24401006.95 0.0501 0.0340  
 Moon -71520-09-07 11:16 J -24401007.20 -24401007.03 -24401006.86 0.0501 0.0322 \*  
 Mercury -71518-05-17 10:04 J -24400390.21 -24400390.08 -24400389.94 0.0497 0.0340  
 Mercury -71518-08-15 21:06 J -24400299.77 -24400299.62 -24400299.45 0.0497 0.0249  
 Venus -71514-10-06 00:57 J -24398787.66 -24398787.46 -24398787.26 0.0525 0.0109  
 Mercury -71512-04-09 11:45 J -24398236.12 -24398236.01 -24398235.89 0.0529 0.0238

Mercury -71512-07-07 17:30 J -24398146.88 -24398146.77 -24398146.65 0.0528 0.0222  
 Venus -71508-08-06 13:25 J -24396656.12 -24396655.94 -24396655.76 0.0501 0.0244  
 Mercury -71506-03-05 07:25 J -24396080.23 -24396080.19 -24396080.14 0.0497 0.0480  
 Mars -71506-05-19 12:42 J -24396005.08 -24396004.97 -24396004.85 0.0497 0.0459  
 Mercury -71506-06-03 18:42 J -24395989.90 -24395989.72 -24395989.54 0.0497 0.0108  
 Moon -71502-02-27 23:30 J -24394624.65 -24394624.52 -24394624.39 0.0522 0.0429  
 Earth -71502-02-28 00:42 J -24394624.61 -24394624.47 -24394624.31 0.0522 0.0398 \*  
 Venus -71502-06-10 19:54 J -24394521.81 -24394521.67 -24394521.51 0.0524 0.0345  
 Mercury -71500-01-26 16:04 J -24393925.92 -24393925.83 -24393925.74 0.0529 0.0352  
 Mercury -71500-04-25 21:49 J -24393836.72 -24393836.59 -24393836.47 0.0529 0.0106  
 Venus -71496-04-11 12:28 J -24392390.18 -24392389.98 -24392389.78 0.0501 0.0156  
 Mercury -71494-03-22 15:49 J -24391680.03 -24391679.84 -24391679.65 0.0497 0.0036  
 Earth -71490-03-04 22:33 J -24390236.78 -24390236.56 -24390236.33 0.0523 0.0150  
 Moon -71490-03-05 01:40 J -24390236.66 -24390236.43 -24390236.20 0.0523 0.0165 \*  
 Mercury -71489-11-14 20:23 J -24389615.71 -24389615.65 -24389615.59 0.0529 0.0465  
 Mercury -71488-02-12 02:09 J -24389526.53 -24389526.41 -24389526.28 0.0529 0.0012  
 Mercury -71488-05-12 08:09 J -24389437.22 -24389437.16 -24389437.10 0.0528 0.0455  
 Mercury -71482-01-08 12:42 J -24387370.14 -24387369.97 -24387369.79 0.0497 0.0180  
 Mercury -71482-04-08 23:30 J -24387279.62 -24387279.52 -24387279.41 0.0497 0.0406  
 Moon -71478-03-09 20:37 J -24385848.86 -24385848.64 -24385848.41 0.0524 0.0135  
 Earth -71478-03-10 00:28 J -24385848.71 -24385848.48 -24385848.25 0.0524 0.0107 \*  
 Venus -71478-06-13 16:18 J -24385752.96 -24385752.82 -24385752.68 0.0526 0.0377  
 Mercury -71477-12-01 06:57 J -24385216.34 -24385216.21 -24385216.09 0.0529 0.0115  
 Mercury -71476-02-28 12:42 J -24385127.06 -24385126.97 -24385126.87 0.0528 0.0346  
 Earth -71473-08-24 03:21 J -24383854.53 -24383854.36 -24383854.18 0.0503 0.0326  
 Moon -71473-08-24 07:25 J -24383854.36 -24383854.19 -24383854.01 0.0503 0.0331 \*  
 Venus -71472-04-14 01:25 J -24383621.50 -24383621.44 -24383621.37 0.0500 0.0475  
 Mercury -71471-10-27 08:23 J -24383060.28 -24383060.15 -24383060.01 0.0497 0.0338  
 Mercury -71470-01-25 19:25 J -24382969.85 -24382969.69 -24382969.52 0.0497 0.0251  
 Venus -71466-02-16 12:57 J -24381487.16 -24381486.96 -24381486.76 0.0525 0.0069

Earth -71466-03-15 01:11 J -24381460.61 -24381460.45 -24381460.28 0.0525 0.0364  
 Moon -71466-03-15 04:18 J -24381460.48 -24381460.32 -24381460.16 0.0525 0.0376 \*  
 Mercury -71465-09-19 11:16 J -24380906.14 -24380906.03 -24380905.91 0.0529 0.0225  
 Mercury -71465-12-17 17:01 J -24380816.90 -24380816.79 -24380816.67 0.0528 0.0235  
 Moon -71461-08-28 12:13 J -24379467.22 -24379466.99 -24379466.75 0.0502 0.0081  
 Earth -71461-08-28 16:04 J -24379467.06 -24379466.83 -24379466.60 0.0502 0.0109 \*  
 Venus -71461-12-17 23:30 J -24379355.72 -24379355.52 -24379355.31 0.0501 0.0074  
 Mercury -71459-08-15 05:30 J -24378750.31 -24378750.27 -24378750.23 0.0497 0.0481  
 Mercury -71459-11-13 16:47 J -24378659.99 -24378659.80 -24378659.62 0.0497 0.0108  
 Mercury -71453-07-08 15:06 J -24376595.96 -24376595.87 -24376595.77 0.0529 0.0345  
 Mercury -71453-10-05 20:52 J -24376506.75 -24376506.63 -24376506.50 0.0528 0.0114  
 Venus -71449-08-22 22:18 J -24375089.72 -24375089.57 -24375089.41 0.0502 0.0328  
 Earth -71449-09-02 05:30 J -24375079.50 -24375079.27 -24375079.04 0.0502 0.0113  
 Moon -71449-09-02 07:40 J -24375079.40 -24375079.18 -24375078.96 0.0502 0.0129 \*  
 Mercury -71447-09-01 14:09 J -24374350.10 -24374349.91 -24374349.73 0.0497 0.0033  
 Mercury -71441-04-26 19:11 J -24372285.76 -24372285.70 -24372285.64 0.0529 0.0460  
 Mercury -71441-07-25 00:57 J -24372196.58 -24372196.46 -24372196.33 0.0529 0.0015  
 Mercury -71441-10-22 06:57 J -24372107.27 -24372107.21 -24372107.15 0.0528 0.0458  
 Moon -71437-09-06 19:25 J -24370691.87 -24370691.69 -24370691.49 0.0501 0.0309  
 Earth -71437-09-06 19:40 J -24370691.85 -24370691.68 -24370691.50 0.0501 0.0335 \*  
 Mercury -71435-06-20 11:01 J -24370040.21 -24370040.04 -24370039.86 0.0497 0.0178  
 Mercury -71435-09-18 21:49 J -24369949.69 -24369949.59 -24369949.48 0.0497 0.0408  
 Venus -71431-10-25 00:57 J -24368452.65 -24368452.46 -24368452.27 0.0525 0.0182  
 Mercury -71429-05-13 05:16 J -24367886.40 -24367886.28 -24367886.15 0.0529 0.0117  
 Mercury -71429-08-10 11:16 J -24367797.13 -24367797.03 -24367796.94 0.0529 0.0345  
 Venus -71425-08-25 14:37 J -24366321.05 -24366320.89 -24366320.73 0.0500 0.0319  
 Mercury -71423-04-08 07:54 J -24365730.31 -24365730.17 -24365730.03 0.0497 0.0324  
 Mercury -71423-07-07 18:57 J -24365639.87 -24365639.71 -24365639.55 0.0497 0.0264  
 Earth -71419-02-27 07:40 J -24364309.32 -24364309.18 -24364309.04 0.0522 0.0414  
 Moon -71419-02-27 10:18 J -24364309.19 -24364309.07 -24364308.94 0.0522 0.0444 \*

Venus -71419-06-29 21:49 J -24364186.77 -24364186.59 -24364186.42 0.0524 0.0263  
 Mercury -71417-03-01 10:04 J -24363576.20 -24363576.08 -24363575.97 0.0529 0.0224  
 Mercury -71417-05-29 15:49 J -24363486.95 -24363486.84 -24363486.73 0.0528 0.0236  
 Venus -71413-04-30 10:18 J -24362055.27 -24362055.07 -24362054.86 0.0501 0.0096  
 Mercury -71411-01-25 03:21 J -24361420.40 -24361420.36 -24361420.32 0.0497 0.0483  
 Mercury -71411-04-25 14:37 J -24361330.07 -24361329.89 -24361329.71 0.0497 0.0106  
 Moon -71407-03-04 04:18 J -24359921.54 -24359921.32 -24359921.10 0.0523 0.0171  
 Earth -71407-03-04 08:09 J -24359921.39 -24359921.16 -24359920.94 0.0523 0.0162 \*  
 Mars -71406-12-03 18:57 J -24359281.89 -24359281.71 -24359281.52 0.0529 0.0348  
 Mercury -71406-12-19 14:23 J -24359266.00 -24359265.90 -24359265.80 0.0529 0.0335  
 Mercury -71405-03-17 20:09 J -24359176.78 -24359176.66 -24359176.54 0.0528 0.0124  
 Venus -71401-01-04 08:37 J -24357789.16 -24357789.14 -24357789.12 0.0502 0.0498  
 Mercury -71399-02-11 11:30 J -24357020.20 -24357020.02 -24357019.83 0.0497 0.0040  
 Earth -71395-03-09 05:16 J -24355533.51 -24355533.28 -24355533.05 0.0524 0.0089  
 Moon -71395-03-09 08:37 J -24355533.36 -24355533.14 -24355532.92 0.0524 0.0122 \*  
 Venus -71395-07-02 16:33 J -24355417.91 -24355417.81 -24355417.71 0.0526 0.0450  
 Mercury -71394-10-07 18:13 J -24354955.80 -24354955.74 -24354955.68 0.0529 0.0456  
 Mercury -71393-01-04 23:59 J -24354866.63 -24354866.50 -24354866.38 0.0528 0.0014  
 Mercury -71393-04-03 05:45 J -24354777.32 -24354777.26 -24354777.20 0.0528 0.0462  
 Moon -71390-08-24 06:42 J -24353539.39 -24353539.22 -24353539.05 0.0504 0.0346  
 Earth -71390-08-24 10:18 J -24353539.24 -24353539.07 -24353538.90 0.0504 0.0342 \*  
 Mars -71388-11-04 15:21 J -24352736.17 -24352735.86 -24352735.56 0.0497 0.0030  
 Mercury -71388-11-30 08:52 J -24352710.30 -24352710.13 -24352709.95 0.0497 0.0180  
 Mercury -71387-02-28 19:54 J -24352619.78 -24352619.67 -24352619.57 0.0498 0.0407  
 Venus -71383-03-07 11:16 J -24351152.23 -24351152.03 -24351151.83 0.0525 0.0006  
 Moon -71383-03-14 00:28 J -24351145.65 -24351145.48 -24351145.29 0.0525 0.0346  
 Earth -71383-03-14 02:52 J -24351145.55 -24351145.38 -24351145.20 0.0525 0.0338 \*  
 Mercury -71382-10-24 04:04 J -24350556.46 -24350556.33 -24350556.21 0.0529 0.0117  
 Mercury -71381-01-21 09:49 J -24350467.19 -24350467.09 -24350467.00 0.0528 0.0345  
 Earth -71378-08-28 23:45 J -24349151.73 -24349151.51 -24349151.28 0.0503 0.0121

Moon -71378-08-29 02:09 J -24349151.63 -24349151.41 -24349151.18 0.0503 0.0092 \*  
 Venus -71377-01-06 23:59 J -24349020.70 -24349020.50 -24349020.30 0.0501 0.0143  
 Mercury -71376-09-18 05:45 J -24348400.40 -24348400.26 -24348400.12 0.0497 0.0326  
 Mercury -71376-12-17 16:47 J -24348309.96 -24348309.80 -24348309.64 0.0497 0.0261  
 Venus -71372-11-10 05:30 J -24346886.36 -24346886.27 -24346886.17 0.0524 0.0461  
 Mercury -71370-08-12 08:09 J -24346246.27 -24346246.16 -24346246.05 0.0529 0.0231  
 Mars -71370-09-06 15:35 J -24346221.07 -24346220.85 -24346220.63 0.0529 0.0247  
 Mercury -71370-11-09 13:54 J -24346157.03 -24346156.92 -24346156.80 0.0529 0.0231  
 Moon -71366-09-02 12:57 J -24344764.20 -24344763.96 -24344763.72 0.0502 0.0105  
 Earth -71366-09-02 13:11 J -24344764.18 -24344763.95 -24344763.72 0.0502 0.0099 \*  
 Venus -71366-09-11 22:18 J -24344754.74 -24344754.57 -24344754.39 0.0502 0.0258  
 Mercury -71364-07-07 02:23 J -24344090.45 -24344090.40 -24344090.34 0.0497 0.0473  
 Mercury -71364-10-05 13:40 J -24344000.11 -24343999.93 -24343999.75 0.0497 0.0115  
 Mercury -71358-05-31 12:42 J -24341936.06 -24341935.97 -24341935.87 0.0529 0.0339  
 Mercury -71358-08-28 18:28 J -24341846.85 -24341846.73 -24341846.60 0.0529 0.0123  
 Moon -71354-09-06 20:37 J -24340376.82 -24340376.64 -24340376.45 0.0500 0.0283  
 Earth -71354-09-06 22:18 J -24340376.75 -24340376.57 -24340376.38 0.0500 0.0311 \*  
 Mercury -71352-07-24 09:06 J -24339690.31 -24339690.12 -24339689.93 0.0497 0.0044  
 Venus -71348-11-13 02:09 J -24338117.58 -24338117.41 -24338117.23 0.0526 0.0261  
 Mercury -71346-03-19 17:16 J -24337625.85 -24337625.78 -24337625.72 0.0529 0.0450  
 Mercury -71346-06-16 23:01 J -24337536.67 -24337536.54 -24337536.42 0.0529 0.0017  
 Mercury -71346-09-14 04:47 J -24337447.35 -24337447.30 -24337447.24 0.0528 0.0469  
 Venus -71342-09-14 10:18 J -24335986.20 -24335986.07 -24335985.92 0.0500 0.0367  
 Mercury -71340-05-12 05:59 J -24335380.43 -24335380.25 -24335380.08 0.0497 0.0190  
 Mercury -71340-08-10 16:47 J -24335289.90 -24335289.80 -24335289.68 0.0498 0.0398  
 Moon -71336-02-26 06:13 J -24333994.33 -24333994.24 -24333994.14 0.0522 0.0470  
 Earth -71336-02-26 09:49 J -24333994.21 -24333994.09 -24333993.96 0.0522 0.0437 \*  
 Venus -71336-07-18 20:23 J -24333851.83 -24333851.65 -24333851.46 0.0524 0.0198  
 Mercury -71334-04-05 02:37 J -24333226.51 -24333226.39 -24333226.27 0.0529 0.0115  
 Mercury -71334-07-03 08:23 J -24333137.24 -24333137.15 -24333137.05 0.0528 0.0346



Venus -71330-05-20 08:37 J -24331720.35 -24331720.14 -24331719.94 0.0501 0.0037

Mercury -71328-02-28 03:06 J -24331070.51 -24331070.37 -24331070.23 0.0497 0.0333

Mercury -71328-05-29 14:09 J -24330980.07 -24330979.91 -24330979.75 0.0497 0.0256

Earth -71324-03-03 07:25 J -24329606.41 -24329606.19 -24329605.97 0.0523 0.0191

Moon -71324-03-03 11:01 J -24329606.26 -24329606.04 -24329605.83 0.0523 0.0189 \*

Mercury -71322-01-22 06:42 J -24328916.34 -24328916.22 -24328916.11 0.0529 0.0233

Mercury -71322-04-21 12:28 J -24328827.10 -24328826.98 -24328826.87 0.0528 0.0228

Venus -71318-01-23 06:57 J -24327454.30 -24327454.21 -24327454.11 0.0502 0.0438

Mercury -71317-12-16 23:45 J -24326760.55 -24326760.51 -24326760.46 0.0497 0.0480

Mercury -71316-03-17 11:01 J -24326670.22 -24326670.04 -24326669.86 0.0497 0.0109

Moon -71312-03-08 00:57 J -24325218.69 -24325218.46 -24325218.22 0.0524 0.0089

Earth -71312-03-08 03:49 J -24325218.58 -24325218.34 -24325218.11 0.0524 0.0056 \*

Venus -71312-07-21 13:11 J -24325083.00 -24325082.95 -24325082.90 0.0526 0.0504

Mercury -71311-11-10 10:47 J -24324606.15 -24324606.05 -24324605.96 0.0529 0.0350

Mercury -71310-02-07 16:33 J -24324516.94 -24324516.81 -24324516.69 0.0529 0.0111

Earth -71307-08-23 15:35 J -24323224.00 -24323223.85 -24323223.68 0.0504 0.0361

Moon -71307-08-23 18:13 J -24323223.90 -24323223.74 -24323223.58 0.0504 0.0359 \*

Mercury -71304-01-03 07:40 J -24322360.36 -24322360.18 -24322359.99 0.0497 0.0039

Earth -71300-03-13 03:21 J -24320830.54 -24320830.36 -24320830.17 0.0525 0.0310

Moon -71300-03-13 04:18 J -24320830.49 -24320830.32 -24320830.14 0.0525 0.0316 \*

Venus -71300-03-26 09:06 J -24320817.32 -24320817.12 -24320816.92 0.0525 0.0057

Mercury -71299-08-29 15:21 J -24320295.92 -24320295.86 -24320295.80 0.0529 0.0459

Mercury -71299-11-26 21:06 J -24320206.75 -24320206.62 -24320206.50 0.0529 0.0008

Mercury -71298-02-24 02:52 J -24320117.43 -24320117.38 -24320117.32 0.0528 0.0463

Moon -71295-08-28 01:11 J -24318836.69 -24318836.45 -24318836.21 0.0502 0.0117

Earth -71295-08-28 01:54 J -24318836.65 -24318836.42 -24318836.20 0.0502 0.0145 \*

Venus -71294-01-25 19:54 J -24318685.86 -24318685.67 -24318685.48 0.0500 0.0192

Mercury -71293-10-22 03:06 J -24318050.54 -24318050.37 -24318050.20 0.0497 0.0199

Mercury -71292-01-20 13:54 J -24317960.03 -24317959.92 -24317959.80 0.0497 0.0389

Venus -71289-11-29 04:33 J -24316551.44 -24316551.31 -24316551.18 0.0524 0.0395

Mercury -71287-09-15 01:25 J -24315896.57 -24315896.44 -24315896.32 0.0529 0.0112  
 Mercury -71287-12-13 07:11 J -24315807.29 -24315807.20 -24315807.10 0.0528 0.0349  
 Moon -71283-09-01 11:45 J -24314449.23 -24314449.01 -24314448.78 0.0501 0.0070  
 Earth -71283-09-01 13:11 J -24314449.18 -24314448.95 -24314448.72 0.0501 0.0071 \*  
 Venus -71283-09-30 17:30 J -24314419.95 -24314419.77 -24314419.58 0.0501 0.0213  
 Mercury -71281-08-09 23:45 J -24313740.64 -24313740.51 -24313740.37 0.0497 0.0346  
 Mercury -71281-11-08 10:47 J -24313650.21 -24313650.05 -24313649.88 0.0497 0.0243  
 Mercury -71275-07-04 05:01 J -24311586.40 -24311586.29 -24311586.18 0.0529 0.0236  
 Mercury -71275-10-01 10:47 J -24311497.16 -24311497.05 -24311496.93 0.0528 0.0225  
 Earth -71271-09-06 00:28 J -24310061.67 -24310061.48 -24310061.29 0.0501 0.0290  
 Moon -71271-09-06 03:21 J -24310061.56 -24310061.36 -24310061.15 0.0501 0.0258 \*  
 Mercury -71269-05-28 20:52 J -24309430.66 -24309430.63 -24309430.60 0.0497 0.0490  
 Mercury -71269-08-27 08:09 J -24309340.34 -24309340.16 -24309339.98 0.0497 0.0100  
 Venus -71265-12-01 21:49 J -24307782.75 -24307782.59 -24307782.43 0.0525 0.0308  
 Mercury -71263-04-22 08:52 J -24307276.22 -24307276.13 -24307276.03 0.0529 0.0355  
 Mercury -71263-07-20 14:37 J -24307187.01 -24307186.89 -24307186.76 0.0528 0.0107  
 Moon -71259-09-10 09:49 J -24305674.13 -24305674.09 -24305674.06 0.0500 0.0494  
 Venus -71259-10-03 07:40 J -24305651.29 -24305651.18 -24305651.07 0.0500 0.0420  
 Mercury -71257-06-15 04:47 J -24305030.48 -24305030.30 -24305030.11 0.0497 0.0049  
 Earth -71253-02-26 05:30 J -24303679.36 -24303679.27 -24303679.17 0.0521 0.0475  
 Moon -71253-02-26 09:21 J -24303679.16 -24303679.11 -24303679.06 0.0521 0.0506  
 Venus -71253-08-06 15:35 J -24303517.04 -24303516.85 -24303516.66 0.0524 0.0152  
 Mercury -71251-02-08 12:57 J -24302966.01 -24302965.96 -24302965.90 0.0529 0.0472  
 Mars -71251-02-26 02:52 J -24302948.61 -24302948.38 -24302948.15 0.0529 0.0202  
 Mercury -71251-05-08 18:42 J -24302876.84 -24302876.72 -24302876.59 0.0529 0.0015  
 Mercury -71251-08-06 00:42 J -24302787.54 -24302787.47 -24302787.41 0.0528 0.0449  
 Venus -71247-06-08 05:45 J -24301385.46 -24301385.26 -24301385.05 0.0501 0.0022  
 Mercury -71245-04-03 01:25 J -24300720.61 -24300720.44 -24300720.27 0.0497 0.0197  
 Mercury -71245-07-02 12:13 J -24300630.10 -24300629.99 -24300629.87 0.0497 0.0390  
 Moon -71241-03-02 01:40 J -24299291.65 -24299291.43 -24299291.22 0.0523 0.0224

Earth -71241-03-02 04:33 J -24299291.51 -24299291.31 -24299291.09 0.0523 0.0228 \*  
 Mercury -71239-02-24 23:16 J -24298566.65 -24298566.53 -24298566.41 0.0529 0.0123  
 Mercury -71239-05-25 05:01 J -24298477.38 -24298477.29 -24298477.19 0.0529 0.0339  
 Venus -71235-02-11 02:37 J -24297119.51 -24297119.39 -24297119.25 0.0501 0.0391  
 Mercury -71233-01-20 20:52 J -24296410.76 -24296410.63 -24296410.50 0.0497 0.0357  
 Mars -71233-01-28 11:45 J -24296403.30 -24296403.01 -24296402.71 0.0497 0.0139  
 Mercury -71233-04-20 07:54 J -24296320.34 -24296320.17 -24296320.01 0.0497 0.0232  
 Earth -71229-03-07 03:21 J -24294903.60 -24294903.36 -24294903.13 0.0524 0.0027  
 Moon -71229-03-07 04:47 J -24294903.52 -24294903.30 -24294903.08 0.0524 0.0060 \*  
 Mercury -71228-12-14 03:35 J -24294256.46 -24294256.35 -24294256.24 0.0529 0.0237  
 Mercury -71227-03-13 09:21 J -24294167.22 -24294167.11 -24294166.99 0.0529 0.0225  
 Moon -71224-08-22 14:37 J -24292909.04 -24292908.89 -24292908.73 0.0504 0.0381  
 Earth -71224-08-22 15:35 J -24292908.99 -24292908.85 -24292908.70 0.0504 0.0389 \*  
 Mercury -71221-02-07 04:33 J -24292010.49 -24292010.31 -24292010.12 0.0497 0.0085  
 Earth -71217-03-12 00:57 J -24290515.66 -24290515.46 -24290515.27 0.0525 0.0279  
 Moon -71217-03-12 01:11 J -24290515.65 -24290515.45 -24290515.24 0.0525 0.0279 \*  
 Venus -71217-04-14 05:16 J -24290482.48 -24290482.28 -24290482.09 0.0525 0.0105  
 Mercury -71216-10-02 07:11 J -24289946.29 -24289946.20 -24289946.11 0.0529 0.0360  
 Mars -71216-11-30 04:04 J -24289887.47 -24289887.33 -24289887.16 0.0529 0.0409  
 Mercury -71216-12-30 12:57 J -24289857.08 -24289856.96 -24289856.83 0.0528 0.0100  
 Moon -71212-08-27 00:42 J -24288521.69 -24288521.47 -24288521.26 0.0503 0.0145  
 Earth -71212-08-27 01:54 J -24288521.64 -24288521.42 -24288521.20 0.0503 0.0172 \*  
 Venus -71211-02-13 15:35 J -24288351.03 -24288350.85 -24288350.67 0.0500 0.0237  
 Mercury -71210-11-26 01:40 J -24287700.61 -24287700.43 -24287700.24 0.0497 0.0060  
 Venus -71206-12-18 23:45 J -24286216.65 -24286216.51 -24286216.36 0.0524 0.0350  
 Moon -71205-03-16 19:40 J -24286127.75 -24286127.68 -24286127.61 0.0525 0.0497  
 Mercury -71204-07-21 11:16 J -24285636.08 -24285636.03 -24285635.98 0.0529 0.0478  
 Mercury -71204-10-18 17:01 J -24285546.92 -24285546.79 -24285546.67 0.0529 0.0027  
 Mercury -71203-01-15 22:47 J -24285457.62 -24285457.55 -24285457.48 0.0528 0.0442  
 Earth -71200-08-31 13:54 J -24284134.15 -24284133.92 -24284133.68 0.0502 0.0048

Moon -71200-08-31 16:47 J -24284134.04 -24284133.80 -24284133.56 0.0502 0.0041 \*  
 Venus -71200-10-19 13:25 J -24284085.13 -24284084.94 -24284084.74 0.0501 0.0166  
 Mercury -71198-09-13 22:18 J -24283390.74 -24283390.57 -24283390.40 0.0497 0.0208  
 Mercury -71198-12-13 09:21 J -24283300.23 -24283300.11 -24283299.99 0.0497 0.0380  
 Mercury -71192-08-06 20:52 J -24281236.75 -24281236.63 -24281236.51 0.0529 0.0139  
 Mercury -71192-11-04 02:37 J -24281147.49 -24281147.39 -24281147.29 0.0528 0.0323  
 Moon -71188-09-04 23:01 J -24279746.74 -24279746.54 -24279746.34 0.0501 0.0233  
 Earth -71188-09-05 02:23 J -24279746.59 -24279746.40 -24279746.19 0.0501 0.0266 \*  
 Mercury -71186-07-02 18:42 J -24279080.84 -24279080.72 -24279080.59 0.0497 0.0358  
 Mercury -71186-10-01 05:59 J -24278990.42 -24278990.25 -24278990.09 0.0497 0.0231  
 Venus -71182-12-21 16:47 J -24277447.94 -24277447.80 -24277447.65 0.0526 0.0355  
 Mercury -71180-05-26 01:11 J -24276926.56 -24276926.45 -24276926.33 0.0529 0.0251  
 Mercury -71180-08-23 07:11 J -24276837.32 -24276837.20 -24276837.09 0.0529 0.0212  
 Earth -71176-09-09 13:11 J -24275359.01 -24275358.95 -24275358.88 0.0500 0.0479  
 Moon -71176-09-09 17:01 J -24275358.86 -24275358.79 -24275358.71 0.0500 0.0474  
 Venus -71176-10-22 02:37 J -24275316.46 -24275316.39 -24275316.31 0.0499 0.0464  
 Mercury -71174-07-20 01:40 J -24274680.62 -24274680.43 -24274680.25 0.0497 0.0074  
 Earth -71170-02-25 02:37 J -24273364.43 -24273364.39 -24273364.34 0.0522 0.0510  
 Venus -71170-08-26 11:59 J -24273182.20 -24273182.00 -24273181.80 0.0525 0.0100  
 Mercury -71168-03-14 05:30 J -24272616.35 -24272616.27 -24272616.17 0.0529 0.0364  
 Mercury -71168-06-11 11:30 J -24272527.15 -24272527.02 -24272526.90 0.0529 0.0099  
 Venus -71164-06-27 00:28 J -24271050.68 -24271050.48 -24271050.27 0.0500 0.0062  
 Mercury -71162-05-07 22:18 J -24270370.76 -24270370.57 -24270370.39 0.0497 0.0075  
 Earth -71158-03-02 01:11 J -24268976.65 -24268976.45 -24268976.24 0.0522 0.0259  
 Moon -71158-03-02 03:21 J -24268976.56 -24268976.36 -24268976.16 0.0522 0.0253 \*  
 Mercury -71157-12-31 09:21 J -24268306.16 -24268306.11 -24268306.06 0.0529 0.0486  
 Mercury -71156-03-30 15:06 J -24268217.00 -24268216.87 -24268216.74 0.0529 0.0027  
 Mercury -71156-06-27 20:52 J -24268127.70 -24268127.63 -24268127.56 0.0528 0.0435  
 Venus -71152-03-01 21:21 J -24266784.75 -24266784.61 -24266784.46 0.0502 0.0350  
 Mercury -71150-02-23 19:11 J -24266060.87 -24266060.70 -24266060.53 0.0497 0.0221

Mercury -71150-05-25 06:13 J -24265970.36 -24265970.24 -24265970.12 0.0497 0.0369

Moon -71146-03-06 23:01 J -24264588.78 -24264588.54 -24264588.29 0.0523 0.0024

Earth -71146-03-06 23:30 J -24264588.76 -24264588.52 -24264588.29 0.0523 0.0011 \*

Mercury -71144-01-16 18:57 J -24263906.83 -24263906.71 -24263906.58 0.0529 0.0146

Mercury -71144-04-16 00:57 J -24263817.57 -24263817.46 -24263817.36 0.0528 0.0316

Moon -71141-08-21 13:40 J -24262594.06 -24262593.93 -24262593.79 0.0505 0.0404

Earth -71141-08-21 14:37 J -24262594.02 -24262593.89 -24262593.76 0.0505 0.0418 \*

Mercury -71139-12-12 15:49 J -24261750.96 -24261750.84 -24261750.71 0.0497 0.0369

Mercury -71138-03-13 02:52 J -24261660.54 -24261660.38 -24261660.21 0.0497 0.0222

Moon -71134-03-11 17:16 J -24260200.98 -24260200.78 -24260200.58 0.0524 0.0233

Earth -71134-03-11 19:11 J -24260200.91 -24260200.70 -24260200.50 0.0524 0.0237 \*

Venus -71134-05-03 23:16 J -24260147.73 -24260147.53 -24260147.34 0.0525 0.0145

Mercury -71133-11-04 22:47 J -24259596.65 -24259596.55 -24259596.44 0.0529 0.0267

Mercury -71132-02-02 04:47 J -24259507.42 -24259507.30 -24259507.18 0.0529 0.0197

Earth -71129-08-26 03:21 J -24258206.57 -24258206.36 -24258206.14 0.0504 0.0198

Moon -71129-08-26 06:13 J -24258206.47 -24258206.24 -24258206.02 0.0504 0.0170 \*

Venus -71128-03-04 11:45 J -24258016.18 -24258016.01 -24258015.84 0.0500 0.0287

Mercury -71127-12-29 23:30 J -24257350.70 -24257350.52 -24257350.33 0.0497 0.0072

Venus -71122-01-06 18:13 J -24255881.90 -24255881.74 -24255881.58 0.0524 0.0308

Earth -71122-03-16 17:01 J -24255812.86 -24255812.79 -24255812.70 0.0525 0.0489

Moon -71122-03-16 20:37 J -24255812.74 -24255812.64 -24255812.51 0.0525 0.0458 \*

Mercury -71121-08-24 03:21 J -24255286.45 -24255286.36 -24255286.27 0.0529 0.0378

Mercury -71121-11-21 09:06 J -24255197.24 -24255197.12 -24255196.99 0.0529 0.0084

Moon -71117-08-30 11:59 J -24253819.23 -24253819.00 -24253818.77 0.0502 0.0016

Earth -71117-08-30 15:35 J -24253819.09 -24253818.85 -24253818.62 0.0502 0.0025 \*

Venus -71117-11-07 09:21 J -24253750.31 -24253750.11 -24253749.91 0.0501 0.0119

Mars -71115-07-15 14:37 J -24253135.07 -24253134.89 -24253134.70 0.0496 0.0398

Mercury -71115-10-17 19:25 J -24253040.88 -24253040.69 -24253040.51 0.0497 0.0085

Mercury -71109-06-12 07:40 J -24250976.22 -24250976.18 -24250976.13 0.0530 0.0491

Mercury -71109-09-09 13:25 J -24250887.06 -24250886.94 -24250886.81 0.0529 0.0031

Mercury -71109-12-07 19:25 J -24250797.76 -24250797.69 -24250797.62 0.0529 0.0434

Earth -71105-09-04 02:52 J -24249431.59 -24249431.38 -24249431.18 0.0501 0.0240

Moon -71105-09-04 06:42 J -24249431.43 -24249431.22 -24249431.01 0.0501 0.0209 \*

Mercury -71103-08-05 16:04 J -24248731.00 -24248730.83 -24248730.67 0.0497 0.0233

Mercury -71103-11-04 02:52 J -24248640.50 -24248640.38 -24248640.25 0.0497 0.0356

Venus -71098-01-09 12:42 J -24247113.10 -24247112.97 -24247112.84 0.0526 0.0400

Mars -71097-05-21 09:06 J -24246615.36 -24246615.12 -24246614.87 0.0529 0.0053

Mercury -71097-06-28 17:16 J -24246576.90 -24246576.78 -24246576.66 0.0529 0.0153

Mercury -71097-09-25 23:01 J -24246487.64 -24246487.54 -24246487.44 0.0528 0.0309

Moon -71093-09-08 08:52 J -24245044.22 -24245044.13 -24245044.02 0.0501 0.0453

Earth -71093-09-08 12:28 J -24245044.07 -24245043.98 -24245043.88 0.0501 0.0455 \*

Mercury -71091-05-24 12:42 J -24244421.08 -24244420.97 -24244420.85 0.0497 0.0381

Mercury -71091-08-22 23:59 J -24244330.67 -24244330.50 -24244330.33 0.0497 0.0211

Venus -71087-09-14 07:54 J -24242847.37 -24242847.17 -24242846.98 0.0524 0.0054

Mercury -71085-04-16 21:21 J -24242266.72 -24242266.61 -24242266.51 0.0529 0.0271

Mercury -71085-07-15 03:06 J -24242177.49 -24242177.37 -24242177.26 0.0528 0.0192

Venus -71081-07-15 19:40 J -24240715.88 -24240715.68 -24240715.48 0.0501 0.0103

Mars -71079-04-22 15:06 J -24240070.09 -24240069.87 -24240069.63 0.0497 0.0331

Mercury -71079-06-10 20:52 J -24240020.82 -24240020.63 -24240020.44 0.0497 0.0064

Moon -71075-02-28 19:40 J -24238661.87 -24238661.68 -24238661.47 0.0522 0.0291

Earth -71075-02-28 20:52 J -24238661.82 -24238661.63 -24238661.43 0.0522 0.0297 \*

Venus -71075-05-20 01:11 J -24238581.49 -24238581.45 -24238581.41 0.0523 0.0510

Mercury -71073-02-04 01:11 J -24237956.53 -24237956.45 -24237956.37 0.0529 0.0390

Mercury -71073-05-03 06:57 J -24237867.34 -24237867.21 -24237867.09 0.0529 0.0071

Venus -71069-03-20 17:59 J -24236449.91 -24236449.75 -24236449.58 0.0502 0.0298

Mercury -71067-03-29 17:30 J -24235710.96 -24235710.77 -24235710.59 0.0497 0.0085

Moon -71063-03-05 17:30 J -24234273.99 -24234273.77 -24234273.54 0.0523 0.0022

Earth -71063-03-05 18:42 J -24234273.95 -24234273.72 -24234273.48 0.0523 0.0049 \*

Mercury -71062-11-23 05:30 J -24233646.31 -24233646.27 -24233646.23 0.0529 0.0503

Mercury -71061-02-20 11:16 J -24233557.16 -24233557.03 -24233556.90 0.0529 0.0042

Mercury -71061-05-19 17:16 J -24233467.86 -24233467.78 -24233467.71 0.0529 0.0422

Earth -71058-08-21 17:59 J -24232278.86 -24232278.75 -24232278.64 0.0505 0.0439

Moon -71058-08-21 20:23 J -24232278.78 -24232278.65 -24232278.51 0.0505 0.0415 \*

Mercury -71055-01-15 13:25 J -24231401.10 -24231400.94 -24231400.77 0.0496 0.0240

Mercury -71055-04-16 00:28 J -24231310.61 -24231310.48 -24231310.35 0.0497 0.0349

Earth -71051-03-10 17:01 J -24229886.00 -24229885.79 -24229885.58 0.0524 0.0206

Moon -71051-03-10 20:23 J -24229885.87 -24229885.65 -24229885.43 0.0524 0.0193 \*

Venus -71051-05-22 19:40 J -24229812.86 -24229812.68 -24229812.49 0.0526 0.0197

Mercury -71050-12-09 15:35 J -24229246.97 -24229246.85 -24229246.73 0.0529 0.0156

Mercury -71049-03-07 21:35 J -24229157.71 -24229157.60 -24229157.50 0.0529 0.0309

Moon -71046-08-26 02:23 J -24227891.61 -24227891.40 -24227891.18 0.0503 0.0193

Earth -71046-08-26 05:59 J -24227891.46 -24227891.25 -24227891.04 0.0503 0.0220 \*

Venus -71045-03-23 08:09 J -24227681.31 -24227681.16 -24227681.01 0.0500 0.0336

Mercury -71044-11-03 10:04 J -24227091.19 -24227091.08 -24227090.96 0.0496 0.0387

Mercury -71043-02-01 21:21 J -24227000.78 -24227000.61 -24227000.44 0.0497 0.0203

Venus -71039-01-25 15:06 J -24225547.04 -24225546.87 -24225546.69 0.0524 0.0256

Moon -71039-03-15 12:13 J -24225498.12 -24225497.99 -24225497.86 0.0525 0.0430

Earth -71039-03-15 16:18 J -24225497.92 -24225497.82 -24225497.71 0.0525 0.0463 \*

Mercury -71038-09-27 19:25 J -24224936.79 -24224936.69 -24224936.58 0.0529 0.0277

Mercury -71038-12-26 01:11 J -24224847.56 -24224847.45 -24224847.33 0.0528 0.0186

Earth -71034-08-30 14:37 J -24223504.12 -24223503.89 -24223503.65 0.0503 0.0007

Moon -71034-08-30 18:42 J -24223503.96 -24223503.72 -24223503.49 0.0503 0.0017 \*

Venus -71034-11-27 04:18 J -24223415.52 -24223415.32 -24223415.11 0.0501 0.0077

Mercury -71032-11-20 18:13 J -24222690.93 -24222690.74 -24222690.56 0.0497 0.0056

Mercury -71026-07-16 23:30 J -24220626.60 -24220626.52 -24220626.43 0.0529 0.0393

Mercury -71026-10-14 05:16 J -24220537.40 -24220537.28 -24220537.15 0.0528 0.0070

Venus -71022-08-02 02:23 J -24219149.45 -24219149.40 -24219149.34 0.0503 0.0480

Moon -71022-09-03 23:30 J -24219116.74 -24219116.52 -24219116.30 0.0502 0.0186

Earth -71022-09-04 02:52 J -24219116.59 -24219116.38 -24219116.17 0.0502 0.0216 \*

Mercury -71020-09-08 15:06 J -24218381.06 -24218380.87 -24218380.69 0.0497 0.0091

Venus -71015-01-28 08:37 J -24216778.24 -24216778.14 -24216778.04 0.0525 0.0449

Mercury -71014-05-05 03:35 J -24216316.38 -24216316.35 -24216316.32 0.0529 0.0512

Mercury -71014-08-02 09:21 J -24216227.24 -24216227.11 -24216226.99 0.0529 0.0053

Mercury -71014-10-30 15:06 J -24216137.95 -24216137.87 -24216137.79 0.0528 0.0411

Earth -71010-09-08 16:04 J -24214728.93 -24214728.83 -24214728.71 0.0501 0.0435

Moon -71010-09-08 18:13 J -24214728.84 -24214728.74 -24214728.63 0.0501 0.0445 \*

Mercury -71008-06-27 11:45 J -24214071.17 -24214071.01 -24214070.85 0.0497 0.0238

Mercury -71008-09-25 22:47 J -24213980.68 -24213980.55 -24213980.42 0.0497 0.0352

Venus -71004-10-03 03:35 J -24212512.55 -24212512.35 -24212512.15 0.0525 0.0007

Mercury -71002-05-21 13:40 J -24211917.05 -24211916.93 -24211916.81 0.0529 0.0165

Mercury -71002-08-18 19:25 J -24211827.79 -24211827.69 -24211827.58 0.0529 0.0299

# 71ST MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 71st millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Venus	-70998-08-04 17:45 J	-24210380.95	-24210380.76	-24210380.56	0.0501	0.0161		
Mercury	-70996-04-15 07:54 J	-24209761.28	-24209761.17	-24209761.05	0.0496	0.0391		
Mercury	-70996-07-14 19:11 J	-24209670.87	-24209670.70	-24209670.53	0.0497	0.0200		
Moon	-70992-02-27 19:40 J	-24208346.86	-24208346.68	-24208346.50	0.0522	0.0317		
Earth	-70992-02-27 20:09 J	-24208346.84	-24208346.66	-24208346.48	0.0522	0.0327	*	
Venus	-70992-06-07 22:18 J	-24208246.66	-24208246.57	-24208246.46	0.0524	0.0456		
Mercury	-70990-03-09 17:59 J	-24207606.85	-24207606.75	-24207606.64	0.0529	0.0278		



Mercury -70990-06-06 23:59 J -24207517.62 -24207517.50 -24207517.39 0.0529 0.0187

Venus -70986-04-09 16:04 J -24206115.01 -24206114.83 -24206114.65 0.0502 0.0240

Mercury -70984-05-02 16:04 J -24205361.02 -24205360.83 -24205360.65 0.0497 0.0054

Earth -70980-03-04 20:23 J -24203958.88 -24203958.65 -24203958.42 0.0523 0.0069

Moon -70980-03-04 23:16 J -24203958.76 -24203958.53 -24203958.29 0.0523 0.0044 \*

Mars -70979-11-10 21:49 J -24203342.68 -24203342.59 -24203342.49 0.0529 0.0488

Mercury -70979-12-26 22:04 J -24203296.66 -24203296.58 -24203296.50 0.0529 0.0395

Mercury -70978-03-26 03:49 J -24203207.46 -24203207.34 -24203207.21 0.0529 0.0066

Moon -70975-08-20 14:37 J -24201963.99 -24201963.89 -24201963.78 0.0505 0.0444

Earth -70975-08-20 17:59 J -24201963.83 -24201963.75 -24201963.66 0.0505 0.0468 \*

Mercury -70972-02-18 12:42 J -24201051.15 -24201050.97 -24201050.78 0.0497 0.0095

Mercury -70972-05-19 23:30 J -24200960.52 -24200960.52 -24200960.50 0.0498 0.0496

Moon -70968-03-09 16:33 J -24199571.03 -24199570.81 -24199570.59 0.0523 0.0168

Earth -70968-03-09 20:37 J -24199570.86 -24199570.64 -24199570.43 0.0523 0.0187 \*

Venus -70968-06-10 18:57 J -24199477.88 -24199477.71 -24199477.54 0.0525 0.0262

Mercury -70967-10-15 02:23 J -24198986.43 -24198986.40 -24198986.37 0.0529 0.0509

Mercury -70966-01-12 08:09 J -24198897.29 -24198897.16 -24198897.04 0.0528 0.0053

Mercury -70966-04-11 13:54 J -24198808.00 -24198807.92 -24198807.85 0.0528 0.0412

Earth -70963-08-25 06:28 J -24197576.43 -24197576.23 -24197576.03 0.0504 0.0247

Moon -70963-08-25 10:18 J -24197576.28 -24197576.07 -24197575.86 0.0504 0.0220 \*

Venus -70962-04-12 04:33 J -24197346.44 -24197346.31 -24197346.18 0.0501 0.0385

Mars -70961-10-08 05:16 J -24196801.57 -24196801.28 -24196800.99 0.0497 0.0176

Mercury -70961-12-07 09:49 J -24196741.26 -24196741.09 -24196740.93 0.0497 0.0241

Mercury -70960-03-07 20:52 J -24196650.76 -24196650.63 -24196650.50 0.0497 0.0352

Venus -70956-02-13 12:57 J -24195212.14 -24195211.96 -24195211.77 0.0524 0.0194

Earth -70956-03-14 16:47 J -24195182.93 -24195182.80 -24195182.67 0.0524 0.0435

Moon -70956-03-14 20:37 J -24195182.78 -24195182.64 -24195182.49 0.0524 0.0404 \*

Mercury -70955-10-31 11:59 J -24194587.12 -24194587.00 -24194586.88 0.0529 0.0169

Mercury -70954-01-28 17:45 J -24194497.86 -24194497.76 -24194497.65 0.0528 0.0293

Moon -70951-08-29 16:47 J -24193189.04 -24193188.80 -24193188.56 0.0503 0.0037

Earth -70951-08-29 20:23 J -24193188.88 -24193188.65 -24193188.42 0.0503 0.0022 \*  
 Venus -70951-12-16 03:06 J -24193080.57 -24193080.37 -24193080.16 0.0502 0.0018  
 Mercury -70949-09-25 06:28 J -24192431.34 -24192431.23 -24192431.11 0.0497 0.0387  
 Mercury -70949-12-24 17:45 J -24192340.93 -24192340.76 -24192340.59 0.0497 0.0206  
 Mars -70943-08-14 22:33 J -24190281.80 -24190281.56 -24190281.32 0.0529 0.0112  
 Mercury -70943-08-19 16:18 J -24190276.92 -24190276.82 -24190276.71 0.0529 0.0283  
 Mercury -70943-11-16 22:04 J -24190187.70 -24190187.58 -24190187.46 0.0529 0.0181  
 Venus -70939-08-21 02:23 J -24188814.52 -24188814.40 -24188814.28 0.0502 0.0412  
 Earth -70939-09-03 10:18 J -24188801.28 -24188801.07 -24188800.85 0.0502 0.0204  
 Moon -70939-09-03 12:28 J -24188801.19 -24188800.98 -24188800.77 0.0502 0.0181 \*  
 Mercury -70937-10-12 14:23 J -24188031.09 -24188030.90 -24188030.72 0.0497 0.0056  
 Venus -70932-02-16 07:40 J -24186443.22 -24186443.18 -24186443.14 0.0526 0.0514  
 Mercury -70931-06-07 20:52 J -24185966.71 -24185966.63 -24185966.55 0.0529 0.0394  
 Mercury -70931-09-05 02:37 J -24185877.52 -24185877.39 -24185877.27 0.0529 0.0069  
 Moon -70927-09-07 22:47 J -24184413.66 -24184413.55 -24184413.43 0.0501 0.0436  
 Earth -70927-09-07 23:16 J -24184413.65 -24184413.53 -24184413.40 0.0501 0.0423 \*  
 Mercury -70925-07-31 11:16 J -24183721.21 -24183721.03 -24183720.84 0.0497 0.0090  
 Venus -70921-10-22 04:04 J -24182177.53 -24182177.33 -24182177.14 0.0525 0.0069  
 Mercury -70919-03-27 00:57 J -24181656.49 -24181656.46 -24181656.43 0.0529 0.0510  
 Mercury -70919-06-24 06:42 J -24181567.34 -24181567.22 -24181567.09 0.0529 0.0050  
 Mercury -70919-09-21 12:28 J -24181478.05 -24181477.98 -24181477.90 0.0528 0.0413  
 Venus -70915-08-23 14:37 J -24180046.07 -24180045.89 -24180045.70 0.0501 0.0214  
 Mercury -70913-05-19 07:40 J -24179411.34 -24179411.18 -24179411.01 0.0497 0.0242  
 Mercury -70913-08-17 18:57 J -24179320.84 -24179320.71 -24179320.58 0.0498 0.0352  
 Earth -70909-02-28 03:49 J -24178031.52 -24178031.34 -24178031.16 0.0521 0.0339  
 Moon -70909-02-28 06:13 J -24178031.43 -24178031.24 -24178031.04 0.0521 0.0317 \*  
 Venus -70909-06-27 00:13 J -24177911.63 -24177911.49 -24177911.35 0.0523 0.0375  
 Mercury -70907-04-12 11:01 J -24177257.16 -24177257.04 -24177256.92 0.0528 0.0163  
 Mercury -70907-07-10 16:47 J -24177167.90 -24177167.80 -24177167.70 0.0528 0.0299  
 Venus -70903-04-28 12:57 J -24175780.15 -24175779.96 -24175779.77 0.0502 0.0188

Mercury -70901-03-07 04:47 J -24175101.41 -24175101.30 -24175101.18 0.0497 0.0385

Mercury -70901-06-05 16:18 J -24175010.99 -24175010.82 -24175010.66 0.0497 0.0209

Moon -70897-03-03 21:06 J -24173643.85 -24173643.62 -24173643.39 0.0522 0.0067

Earth -70897-03-04 00:57 J -24173643.69 -24173643.46 -24173643.23 0.0522 0.0091 \*

Mercury -70895-01-29 14:52 J -24172946.98 -24172946.88 -24172946.77 0.0529 0.0283

Mercury -70895-04-28 20:37 J -24172857.75 -24172857.64 -24172857.52 0.0528 0.0181

Earth -70892-08-20 01:40 J -24171648.50 -24171648.43 -24171648.37 0.0506 0.0483

Moon -70892-08-20 05:30 J -24171648.37 -24171648.27 -24171648.17 0.0506 0.0455 \*

Mercury -70889-03-24 13:11 J -24170701.13 -24170700.95 -24170700.76 0.0497 0.0064

Earth -70885-03-08 23:01 J -24169255.76 -24169255.54 -24169255.32 0.0523 0.0162

Moon -70885-03-09 02:52 J -24169255.60 -24169255.38 -24169255.15 0.0523 0.0141 \*

Venus -70885-06-29 17:45 J -24169142.91 -24169142.76 -24169142.60 0.0525 0.0328

Mercury -70884-11-17 19:25 J -24168636.77 -24168636.69 -24168636.61 0.0529 0.0395

Mercury -70883-02-15 01:11 J -24168547.58 -24168547.45 -24168547.33 0.0529 0.0068

Moon -70880-08-24 12:57 J -24167261.16 -24167260.96 -24167260.75 0.0505 0.0235

Earth -70880-08-24 16:47 J -24167261.00 -24167260.80 -24167260.60 0.0505 0.0255 \*

Venus -70879-05-01 05:45 J -24167011.34 -24167011.26 -24167011.18 0.0500 0.0458

Mercury -70877-01-11 10:04 J -24166391.27 -24166391.08 -24166390.90 0.0497 0.0085

Venus -70873-03-04 13:11 J -24164877.14 -24164876.95 -24164876.75 0.0524 0.0122

Moon -70873-03-13 18:28 J -24164867.88 -24164867.73 -24164867.56 0.0524 0.0387

Earth -70873-03-13 21:49 J -24164867.73 -24164867.59 -24164867.45 0.0524 0.0418 \*

Mercury -70872-09-05 23:45 J -24164326.54 -24164326.51 -24164326.47 0.0529 0.0507

Mercury -70872-12-04 05:45 J -24164237.39 -24164237.26 -24164237.14 0.0529 0.0048

Mercury -70871-03-03 11:30 J -24164148.09 -24164148.02 -24164147.94 0.0529 0.0420

Earth -70868-08-29 06:13 J -24162873.47 -24162873.24 -24162873.01 0.0503 0.0030

Moon -70868-08-29 08:23 J -24162873.37 -24162873.15 -24162872.92 0.0503 0.0053 \*

Venus -70867-01-04 04:33 J -24162745.52 -24162745.31 -24162745.11 0.0501 0.0061

Mercury -70866-10-30 06:57 J -24162081.37 -24162081.21 -24162081.04 0.0497 0.0230

Mercury -70865-01-28 17:59 J -24161990.87 -24161990.75 -24161990.62 0.0497 0.0362

Mercury -70860-09-22 09:49 J -24159927.21 -24159927.09 -24159926.96 0.0529 0.0160

Mercury -70860-12-20 15:35 J -24159837.95 -24159837.85 -24159837.74 0.0528 0.0304

Moon -70856-09-02 14:09 J -24158486.14 -24158485.91 -24158485.68 0.0503 0.0163

Earth -70856-09-02 14:52 J -24158486.10 -24158485.88 -24158485.67 0.0503 0.0185 \*

Venus -70856-09-09 00:13 J -24158479.63 -24158479.49 -24158479.34 0.0502 0.0355

Mercury -70854-08-18 03:21 J -24157771.48 -24157771.36 -24157771.24 0.0497 0.0382

Mercury -70854-11-16 14:37 J -24157681.06 -24157680.89 -24157680.72 0.0498 0.0213

Mercury -70848-07-11 14:23 J -24155617.01 -24155616.90 -24155616.79 0.0528 0.0272

Mercury -70848-10-08 19:54 J -24155527.78 -24155527.67 -24155527.55 0.0528 0.0191

Moon -70844-09-07 03:06 J -24154098.49 -24154098.37 -24154098.25 0.0502 0.0425

Earth -70844-09-07 03:49 J -24154098.47 -24154098.34 -24154098.20 0.0502 0.0406 \*

Mercury -70842-09-04 11:59 J -24153371.19 -24153371.00 -24153370.82 0.0498 0.0070

Venus -70838-11-11 05:30 J -24151842.46 -24151842.27 -24151842.08 0.0524 0.0149

Mercury -70836-04-29 18:13 J -24151306.82 -24151306.74 -24151306.65 0.0529 0.0391

Mercury -70836-07-27 23:59 J -24151217.62 -24151217.50 -24151217.37 0.0528 0.0073

Venus -70832-09-11 16:18 J -24149710.99 -24149710.82 -24149710.65 0.0501 0.0290

Mercury -70830-06-23 09:06 J -24149061.31 -24149061.12 -24149060.93 0.0497 0.0074

Moon -70826-02-27 05:16 J -24147716.45 -24147716.28 -24147716.09 0.0521 0.0333

Earth -70826-02-27 09:06 J -24147716.29 -24147716.12 -24147715.95 0.0521 0.0358 \*

Venus -70826-07-17 00:42 J -24147576.63 -24147576.47 -24147576.30 0.0523 0.0300

Mars -70824-02-04 03:21 J -24147008.56 -24147008.36 -24147008.15 0.0529 0.0280

Mercury -70824-02-15 22:47 J -24146996.59 -24146996.55 -24146996.52 0.0529 0.0503

Mercury -70824-05-16 04:18 J -24146907.44 -24146907.32 -24146907.19 0.0529 0.0046

Mercury -70824-08-13 10:18 J -24146818.15 -24146818.07 -24146818.00 0.0528 0.0422

Venus -70820-05-17 15:49 J -24145445.04 -24145444.84 -24145444.64 0.0502 0.0106

Mercury -70818-04-11 05:59 J -24144751.42 -24144751.25 -24144751.08 0.0497 0.0221

Mercury -70818-07-10 17:01 J -24144660.91 -24144660.79 -24144660.66 0.0497 0.0371

Earth -70814-03-04 07:25 J -24143328.42 -24143328.19 -24143327.96 0.0522 0.0106

Moon -70814-03-04 11:30 J -24143328.25 -24143328.02 -24143327.79 0.0522 0.0085 \*

Mercury -70812-03-04 08:52 J -24142597.25 -24142597.13 -24142597.00 0.0529 0.0154

Mercury -70812-06-01 14:37 J -24142507.99 -24142507.89 -24142507.78 0.0529 0.0312

Moon -70809-08-19 10:18 J -24141333.16 -24141333.07 -24141332.97 0.0506 0.0460  
 Earth -70809-08-19 13:40 J -24141332.97 -24141332.93 -24141332.86 0.0506 0.0489 \*  
 Mars -70806-01-02 22:04 J -24140466.88 -24140466.58 -24140466.27 0.0497 0.0103  
 Mercury -70806-01-28 02:52 J -24140441.50 -24140441.38 -24140441.24 0.0497 0.0366  
 Mercury -70806-04-28 14:09 J -24140351.07 -24140350.91 -24140350.74 0.0497 0.0229  
 Moon -70802-03-09 06:13 J -24138940.47 -24138940.24 -24138940.01 0.0523 0.0133  
 Earth -70802-03-09 09:35 J -24138940.32 -24138940.10 -24138939.88 0.0523 0.0157 \*  
 Venus -70802-07-19 21:35 J -24138807.72 -24138807.60 -24138807.48 0.0525 0.0417  
 Mercury -70801-12-21 13:25 J -24138287.05 -24138286.94 -24138286.83 0.0529 0.0265  
 Mercury -70800-03-20 19:11 J -24138197.82 -24138197.70 -24138197.58 0.0528 0.0197  
 Earth -70797-08-23 22:33 J -24136945.75 -24136945.56 -24136945.36 0.0505 0.0274  
 Moon -70797-08-24 00:42 J -24136945.65 -24136945.47 -24136945.27 0.0505 0.0264 \*  
 Mercury -70794-02-14 10:47 J -24136041.24 -24136041.05 -24136040.87 0.0498 0.0076  
 Earth -70790-03-14 10:47 J -24134552.18 -24134552.05 -24134551.90 0.0524 0.0416  
 Moon -70790-03-14 11:59 J -24134552.14 -24134552.00 -24134551.85 0.0524 0.0398 \*  
 Venus -70790-03-24 18:28 J -24134541.93 -24134541.73 -24134541.53 0.0524 0.0023  
 Mercury -70789-10-09 17:59 J -24133976.84 -24133976.75 -24133976.67 0.0528 0.0376  
 Mars -70789-11-08 13:54 J -24133947.10 -24133946.92 -24133946.74 0.0528 0.0357  
 Mercury -70788-01-06 23:30 J -24133887.64 -24133887.52 -24133887.39 0.0528 0.0085  
 Moon -70785-08-28 11:16 J -24132558.27 -24132558.03 -24132557.79 0.0504 0.0077  
 Earth -70785-08-28 11:45 J -24132558.24 -24132558.01 -24132557.78 0.0504 0.0049 \*  
 Venus -70784-01-23 03:21 J -24132410.56 -24132410.36 -24132410.16 0.0501 0.0124  
 Mercury -70783-12-03 07:54 J -24131731.35 -24131731.17 -24131730.98 0.0498 0.0068  
 Venus -70779-11-27 12:57 J -24130276.04 -24130275.96 -24130275.87 0.0523 0.0473  
 Mercury -70777-07-28 22:04 J -24129666.63 -24129666.58 -24129666.54 0.0528 0.0494  
 Mercury -70777-10-26 03:35 J -24129577.48 -24129577.35 -24129577.22 0.0528 0.0033  
 Mercury -70776-01-23 09:21 J -24129488.18 -24129488.11 -24129488.04 0.0528 0.0429  
 Moon -70773-09-02 01:11 J -24128170.66 -24128170.45 -24128170.23 0.0503 0.0162  
 Earth -70773-09-02 02:23 J -24128170.62 -24128170.40 -24128170.18 0.0503 0.0178 \*  
 Venus -70773-09-28 02:37 J -24128144.56 -24128144.39 -24128144.22 0.0503 0.0274

Mercury -70771-09-21 05:16 J -24127421.45 -24127421.28 -24127421.11 0.0497 0.0210  
 Mercury -70771-12-20 16:33 J -24127330.93 -24127330.81 -24127330.70 0.0498 0.0384  
 Mercury -70765-08-14 07:54 J -24125267.29 -24125267.17 -24125267.05 0.0529 0.0147  
 Mercury -70765-11-11 13:40 J -24125178.03 -24125177.93 -24125177.83 0.0528 0.0316  
 Earth -70761-09-06 17:30 J -24123782.90 -24123782.77 -24123782.63 0.0502 0.0406  
 Moon -70761-09-06 19:54 J -24123782.78 -24123782.67 -24123782.54 0.0502 0.0430 \*  
 Mercury -70759-07-10 02:09 J -24123111.53 -24123111.41 -24123111.28 0.0497 0.0356  
 Mercury -70759-10-08 13:25 J -24123021.10 -24123020.94 -24123020.77 0.0497 0.0238  
 Venus -70755-11-30 07:54 J -24121507.34 -24121507.17 -24121506.99 0.0525 0.0234  
 Mercury -70753-06-02 12:28 J -24120957.09 -24120956.98 -24120956.87 0.0529 0.0258  
 Mercury -70753-08-30 18:13 J -24120867.85 -24120867.74 -24120867.62 0.0529 0.0206  
 Venus -70749-09-30 19:40 J -24119375.81 -24119375.68 -24119375.54 0.0501 0.0375  
 Mercury -70747-07-27 10:47 J -24118711.24 -24118711.05 -24118710.87 0.0497 0.0096  
 Earth -70743-02-26 20:37 J -24117400.80 -24117400.64 -24117400.46 0.0521 0.0364  
 Moon -70743-02-27 00:57 J -24117400.64 -24117400.46 -24117400.28 0.0521 0.0330 \*  
 Venus -70743-08-05 05:16 J -24117241.46 -24117241.28 -24117241.09 0.0524 0.0205  
 Mercury -70741-03-21 17:01 J -24116646.88 -24116646.79 -24116646.70 0.0528 0.0368  
 Mercury -70741-06-18 22:47 J -24116557.67 -24116557.55 -24116557.43 0.0528 0.0094  
 Venus -70737-06-05 15:35 J -24115110.06 -24115109.85 -24115109.65 0.0502 0.0039  
 Mercury -70735-05-15 06:57 J -24114401.40 -24114401.21 -24114401.03 0.0498 0.0060  
 Moon -70731-03-03 19:25 J -24113012.93 -24113012.69 -24113012.46 0.0522 0.0088  
 Earth -70731-03-03 22:47 J -24113012.78 -24113012.55 -24113012.32 0.0522 0.0105 \*  
 Mercury -70729-01-08 21:35 J -24112336.65 -24112336.60 -24112336.55 0.0528 0.0478  
 Mercury -70729-04-07 03:21 J -24112247.49 -24112247.36 -24112247.24 0.0528 0.0020  
 Mercury -70729-07-05 09:06 J -24112158.19 -24112158.12 -24112158.06 0.0527 0.0444  
 Moon -70726-08-19 22:33 J -24111017.62 -24111017.56 -24111017.49 0.0506 0.0480  
 Venus -70725-02-09 14:09 J -24110844.01 -24110843.91 -24110843.81 0.0503 0.0438  
 Mercury -70723-03-03 04:04 J -24110091.50 -24110091.33 -24110091.16 0.0498 0.0203  
 Mercury -70723-06-01 15:21 J -24110000.97 -24110000.86 -24110000.74 0.0498 0.0393  
 Earth -70719-03-08 20:37 J -24108624.86 -24108624.64 -24108624.41 0.0522 0.0150

Moon -70719-03-08 22:04 J -24108624.79 -24108624.58 -24108624.36 0.0522 0.0124 \*  
 Venus -70719-08-08 01:11 J -24108472.49 -24108472.45 -24108472.40 0.0525 0.0508  
 Mercury -70717-01-25 07:11 J -24107937.32 -24107937.20 -24107937.07 0.0528 0.0137  
 Mercury -70717-04-23 12:57 J -24107848.06 -24107847.96 -24107847.86 0.0528 0.0327  
 Moon -70714-08-24 10:33 J -24106630.26 -24106630.06 -24106629.86 0.0505 0.0278  
 Earth -70714-08-24 10:47 J -24106630.24 -24106630.05 -24106629.85 0.0505 0.0280 \*  
 Mercury -70712-12-20 01:25 J -24105781.57 -24105781.44 -24105781.30 0.0497 0.0345  
 Mercury -70711-03-20 12:42 J -24105691.13 -24105690.97 -24105690.80 0.0498 0.0252  
 Earth -70707-03-13 18:57 J -24104236.85 -24104236.71 -24104236.55 0.0523 0.0403  
 Moon -70707-03-13 20:09 J -24104236.81 -24104236.66 -24104236.50 0.0523 0.0393 \*  
 Venus -70707-04-12 20:37 J -24104206.84 -24104206.64 -24104206.44 0.0524 0.0061  
 Mercury -70706-11-13 11:30 J -24103627.12 -24103627.02 -24103626.90 0.0528 0.0251  
 Mercury -70705-02-10 17:16 J -24103537.89 -24103537.78 -24103537.66 0.0528 0.0213  
 Moon -70702-08-29 00:57 J -24102242.68 -24102242.46 -24102242.24 0.0504 0.0080  
 Earth -70702-08-29 02:09 J -24102242.64 -24102242.41 -24102242.17 0.0504 0.0049 \*  
 Venus -70701-02-12 07:25 J -24102075.37 -24102075.19 -24102075.00 0.0501 0.0212  
 Mercury -70700-10-07 22:33 J -24101471.59 -24101471.56 -24101471.53 0.0497 0.0489  
 Mercury -70699-01-06 09:49 J -24101381.27 -24101381.09 -24101380.90 0.0497 0.0107  
 Venus -70696-12-16 15:49 J -24099940.97 -24099940.84 -24099940.70 0.0523 0.0386  
 Mercury -70694-09-01 16:04 J -24099316.92 -24099316.83 -24099316.73 0.0529 0.0362  
 Mercury -70694-11-29 21:49 J -24099227.71 -24099227.59 -24099227.46 0.0528 0.0102  
 Earth -70690-09-02 16:33 J -24097855.03 -24097854.81 -24097854.59 0.0503 0.0178  
 Moon -70690-09-02 19:11 J -24097854.92 -24097854.70 -24097854.47 0.0503 0.0168 \*  
 Venus -70690-10-18 06:28 J -24097809.42 -24097809.23 -24097809.03 0.0502 0.0185  
 Mars -70688-06-21 17:16 J -24097197.00 -24097196.78 -24097196.54 0.0497 0.0339  
 Mercury -70688-10-25 07:11 J -24097071.39 -24097071.20 -24097071.02 0.0497 0.0040  
 Mercury -70682-06-20 20:52 J -24095006.69 -24095006.63 -24095006.57 0.0528 0.0469  
 Mercury -70682-09-18 02:37 J -24094917.52 -24094917.39 -24094917.27 0.0528 0.0021  
 Mercury -70682-12-16 08:09 J -24094828.22 -24094828.16 -24094828.09 0.0527 0.0455  
 Moon -70678-09-06 21:49 J -24093467.71 -24093467.59 -24093467.46 0.0502 0.0418

Earth -70678-09-07 01:25 J -24093467.59 -24093467.44 -24093467.30 0.0502 0.0391 \*  
 Mercury -70676-08-13 03:06 J -24092761.55 -24092761.37 -24092761.20 0.0498 0.0195  
 Mercury -70676-11-11 14:09 J -24092671.01 -24092670.91 -24092670.79 0.0498 0.0402  
 Venus -70672-12-19 14:37 J -24091172.04 -24091171.89 -24091171.74 0.0525 0.0341  
 Mars -70670-05-02 06:57 J -24090673.46 -24090673.21 -24090672.97 0.0528 0.0007  
 Mercury -70670-07-07 06:57 J -24090607.33 -24090607.21 -24090607.08 0.0528 0.0120  
 Mercury -70670-10-04 12:42 J -24090518.06 -24090517.97 -24090517.87 0.0527 0.0343  
 Venus -70666-10-20 19:11 J -24089040.79 -24089040.70 -24089040.60 0.0501 0.0441  
 Mercury -70664-05-31 23:59 J -24088451.63 -24088451.50 -24088451.36 0.0498 0.0339  
 Mercury -70664-08-30 11:30 J -24088361.17 -24088361.02 -24088360.86 0.0498 0.0259  
 Moon -70660-02-26 05:16 J -24087085.45 -24087085.28 -24087085.09 0.0520 0.0336  
 Earth -70660-02-26 08:52 J -24087085.29 -24087085.13 -24087084.96 0.0520 0.0369 \*  
 Venus -70660-08-24 09:21 J -24086906.30 -24086906.11 -24086905.91 0.0524 0.0110  
 Mercury -70658-04-25 11:01 J -24086297.15 -24086297.04 -24086296.93 0.0528 0.0238  
 Mercury -70658-07-23 16:47 J -24086207.92 -24086207.80 -24086207.69 0.0528 0.0225  
 Venus -70654-06-25 18:28 J -24084774.93 -24084774.73 -24084774.52 0.0502 0.0047  
 Mercury -70652-03-19 21:35 J -24084141.65 -24084141.60 -24084141.55 0.0498 0.0480  
 Mars -70652-03-29 23:30 J -24084131.70 -24084131.52 -24084131.33 0.0498 0.0399  
 Mercury -70652-06-18 09:06 J -24084051.30 -24084051.12 -24084050.94 0.0498 0.0118  
 Earth -70648-03-03 07:25 J -24082697.42 -24082697.19 -24082696.96 0.0521 0.0117  
 Moon -70648-03-03 09:06 J -24082697.34 -24082697.12 -24082696.89 0.0521 0.0109 \*  
 Mercury -70646-02-11 15:21 J -24081986.95 -24081986.86 -24081986.77 0.0528 0.0352  
 Mercury -70646-05-11 21:06 J -24081897.75 -24081897.62 -24081897.50 0.0528 0.0111  
 Moon -70643-08-19 10:04 J -24080702.15 -24080702.08 -24080702.00 0.0506 0.0481  
 Venus -70642-02-28 17:59 J -24080508.89 -24080508.75 -24080508.60 0.0503 0.0350  
 Mercury -70640-04-06 06:13 J -24079741.43 -24079741.24 -24079741.06 0.0497 0.0029  
 Earth -70636-03-08 05:30 J -24078309.50 -24078309.27 -24078309.05 0.0522 0.0138  
 Moon -70636-03-08 05:59 J -24078309.48 -24078309.25 -24078309.01 0.0522 0.0109 \*  
 Mercury -70635-11-30 19:40 J -24077676.73 -24077676.68 -24077676.62 0.0529 0.0465  
 Mercury -70634-02-28 01:25 J -24077587.56 -24077587.44 -24077587.31 0.0528 0.0009



Mercury -70634-05-28 07:11 J -24077498.25 -24077498.20 -24077498.14 0.0528 0.0462

Moon -70631-08-23 23:30 J -24076314.70 -24076314.52 -24076314.33 0.0505 0.0290

Earth -70631-08-24 00:57 J -24076314.64 -24076314.46 -24076314.26 0.0505 0.0282 \*

Mercury -70628-01-23 03:06 J -24075431.54 -24075431.37 -24075431.19 0.0497 0.0174

Mercury -70628-04-23 14:23 J -24075341.00 -24075340.90 -24075340.80 0.0498 0.0422

Moon -70624-03-13 04:47 J -24073921.45 -24073921.30 -24073921.16 0.0524 0.0399

Earth -70624-03-13 07:25 J -24073921.33 -24073921.19 -24073921.03 0.0524 0.0400 \*

Venus -70624-05-02 01:11 J -24073871.64 -24073871.45 -24073871.26 0.0524 0.0158

Mercury -70623-12-17 06:13 J -24073277.36 -24073277.24 -24073277.12 0.0528 0.0111

Mercury -70622-03-16 11:59 J -24073188.10 -24073188.00 -24073187.91 0.0528 0.0352

Earth -70619-08-28 10:18 J -24071927.30 -24071927.07 -24071926.84 0.0504 0.0065

Moon -70619-08-28 12:57 J -24071927.20 -24071926.96 -24071926.73 0.0504 0.0096 \*

Venus -70618-03-03 07:25 J -24071740.36 -24071740.19 -24071740.02 0.0501 0.0280

Mercury -70617-11-10 23:01 J -24071121.68 -24071121.54 -24071121.41 0.0498 0.0332

Mercury -70616-02-09 10:18 J -24071031.23 -24071031.07 -24071030.91 0.0498 0.0266

Venus -70612-01-04 22:04 J -24069605.75 -24069605.58 -24069605.41 0.0523 0.0281

Mercury -70611-10-05 10:47 J -24068967.17 -24068967.05 -24068966.94 0.0528 0.0221

Mercury -70610-01-02 16:18 J -24068877.93 -24068877.82 -24068877.70 0.0528 0.0241

Moon -70607-09-01 19:40 J -24067539.90 -24067539.68 -24067539.46 0.0503 0.0156

Earth -70607-09-01 23:16 J -24067539.75 -24067539.53 -24067539.31 0.0503 0.0160 \*

Venus -70607-11-06 05:45 J -24067474.46 -24067474.26 -24067474.06 0.0502 0.0119

Mercury -70605-08-29 19:54 J -24066811.72 -24066811.67 -24066811.61 0.0498 0.0476

Mercury -70605-11-28 07:25 J -24066721.37 -24066721.19 -24066721.00 0.0498 0.0123

Mercury -70599-07-24 14:37 J -24064656.98 -24064656.89 -24064656.79 0.0528 0.0341

Mercury -70599-10-21 20:23 J -24064567.78 -24064567.65 -24064567.53 0.0528 0.0121

Earth -70595-09-06 12:57 J -24063152.10 -24063151.96 -24063151.80 0.0502 0.0387

Moon -70595-09-06 16:33 J -24063151.93 -24063151.81 -24063151.68 0.0502 0.0419 \*

Mercury -70593-09-16 05:01 J -24062411.48 -24062411.29 -24062411.10 0.0498 0.0021

Venus -70588-01-07 16:18 J -24060836.94 -24060836.82 -24060836.71 0.0525 0.0421

Mercury -70587-05-12 18:57 J -24060346.77 -24060346.71 -24060346.65 0.0528 0.0455

Mercury -70587-08-10 00:28 J -24060257.60 -24060257.48 -24060257.35 0.0528 0.0021  
 Mercury -70587-11-07 06:13 J -24060168.29 -24060168.24 -24060168.18 0.0527 0.0468  
 Mercury -70581-07-05 01:54 J -24058101.59 -24058101.42 -24058101.24 0.0497 0.0167  
 Mercury -70581-10-03 13:11 J -24058011.04 -24058010.95 -24058010.85 0.0498 0.0430  
 Earth -70577-02-26 16:04 J -24056769.98 -24056769.83 -24056769.67 0.0520 0.0385  
 Moon -70577-02-26 18:13 J -24056769.90 -24056769.74 -24056769.57 0.0520 0.0355 \*  
 Venus -70577-09-12 11:16 J -24056571.23 -24056571.03 -24056570.83 0.0524 0.0029  
 Mercury -70575-05-29 05:01 J -24055947.41 -24055947.29 -24055947.17 0.0528 0.0108  
 Mercury -70575-08-26 10:47 J -24055858.14 -24055858.05 -24055857.96 0.0528 0.0356  
 Venus -70571-07-14 21:35 J -24054439.80 -24054439.60 -24054439.40 0.0501 0.0131  
 Mercury -70569-04-22 23:01 J -24053791.69 -24053791.54 -24053791.40 0.0497 0.0312  
 Mercury -70569-07-22 10:18 J -24053701.22 -24053701.07 -24053700.92 0.0498 0.0285  
 Earth -70565-03-02 17:45 J -24052381.99 -24052381.76 -24052381.54 0.0521 0.0127  
 Moon -70565-03-02 17:59 J -24052381.99 -24052381.75 -24052381.51 0.0521 0.0129 \*  
 Venus -70565-05-18 07:54 J -24052305.26 -24052305.17 -24052305.08 0.0523 0.0465  
 Mercury -70563-03-17 09:49 J -24051637.21 -24051637.09 -24051636.98 0.0528 0.0216  
 Mercury -70563-06-14 15:21 J -24051547.97 -24051547.86 -24051547.75 0.0528 0.0247  
 Moon -70560-08-18 17:01 J -24050386.82 -24050386.79 -24050386.76 0.0506 0.0500  
 Venus -70559-03-19 17:30 J -24050173.93 -24050173.77 -24050173.59 0.0502 0.0282  
 Mercury -70557-02-09 18:28 J -24049481.78 -24049481.73 -24049481.67 0.0498 0.0472  
 Mercury -70557-05-10 05:59 J -24049391.43 -24049391.25 -24049391.07 0.0498 0.0126  
 Moon -70553-03-07 16:04 J -24047994.05 -24047993.83 -24047993.61 0.0523 0.0103  
 Earth -70553-03-07 18:42 J -24047993.95 -24047993.72 -24047993.50 0.0523 0.0135 \*  
 Mars -70552-10-22 20:23 J -24047399.81 -24047399.65 -24047399.47 0.0528 0.0374  
 Mercury -70551-01-03 14:09 J -24047327.00 -24047326.91 -24047326.81 0.0528 0.0327  
 Mercury -70551-04-02 19:54 J -24047237.79 -24047237.67 -24047237.55 0.0528 0.0136  
 Earth -70548-08-23 06:57 J -24045999.39 -24045999.21 -24045999.02 0.0505 0.0302  
 Moon -70548-08-23 09:49 J -24045999.27 -24045999.09 -24045998.90 0.0505 0.0312 \*  
 Mercury -70545-02-27 03:06 J -24045081.56 -24045081.37 -24045081.18 0.0498 0.0019  
 Earth -70541-03-12 16:33 J -24043605.96 -24043605.81 -24043605.65 0.0523 0.0389

Moon -70541-03-12 20:23 J -24043605.80 -24043605.65 -24043605.49 0.0523 0.0395 \*  
 Venus -70541-05-21 03:49 J -24043536.52 -24043536.34 -24043536.16 0.0524 0.0244  
 Mercury -70540-10-22 18:13 J -24043016.81 -24043016.74 -24043016.68 0.0528 0.0446  
 Mercury -70539-01-19 23:45 J -24042927.63 -24042927.51 -24042927.38 0.0528 0.0017  
 Mercury -70539-04-19 05:30 J -24042838.32 -24042838.27 -24042838.22 0.0527 0.0477  
 Moon -70536-08-27 16:47 J -24041612.03 -24041611.80 -24041611.58 0.0504 0.0105  
 Earth -70536-08-27 20:09 J -24041611.89 -24041611.66 -24041611.43 0.0504 0.0074 \*  
 Venus -70535-03-22 08:52 J -24041405.27 -24041405.13 -24041404.98 0.0501 0.0357  
 Mars -70534-09-16 08:52 J -24040862.44 -24040862.13 -24040861.83 0.0498 0.0071  
 Mercury -70534-12-16 00:28 J -24040771.66 -24040771.48 -24040771.30 0.0498 0.0162  
 Mercury -70533-03-15 11:45 J -24040681.10 -24040681.01 -24040680.92 0.0498 0.0435  
 Venus -70529-01-24 22:47 J -24039270.73 -24039270.55 -24039270.36 0.0523 0.0205  
 Mercury -70528-11-08 04:04 J -24038617.46 -24038617.33 -24038617.21 0.0528 0.0103  
 Mercury -70527-02-05 09:35 J -24038528.19 -24038528.10 -24038528.01 0.0527 0.0361  
 Earth -70524-09-01 10:33 J -24037224.28 -24037224.06 -24037223.84 0.0503 0.0154  
 Moon -70524-09-01 13:54 J -24037224.13 -24037223.92 -24037223.70 0.0503 0.0165 \*  
 Venus -70524-11-25 07:54 J -24037139.37 -24037139.17 -24037138.96 0.0502 0.0041  
 Mercury -70522-10-03 21:21 J -24036461.75 -24036461.61 -24036461.46 0.0497 0.0309  
 Mercury -70521-01-02 08:52 J -24036371.28 -24036371.13 -24036370.98 0.0498 0.0289  
 Mars -70516-07-26 17:59 J -24034338.97 -24034338.75 -24034338.52 0.0528 0.0222  
 Mercury -70516-08-27 08:09 J -24034307.27 -24034307.16 -24034307.04 0.0528 0.0218  
 Mercury -70516-11-24 13:54 J -24034218.03 -24034217.92 -24034217.81 0.0528 0.0247  
 Venus -70512-07-31 06:57 J -24032873.30 -24032873.21 -24032873.10 0.0503 0.0436  
 Moon -70512-09-05 21:21 J -24032836.74 -24032836.61 -24032836.47 0.0502 0.0409  
 Earth -70512-09-06 00:13 J -24032836.64 -24032836.49 -24032836.34 0.0502 0.0379 \*  
 Mercury -70510-07-22 18:13 J -24032151.81 -24032151.74 -24032151.67 0.0497 0.0455  
 Mercury -70510-10-21 05:45 J -24032061.44 -24032061.26 -24032061.08 0.0498 0.0142  
 Venus -70505-01-27 18:28 J -24030501.78 -24030501.73 -24030501.68 0.0525 0.0506  
 Mercury -70504-06-15 12:57 J -24029997.06 -24029996.96 -24029996.86 0.0528 0.0325  
 Mercury -70504-09-12 18:42 J -24029907.84 -24029907.72 -24029907.60 0.0528 0.0139

Mercury -70498-08-09 01:11 J -24027751.64 -24027751.45 -24027751.26 0.0498 0.0019

Moon -70494-02-26 01:40 J -24026454.60 -24026454.43 -24026454.26 0.0520 0.0367

Earth -70494-02-26 01:40 J -24026454.57 -24026454.43 -24026454.27 0.0520 0.0396 \*

Venus -70494-10-02 14:52 J -24026236.08 -24026235.88 -24026235.68 0.0524 0.0064

Mercury -70492-04-03 17:30 J -24025686.84 -24025686.77 -24025686.70 0.0528 0.0435

Mercury -70492-07-01 23:01 J -24025597.66 -24025597.54 -24025597.41 0.0528 0.0033

Mercury -70492-09-29 04:47 J -24025508.34 -24025508.30 -24025508.25 0.0527 0.0489

Venus -70488-08-02 19:11 J -24024104.89 -24024104.70 -24024104.50 0.0501 0.0188

Mercury -70486-05-27 22:04 J -24023441.76 -24023441.58 -24023441.40 0.0498 0.0166

Mercury -70486-08-26 09:21 J -24023351.20 -24023351.11 -24023351.02 0.0498 0.0432

Moon -70482-03-02 22:04 J -24022066.80 -24022066.58 -24022066.36 0.0521 0.0155

Earth -70482-03-03 00:13 J -24022066.71 -24022066.49 -24022066.26 0.0521 0.0141 \*

Venus -70482-06-07 09:06 J -24021970.25 -24021970.12 -24021969.98 0.0523 0.0388

Mercury -70480-04-20 02:52 J -24021287.50 -24021287.38 -24021287.25 0.0528 0.0097

Mercury -70480-07-18 08:37 J -24021198.23 -24021198.14 -24021198.05 0.0527 0.0367

Venus -70476-04-07 17:45 J -24019838.95 -24019838.76 -24019838.57 0.0502 0.0212

Mercury -70474-03-15 19:11 J -24019131.84 -24019131.70 -24019131.55 0.0498 0.0310

Mercury -70474-06-14 06:42 J -24019041.37 -24019041.22 -24019041.06 0.0498 0.0290

Earth -70470-03-07 22:18 J -24017678.80 -24017678.57 -24017678.35 0.0522 0.0113

Moon -70470-03-08 01:54 J -24017678.65 -24017678.42 -24017678.18 0.0522 0.0082 \*

Mercury -70468-02-06 07:11 J -24016977.32 -24016977.20 -24016977.09 0.0528 0.0213

Mercury -70468-05-06 12:42 J -24016888.08 -24016887.97 -24016887.86 0.0528 0.0250

Moon -70465-08-22 11:59 J -24015684.17 -24015684.00 -24015683.82 0.0506 0.0331

Earth -70465-08-22 15:35 J -24015684.03 -24015683.85 -24015683.67 0.0506 0.0314 \*

Mercury -70462-01-01 16:04 J -24014821.89 -24014821.83 -24014821.75 0.0497 0.0457

Mercury -70462-04-02 03:35 J -24014731.52 -24014731.35 -24014731.17 0.0498 0.0143

Moon -70458-03-12 15:06 J -24013291.03 -24013290.87 -24013290.70 0.0523 0.0368

Earth -70458-03-12 18:57 J -24013290.87 -24013290.71 -24013290.53 0.0523 0.0365 \*

Venus -70458-06-10 02:37 J -24013201.55 -24013201.39 -24013201.22 0.0525 0.0310

Mercury -70457-11-25 11:16 J -24012667.13 -24012667.03 -24012666.93 0.0528 0.0329

Mercury -70456-02-22 17:01 J -24012577.91 -24012577.79 -24012577.67 0.0528 0.0134  
 Earth -70453-08-27 05:01 J -24011296.52 -24011296.29 -24011296.06 0.0504 0.0087  
 Moon -70453-08-27 08:37 J -24011296.36 -24011296.14 -24011295.91 0.0504 0.0111 \*  
 Venus -70452-04-10 09:21 J -24011070.21 -24011070.11 -24011070.00 0.0501 0.0428  
 Mercury -70450-01-19 00:28 J -24010421.67 -24010421.48 -24010421.29 0.0498 0.0007  
 Venus -70446-02-12 23:01 J -24008935.73 -24008935.54 -24008935.34 0.0524 0.0131  
 Mercury -70445-09-13 16:04 J -24008356.90 -24008356.83 -24008356.76 0.0528 0.0438  
 Mercury -70445-12-11 21:35 J -24008267.72 -24008267.60 -24008267.47 0.0528 0.0026  
 Mercury -70444-03-11 03:21 J -24008178.40 -24008178.36 -24008178.31 0.0527 0.0488  
 Moon -70441-08-31 12:13 J -24006909.22 -24006908.99 -24006908.76 0.0503 0.0147  
 Earth -70441-08-31 15:06 J -24006909.09 -24006908.87 -24006908.65 0.0503 0.0133 \*  
 Venus -70441-12-14 05:45 J -24006804.47 -24006804.26 -24006804.06 0.0501 0.0018  
 Mercury -70439-11-06 19:40 J -24006111.85 -24006111.68 -24006111.50 0.0498 0.0170  
 Mercury -70438-02-05 06:57 J -24006021.30 -24006021.21 -24006021.11 0.0498 0.0429  
 Mercury -70433-09-30 02:09 J -24003957.54 -24003957.41 -24003957.29 0.0528 0.0089  
 Mercury -70433-12-28 07:40 J -24003868.26 -24003868.18 -24003868.09 0.0527 0.0376  
 Venus -70429-08-19 03:49 J -24002538.47 -24002538.34 -24002538.20 0.0502 0.0382  
 Earth -70429-09-05 02:37 J -24002521.55 -24002521.39 -24002521.22 0.0502 0.0355  
 Moon -70429-09-05 04:18 J -24002521.46 -24002521.32 -24002521.17 0.0502 0.0386 \*  
 Mercury -70427-08-25 16:33 J -24001801.95 -24001801.81 -24001801.67 0.0498 0.0318  
 Mercury -70427-11-24 03:49 J -24001711.49 -24001711.34 -24001711.18 0.0498 0.0282  
 Mercury -70421-07-19 05:59 J -23999647.37 -23999647.25 -23999647.14 0.0528 0.0211  
 Mercury -70421-10-16 11:30 J -23999558.13 -23999558.02 -23999557.91 0.0527 0.0252  
 Mercury -70415-06-13 13:40 J -23997491.99 -23997491.93 -23997491.86 0.0498 0.0462  
 Mercury -70415-09-12 01:11 J -23997401.63 -23997401.45 -23997401.27 0.0498 0.0137  
 Moon -70411-02-25 01:40 J -23996139.57 -23996139.43 -23996139.29 0.0520 0.0398  
 Earth -70411-02-25 03:06 J -23996139.49 -23996139.37 -23996139.22 0.0520 0.0422 \*  
 Venus -70411-10-21 12:28 J -23995901.17 -23995900.98 -23995900.78 0.0524 0.0123  
 Mercury -70409-05-07 09:49 J -23995337.18 -23995337.09 -23995336.99 0.0528 0.0329  
 Mercury -70409-08-04 15:35 J -23995247.97 -23995247.85 -23995247.73 0.0528 0.0134

Venus -70405-08-21 18:28 J -23993769.91 -23993769.73 -23993769.55 0.0501 0.0251  
 Mercury -70403-06-30 22:04 J -23993091.77 -23993091.58 -23993091.39 0.0498 0.0012  
 Earth -70399-03-01 23:30 J -23991751.74 -23991751.52 -23991751.30 0.0521 0.0173  
 Moon -70399-03-02 03:06 J -23991751.59 -23991751.37 -23991751.15 0.0521 0.0192 \*  
 Venus -70399-06-26 06:28 J -23991635.38 -23991635.23 -23991635.07 0.0523 0.0330  
 Mars -70397-01-16 16:33 J -23991066.04 -23991065.81 -23991065.58 0.0528 0.0195  
 Mercury -70397-02-24 13:54 J -23991026.98 -23991026.92 -23991026.85 0.0528 0.0447  
 Mercury -70397-05-23 19:40 J -23990937.81 -23990937.68 -23990937.55 0.0528 0.0016  
 Mercury -70397-08-21 01:25 J -23990848.49 -23990848.44 -23990848.39 0.0527 0.0480  
 Venus -70393-04-26 16:47 J -23989503.99 -23989503.80 -23989503.60 0.0502 0.0148  
 Mercury -70391-04-18 18:28 J -23988781.90 -23988781.73 -23988781.55 0.0497 0.0163  
 Mercury -70391-07-18 05:45 J -23988691.34 -23988691.26 -23988691.17 0.0498 0.0436  
 Moon -70387-03-06 19:11 J -23987363.93 -23987363.70 -23987363.47 0.0522 0.0051  
 Earth -70387-03-06 23:16 J -23987363.76 -23987363.53 -23987363.30 0.0522 0.0084 \*  
 Mercury -70385-03-12 00:13 J -23986627.61 -23986627.49 -23986627.36 0.0528 0.0094  
 Mercury -70385-06-09 05:59 J -23986538.34 -23986538.25 -23986538.16 0.0528 0.0370  
 Earth -70382-08-22 19:11 J -23985368.87 -23985368.70 -23985368.52 0.0505 0.0336  
 Moon -70382-08-22 22:47 J -23985368.70 -23985368.55 -23985368.38 0.0505 0.0358 \*  
 Mars -70380-12-09 19:11 J -23984529.00 -23984528.70 -23984528.40 0.0497 0.0130  
 Mercury -70379-02-04 13:54 J -23984472.06 -23984471.92 -23984471.78 0.0497 0.0325  
 Mercury -70379-05-06 01:11 J -23984381.60 -23984381.45 -23984381.29 0.0498 0.0274  
 Earth -70375-03-11 22:18 J -23982975.74 -23982975.57 -23982975.39 0.0524 0.0342  
 Moon -70375-03-12 01:54 J -23982975.59 -23982975.42 -23982975.26 0.0524 0.0355 \*  
 Venus -70375-06-29 02:23 J -23982866.53 -23982866.40 -23982866.26 0.0525 0.0380  
 Mercury -70374-12-30 04:33 J -23982317.42 -23982317.31 -23982317.19 0.0528 0.0208  
 Mercury -70373-03-28 10:18 J -23982228.18 -23982228.07 -23982227.96 0.0528 0.0256  
 Moon -70370-08-27 03:49 J -23980981.56 -23980981.34 -23980981.10 0.0504 0.0136  
 Earth -70370-08-27 06:57 J -23980981.44 -23980981.21 -23980980.99 0.0504 0.0113 \*  
 Venus -70369-04-29 04:47 J -23980735.36 -23980735.30 -23980735.23 0.0500 0.0473  
 Mercury -70368-11-23 10:18 J -23980162.11 -23980162.07 -23980162.01 0.0497 0.0475

Mercury -70367-02-21 22:04 J -23980071.76 -23980071.58 -23980071.40 0.0498 0.0125

Venus -70363-03-03 20:52 J -23978600.83 -23978600.63 -23978600.43 0.0524 0.0073

Mercury -70362-10-18 08:23 J -23978007.25 -23978007.15 -23978007.05 0.0528 0.0331

Mars -70362-10-20 18:13 J -23978004.89 -23978004.74 -23978004.59 0.0528 0.0412

Mercury -70361-01-15 13:54 J -23977918.04 -23977917.92 -23977917.79 0.0528 0.0134

Earth -70358-08-31 17:45 J -23976593.99 -23976593.76 -23976593.54 0.0504 0.0111

Moon -70358-08-31 19:25 J -23976593.91 -23976593.69 -23976593.47 0.0504 0.0131 \*

Venus -70357-01-03 02:52 J -23976469.58 -23976469.38 -23976469.18 0.0502 0.0071

Mercury -70356-12-10 19:11 J -23975761.89 -23975761.70 -23975761.51 0.0498 0.0021

Venus -70352-11-06 15:06 J -23974334.87 -23974334.87 -23974334.85 0.0522 0.0522

Mercury -70350-08-06 12:28 J -23973697.04 -23973696.98 -23973696.92 0.0528 0.0449

Mercury -70350-11-03 17:59 J -23973607.87 -23973607.75 -23973607.62 0.0528 0.0015

Mercury -70349-01-31 23:45 J -23973518.56 -23973518.51 -23973518.46 0.0527 0.0476

Moon -70346-09-05 05:45 J -23972206.42 -23972206.26 -23972206.09 0.0503 0.0362

Earth -70346-09-05 06:13 J -23972206.42 -23972206.24 -23972206.07 0.0503 0.0335 \*

Venus -70346-09-08 01:11 J -23972203.60 -23972203.45 -23972203.30 0.0503 0.0329

Mercury -70344-09-28 15:49 J -23971452.02 -23971451.84 -23971451.66 0.0498 0.0170

Mercury -70344-12-28 03:06 J -23971361.46 -23971361.37 -23971361.27 0.0498 0.0428

Mercury -70338-08-22 22:04 J -23969297.70 -23969297.58 -23969297.46 0.0528 0.0107

Mercury -70338-11-20 03:49 J -23969208.43 -23969208.34 -23969208.25 0.0528 0.0358

Mercury -70332-07-17 12:13 J -23967142.13 -23967141.99 -23967141.84 0.0497 0.0322

Mercury -70332-10-15 23:30 J -23967051.67 -23967051.52 -23967051.36 0.0498 0.0278

Earth -70328-02-24 00:42 J -23965824.58 -23965824.47 -23965824.36 0.0520 0.0458

Moon -70328-02-24 03:49 J -23965824.47 -23965824.34 -23965824.21 0.0520 0.0434 \*

Venus -70328-11-09 09:06 J -23965566.31 -23965566.12 -23965565.93 0.0525 0.0176

Mercury -70326-06-11 02:37 J -23964987.51 -23964987.39 -23964987.28 0.0528 0.0218

Mercury -70326-09-08 08:23 J -23964898.27 -23964898.15 -23964898.04 0.0528 0.0247

Venus -70322-09-10 14:09 J -23963435.07 -23963434.91 -23963434.74 0.0501 0.0297

Mercury -70320-05-05 07:25 J -23962832.22 -23962832.19 -23962832.14 0.0497 0.0484

Mercury -70320-08-03 18:57 J -23962741.89 -23962741.71 -23962741.52 0.0498 0.0116

Moon -70316-02-28 18:42 J -23961436.92 -23961436.72 -23961436.50 0.0521 0.0224  
 Earth -70316-02-28 22:47 J -23961436.76 -23961436.55 -23961436.33 0.0521 0.0204 \*  
 Venus -70316-07-15 04:04 J -23961300.50 -23961300.33 -23961300.16 0.0524 0.0273  
 Mercury -70314-03-30 06:57 J -23960677.31 -23960677.21 -23960677.11 0.0529 0.0332  
 Mercury -70314-06-27 12:42 J -23960588.10 -23960587.97 -23960587.85 0.0528 0.0133  
 Venus -70310-05-16 11:59 J -23959169.20 -23959169.00 -23959168.79 0.0502 0.0104  
 Mercury -70308-05-22 15:35 J -23958432.03 -23958431.85 -23958431.66 0.0498 0.0037  
 Earth -70304-03-05 21:06 J -23957048.85 -23957048.62 -23957048.39 0.0522 0.0054  
 Moon -70304-03-06 00:57 J -23957048.69 -23957048.46 -23957048.23 0.0522 0.0026 \*  
 Mercury -70302-01-16 10:47 J -23956367.11 -23956367.05 -23956366.99 0.0528 0.0455  
 Mercury -70302-04-15 16:18 J -23956277.95 -23956277.82 -23956277.69 0.0528 0.0009  
 Mercury -70302-07-13 22:04 J -23956188.63 -23956188.58 -23956188.53 0.0527 0.0471  
 Moon -70299-08-21 16:18 J -23955053.97 -23955053.82 -23955053.67 0.0506 0.0391  
 Earth -70299-08-21 19:11 J -23955053.85 -23955053.70 -23955053.53 0.0506 0.0365 \*  
 Mercury -70296-03-10 12:42 J -23954122.15 -23954121.97 -23954121.80 0.0498 0.0183  
 Mercury -70296-06-08 23:59 J -23954031.60 -23954031.50 -23954031.40 0.0498 0.0417  
 Moon -70292-03-10 16:33 J -23952660.99 -23952660.81 -23952660.61 0.0523 0.0323  
 Earth -70292-03-10 19:11 J -23952660.89 -23952660.70 -23952660.51 0.0523 0.0308 \*  
 Venus -70292-07-17 21:49 J -23952531.70 -23952531.59 -23952531.47 0.0525 0.0425  
 Mercury -70290-02-01 20:23 J -23951967.78 -23951967.65 -23951967.53 0.0528 0.0113  
 Mercury -70290-05-02 01:54 J -23951878.51 -23951878.42 -23951878.32 0.0527 0.0352  
 Earth -70287-08-26 07:11 J -23950666.42 -23950666.20 -23950665.97 0.0505 0.0141  
 Moon -70287-08-26 08:52 J -23950666.34 -23950666.13 -23950665.91 0.0505 0.0160 \*  
 Mercury -70285-12-27 09:21 J -23949812.25 -23949812.11 -23949811.97 0.0497 0.0333  
 Mercury -70284-03-27 20:37 J -23949721.79 -23949721.64 -23949721.48 0.0498 0.0267  
 Venus -70280-03-22 15:21 J -23948266.06 -23948265.86 -23948265.66 0.0524 0.0032  
 Mercury -70279-11-21 00:13 J -23947657.60 -23947657.49 -23947657.38 0.0528 0.0233  
 Mercury -70278-02-18 05:59 J -23947568.37 -23947568.25 -23947568.14 0.0528 0.0232  
 Moon -70275-08-30 19:25 J -23946278.93 -23946278.69 -23946278.45 0.0504 0.0106  
 Earth -70275-08-30 19:54 J -23946278.90 -23946278.67 -23946278.44 0.0504 0.0086 \*



Venus -70274-01-21 23:30 J -23946134.72 -23946134.52 -23946134.32 0.0501 0.0123  
 Mercury -70273-10-15 05:30 J -23945502.30 -23945502.27 -23945502.22 0.0497 0.0485  
 Mercury -70272-01-13 17:16 J -23945411.97 -23945411.78 -23945411.60 0.0498 0.0116  
 Venus -70269-11-25 10:18 J -23944000.15 -23944000.07 -23943999.99 0.0523 0.0477  
 Mercury -70267-09-09 04:47 J -23943347.40 -23943347.30 -23943347.21 0.0529 0.0345  
 Mercury -70267-12-07 10:18 J -23943258.19 -23943258.07 -23943257.94 0.0528 0.0120  
 Moon -70263-09-04 05:59 J -23941891.42 -23941891.25 -23941891.08 0.0502 0.0334  
 Earth -70263-09-04 07:11 J -23941891.38 -23941891.20 -23941891.01 0.0502 0.0309 \*  
 Venus -70263-09-26 20:52 J -23941868.79 -23941868.63 -23941868.45 0.0502 0.0283  
 Mars -70261-05-26 19:40 J -23941260.85 -23941260.68 -23941260.50 0.0497 0.0409  
 Mercury -70261-11-01 12:42 J -23941102.16 -23941101.97 -23941101.79 0.0497 0.0047  
 Mercury -70255-06-28 09:06 J -23939037.18 -23939037.12 -23939037.06 0.0529 0.0459  
 Mercury -70255-09-25 14:37 J -23938948.01 -23938947.89 -23938947.76 0.0528 0.0016  
 Mercury -70255-12-23 20:23 J -23938858.70 -23938858.65 -23938858.59 0.0528 0.0470  
 Mercury -70249-08-20 09:06 J -23936792.29 -23936792.12 -23936791.94 0.0497 0.0198  
 Mercury -70249-11-18 20:23 J -23936701.75 -23936701.65 -23936701.54 0.0498 0.0401  
 Moon -70245-02-23 17:30 J -23935509.87 -23935509.77 -23935509.67 0.0519 0.0467  
 Earth -70245-02-23 21:21 J -23935509.68 -23935509.61 -23935509.54 0.0519 0.0491 \*  
 Venus -70245-11-28 04:47 J -23935231.48 -23935231.30 -23935231.12 0.0525 0.0221  
 Mars -70243-04-11 03:06 J -23934732.62 -23934732.37 -23934732.13 0.0528 0.0039  
 Mercury -70243-07-14 18:28 J -23934637.85 -23934637.73 -23934637.61 0.0528 0.0119  
 Mercury -70243-10-11 23:59 J -23934548.59 -23934548.50 -23934548.40 0.0527 0.0346  
 Venus -70239-09-29 09:06 J -23933100.27 -23933100.12 -23933099.97 0.0501 0.0338  
 Mercury -70237-06-08 05:59 J -23932482.38 -23932482.25 -23932482.12 0.0498 0.0347  
 Mercury -70237-09-06 17:30 J -23932391.93 -23932391.77 -23932391.61 0.0498 0.0254  
 Earth -70233-02-28 19:40 J -23931121.88 -23931121.68 -23931121.47 0.0520 0.0238  
 Moon -70233-02-28 23:45 J -23931121.71 -23931121.51 -23931121.30 0.0520 0.0257 \*  
 Venus -70233-08-02 23:30 J -23930965.70 -23930965.52 -23930965.34 0.0523 0.0228  
 Mercury -70231-05-02 22:33 J -23930327.67 -23930327.56 -23930327.45 0.0528 0.0239  
 Mercury -70231-07-31 04:04 J -23930238.44 -23930238.33 -23930238.21 0.0528 0.0225

Venus -70227-06-04 07:11 J -23928834.41 -23928834.20 -23928834.00 0.0502 0.0062  
 Mars -70225-03-03 22:33 J -23928195.79 -23928195.56 -23928195.32 0.0497 0.0321  
 Mercury -70225-03-27 02:37 J -23928172.40 -23928172.39 -23928172.38 0.0497 0.0496  
 Mercury -70225-06-25 14:09 J -23928082.09 -23928081.91 -23928081.73 0.0498 0.0104  
 Moon -70221-03-04 12:28 J -23926734.22 -23926733.98 -23926733.74 0.0521 0.0015  
 Earth -70221-03-04 15:35 J -23926734.08 -23926733.85 -23926733.61 0.0521 0.0012 \*  
 Mercury -70219-02-19 02:23 J -23926017.49 -23926017.40 -23926017.31 0.0528 0.0360  
 Mercury -70219-05-19 07:54 J -23925928.29 -23925928.17 -23925928.04 0.0528 0.0106  
 Earth -70216-08-20 20:23 J -23924738.79 -23924738.65 -23924738.50 0.0506 0.0394  
 Moon -70216-08-20 22:04 J -23924738.69 -23924738.58 -23924738.45 0.0506 0.0426 \*  
 Venus -70215-02-07 05:30 J -23924568.34 -23924568.27 -23924568.19 0.0503 0.0462  
 Mercury -70213-04-13 10:33 J -23923772.24 -23923772.06 -23923771.87 0.0497 0.0048  
 Earth -70209-03-09 13:25 J -23922346.14 -23922345.94 -23922345.74 0.0523 0.0266  
 Moon -70209-03-09 14:09 J -23922346.09 -23922345.91 -23922345.72 0.0523 0.0289 \*  
 Venus -70209-08-05 16:18 J -23922196.91 -23922196.82 -23922196.73 0.0525 0.0466  
 Mercury -70208-12-08 06:42 J -23921707.27 -23921707.22 -23921707.16 0.0529 0.0474  
 Mercury -70207-03-07 12:28 J -23921618.11 -23921617.98 -23921617.86 0.0528 0.0013  
 Mercury -70207-06-04 18:13 J -23921528.80 -23921528.74 -23921528.68 0.0528 0.0457  
 Moon -70204-08-25 08:37 J -23920351.37 -23920351.14 -23920350.92 0.0505 0.0181  
 Earth -70204-08-25 09:06 J -23920351.34 -23920351.12 -23920350.90 0.0505 0.0165 \*  
 Mercury -70201-01-31 06:13 J -23919462.41 -23919462.24 -23919462.07 0.0497 0.0208  
 Mercury -70201-04-30 17:30 J -23919371.88 -23919371.77 -23919371.66 0.0498 0.0390  
 Earth -70197-03-14 11:16 J -23917958.03 -23917958.03 -23917958.01 0.0524 0.0523  
 Venus -70197-04-10 11:01 J -23917931.24 -23917931.04 -23917930.84 0.0524 0.0015  
 Mercury -70196-12-24 16:47 J -23917307.92 -23917307.80 -23917307.68 0.0529 0.0124  
 Mercury -70195-03-23 22:33 J -23917218.66 -23917218.56 -23917218.47 0.0528 0.0342  
 Moon -70192-08-29 19:40 J -23915963.90 -23915963.68 -23915963.46 0.0504 0.0081  
 Earth -70192-08-29 20:37 J -23915963.87 -23915963.64 -23915963.41 0.0504 0.0059 \*  
 Venus -70191-02-09 18:42 J -23915799.91 -23915799.72 -23915799.52 0.0501 0.0165  
 Mercury -70190-11-19 02:37 J -23915152.51 -23915152.39 -23915152.25 0.0497 0.0359

Mercury -70189-02-17 14:09 J -23915062.07 -23915061.91 -23915061.75 0.0498 0.0241  
 Venus -70186-12-15 05:45 J -23913665.36 -23913665.26 -23913665.14 0.0523 0.0433  
 Mercury -70184-10-12 20:37 J -23912997.75 -23912997.64 -23912997.53 0.0528 0.0247  
 Mercury -70183-01-10 02:09 J -23912908.52 -23912908.41 -23912908.29 0.0528 0.0218  
 Earth -70180-09-03 05:30 J -23911576.46 -23911576.27 -23911576.08 0.0503 0.0279  
 Moon -70180-09-03 08:09 J -23911576.34 -23911576.16 -23911575.96 0.0503 0.0297 \*  
 Venus -70180-10-15 15:06 J -23911534.04 -23911533.87 -23911533.69 0.0502 0.0245  
 Mercury -70178-12-06 11:01 J -23910752.22 -23910752.04 -23910751.86 0.0498 0.0092  
 Mercury -70172-08-01 00:42 J -23908687.56 -23908687.47 -23908687.38 0.0528 0.0365  
 Mercury -70172-10-29 06:13 J -23908598.36 -23908598.24 -23908598.11 0.0528 0.0099  
 Moon -70168-09-07 13:25 J -23907189.00 -23907188.94 -23907188.87 0.0502 0.0479  
 Earth -70168-09-07 17:16 J -23907188.78 -23907188.78 -23907188.77 0.0502 0.0502  
 Mercury -70166-09-24 07:40 J -23906442.36 -23906442.18 -23906441.99 0.0498 0.0058  
 Moon -70162-02-22 20:52 J -23905194.67 -23905194.63 -23905194.57 0.0519 0.0506  
 Venus -70162-12-17 23:16 J -23904896.70 -23904896.53 -23904896.36 0.0524 0.0262  
 Mercury -70160-05-20 04:33 J -23904377.36 -23904377.31 -23904377.26 0.0528 0.0486  
 Mercury -70160-08-17 10:04 J -23904288.20 -23904288.08 -23904287.95 0.0528 0.0027  
 Mercury -70160-11-14 15:49 J -23904198.91 -23904198.84 -23904198.77 0.0528 0.0442  
 Venus -70156-10-18 05:16 J -23902765.40 -23902765.28 -23902765.15 0.0501 0.0387  
 Mercury -70154-07-13 04:04 J -23902132.49 -23902132.33 -23902132.16 0.0497 0.0210  
 Mercury -70154-10-11 15:35 J -23902041.97 -23902041.85 -23902041.74 0.0498 0.0390  
 Moon -70150-02-27 10:47 J -23900807.24 -23900807.05 -23900806.85 0.0520 0.0300  
 Earth -70150-02-27 14:23 J -23900807.09 -23900806.90 -23900806.70 0.0520 0.0280 \*  
 Venus -70150-08-22 17:59 J -23900630.94 -23900630.75 -23900630.57 0.0523 0.0186  
 Mercury -70148-06-05 14:23 J -23899978.02 -23899977.90 -23899977.77 0.0528 0.0139  
 Mercury -70148-09-02 20:09 J -23899888.75 -23899888.66 -23899888.56 0.0528 0.0329  
 Venus -70144-06-23 03:49 J -23898499.55 -23898499.34 -23898499.14 0.0502 0.0017  
 Mercury -70142-04-30 23:59 J -23897822.62 -23897822.50 -23897822.37 0.0497 0.0367  
 Mercury -70142-07-30 11:30 J -23897732.19 -23897732.02 -23897731.86 0.0497 0.0232  
 Earth -70138-03-04 11:45 J -23896419.24 -23896419.01 -23896418.77 0.0521 0.0025

Moon -70138-03-04 13:25 J -23896419.17 -23896418.94 -23896418.71 0.0521 0.0044 \*  
 Mercury -70136-03-24 18:57 J -23895667.82 -23895667.71 -23895667.60 0.0529 0.0252  
 Mercury -70136-06-22 00:28 J -23895578.59 -23895578.48 -23895578.36 0.0528 0.0216  
 Moon -70133-08-19 22:18 J -23894423.68 -23894423.57 -23894423.46 0.0506 0.0448  
 Earth -70133-08-19 23:01 J -23894423.67 -23894423.54 -23894423.41 0.0506 0.0418 \*  
 Venus -70132-02-26 01:54 J -23894233.53 -23894233.42 -23894233.30 0.0503 0.0413  
 Mercury -70130-05-18 08:09 J -23893422.35 -23893422.16 -23893421.98 0.0497 0.0083  
 Earth -70126-03-09 11:16 J -23892031.23 -23892031.03 -23892030.82 0.0522 0.0237  
 Moon -70126-03-09 11:59 J -23892031.21 -23892031.00 -23892030.79 0.0522 0.0262 \*  
 Venus -70126-08-25 12:42 J -23891862.01 -23891861.97 -23891861.93 0.0525 0.0513  
 Mars -70125-09-30 10:33 J -23891460.15 -23891460.06 -23891459.97 0.0528 0.0488  
 Mercury -70124-01-10 22:47 J -23891357.64 -23891357.55 -23891357.46 0.0528 0.0373  
 Mercury -70124-04-10 04:33 J -23891268.44 -23891268.31 -23891268.19 0.0528 0.0093  
 Moon -70121-08-24 06:28 J -23890036.43 -23890036.23 -23890036.02 0.0505 0.0213  
 Earth -70121-08-24 07:11 J -23890036.41 -23890036.20 -23890035.98 0.0505 0.0199 \*  
 Mercury -70118-03-06 04:47 J -23889112.49 -23889112.30 -23889112.11 0.0498 0.0068  
 Moon -70114-03-14 08:37 J -23887643.16 -23887643.14 -23887643.11 0.0523 0.0519  
 Earth -70114-03-14 10:47 J -23887643.12 -23887643.05 -23887642.97 0.0523 0.0494 \*  
 Venus -70114-04-30 08:09 J -23887596.36 -23887596.16 -23887595.96 0.0524 0.0070  
 Mercury -70113-10-30 02:52 J -23887047.42 -23887047.38 -23887047.33 0.0528 0.0490  
 Mercury -70112-01-27 08:37 J -23886958.27 -23886958.14 -23886958.02 0.0528 0.0027  
 Mercury -70112-04-26 14:09 J -23886868.97 -23886868.91 -23886868.84 0.0527 0.0439  
 Earth -70109-08-28 18:57 J -23885648.94 -23885648.71 -23885648.47 0.0505 0.0028  
 Moon -70109-08-28 21:35 J -23885648.83 -23885648.60 -23885648.36 0.0505 0.0054 \*  
 Venus -70108-02-28 13:40 J -23885465.12 -23885464.93 -23885464.74 0.0502 0.0206  
 Mars -70107-08-19 22:18 J -23884927.84 -23884927.57 -23884927.28 0.0497 0.0217  
 Mercury -70107-12-23 01:25 J -23884802.60 -23884802.44 -23884802.27 0.0498 0.0218  
 Mercury -70106-03-23 12:57 J -23884712.08 -23884711.96 -23884711.84 0.0498 0.0384  
 Venus -70102-01-03 01:40 J -23883330.56 -23883330.43 -23883330.29 0.0522 0.0383  
 Mercury -70101-11-15 12:28 J -23882648.10 -23882647.98 -23882647.86 0.0528 0.0147

Mercury -70100-02-12 18:13 J -23882558.84 -23882558.74 -23882558.64 0.0528 0.0318

Moon -70097-09-02 04:33 J -23881261.50 -23881261.31 -23881261.12 0.0504 0.0269

Earth -70097-09-02 08:09 J -23881261.36 -23881261.16 -23881260.96 0.0504 0.0255 \*

Venus -70097-11-03 12:13 J -23881199.18 -23881198.99 -23881198.80 0.0503 0.0192

Mercury -70095-10-10 22:04 J -23880492.70 -23880492.58 -23880492.45 0.0497 0.0368

Mercury -70094-01-09 09:35 J -23880402.26 -23880402.10 -23880401.93 0.0498 0.0234

Mars -70089-07-04 06:57 J -23878399.45 -23878399.21 -23878398.97 0.0529 0.0098

Mercury -70089-09-03 16:47 J -23878337.91 -23878337.80 -23878337.69 0.0528 0.0262

Mercury -70089-12-01 22:33 J -23878248.68 -23878248.56 -23878248.45 0.0528 0.0204

Earth -70085-09-06 21:21 J -23876873.66 -23876873.61 -23876873.54 0.0502 0.0484

Moon -70085-09-07 01:25 J -23876873.53 -23876873.44 -23876873.35 0.0502 0.0457

Mercury -70083-10-28 05:45 J -23876092.44 -23876092.26 -23876092.07 0.0497 0.0078

Venus -70078-01-05 19:54 J -23874561.83 -23874561.67 -23874561.51 0.0525 0.0314

Mercury -70077-06-22 21:06 J -23874027.70 -23874027.62 -23874027.53 0.0529 0.0377

Mercury -70077-09-20 02:52 J -23873938.50 -23873938.38 -23873938.25 0.0528 0.0091

Venus -70073-11-06 02:37 J -23872430.48 -23872430.39 -23872430.29 0.0501 0.0441

Mercury -70071-08-16 02:37 J -23871782.58 -23871782.39 -23871782.21 0.0497 0.0072

Earth -70067-02-26 14:23 J -23870492.08 -23870491.90 -23870491.70 0.0520 0.0307

Moon -70067-02-26 16:47 J -23870491.97 -23870491.80 -23870491.62 0.0520 0.0332 \*

Venus -70067-09-10 15:35 J -23870296.04 -23870295.85 -23870295.65 0.0523 0.0130

Mercury -70065-04-11 01:25 J -23869717.48 -23869717.44 -23869717.40 0.0528 0.0494

Mercury -70065-07-09 06:57 J -23869628.34 -23869628.21 -23869628.08 0.0528 0.0030

Mercury -70065-10-06 12:28 J -23869539.04 -23869538.98 -23869538.90 0.0527 0.0436

Venus -70061-07-11 23:01 J -23868164.75 -23868164.54 -23868164.34 0.0502 0.0031

Mercury -70059-06-03 23:01 J -23867472.71 -23867472.54 -23867472.37 0.0498 0.0224

Mercury -70059-09-02 10:18 J -23867382.18 -23867382.07 -23867381.94 0.0498 0.0379

Earth -70055-03-03 15:06 J -23866104.11 -23866103.87 -23866103.64 0.0521 0.0047

Moon -70055-03-03 15:06 J -23866104.11 -23866103.87 -23866103.63 0.0521 0.0061 \*

Mercury -70053-04-27 11:16 J -23865318.15 -23865318.03 -23865317.91 0.0528 0.0147

Mercury -70053-07-25 16:47 J -23865228.90 -23865228.80 -23865228.70 0.0527 0.0318

Earth -70050-08-19 22:04 J -23864108.68 -23864108.58 -23864108.48 0.0507 0.0452  
 Moon -70050-08-19 21:06 J -23864108.67 -23864108.62 -23864108.55 0.0507 0.0485 \*  
 Venus -70049-03-16 21:06 J -23863898.76 -23863898.62 -23863898.48 0.0503 0.0369  
 Mercury -70047-03-22 19:40 J -23863162.79 -23863162.68 -23863162.55 0.0498 0.0373  
 Mercury -70047-06-21 07:25 J -23863072.35 -23863072.19 -23863072.02 0.0498 0.0231  
 Moon -70043-03-08 09:49 J -23861716.29 -23861716.09 -23861715.88 0.0521 0.0234  
 Earth -70043-03-08 11:30 J -23861716.23 -23861716.02 -23861715.80 0.0521 0.0206 \*  
 Mercury -70041-02-14 15:06 J -23861007.98 -23861007.87 -23861007.76 0.0528 0.0267  
 Mercury -70041-05-13 20:37 J -23860918.75 -23860918.64 -23860918.52 0.0528 0.0199  
 Earth -70038-08-24 11:16 J -23859721.23 -23859721.03 -23859720.81 0.0506 0.0224  
 Moon -70038-08-24 13:54 J -23859721.13 -23859720.92 -23859720.70 0.0506 0.0226 \*  
 Mercury -70035-04-09 04:18 J -23858762.51 -23858762.32 -23858762.14 0.0498 0.0082  
 Earth -70031-03-13 09:21 J -23857328.21 -23857328.11 -23857328.00 0.0523 0.0461  
 Moon -70031-03-13 12:42 J -23857328.06 -23857327.97 -23857327.88 0.0523 0.0480 \*  
 Venus -70031-05-19 04:47 J -23857261.50 -23857261.30 -23857261.11 0.0524 0.0123  
 Mercury -70030-12-03 19:25 J -23856697.77 -23856697.69 -23856697.60 0.0528 0.0382  
 Mercury -70029-03-02 01:11 J -23856608.58 -23856608.45 -23856608.33 0.0528 0.0085  
 Moon -70026-08-28 22:18 J -23855333.80 -23855333.57 -23855333.34 0.0505 0.0042  
 Earth -70026-08-29 01:54 J -23855333.65 -23855333.42 -23855333.19 0.0505 0.0012 \*  
 Venus -70025-03-19 12:42 J -23855130.14 -23855129.97 -23855129.79 0.0501 0.0269  
 Mercury -70023-01-26 00:42 J -23854452.66 -23854452.47 -23854452.29 0.0497 0.0072  
 Venus -70019-01-21 23:30 J -23852995.68 -23852995.52 -23852995.36 0.0523 0.0325  
 Mercury -70018-09-21 23:59 J -23852387.54 -23852387.50 -23852387.46 0.0529 0.0496  
 Mercury -70018-12-20 05:30 J -23852298.39 -23852298.27 -23852298.14 0.0528 0.0031  
 Mercury -70017-03-18 11:16 J -23852209.10 -23852209.03 -23852208.96 0.0528 0.0437  
 Earth -70014-09-02 14:52 J -23850946.09 -23850945.88 -23850945.68 0.0504 0.0240  
 Moon -70014-09-02 18:42 J -23850945.92 -23850945.72 -23850945.52 0.0504 0.0249 \*  
 Venus -70014-11-23 11:16 J -23850864.23 -23850864.03 -23850863.83 0.0502 0.0128  
 Mercury -70012-11-13 21:21 J -23850142.77 -23850142.61 -23850142.44 0.0497 0.0221  
 Mercury -70011-02-12 08:37 J -23850052.25 -23850052.14 -23850052.01 0.0498 0.0381

Mercury -70006-10-08 09:49 J -23847988.21 -23847988.09 -23847987.97 0.0528 0.0148

Mercury -70005-01-05 15:21 J -23847898.96 -23847898.86 -23847898.76 0.0527 0.0318

Moon -70002-09-06 19:25 J -23846558.81 -23846558.69 -23846558.57 0.0503 0.0431

Earth -70002-09-06 23:01 J -23846558.63 -23846558.54 -23846558.44 0.0503 0.0459 \*

# 70TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 70th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-70000-09-01 17:45 J	-23845832.88	-23845832.76	-23845832.64	0.0498	0.0375		
Mercury	-70000-12-01 05:16 J	-23845742.44	-23845742.28	-23845742.11	0.0498	0.0229		
Venus	-69995-01-24 20:52 J	-23844226.76	-23844226.63	-23844226.50	0.0524	0.0388		
Mercury	-69994-07-27 14:09 J	-23843678.02	-23843677.91	-23843677.80	0.0528	0.0262		
Mercury	-69994-10-24 19:40 J	-23843588.80	-23843588.68	-23843588.56	0.0527	0.0203		
Venus	-69990-11-25 23:16 J	-23842095.56	-23842095.53	-23842095.49	0.0501	0.0491		
Mercury	-69988-09-19 02:23 J	-23841432.58	-23841432.40	-23841432.21	0.0498	0.0082		
Moon	-69984-02-25 18:13 J	-23840176.91	-23840176.74	-23840176.56	0.0519	0.0358		
Earth	-69984-02-25 18:42 J	-23840176.89	-23840176.72	-23840176.53	0.0519	0.0329	*	
Venus	-69984-09-29 14:52 J	-23839961.08	-23839960.88	-23839960.68	0.0523	0.0062		
Mercury	-69982-05-15 17:59 J	-23839367.83	-23839367.75	-23839367.66	0.0528	0.0383		
Mercury	-69982-08-12 23:45 J	-23839278.64	-23839278.51	-23839278.39	0.0528	0.0084		
Venus	-69978-07-31 22:33 J	-23837829.76	-23837829.56	-23837829.36	0.0502	0.0097		
Mercury	-69976-07-07 23:16 J	-23837122.71	-23837122.53	-23837122.34	0.0498	0.0066		

Moon -69972-03-02 15:21 J -23835789.08 -23835788.86 -23835788.64 0.0520 0.0087  
 Earth -69972-03-02 16:47 J -23835789.03 -23835788.80 -23835788.57 0.0520 0.0075 \*  
 Venus -69972-06-04 09:21 J -23835695.14 -23835695.11 -23835695.05 0.0522 0.0506  
 Mars -69971-12-25 04:18 J -23835126.52 -23835126.32 -23835126.12 0.0528 0.0313  
 Mercury -69970-03-03 22:18 J -23835057.60 -23835057.57 -23835057.52 0.0528 0.0497  
 Mercury -69970-06-01 04:04 J -23834968.46 -23834968.33 -23834968.20 0.0528 0.0032  
 Mercury -69970-08-29 09:35 J -23834879.16 -23834879.10 -23834879.02 0.0528 0.0435  
 Earth -69967-08-19 06:57 J -23833793.29 -23833793.21 -23833793.12 0.0507 0.0465  
 Moon -69967-08-19 09:21 J -23833793.16 -23833793.11 -23833793.05 0.0507 0.0493 \*  
 Venus -69966-04-05 21:49 J -23833563.75 -23833563.59 -23833563.42 0.0503 0.0298  
 Mercury -69964-04-25 19:54 J -23832812.84 -23832812.67 -23832812.50 0.0497 0.0217  
 Mercury -69964-07-25 07:11 J -23832722.31 -23832722.20 -23832722.08 0.0498 0.0385  
 Earth -69960-03-07 14:37 J -23831401.11 -23831400.89 -23831400.67 0.0522 0.0183  
 Moon -69960-03-07 17:30 J -23831400.99 -23831400.77 -23831400.55 0.0522 0.0213 \*  
 Mercury -69958-03-20 08:37 J -23830658.27 -23830658.14 -23830658.02 0.0528 0.0146  
 Mercury -69958-06-17 14:09 J -23830569.01 -23830568.91 -23830568.81 0.0528 0.0322  
 Moon -69955-08-23 17:30 J -23829405.98 -23829405.77 -23829405.57 0.0506 0.0231  
 Earth -69955-08-23 21:06 J -23829405.83 -23829405.62 -23829405.42 0.0506 0.0235 \*  
 Mars -69953-11-12 23:30 J -23828593.83 -23828593.52 -23828593.21 0.0497 0.0028  
 Mercury -69952-02-11 16:47 J -23828502.92 -23828502.80 -23828502.67 0.0497 0.0364  
 Mercury -69952-05-13 04:18 J -23828412.48 -23828412.32 -23828412.15 0.0498 0.0238  
 Moon -69948-03-12 12:28 J -23827013.09 -23827012.98 -23827012.87 0.0523 0.0460  
 Earth -69948-03-12 16:04 J -23827012.94 -23827012.83 -23827012.70 0.0523 0.0448 \*  
 Venus -69948-06-07 05:59 J -23826926.43 -23826926.25 -23826926.06 0.0524 0.0200  
 Mercury -69946-01-06 12:57 J -23826348.07 -23826347.96 -23826347.85 0.0528 0.0260  
 Mercury -69946-04-05 18:28 J -23826258.84 -23826258.73 -23826258.61 0.0528 0.0206  
 Earth -69943-08-28 05:16 J -23825018.51 -23825018.28 -23825018.05 0.0505 0.0014  
 Moon -69943-08-28 09:06 J -23825018.35 -23825018.12 -23825017.89 0.0505 0.0020 \*  
 Venus -69942-04-08 10:18 J -23824795.23 -23824795.07 -23824794.91 0.0501 0.0325  
 Mercury -69940-03-01 00:42 J -23824102.65 -23824102.47 -23824102.28 0.0498 0.0084



Venus -69936-02-10 02:37 J -23822660.57 -23822660.39 -23822660.21 0.0523 0.0236  
 Mars -69935-09-28 11:01 J -23822065.23 -23822065.04 -23822064.83 0.0528 0.0310  
 Mercury -69935-10-25 17:16 J -23822037.86 -23822037.78 -23822037.69 0.0528 0.0373  
 Mercury -69934-01-22 23:01 J -23821948.67 -23821948.54 -23821948.42 0.0527 0.0094  
 Moon -69931-09-01 14:37 J -23820631.10 -23820630.89 -23820630.68 0.0504 0.0223  
 Earth -69931-09-01 17:59 J -23820630.95 -23820630.75 -23820630.53 0.0504 0.0217 \*  
 Venus -69931-12-12 08:52 J -23820529.34 -23820529.13 -23820528.93 0.0503 0.0073  
 Mercury -69929-12-17 21:49 J -23819792.78 -23819792.59 -23819792.40 0.0498 0.0062  
 Mercury -69923-08-13 21:21 J -23817727.65 -23817727.61 -23817727.57 0.0528 0.0492  
 Mercury -69923-11-11 02:52 J -23817638.50 -23817638.38 -23817638.25 0.0528 0.0030  
 Mercury -69922-02-08 08:37 J -23817549.21 -23817549.14 -23817549.07 0.0527 0.0438  
 Venus -69919-08-17 08:09 J -23816263.23 -23816263.16 -23816263.08 0.0504 0.0467  
 Earth -69919-09-06 08:09 J -23816243.26 -23816243.16 -23816243.05 0.0503 0.0448  
 Moon -69919-09-06 10:18 J -23816243.19 -23816243.07 -23816242.95 0.0503 0.0421 \*  
 Mercury -69917-10-05 18:57 J -23815482.88 -23815482.71 -23815482.54 0.0498 0.0208  
 Mercury -69916-01-04 06:13 J -23815392.34 -23815392.24 -23815392.12 0.0498 0.0396  
 Venus -69912-02-12 20:37 J -23813891.73 -23813891.64 -23813891.54 0.0524 0.0459  
 Mercury -69911-08-30 07:11 J -23813328.32 -23813328.20 -23813328.07 0.0528 0.0143  
 Mercury -69911-11-27 12:57 J -23813239.06 -23813238.96 -23813238.86 0.0528 0.0324  
 Mercury -69905-07-24 15:49 J -23811172.97 -23811172.84 -23811172.71 0.0497 0.0357  
 Mercury -69905-10-23 03:06 J -23811082.53 -23811082.37 -23811082.20 0.0498 0.0247  
 Moon -69901-02-25 23:01 J -23809861.69 -23809861.54 -23809861.39 0.0519 0.0383  
 Earth -69901-02-26 00:13 J -23809861.66 -23809861.49 -23809861.32 0.0519 0.0349 \*  
 Venus -69901-10-18 15:49 J -23809626.04 -23809625.84 -23809625.64 0.0524 0.0015  
 Mercury -69899-06-18 11:45 J -23809018.12 -23809018.01 -23809017.90 0.0528 0.0255  
 Mercury -69899-09-15 17:30 J -23808928.89 -23808928.77 -23808928.66 0.0528 0.0212  
 Venus -69895-08-20 00:42 J -23807494.66 -23807494.47 -23807494.28 0.0502 0.0176  
 Mercury -69893-08-11 00:13 J -23806772.67 -23806772.49 -23806772.30 0.0498 0.0100  
 Earth -69889-03-02 01:54 J -23805473.65 -23805473.42 -23805473.19 0.0520 0.0086  
 Moon -69889-03-02 04:47 J -23805473.54 -23805473.30 -23805473.07 0.0520 0.0091 \*

Venus -69889-06-23 12:28 J -23805360.09 -23805359.98 -23805359.86 0.0522 0.0420  
 Mercury -69887-04-06 16:18 J -23804707.91 -23804707.82 -23804707.73 0.0528 0.0367  
 Mercury -69887-07-04 21:49 J -23804618.71 -23804618.59 -23804618.46 0.0528 0.0100  
 Earth -69884-08-18 12:42 J -23803478.02 -23803477.97 -23803477.90 0.0507 0.0488  
 Venus -69883-04-24 20:23 J -23803228.83 -23803228.65 -23803228.46 0.0503 0.0236  
 Mercury -69881-05-29 20:23 J -23802462.83 -23802462.65 -23802462.46 0.0498 0.0057  
 Moon -69877-03-06 23:59 J -23801085.71 -23801085.50 -23801085.28 0.0521 0.0210  
 Earth -69877-03-07 03:49 J -23801085.56 -23801085.34 -23801085.12 0.0521 0.0179 \*  
 Mercury -69875-01-23 20:52 J -23800397.68 -23800397.63 -23800397.58 0.0528 0.0478  
 Mercury -69875-04-23 02:23 J -23800308.53 -23800308.40 -23800308.27 0.0527 0.0015  
 Mercury -69875-07-21 07:54 J -23800219.23 -23800219.17 -23800219.10 0.0527 0.0451  
 Earth -69872-08-23 01:40 J -23799090.62 -23799090.43 -23799090.23 0.0506 0.0258  
 Moon -69872-08-23 05:30 J -23799090.47 -23799090.27 -23799090.06 0.0506 0.0244 \*  
 Mercury -69869-03-17 17:30 J -23798152.94 -23798152.77 -23798152.59 0.0498 0.0202  
 Mercury -69869-06-16 05:01 J -23798062.39 -23798062.29 -23798062.17 0.0499 0.0404  
 Earth -69865-03-12 01:25 J -23796697.55 -23796697.44 -23796697.30 0.0522 0.0437  
 Moon -69865-03-12 04:47 J -23796697.41 -23796697.30 -23796697.17 0.0522 0.0439 \*  
 Venus -69865-06-26 08:52 J -23796591.30 -23796591.13 -23796590.96 0.0524 0.0286  
 Mercury -69863-02-09 06:28 J -23795998.35 -23795998.23 -23795998.11 0.0528 0.0134  
 Mercury -69863-05-09 11:59 J -23795909.09 -23795909.00 -23795908.90 0.0527 0.0332  
 Moon -69860-08-27 12:28 J -23794703.21 -23794702.98 -23794702.74 0.0506 0.0014  
 Earth -69860-08-27 16:04 J -23794703.06 -23794702.83 -23794702.60 0.0506 0.0024 \*  
 Venus -69859-04-27 12:28 J -23794460.10 -23794459.98 -23794459.86 0.0502 0.0404  
 Mercury -69857-01-04 14:52 J -23793843.01 -23793842.88 -23793842.75 0.0498 0.0347  
 Mercury -69857-04-04 02:23 J -23793752.56 -23793752.40 -23793752.24 0.0498 0.0259  
 Venus -69853-03-01 04:04 J -23792325.52 -23792325.33 -23792325.14 0.0523 0.0157  
 Mercury -69852-11-28 10:47 J -23791688.16 -23791688.05 -23791687.94 0.0528 0.0249  
 Mercury -69851-02-25 16:18 J -23791598.93 -23791598.82 -23791598.70 0.0528 0.0219  
 Earth -69848-09-01 07:11 J -23790315.40 -23790315.20 -23790314.98 0.0505 0.0214  
 Moon -69848-09-01 09:21 J -23790315.31 -23790315.11 -23790314.90 0.0505 0.0215 \*

Venus -69848-12-31 12:13 J -23790194.20 -23790193.99 -23790193.78 0.0502 0.0012  
 Mercury -69846-10-23 11:45 J -23789533.02 -23789533.01 -23789532.99 0.0498 0.0494  
 Mercury -69845-01-21 23:30 J -23789442.71 -23789442.52 -23789442.34 0.0498 0.0111  
 Mercury -69840-09-16 15:21 J -23787377.95 -23787377.86 -23787377.77 0.0528 0.0361  
 Mercury -69840-12-14 20:52 J -23787288.75 -23787288.63 -23787288.50 0.0528 0.0107  
 Venus -69836-09-05 11:30 J -23785928.15 -23785928.02 -23785927.88 0.0503 0.0382  
 Moon -69836-09-05 21:35 J -23785927.73 -23785927.60 -23785927.46 0.0503 0.0416  
 Earth -69836-09-05 21:35 J -23785927.71 -23785927.60 -23785927.49 0.0503 0.0445 \*  
 Mars -69834-05-02 12:28 J -23785324.13 -23785323.98 -23785323.81 0.0498 0.0424  
 Mercury -69834-11-09 20:37 J -23785132.83 -23785132.64 -23785132.46 0.0498 0.0037  
 Mercury -69828-07-05 19:54 J -23783067.72 -23783067.67 -23783067.61 0.0528 0.0471  
 Mercury -69828-10-03 01:40 J -23782978.56 -23782978.43 -23782978.31 0.0528 0.0015  
 Mercury -69828-12-31 07:11 J -23782889.26 -23782889.20 -23782889.14 0.0527 0.0459  
 Mercury -69822-08-28 16:33 J -23780822.98 -23780822.81 -23780822.64 0.0498 0.0194  
 Mercury -69822-11-27 04:04 J -23780732.43 -23780732.33 -23780732.23 0.0499 0.0412  
 Earth -69818-02-25 14:52 J -23779546.05 -23779545.88 -23779545.70 0.0519 0.0351  
 Moon -69818-02-25 17:30 J -23779545.92 -23779545.77 -23779545.60 0.0519 0.0383 \*  
 Venus -69818-11-07 22:04 J -23779290.78 -23779290.58 -23779290.39 0.0524 0.0119  
 Mars -69816-03-21 02:37 J -23778791.64 -23778791.39 -23778791.15 0.0528 0.0054  
 Mercury -69816-07-22 06:13 J -23778668.37 -23778668.24 -23778668.12 0.0527 0.0118  
 Mercury -69816-10-19 11:45 J -23778579.11 -23778579.01 -23778578.92 0.0527 0.0347  
 Venus -69812-09-07 23:45 J -23777159.68 -23777159.51 -23777159.32 0.0502 0.0241  
 Mercury -69810-06-16 13:40 J -23776513.07 -23776512.93 -23776512.79 0.0498 0.0339  
 Mercury -69810-09-15 01:11 J -23776422.60 -23776422.45 -23776422.29 0.0499 0.0268  
 Moon -69806-03-02 10:04 J -23775158.31 -23775158.08 -23775157.85 0.0520 0.0092  
 Earth -69806-03-02 13:40 J -23775158.16 -23775157.93 -23775157.69 0.0520 0.0093 \*  
 Venus -69806-07-13 16:47 J -23775024.95 -23775024.80 -23775024.64 0.0522 0.0326  
 Mercury -69804-05-10 10:18 J -23774358.19 -23774358.07 -23774357.96 0.0528 0.0237  
 Mercury -69804-08-07 15:49 J -23774268.96 -23774268.84 -23774268.73 0.0527 0.0229  
 Earth -69801-08-18 00:13 J -23773162.53 -23773162.49 -23773162.44 0.0508 0.0498

Venus -69800-05-13 23:16 J -23772893.72 -23772893.53 -23772893.33 0.0503 0.0153  
 Mars -69798-02-07 20:52 J -23772258.86 -23772258.63 -23772258.38 0.0498 0.0315  
 Mercury -69798-04-04 11:01 J -23772203.08 -23772203.04 -23772203.00 0.0498 0.0483  
 Mercury -69798-07-03 22:47 J -23772112.74 -23772112.55 -23772112.37 0.0498 0.0124  
 Earth -69794-03-07 12:13 J -23770770.21 -23770769.99 -23770769.77 0.0521 0.0166  
 Moon -69794-03-07 15:35 J -23770770.06 -23770769.85 -23770769.63 0.0521 0.0198 \*  
 Mercury -69792-02-26 14:37 J -23770047.98 -23770047.89 -23770047.80 0.0528 0.0351  
 Mercury -69792-05-26 20:09 J -23769958.78 -23769958.66 -23769958.54 0.0527 0.0114  
 Moon -69789-08-22 12:28 J -23768775.18 -23768774.98 -23768774.77 0.0507 0.0244  
 Earth -69789-08-22 15:49 J -23768775.04 -23768774.84 -23768774.64 0.0507 0.0260 \*  
 Mercury -69786-04-21 19:40 J -23767802.86 -23767802.68 -23767802.49 0.0498 0.0026  
 Moon -69782-03-12 08:09 J -23766382.30 -23766382.16 -23766382.01 0.0522 0.0418  
 Earth -69782-03-12 10:33 J -23766382.19 -23766382.06 -23766381.93 0.0522 0.0425 \*  
 Venus -69782-07-16 11:45 J -23766256.15 -23766256.01 -23766255.87 0.0524 0.0372  
 Mercury -69781-12-15 19:11 J -23765737.76 -23765737.70 -23765737.65 0.0528 0.0464  
 Mercury -69780-03-15 00:42 J -23765648.60 -23765648.47 -23765648.35 0.0528 0.0007  
 Mercury -69780-06-12 06:13 J -23765559.29 -23765559.24 -23765559.18 0.0527 0.0468  
 Earth -69777-08-27 06:28 J -23764387.46 -23764387.23 -23764386.99 0.0506 0.0027  
 Moon -69777-08-27 08:23 J -23764387.37 -23764387.15 -23764386.92 0.0506 0.0008 \*  
 Venus -69776-05-16 16:18 J -23764124.85 -23764124.82 -23764124.78 0.0501 0.0490  
 Mercury -69774-02-07 16:47 J -23763492.97 -23763492.80 -23763492.62 0.0498 0.0171  
 Mercury -69774-05-09 04:18 J -23763402.41 -23763402.32 -23763402.23 0.0498 0.0433  
 Venus -69770-03-21 08:52 J -23761990.33 -23761990.13 -23761989.93 0.0523 0.0061  
 Mercury -69768-01-01 05:16 J -23761338.40 -23761338.28 -23761338.15 0.0528 0.0109  
 Mercury -69768-03-31 10:47 J -23761249.13 -23761249.05 -23761248.95 0.0527 0.0358  
 Moon -69765-08-31 15:21 J -23760000.08 -23759999.86 -23759999.63 0.0504 0.0189  
 Earth -69765-08-31 15:35 J -23760000.06 -23759999.85 -23759999.64 0.0504 0.0198 \*  
 Venus -69764-01-19 12:28 J -23759859.19 -23759858.98 -23759858.78 0.0502 0.0082  
 Mercury -69763-11-26 12:28 J -23759183.11 -23759182.98 -23759182.83 0.0498 0.0331  
 Mercury -69762-02-25 00:13 J -23759092.64 -23759092.49 -23759092.33 0.0499 0.0276

Venus -69759-11-24 05:30 J -23757724.33 -23757724.27 -23757724.20 0.0522 0.0493  
 Mercury -69757-10-20 10:04 J -23757028.20 -23757028.08 -23757027.97 0.0527 0.0220  
 Mercury -69756-01-17 15:21 J -23756938.97 -23756938.86 -23756938.74 0.0527 0.0247  
 Moon -69753-09-05 02:37 J -23755612.52 -23755612.39 -23755612.25 0.0504 0.0401  
 Earth -69753-09-05 04:33 J -23755612.42 -23755612.31 -23755612.18 0.0504 0.0428 \*  
 Venus -69753-09-24 11:16 J -23755593.19 -23755593.03 -23755592.87 0.0503 0.0315  
 Mercury -69751-09-14 09:35 J -23754873.14 -23754873.10 -23754873.04 0.0498 0.0477  
 Mercury -69751-12-13 21:35 J -23754782.78 -23754782.60 -23754782.42 0.0499 0.0131  
 Mercury -69745-08-08 13:54 J -23752718.01 -23752717.92 -23752717.82 0.0527 0.0339  
 Mercury -69745-11-05 19:40 J -23752628.81 -23752628.68 -23752628.56 0.0527 0.0128  
 Mercury -69739-10-01 18:57 J -23750472.90 -23750472.71 -23750472.52 0.0498 0.0014  
 Moon -69735-02-24 20:52 J -23749230.77 -23749230.63 -23749230.47 0.0518 0.0395  
 Earth -69735-02-25 00:42 J -23749230.64 -23749230.47 -23749230.30 0.0518 0.0361 \*  
 Venus -69735-11-27 00:42 J -23748955.66 -23748955.47 -23748955.29 0.0523 0.0204  
 Mercury -69733-05-27 18:13 J -23748407.80 -23748407.74 -23748407.67 0.0528 0.0454  
 Mercury -69733-08-24 23:59 J -23748318.63 -23748318.50 -23748318.38 0.0527 0.0018  
 Mercury -69733-11-22 05:30 J -23748229.32 -23748229.27 -23748229.22 0.0527 0.0477  
 Venus -69729-09-27 04:04 J -23746824.48 -23746824.33 -23746824.17 0.0502 0.0329  
 Mercury -69727-07-20 16:04 J -23746163.01 -23746162.83 -23746162.66 0.0498 0.0160  
 Mercury -69727-10-19 03:21 J -23746072.43 -23746072.36 -23746072.27 0.0498 0.0445  
 Earth -69723-03-01 22:33 J -23744842.79 -23744842.56 -23744842.33 0.0520 0.0106  
 Moon -69723-03-02 02:09 J -23744842.64 -23744842.41 -23744842.18 0.0520 0.0092 \*  
 Venus -69723-08-01 19:25 J -23744689.86 -23744689.69 -23744689.50 0.0523 0.0241  
 Mercury -69721-06-13 04:18 J -23744008.44 -23744008.32 -23744008.19 0.0528 0.0102  
 Mercury -69721-09-10 10:04 J -23743919.17 -23743919.08 -23743918.99 0.0527 0.0365  
 Earth -69718-08-18 15:06 J -23742846.90 -23742846.87 -23742846.83 0.0508 0.0501  
 Venus -69717-06-02 03:21 J -23742558.56 -23742558.36 -23742558.15 0.0503 0.0065  
 Mercury -69715-05-08 12:57 J -23741853.10 -23741852.96 -23741852.81 0.0498 0.0307  
 Mercury -69715-08-07 00:28 J -23741762.62 -23741762.48 -23741762.33 0.0498 0.0300  
 Moon -69711-03-06 22:04 J -23740454.81 -23740454.58 -23740454.36 0.0521 0.0188

Earth -69711-03-07 00:28 J -23740454.71 -23740454.48 -23740454.26 0.0521 0.0160 \*  
 Mercury -69709-04-01 09:06 J -23739698.23 -23739698.12 -23739698.00 0.0528 0.0210  
 Mercury -69709-06-29 14:37 J -23739609.00 -23739608.89 -23739608.78 0.0527 0.0256  
 Earth -69706-08-23 00:57 J -23738459.64 -23738459.46 -23738459.26 0.0506 0.0276  
 Moon -69706-08-23 03:06 J -23738459.56 -23738459.37 -23738459.18 0.0506 0.0255 \*  
 Venus -69705-02-05 23:45 J -23738292.57 -23738292.51 -23738292.43 0.0503 0.0472  
 Mercury -69703-02-24 08:37 J -23737543.20 -23737543.14 -23737543.08 0.0498 0.0468  
 Mercury -69703-05-25 20:23 J -23737452.83 -23737452.65 -23737452.47 0.0499 0.0139  
 Earth -69699-03-12 01:54 J -23736066.55 -23736066.42 -23736066.28 0.0522 0.0428  
 Moon -69699-03-12 02:37 J -23736066.53 -23736066.39 -23736066.26 0.0522 0.0415 \*  
 Venus -69699-08-04 18:13 J -23735920.81 -23735920.74 -23735920.65 0.0524 0.0478  
 Mars -69698-09-11 20:23 J -23735517.80 -23735517.65 -23735517.49 0.0528 0.0408  
 Mercury -69697-01-19 13:40 J -23735388.02 -23735387.93 -23735387.83 0.0527 0.0321  
 Mercury -69697-04-17 19:11 J -23735298.82 -23735298.70 -23735298.57 0.0527 0.0146  
 Moon -69694-08-27 14:09 J -23734072.15 -23734071.91 -23734071.67 0.0505 0.0021  
 Earth -69694-08-27 14:09 J -23734072.14 -23734071.91 -23734071.68 0.0505 0.0043 \*  
 Mercury -69691-03-13 17:30 J -23733142.96 -23733142.77 -23733142.58 0.0499 0.0007  
 Venus -69687-04-09 13:11 J -23731655.15 -23731654.95 -23731654.75 0.0523 0.0033  
 Mercury -69686-11-07 17:45 J -23731077.82 -23731077.76 -23731077.69 0.0527 0.0440  
 Mercury -69685-02-04 23:16 J -23730988.65 -23730988.53 -23730988.40 0.0527 0.0027  
 Mercury -69685-05-04 04:47 J -23730899.34 -23730899.30 -23730899.25 0.0527 0.0490  
 Moon -69682-09-01 01:40 J -23729684.64 -23729684.43 -23729684.22 0.0505 0.0173  
 Earth -69682-09-01 03:49 J -23729684.56 -23729684.34 -23729684.13 0.0505 0.0193 \*  
 Venus -69681-02-08 15:06 J -23729524.06 -23729523.87 -23729523.67 0.0502 0.0165  
 Mars -69680-07-27 11:01 J -23728989.33 -23728989.04 -23728988.74 0.0498 0.0140  
 Mercury -69680-12-30 14:52 J -23728833.06 -23728832.88 -23728832.70 0.0498 0.0151  
 Mercury -69679-03-31 02:23 J -23728742.47 -23728742.40 -23728742.32 0.0499 0.0456  
 Venus -69676-12-13 08:09 J -23727389.28 -23727389.16 -23727389.03 0.0522 0.0408  
 Mercury -69674-11-24 03:35 J -23726678.47 -23726678.35 -23726678.22 0.0527 0.0092  
 Mercury -69673-02-21 09:06 J -23726589.20 -23726589.12 -23726589.03 0.0527 0.0374

Earth -69670-09-05 18:28 J -23725296.85 -23725296.73 -23725296.61 0.0504 0.0427  
 Moon -69670-09-05 22:04 J -23725296.72 -23725296.58 -23725296.44 0.0504 0.0402 \*  
 Venus -69670-10-14 14:52 J -23725258.06 -23725257.88 -23725257.70 0.0503 0.0229  
 Mercury -69668-10-18 11:59 J -23724523.15 -23724523.00 -23724522.85 0.0498 0.0298  
 Mercury -69667-01-16 23:30 J -23724432.66 -23724432.52 -23724432.37 0.0498 0.0309  
 Mars -69662-06-15 19:11 J -23722456.92 -23722456.70 -23722456.46 0.0528 0.0187  
 Mercury -69662-09-12 07:54 J -23722368.28 -23722368.17 -23722368.05 0.0528 0.0207  
 Mercury -69662-12-10 13:40 J -23722279.04 -23722278.93 -23722278.82 0.0527 0.0261  
 Mercury -69656-08-06 08:52 J -23720213.21 -23720213.13 -23720213.05 0.0498 0.0446  
 Mercury -69656-11-04 20:37 J -23720122.82 -23720122.64 -23720122.46 0.0498 0.0161  
 Earth -69652-02-24 10:47 J -23718915.20 -23718915.05 -23718914.87 0.0519 0.0373  
 Moon -69652-02-24 14:37 J -23718915.03 -23718914.89 -23718914.73 0.0519 0.0397 \*  
 Venus -69652-12-16 04:47 J -23718620.47 -23718620.30 -23718620.14 0.0524 0.0297  
 Mercury -69650-07-01 12:42 J -23718058.07 -23718057.97 -23718057.86 0.0528 0.0315  
 Mercury -69650-09-28 18:28 J -23717968.86 -23717968.73 -23717968.61 0.0527 0.0153  
 Venus -69646-10-17 03:49 J -23716489.46 -23716489.34 -23716489.21 0.0501 0.0396  
 Mercury -69644-08-23 16:04 J -23715813.01 -23715812.83 -23715812.64 0.0498 0.0007  
 Moon -69640-03-01 09:21 J -23714527.35 -23714527.11 -23714526.87 0.0520 0.0088  
 Earth -69640-03-01 11:59 J -23714527.23 -23714527.00 -23714526.77 0.0520 0.0109 \*  
 Venus -69640-08-21 01:11 J -23714354.64 -23714354.45 -23714354.25 0.0523 0.0139  
 Mercury -69638-04-19 17:30 J -23713747.85 -23713747.77 -23713747.70 0.0528 0.0424  
 Mercury -69638-07-17 23:01 J -23713658.67 -23713658.54 -23713658.42 0.0527 0.0043  
 Mercury -69638-10-15 04:33 J -23713569.34 -23713569.31 -23713569.28 0.0526 0.0505  
 Venus -69634-06-22 02:37 J -23712223.59 -23712223.39 -23712223.18 0.0502 0.0008  
 Mercury -69632-06-11 13:11 J -23711503.13 -23711502.95 -23711502.77 0.0498 0.0148  
 Mercury -69632-09-10 00:42 J -23711412.54 -23711412.47 -23711412.40 0.0499 0.0460  
 Earth -69628-03-06 11:01 J -23710139.27 -23710139.04 -23710138.82 0.0521 0.0154  
 Moon -69628-03-06 11:45 J -23710139.22 -23710139.01 -23710138.80 0.0521 0.0180 \*  
 Mercury -69626-05-06 02:52 J -23709348.50 -23709348.38 -23709348.25 0.0527 0.0082  
 Mercury -69626-08-03 08:23 J -23709259.23 -23709259.15 -23709259.06 0.0527 0.0386

Moon -69623-08-22 11:45 J -23708144.22 -23708144.01 -23708143.80 0.0507 0.0260  
 Earth -69623-08-22 11:45 J -23708144.20 -23708144.01 -23708143.82 0.0507 0.0285 \*  
 Venus -69622-02-25 01:40 J -23707957.55 -23707957.43 -23707957.30 0.0504 0.0395  
 Mercury -69620-03-30 10:18 J -23707193.21 -23707193.07 -23707192.91 0.0498 0.0294  
 Mercury -69620-06-28 22:04 J -23707102.72 -23707102.58 -23707102.43 0.0499 0.0316  
 Earth -69616-03-11 09:21 J -23705751.25 -23705751.11 -23705750.97 0.0522 0.0413  
 Moon -69616-03-11 10:33 J -23705751.22 -23705751.06 -23705750.90 0.0522 0.0394 \*  
 Mercury -69614-02-22 07:11 J -23705038.32 -23705038.20 -23705038.08 0.0527 0.0197  
 Mercury -69614-05-22 12:42 J -23704949.08 -23704948.97 -23704948.86 0.0527 0.0269  
 Moon -69611-08-26 23:59 J -23703756.72 -23703756.50 -23703756.28 0.0506 0.0036  
 Earth -69611-08-27 02:09 J -23703756.64 -23703756.41 -23703756.18 0.0506 0.0049 \*  
 Mercury -69608-01-16 07:25 J -23702883.27 -23702883.19 -23702883.10 0.0498 0.0440  
 Mercury -69608-04-16 19:11 J -23702792.87 -23702792.70 -23702792.52 0.0498 0.0168  
 Venus -69604-04-28 14:23 J -23701320.10 -23701319.90 -23701319.70 0.0523 0.0111  
 Mercury -69603-12-11 11:30 J -23700728.12 -23700728.02 -23700727.92 0.0528 0.0313  
 Mercury -69602-03-10 17:01 J -23700638.91 -23700638.79 -23700638.67 0.0527 0.0154  
 Earth -69599-08-31 16:04 J -23699369.04 -23699368.83 -23699368.61 0.0505 0.0186  
 Moon -69599-08-31 19:40 J -23699368.90 -23699368.68 -23699368.45 0.0505 0.0159 \*  
 Venus -69598-02-27 17:59 J -23699188.93 -23699188.75 -23699188.57 0.0502 0.0245  
 Mercury -69596-02-02 16:04 J -23698483.02 -23698482.83 -23698482.64 0.0498 0.0019  
 Venus -69592-01-01 10:47 J -23697054.21 -23697054.05 -23697053.89 0.0522 0.0324  
 Mercury -69591-09-29 16:18 J -23696417.89 -23696417.82 -23696417.75 0.0528 0.0421  
 Mercury -69591-12-27 21:49 J -23696328.72 -23696328.59 -23696328.46 0.0527 0.0045  
 Mercury -69590-03-27 03:21 J -23696239.38 -23696239.36 -23696239.33 0.0527 0.0511  
 Moon -69587-09-04 21:49 J -23694981.73 -23694981.59 -23694981.44 0.0503 0.0386  
 Earth -69587-09-05 01:40 J -23694981.55 -23694981.43 -23694981.29 0.0503 0.0412 \*  
 Venus -69587-11-02 14:23 J -23694923.10 -23694922.90 -23694922.71 0.0503 0.0162  
 Mercury -69585-11-21 11:30 J -23694173.20 -23694173.02 -23694172.84 0.0498 0.0146  
 Mercury -69584-02-19 23:01 J -23694082.61 -23694082.54 -23694082.47 0.0499 0.0462  
 Mercury -69579-10-16 02:23 J -23692018.53 -23692018.40 -23692018.27 0.0527 0.0067



Mercury -69578-01-13 07:54 J -23691929.25 -23691929.17 -23691929.09 0.0527 0.0399  
 Mercury -69573-09-09 08:23 J -23689863.30 -23689863.15 -23689863.00 0.0498 0.0295  
 Mercury -69573-12-08 19:54 J -23689772.81 -23689772.67 -23689772.52 0.0499 0.0315  
 Moon -69569-02-24 16:18 J -23688599.97 -23688599.82 -23688599.67 0.0519 0.0403  
 Earth -69569-02-24 19:11 J -23688599.85 -23688599.70 -23688599.54 0.0519 0.0384 \*  
 Venus -69568-01-04 06:57 J -23688285.35 -23688285.21 -23688285.07 0.0524 0.0377  
 Mercury -69567-08-04 06:13 J -23687708.35 -23687708.24 -23687708.12 0.0527 0.0190  
 Mercury -69567-11-01 11:45 J -23687619.11 -23687619.01 -23687618.90 0.0527 0.0277  
 Venus -69563-11-05 05:01 J -23686154.37 -23686154.29 -23686154.22 0.0501 0.0468  
 Mercury -69561-06-28 05:30 J -23685553.35 -23685553.27 -23685553.18 0.0498 0.0440  
 Mercury -69561-09-26 17:16 J -23685462.95 -23685462.78 -23685462.60 0.0499 0.0170  
 Earth -69557-02-29 17:30 J -23684211.99 -23684211.77 -23684211.54 0.0519 0.0127  
 Moon -69557-02-29 18:42 J -23684211.94 -23684211.72 -23684211.50 0.0519 0.0101 \*  
 Venus -69557-09-09 01:40 J -23684019.63 -23684019.43 -23684019.23 0.0523 0.0066  
 Mercury -69555-05-23 10:33 J -23683398.16 -23683398.06 -23683397.96 0.0527 0.0307  
 Mercury -69555-08-20 16:04 J -23683308.95 -23683308.83 -23683308.71 0.0527 0.0159  
 Venus -69551-07-11 04:04 J -23681888.53 -23681888.33 -23681888.12 0.0502 0.0075  
 Mercury -69549-07-15 14:23 J -23681153.09 -23681152.90 -23681152.72 0.0498 0.0022  
 Earth -69545-03-05 14:37 J -23679824.11 -23679823.89 -23679823.66 0.0520 0.0130  
 Moon -69545-03-05 15:21 J -23679824.09 -23679823.86 -23679823.63 0.0520 0.0151 \*  
 Venus -69545-05-14 19:25 J -23679753.72 -23679753.69 -23679753.65 0.0522 0.0512  
 Mars -69544-12-06 03:49 J -23679183.56 -23679183.34 -23679183.11 0.0528 0.0198  
 Mercury -69543-03-11 14:37 J -23679087.96 -23679087.89 -23679087.81 0.0528 0.0424  
 Mercury -69543-06-08 20:09 J -23678998.78 -23678998.66 -23678998.53 0.0527 0.0046  
 Mercury -69543-09-06 01:54 J -23678909.45 -23678909.42 -23678909.39 0.0527 0.0509  
 Moon -69540-08-21 19:54 J -23677828.86 -23677828.67 -23677828.48 0.0507 0.0270  
 Earth -69540-08-21 21:49 J -23677828.77 -23677828.59 -23677828.40 0.0507 0.0297 \*  
 Venus -69539-03-16 03:06 J -23677622.53 -23677622.37 -23677622.21 0.0503 0.0319  
 Mercury -69537-05-03 11:01 J -23676843.22 -23676843.04 -23676842.86 0.0498 0.0131  
 Mercury -69537-08-01 22:33 J -23676752.61 -23676752.56 -23676752.51 0.0499 0.0477

Moon -69533-03-10 12:13 J -23675436.14 -23675435.99 -23675435.82 0.0522 0.0372  
 Earth -69533-03-10 14:52 J -23675436.03 -23675435.88 -23675435.72 0.0522 0.0394 \*  
 Mercury -69531-03-28 00:57 J -23674688.59 -23674688.46 -23674688.33 0.0527 0.0067  
 Mercury -69531-06-25 06:28 J -23674599.31 -23674599.23 -23674599.15 0.0527 0.0400  
 Earth -69528-08-26 08:52 J -23673441.36 -23673441.13 -23673440.90 0.0505 0.0067  
 Moon -69528-08-26 12:13 J -23673441.22 -23673440.99 -23673440.75 0.0505 0.0061 \*  
 Mars -69526-10-21 13:11 J -23672655.25 -23672654.95 -23672654.64 0.0498 0.0098  
 Mercury -69525-02-20 06:13 J -23672533.39 -23672533.24 -23672533.09 0.0498 0.0296  
 Mercury -69525-05-20 17:59 J -23672442.90 -23672442.75 -23672442.61 0.0499 0.0313  
 Venus -69521-05-17 16:47 J -23670984.99 -23670984.80 -23670984.62 0.0524 0.0194  
 Mercury -69519-01-14 05:30 J -23670378.39 -23670378.27 -23670378.15 0.0527 0.0180  
 Mercury -69519-04-13 11:01 J -23670289.15 -23670289.04 -23670288.94 0.0527 0.0287  
 Moon -69516-08-30 16:33 J -23669054.03 -23669053.81 -23669053.58 0.0504 0.0135  
 Earth -69516-08-30 20:37 J -23669053.86 -23669053.64 -23669053.42 0.0504 0.0165 \*  
 Venus -69515-03-18 15:06 J -23668854.03 -23668853.87 -23668853.70 0.0501 0.0300  
 Mercury -69514-12-09 02:52 J -23668223.46 -23668223.38 -23668223.29 0.0498 0.0446  
 Mercury -69513-03-08 14:37 J -23668133.06 -23668132.89 -23668132.71 0.0499 0.0164  
 Venus -69509-01-21 11:16 J -23666719.20 -23666719.03 -23666718.85 0.0523 0.0252  
 Mars -69508-09-09 07:54 J -23666122.32 -23666122.17 -23666122.01 0.0527 0.0411  
 Mercury -69508-11-02 09:21 J -23666068.21 -23666068.11 -23666068.01 0.0527 0.0302  
 Mercury -69507-01-30 14:52 J -23665979.00 -23665978.88 -23665978.76 0.0527 0.0164  
 Earth -69504-09-04 08:09 J -23664666.29 -23664666.16 -23664666.01 0.0504 0.0396  
 Moon -69504-09-04 11:59 J -23664666.15 -23664666.00 -23664665.85 0.0504 0.0377 \*  
 Venus -69504-11-21 13:40 J -23664588.13 -23664587.93 -23664587.73 0.0503 0.0099  
 Mercury -69502-12-26 11:59 J -23663823.19 -23663823.00 -23663822.81 0.0498 0.0017  
 Mercury -69496-08-21 13:25 J -23661758.01 -23661757.94 -23661757.86 0.0527 0.0421  
 Mercury -69496-11-18 18:57 J -23661668.84 -23661668.71 -23661668.58 0.0527 0.0045  
 Mercury -69495-02-16 00:28 J -23661579.50 -23661579.48 -23661579.45 0.0526 0.0510  
 Venus -69492-07-27 12:28 J -23660322.01 -23660321.98 -23660321.93 0.0504 0.0494  
 Mercury -69490-10-14 08:37 J -23659513.32 -23659513.14 -23659512.95 0.0498 0.0134

Mercury -69489-01-12 20:09 J -23659422.71 -23659422.66 -23659422.60 0.0499 0.0475

Earth -69486-02-23 20:09 J -23658284.80 -23658284.66 -23658284.52 0.0518 0.0414

Moon -69486-02-23 21:35 J -23658284.72 -23658284.60 -23658284.47 0.0518 0.0429 \*

Venus -69485-01-24 04:47 J -23657950.41 -23657950.30 -23657950.19 0.0524 0.0437

Mercury -69484-09-06 23:01 J -23657358.66 -23657358.54 -23657358.41 0.0527 0.0076

Mercury -69484-12-05 04:47 J -23657269.39 -23657269.30 -23657269.22 0.0527 0.0393

Mercury -69478-08-02 05:16 J -23655203.43 -23655203.28 -23655203.12 0.0498 0.0286

Mercury -69478-10-31 16:47 J -23655112.93 -23655112.80 -23655112.65 0.0498 0.0324

Earth -69474-02-28 19:25 J -23653896.92 -23653896.69 -23653896.47 0.0519 0.0155

Moon -69474-02-28 19:25 J -23653896.92 -23653896.69 -23653896.45 0.0519 0.0128 \*

Venus -69474-09-29 00:28 J -23653684.68 -23653684.48 -23653684.28 0.0523 0.0002

Mercury -69472-06-26 03:49 J -23653048.46 -23653048.34 -23653048.22 0.0528 0.0185

Mercury -69472-09-23 09:21 J -23652959.22 -23652959.11 -23652959.00 0.0527 0.0283

Venus -69468-07-30 01:40 J -23651553.63 -23651553.43 -23651553.23 0.0502 0.0130

Mercury -69466-05-21 00:28 J -23650893.55 -23650893.48 -23650893.40 0.0498 0.0451

Mercury -69466-08-19 12:13 J -23650803.17 -23650802.99 -23650802.81 0.0498 0.0158

Moon -69462-03-05 16:04 J -23649509.05 -23649508.83 -23649508.61 0.0521 0.0124

Earth -69462-03-05 18:13 J -23649508.97 -23649508.74 -23649508.51 0.0521 0.0108 \*

Venus -69462-06-03 19:11 J -23649418.80 -23649418.70 -23649418.59 0.0523 0.0444

Mercury -69460-04-14 08:09 J -23648738.26 -23648738.16 -23648738.05 0.0528 0.0299

Mercury -69460-07-12 13:40 J -23648649.04 -23648648.93 -23648648.81 0.0527 0.0170

Earth -69457-08-21 01:25 J -23647513.61 -23647513.44 -23647513.25 0.0507 0.0321

Moon -69457-08-21 05:16 J -23647513.48 -23647513.28 -23647513.09 0.0507 0.0288 \*

Venus -69456-04-03 23:45 J -23647287.68 -23647287.51 -23647287.33 0.0503 0.0268

Mercury -69454-06-07 08:52 J -23646493.32 -23646493.13 -23646492.94 0.0498 0.0008

Earth -69450-03-10 16:47 J -23645120.96 -23645120.80 -23645120.63 0.0522 0.0372

Moon -69450-03-10 20:23 J -23645120.82 -23645120.65 -23645120.47 0.0522 0.0343 \*

Mercury -69448-01-31 11:59 J -23644428.07 -23644428.00 -23644427.92 0.0527 0.0422

Mercury -69448-04-30 17:30 J -23644338.89 -23644338.77 -23644338.64 0.0527 0.0047

Mercury -69448-07-28 23:16 J -23644249.56 -23644249.53 -23644249.51 0.0526 0.0511

Moon -69445-08-25 08:09 J -23643126.38 -23643126.16 -23643125.93 0.0506 0.0085  
 Earth -69445-08-25 12:13 J -23643126.22 -23643125.99 -23643125.76 0.0506 0.0090 \*  
 Mercury -69442-03-26 05:59 J -23642183.43 -23642183.25 -23642183.07 0.0498 0.0142  
 Mercury -69442-06-24 17:30 J -23642092.83 -23642092.77 -23642092.70 0.0499 0.0467  
 Venus -69438-06-06 13:54 J -23640650.09 -23640649.92 -23640649.74 0.0524 0.0249  
 Mercury -69436-02-16 21:35 J -23640028.72 -23640028.60 -23640028.47 0.0527 0.0076  
 Mercury -69436-05-17 03:06 J -23639939.45 -23639939.37 -23639939.28 0.0527 0.0391  
 Earth -69433-08-30 00:13 J -23638738.71 -23638738.49 -23638738.26 0.0505 0.0144  
 Moon -69433-08-30 04:04 J -23638738.55 -23638738.33 -23638738.10 0.0505 0.0114 \*  
 Venus -69432-04-06 13:11 J -23638519.09 -23638518.95 -23638518.80 0.0502 0.0356  
 Mercury -69430-01-12 02:37 J -23637873.54 -23637873.39 -23637873.24 0.0498 0.0293  
 Mercury -69430-04-12 14:23 J -23637783.05 -23637782.90 -23637782.76 0.0498 0.0316  
 Venus -69426-02-09 07:25 J -23636384.37 -23636384.19 -23636384.00 0.0523 0.0201  
 Mercury -69425-12-06 01:40 J -23635718.55 -23635718.43 -23635718.31 0.0528 0.0196  
 Mercury -69424-03-05 07:11 J -23635629.31 -23635629.20 -23635629.09 0.0527 0.0272  
 Moon -69421-09-03 10:18 J -23634351.23 -23634351.07 -23634350.89 0.0504 0.0360  
 Earth -69421-09-03 13:11 J -23634351.10 -23634350.95 -23634350.79 0.0504 0.0375 \*  
 Venus -69421-12-10 11:45 J -23634253.21 -23634253.01 -23634252.80 0.0503 0.0040  
 Mercury -69419-10-30 23:01 J -23633563.62 -23633563.54 -23633563.45 0.0498 0.0446  
 Mercury -69418-01-29 10:47 J -23633473.23 -23633473.05 -23633472.87 0.0498 0.0163  
 Mercury -69413-09-24 06:13 J -23631408.34 -23631408.24 -23631408.14 0.0528 0.0308  
 Mercury -69413-12-22 11:45 J -23631319.13 -23631319.01 -23631318.89 0.0527 0.0160  
 Venus -69409-08-15 09:35 J -23629987.19 -23629987.10 -23629987.00 0.0503 0.0441  
 Mars -69407-04-07 20:37 J -23629386.80 -23629386.64 -23629386.48 0.0498 0.0423  
 Mercury -69407-11-17 05:59 J -23629163.43 -23629163.25 -23629163.06 0.0498 0.0012  
 Moon -69403-02-22 18:28 J -23627969.83 -23627969.73 -23627969.61 0.0518 0.0457  
 Earth -69403-02-22 18:57 J -23627969.82 -23627969.71 -23627969.59 0.0518 0.0446 \*  
 Venus -69402-02-12 02:52 J -23627615.43 -23627615.38 -23627615.31 0.0525 0.0498  
 Mercury -69401-07-13 10:33 J -23627098.13 -23627098.06 -23627097.98 0.0528 0.0423  
 Mercury -69401-10-10 16:18 J -23627008.95 -23627008.82 -23627008.70 0.0528 0.0048

Mercury -69400-01-07 21:49 J -23626919.62 -23626919.59 -23626919.57 0.0527 0.0513  
 Mercury -69395-09-05 02:37 J -23624853.57 -23624853.39 -23624853.21 0.0498 0.0155  
 Mercury -69395-12-04 14:09 J -23624762.98 -23624762.91 -23624762.83 0.0499 0.0453  
 Moon -69391-02-27 16:33 J -23623582.03 -23623581.81 -23623581.59 0.0519 0.0157  
 Earth -69391-02-27 17:59 J -23623581.97 -23623581.75 -23623581.53 0.0519 0.0185 \*  
 Venus -69391-10-17 21:21 J -23623349.81 -23623349.61 -23623349.41 0.0523 0.0051  
 Mars -69389-03-01 00:28 J -23622849.73 -23622849.48 -23622849.24 0.0528 0.0018  
 Mercury -69389-07-29 19:54 J -23622698.79 -23622698.67 -23622698.54 0.0527 0.0081  
 Mercury -69389-10-27 01:25 J -23622609.52 -23622609.44 -23622609.35 0.0527 0.0389  
 Venus -69385-08-17 21:35 J -23621218.79 -23621218.60 -23621218.40 0.0502 0.0177  
 Mercury -69383-06-23 23:30 J -23620543.67 -23620543.52 -23620543.37 0.0498 0.0305  
 Mercury -69383-09-22 11:16 J -23620453.18 -23620453.03 -23620452.88 0.0499 0.0305  
 Earth -69379-03-04 16:33 J -23619194.04 -23619193.81 -23619193.58 0.0520 0.0076  
 Moon -69379-03-04 19:54 J -23619193.90 -23619193.67 -23619193.43 0.0520 0.0085 \*  
 Venus -69379-06-22 15:49 J -23619083.97 -23619083.84 -23619083.71 0.0522 0.0393  
 Mercury -69377-05-17 23:59 J -23618388.61 -23618388.50 -23618388.38 0.0527 0.0200  
 Mercury -69377-08-15 05:30 J -23618299.38 -23618299.27 -23618299.16 0.0527 0.0267  
 Moon -69374-08-20 22:04 J -23617198.76 -23617198.58 -23617198.40 0.0507 0.0319  
 Earth -69374-08-21 01:54 J -23617198.58 -23617198.42 -23617198.25 0.0507 0.0352 \*  
 Venus -69373-04-22 19:54 J -23616952.85 -23616952.67 -23616952.49 0.0503 0.0221  
 Mars -69371-01-14 02:09 J -23616321.65 -23616321.41 -23616321.16 0.0498 0.0309  
 Mercury -69371-04-11 20:09 J -23616233.73 -23616233.66 -23616233.59 0.0498 0.0457  
 Mercury -69371-07-11 07:54 J -23616143.35 -23616143.17 -23616142.99 0.0498 0.0153  
 Moon -69367-03-09 08:37 J -23614806.33 -23614806.14 -23614805.94 0.0521 0.0299  
 Earth -69367-03-09 12:42 J -23614806.15 -23614805.97 -23614805.79 0.0521 0.0331 \*  
 Mercury -69365-03-06 04:04 J -23614078.43 -23614078.33 -23614078.23 0.0528 0.0322  
 Mercury -69365-06-03 09:35 J -23613989.22 -23613989.10 -23613988.98 0.0527 0.0147  
 Earth -69362-08-25 14:37 J -23612811.11 -23612810.89 -23612810.66 0.0506 0.0117  
 Moon -69362-08-25 18:42 J -23612810.95 -23612810.72 -23612810.50 0.0506 0.0115 \*  
 Mercury -69359-04-29 04:18 J -23611833.51 -23611833.32 -23611833.13 0.0498 0.0004

Venus -69355-06-25 09:21 J -23610315.28 -23610315.11 -23610314.95 0.0524 0.0295  
 Mercury -69354-12-24 08:23 J -23609768.22 -23609768.15 -23609768.08 0.0528 0.0435  
 Mercury -69353-03-22 13:54 J -23609679.04 -23609678.92 -23609678.79 0.0528 0.0037  
 Mercury -69353-06-19 19:40 J -23609589.72 -23609589.68 -23609589.65 0.0527 0.0501  
 Moon -69350-08-29 23:45 J -23608423.74 -23608423.51 -23608423.27 0.0505 0.0089  
 Earth -69350-08-30 02:37 J -23608423.61 -23608423.39 -23608423.16 0.0505 0.0119 \*  
 Venus -69349-04-25 08:52 J -23608184.24 -23608184.13 -23608184.00 0.0501 0.0401  
 Mercury -69347-02-14 23:30 J -23607523.69 -23607523.52 -23607523.34 0.0498 0.0167  
 Mercury -69347-05-16 11:01 J -23607433.12 -23607433.04 -23607432.95 0.0498 0.0442  
 Venus -69343-02-28 03:35 J -23606049.54 -23606049.35 -23606049.15 0.0523 0.0152  
 Mercury -69341-01-09 18:28 J -23605368.86 -23605368.73 -23605368.61 0.0528 0.0084  
 Mercury -69341-04-07 23:59 J -23605279.59 -23605279.50 -23605279.42 0.0527 0.0386  
 Earth -69338-09-03 13:54 J -23604036.08 -23604035.92 -23604035.75 0.0504 0.0347  
 Moon -69338-09-03 14:52 J -23604036.04 -23604035.88 -23604035.71 0.0504 0.0343 \*  
 Venus -69338-12-30 07:11 J -23603918.41 -23603918.20 -23603917.99 0.0502 0.0004  
 Mercury -69336-12-03 20:09 J -23603213.80 -23603213.66 -23603213.52 0.0498 0.0320  
 Mercury -69335-03-04 07:40 J -23603123.33 -23603123.18 -23603123.03 0.0498 0.0290  
 Mercury -69330-10-28 22:18 J -23601058.69 -23601058.57 -23601058.46 0.0527 0.0207  
 Mercury -69329-01-26 03:35 J -23600969.45 -23600969.35 -23600969.23 0.0527 0.0262  
 Venus -69326-09-04 04:18 J -23599652.44 -23599652.32 -23599652.20 0.0503 0.0402  
 Mercury -69324-09-21 16:47 J -23598903.86 -23598903.80 -23598903.74 0.0498 0.0471  
 Mercury -69324-12-21 04:33 J -23598813.49 -23598813.31 -23598813.13 0.0498 0.0139  
 Moon -69320-02-21 16:04 J -23597654.89 -23597654.83 -23597654.75 0.0518 0.0491  
 Earth -69320-02-21 17:16 J -23597654.87 -23597654.78 -23597654.70 0.0518 0.0479 \*  
 Mercury -69318-08-17 02:09 J -23596748.50 -23596748.41 -23596748.31 0.0527 0.0327  
 Mercury -69318-11-14 07:40 J -23596659.30 -23596659.18 -23596659.05 0.0527 0.0141  
 Mercury -69312-10-09 01:11 J -23594503.64 -23594503.45 -23594503.26 0.0498 0.0013  
 Earth -69308-02-26 12:57 J -23593267.17 -23593266.96 -23593266.75 0.0519 0.0228  
 Moon -69308-02-26 15:49 J -23593267.06 -23593266.84 -23593266.61 0.0519 0.0197 \*  
 Venus -69308-11-05 15:35 J -23593015.05 -23593014.85 -23593014.65 0.0523 0.0091

Mercury -69306-06-05 05:59 J -23592438.31 -23592438.25 -23592438.18 0.0528 0.0450

Mercury -69306-09-02 11:45 J -23592349.14 -23592349.01 -23592348.89 0.0527 0.0023

Mercury -69306-11-30 17:16 J -23592259.83 -23592259.78 -23592259.73 0.0527 0.0486

Venus -69302-09-06 17:45 J -23590883.94 -23590883.76 -23590883.57 0.0502 0.0225

Mercury -69300-07-27 21:35 J -23590193.78 -23590193.60 -23590193.42 0.0498 0.0168

Mercury -69300-10-26 09:06 J -23590103.20 -23590103.12 -23590103.03 0.0498 0.0441

Moon -69296-03-03 06:42 J -23588879.45 -23588879.22 -23588878.98 0.0520 0.0037

Earth -69296-03-03 10:33 J -23588879.29 -23588879.06 -23588878.82 0.0520 0.0033 \*

Venus -69296-07-11 09:49 J -23588749.23 -23588749.09 -23588748.93 0.0522 0.0354

Mercury -69294-06-21 16:04 J -23588038.95 -23588038.83 -23588038.71 0.0528 0.0097

Mercury -69294-09-18 21:35 J -23587949.69 -23587949.60 -23587949.51 0.0527 0.0373

Earth -69291-08-20 04:18 J -23586883.47 -23586883.32 -23586883.17 0.0507 0.0377

Moon -69291-08-20 08:09 J -23586883.32 -23586883.16 -23586882.99 0.0507 0.0345 \*

Venus -69290-05-12 16:04 J -23586618.03 -23586617.83 -23586617.64 0.0502 0.0175

Mercury -69288-05-15 17:01 J -23585883.93 -23585883.79 -23585883.65 0.0498 0.0331

Mercury -69288-08-14 04:33 J -23585793.46 -23585793.31 -23585793.15 0.0498 0.0279

Earth -69284-03-08 07:40 J -23584491.37 -23584491.18 -23584490.98 0.0521 0.0293

Moon -69284-03-08 11:16 J -23584491.22 -23584491.03 -23584490.82 0.0521 0.0261 \*

Mercury -69282-04-09 20:23 J -23583728.76 -23583728.65 -23583728.53 0.0528 0.0213

Mercury -69282-07-08 01:54 J -23583639.53 -23583639.42 -23583639.31 0.0528 0.0258

Moon -69279-08-24 12:42 J -23582496.19 -23582495.97 -23582495.74 0.0506 0.0145

Earth -69279-08-24 16:04 J -23582496.05 -23582495.83 -23582495.61 0.0506 0.0144 \*

Mercury -69276-03-03 13:40 J -23581573.97 -23581573.93 -23581573.89 0.0498 0.0484

Mercury -69276-06-02 01:11 J -23581483.63 -23581483.45 -23581483.27 0.0498 0.0125

Venus -69272-07-14 04:47 J -23579980.45 -23579980.30 -23579980.15 0.0524 0.0337

Mars -69271-08-21 06:28 J -23579577.35 -23579577.23 -23579577.12 0.0528 0.0465

Mercury -69270-01-27 00:13 J -23579418.58 -23579418.49 -23579418.39 0.0528 0.0336

Mercury -69270-04-26 05:45 J -23579329.38 -23579329.26 -23579329.13 0.0527 0.0133

Earth -69267-08-29 00:28 J -23578108.71 -23578108.48 -23578108.25 0.0506 0.0083

Moon -69267-08-29 01:54 J -23578108.65 -23578108.42 -23578108.20 0.0506 0.0055 \*

Venus -69266-05-15 03:21 J -23577849.46 -23577849.36 -23577849.26 0.0501 0.0438  
 Mercury -69264-03-20 21:49 J -23577173.77 -23577173.59 -23577173.40 0.0498 0.0028  
 Venus -69260-03-18 23:30 J -23575714.71 -23575714.52 -23575714.32 0.0523 0.0105  
 Mercury -69259-11-15 04:18 J -23575108.38 -23575108.32 -23575108.25 0.0527 0.0455  
 Mercury -69258-02-12 09:49 J -23575019.21 -23575019.09 -23575018.96 0.0527 0.0017  
 Mercury -69258-05-12 15:21 J -23574929.91 -23574929.86 -23574929.81 0.0527 0.0480  
 Earth -69255-09-02 11:30 J -23573721.19 -23573721.02 -23573720.83 0.0505 0.0314  
 Moon -69255-09-02 12:13 J -23573721.18 -23573720.99 -23573720.80 0.0505 0.0314 \*  
 Venus -69254-01-18 01:25 J -23573583.64 -23573583.44 -23573583.23 0.0502 0.0042  
 Mars -69253-06-30 20:09 J -23573053.93 -23573053.66 -23573053.38 0.0498 0.0240  
 Mercury -69252-01-06 18:28 J -23572863.90 -23572863.73 -23572863.55 0.0498 0.0180  
 Mercury -69252-04-07 06:13 J -23572773.33 -23572773.24 -23572773.15 0.0499 0.0431  
 Mercury -69247-12-01 13:40 J -23570709.05 -23570708.93 -23570708.80 0.0527 0.0113  
 Mercury -69246-02-28 19:25 J -23570619.79 -23570619.69 -23570619.60 0.0527 0.0358  
 Venus -69243-09-23 00:13 J -23569317.64 -23569317.49 -23569317.35 0.0504 0.0355  
 Mercury -69241-10-25 14:52 J -23568554.02 -23568553.88 -23568553.74 0.0498 0.0334  
 Mercury -69240-01-24 02:23 J -23568463.55 -23568463.40 -23568463.24 0.0498 0.0278  
 Mars -69235-05-25 01:11 J -23566516.69 -23566516.45 -23566516.21 0.0528 0.0111  
 Mercury -69235-09-19 18:13 J -23566398.86 -23566398.74 -23566398.63 0.0528 0.0227  
 Mercury -69235-12-17 23:45 J -23566309.62 -23566309.51 -23566309.40 0.0527 0.0243  
 Mercury -69229-08-13 10:47 J -23564244.07 -23564244.05 -23564244.03 0.0497 0.0494  
 Mercury -69229-11-11 22:18 J -23564153.75 -23564153.57 -23564153.39 0.0498 0.0116  
 Moon -69225-02-26 03:49 J -23562952.54 -23562952.34 -23562952.13 0.0519 0.0240  
 Earth -69225-02-26 07:40 J -23562952.38 -23562952.18 -23562951.98 0.0519 0.0270 \*  
 Venus -69225-11-24 10:47 J -23562680.25 -23562680.05 -23562679.86 0.0524 0.0134  
 Mercury -69223-07-08 22:33 J -23562088.66 -23562088.56 -23562088.47 0.0528 0.0343  
 Mercury -69223-10-06 04:04 J -23561999.45 -23561999.33 -23561999.21 0.0528 0.0127  
 Venus -69219-09-25 13:25 J -23560549.11 -23560548.94 -23560548.76 0.0501 0.0270  
 Mars -69217-04-07 17:01 J -23559988.87 -23559988.79 -23559988.68 0.0497 0.0471  
 Mercury -69217-08-30 18:57 J -23559843.90 -23559843.71 -23559843.53 0.0498 0.0039



Earth -69213-03-02 07:11 J -23558564.43 -23558564.20 -23558563.96 0.0520 0.0004  
 Moon -69213-03-02 11:01 J -23558564.27 -23558564.04 -23558563.81 0.0520 0.0004 \*  
 Venus -69213-07-30 05:45 J -23558414.42 -23558414.26 -23558414.09 0.0522 0.0308  
 Mercury -69211-04-27 02:37 J -23557778.45 -23557778.39 -23557778.34 0.0528 0.0464  
 Mercury -69211-07-25 08:09 J -23557689.29 -23557689.16 -23557689.04 0.0527 0.0019  
 Mercury -69211-10-22 13:25 J -23557599.99 -23557599.94 -23557599.88 0.0527 0.0473  
 Moon -69208-08-18 22:18 J -23556568.72 -23556568.57 -23556568.42 0.0508 0.0386  
 Earth -69208-08-19 01:40 J -23556568.56 -23556568.43 -23556568.30 0.0508 0.0417 \*  
 Venus -69207-05-31 10:04 J -23556283.28 -23556283.08 -23556282.88 0.0503 0.0138  
 Mercury -69205-06-18 15:21 J -23555534.03 -23555533.86 -23555533.69 0.0498 0.0192  
 Mercury -69205-09-17 02:52 J -23555443.47 -23555443.38 -23555443.27 0.0499 0.0420  
 Moon -69201-03-07 04:04 J -23554176.54 -23554176.33 -23554176.11 0.0520 0.0227  
 Earth -69201-03-07 07:11 J -23554176.40 -23554176.20 -23554176.00 0.0520 0.0261 \*  
 Mercury -69199-05-13 12:13 J -23553379.12 -23553378.99 -23553378.87 0.0527 0.0115  
 Mercury -69199-08-10 17:45 J -23553289.85 -23553289.76 -23553289.67 0.0527 0.0353  
 Earth -69196-08-23 12:57 J -23552181.17 -23552180.96 -23552180.74 0.0507 0.0184  
 Moon -69196-08-23 14:37 J -23552181.09 -23552180.89 -23552180.68 0.0507 0.0192 \*  
 Mercury -69193-04-06 11:59 J -23551224.13 -23551224.00 -23551223.86 0.0498 0.0344  
 Mercury -69193-07-05 23:45 J -23551133.67 -23551133.51 -23551133.35 0.0498 0.0268  
 Earth -69189-03-12 03:06 J -23549788.38 -23549788.37 -23549788.33 0.0521 0.0519  
 Moon -69189-03-12 04:33 J -23549788.35 -23549788.31 -23549788.27 0.0521 0.0512 \*  
 Venus -69189-08-01 23:59 J -23549645.64 -23549645.50 -23549645.37 0.0524 0.0382  
 Mercury -69187-03-01 16:04 J -23549068.94 -23549068.83 -23549068.72 0.0528 0.0238  
 Mercury -69187-05-29 21:35 J -23548979.71 -23548979.60 -23548979.49 0.0527 0.0231  
 Earth -69184-08-28 01:54 J -23547793.65 -23547793.42 -23547793.19 0.0506 0.0053  
 Moon -69184-08-28 02:09 J -23547793.65 -23547793.41 -23547793.17 0.0506 0.0025 \*  
 Venus -69183-06-02 23:45 J -23547514.55 -23547514.51 -23547514.46 0.0502 0.0488  
 Mercury -69181-01-24 08:37 J -23546914.15 -23546914.14 -23546914.13 0.0498 0.0496  
 Mercury -69181-04-23 20:23 J -23546823.84 -23546823.65 -23546823.47 0.0498 0.0115  
 Venus -69177-04-06 18:13 J -23545379.94 -23545379.74 -23545379.54 0.0523 0.0062

Mercury -69176-12-18 20:23 J -23544758.74 -23544758.65 -23544758.56 0.0528 0.0354  
 Mercury -69175-03-18 01:54 J -23544669.54 -23544669.42 -23544669.30 0.0528 0.0116  
 Moon -69172-09-01 13:25 J -23543406.12 -23543405.94 -23543405.76 0.0505 0.0297  
 Earth -69172-09-01 15:21 J -23543406.05 -23543405.86 -23543405.67 0.0505 0.0291 \*  
 Venus -69171-02-05 22:47 J -23543248.75 -23543248.55 -23543248.35 0.0502 0.0094  
 Mercury -69169-02-10 16:18 J -23542514.01 -23542513.82 -23542513.63 0.0498 0.0045  
 Venus -69166-12-11 11:59 J -23541114.04 -23541114.00 -23541113.95 0.0522 0.0508  
 Mercury -69164-10-07 00:42 J -23540448.52 -23540448.47 -23540448.41 0.0528 0.0470  
 Mercury -69163-01-04 06:13 J -23540359.36 -23540359.24 -23540359.11 0.0528 0.0018  
 Mercury -69163-04-03 11:59 J -23540270.06 -23540270.00 -23540269.95 0.0527 0.0470  
 Venus -69160-10-11 21:06 J -23538982.78 -23538982.62 -23538982.45 0.0503 0.0302  
 Mercury -69158-11-29 12:57 J -23538204.13 -23538203.96 -23538203.79 0.0498 0.0197  
 Mercury -69157-02-28 00:28 J -23538113.58 -23538113.48 -23538113.38 0.0498 0.0413  
 Mercury -69152-10-23 10:18 J -23536049.19 -23536049.07 -23536048.94 0.0527 0.0122  
 Mercury -69151-01-20 15:49 J -23535959.93 -23535959.84 -23535959.74 0.0527 0.0348  
 Mercury -69146-09-17 09:06 J -23533894.24 -23533894.12 -23533893.98 0.0498 0.0354  
 Mercury -69146-12-16 21:06 J -23533803.78 -23533803.62 -23533803.46 0.0499 0.0260  
 Earth -69142-02-25 10:04 J -23532637.27 -23532637.08 -23532636.88 0.0518 0.0296  
 Moon -69142-02-25 13:54 J -23532637.12 -23532636.92 -23532636.71 0.0518 0.0263 \*  
 Venus -69142-12-14 09:06 J -23532345.30 -23532345.12 -23532344.93 0.0523 0.0195  
 Mercury -69140-08-11 14:37 J -23531739.00 -23531738.89 -23531738.78 0.0527 0.0238  
 Mercury -69140-11-08 20:09 J -23531649.77 -23531649.66 -23531649.55 0.0527 0.0230  
 Venus -69136-10-14 08:23 J -23530214.31 -23530214.15 -23530213.99 0.0502 0.0310  
 Mercury -69134-10-04 17:45 J -23529493.94 -23529493.76 -23529493.57 0.0498 0.0109  
 Moon -69130-03-02 03:35 J -23528249.59 -23528249.35 -23528249.11 0.0519 0.0037  
 Earth -69130-03-02 06:57 J -23528249.44 -23528249.21 -23528248.97 0.0519 0.0038 \*  
 Venus -69130-08-19 02:37 J -23528079.56 -23528079.39 -23528079.21 0.0522 0.0253  
 Mercury -69128-05-30 18:28 J -23527428.82 -23527428.73 -23527428.63 0.0527 0.0361  
 Mercury -69128-08-27 23:59 J -23527339.62 -23527339.50 -23527339.37 0.0527 0.0110  
 Earth -69125-08-18 04:04 J -23526253.44 -23526253.33 -23526253.22 0.0509 0.0447

Moon -69125-08-18 05:59 J -23526253.37 -23526253.25 -23526253.13 0.0509 0.0423 \*  
 Venus -69124-06-19 07:25 J -23525948.40 -23525948.19 -23525947.99 0.0503 0.0083  
 Mercury -69122-07-23 14:23 J -23525184.08 -23525183.90 -23525183.71 0.0498 0.0045  
 Earth -69118-03-07 04:33 J -23523861.52 -23523861.31 -23523861.10 0.0520 0.0223  
 Moon -69118-03-07 06:28 J -23523861.44 -23523861.23 -23523861.02 0.0520 0.0193 \*  
 Mars -69117-11-13 12:57 J -23523244.15 -23523243.96 -23523243.76 0.0528 0.0324  
 Mercury -69116-03-18 22:47 J -23523118.60 -23523118.55 -23523118.50 0.0528 0.0477  
 Mercury -69116-06-16 04:18 J -23523029.44 -23523029.32 -23523029.19 0.0528 0.0019  
 Mercury -69116-09-13 09:49 J -23522940.14 -23522940.09 -23522940.02 0.0527 0.0462  
 Earth -69113-08-22 18:42 J -23521865.93 -23521865.72 -23521865.51 0.0507 0.0204  
 Moon -69113-08-22 18:57 J -23521865.93 -23521865.71 -23521865.50 0.0507 0.0220 \*  
 Venus -69112-02-22 06:42 J -23521682.28 -23521682.22 -23521682.15 0.0504 0.0476  
 Mercury -69110-05-11 10:47 J -23520874.22 -23520874.05 -23520873.88 0.0498 0.0199  
 Mercury -69110-08-09 22:18 J -23520783.67 -23520783.57 -23520783.46 0.0498 0.0411  
 Earth -69106-03-12 01:40 J -23519473.51 -23519473.43 -23519473.34 0.0521 0.0485  
 Moon -69106-03-12 02:23 J -23519473.49 -23519473.40 -23519473.31 0.0521 0.0484 \*  
 Venus -69106-08-21 20:52 J -23519310.74 -23519310.63 -23519310.52 0.0524 0.0435  
 Mercury -69104-04-04 08:52 J -23518719.25 -23518719.13 -23518719.01 0.0528 0.0123  
 Mercury -69104-07-02 14:23 J -23518629.99 -23518629.90 -23518629.80 0.0527 0.0347  
 Moon -69101-08-27 05:45 J -23517478.48 -23517478.26 -23517478.03 0.0506 0.0005  
 Earth -69101-08-27 07:40 J -23517478.41 -23517478.18 -23517477.95 0.0506 0.0033 \*  
 Mars -69099-09-24 04:04 J -23516720.64 -23516720.33 -23516720.02 0.0498 0.0038  
 Mercury -69098-02-27 07:25 J -23516564.32 -23516564.19 -23516564.06 0.0498 0.0351  
 Mercury -69098-05-28 19:11 J -23516473.86 -23516473.70 -23516473.54 0.0498 0.0260  
 Venus -69094-04-26 16:47 J -23515045.00 -23515044.80 -23515044.60 0.0523 0.0002  
 Mercury -69092-01-21 13:11 J -23514409.07 -23514408.95 -23514408.84 0.0527 0.0242  
 Mercury -69092-04-20 18:42 J -23514319.84 -23514319.72 -23514319.61 0.0527 0.0228  
 Earth -69089-08-31 15:35 J -23513091.05 -23513090.85 -23513090.65 0.0505 0.0259  
 Moon -69089-08-31 18:28 J -23513090.93 -23513090.73 -23513090.52 0.0505 0.0267 \*  
 Venus -69088-02-24 18:13 J -23512913.94 -23512913.74 -23512913.54 0.0502 0.0139

Mercury -69086-03-16 15:35 J -23512164.04 -23512163.85 -23512163.67 0.0499 0.0105  
 Venus -69083-12-30 12:42 J -23510779.08 -23510778.97 -23510778.86 0.0522 0.0434  
 Mars -69081-08-17 16:33 J -23510183.01 -23510182.81 -23510182.60 0.0527 0.0285  
 Mercury -69081-11-09 17:30 J -23510098.86 -23510098.77 -23510098.68 0.0527 0.0357  
 Mercury -69080-02-06 23:01 J -23510009.67 -23510009.54 -23510009.42 0.0527 0.0113  
 Earth -69077-09-05 03:49 J -23508703.39 -23508703.34 -23508703.29 0.0504 0.0491  
 Venus -69077-10-30 16:33 J -23508647.98 -23508647.81 -23508647.63 0.0504 0.0257  
 Mercury -69074-01-02 12:28 J -23507854.17 -23507853.98 -23507853.80 0.0498 0.0046  
 Mercury -69069-08-28 21:21 J -23505788.66 -23505788.61 -23505788.56 0.0527 0.0478  
 Mercury -69069-11-26 02:52 J -23505699.50 -23505699.38 -23505699.25 0.0527 0.0013  
 Mercury -69068-02-23 08:23 J -23505610.21 -23505610.15 -23505610.09 0.0527 0.0459  
 Mercury -69063-10-21 09:06 J -23503544.29 -23503544.12 -23503543.94 0.0498 0.0196  
 Mercury -69062-01-19 20:52 J -23503453.73 -23503453.63 -23503453.53 0.0499 0.0417  
 Moon -69059-02-24 07:11 J -23502322.39 -23502322.20 -23502322.00 0.0517 0.0294  
 Earth -69059-02-24 10:47 J -23502322.22 -23502322.05 -23502321.86 0.0517 0.0328 \*  
 Venus -69058-01-02 06:42 J -23502010.39 -23502010.22 -23502010.04 0.0523 0.0253  
 Mercury -69057-09-14 07:11 J -23501389.32 -23501389.20 -23501389.07 0.0528 0.0127  
 Mercury -69057-12-12 12:42 J -23501300.06 -23501299.97 -23501299.87 0.0527 0.0344  
 Venus -69053-11-02 08:23 J -23499879.28 -23499879.15 -23499879.01 0.0502 0.0377  
 Mercury -69051-08-09 05:45 J -23499234.39 -23499234.26 -23499234.12 0.0498 0.0349  
 Mercury -69051-11-07 17:30 J -23499143.93 -23499143.77 -23499143.61 0.0498 0.0263  
 Earth -69047-03-01 07:54 J -23497934.40 -23497934.17 -23497933.93 0.0519 0.0068  
 Moon -69047-03-01 10:18 J -23497934.30 -23497934.07 -23497933.85 0.0519 0.0070 \*  
 Venus -69047-09-07 01:11 J -23497744.64 -23497744.45 -23497744.27 0.0522 0.0192  
 Mercury -69045-07-03 11:45 J -23497079.12 -23497079.01 -23497078.90 0.0528 0.0241  
 Mercury -69045-09-30 17:16 J -23496989.89 -23496989.78 -23496989.67 0.0527 0.0230  
 Moon -69042-08-18 12:42 J -23495938.08 -23495937.97 -23495937.85 0.0509 0.0445  
 Earth -69042-08-18 12:28 J -23495938.06 -23495937.98 -23495937.88 0.0509 0.0464 \*  
 Venus -69041-07-08 07:25 J -23495613.39 -23495613.19 -23495612.98 0.0503 0.0017  
 Mercury -69039-08-26 14:23 J -23494834.09 -23494833.90 -23494833.72 0.0498 0.0113

Moon -69035-03-06 09:21 J -23493546.34 -23493546.11 -23493545.88 0.0520 0.0173  
 Earth -69035-03-06 09:06 J -23493546.33 -23493546.12 -23493545.90 0.0520 0.0203 \*  
 Mercury -69033-04-21 16:04 J -23492768.92 -23492768.83 -23492768.74 0.0527 0.0356  
 Mercury -69033-07-19 21:35 J -23492679.72 -23492679.60 -23492679.48 0.0527 0.0113  
 Moon -69030-08-22 19:11 J -23491550.89 -23491550.70 -23491550.50 0.0508 0.0258  
 Earth -69030-08-22 21:06 J -23491550.82 -23491550.62 -23491550.41 0.0508 0.0235 \*  
 Venus -69029-03-13 03:35 J -23491347.46 -23491347.35 -23491347.24 0.0504 0.0423  
 Mercury -69027-06-14 10:33 J -23490524.25 -23490524.06 -23490523.88 0.0499 0.0046  
 Moon -69023-03-11 08:09 J -23489158.24 -23489158.16 -23489158.07 0.0521 0.0483  
 Earth -69023-03-11 10:47 J -23489158.14 -23489158.05 -23489157.95 0.0521 0.0472 \*  
 Venus -69023-09-09 23:16 J -23488975.56 -23488975.53 -23488975.50 0.0524 0.0517  
 Mercury -69021-02-08 20:37 J -23488458.70 -23488458.64 -23488458.59 0.0527 0.0470  
 Mercury -69021-05-08 02:09 J -23488369.54 -23488369.41 -23488369.29 0.0527 0.0016  
 Mercury -69021-08-05 07:25 J -23488280.24 -23488280.19 -23488280.13 0.0526 0.0467  
 Earth -69018-08-27 09:35 J -23487163.33 -23487163.10 -23487162.87 0.0507 0.0003  
 Moon -69018-08-27 12:42 J -23487163.21 -23487162.97 -23487162.74 0.0507 0.0025 \*  
 Mercury -69015-04-02 07:25 J -23486214.36 -23486214.19 -23486214.02 0.0499 0.0194  
 Mercury -69015-07-01 19:11 J -23486123.80 -23486123.70 -23486123.60 0.0499 0.0420  
 Venus -69011-05-15 17:30 J -23484709.97 -23484709.77 -23484709.57 0.0523 0.0075  
 Mercury -69009-02-25 05:59 J -23484059.37 -23484059.25 -23484059.12 0.0527 0.0124  
 Mercury -69009-05-24 11:30 J -23483970.11 -23483970.02 -23483969.92 0.0527 0.0346  
 Moon -69006-08-31 19:25 J -23482775.88 -23482775.69 -23482775.49 0.0506 0.0254  
 Earth -69006-08-31 23:16 J -23482775.74 -23482775.53 -23482775.33 0.0506 0.0242 \*  
 Venus -69005-03-15 18:28 J -23482578.92 -23482578.73 -23482578.55 0.0503 0.0208  
 Mercury -69003-01-19 04:18 J -23481904.45 -23481904.32 -23481904.18 0.0498 0.0343  
 Mercury -69003-04-19 16:18 J -23481813.98 -23481813.82 -23481813.66 0.0499 0.0271

# 69TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 69th millennium BCE.**

PLANET	MAX-	C	START	MAX	END	SUNRAD	DEPTH	S
TRANSIT								
TIME								
Venus	-68999-01-18 12:13 J	-23480444.13	-23480443.99	-23480443.85	0.0522	0.0365		
Mercury	-68998-12-14 10:18 J	-23479749.18	-23479749.07	-23479748.95	0.0527	0.0240		
Mercury	-68997-03-12 15:49 J	-23479659.95	-23479659.84	-23479659.72	0.0527	0.0232		
Earth	-68994-09-05 13:54 J	-23478387.98	-23478387.92	-23478387.85	0.0505	0.0483		
Venus	-68994-11-19 18:13 J	-23478312.93	-23478312.74	-23478312.55	0.0503	0.0182		
Mercury	-68992-11-07 01:25 J	-23477594.47	-23477594.44	-23477594.42	0.0498	0.0493		
Mercury	-68991-02-05 12:57 J	-23477504.14	-23477503.96	-23477503.77	0.0498	0.0120		
Mercury	-68986-10-02 14:52 J	-23475438.97	-23475438.88	-23475438.79	0.0528	0.0354		
Mercury	-68986-12-30 20:23 J	-23475349.77	-23475349.65	-23475349.52	0.0527	0.0117		
Mercury	-68980-11-24 09:49 J	-23473194.27	-23473194.09	-23473193.90	0.0498	0.0033		
Earth	-68976-02-23 17:59 J	-23472006.92	-23472006.75	-23472006.57	0.0517	0.0345		
Moon	-68976-02-23 20:37 J	-23472006.82	-23472006.64	-23472006.46	0.0517	0.0315		*
Venus	-68975-01-21 08:52 J	-23471675.28	-23471675.13	-23471674.97	0.0524	0.0334		
Mercury	-68974-07-21 19:25 J	-23471128.74	-23471128.69	-23471128.63	0.0527	0.0466		
Mercury	-68974-10-19 00:57 J	-23471039.59	-23471039.46	-23471039.33	0.0527	0.0005		
Mercury	-68973-01-16 06:28 J	-23470950.28	-23470950.23	-23470950.18	0.0526	0.0471		
Venus	-68970-11-22 06:28 J	-23469544.33	-23469544.23	-23469544.13	0.0502	0.0435		
Mercury	-68968-09-12 05:59 J	-23468884.43	-23468884.25	-23468884.08	0.0499	0.0191		
Mercury	-68968-12-11 17:45 J	-23468793.86	-23468793.76	-23468793.66	0.0499	0.0425		
Moon	-68964-02-28 19:40 J	-23467618.92	-23467618.68	-23467618.44	0.0519	0.0085		
Earth	-68964-02-28 19:54 J	-23467618.90	-23467618.67	-23467618.43	0.0519	0.0075		*

Venus -68964-09-26 05:30 J -23467409.47 -23467409.27 -23467409.07 0.0522 0.0097  
 Mars -68962-02-08 00:42 J -23466909.71 -23466909.47 -23466909.23 0.0527 0.0096  
 Mercury -68962-08-07 05:30 J -23466729.39 -23466729.27 -23466729.15 0.0527 0.0110  
 Mercury -68962-11-04 11:01 J -23466640.13 -23466640.04 -23466639.95 0.0526 0.0358  
 Moon -68959-08-17 14:52 J -23465622.95 -23465622.88 -23465622.81 0.0509 0.0480  
 Earth -68959-08-17 16:33 J -23465622.85 -23465622.81 -23465622.74 0.0509 0.0492 \*  
 Venus -68958-07-28 05:16 J -23465278.48 -23465278.28 -23465278.07 0.0503 0.0044  
 Mercury -68956-07-01 02:52 J -23464574.51 -23464574.38 -23464574.24 0.0499 0.0339  
 Mercury -68956-09-29 14:52 J -23464484.03 -23464483.88 -23464483.72 0.0499 0.0277  
 Moon -68952-03-05 16:33 J -23463231.02 -23463230.81 -23463230.59 0.0519 0.0165  
 Earth -68952-03-05 18:42 J -23463230.94 -23463230.72 -23463230.50 0.0519 0.0191 \*  
 Mercury -68950-05-26 09:35 J -23462419.21 -23462419.10 -23462418.99 0.0527 0.0231  
 Mercury -68950-08-23 15:06 J -23462329.99 -23462329.87 -23462329.76 0.0527 0.0239  
 Earth -68947-08-22 06:28 J -23461235.43 -23461235.23 -23461235.03 0.0508 0.0250  
 Moon -68947-08-22 09:21 J -23461235.30 -23461235.11 -23461234.90 0.0508 0.0277 \*  
 Venus -68946-04-02 04:47 J -23461012.44 -23461012.30 -23461012.15 0.0504 0.0349  
 Mars -68945-12-18 13:25 J -23460386.21 -23460385.94 -23460385.65 0.0498 0.0221  
 Mercury -68944-04-18 23:59 J -23460264.53 -23460264.50 -23460264.45 0.0498 0.0486  
 Mercury -68944-07-18 11:59 J -23460174.18 -23460174.00 -23460173.82 0.0499 0.0130  
 Earth -68940-03-10 17:01 J -23458842.90 -23458842.79 -23458842.67 0.0520 0.0454  
 Moon -68940-03-10 20:52 J -23458842.72 -23458842.63 -23458842.53 0.0520 0.0472 \*  
 Mercury -68938-03-14 13:54 J -23458109.01 -23458108.92 -23458108.82 0.0527 0.0347  
 Mercury -68938-06-11 19:25 J -23458019.81 -23458019.69 -23458019.57 0.0527 0.0123  
 Moon -68935-08-26 18:13 J -23456847.97 -23456847.74 -23456847.51 0.0507 0.0030  
 Earth -68935-08-26 21:49 J -23456847.82 -23456847.59 -23456847.36 0.0507 0.0005 \*  
 Mercury -68932-05-06 08:52 J -23455864.31 -23455864.13 -23455863.94 0.0498 0.0024  
 Venus -68928-06-03 18:57 J -23454374.90 -23454374.71 -23454374.52 0.0523 0.0152  
 Mars -68927-11-12 00:42 J -23453848.54 -23453848.47 -23453848.38 0.0528 0.0498  
 Mercury -68927-12-31 18:28 J -23453798.79 -23453798.73 -23453798.67 0.0528 0.0461  
 Mercury -68926-03-30 23:59 J -23453709.63 -23453709.50 -23453709.38 0.0527 0.0013

Mercury -68926-06-28 05:30 J -23453620.32 -23453620.27 -23453620.22 0.0527 0.0479

Earth -68923-08-31 11:59 J -23452460.20 -23452460.00 -23452459.79 0.0506 0.0236

Moon -68923-08-31 15:21 J -23452460.05 -23452459.86 -23452459.66 0.0506 0.0259 \*

Venus -68922-04-04 21:06 J -23452243.78 -23452243.62 -23452243.44 0.0502 0.0290

Mercury -68920-02-22 05:59 J -23451554.43 -23451554.25 -23451554.07 0.0498 0.0170

Mercury -68920-05-23 17:30 J -23451463.85 -23451463.77 -23451463.68 0.0499 0.0444

Venus -68916-02-06 15:35 J -23450109.02 -23450108.85 -23450108.68 0.0522 0.0277

Mercury -68914-01-17 04:33 J -23449399.43 -23449399.31 -23449399.18 0.0527 0.0103

Mercury -68914-04-16 10:04 J -23449310.17 -23449310.08 -23449309.99 0.0527 0.0366

Moon -68911-09-04 18:13 J -23448072.80 -23448072.74 -23448072.67 0.0505 0.0485

Earth -68911-09-04 20:52 J -23448072.72 -23448072.63 -23448072.54 0.0505 0.0463 \*

Venus -68911-12-08 17:30 J -23447977.97 -23447977.77 -23447977.57 0.0503 0.0117

Mercury -68909-12-11 01:40 J -23447244.56 -23447244.43 -23447244.29 0.0499 0.0332

Mercury -68908-03-11 13:40 J -23447154.08 -23447153.93 -23447153.78 0.0499 0.0285

Mercury -68903-11-05 09:06 J -23445089.23 -23445089.12 -23445089.00 0.0527 0.0215

Mercury -68902-02-02 14:37 J -23445000.00 -23444999.89 -23444999.78 0.0526 0.0254

Mercury -68897-09-28 22:47 J -23442934.59 -23442934.55 -23442934.50 0.0499 0.0479

Mercury -68897-12-28 10:47 J -23442844.23 -23442844.05 -23442843.87 0.0499 0.0137

Moon -68893-02-24 05:16 J -23441691.47 -23441691.28 -23441691.09 0.0517 0.0326

Earth -68893-02-24 05:59 J -23441691.42 -23441691.25 -23441691.07 0.0517 0.0352 \*

Venus -68892-02-09 12:42 J -23441340.08 -23441339.97 -23441339.85 0.0523 0.0424

Mercury -68891-08-24 13:11 J -23440779.04 -23440778.95 -23440778.85 0.0527 0.0335

Mercury -68891-11-21 18:42 J -23440689.84 -23440689.72 -23440689.60 0.0527 0.0134

Mercury -68885-10-16 08:09 J -23438534.35 -23438534.16 -23438533.97 0.0499 0.0011

Moon -68881-02-29 03:06 J -23437303.60 -23437303.37 -23437303.15 0.0518 0.0109

Earth -68881-02-29 04:47 J -23437303.53 -23437303.30 -23437303.07 0.0518 0.0088 \*

Venus -68881-10-15 07:40 J -23437074.38 -23437074.18 -23437073.98 0.0522 0.0014

Mercury -68879-06-12 17:30 J -23436468.83 -23436468.77 -23436468.70 0.0527 0.0451

Mercury -68879-09-09 23:01 J -23436379.66 -23436379.54 -23436379.41 0.0527 0.0022

Mercury -68879-12-08 04:33 J -23436290.35 -23436290.31 -23436290.26 0.0526 0.0487



Earth -68876-08-17 05:30 J -23435307.30 -23435307.27 -23435307.21 0.0509 0.0499  
 Moon -68876-08-17 08:52 J -23435307.18 -23435307.13 -23435307.06 0.0509 0.0491  
 Venus -68875-08-16 09:06 J -23434943.32 -23434943.12 -23434942.92 0.0503 0.0129  
 Mercury -68873-08-04 05:01 J -23434224.46 -23434224.29 -23434224.11 0.0498 0.0159  
 Mercury -68873-11-02 16:47 J -23434133.87 -23434133.80 -23434133.72 0.0499 0.0456  
 Earth -68869-03-05 02:37 J -23432915.61 -23432915.39 -23432915.17 0.0519 0.0175  
 Moon -68869-03-05 06:13 J -23432915.46 -23432915.24 -23432915.01 0.0519 0.0153 \*  
 Venus -68869-06-20 01:54 J -23432808.51 -23432808.42 -23432808.31 0.0521 0.0455  
 Mercury -68867-06-29 03:35 J -23432069.47 -23432069.35 -23432069.22 0.0527 0.0096  
 Mercury -68867-09-26 09:06 J -23431980.21 -23431980.12 -23431980.03 0.0527 0.0374  
 Moon -68864-08-21 17:01 J -23430919.98 -23430919.79 -23430919.60 0.0508 0.0284  
 Earth -68864-08-21 20:52 J -23430919.83 -23430919.63 -23430919.43 0.0508 0.0254 \*  
 Venus -68863-04-21 08:37 J -23430677.31 -23430677.14 -23430676.96 0.0504 0.0261  
 Mercury -68861-05-23 02:09 J -23429914.56 -23429914.41 -23429914.26 0.0498 0.0307  
 Mercury -68861-08-21 13:54 J -23429824.07 -23429823.92 -23429823.77 0.0499 0.0308  
 Moon -68857-03-10 00:28 J -23428527.58 -23428527.48 -23428527.38 0.0521 0.0467  
 Earth -68857-03-10 04:33 J -23428527.42 -23428527.31 -23428527.19 0.0521 0.0447 \*  
 Mercury -68855-04-17 08:23 J -23427759.27 -23427759.15 -23427759.04 0.0527 0.0206  
 Mercury -68855-07-15 13:54 J -23427670.03 -23427669.92 -23427669.81 0.0527 0.0264  
 Earth -68852-08-26 06:28 J -23426532.46 -23426532.23 -23426532.00 0.0507 0.0022  
 Moon -68852-08-26 10:04 J -23426532.31 -23426532.08 -23426531.86 0.0507 0.0037 \*  
 Mercury -68849-03-10 21:49 J -23425604.65 -23425604.59 -23425604.53 0.0499 0.0470  
 Mercury -68849-06-09 09:35 J -23425514.27 -23425514.10 -23425513.91 0.0499 0.0147  
 Venus -68845-06-23 01:25 J -23424039.61 -23424039.44 -23424039.26 0.0523 0.0259  
 Mars -68844-07-31 17:16 J -23423635.90 -23423635.78 -23423635.65 0.0527 0.0452  
 Mercury -68843-02-03 12:57 J -23423449.06 -23423448.96 -23423448.86 0.0527 0.0317  
 Mercury -68843-05-03 18:28 J -23423359.85 -23423359.73 -23423359.61 0.0526 0.0152  
 Moon -68840-08-30 17:01 J -23422145.00 -23422144.79 -23422144.58 0.0506 0.0242  
 Earth -68840-08-30 19:25 J -23422144.89 -23422144.69 -23422144.48 0.0506 0.0217 \*  
 Venus -68839-04-23 20:37 J -23421908.78 -23421908.64 -23421908.49 0.0502 0.0356

Mercury -68837-03-28 06:57 J -23421204.40 -23421204.21 -23421204.02 0.0499 0.0007

Venus -68833-02-26 20:23 J -23419773.83 -23419773.65 -23419773.46 0.0522 0.0181

Mercury -68832-11-22 17:01 J -23419138.85 -23419138.79 -23419138.72 0.0527 0.0437

Mercury -68831-02-19 22:33 J -23419049.68 -23419049.56 -23419049.43 0.0527 0.0033

Mercury -68831-05-20 04:04 J -23418960.37 -23418960.33 -23418960.29 0.0526 0.0500

Earth -68828-09-04 09:06 J -23417757.21 -23417757.12 -23417757.02 0.0505 0.0458

Moon -68828-09-04 10:04 J -23417757.15 -23417757.08 -23417757.01 0.0505 0.0477 \*

Venus -68828-12-27 20:23 J -23417642.85 -23417642.65 -23417642.44 0.0503 0.0036

Mars -68826-06-07 04:33 J -23417116.57 -23417116.31 -23417116.03 0.0499 0.0231

Mercury -68825-01-15 04:18 J -23416894.50 -23416894.32 -23416894.14 0.0499 0.0148

Mercury -68825-04-14 16:04 J -23416803.89 -23416803.83 -23416803.77 0.0499 0.0469

Mercury -68820-12-09 02:52 J -23414739.50 -23414739.38 -23414739.25 0.0527 0.0085

Mercury -68819-03-08 08:23 J -23414650.23 -23414650.15 -23414650.06 0.0526 0.0385

Venus -68816-09-01 20:37 J -23413376.75 -23413376.64 -23413376.53 0.0504 0.0422

Mercury -68814-11-03 01:11 J -23412584.59 -23412584.45 -23412584.29 0.0498 0.0296

Mercury -68813-02-01 13:11 J -23412494.09 -23412493.95 -23412493.81 0.0499 0.0320

Moon -68810-02-23 13:25 J -23411376.11 -23411375.94 -23411375.77 0.0517 0.0351

Earth -68810-02-23 14:52 J -23411376.05 -23411375.88 -23411375.71 0.0517 0.0366 \*

Venus -68809-02-29 15:21 J -23411004.90 -23411004.86 -23411004.81 0.0524 0.0509

Mars -68808-05-04 18:13 J -23410574.97 -23410574.74 -23410574.50 0.0527 0.0143

Mercury -68808-09-27 07:25 J -23410429.31 -23410429.19 -23410429.07 0.0527 0.0199

Mercury -68808-12-25 12:57 J -23410340.07 -23410339.96 -23410339.85 0.0527 0.0271

Mercury -68802-08-21 22:18 J -23408274.65 -23408274.57 -23408274.49 0.0498 0.0445

Mercury -68802-11-20 10:04 J -23408184.25 -23408184.08 -23408183.90 0.0499 0.0172

Earth -68798-02-28 16:04 J -23406988.06 -23406987.83 -23406987.59 0.0518 0.0098

Moon -68798-02-28 19:40 J -23406987.91 -23406987.68 -23406987.44 0.0518 0.0126 \*

Venus -68798-11-04 12:13 J -23406739.19 -23406738.99 -23406738.79 0.0523 0.0081

Mercury -68796-07-16 12:13 J -23406119.09 -23406118.99 -23406118.89 0.0527 0.0308

Mercury -68796-10-13 17:45 J -23406029.88 -23406029.76 -23406029.64 0.0527 0.0162

Moon -68793-08-16 12:28 J -23404991.99 -23404991.98 -23404991.97 0.0509 0.0508

Venus -68792-09-04 09:35 J -23404608.29 -23404608.10 -23404607.91 0.0502 0.0199  
 Mars -68790-03-15 09:35 J -23404051.10 -23404051.10 -23404051.08 0.0498 0.0498  
 Mercury -68790-09-08 05:45 J -23403874.45 -23403874.26 -23403874.07 0.0499 0.0009  
 Moon -68786-03-05 13:40 J -23402600.15 -23402599.93 -23402599.70 0.0520 0.0155  
 Earth -68786-03-05 17:45 J -23402599.98 -23402599.76 -23402599.53 0.0520 0.0176 \*  
 Venus -68786-07-10 08:52 J -23402473.28 -23402473.13 -23402472.98 0.0522 0.0349  
 Mercury -68784-05-04 16:47 J -23401808.87 -23401808.80 -23401808.72 0.0527 0.0419  
 Mercury -68784-08-01 22:18 J -23401719.69 -23401719.57 -23401719.44 0.0527 0.0050  
 Mercury -68784-10-30 03:49 J -23401630.36 -23401630.34 -23401630.32 0.0526 0.0518  
 Earth -68781-08-21 05:30 J -23400604.47 -23400604.27 -23400604.08 0.0508 0.0271  
 Moon -68781-08-21 08:52 J -23400604.31 -23400604.13 -23400603.94 0.0508 0.0301 \*  
 Venus -68780-05-10 08:37 J -23400342.33 -23400342.14 -23400341.95 0.0503 0.0193  
 Mercury -68778-06-27 02:52 J -23399564.56 -23399564.38 -23399564.20 0.0499 0.0141  
 Mercury -68778-09-25 14:37 J -23399473.94 -23399473.89 -23399473.83 0.0499 0.0477  
 Earth -68774-03-10 17:16 J -23398211.90 -23398211.78 -23398211.66 0.0520 0.0444  
 Moon -68774-03-10 20:52 J -23398211.73 -23398211.63 -23398211.54 0.0520 0.0470 \*  
 Mercury -68772-05-21 02:23 J -23397409.52 -23397409.40 -23397409.27 0.0527 0.0070  
 Mercury -68772-08-18 07:54 J -23397320.25 -23397320.17 -23397320.09 0.0526 0.0399  
 Moon -68769-08-25 16:18 J -23396217.06 -23396216.82 -23396216.58 0.0507 0.0034  
 Earth -68769-08-25 18:42 J -23396216.95 -23396216.72 -23396216.49 0.0507 0.0029 \*  
 Mercury -68766-04-15 00:13 J -23395254.64 -23395254.49 -23395254.34 0.0499 0.0287  
 Mercury -68766-07-14 12:13 J -23395164.13 -23395163.99 -23395163.85 0.0499 0.0332  
 Venus -68762-07-13 04:33 J -23393704.46 -23393704.31 -23393704.16 0.0523 0.0342  
 Mercury -68760-03-09 06:42 J -23393099.34 -23393099.22 -23393099.10 0.0527 0.0187  
 Mercury -68760-06-06 12:13 J -23393010.10 -23393009.99 -23393009.89 0.0526 0.0283  
 Earth -68757-08-30 09:21 J -23391829.32 -23391829.11 -23391828.90 0.0506 0.0215  
 Moon -68757-08-30 09:49 J -23391829.28 -23391829.09 -23391828.89 0.0506 0.0247 \*  
 Venus -68756-05-13 00:42 J -23391573.56 -23391573.47 -23391573.37 0.0502 0.0442  
 Mercury -68754-01-31 21:21 J -23390944.70 -23390944.61 -23390944.52 0.0498 0.0434  
 Mercury -68754-05-02 09:06 J -23390854.29 -23390854.12 -23390853.94 0.0499 0.0183

Venus -68750-03-17 23:01 J -23389438.74 -23389438.54 -23389438.34 0.0522 0.0098  
 Mercury -68749-12-26 11:01 J -23388789.14 -23388789.04 -23388788.93 0.0527 0.0304  
 Mercury -68748-03-25 16:33 J -23388699.93 -23388699.81 -23388699.69 0.0527 0.0168  
 Earth -68745-09-03 23:30 J -23387441.61 -23387441.52 -23387441.42 0.0505 0.0456  
 Moon -68745-09-04 00:28 J -23387441.57 -23387441.48 -23387441.39 0.0505 0.0466 \*  
 Venus -68744-01-16 00:28 J -23387307.68 -23387307.48 -23387307.27 0.0503 0.0053  
 Mercury -68742-02-18 06:13 J -23386544.43 -23386544.24 -23386544.05 0.0499 0.0032  
 Mercury -68737-10-14 16:04 J -23384478.91 -23384478.83 -23384478.76 0.0527 0.0411  
 Mercury -68736-01-11 21:21 J -23384389.73 -23384389.61 -23384389.48 0.0527 0.0060  
 Venus -68733-09-20 21:21 J -23383041.75 -23383041.61 -23383041.46 0.0504 0.0350  
 Mercury -68731-12-07 01:40 J -23382234.61 -23382234.43 -23382234.25 0.0499 0.0133  
 Mercury -68730-03-07 13:25 J -23382143.98 -23382143.94 -23382143.89 0.0499 0.0485  
 Earth -68727-02-23 03:49 J -23381060.50 -23381060.34 -23381060.18 0.0518 0.0371  
 Moon -68727-02-23 06:57 J -23381060.37 -23381060.21 -23381060.03 0.0518 0.0365 \*  
 Mercury -68725-08-02 20:37 J -23380168.65 -23380168.64 -23380168.62 0.0527 0.0522  
 Mercury -68725-10-31 02:09 J -23380079.54 -23380079.41 -23380079.29 0.0527 0.0053  
 Mercury -68724-01-28 07:25 J -23379990.26 -23379990.19 -23379990.11 0.0526 0.0416  
 Mercury -68719-09-24 22:33 J -23377924.71 -23377924.56 -23377924.40 0.0499 0.0283  
 Mercury -68719-12-24 10:33 J -23377834.19 -23377834.06 -23377833.92 0.0499 0.0337  
 Moon -68715-02-27 23:45 J -23376672.74 -23376672.51 -23376672.28 0.0518 0.0135  
 Earth -68715-02-28 03:49 J -23376672.57 -23376672.34 -23376672.11 0.0518 0.0102 \*  
 Venus -68715-11-23 16:33 J -23376404.00 -23376403.81 -23376403.62 0.0523 0.0172  
 Mercury -68713-08-19 06:13 J -23375769.36 -23375769.24 -23375769.12 0.0527 0.0174  
 Mercury -68713-11-16 11:30 J -23375680.12 -23375680.02 -23375679.91 0.0526 0.0296  
 Venus -68709-09-23 11:59 J -23374273.17 -23374273.00 -23374272.83 0.0502 0.0278  
 Mercury -68707-07-13 19:54 J -23373614.76 -23373614.67 -23373614.57 0.0499 0.0429  
 Mercury -68707-10-12 07:54 J -23373524.34 -23373524.17 -23373523.99 0.0499 0.0190  
 Earth -68703-03-05 02:37 J -23372284.61 -23372284.39 -23372284.16 0.0519 0.0165  
 Moon -68703-03-05 06:28 J -23372284.45 -23372284.23 -23372284.01 0.0519 0.0151 \*  
 Venus -68703-07-29 11:16 J -23372138.20 -23372138.03 -23372137.85 0.0522 0.0266

Mercury -68701-06-07 10:33 J -23371459.17 -23371459.06 -23371458.96 0.0527 0.0292

Mercury -68701-09-04 15:49 J -23371369.96 -23371369.84 -23371369.72 0.0526 0.0178

Moon -68698-08-21 15:21 J -23370289.05 -23370288.86 -23370288.67 0.0508 0.0308

Earth -68698-08-21 17:30 J -23370288.96 -23370288.77 -23370288.57 0.0508 0.0279 \*

Venus -68697-05-29 11:45 J -23370007.21 -23370007.01 -23370006.81 0.0503 0.0111

Mercury -68695-07-31 05:01 J -23369214.48 -23369214.29 -23369214.10 0.0499 0.0041

Moon -68691-03-09 22:18 J -23367896.69 -23367896.57 -23367896.45 0.0520 0.0452

Earth -68691-03-10 00:28 J -23367896.61 -23367896.48 -23367896.34 0.0520 0.0427 \*

Mars -68690-10-26 09:35 J -23367301.32 -23367301.10 -23367300.87 0.0527 0.0218

Mercury -68689-03-26 14:52 J -23367148.96 -23367148.88 -23367148.80 0.0527 0.0409

Mercury -68689-06-23 20:09 J -23367059.78 -23367059.66 -23367059.53 0.0527 0.0064

Earth -68686-08-26 07:54 J -23365901.40 -23365901.17 -23365900.94 0.0507 0.0035

Moon -68686-08-26 08:23 J -23365901.37 -23365901.15 -23365900.92 0.0507 0.0030 \*

Venus -68685-02-02 11:30 J -23365741.04 -23365741.02 -23365740.99 0.0504 0.0500

Mercury -68683-05-19 01:54 J -23364904.60 -23364904.42 -23364904.24 0.0499 0.0111

Venus -68679-08-01 07:40 J -23363369.29 -23363369.18 -23363369.06 0.0524 0.0430

Mercury -68677-01-13 19:40 J -23362838.70 -23362838.68 -23362838.66 0.0527 0.0517

Mercury -68677-04-12 00:57 J -23362749.58 -23362749.46 -23362749.33 0.0527 0.0051

Mercury -68677-07-10 06:28 J -23362660.30 -23362660.23 -23362660.15 0.0526 0.0422

Earth -68674-08-30 18:28 J -23361513.94 -23361513.73 -23361513.51 0.0506 0.0202

Moon -68674-08-30 19:25 J -23361513.90 -23361513.69 -23361513.47 0.0506 0.0233 \*

Mars -68672-08-31 20:23 J -23360781.96 -23360781.65 -23360781.34 0.0498 0.0036

Mercury -68671-03-06 21:06 J -23360594.77 -23360594.62 -23360594.46 0.0499 0.0278

Mercury -68671-06-05 09:06 J -23360504.26 -23360504.12 -23360503.99 0.0499 0.0341

Venus -68667-04-06 03:35 J -23359103.55 -23359103.35 -23359103.14 0.0523 0.0013

Mercury -68665-01-30 05:45 J -23358439.38 -23358439.26 -23358439.14 0.0527 0.0160

Mercury -68665-04-28 11:01 J -23358350.14 -23358350.04 -23358349.93 0.0526 0.0311

Moon -68662-09-04 04:47 J -23357126.41 -23357126.30 -23357126.20 0.0505 0.0445

Earth -68662-09-04 06:42 J -23357126.32 -23357126.22 -23357126.10 0.0505 0.0439 \*

Venus -68661-02-04 23:45 J -23356972.71 -23356972.51 -23356972.31 0.0502 0.0117

Mercury -68660-12-23 17:59 J -23356284.84 -23356284.75 -23356284.65 0.0499 0.0428

Mercury -68659-03-24 05:59 J -23356194.42 -23356194.25 -23356194.07 0.0499 0.0191

Venus -68656-12-09 22:18 J -23354837.67 -23354837.57 -23354837.46 0.0522 0.0441

Mars -68654-07-30 17:30 J -23354239.93 -23354239.77 -23354239.61 0.0527 0.0396

Mercury -68654-11-18 09:35 J -23354129.20 -23354129.10 -23354128.99 0.0527 0.0282

Mercury -68653-02-15 15:06 J -23354039.99 -23354039.87 -23354039.75 0.0526 0.0189

Venus -68650-10-10 22:33 J -23352706.72 -23352706.56 -23352706.38 0.0504 0.0278

Mercury -68647-01-10 03:21 J -23351884.55 -23351884.36 -23351884.17 0.0499 0.0044

Moon -68644-02-22 07:40 J -23350745.34 -23350745.18 -23350745.03 0.0517 0.0383

Earth -68644-02-22 11:30 J -23350745.17 -23350745.02 -23350744.86 0.0517 0.0385 \*

Mercury -68642-09-06 13:54 J -23349819.00 -23349818.92 -23349818.84 0.0527 0.0400

Mercury -68642-12-04 19:25 J -23349729.82 -23349729.69 -23349729.57 0.0526 0.0072

Mercury -68636-10-29 00:13 J -23347574.67 -23347574.49 -23347574.30 0.0499 0.0107

Earth -68632-02-27 08:52 J -23346357.36 -23346357.13 -23346356.90 0.0518 0.0124

Moon -68632-02-27 12:42 J -23346357.19 -23346356.97 -23346356.75 0.0518 0.0157 \*

Venus -68632-12-12 17:01 J -23346068.97 -23346068.79 -23346068.61 0.0523 0.0245

Mercury -68630-06-25 17:59 J -23345508.76 -23345508.75 -23345508.72 0.0527 0.0518

Mercury -68630-09-22 23:30 J -23345419.64 -23345419.52 -23345419.39 0.0527 0.0051

Mercury -68630-12-21 05:01 J -23345330.36 -23345330.29 -23345330.21 0.0526 0.0422

Venus -68626-10-13 13:54 J -23343938.06 -23343937.92 -23343937.77 0.0502 0.0355

Mercury -68624-08-16 20:52 J -23343264.78 -23343264.63 -23343264.46 0.0499 0.0260

Mercury -68624-11-15 08:52 J -23343174.26 -23343174.13 -23343174.00 0.0499 0.0359

Moon -68620-03-04 06:28 J -23341969.47 -23341969.23 -23341969.00 0.0519 0.0135

Earth -68620-03-04 08:52 J -23341969.35 -23341969.13 -23341968.90 0.0519 0.0145 \*

Venus -68620-08-17 12:42 J -23341803.15 -23341802.97 -23341802.77 0.0522 0.0189

Mercury -68618-07-12 04:18 J -23341109.44 -23341109.32 -23341109.20 0.0527 0.0158

Mercury -68618-10-09 09:49 J -23341020.19 -23341020.09 -23341019.99 0.0526 0.0313

Earth -68615-08-21 02:37 J -23339973.58 -23339973.39 -23339973.20 0.0508 0.0292

Moon -68615-08-21 02:52 J -23339973.54 -23339973.38 -23339973.20 0.0508 0.0320 \*

Venus -68614-06-18 11:16 J -23339672.23 -23339672.03 -23339671.82 0.0503 0.0047

Mercury -68612-06-04 16:04 J -23338954.92 -23338954.83 -23338954.73 0.0498 0.0427

Mercury -68612-09-03 04:04 J -23338864.50 -23338864.33 -23338864.15 0.0499 0.0192

Earth -68608-03-09 08:52 J -23337581.27 -23337581.13 -23337580.99 0.0521 0.0416

Moon -68608-03-09 08:37 J -23337581.25 -23337581.14 -23337581.02 0.0521 0.0447 \*

Mercury -68606-04-30 08:52 J -23336799.23 -23336799.13 -23336799.02 0.0527 0.0271

Mercury -68606-07-28 14:23 J -23336710.02 -23336709.90 -23336709.78 0.0527 0.0200

Earth -68603-08-25 14:52 J -23335586.11 -23335585.88 -23335585.65 0.0507 0.0054

Moon -68603-08-25 15:49 J -23335586.08 -23335585.84 -23335585.60 0.0507 0.0042 \*

Venus -68602-02-21 10:18 J -23335406.17 -23335406.07 -23335405.97 0.0504 0.0439

Mercury -68600-06-22 00:57 J -23334554.65 -23334554.46 -23334554.27 0.0499 0.0040

Venus -68596-08-20 09:06 J -23333034.16 -23333034.12 -23333034.06 0.0524 0.0505

Mercury -68594-02-16 12:57 J -23332489.04 -23332488.96 -23332488.88 0.0527 0.0393

Mercury -68594-05-16 18:28 J -23332399.86 -23332399.73 -23332399.61 0.0526 0.0078

Moon -68591-08-29 23:45 J -23331198.71 -23331198.51 -23331198.30 0.0506 0.0217

Earth -68591-08-30 01:54 J -23331198.63 -23331198.42 -23331198.20 0.0506 0.0187 \*

Mercury -68588-04-09 22:04 J -23330244.76 -23330244.58 -23330244.39 0.0499 0.0109

Venus -68584-04-25 03:49 J -23328768.54 -23328768.34 -23328768.14 0.0523 0.0067

Mercury -68583-12-05 17:01 J -23328178.81 -23328178.79 -23328178.76 0.0527 0.0513

Mercury -68582-03-04 22:33 J -23328089.69 -23328089.56 -23328089.44 0.0527 0.0043

Mercury -68582-06-02 03:49 J -23328000.41 -23328000.34 -23328000.26 0.0526 0.0427

Earth -68579-09-03 14:37 J -23326811.01 -23326810.89 -23326810.76 0.0505 0.0425

Moon -68579-09-03 18:13 J -23326810.87 -23326810.74 -23326810.61 0.0505 0.0420 \*

Venus -68578-02-23 23:59 J -23326637.69 -23326637.50 -23326637.31 0.0503 0.0184

Mercury -68576-01-26 18:57 J -23325934.87 -23325934.71 -23325934.55 0.0499 0.0260

Mercury -68576-04-27 06:57 J -23325844.34 -23325844.21 -23325844.08 0.0499 0.0359

Venus -68573-12-28 21:06 J -23324502.75 -23324502.62 -23324502.48 0.0522 0.0377

Mercury -68571-12-22 02:37 J -23323779.51 -23323779.39 -23323779.27 0.0527 0.0163

Mercury -68570-03-21 08:09 J -23323690.26 -23323690.16 -23323690.06 0.0526 0.0308

Venus -68567-10-29 23:16 J -23322371.72 -23322371.53 -23322371.35 0.0504 0.0207

Mercury -68565-11-14 15:35 J -23321624.95 -23321624.85 -23321624.75 0.0498 0.0413

Mercury -68564-02-13 03:21 J -23321534.53 -23321534.36 -23321534.18 0.0499 0.0206  
 Earth -68561-02-22 14:09 J -23320430.04 -23320429.91 -23320429.76 0.0517 0.0413  
 Moon -68561-02-22 18:13 J -23320429.87 -23320429.74 -23320429.59 0.0517 0.0414 \*  
 Mercury -68559-10-10 07:25 J -23319469.30 -23319469.19 -23319469.09 0.0527 0.0274  
 Mercury -68558-01-07 12:42 J -23319380.08 -23319379.97 -23319379.85 0.0527 0.0198  
 Mars -68553-02-17 18:13 J -23317512.86 -23317512.74 -23317512.60 0.0498 0.0451  
 Mercury -68553-12-01 22:33 J -23317224.74 -23317224.56 -23317224.37 0.0499 0.0039  
 Moon -68549-02-27 09:21 J -23316042.33 -23316042.11 -23316041.88 0.0518 0.0179  
 Earth -68549-02-27 12:28 J -23316042.20 -23316041.98 -23316041.75 0.0518 0.0147 \*  
 Venus -68549-12-31 17:59 J -23315733.91 -23315733.75 -23315733.59 0.0524 0.0318  
 Mercury -68547-07-29 11:59 J -23315159.09 -23315159.00 -23315158.92 0.0527 0.0388  
 Mercury -68547-10-26 17:16 J -23315069.90 -23315069.78 -23315069.65 0.0527 0.0084  
 Venus -68543-11-01 11:16 J -23313603.15 -23313603.03 -23313602.91 0.0501 0.0407  
 Mercury -68541-09-19 19:25 J -23312914.88 -23312914.69 -23312914.51 0.0499 0.0117  
 Earth -68537-03-03 11:59 J -23311654.23 -23311654.00 -23311653.77 0.0519 0.0124  
 Moon -68537-03-03 12:42 J -23311654.19 -23311653.97 -23311653.75 0.0519 0.0127 \*  
 Venus -68537-09-05 12:28 J -23311468.18 -23311467.98 -23311467.79 0.0523 0.0123  
 Mars -68535-01-19 19:54 J -23310966.92 -23310966.67 -23310966.43 0.0527 0.0010  
 Mercury -68535-05-17 15:49 J -23310848.87 -23310848.84 -23310848.81 0.0527 0.0511  
 Mercury -68535-08-14 21:21 J -23310759.74 -23310759.61 -23310759.49 0.0527 0.0042  
 Mercury -68535-11-12 02:37 J -23310670.46 -23310670.39 -23310670.32 0.0526 0.0429  
 Earth -68532-08-20 06:57 J -23309658.39 -23309658.21 -23309658.03 0.0508 0.0316  
 Moon -68532-08-20 07:54 J -23309658.34 -23309658.17 -23309657.99 0.0508 0.0341 \*  
 Venus -68531-07-07 09:35 J -23309337.30 -23309337.10 -23309336.89 0.0503 0.0012  
 Mercury -68529-07-08 16:18 J -23308604.98 -23308604.82 -23308604.66 0.0499 0.0267  
 Mercury -68529-10-07 04:18 J -23308514.45 -23308514.32 -23308514.19 0.0499 0.0353  
 Earth -68525-03-08 11:01 J -23307266.19 -23307266.04 -23307265.89 0.0520 0.0391  
 Moon -68525-03-08 12:42 J -23307266.10 -23307265.97 -23307265.82 0.0520 0.0422 \*  
 Mercury -68523-06-03 01:25 J -23306449.56 -23306449.44 -23306449.32 0.0527 0.0162  
 Mercury -68523-08-31 06:42 J -23306360.32 -23306360.22 -23306360.12 0.0526 0.0309



Moon -68520-08-24 16:47 J -23305271.02 -23305270.80 -23305270.57 0.0507 0.0064  
 Earth -68520-08-24 19:11 J -23305270.93 -23305270.70 -23305270.48 0.0507 0.0077 \*  
 Venus -68519-03-12 08:23 J -23305071.28 -23305071.15 -23305071.01 0.0504 0.0382  
 Mars -68518-11-26 02:09 J -23304447.66 -23304447.41 -23304447.15 0.0498 0.0283  
 Mercury -68517-04-26 13:11 J -23304295.05 -23304294.95 -23304294.85 0.0499 0.0419  
 Mercury -68517-07-26 00:57 J -23304204.63 -23304204.46 -23304204.29 0.0499 0.0201  
 Mercury -68511-03-22 05:30 J -23302139.38 -23302139.27 -23302139.17 0.0527 0.0283  
 Mercury -68511-06-19 10:47 J -23302050.16 -23302050.05 -23302049.93 0.0527 0.0189  
 Earth -68508-08-29 08:09 J -23300883.38 -23300883.16 -23300882.94 0.0506 0.0166  
 Moon -68508-08-29 11:30 J -23300883.24 -23300883.02 -23300882.80 0.0506 0.0193 \*  
 Mercury -68505-05-13 21:21 J -23299894.79 -23299894.61 -23299894.42 0.0499 0.0047  
 Venus -68501-05-14 01:11 J -23298433.65 -23298433.45 -23298433.25 0.0523 0.0124  
 Mercury -68499-01-08 09:49 J -23297829.17 -23297829.09 -23297829.00 0.0527 0.0397  
 Mercury -68499-04-07 15:21 J -23297739.98 -23297739.86 -23297739.73 0.0527 0.0078  
 Moon -68496-09-02 15:49 J -23296495.98 -23296495.84 -23296495.69 0.0505 0.0392  
 Earth -68496-09-02 19:40 J -23296495.82 -23296495.68 -23296495.54 0.0505 0.0405 \*  
 Venus -68495-03-14 21:21 J -23296302.79 -23296302.61 -23296302.43 0.0502 0.0236  
 Mercury -68493-03-01 16:33 J -23295584.99 -23295584.81 -23295584.62 0.0498 0.0124  
 Mercury -68493-05-31 04:18 J -23295494.33 -23295494.32 -23295494.29 0.0499 0.0495  
 Venus -68489-01-17 19:25 J -23294167.85 -23294167.69 -23294167.53 0.0522 0.0319  
 Mercury -68488-10-27 14:23 J -23293518.93 -23293518.90 -23293518.87 0.0527 0.0511  
 Mercury -68487-01-24 19:54 J -23293429.79 -23293429.67 -23293429.54 0.0527 0.0039  
 Mercury -68487-04-24 01:25 J -23293340.51 -23293340.44 -23293340.37 0.0526 0.0432  
 Venus -68484-11-17 19:54 J -23292036.87 -23292036.67 -23292036.48 0.0503 0.0157  
 Mercury -68482-12-19 13:11 J -23291275.10 -23291274.95 -23291274.79 0.0498 0.0278  
 Mercury -68481-03-19 00:57 J -23291184.59 -23291184.46 -23291184.32 0.0499 0.0341  
 Moon -68478-02-21 10:18 J -23290115.19 -23290115.07 -23290114.95 0.0517 0.0443  
 Earth -68478-02-21 13:54 J -23290115.04 -23290114.92 -23290114.80 0.0517 0.0442 \*  
 Mercury -68476-11-12 23:45 J -23289119.63 -23289119.51 -23289119.39 0.0527 0.0164  
 Mercury -68475-02-10 05:16 J -23289030.38 -23289030.28 -23289030.18 0.0526 0.0308

Mercury -68470-10-07 09:49 J -23286965.17 -23286965.09 -23286964.99 0.0499 0.0431  
 Mercury -68469-01-05 22:04 J -23286874.76 -23286874.58 -23286874.41 0.0499 0.0190  
 Earth -68466-02-26 12:57 J -23285727.18 -23285726.96 -23285726.73 0.0518 0.0177  
 Moon -68466-02-26 14:23 J -23285727.11 -23285726.90 -23285726.69 0.0518 0.0206 \*  
 Venus -68465-01-20 14:52 J -23285399.01 -23285398.88 -23285398.73 0.0523 0.0370  
 Mercury -68464-09-01 03:49 J -23284809.44 -23284809.34 -23284809.23 0.0527 0.0285  
 Mercury -68464-11-29 09:21 J -23284720.23 -23284720.11 -23284719.99 0.0526 0.0187  
 Venus -68460-11-20 07:54 J -23283268.24 -23283268.17 -23283268.08 0.0502 0.0457  
 Mercury -68458-10-24 18:42 J -23282564.91 -23282564.72 -23282564.54 0.0499 0.0037  
 Earth -68454-03-03 09:21 J -23281339.34 -23281339.11 -23281338.88 0.0519 0.0085  
 Moon -68454-03-03 10:18 J -23281339.31 -23281339.07 -23281338.82 0.0519 0.0094 \*  
 Venus -68454-09-25 07:54 J -23281133.37 -23281133.17 -23281132.97 0.0522 0.0076  
 Mercury -68452-06-20 07:54 J -23280499.25 -23280499.17 -23280499.09 0.0527 0.0408  
 Mercury -68452-09-17 13:25 J -23280410.07 -23280409.94 -23280409.82 0.0527 0.0067  
 Moon -68449-08-19 08:09 J -23279343.31 -23279343.16 -23279343.01 0.0509 0.0370  
 Earth -68449-08-19 10:18 J -23279343.24 -23279343.07 -23279342.90 0.0509 0.0345 \*  
 Venus -68448-07-26 06:57 J -23279002.41 -23279002.21 -23279002.00 0.0503 0.0066  
 Mercury -68446-08-12 15:06 J -23278255.06 -23278254.87 -23278254.69 0.0499 0.0121  
 Mercury -68446-11-11 02:52 J -23278164.39 -23278164.38 -23278164.38 0.0499 0.0498  
 Moon -68442-03-08 04:47 J -23276951.45 -23276951.30 -23276951.15 0.0520 0.0384  
 Earth -68442-03-08 07:25 J -23276951.35 -23276951.19 -23276951.01 0.0520 0.0351 \*  
 Venus -68442-05-31 01:54 J -23276867.44 -23276867.42 -23276867.38 0.0521 0.0514  
 Mercury -68440-04-08 12:13 J -23276189.00 -23276188.99 -23276188.97 0.0527 0.0523  
 Mercury -68440-07-06 17:45 J -23276099.88 -23276099.76 -23276099.63 0.0527 0.0051  
 Mercury -68440-10-03 23:16 J -23276010.60 -23276010.53 -23276010.46 0.0527 0.0422  
 Earth -68437-08-23 22:47 J -23274955.77 -23274955.55 -23274955.32 0.0507 0.0100  
 Moon -68437-08-24 02:09 J -23274955.64 -23274955.41 -23274955.17 0.0507 0.0080 \*  
 Venus -68436-03-31 05:16 J -23274736.43 -23274736.28 -23274736.12 0.0503 0.0331  
 Mercury -68434-05-31 10:18 J -23273945.22 -23273945.07 -23273944.92 0.0498 0.0288  
 Mercury -68434-08-29 22:04 J -23273854.72 -23273854.58 -23273854.44 0.0499 0.0331

Mercury -68428-04-24 22:18 J -23271789.69 -23271789.57 -23271789.45 0.0527 0.0167

Mercury -68428-07-23 03:35 J -23271700.45 -23271700.35 -23271700.24 0.0527 0.0307

Moon -68425-08-28 06:42 J -23270568.44 -23270568.22 -23270568.00 0.0506 0.0163

Earth -68425-08-28 10:33 J -23270568.28 -23270568.06 -23270567.84 0.0506 0.0139 \*

Mercury -68422-03-19 06:42 J -23269635.30 -23269635.22 -23269635.13 0.0498 0.0443

Mercury -68422-06-17 18:42 J -23269544.90 -23269544.72 -23269544.55 0.0499 0.0176

Venus -68418-06-02 21:21 J -23268098.80 -23268098.61 -23268098.41 0.0523 0.0171

Mars -68417-07-11 05:59 J -23267694.38 -23267694.25 -23267694.10 0.0527 0.0432

Mercury -68416-02-11 02:09 J -23267479.51 -23267479.41 -23267479.31 0.0527 0.0291

Mercury -68416-05-11 07:40 J -23267390.30 -23267390.18 -23267390.07 0.0527 0.0182

Earth -68413-09-01 19:11 J -23266180.85 -23266180.70 -23266180.54 0.0505 0.0373

Moon -68413-09-01 22:18 J -23266180.72 -23266180.57 -23266180.40 0.0505 0.0358 \*

Venus -68412-04-02 16:33 J -23265967.98 -23265967.81 -23265967.64 0.0502 0.0279

Mercury -68410-04-05 15:21 J -23265235.05 -23265234.86 -23265234.67 0.0499 0.0022

Venus -68406-02-05 15:49 J -23263833.01 -23263832.84 -23263832.67 0.0522 0.0268

Mercury -68405-11-30 06:13 J -23263169.32 -23263169.24 -23263169.16 0.0527 0.0412

Mercury -68404-02-27 11:30 J -23263080.14 -23263080.02 -23263079.89 0.0527 0.0062

Venus -68401-12-06 14:52 J -23261702.08 -23261701.88 -23261701.68 0.0503 0.0116

Mars -68399-05-13 02:09 J -23261179.67 -23261179.41 -23261179.14 0.0498 0.0252

Mercury -68398-01-22 11:59 J -23260925.18 -23260925.00 -23260924.82 0.0499 0.0132

Mercury -68398-04-22 23:45 J -23260834.54 -23260834.51 -23260834.47 0.0499 0.0488

Earth -68395-02-20 10:04 J -23259800.16 -23259800.08 -23259800.00 0.0516 0.0483

Moon -68395-02-20 12:13 J -23259800.05 -23259799.99 -23259799.92 0.0516 0.0491 \*

Mercury -68393-12-16 15:35 J -23258769.98 -23258769.85 -23258769.73 0.0527 0.0065

Mercury -68392-03-15 20:52 J -23258680.70 -23258680.63 -23258680.55 0.0526 0.0408

Mercury -68387-11-10 08:09 J -23256615.31 -23256615.16 -23256615.00 0.0498 0.0289

Mercury -68386-02-08 20:09 J -23256524.80 -23256524.66 -23256524.52 0.0499 0.0331

Earth -68383-02-25 07:25 J -23255412.40 -23255412.19 -23255411.97 0.0517 0.0223

Moon -68383-02-25 07:40 J -23255412.39 -23255412.18 -23255411.96 0.0517 0.0250 \*

Venus -68382-02-08 09:21 J -23255064.23 -23255064.11 -23255063.98 0.0524 0.0411

Mars -68381-04-14 02:23 J -23254633.64 -23254633.40 -23254633.16 0.0527 0.0141  
 Mercury -68381-10-04 19:54 J -23254459.79 -23254459.67 -23254459.55 0.0527 0.0180  
 Mercury -68380-01-02 01:25 J -23254370.55 -23254370.44 -23254370.34 0.0527 0.0293  
 Venus -68377-12-09 04:04 J -23252933.33 -23252933.33 -23252933.32 0.0501 0.0501  
 Mercury -68375-08-29 03:49 J -23252305.41 -23252305.34 -23252305.27 0.0498 0.0454  
 Mercury -68375-11-27 15:35 J -23252215.03 -23252214.85 -23252214.67 0.0498 0.0165  
 Moon -68371-03-02 01:25 J -23251024.66 -23251024.44 -23251024.21 0.0519 0.0053  
 Earth -68371-03-02 03:49 J -23251024.58 -23251024.34 -23251024.11 0.0519 0.0042 \*  
 Venus -68371-10-14 03:06 J -23250798.57 -23250798.37 -23250798.17 0.0523 0.0034  
 Mercury -68369-07-24 00:13 J -23250149.59 -23250149.49 -23250149.38 0.0528 0.0298  
 Mercury -68369-10-21 05:45 J -23250060.38 -23250060.26 -23250060.14 0.0527 0.0176  
 Earth -68366-08-19 12:13 J -23249028.14 -23249027.99 -23249027.83 0.0509 0.0374  
 Moon -68366-08-19 15:35 J -23249027.99 -23249027.85 -23249027.70 0.0509 0.0390 \*  
 Venus -68365-08-14 02:37 J -23248667.59 -23248667.39 -23248667.19 0.0502 0.0109  
 Mars -68363-02-17 19:11 J -23248114.82 -23248114.70 -23248114.55 0.0498 0.0447  
 Mercury -68363-09-15 11:59 J -23247905.19 -23247905.00 -23247904.81 0.0498 0.0008  
 Earth -68359-03-07 03:21 J -23246636.55 -23246636.36 -23246636.17 0.0520 0.0314  
 Moon -68359-03-07 06:57 J -23246636.39 -23246636.21 -23246636.03 0.0520 0.0347 \*  
 Venus -68359-06-18 21:21 J -23246532.69 -23246532.61 -23246532.52 0.0522 0.0472  
 Mercury -68357-05-12 04:18 J -23245839.40 -23245839.32 -23245839.25 0.0527 0.0421  
 Mercury -68357-08-09 09:35 J -23245750.22 -23245750.10 -23245749.97 0.0527 0.0055  
 Mercury -68357-11-06 15:06 J -23245660.88 -23245660.87 -23245660.86 0.0526 0.0522  
 Moon -68354-08-23 16:47 J -23244641.02 -23244640.80 -23244640.57 0.0508 0.0118  
 Earth -68354-08-23 20:37 J -23244640.86 -23244640.64 -23244640.42 0.0508 0.0140 \*  
 Venus -68353-04-18 23:30 J -23244401.68 -23244401.52 -23244401.35 0.0504 0.0294  
 Mercury -68351-07-04 08:37 J -23243595.32 -23243595.14 -23243594.96 0.0499 0.0147  
 Mercury -68351-10-02 20:23 J -23243504.70 -23243504.65 -23243504.59 0.0499 0.0474  
 Mercury -68345-05-28 13:54 J -23241440.05 -23241439.92 -23241439.80 0.0527 0.0072  
 Mercury -68345-08-25 19:11 J -23241350.78 -23241350.70 -23241350.62 0.0526 0.0402  
 Earth -68342-08-28 07:25 J -23240253.41 -23240253.19 -23240252.96 0.0507 0.0100

Moon -68342-08-28 10:47 J -23240253.27 -23240253.05 -23240252.82 0.0507 0.0122 \*  
 Mercury -68339-04-22 05:01 J -23239285.43 -23239285.29 -23239285.14 0.0499 0.0302  
 Mercury -68339-07-21 17:01 J -23239194.93 -23239194.79 -23239194.65 0.0499 0.0320  
 Venus -68335-06-21 15:49 J -23237764.02 -23237763.84 -23237763.65 0.0523 0.0210  
 Mercury -68333-03-16 17:45 J -23237129.88 -23237129.76 -23237129.65 0.0527 0.0194  
 Mercury -68333-06-13 23:01 J -23237040.64 -23237040.54 -23237040.43 0.0527 0.0279  
 Moon -68330-09-01 17:16 J -23235865.96 -23235865.78 -23235865.60 0.0506 0.0322  
 Earth -68330-09-01 19:54 J -23235865.84 -23235865.67 -23235865.50 0.0506 0.0341 \*  
 Venus -68329-04-21 12:13 J -23235633.14 -23235632.99 -23235632.83 0.0502 0.0326  
 Mercury -68327-02-08 01:25 J -23234975.51 -23234975.44 -23234975.36 0.0498 0.0458  
 Mercury -68327-05-09 13:25 J -23234885.12 -23234884.94 -23234884.76 0.0499 0.0163  
 Venus -68323-02-24 09:35 J -23233498.27 -23233498.10 -23233497.91 0.0522 0.0230  
 Mercury -68321-01-03 22:04 J -23232819.68 -23232819.58 -23232819.48 0.0527 0.0312  
 Mercury -68321-04-02 03:35 J -23232730.47 -23232730.35 -23232730.23 0.0527 0.0163  
 Venus -68318-12-26 11:16 J -23231367.23 -23231367.03 -23231366.82 0.0503 0.0069  
 Mercury -68315-02-25 09:06 J -23230575.31 -23230575.12 -23230574.93 0.0498 0.0002  
 Mercury -68310-10-23 02:23 J -23228509.47 -23228509.40 -23228509.33 0.0528 0.0430  
 Mercury -68309-01-20 07:54 J -23228420.30 -23228420.17 -23228420.05 0.0527 0.0045  
 Mercury -68309-04-18 13:25 J -23228330.96 -23228330.94 -23228330.92 0.0527 0.0518  
 Venus -68306-08-31 10:04 J -23227101.15 -23227101.08 -23227100.99 0.0504 0.0460  
 Mercury -68304-12-14 05:30 J -23226265.45 -23226265.27 -23226265.09 0.0498 0.0158  
 Mercury -68303-03-14 17:01 J -23226174.85 -23226174.79 -23226174.71 0.0499 0.0462  
 Moon -68300-02-24 01:11 J -23225097.63 -23225097.45 -23225097.26 0.0517 0.0292  
 Earth -68300-02-24 02:52 J -23225097.58 -23225097.38 -23225097.17 0.0517 0.0263 \*  
 Venus -68299-02-27 04:47 J -23224729.39 -23224729.30 -23224729.20 0.0524 0.0454  
 Mercury -68298-11-08 11:59 J -23224110.13 -23224110.00 -23224109.88 0.0527 0.0081  
 Mercury -68297-02-05 17:16 J -23224020.86 -23224020.78 -23224020.70 0.0526 0.0394  
 Mercury -68292-10-02 01:54 J -23221955.56 -23221955.42 -23221955.28 0.0499 0.0316  
 Mercury -68292-12-31 13:40 J -23221865.07 -23221864.93 -23221864.78 0.0499 0.0306  
 Earth -68288-03-01 03:06 J -23220709.60 -23220709.37 -23220709.13 0.0518 0.0008

Moon -68288-03-01 06:28 J -23220709.47 -23220709.23 -23220708.99 0.0518 0.0023 \*  
 Venus -68288-11-01 23:45 J -23220463.71 -23220463.51 -23220463.31 0.0523 0.0018  
 Mercury -68286-08-27 16:04 J -23219799.95 -23219799.83 -23219799.72 0.0527 0.0199  
 Mercury -68286-11-24 21:21 J -23219710.71 -23219710.61 -23219710.50 0.0526 0.0274  
 Moon -68283-08-18 04:47 J -23218713.41 -23218713.30 -23218713.18 0.0509 0.0434  
 Earth -68283-08-18 08:23 J -23218713.27 -23218713.15 -23218713.01 0.0509 0.0420 \*  
 Venus -68282-09-02 20:23 J -23218332.84 -23218332.65 -23218332.45 0.0503 0.0145  
 Mercury -68280-07-20 22:18 J -23217645.62 -23217645.57 -23217645.50 0.0499 0.0470  
 Mercury -68280-10-19 10:33 J -23217555.24 -23217555.06 -23217554.89 0.0499 0.0152  
 Moon -68276-03-05 19:54 J -23216321.85 -23216321.67 -23216321.47 0.0519 0.0304  
 Earth -68276-03-05 23:59 J -23216321.70 -23216321.50 -23216321.30 0.0519 0.0272 \*  
 Venus -68276-07-07 16:47 J -23216197.92 -23216197.80 -23216197.69 0.0521 0.0425  
 Mercury -68274-06-15 19:54 J -23215489.77 -23215489.67 -23215489.57 0.0527 0.0323  
 Mercury -68274-09-13 01:25 J -23215400.57 -23215400.44 -23215400.32 0.0527 0.0151  
 Earth -68271-08-22 20:52 J -23214325.84 -23214325.63 -23214325.41 0.0508 0.0176  
 Moon -68271-08-23 00:13 J -23214325.71 -23214325.49 -23214325.27 0.0508 0.0147 \*  
 Venus -68270-05-08 19:25 J -23214066.87 -23214066.69 -23214066.51 0.0504 0.0247  
 Mercury -68268-08-07 06:57 J -23213245.40 -23213245.21 -23213245.02 0.0499 0.0008  
 Mars -68263-10-04 06:57 J -23211361.41 -23211361.21 -23211361.01 0.0527 0.0307  
 Mercury -68262-04-04 00:13 J -23211179.56 -23211179.49 -23211179.42 0.0527 0.0441  
 Mercury -68262-07-02 05:45 J -23211090.39 -23211090.26 -23211090.14 0.0527 0.0035  
 Mercury -68262-09-29 11:01 J -23211001.07 -23211001.04 -23211001.00 0.0526 0.0505  
 Moon -68259-08-27 08:09 J -23209938.39 -23209938.16 -23209937.93 0.0507 0.0093  
 Earth -68259-08-27 10:47 J -23209938.28 -23209938.05 -23209937.82 0.0507 0.0073 \*  
 Mercury -68256-05-26 02:52 J -23208935.56 -23208935.38 -23208935.20 0.0498 0.0166  
 Mercury -68256-08-24 14:23 J -23208844.97 -23208844.90 -23208844.82 0.0499 0.0454  
 Venus -68252-07-10 10:47 J -23207429.22 -23207429.05 -23207428.87 0.0523 0.0253  
 Mercury -68250-04-20 10:04 J -23206780.21 -23206780.08 -23206779.96 0.0527 0.0085  
 Mercury -68250-07-18 15:35 J -23206690.94 -23206690.85 -23206690.77 0.0527 0.0389  
 Earth -68247-08-31 22:47 J -23205550.73 -23205550.55 -23205550.36 0.0506 0.0315

Moon -68247-08-31 23:59 J -23205550.68 -23205550.50 -23205550.32 0.0506 0.0296 \*  
 Venus -68246-05-11 08:52 J -23205298.26 -23205298.13 -23205297.99 0.0502 0.0373  
 Mars -68245-08-04 22:33 J -23204846.86 -23204846.56 -23204846.25 0.0498 0.0077  
 Mercury -68244-03-13 23:16 J -23204625.67 -23204625.53 -23204625.39 0.0498 0.0322  
 Mercury -68244-06-12 11:01 J -23204535.19 -23204535.04 -23204534.89 0.0499 0.0299  
 Venus -68240-03-15 05:59 J -23203163.44 -23203163.25 -23203163.06 0.0522 0.0182  
 Mercury -68238-02-06 14:09 J -23202470.03 -23202469.91 -23202469.79 0.0527 0.0207  
 Mercury -68238-05-06 19:25 J -23202380.79 -23202380.69 -23202380.58 0.0527 0.0268  
 Venus -68234-01-14 05:30 J -23201032.48 -23201032.27 -23201032.07 0.0503 0.0031  
 Mercury -68233-12-30 19:25 J -23200315.73 -23200315.69 -23200315.64 0.0499 0.0481  
 Mercury -68232-03-31 07:25 J -23200225.37 -23200225.19 -23200225.01 0.0499 0.0141  
 Mars -68227-07-08 08:23 J -23198300.36 -23198300.15 -23198299.95 0.0527 0.0289  
 Mercury -68227-11-25 18:28 J -23198159.83 -23198159.73 -23198159.63 0.0527 0.0325  
 Mercury -68226-02-22 23:45 J -23198070.63 -23198070.51 -23198070.39 0.0526 0.0148  
 Venus -68223-09-19 03:49 J -23196766.44 -23196766.34 -23196766.22 0.0504 0.0424  
 Mercury -68220-01-17 04:04 J -23195915.51 -23195915.33 -23195915.14 0.0499 0.0016  
 Earth -68217-02-24 02:23 J -23194782.59 -23194782.40 -23194782.20 0.0516 0.0298  
 Moon -68217-02-24 05:16 J -23194782.46 -23194782.28 -23194782.08 0.0516 0.0325 \*  
 Venus -68216-03-18 00:57 J -23194394.51 -23194394.46 -23194394.40 0.0523 0.0503  
 Mercury -68215-09-13 22:18 J -23193849.63 -23193849.57 -23193849.51 0.0527 0.0449  
 Mercury -68215-12-12 03:49 J -23193760.47 -23193760.34 -23193760.22 0.0527 0.0026  
 Mercury -68214-03-11 09:06 J -23193671.15 -23193671.12 -23193671.08 0.0526 0.0496  
 Mercury -68209-11-05 00:42 J -23191605.64 -23191605.47 -23191605.29 0.0499 0.0167  
 Mercury -68208-02-03 12:42 J -23191515.05 -23191514.97 -23191514.90 0.0499 0.0454  
 Moon -68205-02-28 20:09 J -23190394.89 -23190394.66 -23190394.43 0.0518 0.0022  
 Earth -68205-02-28 23:45 J -23190394.74 -23190394.51 -23190394.27 0.0518 0.0036 \*  
 Venus -68205-11-20 18:57 J -23190128.90 -23190128.71 -23190128.50 0.0522 0.0066  
 Mercury -68203-09-30 08:09 J -23189450.29 -23189450.16 -23189450.04 0.0527 0.0095  
 Mercury -68203-12-28 13:25 J -23189361.02 -23189360.94 -23189360.85 0.0527 0.0380  
 Earth -68200-08-17 12:42 J -23188398.08 -23188397.97 -23188397.86 0.0510 0.0446

Moon -68200-08-17 16:04 J -23188397.93 -23188397.83 -23188397.72 0.0510 0.0451 \*  
 Venus -68199-09-21 18:28 J -23187997.92 -23187997.73 -23187997.54 0.0503 0.0200  
 Mercury -68197-08-23 20:52 J -23187295.76 -23187295.63 -23187295.48 0.0498 0.0326  
 Mercury -68197-11-22 08:52 J -23187205.28 -23187205.13 -23187204.98 0.0499 0.0295  
 Earth -68193-03-04 20:09 J -23186006.87 -23186006.66 -23186006.45 0.0519 0.0232  
 Moon -68193-03-04 23:45 J -23186006.71 -23186006.51 -23186006.31 0.0519 0.0260 \*  
 Venus -68193-07-26 12:28 J -23185863.12 -23185862.98 -23185862.84 0.0522 0.0378  
 Mercury -68191-07-19 12:28 J -23185140.10 -23185139.98 -23185139.87 0.0528 0.0212  
 Mercury -68191-10-16 17:59 J -23185050.86 -23185050.75 -23185050.64 0.0527 0.0264  
 Moon -68188-08-21 23:30 J -23184010.74 -23184010.52 -23184010.30 0.0509 0.0170  
 Earth -68188-08-22 02:09 J -23184010.62 -23184010.41 -23184010.20 0.0509 0.0201 \*  
 Venus -68187-05-27 17:16 J -23183731.96 -23183731.78 -23183731.58 0.0503 0.0191  
 Mercury -68185-06-11 17:30 J -23182985.81 -23182985.77 -23182985.72 0.0498 0.0480  
 Mercury -68185-09-10 05:16 J -23182895.45 -23182895.28 -23182895.09 0.0498 0.0141  
 Moon -68181-03-09 18:42 J -23181618.80 -23181618.72 -23181618.64 0.0520 0.0487  
 Earth -68181-03-09 20:52 J -23181618.67 -23181618.63 -23181618.58 0.0520 0.0507 \*  
 Mercury -68179-05-07 16:47 J -23180829.90 -23180829.80 -23180829.71 0.0527 0.0330  
 Mercury -68179-08-04 22:04 J -23180740.70 -23180740.58 -23180740.45 0.0527 0.0144  
 Earth -68176-08-26 09:49 J -23179623.32 -23179623.09 -23179622.85 0.0507 0.0036  
 Moon -68176-08-26 11:16 J -23179623.25 -23179623.03 -23179622.81 0.0507 0.0052 \*  
 Mercury -68173-06-29 01:40 J -23178585.62 -23178585.43 -23178585.25 0.0499 0.0022  
 Venus -68169-07-29 10:33 J -23177094.21 -23177094.06 -23177093.90 0.0523 0.0321  
 Mercury -68167-02-23 21:06 J -23176519.69 -23176519.62 -23176519.56 0.0527 0.0447  
 Mercury -68167-05-24 02:23 J -23176430.52 -23176430.40 -23176430.27 0.0527 0.0032  
 Mercury -68167-08-21 07:54 J -23176341.21 -23176341.17 -23176341.13 0.0526 0.0498  
 Earth -68164-08-30 21:35 J -23175235.79 -23175235.60 -23175235.40 0.0507 0.0277  
 Moon -68164-08-30 22:04 J -23175235.78 -23175235.58 -23175235.37 0.0507 0.0253 \*  
 Venus -68163-05-30 04:04 J -23174963.44 -23174963.33 -23174963.22 0.0502 0.0416  
 Mercury -68161-04-16 22:18 J -23174275.74 -23174275.57 -23174275.39 0.0499 0.0172  
 Mercury -68161-07-16 10:18 J -23174185.15 -23174185.07 -23174184.99 0.0499 0.0451



Venus -68157-04-03 04:18 J -23172828.52 -23172828.32 -23172828.13 0.0522 0.0121  
 Mercury -68155-03-12 06:28 J -23172120.35 -23172120.23 -23172120.11 0.0527 0.0097  
 Mercury -68155-06-09 11:45 J -23172031.09 -23172031.01 -23172030.92 0.0526 0.0376  
 Moon -68152-09-04 08:09 J -23170848.18 -23170848.16 -23170848.15 0.0506 0.0504  
 Venus -68151-02-02 03:21 J -23170697.56 -23170697.36 -23170697.15 0.0503 0.0026  
 Mercury -68149-02-03 19:11 J -23169965.84 -23169965.70 -23169965.56 0.0499 0.0325  
 Mercury -68149-05-04 06:57 J -23169875.35 -23169875.21 -23169875.06 0.0499 0.0298  
 Mercury -68144-12-29 10:47 J -23167810.16 -23167810.05 -23167809.94 0.0527 0.0215  
 Mercury -68143-03-28 16:04 J -23167720.93 -23167720.83 -23167720.71 0.0527 0.0260  
 Venus -68140-10-08 03:06 J -23166431.50 -23166431.37 -23166431.22 0.0504 0.0362  
 Mercury -68138-11-22 15:35 J -23165655.89 -23165655.85 -23165655.80 0.0498 0.0480  
 Mercury -68137-02-21 03:21 J -23165565.53 -23165565.36 -23165565.17 0.0498 0.0142  
 Moon -68134-02-22 22:04 J -23164467.74 -23164467.58 -23164467.42 0.0516 0.0364  
 Earth -68134-02-23 01:40 J -23164467.61 -23164467.43 -23164467.25 0.0516 0.0335 \*  
 Mercury -68132-10-17 15:06 J -23163499.96 -23163499.87 -23163499.77 0.0527 0.0333  
 Mercury -68131-01-14 20:37 J -23163410.76 -23163410.64 -23163410.52 0.0527 0.0143  
 Mercury -68126-12-10 00:13 J -23161255.68 -23161255.49 -23161255.30 0.0498 0.0013  
 Earth -68122-02-28 02:09 J -23160079.64 -23160079.41 -23160079.17 0.0517 0.0063  
 Moon -68122-02-28 05:59 J -23160079.48 -23160079.25 -23160079.01 0.0517 0.0042 \*  
 Venus -68122-12-10 18:28 J -23159793.92 -23159793.73 -23159793.53 0.0523 0.0131  
 Mercury -68120-08-05 19:40 J -23159189.75 -23159189.68 -23159189.62 0.0527 0.0448  
 Mercury -68120-11-03 00:57 J -23159100.58 -23159100.46 -23159100.33 0.0527 0.0029  
 Mercury -68119-01-31 06:28 J -23159011.27 -23159011.23 -23159011.19 0.0526 0.0497  
 Moon -68117-08-16 11:59 J -23158083.07 -23158083.00 -23158082.93 0.0510 0.0483  
 Earth -68117-08-16 14:23 J -23158082.96 -23158082.90 -23158082.82 0.0510 0.0482 \*  
 Venus -68116-10-10 14:23 J -23157663.08 -23157662.90 -23157662.72 0.0503 0.0248  
 Mercury -68114-09-27 20:09 J -23156945.83 -23156945.66 -23156945.48 0.0499 0.0175  
 Mercury -68114-12-27 08:09 J -23156855.24 -23156855.16 -23156855.08 0.0499 0.0449  
 Moon -68110-03-05 01:11 J -23155691.66 -23155691.45 -23155691.23 0.0519 0.0235  
 Earth -68110-03-05 03:49 J -23155691.55 -23155691.34 -23155691.12 0.0519 0.0214 \*

Venus -68110-08-15 14:23 J -23155528.06 -23155527.90 -23155527.73 0.0522 0.0298  
 Mars -68109-12-28 05:01 J -23155027.53 -23155027.29 -23155027.04 0.0527 0.0118  
 Mercury -68108-08-22 05:30 J -23154790.39 -23154790.27 -23154790.15 0.0527 0.0090  
 Mercury -68108-11-19 10:47 J -23154701.13 -23154701.05 -23154700.96 0.0526 0.0382  
 Earth -68105-08-21 02:52 J -23153695.58 -23153695.38 -23153695.18 0.0509 0.0238  
 Moon -68105-08-21 04:18 J -23153695.52 -23153695.32 -23153695.12 0.0509 0.0207 \*  
 Venus -68104-06-15 13:25 J -23153397.14 -23153396.94 -23153396.74 0.0504 0.0142  
 Mercury -68102-07-16 17:01 J -23152635.93 -23152635.79 -23152635.65 0.0499 0.0326  
 Mercury -68102-10-15 05:01 J -23152545.44 -23152545.29 -23152545.14 0.0499 0.0299  
 Earth -68098-03-10 02:09 J -23151303.48 -23151303.41 -23151303.32 0.0519 0.0485  
 Moon -68098-03-10 02:52 J -23151303.47 -23151303.38 -23151303.27 0.0519 0.0463 \*  
 Mercury -68096-06-10 09:35 J -23150480.22 -23150480.10 -23150479.99 0.0527 0.0213  
 Mercury -68096-09-07 14:52 J -23150390.99 -23150390.88 -23150390.77 0.0526 0.0261  
 Earth -68093-08-25 15:49 J -23149308.07 -23149307.84 -23149307.61 0.0508 0.0012  
 Moon -68093-08-25 16:18 J -23149308.06 -23149307.82 -23149307.58 0.0508 0.0023 \*  
 Mars -68091-10-29 15:49 J -23148513.13 -23148512.84 -23148512.54 0.0499 0.0142  
 Mercury -68090-05-04 13:54 J -23148325.96 -23148325.92 -23148325.86 0.0499 0.0477  
 Mercury -68090-08-03 02:09 J -23148235.59 -23148235.41 -23148235.23 0.0499 0.0147  
 Venus -68086-08-18 09:21 J -23146759.24 -23146759.11 -23146758.97 0.0523 0.0384  
 Mercury -68084-03-29 13:54 J -23146170.02 -23146169.92 -23146169.82 0.0527 0.0331  
 Mercury -68084-06-26 19:11 J -23146080.82 -23146080.70 -23146080.58 0.0527 0.0144  
 Moon -68081-08-30 04:18 J -23144920.51 -23144920.32 -23144920.12 0.0507 0.0235  
 Earth -68081-08-30 06:42 J -23144920.42 -23144920.22 -23144920.02 0.0507 0.0263 \*  
 Venus -68080-06-18 05:01 J -23144628.34 -23144628.29 -23144628.24 0.0502 0.0486  
 Mercury -68078-05-21 22:47 J -23143925.74 -23143925.55 -23143925.36 0.0499 0.0009  
 Venus -68074-04-23 03:21 J -23142493.56 -23142493.36 -23142493.16 0.0522 0.0056  
 Mars -68073-10-01 04:04 J -23141966.44 -23141966.33 -23141966.21 0.0527 0.0467  
 Mercury -68072-01-15 18:13 J -23141859.80 -23141859.74 -23141859.67 0.0527 0.0448  
 Mercury -68072-04-14 23:45 J -23141770.64 -23141770.51 -23141770.38 0.0527 0.0027  
 Mercury -68072-07-13 05:16 J -23141681.32 -23141681.28 -23141681.25 0.0526 0.0501

Moon -68069-09-03 23:59 J -23140532.54 -23140532.50 -23140532.46 0.0506 0.0498  
 Venus -68068-02-21 04:18 J -23140362.52 -23140362.32 -23140362.12 0.0503 0.0099  
 Mercury -68066-03-09 19:25 J -23139615.86 -23139615.69 -23139615.51 0.0498 0.0161  
 Mercury -68066-06-08 07:11 J -23139525.26 -23139525.20 -23139525.12 0.0499 0.0462  
 Venus -68063-12-26 23:01 J -23138227.61 -23138227.54 -23138227.46 0.0521 0.0482  
 Mercury -68060-02-01 04:18 J -23137460.45 -23137460.32 -23137460.20 0.0527 0.0088  
 Mercury -68060-05-01 09:35 J -23137371.18 -23137371.10 -23137371.01 0.0526 0.0386  
 Venus -68057-10-27 00:42 J -23136096.63 -23136096.47 -23136096.31 0.0504 0.0305  
 Mercury -68055-12-26 15:21 J -23135306.00 -23135305.86 -23135305.72 0.0499 0.0324  
 Mercury -68054-03-27 03:21 J -23135215.51 -23135215.36 -23135215.21 0.0499 0.0301  
 Earth -68051-02-22 11:59 J -23134152.17 -23134152.00 -23134151.82 0.0516 0.0348  
 Moon -68051-02-22 15:49 J -23134152.00 -23134151.84 -23134151.67 0.0516 0.0368 \*  
 Mercury -68049-11-20 08:52 J -23133150.25 -23133150.13 -23133150.01 0.0527 0.0202  
 Mercury -68048-02-17 14:09 J -23133061.01 -23133060.91 -23133060.80 0.0526 0.0272  
 Mercury -68043-10-14 12:28 J -23130996.04 -23130995.98 -23130995.93 0.0499 0.0474  
 Mercury -68042-01-13 00:28 J -23130905.66 -23130905.48 -23130905.30 0.0499 0.0151  
 Moon -68039-02-27 08:23 J -23129764.39 -23129764.15 -23129763.91 0.0517 0.0052  
 Earth -68039-02-27 11:16 J -23129764.26 -23129764.03 -23129763.79 0.0517 0.0077 \*  
 Venus -68039-12-29 20:37 J -23129458.82 -23129458.64 -23129458.45 0.0523 0.0212  
 Mercury -68037-09-08 12:57 J -23128840.06 -23128839.96 -23128839.86 0.0527 0.0323  
 Mercury -68037-12-06 18:13 J -23128750.86 -23128750.74 -23128750.62 0.0526 0.0151  
 Earth -68034-08-16 22:18 J -23127767.60 -23127767.57 -23127767.53 0.0510 0.0502  
 Moon -68034-08-16 23:30 J -23127767.55 -23127767.52 -23127767.47 0.0510 0.0501 \*  
 Venus -68033-10-29 15:06 J -23127328.02 -23127327.87 -23127327.71 0.0503 0.0320  
 Mercury -68031-10-31 21:35 J -23126595.79 -23126595.60 -23126595.42 0.0499 0.0009  
 Earth -68027-03-04 09:35 J -23125376.32 -23125376.10 -23125375.88 0.0518 0.0193  
 Moon -68027-03-04 10:47 J -23125376.26 -23125376.05 -23125375.85 0.0518 0.0210 \*  
 Venus -68027-09-03 15:06 J -23125193.05 -23125192.87 -23125192.69 0.0521 0.0224  
 Mercury -68025-06-27 17:16 J -23124529.85 -23124529.78 -23124529.71 0.0527 0.0441  
 Mercury -68025-09-24 22:33 J -23124440.68 -23124440.56 -23124440.43 0.0527 0.0039

Mercury -68025-12-23 04:04 J -23124351.36 -23124351.33 -23124351.30 0.0526 0.0505

Earth -68022-08-21 13:25 J -23123380.13 -23123379.94 -23123379.73 0.0509 0.0251

Moon -68022-08-21 13:54 J -23123380.13 -23123379.92 -23123379.70 0.0509 0.0220 \*

Venus -68021-07-04 15:35 J -23123062.05 -23123061.85 -23123061.65 0.0504 0.0065

Mercury -68019-08-19 18:28 J -23122285.91 -23122285.73 -23122285.55 0.0499 0.0152

Mercury -68019-11-18 06:13 J -23122195.30 -23122195.24 -23122195.18 0.0499 0.0471

Earth -68015-03-09 07:25 J -23120988.30 -23120988.19 -23120988.09 0.0519 0.0463

Moon -68015-03-09 07:54 J -23120988.29 -23120988.17 -23120988.03 0.0519 0.0435 \*

Mercury -68013-07-14 03:06 J -23120130.49 -23120130.37 -23120130.24 0.0527 0.0083

Mercury -68013-10-11 08:37 J -23120041.23 -23120041.14 -23120041.06 0.0527 0.0391

Moon -68010-08-26 01:40 J -23118992.65 -23118992.43 -23118992.20 0.0508 0.0003

Earth -68010-08-26 04:04 J -23118992.56 -23118992.33 -23118992.10 0.0508 0.0002 \*

Venus -68009-03-09 15:21 J -23118795.94 -23118795.86 -23118795.77 0.0505 0.0451

Mercury -68007-06-07 15:06 J -23117976.01 -23117975.87 -23117975.71 0.0499 0.0305

Mercury -68007-09-06 03:06 J -23117885.51 -23117885.37 -23117885.22 0.0499 0.0320

Venus -68003-09-06 11:59 J -23116424.08 -23116424.00 -23116423.91 0.0523 0.0468

Mercury -68001-05-02 07:54 J -23115820.29 -23115820.17 -23115820.06 0.0527 0.0196

Mercury -68001-07-30 13:11 J -23115731.06 -23115730.95 -23115730.84 0.0526 0.0278

# 68TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 68th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
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Earth -67998-08-30 12:57 J -23114605.16 -23114604.96 -23114604.75 0.0507 0.0240  
 Moon -67998-08-30 16:47 J -23114605.01 -23114604.80 -23114604.59 0.0507 0.0208 \*  
 Mercury -67995-03-26 11:01 J -23113666.10 -23113666.04 -23113665.98 0.0499 0.0468  
 Mercury -67995-06-24 23:01 J -23113575.72 -23113575.54 -23113575.36 0.0499 0.0157  
 Venus -67991-05-12 08:37 J -23112158.34 -23112158.14 -23112157.94 0.0522 0.0043  
 Mars -67990-06-20 13:25 J -23111754.02 -23111753.94 -23111753.84 0.0527 0.0490  
 Mercury -67989-02-19 12:28 J -23111510.08 -23111509.98 -23111509.88 0.0527 0.0308  
 Mercury -67989-05-18 17:45 J -23111420.88 -23111420.76 -23111420.64 0.0526 0.0166  
 Moon -67986-09-03 21:35 J -23110217.67 -23110217.60 -23110217.51 0.0506 0.0474  
 Earth -67986-09-04 01:54 J -23110217.49 -23110217.42 -23110217.35 0.0506 0.0483  
 Venus -67985-03-12 02:37 J -23110027.58 -23110027.39 -23110027.19 0.0503 0.0159  
 Mercury -67983-04-12 20:09 J -23109265.85 -23109265.66 -23109265.47 0.0499 0.0008  
 Venus -67979-01-15 03:06 J -23107892.50 -23107892.37 -23107892.24 0.0521 0.0392  
 Mercury -67978-12-08 16:33 J -23107199.88 -23107199.81 -23107199.74 0.0527 0.0429  
 Mercury -67977-03-06 22:04 J -23107110.71 -23107110.58 -23107110.46 0.0526 0.0048  
 Mercury -67977-06-04 03:21 J -23107021.38 -23107021.36 -23107021.34 0.0526 0.0515  
 Venus -67974-11-16 02:23 J -23105761.58 -23105761.40 -23105761.21 0.0504 0.0229  
 Mars -67972-04-17 02:52 J -23105243.61 -23105243.38 -23105243.14 0.0499 0.0317  
 Mercury -67971-01-29 17:16 J -23104955.96 -23104955.78 -23104955.60 0.0499 0.0143  
 Mercury -67971-04-30 05:16 J -23104865.32 -23104865.28 -23104865.23 0.0500 0.0483  
 Moon -67968-02-21 17:30 J -23103836.93 -23103836.77 -23103836.60 0.0516 0.0375  
 Earth -67968-02-21 20:52 J -23103836.80 -23103836.63 -23103836.46 0.0516 0.0363 \*  
 Mercury -67966-12-25 02:23 J -23102800.53 -23102800.40 -23102800.28 0.0527 0.0074  
 Mercury -67965-03-23 07:40 J -23102711.26 -23102711.18 -23102711.10 0.0526 0.0400  
 Mercury -67960-11-17 14:23 J -23100646.05 -23100645.90 -23100645.75 0.0499 0.0293  
 Mercury -67959-02-16 02:23 J -23100555.54 -23100555.40 -23100555.26 0.0499 0.0331  
 Earth -67956-02-26 18:28 J -23099448.96 -23099448.73 -23099448.50 0.0517 0.0097  
 Moon -67956-02-26 19:40 J -23099448.90 -23099448.68 -23099448.45 0.0517 0.0067 \*  
 Venus -67955-01-17 22:33 J -23099123.73 -23099123.56 -23099123.39 0.0523 0.0291  
 Mars -67954-03-24 16:04 J -23098693.07 -23098692.83 -23098692.59 0.0527 0.0102

Mercury -67954-10-13 06:42 J -23098490.33 -23098490.22 -23098490.10 0.0527 0.0190

Mercury -67953-01-10 12:13 J -23098401.10 -23098400.99 -23098400.88 0.0526 0.0285

Moon -67951-08-16 12:28 J -23097452.02 -23097451.98 -23097451.92 0.0511 0.0499

Venus -67950-11-18 18:28 J -23096992.84 -23096992.73 -23096992.60 0.0502 0.0404

Mercury -67948-09-05 11:16 J -23096336.11 -23096336.03 -23096335.94 0.0499 0.0444

Mercury -67948-12-04 23:16 J -23096245.70 -23096245.53 -23096245.35 0.0499 0.0180

Earth -67944-03-03 19:40 J -23095060.90 -23095060.68 -23095060.45 0.0518 0.0181

Moon -67944-03-03 20:23 J -23095060.88 -23095060.65 -23095060.42 0.0518 0.0192 \*

Venus -67944-09-22 18:42 J -23094857.91 -23094857.72 -23094857.52 0.0522 0.0135

Mercury -67942-08-01 11:30 J -23094180.12 -23094180.02 -23094179.92 0.0527 0.0301

Mercury -67942-10-29 17:01 J -23094090.91 -23094090.79 -23094090.67 0.0526 0.0174

Moon -67939-08-20 20:23 J -23093064.84 -23093064.65 -23093064.45 0.0509 0.0242

Earth -67939-08-20 22:47 J -23093064.75 -23093064.55 -23093064.36 0.0509 0.0268 \*

Venus -67938-07-24 15:21 J -23092727.06 -23092726.86 -23092726.65 0.0503 0.0008

Mars -67936-01-23 04:33 J -23092178.49 -23092178.31 -23092178.12 0.0499 0.0400

Mercury -67936-09-22 18:57 J -23091935.90 -23091935.71 -23091935.52 0.0499 0.0015

Moon -67932-03-08 19:25 J -23090672.81 -23090672.69 -23090672.56 0.0520 0.0434

Earth -67932-03-08 22:04 J -23090672.69 -23090672.58 -23090672.48 0.0520 0.0462 \*

Mercury -67930-05-20 16:18 J -23089869.90 -23089869.82 -23089869.74 0.0527 0.0412

Mercury -67930-08-17 21:35 J -23089780.72 -23089780.60 -23089780.47 0.0526 0.0062

Earth -67927-08-25 11:45 J -23088677.24 -23088677.01 -23088676.78 0.0508 0.0020

Moon -67927-08-25 15:21 J -23088677.09 -23088676.86 -23088676.63 0.0508 0.0031 \*

Venus -67926-03-29 14:52 J -23088461.01 -23088460.88 -23088460.75 0.0504 0.0385

Mercury -67924-07-11 16:04 J -23087626.01 -23087625.83 -23087625.65 0.0499 0.0135

Mercury -67924-10-10 04:04 J -23087535.36 -23087535.33 -23087535.30 0.0500 0.0492

Mercury -67918-06-06 01:54 J -23085470.55 -23085470.42 -23085470.30 0.0526 0.0062

Mercury -67918-09-03 07:11 J -23085381.28 -23085381.20 -23085381.13 0.0526 0.0413

Moon -67915-08-29 20:52 J -23084289.84 -23084289.63 -23084289.41 0.0507 0.0197

Earth -67915-08-30 00:57 J -23084289.67 -23084289.46 -23084289.26 0.0507 0.0231 \*

Mercury -67912-04-29 13:25 J -23083316.10 -23083315.94 -23083315.79 0.0499 0.0283

Mercury -67912-07-29 01:25 J -23083225.58 -23083225.44 -23083225.31 0.0500 0.0344

Venus -67908-05-31 11:30 J -23081823.22 -23081823.02 -23081822.83 0.0522 0.0127

Mercury -67906-03-25 06:13 J -23081160.36 -23081160.24 -23081160.12 0.0526 0.0178

Mercury -67906-06-22 11:30 J -23081071.12 -23081071.02 -23081070.92 0.0526 0.0296

Earth -67903-09-03 15:35 J -23079901.92 -23079901.85 -23079901.78 0.0506 0.0481

Moon -67903-09-03 18:57 J -23079901.78 -23079901.71 -23079901.64 0.0506 0.0480 \*

Venus -67902-04-01 06:42 J -23079692.40 -23079692.22 -23079692.04 0.0503 0.0244

Mercury -67900-02-15 10:33 J -23079006.15 -23079006.06 -23079005.97 0.0499 0.0433

Mercury -67900-05-16 22:33 J -23078915.73 -23078915.56 -23078915.39 0.0499 0.0193

Venus -67896-02-03 05:30 J -23077557.43 -23077557.27 -23077557.11 0.0521 0.0309

Mercury -67894-01-11 10:33 J -23076850.16 -23076850.06 -23076849.95 0.0527 0.0294

Mercury -67894-04-10 16:04 J -23076760.95 -23076760.83 -23076760.72 0.0526 0.0182

Venus -67891-12-05 06:28 J -23075426.42 -23075426.23 -23075426.03 0.0504 0.0142

Mercury -67888-03-04 19:25 J -23074605.88 -23074605.69 -23074605.50 0.0499 0.0041

Earth -67885-02-22 07:11 J -23073521.35 -23073521.20 -23073521.03 0.0516 0.0376

Moon -67885-02-22 08:52 J -23073521.28 -23073521.13 -23073520.97 0.0516 0.0377 \*

Mercury -67883-10-30 15:21 J -23072539.94 -23072539.86 -23072539.78 0.0527 0.0404

Mercury -67882-01-27 20:52 J -23072450.76 -23072450.63 -23072450.51 0.0526 0.0072

Mercury -67877-12-21 14:52 J -23070296.06 -23070295.88 -23070295.70 0.0499 0.0126

Earth -67873-02-27 08:23 J -23069133.38 -23069133.15 -23069132.91 0.0517 0.0100

Moon -67873-02-27 08:52 J -23069133.37 -23069133.13 -23069132.88 0.0517 0.0067 \*

Venus -67872-02-06 05:01 J -23068788.41 -23068788.29 -23068788.15 0.0523 0.0396

Mercury -67871-08-18 20:09 J -23068229.68 -23068229.66 -23068229.64 0.0527 0.0515

Mercury -67871-11-16 01:25 J -23068140.56 -23068140.44 -23068140.31 0.0526 0.0045

Mercury -67870-02-13 06:57 J -23068051.28 -23068051.21 -23068051.14 0.0526 0.0432

Moon -67868-08-15 19:25 J -23067136.69 -23067136.69 -23067136.68 0.0510 0.0510

Venus -67867-12-07 18:28 J -23066657.80 -23066657.73 -23066657.66 0.0502 0.0469

Mercury -67865-10-09 11:59 J -23065986.15 -23065986.00 -23065985.84 0.0499 0.0276

Mercury -67864-01-07 23:59 J -23065895.63 -23065895.50 -23065895.36 0.0500 0.0352

Moon -67861-03-03 06:42 J -23064745.43 -23064745.22 -23064745.01 0.0518 0.0184

Earth -67861-03-03 08:52 J -23064745.35 -23064745.13 -23064744.91 0.0518 0.0179 \*  
 Venus -67861-10-11 23:59 J -23064522.70 -23064522.50 -23064522.30 0.0522 0.0040  
 Mercury -67859-09-04 05:45 J -23063830.38 -23063830.26 -23063830.14 0.0526 0.0163  
 Mercury -67859-12-02 11:01 J -23063741.14 -23063741.04 -23063740.94 0.0526 0.0311  
 Earth -67856-08-20 10:33 J -23062749.25 -23062749.06 -23062748.87 0.0509 0.0277  
 Moon -67856-08-20 14:09 J -23062749.11 -23062748.91 -23062748.71 0.0509 0.0254 \*  
 Venus -67855-08-12 18:13 J -23062391.94 -23062391.74 -23062391.53 0.0503 0.0084  
 Mercury -67853-07-28 09:21 J -23061676.20 -23061676.11 -23061676.01 0.0499 0.0424  
 Mercury -67853-10-26 21:21 J -23061585.78 -23061585.61 -23061585.43 0.0500 0.0204  
 Earth -67849-03-08 08:09 J -23060357.27 -23060357.16 -23060357.04 0.0519 0.0453  
 Moon -67849-03-08 11:59 J -23060357.14 -23060357.00 -23060356.87 0.0519 0.0421 \*  
 Venus -67849-06-16 18:13 J -23060256.82 -23060256.74 -23060256.65 0.0521 0.0472  
 Mercury -67847-06-23 10:04 J -23059520.19 -23059520.08 -23059519.98 0.0526 0.0280  
 Mercury -67847-09-20 15:21 J -23059430.98 -23059430.86 -23059430.74 0.0526 0.0194  
 Moon -67844-08-24 21:06 J -23058361.85 -23058361.62 -23058361.39 0.0509 0.0042  
 Earth -67844-08-25 00:57 J -23058361.69 -23058361.46 -23058361.23 0.0509 0.0025 \*  
 Venus -67843-04-17 18:28 J -23058125.89 -23058125.73 -23058125.56 0.0504 0.0301  
 Mercury -67841-08-14 18:28 J -23057275.91 -23057275.73 -23057275.54 0.0499 0.0054  
 Mars -67836-09-14 07:54 J -23055419.39 -23055419.17 -23055418.96 0.0527 0.0251  
 Mercury -67835-04-11 14:23 J -23055209.98 -23055209.90 -23055209.82 0.0527 0.0398  
 Mercury -67835-07-09 19:54 J -23055120.80 -23055120.67 -23055120.55 0.0526 0.0079  
 Earth -67832-08-29 15:35 J -23053974.06 -23053973.85 -23053973.64 0.0507 0.0228  
 Moon -67832-08-29 18:57 J -23053973.92 -23053973.71 -23053973.50 0.0507 0.0198 \*  
 Mercury -67829-06-02 15:35 J -23052966.04 -23052965.85 -23052965.67 0.0499 0.0100  
 Venus -67825-06-19 15:35 J -23051488.03 -23051487.85 -23051487.67 0.0523 0.0219  
 Mercury -67823-01-28 19:11 J -23050899.73 -23050899.70 -23050899.67 0.0527 0.0507  
 Mercury -67823-04-28 00:42 J -23050810.60 -23050810.47 -23050810.35 0.0526 0.0034  
 Mercury -67823-07-26 05:59 J -23050721.32 -23050721.25 -23050721.18 0.0526 0.0441  
 Moon -67820-09-02 23:45 J -23049586.60 -23049586.51 -23049586.43 0.0506 0.0471  
 Earth -67820-09-03 01:40 J -23049586.50 -23049586.43 -23049586.33 0.0506 0.0469 \*



Venus -67819-04-20 07:11 J -23049357.36 -23049357.20 -23049357.04 0.0502 0.0314  
 Mars -67818-07-12 22:33 J -23048908.87 -23048908.56 -23048908.25 0.0499 0.0045  
 Mercury -67817-03-21 10:47 J -23048656.20 -23048656.05 -23048655.89 0.0499 0.0268  
 Mercury -67817-06-19 22:47 J -23048565.67 -23048565.55 -23048565.42 0.0500 0.0361  
 Venus -67813-02-23 11:30 J -23047222.20 -23047222.02 -23047221.83 0.0522 0.0209  
 Mercury -67811-02-14 05:16 J -23046500.40 -23046500.28 -23046500.15 0.0526 0.0146  
 Mercury -67811-05-14 10:47 J -23046411.15 -23046411.05 -23046410.96 0.0526 0.0329  
 Venus -67808-12-24 06:42 J -23045091.42 -23045091.22 -23045091.02 0.0503 0.0073  
 Mercury -67805-01-08 07:54 J -23044346.27 -23044346.17 -23044346.07 0.0499 0.0418  
 Mercury -67805-04-07 19:54 J -23044255.84 -23044255.67 -23044255.50 0.0500 0.0209  
 Earth -67802-02-21 19:11 J -23043205.85 -23043205.70 -23043205.54 0.0516 0.0381  
 Moon -67802-02-21 19:25 J -23043205.85 -23043205.69 -23043205.51 0.0516 0.0373 \*  
 Mars -67800-06-18 19:40 J -23042357.86 -23042357.68 -23042357.51 0.0527 0.0368  
 Mercury -67800-12-03 09:35 J -23042190.21 -23042190.10 -23042189.99 0.0526 0.0266  
 Mercury -67799-03-02 14:52 J -23042101.00 -23042100.88 -23042100.76 0.0526 0.0208  
 Venus -67796-08-29 06:28 J -23040825.31 -23040825.23 -23040825.15 0.0505 0.0461  
 Mercury -67793-01-25 17:16 J -23039945.96 -23039945.78 -23039945.59 0.0499 0.0061  
 Moon -67790-02-26 16:47 J -23038818.02 -23038817.80 -23038817.57 0.0517 0.0078  
 Earth -67790-02-26 18:57 J -23038817.95 -23038817.71 -23038817.48 0.0517 0.0109 \*  
 Venus -67789-02-26 07:54 J -23038453.24 -23038453.17 -23038453.08 0.0523 0.0478  
 Mercury -67788-09-21 13:40 J -23037880.01 -23037879.93 -23037879.84 0.0526 0.0385  
 Mercury -67788-12-19 19:11 J -23037790.83 -23037790.70 -23037790.58 0.0526 0.0090  
 Moon -67785-08-15 13:11 J -23036820.96 -23036820.95 -23036820.93 0.0511 0.0508  
 Mercury -67782-11-13 14:23 J -23035636.08 -23035635.90 -23035635.71 0.0499 0.0090  
 Earth -67778-03-03 16:33 J -23034430.03 -23034429.81 -23034429.58 0.0518 0.0162  
 Moon -67778-03-03 20:09 J -23034429.89 -23034429.66 -23034429.43 0.0518 0.0156 \*  
 Venus -67778-11-01 01:54 J -23034187.62 -23034187.42 -23034187.22 0.0522 0.0041  
 Mercury -67776-07-10 17:59 J -23033569.78 -23033569.75 -23033569.71 0.0527 0.0503  
 Mercury -67776-10-07 23:30 J -23033480.65 -23033480.52 -23033480.39 0.0526 0.0028  
 Mercury -67775-01-05 04:47 J -23033391.36 -23033391.30 -23033391.23 0.0526 0.0446

Moon -67773-08-19 20:23 J -23032433.84 -23032433.65 -23032433.45 0.0510 0.0264  
 Earth -67773-08-20 00:13 J -23032433.67 -23032433.49 -23032433.29 0.0510 0.0284 \*  
 Venus -67772-08-31 21:49 J -23032056.78 -23032056.59 -23032056.40 0.0503 0.0168  
 Mercury -67770-09-01 11:16 J -23031326.19 -23031326.03 -23031325.87 0.0499 0.0243  
 Mercury -67770-11-30 23:16 J -23031235.65 -23031235.53 -23031235.41 0.0499 0.0384  
 Moon -67766-03-08 13:40 J -23030042.07 -23030041.93 -23030041.78 0.0519 0.0407  
 Earth -67766-03-08 17:16 J -23030041.89 -23030041.78 -23030041.65 0.0519 0.0441 \*  
 Venus -67766-07-06 21:21 J -23029921.74 -23029921.61 -23029921.47 0.0521 0.0387  
 Mercury -67764-07-27 04:18 J -23029170.44 -23029170.32 -23029170.20 0.0527 0.0138  
 Mercury -67764-10-24 09:35 J -23029081.19 -23029081.10 -23029081.00 0.0526 0.0337  
 Earth -67761-08-24 11:59 J -23028046.23 -23028046.00 -23028045.77 0.0508 0.0035  
 Moon -67761-08-24 15:21 J -23028046.09 -23028045.86 -23028045.64 0.0508 0.0056 \*  
 Venus -67760-05-06 19:25 J -23027790.87 -23027790.69 -23027790.51 0.0504 0.0230  
 Mercury -67758-06-20 06:28 J -23027016.33 -23027016.23 -23027016.12 0.0499 0.0412  
 Mercury -67758-09-18 18:28 J -23026925.89 -23026925.73 -23026925.56 0.0499 0.0216  
 Mercury -67752-05-15 09:06 J -23024860.23 -23024860.12 -23024860.01 0.0527 0.0251  
 Mercury -67752-08-12 14:23 J -23024771.01 -23024770.90 -23024770.79 0.0526 0.0224  
 Moon -67749-08-28 22:33 J -23023658.78 -23023658.56 -23023658.34 0.0507 0.0186  
 Earth -67749-08-29 00:42 J -23023658.68 -23023658.47 -23023658.26 0.0507 0.0213 \*  
 Mercury -67746-07-07 15:35 J -23022616.04 -23022615.85 -23022615.67 0.0499 0.0064  
 Venus -67742-07-09 19:25 J -23021152.85 -23021152.69 -23021152.53 0.0523 0.0305  
 Mercury -67740-03-03 13:11 J -23020550.04 -23020549.95 -23020549.86 0.0526 0.0372  
 Mercury -67740-05-31 18:28 J -23020460.85 -23020460.73 -23020460.60 0.0526 0.0102  
 Earth -67737-09-02 12:13 J -23019271.07 -23019270.99 -23019270.88 0.0506 0.0459  
 Moon -67737-09-02 12:28 J -23019271.06 -23019270.98 -23019270.91 0.0506 0.0476 \*  
 Venus -67736-05-09 08:52 J -23019022.25 -23019022.13 -23019021.99 0.0502 0.0389  
 Mercury -67734-04-25 12:42 J -23018306.15 -23018305.97 -23018305.78 0.0499 0.0087  
 Venus -67730-03-14 13:54 J -23016887.12 -23016886.92 -23016886.73 0.0522 0.0129  
 Mercury -67729-12-20 17:16 J -23016239.82 -23016239.78 -23016239.73 0.0526 0.0492  
 Mercury -67728-03-19 22:47 J -23016150.68 -23016150.55 -23016150.42 0.0526 0.0018

Mercury -67728-06-17 04:04 J -23016061.39 -23016061.33 -23016061.27 0.0526 0.0455  
 Venus -67724-01-12 09:06 J -23014756.33 -23014756.12 -23014755.92 0.0504 0.0009  
 Mercury -67722-02-11 09:49 J -23013996.25 -23013996.09 -23013995.93 0.0499 0.0237  
 Mercury -67722-05-12 21:49 J -23013905.70 -23013905.59 -23013905.47 0.0500 0.0391  
 Moon -67719-02-20 23:59 J -23012890.64 -23012890.50 -23012890.35 0.0515 0.0392  
 Earth -67719-02-21 01:40 J -23012890.57 -23012890.43 -23012890.28 0.0515 0.0402 \*  
 Mercury -67716-01-06 03:06 J -23011840.50 -23011840.37 -23011840.25 0.0527 0.0138  
 Mercury -67716-04-05 08:23 J -23011751.25 -23011751.15 -23011751.05 0.0526 0.0338  
 Venus -67713-09-17 08:52 J -23010490.26 -23010490.13 -23010489.99 0.0504 0.0382  
 Mercury -67711-11-30 06:28 J -23009686.34 -23009686.23 -23009686.11 0.0499 0.0391  
 Mercury -67710-02-28 18:28 J -23009595.89 -23009595.73 -23009595.56 0.0499 0.0237  
 Earth -67707-02-26 01:25 J -23008502.67 -23008502.44 -23008502.21 0.0517 0.0129  
 Moon -67707-02-26 04:47 J -23008502.54 -23008502.30 -23008502.06 0.0517 0.0098 \*  
 Mercury -67705-10-25 07:40 J -23007530.29 -23007530.18 -23007530.06 0.0527 0.0249  
 Mercury -67704-01-22 13:11 J -23007441.06 -23007440.95 -23007440.84 0.0526 0.0228  
 Mars -67700-12-29 11:30 J -23005639.04 -23005639.02 -23005638.98 0.0499 0.0496  
 Mercury -67699-12-17 13:54 J -23005286.11 -23005285.92 -23005285.74 0.0499 0.0067  
 Moon -67695-03-02 20:52 J -23004114.86 -23004114.63 -23004114.40 0.0518 0.0134  
 Earth -67695-03-03 00:42 J -23004114.70 -23004114.47 -23004114.24 0.0518 0.0149 \*  
 Venus -67695-11-20 05:16 J -23003852.47 -23003852.28 -23003852.08 0.0523 0.0127  
 Mercury -67693-08-13 12:28 J -23003220.07 -23003219.98 -23003219.89 0.0527 0.0361  
 Mercury -67693-11-10 17:45 J -23003130.88 -23003130.76 -23003130.63 0.0526 0.0115  
 Earth -67690-08-20 09:06 J -23002118.30 -23002118.12 -23002117.93 0.0509 0.0299  
 Moon -67690-08-20 12:28 J -23002118.17 -23002117.98 -23002117.79 0.0509 0.0283 \*  
 Venus -67689-09-19 20:52 J -23001721.81 -23001721.63 -23001721.45 0.0502 0.0228  
 Mercury -67687-10-05 10:33 J -23000976.24 -23000976.06 -23000975.87 0.0499 0.0088  
 Earth -67683-03-08 00:42 J -22999726.59 -22999726.47 -22999726.33 0.0519 0.0430  
 Moon -67683-03-08 03:49 J -22999726.48 -22999726.34 -22999726.19 0.0519 0.0401 \*  
 Venus -67683-07-25 23:45 J -22999586.67 -22999586.51 -22999586.34 0.0522 0.0308  
 Mars -67682-12-10 05:16 J -22999084.53 -22999084.28 -22999084.03 0.0527 0.0005

Mercury -67681-06-01 16:33 J -22998909.86 -22998909.81 -22998909.76 0.0527 0.0484

Mercury -67681-08-29 21:49 J -22998820.71 -22998820.59 -22998820.46 0.0526 0.0015

Mercury -67681-11-27 03:06 J -22998731.42 -22998731.37 -22998731.31 0.0525 0.0465

Moon -67678-08-24 18:13 J -22997730.98 -22997730.74 -22997730.51 0.0508 0.0074

Earth -67678-08-24 20:23 J -22997730.88 -22997730.65 -22997730.42 0.0508 0.0052 \*

Venus -67677-05-25 19:54 J -22997455.86 -22997455.67 -22997455.48 0.0504 0.0162

Mercury -67675-07-24 07:40 J -22996666.34 -22996666.18 -22996666.01 0.0499 0.0238

Mercury -67675-10-22 19:54 J -22996575.79 -22996575.67 -22996575.56 0.0500 0.0392

Mercury -67669-06-18 02:09 J -22994510.53 -22994510.41 -22994510.29 0.0526 0.0130

Mercury -67669-09-15 07:25 J -22994421.28 -22994421.19 -22994421.10 0.0526 0.0345

Earth -67666-08-29 08:52 J -22993343.34 -22993343.13 -22993342.92 0.0507 0.0198

Moon -67666-08-29 08:37 J -22993343.34 -22993343.14 -22993342.93 0.0507 0.0182 \*

Mars -67664-10-06 19:25 J -22992573.96 -22992573.69 -22992573.42 0.0499 0.0234

Mercury -67663-05-12 04:47 J -22992356.42 -22992356.30 -22992356.19 0.0499 0.0390

Mercury -67663-08-10 16:47 J -22992265.96 -22992265.80 -22992265.64 0.0499 0.0239

Venus -67659-07-28 18:57 J -22990817.85 -22990817.71 -22990817.57 0.0523 0.0372

Mercury -67657-04-06 06:13 J -22990200.35 -22990200.24 -22990200.13 0.0527 0.0251

Mercury -67657-07-04 11:30 J -22990111.13 -22990111.02 -22990110.90 0.0526 0.0226

Earth -67654-09-02 22:18 J -22988955.68 -22988955.57 -22988955.47 0.0506 0.0446

Moon -67654-09-03 00:28 J -22988955.57 -22988955.48 -22988955.40 0.0506 0.0470 \*

Venus -67653-05-28 10:18 J -22988687.15 -22988687.07 -22988686.99 0.0502 0.0460

Mercury -67651-05-29 13:25 J -22987956.13 -22987955.94 -22987955.76 0.0499 0.0083

Venus -67647-04-02 13:54 J -22986552.12 -22986551.92 -22986551.72 0.0522 0.0059

Mercury -67645-01-24 10:47 J -22985890.13 -22985890.05 -22985889.95 0.0527 0.0364

Mercury -67645-04-22 16:18 J -22985800.94 -22985800.82 -22985800.70 0.0526 0.0113

Venus -67641-02-01 08:23 J -22984421.36 -22984421.15 -22984420.95 0.0503 0.0065

Mercury -67639-03-17 08:37 J -22983646.33 -22983646.14 -22983645.96 0.0499 0.0089

Earth -67636-02-20 05:01 J -22982575.42 -22982575.29 -22982575.15 0.0516 0.0426

Moon -67636-02-20 08:09 J -22982575.31 -22982575.16 -22982575.01 0.0516 0.0408 \*

Venus -67636-12-06 07:54 J -22982286.22 -22982286.17 -22982286.10 0.0522 0.0495

Mercury -67634-11-12 15:21 J -22981579.90 -22981579.86 -22981579.80 0.0527 0.0478  
 Mercury -67633-02-09 20:52 J -22981490.75 -22981490.63 -22981490.50 0.0526 0.0009  
 Mercury -67633-05-09 02:09 J -22981401.46 -22981401.41 -22981401.35 0.0526 0.0474  
 Venus -67630-10-07 07:25 J -22980155.34 -22980155.19 -22980155.03 0.0504 0.0324  
 Mercury -67627-01-03 05:01 J -22979336.45 -22979336.29 -22979336.12 0.0499 0.0244  
 Mercury -67627-04-03 17:16 J -22979245.90 -22979245.78 -22979245.66 0.0500 0.0385  
 Moon -67624-02-25 01:25 J -22978187.67 -22978187.44 -22978187.21 0.0517 0.0124  
 Earth -67624-02-25 05:16 J -22978187.51 -22978187.28 -22978187.05 0.0517 0.0150 \*  
 Mercury -67622-11-29 00:57 J -22977180.58 -22977180.46 -22977180.34 0.0526 0.0125  
 Mercury -67621-02-26 06:13 J -22977091.33 -22977091.24 -22977091.14 0.0526 0.0350  
 Mercury -67616-10-22 02:09 J -22975026.52 -22975026.41 -22975026.29 0.0499 0.0396  
 Mercury -67615-01-20 14:23 J -22974936.07 -22974935.90 -22974935.74 0.0500 0.0234  
 Earth -67612-03-02 04:47 J -22973799.53 -22973799.30 -22973799.07 0.0518 0.0127  
 Moon -67612-03-02 08:09 J -22973799.39 -22973799.16 -22973798.94 0.0518 0.0106 \*  
 Venus -67612-12-09 04:47 J -22973517.49 -22973517.30 -22973517.11 0.0523 0.0191  
 Mercury -67610-09-17 05:01 J -22972870.40 -22972870.29 -22972870.18 0.0526 0.0247  
 Mercury -67610-12-15 10:18 J -22972781.18 -22972781.07 -22972780.95 0.0526 0.0229  
 Moon -67607-08-19 11:45 J -22971803.19 -22971803.01 -22971802.82 0.0510 0.0312  
 Earth -67607-08-19 13:54 J -22971803.09 -22971802.92 -22971802.74 0.0510 0.0325 \*  
 Venus -67606-10-09 19:54 J -22971386.84 -22971386.67 -22971386.50 0.0503 0.0288  
 Mercury -67604-11-08 11:01 J -22970626.22 -22970626.04 -22970625.85 0.0499 0.0080  
 Moon -67600-03-06 23:45 J -22969411.68 -22969411.51 -22969411.34 0.0519 0.0367  
 Earth -67600-03-07 01:54 J -22969411.57 -22969411.42 -22969411.27 0.0519 0.0397 \*  
 Venus -67600-08-13 21:49 J -22969251.77 -22969251.59 -22969251.41 0.0522 0.0250  
 Mercury -67598-07-06 09:06 J -22968560.21 -22968560.12 -22968560.03 0.0527 0.0370  
 Mercury -67598-10-03 14:23 J -22968471.02 -22968470.90 -22968470.77 0.0526 0.0109  
 Earth -67595-08-24 03:06 J -22967415.59 -22967415.37 -22967415.14 0.0509 0.0073  
 Moon -67595-08-24 03:06 J -22967415.58 -22967415.37 -22967415.15 0.0509 0.0100 \*  
 Venus -67594-06-14 19:25 J -22967120.89 -22967120.69 -22967120.49 0.0504 0.0098  
 Mercury -67592-08-27 07:25 J -22966316.37 -22966316.19 -22966316.00 0.0499 0.0079

Mercury -67586-04-24 13:40 J -22964249.98 -22964249.93 -22964249.88 0.0527 0.0484  
 Mercury -67586-07-22 19:11 J -22964160.83 -22964160.70 -22964160.58 0.0527 0.0010  
 Mercury -67586-10-20 00:28 J -22964071.53 -22964071.48 -22964071.42 0.0526 0.0468  
 Earth -67583-08-28 15:35 J -22963028.07 -22963027.85 -22963027.64 0.0507 0.0179  
 Moon -67583-08-28 17:30 J -22963027.99 -22963027.77 -22963027.54 0.0507 0.0171 \*  
 Venus -67582-02-17 18:13 J -22962854.78 -22962854.74 -22962854.69 0.0504 0.0490  
 Mercury -67580-06-15 02:37 J -22962006.55 -22962006.39 -22962006.22 0.0499 0.0249  
 Mercury -67580-09-13 14:37 J -22961916.00 -22961915.89 -22961915.76 0.0499 0.0380  
 Venus -67576-08-16 17:59 J -22960482.85 -22960482.75 -22960482.63 0.0524 0.0435  
 Mercury -67574-05-10 23:45 J -22959850.64 -22959850.51 -22959850.39 0.0527 0.0124  
 Mercury -67574-08-08 05:01 J -22959761.38 -22959761.29 -22959761.20 0.0526 0.0353  
 Moon -67571-09-01 23:59 J -22958640.60 -22958640.50 -22958640.40 0.0506 0.0452  
 Earth -67571-09-02 03:06 J -22958640.49 -22958640.37 -22958640.24 0.0506 0.0424 \*  
 Mercury -67568-04-02 23:16 J -22957696.63 -22957696.53 -22957696.42 0.0499 0.0405  
 Mercury -67568-07-02 11:16 J -22957606.20 -22957606.03 -22957605.86 0.0499 0.0224  
 Venus -67564-04-21 12:28 J -22956217.19 -22956216.98 -22956216.78 0.0523 0.0011  
 Mars -67563-05-31 22:18 J -22955811.73 -22955811.57 -22955811.42 0.0527 0.0407  
 Mercury -67562-02-27 03:35 J -22955540.46 -22955540.35 -22955540.24 0.0527 0.0248  
 Mercury -67562-05-27 09:06 J -22955451.24 -22955451.12 -22955451.01 0.0526 0.0229  
 Venus -67558-02-20 05:30 J -22954086.47 -22954086.27 -22954086.07 0.0503 0.0116  
 Mercury -67556-04-20 08:09 J -22953296.34 -22953296.16 -22953295.97 0.0499 0.0070  
 Moon -67553-02-20 03:49 J -22952260.46 -22952260.34 -22952260.21 0.0515 0.0434  
 Earth -67553-02-20 07:25 J -22952260.29 -22952260.19 -22952260.07 0.0515 0.0454 \*  
 Venus -67553-12-25 06:13 J -22951951.34 -22951951.24 -22951951.12 0.0521 0.0435  
 Mercury -67551-12-16 07:40 J -22951230.26 -22951230.18 -22951230.09 0.0526 0.0370  
 Mercury -67550-03-15 13:11 J -22951141.08 -22951140.95 -22951140.83 0.0526 0.0107  
 Venus -67547-10-26 04:33 J -22949820.48 -22949820.31 -22949820.14 0.0504 0.0273  
 Mars -67545-03-24 09:21 J -22949305.36 -22949305.11 -22949304.85 0.0499 0.0268  
 Mercury -67544-02-06 04:47 J -22948986.48 -22948986.30 -22948986.11 0.0499 0.0086  
 Earth -67541-02-25 04:04 J -22947872.55 -22947872.33 -22947872.11 0.0516 0.0187

Moon -67541-02-25 07:40 J -22947872.40 -22947872.18 -22947871.96 0.0516 0.0165 \*  
 Mercury -67539-10-04 11:45 J -22946920.05 -22946920.01 -22946919.97 0.0527 0.0494  
 Mercury -67538-01-01 17:01 J -22946830.91 -22946830.79 -22946830.66 0.0526 0.0023  
 Mercury -67538-03-31 22:33 J -22946741.62 -22946741.56 -22946741.50 0.0526 0.0458  
 Mercury -67533-11-25 01:11 J -22944676.61 -22944676.45 -22944676.28 0.0499 0.0244  
 Mercury -67532-02-23 13:11 J -22944586.06 -22944585.95 -22944585.83 0.0499 0.0386  
 Moon -67529-02-29 23:45 J -22943484.75 -22943484.51 -22943484.27 0.0517 0.0063  
 Earth -67529-03-01 02:23 J -22943484.64 -22943484.40 -22943484.17 0.0517 0.0086 \*  
 Venus -67529-12-28 01:11 J -22943182.63 -22943182.45 -22943182.27 0.0523 0.0241  
 Mars -67527-03-04 22:04 J -22942750.81 -22942750.58 -22942750.34 0.0527 0.0169  
 Mercury -67527-10-20 21:35 J -22942520.72 -22942520.60 -22942520.48 0.0527 0.0133  
 Mercury -67526-01-18 02:52 J -22942431.47 -22942431.38 -22942431.28 0.0526 0.0344  
 Earth -67524-08-18 19:11 J -22941487.86 -22941487.70 -22941487.53 0.0510 0.0348  
 Moon -67524-08-18 19:25 J -22941487.85 -22941487.69 -22941487.53 0.0510 0.0346 \*  
 Venus -67523-10-28 17:01 J -22941051.94 -22941051.79 -22941051.64 0.0502 0.0338  
 Mercury -67521-09-12 20:37 J -22940366.74 -22940366.64 -22940366.54 0.0498 0.0413  
 Mercury -67521-12-12 08:23 J -22940276.31 -22940276.15 -22940275.98 0.0499 0.0215  
 Earth -67517-03-05 22:47 J -22939096.71 -22939096.55 -22939096.37 0.0519 0.0360  
 Moon -67517-03-05 23:45 J -22939096.68 -22939096.51 -22939096.34 0.0519 0.0335 \*  
 Venus -67517-09-01 18:28 J -22938916.92 -22938916.73 -22938916.55 0.0522 0.0200  
 Mercury -67515-08-09 02:09 J -22938210.52 -22938210.41 -22938210.30 0.0527 0.0251  
 Mercury -67515-11-06 07:25 J -22938121.30 -22938121.19 -22938121.08 0.0526 0.0227  
 Earth -67512-08-23 07:11 J -22937100.42 -22937100.20 -22937099.97 0.0508 0.0098  
 Moon -67512-08-23 09:06 J -22937100.35 -22937100.12 -22937099.89 0.0508 0.0127 \*  
 Venus -67511-07-03 16:04 J -22936786.03 -22936785.83 -22936785.63 0.0503 0.0050  
 Mars -67510-12-30 23:01 J -22936240.70 -22936240.54 -22936240.37 0.0498 0.0420  
 Mercury -67509-09-30 05:01 J -22935966.48 -22935966.29 -22935966.11 0.0499 0.0058  
 Mercury -67503-05-28 05:59 J -22933900.34 -22933900.25 -22933900.16 0.0527 0.0375  
 Mercury -67503-08-25 11:30 J -22933811.15 -22933811.02 -22933810.90 0.0526 0.0103  
 Moon -67500-08-27 12:42 J -22932713.19 -22932712.97 -22932712.75 0.0508 0.0137

Earth -67500-08-27 15:49 J -22932713.06 -22932712.84 -22932712.61 0.0508 0.0145 \*  
 Venus -67499-03-08 13:54 J -22932520.02 -22932519.92 -22932519.83 0.0504 0.0447  
 Mercury -67497-07-19 01:40 J -22931656.61 -22931656.43 -22931656.25 0.0499 0.0099  
 Venus -67493-09-04 14:52 J -22930147.95 -22930147.88 -22930147.81 0.0523 0.0485  
 Mercury -67491-03-16 10:04 J -22929590.12 -22929590.08 -22929590.04 0.0527 0.0497  
 Mercury -67491-06-13 15:35 J -22929500.98 -22929500.85 -22929500.73 0.0526 0.0025  
 Mercury -67491-09-10 20:52 J -22929411.69 -22929411.63 -22929411.57 0.0526 0.0454  
 Earth -67488-09-01 02:37 J -22928325.53 -22928325.39 -22928325.24 0.0507 0.0390  
 Moon -67488-09-01 06:28 J -22928325.35 -22928325.23 -22928325.09 0.0507 0.0420 \*  
 Mercury -67485-05-06 22:18 J -22927346.73 -22927346.57 -22927346.41 0.0499 0.0255  
 Mercury -67485-08-05 10:04 J -22927256.19 -22927256.08 -22927255.95 0.0499 0.0376  
 Venus -67481-05-10 07:25 J -22925882.39 -22925882.19 -22925881.99 0.0522 0.0043  
 Mercury -67479-04-01 19:25 J -22925190.81 -22925190.69 -22925190.57 0.0527 0.0146  
 Mercury -67479-06-30 00:42 J -22925101.56 -22925101.47 -22925101.37 0.0526 0.0331  
 Venus -67475-03-11 02:09 J -22923751.60 -22923751.41 -22923751.22 0.0503 0.0166  
 Mercury -67473-02-23 18:28 J -22923036.83 -22923036.73 -22923036.62 0.0499 0.0414  
 Mercury -67473-05-24 06:28 J -22922946.39 -22922946.23 -22922946.06 0.0499 0.0216  
 Earth -67470-02-19 02:52 J -22921945.43 -22921945.38 -22921945.33 0.0515 0.0500  
 Moon -67470-02-19 06:28 J -22921945.31 -22921945.23 -22921945.13 0.0515 0.0473  
 Venus -67469-01-14 00:57 J -22921616.59 -22921616.46 -22921616.32 0.0521 0.0393  
 Mercury -67467-01-18 23:45 J -22920880.62 -22920880.51 -22920880.40 0.0527 0.0264  
 Mercury -67467-04-18 05:16 J -22920791.40 -22920791.28 -22920791.17 0.0526 0.0215  
 Venus -67464-11-14 01:11 J -22919485.63 -22919485.45 -22919485.26 0.0503 0.0224  
 Mercury -67461-03-12 01:54 J -22918636.60 -22918636.42 -22918636.23 0.0499 0.0047  
 Moon -67458-02-23 18:57 J -22917557.92 -22917557.71 -22917557.48 0.0516 0.0213  
 Earth -67458-02-23 22:04 J -22917557.78 -22917557.58 -22917557.36 0.0516 0.0234 \*  
 Mercury -67456-11-07 04:04 J -22916570.41 -22916570.33 -22916570.24 0.0527 0.0383  
 Mercury -67455-02-04 09:35 J -22916481.22 -22916481.10 -22916480.97 0.0527 0.0097  
 Mercury -67450-12-29 22:18 J -22914326.75 -22914326.57 -22914326.38 0.0499 0.0112  
 Earth -67446-02-28 21:49 J -22913169.82 -22913169.59 -22913169.35 0.0518 0.0045



Moon -67446-02-28 23:16 J -22913169.76 -22913169.53 -22913169.30 0.0518 0.0023 \*  
 Venus -67445-01-16 20:37 J -22912847.80 -22912847.64 -22912847.47 0.0523 0.0284  
 Mercury -67444-08-26 08:09 J -22912260.19 -22912260.16 -22912260.13 0.0527 0.0506  
 Mercury -67444-11-23 13:40 J -22912171.06 -22912170.93 -22912170.81 0.0526 0.0030  
 Mercury -67443-02-20 18:57 J -22912081.77 -22912081.71 -22912081.64 0.0526 0.0447  
 Earth -67441-08-17 17:16 J -22911172.92 -22911172.78 -22911172.63 0.0510 0.0391  
 Moon -67441-08-17 18:42 J -22911172.86 -22911172.72 -22911172.56 0.0510 0.0396 \*  
 Venus -67440-11-16 11:30 J -22910717.15 -22910717.02 -22910716.88 0.0502 0.0377  
 Mercury -67438-10-17 18:57 J -22910016.87 -22910016.71 -22910016.56 0.0499 0.0270  
 Mercury -67437-01-16 06:57 J -22909926.34 -22909926.21 -22909926.08 0.0499 0.0361  
 Earth -67434-03-05 21:49 J -22908781.77 -22908781.59 -22908781.40 0.0518 0.0324  
 Moon -67434-03-05 22:47 J -22908781.75 -22908781.55 -22908781.35 0.0518 0.0303 \*  
 Venus -67434-09-21 14:52 J -22908582.07 -22908581.88 -22908581.68 0.0522 0.0149  
 Mercury -67432-09-11 17:45 J -22907860.88 -22907860.76 -22907860.64 0.0526 0.0151  
 Mercury -67432-12-09 23:01 J -22907771.64 -22907771.54 -22907771.44 0.0526 0.0326  
 Moon -67429-08-22 01:11 J -22906785.66 -22906785.45 -22906785.24 0.0509 0.0176  
 Earth -67429-08-22 04:18 J -22906785.54 -22906785.32 -22906785.10 0.0509 0.0143 \*  
 Venus -67428-07-22 10:18 J -22906451.28 -22906451.07 -22906450.87 0.0503 0.0014  
 Mercury -67426-08-05 15:21 J -22905706.95 -22905706.86 -22905706.76 0.0499 0.0427  
 Mercury -67426-11-04 03:21 J -22905616.53 -22905616.36 -22905616.18 0.0499 0.0204  
 Mercury -67420-06-30 21:35 J -22903550.71 -22903550.60 -22903550.49 0.0527 0.0277  
 Mercury -67420-09-28 02:52 J -22903461.49 -22903461.38 -22903461.26 0.0526 0.0202  
 Earth -67417-08-26 16:04 J -22902398.05 -22902397.83 -22902397.60 0.0508 0.0108  
 Moon -67417-08-26 19:54 J -22902397.89 -22902397.67 -22902397.44 0.0508 0.0105 \*  
 Venus -67416-03-27 09:21 J -22902185.23 -22902185.11 -22902184.98 0.0504 0.0401  
 Mercury -67414-08-22 23:45 J -22901306.70 -22901306.51 -22901306.32 0.0499 0.0044  
 Venus -67410-09-24 08:37 J -22899813.14 -22899813.14 -22899813.12 0.0523 0.0523  
 Mars -67409-08-24 00:13 J -22899478.70 -22899478.49 -22899478.28 0.0527 0.0278  
 Mercury -67408-04-19 01:54 J -22899240.50 -22899240.42 -22899240.34 0.0527 0.0396  
 Mercury -67408-07-17 07:25 J -22899151.32 -22899151.19 -22899151.07 0.0527 0.0084

Moon -67405-08-31 01:40 J -22898010.58 -22898010.43 -22898010.28 0.0507 0.0390  
 Earth -67405-08-31 05:16 J -22898010.43 -22898010.28 -22898010.11 0.0507 0.0362 \*  
 Mercury -67402-06-10 19:25 J -22896996.87 -22896996.69 -22896996.51 0.0498 0.0123  
 Venus -67398-05-30 01:40 J -22895547.63 -22895547.43 -22895547.23 0.0523 0.0081  
 Mercury -67396-02-05 06:13 J -22894930.26 -22894930.24 -22894930.22 0.0527 0.0516  
 Mercury -67396-05-05 11:45 J -22894841.14 -22894841.01 -22894840.89 0.0527 0.0037  
 Mercury -67396-08-02 17:01 J -22894751.85 -22894751.79 -22894751.72 0.0526 0.0441  
 Venus -67392-03-29 22:04 J -22893416.77 -22893416.58 -22893416.40 0.0502 0.0210  
 Mars -67391-06-17 04:33 J -22892972.61 -22892972.31 -22892972.01 0.0498 0.0099  
 Mercury -67390-03-29 15:49 J -22892687.00 -22892686.84 -22892686.69 0.0498 0.0281  
 Mercury -67390-06-28 03:35 J -22892596.48 -22892596.35 -22892596.21 0.0499 0.0348  
 Venus -67386-02-01 20:09 J -22891281.81 -22891281.66 -22891281.51 0.0522 0.0352  
 Mercury -67384-02-21 15:49 J -22890530.96 -22890530.84 -22890530.72 0.0527 0.0161  
 Mercury -67384-05-21 21:06 J -22890441.72 -22890441.62 -22890441.52 0.0526 0.0317  
 Venus -67381-12-02 18:57 J -22889150.90 -22889150.71 -22889150.52 0.0504 0.0189  
 Mercury -67378-01-15 11:59 J -22888377.08 -22888377.00 -22888376.91 0.0499 0.0441  
 Mercury -67378-04-15 23:59 J -22888286.67 -22888286.50 -22888286.32 0.0499 0.0189  
 Earth -67375-02-22 21:35 J -22887242.79 -22887242.60 -22887242.39 0.0516 0.0271  
 Moon -67375-02-22 23:45 J -22887242.71 -22887242.51 -22887242.31 0.0516 0.0252 \*  
 Mars -67373-05-28 01:54 J -22886417.62 -22886417.42 -22886417.22 0.0527 0.0313  
 Mercury -67373-12-10 19:54 J -22886220.78 -22886220.67 -22886220.56 0.0527 0.0282  
 Mercury -67372-03-10 01:11 J -22886131.56 -22886131.45 -22886131.33 0.0526 0.0196  
 Mercury -67366-02-01 20:37 J -22883976.83 -22883976.64 -22883976.45 0.0499 0.0032  
 Moon -67363-02-27 18:42 J -22882854.96 -22882854.72 -22882854.47 0.0517 0.0023  
 Earth -67363-02-27 18:57 J -22882854.95 -22882854.71 -22882854.48 0.0517 0.0010 \*  
 Venus -67362-02-04 15:35 J -22882513.01 -22882512.85 -22882512.69 0.0523 0.0326  
 Mercury -67361-09-28 23:45 J -22881910.59 -22881910.51 -22881910.43 0.0527 0.0408  
 Mercury -67361-12-27 05:16 J -22881821.41 -22881821.28 -22881821.16 0.0526 0.0072  
 Moon -67358-08-17 13:40 J -22880858.03 -22880857.93 -22880857.82 0.0511 0.0445  
 Earth -67358-08-17 16:33 J -22880857.92 -22880857.81 -22880857.68 0.0511 0.0433 \*

Venus -67357-12-05 07:11 J -22880382.31 -22880382.20 -22880382.09 0.0502 0.0422  
 Mercury -67355-11-20 17:01 J -22879666.97 -22879666.79 -22879666.61 0.0499 0.0127  
 Moon -67351-03-04 13:40 J -22878467.13 -22878466.93 -22878466.73 0.0518 0.0260  
 Earth -67351-03-04 16:04 J -22878467.03 -22878466.83 -22878466.63 0.0518 0.0275 \*  
 Venus -67351-10-10 08:52 J -22878247.33 -22878247.13 -22878246.93 0.0522 0.0111  
 Mercury -67349-10-15 09:35 J -22877511.23 -22877511.10 -22877510.98 0.0527 0.0052  
 Mercury -67348-01-12 14:52 J -22877421.95 -22877421.88 -22877421.81 0.0526 0.0428  
 Earth -67346-08-22 06:42 J -22876470.44 -22876470.22 -22876470.01 0.0510 0.0174  
 Moon -67346-08-22 10:33 J -22876470.27 -22876470.06 -22876469.85 0.0510 0.0207 \*  
 Venus -67345-08-10 06:57 J -22876116.41 -22876116.21 -22876116.01 0.0503 0.0036  
 Mercury -67343-09-08 12:57 J -22875357.11 -22875356.96 -22875356.81 0.0498 0.0290  
 Mercury -67343-12-08 00:57 J -22875266.60 -22875266.46 -22875266.33 0.0499 0.0339  
 Mercury -67337-08-03 13:40 J -22873201.04 -22873200.93 -22873200.80 0.0527 0.0170  
 Mercury -67337-10-31 19:11 J -22873111.80 -22873111.70 -22873111.60 0.0527 0.0310  
 Moon -67334-08-26 15:06 J -22872083.09 -22872082.87 -22872082.64 0.0508 0.0074  
 Earth -67334-08-26 19:11 J -22872082.93 -22872082.70 -22872082.47 0.0508 0.0078 \*  
 Venus -67333-04-15 05:59 J -22871850.39 -22871850.25 -22871850.10 0.0504 0.0352  
 Mercury -67331-06-27 09:21 J -22871047.19 -22871047.11 -22871047.03 0.0498 0.0448  
 Mercury -67331-09-25 21:21 J -22870956.79 -22870956.61 -22870956.44 0.0499 0.0181  
 Mercury -67325-05-22 17:59 J -22868890.86 -22868890.75 -22868890.65 0.0527 0.0291  
 Mercury -67325-08-19 23:16 J -22868801.64 -22868801.53 -22868801.41 0.0526 0.0188  
 Earth -67322-08-31 02:37 J -22867695.57 -22867695.39 -22867695.21 0.0507 0.0318  
 Moon -67322-08-31 05:45 J -22867695.42 -22867695.26 -22867695.09 0.0507 0.0348 \*  
 Mercury -67319-07-14 17:30 J -22866646.96 -22866646.77 -22866646.58 0.0499 0.0019  
 Venus -67315-06-17 23:16 J -22865212.72 -22865212.53 -22865212.33 0.0522 0.0139  
 Mercury -67313-03-10 22:18 J -22864580.65 -22864580.57 -22864580.50 0.0527 0.0411  
 Mercury -67313-06-08 03:35 J -22864491.47 -22864491.35 -22864491.22 0.0526 0.0067  
 Venus -67309-04-17 15:35 J -22863082.03 -22863081.85 -22863081.67 0.0503 0.0246  
 Mercury -67307-05-02 14:09 J -22862337.09 -22862336.91 -22862336.73 0.0499 0.0137  
 Mercury -67307-08-01 02:09 J -22862246.43 -22862246.41 -22862246.39 0.0500 0.0495

Venus -67303-02-20 16:18 J -22860946.98 -22860946.82 -22860946.65 0.0521 0.0301  
 Mercury -67301-03-27 07:25 J -22860181.31 -22860181.19 -22860181.06 0.0526 0.0060  
 Mercury -67301-06-24 12:57 J -22860092.04 -22860091.96 -22860091.89 0.0526 0.0419  
 Venus -67298-12-22 14:52 J -22858816.07 -22858815.88 -22858815.68 0.0504 0.0142  
 Mercury -67295-02-18 10:33 J -22858027.20 -22858027.06 -22858026.90 0.0499 0.0294  
 Mercury -67295-05-19 22:33 J -22857936.69 -22857936.56 -22857936.42 0.0499 0.0338  
 Moon -67292-02-21 17:01 J -22856927.98 -22856927.79 -22856927.58 0.0515 0.0299  
 Earth -67292-02-21 17:45 J -22856927.94 -22856927.76 -22856927.56 0.0515 0.0316 \*  
 Mercury -67289-01-14 11:45 J -22855871.13 -22855871.01 -22855870.89 0.0527 0.0178  
 Mercury -67289-04-12 17:16 J -22855781.89 -22855781.78 -22855781.68 0.0526 0.0301  
 Mercury -67284-12-07 06:57 J -22853717.28 -22853717.21 -22853717.13 0.0498 0.0454  
 Mercury -67283-03-07 18:42 J -22853626.89 -22853626.72 -22853626.54 0.0499 0.0176  
 Moon -67280-02-26 11:59 J -22852540.22 -22852540.00 -22852539.77 0.0516 0.0073  
 Earth -67280-02-26 13:40 J -22852540.17 -22852539.93 -22852539.70 0.0516 0.0046 \*  
 Venus -67279-02-23 10:33 J -22852178.20 -22852178.06 -22852177.91 0.0523 0.0370  
 Mercury -67278-11-02 16:04 J -22851560.93 -22851560.83 -22851560.72 0.0527 0.0298  
 Mercury -67277-01-30 21:35 J -22851471.72 -22851471.60 -22851471.48 0.0527 0.0182  
 Earth -67275-08-16 20:52 J -22850542.72 -22850542.63 -22850542.53 0.0511 0.0463  
 Moon -67275-08-17 00:42 J -22850542.54 -22850542.47 -22850542.39 0.0511 0.0479 \*  
 Venus -67274-12-25 04:33 J -22850047.37 -22850047.31 -22850047.24 0.0502 0.0473  
 Mercury -67272-12-24 15:21 J -22849317.05 -22849316.86 -22849316.67 0.0499 0.0018  
 Earth -67268-03-03 13:40 J -22848152.13 -22848151.93 -22848151.71 0.0518 0.0235  
 Moon -67268-03-03 17:30 J -22848151.99 -22848151.77 -22848151.56 0.0518 0.0226 \*  
 Venus -67268-10-29 05:30 J -22847912.47 -22847912.27 -22847912.07 0.0522 0.0059  
 Mercury -67266-08-21 20:23 J -22847250.72 -22847250.65 -22847250.57 0.0527 0.0418  
 Mercury -67266-11-19 01:54 J -22847161.55 -22847161.42 -22847161.30 0.0526 0.0063  
 Moon -67263-08-21 01:25 J -22846155.64 -22846155.44 -22846155.24 0.0510 0.0252  
 Earth -67263-08-21 05:16 J -22846155.48 -22846155.28 -22846155.07 0.0510 0.0219 \*  
 Venus -67262-08-30 01:11 J -22845781.65 -22845781.45 -22845781.24 0.0503 0.0076  
 Mercury -67260-10-12 11:16 J -22845007.21 -22845007.03 -22845006.85 0.0499 0.0146

Mercury -67259-01-10 23:16 J -22844916.56 -22844916.53 -22844916.49 0.0500 0.0487  
 Earth -67256-03-08 15:06 J -22843763.87 -22843763.87 -22843763.85 0.0519 0.0518  
 Venus -67256-07-04 00:28 J -22843646.54 -22843646.48 -22843646.40 0.0521 0.0485  
 Mars -67255-11-17 11:01 J -22843145.28 -22843145.04 -22843144.80 0.0526 0.0118  
 Mercury -67254-09-07 06:13 J -22842851.37 -22842851.24 -22842851.12 0.0526 0.0059  
 Mercury -67254-12-05 11:30 J -22842762.10 -22842762.02 -22842761.95 0.0526 0.0419  
 Earth -67251-08-25 16:47 J -22841768.03 -22841767.80 -22841767.57 0.0509 0.0032  
 Moon -67251-08-25 20:09 J -22841767.89 -22841767.66 -22841767.44 0.0509 0.0036 \*  
 Venus -67250-05-05 00:13 J -22841515.65 -22841515.49 -22841515.33 0.0504 0.0313  
 Mercury -67248-07-31 07:54 J -22840697.31 -22840697.17 -22840697.01 0.0499 0.0301  
 Mercury -67248-10-29 20:09 J -22840606.80 -22840606.66 -22840606.52 0.0500 0.0332  
 Mercury -67242-06-26 10:04 J -22838541.20 -22838541.08 -22838540.96 0.0526 0.0183  
 Mercury -67242-09-23 15:21 J -22838451.96 -22838451.86 -22838451.75 0.0526 0.0296  
 Moon -67239-08-30 03:21 J -22837380.55 -22837380.36 -22837380.18 0.0508 0.0314  
 Earth -67239-08-30 05:01 J -22837380.48 -22837380.29 -22837380.10 0.0508 0.0286 \*  
 Mars -67237-09-09 07:54 J -22836639.47 -22836639.17 -22836638.87 0.0499 0.0085  
 Mercury -67236-05-19 04:47 J -22836387.37 -22836387.30 -22836387.22 0.0499 0.0456  
 Mercury -67236-08-17 16:47 J -22836296.97 -22836296.80 -22836296.62 0.0499 0.0176  
 Venus -67232-07-06 19:40 J -22834877.87 -22834877.68 -22834877.49 0.0522 0.0188  
 Mercury -67230-04-14 14:23 J -22834231.00 -22834230.90 -22834230.80 0.0527 0.0303  
 Mercury -67230-07-12 19:40 J -22834141.79 -22834141.68 -22834141.56 0.0526 0.0177  
 Venus -67226-05-07 14:09 J -22832747.07 -22832746.91 -22832746.74 0.0503 0.0305  
 Mercury -67224-06-05 13:11 J -22831987.14 -22831986.95 -22831986.76 0.0499 0.0016  
 Venus -67220-03-11 12:42 J -22830612.15 -22830611.97 -22830611.79 0.0521 0.0250  
 Mars -67219-08-21 09:35 J -22830084.22 -22830084.10 -22830083.98 0.0527 0.0458  
 Mercury -67218-01-31 18:42 J -22829920.79 -22829920.72 -22829920.65 0.0527 0.0422  
 Mercury -67218-05-01 00:13 J -22829831.62 -22829831.49 -22829831.37 0.0527 0.0059  
 Venus -67214-01-10 13:54 J -22828481.12 -22828480.92 -22828480.72 0.0504 0.0080  
 Mercury -67212-03-24 09:49 J -22827677.27 -22827677.09 -22827676.91 0.0499 0.0141  
 Mercury -67212-06-22 21:35 J -22827586.62 -22827586.60 -22827586.56 0.0499 0.0491

Moon -67209-02-21 17:16 J -22826612.94 -22826612.78 -22826612.60 0.0515 0.0344  
 Earth -67209-02-21 18:28 J -22826612.90 -22826612.73 -22826612.56 0.0515 0.0352 \*  
 Mercury -67206-02-17 04:33 J -22825521.43 -22825521.31 -22825521.18 0.0526 0.0061  
 Mercury -67206-05-17 09:49 J -22825432.16 -22825432.09 -22825432.01 0.0526 0.0417  
 Venus -67203-09-15 10:47 J -22824215.11 -22824215.05 -22824214.99 0.0505 0.0479  
 Mercury -67200-01-10 05:45 J -22823367.41 -22823367.26 -22823367.11 0.0499 0.0305  
 Mercury -67200-04-10 17:45 J -22823276.90 -22823276.76 -22823276.62 0.0500 0.0328  
 Earth -67197-02-26 19:40 J -22822224.91 -22822224.68 -22822224.44 0.0516 0.0069  
 Moon -67197-02-26 23:01 J -22822224.78 -22822224.54 -22822224.30 0.0516 0.0100 \*  
 Venus -67196-03-14 11:45 J -22821843.11 -22821843.01 -22821842.90 0.0523 0.0445  
 Mercury -67195-12-06 09:06 J -22821211.24 -22821211.12 -22821211.00 0.0526 0.0177  
 Mercury -67194-03-05 14:23 J -22821122.00 -22821121.90 -22821121.80 0.0526 0.0300  
 Earth -67192-08-15 21:06 J -22820227.65 -22820227.62 -22820227.59 0.0511 0.0505  
 Mercury -67189-10-29 02:23 J -22819057.46 -22819057.40 -22819057.32 0.0499 0.0459  
 Mercury -67188-01-27 14:37 J -22818967.07 -22818966.89 -22818966.72 0.0500 0.0174  
 Moon -67185-03-02 14:23 J -22817837.11 -22817836.90 -22817836.68 0.0517 0.0201  
 Earth -67185-03-02 18:28 J -22817836.94 -22817836.73 -22817836.51 0.0517 0.0211 \*  
 Venus -67185-11-17 05:30 J -22817577.48 -22817577.27 -22817577.07 0.0522 0.0014  
 Mercury -67183-09-24 12:57 J -22816901.06 -22816900.96 -22816900.85 0.0526 0.0302  
 Mercury -67183-12-22 18:28 J -22816811.85 -22816811.73 -22816811.61 0.0526 0.0177  
 Earth -67180-08-20 09:21 J -22815840.30 -22815840.11 -22815839.90 0.0510 0.0249  
 Moon -67180-08-20 12:42 J -22815840.15 -22815839.97 -22815839.78 0.0510 0.0277 \*  
 Venus -67179-09-17 23:45 J -22815446.71 -22815446.51 -22815446.31 0.0503 0.0134  
 Mercury -67177-11-15 11:30 J -22814657.21 -22814657.02 -22814656.83 0.0499 0.0019  
 Earth -67173-03-07 16:33 J -22813448.88 -22813448.81 -22813448.72 0.0518 0.0486  
 Venus -67173-07-22 23:01 J -22813311.66 -22813311.54 -22813311.42 0.0521 0.0424  
 Mercury -67171-07-13 17:16 J -22812590.85 -22812590.78 -22812590.70 0.0527 0.0421  
 Mercury -67171-10-10 22:47 J -22812501.68 -22812501.55 -22812501.43 0.0526 0.0059  
 Moon -67168-08-24 22:18 J -22811452.81 -22811452.57 -22811452.33 0.0509 0.0022  
 Earth -67168-08-25 00:13 J -22811452.72 -22811452.49 -22811452.26 0.0509 0.0011 \*

Venus -67167-05-24 00:13 J -22811180.67 -22811180.49 -22811180.31 0.0504 0.0247  
 Mercury -67165-09-03 08:09 J -22810347.34 -22810347.16 -22810346.98 0.0499 0.0138  
 Mercury -67165-12-02 20:09 J -22810256.68 -22810256.66 -22810256.64 0.0499 0.0494  
 Mercury -67159-07-30 03:06 J -22808191.49 -22808191.37 -22808191.24 0.0527 0.0061  
 Mercury -67159-10-27 08:23 J -22808102.22 -22808102.15 -22808102.07 0.0526 0.0419  
 Earth -67156-08-29 13:54 J -22807065.12 -22807064.92 -22807064.73 0.0508 0.0268  
 Moon -67156-08-29 13:40 J -22807065.10 -22807064.93 -22807064.74 0.0508 0.0297 \*  
 Mercury -67153-06-22 04:47 J -22806037.45 -22806037.30 -22806037.14 0.0499 0.0293  
 Mercury -67153-09-20 16:47 J -22805946.93 -22805946.80 -22805946.66 0.0499 0.0339  
 Venus -67149-07-25 19:54 J -22804542.84 -22804542.67 -22804542.49 0.0523 0.0259  
 Mercury -67147-05-18 07:40 J -22803881.30 -22803881.18 -22803881.06 0.0526 0.0176  
 Mercury -67147-08-15 12:57 J -22803792.06 -22803791.96 -22803791.85 0.0526 0.0302  
 Moon -67144-09-02 23:45 J -22802677.53 -22802677.51 -22802677.48 0.0507 0.0503  
 Venus -67143-05-26 11:01 J -22802412.18 -22802412.04 -22802411.89 0.0503 0.0357  
 Mercury -67141-04-10 00:42 J -22801727.54 -22801727.47 -22801727.40 0.0499 0.0459  
 Mercury -67141-07-09 12:42 J -22801637.15 -22801636.97 -22801636.80 0.0500 0.0174  
 Venus -67137-03-30 15:49 J -22800277.03 -22800276.84 -22800276.65 0.0522 0.0165  
 Mars -67136-05-09 07:25 J -22799872.23 -22799872.19 -22799872.15 0.0526 0.0518  
 Mercury -67135-03-06 12:13 J -22799571.09 -22799570.99 -22799570.88 0.0526 0.0291  
 Mercury -67135-06-03 17:30 J -22799481.88 -22799481.77 -22799481.65 0.0526 0.0187  
 Venus -67131-01-29 10:33 J -22798146.26 -22798146.06 -22798145.85 0.0504 0.0030  
 Mercury -67129-04-27 09:35 J -22797327.29 -22797327.10 -22797326.91 0.0500 0.0021  
 Earth -67126-02-21 02:37 J -22796297.55 -22796297.39 -22796297.23 0.0515 0.0369  
 Moon -67126-02-21 05:30 J -22796297.43 -22796297.27 -22796297.10 0.0515 0.0371 \*  
 Mercury -67124-12-23 16:18 J -22795260.89 -22795260.82 -22795260.74 0.0526 0.0415  
 Mercury -67123-03-22 21:35 J -22795171.72 -22795171.60 -22795171.47 0.0526 0.0067  
 Venus -67120-10-04 10:33 J -22793880.18 -22793880.06 -22793879.95 0.0505 0.0414  
 Mars -67118-02-26 13:11 J -22793370.13 -22793369.95 -22793369.75 0.0499 0.0387  
 Mercury -67117-02-14 06:42 J -22793017.40 -22793017.22 -22793017.04 0.0499 0.0132  
 Moon -67114-02-25 21:06 J -22791909.85 -22791909.62 -22791909.40 0.0516 0.0128

Earth -67114-02-26 00:57 J -22791909.69 -22791909.46 -22791909.22 0.0516 0.0094 \*  
 Venus -67113-04-02 11:45 J -22791508.05 -22791508.01 -22791507.98 0.0523 0.0512  
 Mercury -67111-01-09 02:09 J -22790861.54 -22790861.41 -22790861.29 0.0526 0.0058  
 Mercury -67111-04-08 07:25 J -22790772.27 -22790772.19 -22790772.12 0.0526 0.0422  
 Mercury -67106-12-03 03:35 J -22788707.50 -22788707.35 -22788707.20 0.0499 0.0286  
 Mercury -67105-03-02 15:35 J -22788616.98 -22788616.85 -22788616.72 0.0499 0.0347  
 Earth -67102-03-02 22:04 J -22787521.80 -22787521.58 -22787521.35 0.0517 0.0182  
 Moon -67102-03-03 02:09 J -22787521.63 -22787521.41 -22787521.19 0.0517 0.0178 \*  
 Venus -67102-12-07 05:16 J -22787242.48 -22787242.28 -22787242.08 0.0522 0.0078  
 Mars -67100-02-10 11:01 J -22786811.29 -22786811.04 -22786810.79 0.0527 0.0070  
 Mercury -67100-10-28 06:28 J -22786551.35 -22786551.23 -22786551.11 0.0527 0.0174  
 Mercury -67099-01-25 11:45 J -22786462.11 -22786462.01 -22786461.91 0.0526 0.0306  
 Moon -67097-08-19 18:42 J -22785524.91 -22785524.72 -22785524.52 0.0511 0.0286  
 Earth -67097-08-19 20:37 J -22785524.83 -22785524.64 -22785524.44 0.0511 0.0265 \*  
 Venus -67096-10-07 01:40 J -22785111.62 -22785111.43 -22785111.25 0.0503 0.0210  
 Mercury -67094-09-21 00:13 J -22784397.57 -22784397.49 -22784397.39 0.0499 0.0440  
 Mercury -67094-12-20 12:28 J -22784307.16 -22784306.98 -22784306.81 0.0499 0.0193  
 Moon -67090-03-07 20:37 J -22783133.70 -22783133.64 -22783133.56 0.0518 0.0494  
 Earth -67090-03-07 23:30 J -22783133.62 -22783133.52 -22783133.42 0.0518 0.0466 \*  
 Venus -67090-08-12 00:42 J -22782976.61 -22782976.47 -22782976.31 0.0521 0.0345  
 Mercury -67088-08-16 11:01 J -22782241.14 -22782241.04 -22782240.93 0.0527 0.0288  
 Mercury -67088-11-13 16:33 J -22782151.93 -22782151.81 -22782151.70 0.0526 0.0192  
 Earth -67085-08-24 06:28 J -22781137.46 -22781137.23 -22781137.00 0.0509 0.0017  
 Moon -67085-08-24 06:28 J -22781137.45 -22781137.23 -22781137.00 0.0509 0.0011 \*  
 Venus -67084-06-11 22:47 J -22780845.74 -22780845.55 -22780845.36 0.0504 0.0187  
 Mars -67083-12-04 07:40 J -22780305.41 -22780305.18 -22780304.94 0.0499 0.0311  
 Mercury -67082-10-08 08:09 J -22779997.35 -22779997.16 -22779996.98 0.0500 0.0027  
 Mercury -67076-06-04 15:49 J -22777930.92 -22777930.84 -22777930.76 0.0526 0.0401  
 Mercury -67076-09-01 21:06 J -22777841.74 -22777841.62 -22777841.49 0.0526 0.0078  
 Earth -67073-08-28 19:11 J -22776749.90 -22776749.70 -22776749.50 0.0508 0.0240



Moon -67073-08-28 20:37 J -22776749.84 -22776749.64 -22776749.43 0.0508 0.0267 \*  
 Mercury -67070-07-27 05:01 J -22775687.47 -22775687.29 -22775687.11 0.0500 0.0127  
 Venus -67066-08-14 23:30 J -22774207.67 -22774207.52 -22774207.37 0.0523 0.0345  
 Mercury -67064-03-23 19:54 J -22773620.68 -22773620.67 -22773620.66 0.0526 0.0523  
 Mercury -67064-06-21 01:11 J -22773531.57 -22773531.45 -22773531.32 0.0526 0.0048  
 Mercury -67064-09-18 06:28 J -22773442.29 -22773442.23 -22773442.16 0.0525 0.0433  
 Moon -67061-09-02 05:16 J -22772362.33 -22772362.28 -22772362.21 0.0507 0.0487  
 Earth -67061-09-02 07:54 J -22772362.21 -22772362.17 -22772362.12 0.0507 0.0496 \*  
 Venus -67060-06-14 12:42 J -22772077.08 -22772076.97 -22772076.87 0.0503 0.0429  
 Mercury -67058-05-15 02:09 J -22771377.56 -22771377.41 -22771377.25 0.0499 0.0279  
 Mercury -67058-08-13 14:23 J -22771287.03 -22771286.90 -22771286.77 0.0500 0.0358  
 Venus -67054-04-19 17:30 J -22769941.97 -22769941.77 -22769941.57 0.0521 0.0087  
 Mercury -67052-04-09 05:45 J -22769221.38 -22769221.26 -22769221.14 0.0526 0.0165  
 Mercury -67052-07-07 11:01 J -22769132.14 -22769132.04 -22769131.94 0.0526 0.0315  
 Venus -67048-02-17 13:11 J -22767811.15 -22767810.95 -22767810.74 0.0504 0.0051  
 Mercury -67046-03-02 23:16 J -22767067.62 -22767067.53 -22767067.43 0.0499 0.0430  
 Mercury -67046-06-01 11:30 J -22766977.19 -22766977.02 -22766976.85 0.0499 0.0204  
 Moon -67043-02-20 05:01 J -22765982.42 -22765982.29 -22765982.13 0.0514 0.0402  
 Earth -67043-02-20 09:06 J -22765982.27 -22765982.12 -22765981.96 0.0514 0.0392 \*  
 Venus -67043-12-23 10:47 J -22765676.05 -22765676.05 -22765676.03 0.0520 0.0519  
 Mercury -67040-01-26 10:04 J -22764911.19 -22764911.08 -22764910.97 0.0527 0.0282  
 Mercury -67040-04-25 15:21 J -22764821.97 -22764821.86 -22764821.74 0.0526 0.0198  
 Venus -67037-10-23 13:40 J -22763545.09 -22763544.93 -22763544.78 0.0505 0.0331  
 Mercury -67034-03-20 08:23 J -22762667.34 -22762667.15 -22762666.97 0.0499 0.0050  
 Earth -67031-02-25 09:49 J -22761594.32 -22761594.09 -22761593.86 0.0516 0.0111  
 Moon -67031-02-25 13:40 J -22761594.15 -22761593.93 -22761593.70 0.0516 0.0144 \*  
 Mercury -67029-11-14 14:52 J -22760600.97 -22760600.88 -22760600.80 0.0527 0.0394  
 Mercury -67028-02-11 20:09 J -22760511.78 -22760511.66 -22760511.53 0.0526 0.0086  
 Mercury -67022-01-06 03:49 J -22758357.52 -22758357.34 -22758357.16 0.0499 0.0119  
 Moon -67019-03-02 08:23 J -22757206.37 -22757206.15 -22757205.92 0.0517 0.0177

Earth -67019-03-02 11:30 J -22757206.24 -22757206.02 -22757205.80 0.0517 0.0177 \*  
 Venus -67019-12-26 11:16 J -22756907.22 -22756907.03 -22756906.84 0.0523 0.0178  
 Mercury -67017-09-02 19:25 J -22756290.72 -22756290.69 -22756290.65 0.0526 0.0507  
 Mercury -67017-12-01 00:57 J -22756201.59 -22756201.46 -22756201.34 0.0526 0.0028  
 Mercury -67016-02-28 06:13 J -22756112.30 -22756112.24 -22756112.18 0.0525 0.0449  
 Earth -67014-08-20 04:47 J -22755209.49 -22755209.30 -22755209.11 0.0510 0.0285  
 Moon -67014-08-20 04:47 J -22755209.48 -22755209.30 -22755209.12 0.0510 0.0300 \*  
 Venus -67013-10-26 00:42 J -22754776.64 -22754776.47 -22754776.30 0.0503 0.0273  
 Mercury -67011-10-25 00:57 J -22754047.62 -22754047.46 -22754047.30 0.0499 0.0271  
 Mercury -67010-01-23 12:57 J -22753957.08 -22753956.96 -22753956.83 0.0500 0.0366  
 Earth -67007-03-07 11:59 J -22752818.11 -22752818.00 -22752817.90 0.0518 0.0462  
 Moon -67007-03-07 12:13 J -22752818.06 -22752817.99 -22752817.92 0.0518 0.0491 \*  
 Venus -67007-08-31 05:45 J -22752641.44 -22752641.26 -22752641.08 0.0521 0.0252  
 Mercury -67005-09-19 05:01 J -22751891.41 -22751891.29 -22751891.17 0.0526 0.0150  
 Mercury -67005-12-17 10:18 J -22751802.16 -22751802.07 -22751801.97 0.0525 0.0329  
 Earth -67002-08-24 17:30 J -22750822.00 -22750821.77 -22750821.54 0.0509 0.0028  
 Moon -67002-08-24 19:25 J -22750821.93 -22750821.69 -22750821.46 0.0509 0.0009 \*  
 Venus -67001-07-01 00:57 J -22750510.66 -22750510.46 -22750510.26 0.0504 0.0110

# 67TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 67th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
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Mercury -66999-08-12 22:18 J -22749737.67 -22749737.57 -22749737.47 0.0499 0.0421  
 Mercury -66999-11-11 10:18 J -22749647.24 -22749647.07 -22749646.90 0.0500 0.0215  
 Mercury -66993-07-08 09:21 J -22747581.21 -22747581.11 -22747581.00 0.0526 0.0269  
 Mercury -66993-10-05 14:37 J -22747492.00 -22747491.89 -22747491.77 0.0526 0.0211  
 Moon -66990-08-29 05:16 J -22746434.47 -22746434.28 -22746434.09 0.0509 0.0258  
 Earth -66990-08-29 07:54 J -22746434.37 -22746434.17 -22746433.96 0.0509 0.0234 \*  
 Venus -66989-03-06 01:40 J -22746244.47 -22746244.43 -22746244.38 0.0505 0.0489  
 Mercury -66987-08-30 07:25 J -22745337.37 -22745337.19 -22745337.00 0.0499 0.0062  
 Venus -66983-09-03 01:40 J -22743872.54 -22743872.43 -22743872.31 0.0523 0.0425  
 Mars -66982-08-03 22:04 J -22743537.79 -22743537.58 -22743537.37 0.0526 0.0289  
 Mercury -66981-04-26 13:40 J -22743271.01 -22743270.93 -22743270.84 0.0527 0.0388  
 Mercury -66981-07-24 19:11 J -22743181.82 -22743181.70 -22743181.58 0.0526 0.0093  
 Earth -66978-09-02 22:18 J -22742046.61 -22742046.57 -22742046.51 0.0507 0.0492  
 Moon -66978-09-03 02:09 J -22742046.49 -22742046.41 -22742046.33 0.0507 0.0472  
 Mercury -66975-06-18 04:18 J -22741027.50 -22741027.32 -22741027.13 0.0499 0.0093  
 Venus -66971-05-08 21:35 J -22739606.80 -22739606.60 -22739606.40 0.0522 0.0006  
 Mercury -66969-02-13 18:42 J -22738960.76 -22738960.72 -22738960.69 0.0527 0.0499  
 Mercury -66969-05-12 23:59 J -22738871.62 -22738871.50 -22738871.37 0.0526 0.0021  
 Mercury -66969-08-10 05:16 J -22738782.34 -22738782.28 -22738782.22 0.0525 0.0459  
 Venus -66965-03-08 13:54 J -22737476.12 -22737475.92 -22737475.72 0.0503 0.0119  
 Mars -66964-05-23 05:59 J -22737035.54 -22737035.25 -22737034.95 0.0499 0.0126  
 Mercury -66963-04-05 23:45 J -22736717.66 -22736717.51 -22736717.35 0.0499 0.0262  
 Mercury -66963-07-05 11:59 J -22736627.12 -22736627.00 -22736626.88 0.0500 0.0375  
 Earth -66960-02-19 21:49 J -22735666.73 -22735666.59 -22735666.44 0.0515 0.0399  
 Moon -66960-02-20 01:54 J -22735666.55 -22735666.42 -22735666.28 0.0515 0.0414 \*  
 Venus -66959-01-11 17:16 J -22735340.90 -22735340.78 -22735340.66 0.0521 0.0419  
 Mercury -66957-03-01 04:47 J -22734561.42 -22734561.30 -22734561.18 0.0526 0.0131  
 Mercury -66957-05-29 10:04 J -22734472.17 -22734472.08 -22734471.98 0.0525 0.0347  
 Venus -66954-11-12 13:40 J -22733210.10 -22733209.93 -22733209.75 0.0504 0.0263  
 Mercury -66951-01-22 20:52 J -22732407.73 -22732407.63 -22732407.52 0.0499 0.0413

Mercury -66951-04-23 09:06 J -22732317.29 -22732317.12 -22732316.95 0.0500 0.0223  
 Moon -66948-02-24 19:40 J -22731278.91 -22731278.68 -22731278.45 0.0516 0.0145  
 Earth -66948-02-24 22:47 J -22731278.78 -22731278.55 -22731278.32 0.0516 0.0114 \*  
 Mars -66946-05-08 14:37 J -22730476.08 -22730475.89 -22730475.70 0.0526 0.0334  
 Mercury -66946-12-19 09:06 J -22730251.23 -22730251.12 -22730251.01 0.0526 0.0253  
 Mercury -66945-03-17 14:23 J -22730162.02 -22730161.90 -22730161.79 0.0526 0.0226  
 Mercury -66939-02-09 06:28 J -22728007.42 -22728007.23 -22728007.05 0.0500 0.0073  
 Earth -66936-03-01 22:33 J -22726890.78 -22726890.56 -22726890.33 0.0517 0.0168  
 Moon -66936-03-01 23:30 J -22726890.74 -22726890.52 -22726890.31 0.0517 0.0181 \*  
 Venus -66935-01-14 14:52 J -22726572.05 -22726571.88 -22726571.71 0.0522 0.0264  
 Mercury -66934-10-07 13:25 J -22725941.03 -22725940.94 -22725940.86 0.0526 0.0373  
 Mercury -66933-01-04 18:42 J -22725851.85 -22725851.72 -22725851.60 0.0526 0.0107  
 Earth -66931-08-19 17:30 J -22724893.95 -22724893.77 -22724893.58 0.0511 0.0294  
 Moon -66931-08-19 19:25 J -22724893.87 -22724893.69 -22724893.49 0.0511 0.0300 \*  
 Venus -66930-11-15 04:33 J -22724441.45 -22724441.31 -22724441.16 0.0503 0.0357  
 Mercury -66928-11-28 03:35 J -22723697.53 -22723697.35 -22723697.16 0.0499 0.0079  
 Earth -66924-03-06 20:37 J -22722502.75 -22722502.64 -22722502.52 0.0518 0.0446  
 Moon -66924-03-06 22:33 J -22722502.66 -22722502.56 -22722502.46 0.0518 0.0471 \*  
 Venus -66924-09-19 08:23 J -22722306.34 -22722306.15 -22722305.96 0.0521 0.0169  
 Mercury -66922-07-26 17:45 J -22721630.81 -22721630.76 -22721630.72 0.0527 0.0492  
 Mercury -66922-10-23 23:01 J -22721541.66 -22721541.54 -22721541.41 0.0526 0.0014  
 Mercury -66921-01-21 04:18 J -22721452.37 -22721452.32 -22721452.26 0.0526 0.0467  
 Moon -66919-08-24 05:30 J -22720506.50 -22720506.27 -22720506.05 0.0510 0.0004  
 Earth -66919-08-24 08:23 J -22720506.38 -22720506.15 -22720505.92 0.0510 0.0033 \*  
 Venus -66918-07-21 05:01 J -22720175.49 -22720175.29 -22720175.08 0.0504 0.0025  
 Mercury -66916-09-16 00:28 J -22719387.64 -22719387.48 -22719387.31 0.0499 0.0234  
 Mercury -66916-12-15 12:28 J -22719297.08 -22719296.98 -22719296.86 0.0500 0.0403  
 Mercury -66910-08-12 03:49 J -22717231.46 -22717231.34 -22717231.21 0.0526 0.0123  
 Mercury -66910-11-09 09:06 J -22717142.21 -22717142.12 -22717142.02 0.0526 0.0357  
 Earth -66907-08-28 19:40 J -22716118.89 -22716118.68 -22716118.47 0.0508 0.0224

Moon -66907-08-28 23:16 J -22716118.73 -22716118.53 -22716118.32 0.0508 0.0240 \*  
 Venus -66906-03-26 03:06 J -22715909.48 -22715909.37 -22715909.25 0.0504 0.0416  
 Mercury -66904-07-04 19:54 J -22715077.78 -22715077.67 -22715077.56 0.0499 0.0403  
 Mercury -66904-10-03 07:54 J -22714987.33 -22714987.17 -22714987.00 0.0500 0.0233  
 Mercury -66898-05-31 08:37 J -22712921.25 -22712921.14 -22712921.02 0.0526 0.0235  
 Mercury -66898-08-28 13:54 J -22712832.03 -22712831.92 -22712831.80 0.0526 0.0245  
 Moon -66895-09-02 05:16 J -22711731.39 -22711731.28 -22711731.18 0.0507 0.0451  
 Earth -66895-09-02 08:23 J -22711731.21 -22711731.15 -22711731.07 0.0507 0.0479 \*  
 Mercury -66892-07-22 05:01 J -22710677.48 -22710677.29 -22710677.10 0.0500 0.0080  
 Venus -66888-05-28 02:52 J -22709271.58 -22709271.38 -22709271.18 0.0522 0.0097  
 Mercury -66886-03-19 12:57 J -22708611.05 -22708610.96 -22708610.87 0.0526 0.0357  
 Mercury -66886-06-16 18:13 J -22708521.86 -22708521.74 -22708521.62 0.0526 0.0123  
 Venus -66882-03-28 16:33 J -22707140.99 -22707140.81 -22707140.62 0.0503 0.0198  
 Mercury -66880-05-10 02:23 J -22706367.59 -22706367.40 -22706367.21 0.0500 0.0071  
 Moon -66877-02-20 06:13 J -22705351.37 -22705351.24 -22705351.10 0.0515 0.0423  
 Earth -66877-02-20 09:35 J -22705351.24 -22705351.10 -22705350.95 0.0515 0.0406 \*  
 Venus -66876-01-30 21:06 J -22705005.78 -22705005.62 -22705005.47 0.0521 0.0332  
 Mercury -66874-01-05 17:16 J -22704300.83 -22704300.78 -22704300.73 0.0526 0.0477  
 Mercury -66874-04-04 22:33 J -22704211.69 -22704211.56 -22704211.43 0.0526 0.0004  
 Mercury -66874-07-03 03:49 J -22704122.39 -22704122.34 -22704122.29 0.0525 0.0480  
 Venus -66871-12-01 17:01 J -22702874.97 -22702874.79 -22702874.59 0.0504 0.0182  
 Mercury -66868-02-25 23:30 J -22702057.68 -22702057.52 -22702057.35 0.0499 0.0223  
 Mercury -66868-05-27 11:30 J -22701967.11 -22701967.02 -22701966.91 0.0500 0.0415  
 Earth -66865-02-25 07:40 J -22700963.41 -22700963.18 -22700962.95 0.0516 0.0130  
 Moon -66865-02-25 08:52 J -22700963.35 -22700963.13 -22700962.91 0.0516 0.0153 \*  
 Mercury -66862-01-22 02:52 J -22699901.50 -22699901.38 -22699901.26 0.0526 0.0116  
 Mercury -66862-04-21 08:09 J -22699812.25 -22699812.16 -22699812.07 0.0526 0.0363  
 Mercury -66857-12-14 20:23 J -22697747.77 -22697747.65 -22697747.52 0.0499 0.0377  
 Mercury -66856-03-15 08:23 J -22697657.30 -22697657.15 -22697656.98 0.0500 0.0260  
 Earth -66853-03-01 08:09 J -22696575.39 -22696575.16 -22696574.93 0.0517 0.0153

Moon -66853-03-01 09:35 J -22696575.33 -22696575.10 -22696574.87 0.0517 0.0176 \*  
 Venus -66852-02-02 18:28 J -22696236.88 -22696236.73 -22696236.58 0.0523 0.0352  
 Mercury -66851-11-10 07:40 J -22695591.29 -22695591.18 -22695591.06 0.0526 0.0228  
 Mercury -66850-02-07 12:57 J -22695502.07 -22695501.96 -22695501.84 0.0526 0.0253  
 Moon -66848-08-19 03:06 J -22694578.54 -22694578.37 -22694578.19 0.0510 0.0306  
 Earth -66848-08-19 06:13 J -22694578.42 -22694578.24 -22694578.05 0.0510 0.0302 \*  
 Venus -66847-12-04 05:30 J -22694106.37 -22694106.27 -22694106.16 0.0502 0.0426  
 Mercury -66844-01-01 03:49 J -22693347.53 -22693347.34 -22693347.16 0.0500 0.0088  
 Moon -66841-03-06 05:01 J -22692187.38 -22692187.29 -22692187.19 0.0519 0.0466  
 Earth -66841-03-06 08:23 J -22692187.27 -22692187.15 -22692187.03 0.0519 0.0442 \*  
 Venus -66841-10-08 13:40 J -22691971.13 -22691970.93 -22691970.73 0.0522 0.0075  
 Mercury -66839-08-29 12:28 J -22691281.08 -22691280.98 -22691280.88 0.0526 0.0341  
 Mercury -66839-11-26 17:45 J -22691191.88 -22691191.76 -22691191.64 0.0526 0.0140  
 Earth -66836-08-23 19:25 J -22690190.92 -22690190.69 -22690190.46 0.0509 0.0043  
 Moon -66836-08-23 23:01 J -22690190.77 -22690190.54 -22690190.31 0.0509 0.0014 \*  
 Venus -66835-08-09 05:30 J -22689840.47 -22689840.27 -22689840.06 0.0503 0.0045  
 Mercury -66833-10-20 00:42 J -22689037.65 -22689037.47 -22689037.28 0.0500 0.0066  
 Venus -66829-06-13 07:40 J -22687705.22 -22687705.18 -22687705.12 0.0521 0.0504  
 Mars -66828-10-29 04:33 J -22687202.56 -22687202.31 -22687202.06 0.0526 0.0015  
 Mercury -66827-06-17 16:33 J -22686970.86 -22686970.81 -22686970.75 0.0526 0.0463  
 Mercury -66827-09-14 22:04 J -22686881.71 -22686881.58 -22686881.46 0.0526 0.0020  
 Mercury -66827-12-13 03:06 J -22686792.40 -22686792.37 -22686792.32 0.0525 0.0495  
 Moon -66824-08-28 03:35 J -22685803.56 -22685803.35 -22685803.14 0.0508 0.0220  
 Earth -66824-08-28 06:57 J -22685803.42 -22685803.21 -22685803.00 0.0508 0.0214 \*  
 Venus -66823-04-14 05:16 J -22685574.43 -22685574.28 -22685574.13 0.0504 0.0340  
 Mercury -66821-08-07 22:04 J -22684727.75 -22684727.58 -22684727.41 0.0500 0.0217  
 Mercury -66821-11-06 10:04 J -22684637.17 -22684637.08 -22684636.97 0.0500 0.0422  
 Mercury -66815-07-04 02:23 J -22682571.53 -22682571.40 -22682571.28 0.0526 0.0104  
 Mercury -66815-10-01 07:40 J -22682482.27 -22682482.18 -22682482.10 0.0525 0.0376  
 Earth -66812-09-01 20:09 J -22681415.74 -22681415.66 -22681415.58 0.0507 0.0471

Moon -66812-09-01 22:18 J -22681415.67 -22681415.57 -22681415.46 0.0507 0.0441 \*  
 Mars -66810-08-18 14:09 J -22680700.19 -22680699.91 -22680699.62 0.0499 0.0173  
 Mercury -66809-05-26 19:11 J -22680417.82 -22680417.70 -22680417.57 0.0499 0.0369  
 Mercury -66809-08-25 07:11 J -22680327.35 -22680327.20 -22680327.04 0.0500 0.0269  
 Venus -66805-06-16 04:18 J -22678936.51 -22678936.32 -22678936.13 0.0522 0.0174  
 Mercury -66803-04-22 06:28 J -22678261.34 -22678261.23 -22678261.11 0.0526 0.0224  
 Mercury -66803-07-20 11:45 J -22678172.11 -22678172.01 -22678171.90 0.0526 0.0257  
 Venus -66799-04-16 19:40 J -22676805.85 -22676805.68 -22676805.51 0.0503 0.0279  
 Mercury -66797-06-13 04:04 J -22676017.51 -22676017.33 -22676017.15 0.0500 0.0112  
 Earth -66794-02-19 17:01 J -22675035.91 -22675035.79 -22675035.65 0.0515 0.0426  
 Moon -66794-02-19 18:42 J -22675035.82 -22675035.72 -22675035.60 0.0515 0.0448 \*  
 Venus -66793-02-19 23:16 J -22674670.70 -22674670.53 -22674670.35 0.0521 0.0251  
 Mercury -66791-02-08 11:16 J -22673951.12 -22673951.03 -22673950.93 0.0526 0.0336  
 Mercury -66791-05-08 16:47 J -22673861.93 -22673861.80 -22673861.68 0.0526 0.0146  
 Venus -66788-12-20 18:13 J -22672539.94 -22672539.74 -22672539.54 0.0503 0.0112  
 Mercury -66785-03-31 23:16 J -22671707.71 -22671707.53 -22671707.34 0.0499 0.0061  
 Earth -66782-02-24 15:21 J -22670648.08 -22670647.86 -22670647.63 0.0516 0.0145  
 Moon -66782-02-24 16:18 J -22670648.05 -22670647.82 -22670647.58 0.0516 0.0160 \*  
 Mercury -66780-11-27 16:04 J -22669640.90 -22669640.83 -22669640.77 0.0527 0.0451  
 Mercury -66779-02-24 21:21 J -22669551.73 -22669551.61 -22669551.48 0.0526 0.0033  
 Mercury -66779-05-25 02:37 J -22669462.41 -22669462.39 -22669462.36 0.0525 0.0509  
 Venus -66776-08-25 18:13 J -22668273.77 -22668273.74 -22668273.69 0.0504 0.0493  
 Mercury -66773-01-18 20:09 J -22667397.83 -22667397.66 -22667397.49 0.0499 0.0216  
 Mercury -66773-04-18 08:09 J -22667307.25 -22667307.16 -22667307.06 0.0500 0.0423  
 Moon -66770-03-01 13:25 J -22666260.16 -22666259.94 -22666259.72 0.0517 0.0170  
 Earth -66770-03-01 16:18 J -22666260.04 -22666259.82 -22666259.59 0.0517 0.0143 \*  
 Venus -66769-02-22 21:35 J -22665901.71 -22665901.60 -22665901.49 0.0523 0.0433  
 Mercury -66768-12-14 01:25 J -22665241.56 -22665241.44 -22665241.31 0.0526 0.0094  
 Mercury -66767-03-13 06:42 J -22665152.30 -22665152.22 -22665152.13 0.0525 0.0387  
 Earth -66765-08-18 15:35 J -22664263.03 -22664262.85 -22664262.67 0.0510 0.0319

Moon -66765-08-18 19:11 J -22664262.87 -22664262.70 -22664262.51 0.0510 0.0313 \*  
 Venus -66764-12-23 06:42 J -22663771.24 -22663771.22 -22663771.18 0.0502 0.0496  
 Mercury -66762-11-06 17:16 J -22663087.90 -22663087.78 -22663087.65 0.0499 0.0368  
 Mercury -66761-02-05 05:30 J -22662997.43 -22662997.27 -22662997.11 0.0500 0.0271  
 Earth -66758-03-06 16:18 J -22661871.94 -22661871.82 -22661871.68 0.0518 0.0428  
 Moon -66758-03-06 20:37 J -22661871.76 -22661871.64 -22661871.52 0.0518 0.0448 \*  
 Venus -66758-10-28 15:35 J -22661636.05 -22661635.85 -22661635.65 0.0522 0.0003  
 Mercury -66756-10-02 05:45 J -22660931.37 -22660931.26 -22660931.14 0.0526 0.0214  
 Mercury -66756-12-30 11:01 J -22660842.15 -22660842.04 -22660841.93 0.0525 0.0266  
 Moon -66753-08-23 00:57 J -22659875.70 -22659875.46 -22659875.23 0.0510 0.0031  
 Earth -66753-08-23 04:18 J -22659875.55 -22659875.32 -22659875.09 0.0510 0.0060 \*  
 Venus -66752-08-28 06:57 J -22659505.41 -22659505.21 -22659505.01 0.0503 0.0116  
 Mercury -66750-11-24 02:23 J -22658687.58 -22658687.40 -22658687.21 0.0500 0.0117  
 Venus -66746-07-03 08:23 J -22657370.26 -22657370.15 -22657370.04 0.0521 0.0432  
 Mercury -66744-07-21 09:49 J -22656621.18 -22656621.09 -22656620.99 0.0526 0.0337  
 Mercury -66744-10-18 15:21 J -22656531.98 -22656531.86 -22656531.74 0.0526 0.0146  
 Earth -66741-08-27 17:45 J -22655487.97 -22655487.76 -22655487.55 0.0509 0.0201  
 Moon -66741-08-27 19:54 J -22655487.87 -22655487.67 -22655487.46 0.0509 0.0198 \*  
 Venus -66740-05-03 07:11 J -22655239.38 -22655239.20 -22655239.03 0.0504 0.0266  
 Mercury -66738-09-11 23:01 J -22654377.72 -22654377.54 -22654377.35 0.0499 0.0042  
 Mercury -66732-05-09 14:37 J -22652310.95 -22652310.89 -22652310.83 0.0527 0.0450  
 Mercury -66732-08-06 19:54 J -22652221.79 -22652221.67 -22652221.54 0.0526 0.0036  
 Mercury -66732-11-04 01:25 J -22652132.47 -22652132.44 -22652132.42 0.0525 0.0511  
 Moon -66729-09-01 05:01 J -22651100.42 -22651100.29 -22651100.16 0.0507 0.0426  
 Earth -66729-09-01 05:59 J -22651100.34 -22651100.25 -22651100.15 0.0507 0.0459 \*  
 Mercury -66726-06-30 18:13 J -22650067.90 -22650067.74 -22650067.57 0.0499 0.0214  
 Mercury -66726-09-29 06:28 J -22649977.33 -22649977.23 -22649977.14 0.0500 0.0424  
 Venus -66722-07-06 06:13 J -22648601.41 -22648601.24 -22648601.06 0.0523 0.0251  
 Mercury -66720-05-26 00:42 J -22647911.60 -22647911.47 -22647911.35 0.0526 0.0084  
 Mercury -66720-08-23 05:59 J -22647822.33 -22647822.25 -22647822.17 0.0526 0.0397



Venus -66716-05-05 18:42 J -22646470.87 -22646470.72 -22646470.57 0.0502 0.0338

Mercury -66714-04-18 15:06 J -22645758.00 -22645757.87 -22645757.75 0.0499 0.0370

Mercury -66714-07-18 03:06 J -22645667.53 -22645667.37 -22645667.21 0.0500 0.0267

Earth -66711-02-18 21:35 J -22644720.71 -22644720.60 -22644720.48 0.0515 0.0447

Moon -66711-02-18 21:49 J -22644720.68 -22644720.59 -22644720.48 0.0515 0.0473 \*

Venus -66710-03-11 00:28 J -22644335.67 -22644335.48 -22644335.28 0.0522 0.0180

Mars -66709-04-20 05:16 J -22643929.44 -22643929.28 -22643929.11 0.0526 0.0394

Mercury -66708-03-14 04:47 J -22643601.42 -22643601.30 -22643601.19 0.0526 0.0207

Mercury -66708-06-11 10:04 J -22643512.19 -22643512.08 -22643511.97 0.0526 0.0273

Venus -66704-01-08 17:59 J -22642204.96 -22642204.75 -22642204.55 0.0503 0.0050

Mercury -66702-05-06 00:13 J -22641357.67 -22641357.49 -22641357.31 0.0500 0.0113

Moon -66699-02-23 19:11 J -22640332.92 -22640332.70 -22640332.48 0.0516 0.0176

Earth -66699-02-23 21:49 J -22640332.81 -22640332.59 -22640332.36 0.0516 0.0165 \*

Mercury -66697-12-31 08:52 J -22639291.23 -22639291.13 -22639291.03 0.0526 0.0330

Mercury -66696-03-30 14:09 J -22639202.03 -22639201.91 -22639201.78 0.0526 0.0152

Venus -66693-09-13 17:45 J -22637938.86 -22637938.76 -22637938.66 0.0505 0.0432

Mars -66691-02-04 00:28 J -22637430.72 -22637430.48 -22637430.23 0.0499 0.0285

Mercury -66690-02-21 21:06 J -22637047.81 -22637047.62 -22637047.44 0.0499 0.0043

Earth -66687-02-28 19:11 J -22635944.93 -22635944.70 -22635944.47 0.0516 0.0114

Moon -66687-02-28 23:16 J -22635944.76 -22635944.53 -22635944.30 0.0516 0.0146 \*

Venus -66686-03-13 20:23 J -22635566.72 -22635566.65 -22635566.59 0.0523 0.0494

Mercury -66685-10-19 12:57 J -22634981.02 -22634980.96 -22634980.90 0.0526 0.0454

Mercury -66684-01-16 18:28 J -22634891.86 -22634891.73 -22634891.61 0.0526 0.0034

Mercury -66684-04-15 23:30 J -22634802.54 -22634802.52 -22634802.48 0.0525 0.0507

Moon -66682-08-18 19:54 J -22633947.84 -22633947.67 -22633947.49 0.0511 0.0330

Earth -66682-08-18 23:30 J -22633947.69 -22633947.52 -22633947.35 0.0511 0.0341 \*

Mercury -66679-12-10 17:30 J -22632737.94 -22632737.77 -22632737.59 0.0499 0.0201

Mercury -66678-03-11 05:45 J -22632647.35 -22632647.26 -22632647.17 0.0500 0.0438

Moon -66675-03-05 14:09 J -22631557.04 -22631556.91 -22631556.76 0.0518 0.0415

Earth -66675-03-05 18:28 J -22631556.88 -22631556.73 -22631556.58 0.0518 0.0396 \*

Venus -66675-11-16 14:37 J -22631301.10 -22631300.89 -22631300.69 0.0522 0.0066  
 Mars -66673-01-23 11:01 J -22630868.27 -22630868.04 -22630867.81 0.0527 0.0192  
 Mercury -66673-11-04 23:01 J -22630581.67 -22630581.54 -22630581.42 0.0526 0.0087  
 Mercury -66672-02-02 04:18 J -22630492.40 -22630492.32 -22630492.24 0.0526 0.0393  
 Earth -66670-08-23 12:42 J -22629560.19 -22629559.97 -22629559.74 0.0509 0.0076  
 Moon -66670-08-23 14:52 J -22629560.10 -22629559.88 -22629559.66 0.0509 0.0048 \*  
 Venus -66669-09-16 05:59 J -22629170.44 -22629170.25 -22629170.06 0.0503 0.0174  
 Mercury -66667-09-28 12:42 J -22628428.08 -22628427.97 -22628427.84 0.0499 0.0373  
 Mercury -66667-12-28 00:57 J -22628337.62 -22628337.46 -22628337.30 0.0499 0.0264  
 Venus -66663-07-22 07:40 J -22627035.32 -22627035.18 -22627035.04 0.0522 0.0371  
 Mercury -66661-08-24 03:35 J -22626271.47 -22626271.35 -22626271.24 0.0527 0.0204  
 Mercury -66661-11-21 08:52 J -22626182.24 -22626182.13 -22626182.02 0.0526 0.0278  
 Moon -66658-08-28 00:13 J -22625172.72 -22625172.49 -22625172.27 0.0508 0.0173  
 Earth -66658-08-28 00:57 J -22625172.67 -22625172.46 -22625172.24 0.0508 0.0182 \*  
 Venus -66657-05-22 05:45 J -22624904.45 -22624904.26 -22624904.08 0.0503 0.0209  
 Mars -66656-11-11 10:33 J -22624366.25 -22624366.06 -22624365.87 0.0499 0.0393  
 Mercury -66655-10-15 21:21 J -22624027.79 -22624027.61 -22624027.42 0.0499 0.0106  
 Mercury -66649-06-12 07:40 J -22621961.28 -22621961.18 -22621961.08 0.0526 0.0329  
 Mercury -66649-09-09 12:57 J -22621872.08 -22621871.96 -22621871.84 0.0526 0.0153  
 Moon -66646-09-01 09:49 J -22620785.22 -22620785.09 -22620784.96 0.0507 0.0404  
 Earth -66646-09-01 10:18 J -22620785.19 -22620785.07 -22620784.95 0.0507 0.0433 \*  
 Mercury -66643-08-03 18:13 J -22619717.92 -22619717.74 -22619717.55 0.0499 0.0052  
 Venus -66639-07-25 05:16 J -22618266.43 -22618266.28 -22618266.11 0.0523 0.0313  
 Mercury -66637-03-31 11:45 J -22617651.07 -22617651.01 -22617650.95 0.0526 0.0452  
 Mercury -66637-06-28 17:01 J -22617561.91 -22617561.79 -22617561.66 0.0526 0.0032  
 Mercury -66637-09-25 22:18 J -22617472.60 -22617472.57 -22617472.54 0.0525 0.0509  
 Venus -66633-05-24 16:33 J -22616135.93 -22616135.81 -22616135.68 0.0503 0.0392  
 Mercury -66631-05-22 15:06 J -22615408.04 -22615407.87 -22615407.70 0.0499 0.0207  
 Mercury -66631-08-21 03:06 J -22615317.46 -22615317.37 -22615317.27 0.0500 0.0433  
 Moon -66628-02-17 20:37 J -22614405.65 -22614405.64 -22614405.63 0.0514 0.0513

Earth -66628-02-17 22:33 J -22614405.63 -22614405.56 -22614405.47 0.0514 0.0481 \*  
 Venus -66627-03-29 21:49 J -22614000.79 -22614000.59 -22614000.39 0.0522 0.0126  
 Mercury -66625-04-16 21:06 J -22613251.74 -22613251.62 -22613251.50 0.0526 0.0095  
 Mercury -66625-07-15 02:23 J -22613162.48 -22613162.40 -22613162.32 0.0526 0.0386  
 Venus -66621-01-28 16:33 J -22611870.01 -22611869.81 -22611869.61 0.0503 0.0010  
 Mercury -66619-03-10 11:30 J -22611098.14 -22611098.02 -22611097.89 0.0499 0.0365  
 Mercury -66619-06-08 23:30 J -22611007.67 -22611007.52 -22611007.36 0.0500 0.0273  
 Earth -66616-02-22 20:37 J -22610017.86 -22610017.64 -22610017.42 0.0515 0.0205  
 Moon -66616-02-23 00:13 J -22610017.70 -22610017.49 -22610017.27 0.0515 0.0211 \*  
 Mercury -66613-02-04 01:40 J -22608941.55 -22608941.43 -22608941.32 0.0527 0.0213  
 Mercury -66613-05-03 06:57 J -22608852.32 -22608852.21 -22608852.10 0.0526 0.0270  
 Venus -66610-10-03 16:04 J -22607603.96 -22607603.83 -22607603.69 0.0504 0.0376  
 Mercury -66607-03-27 18:57 J -22606697.90 -22606697.71 -22606697.53 0.0499 0.0100  
 Moon -66604-02-27 12:28 J -22605630.21 -22605629.98 -22605629.75 0.0517 0.0102  
 Earth -66604-02-27 16:33 J -22605630.05 -22605629.81 -22605629.58 0.0517 0.0073 \*  
 Mercury -66602-11-23 05:59 J -22604631.34 -22604631.25 -22604631.15 0.0527 0.0331  
 Mercury -66601-02-20 11:30 J -22604542.14 -22604542.02 -22604541.90 0.0526 0.0153  
 Earth -66599-08-18 05:30 J -22603632.43 -22603632.27 -22603632.11 0.0511 0.0365  
 Moon -66599-08-18 07:25 J -22603632.34 -22603632.19 -22603632.02 0.0511 0.0345 \*  
 Mercury -66595-01-13 15:21 J -22602388.05 -22602387.86 -22602387.68 0.0499 0.0061  
 Earth -66592-03-04 16:33 J -22601241.97 -22601241.81 -22601241.63 0.0518 0.0362  
 Moon -66592-03-04 19:40 J -22601241.83 -22601241.68 -22601241.51 0.0518 0.0374 \*  
 Venus -66592-12-05 11:59 J -22600966.20 -22600966.00 -22600965.80 0.0523 0.0117  
 Mercury -66590-09-11 10:04 J -22600321.14 -22600321.08 -22600321.02 0.0527 0.0456  
 Mercury -66590-12-09 15:35 J -22600231.98 -22600231.85 -22600231.73 0.0526 0.0030  
 Mercury -66589-03-07 20:52 J -22600142.66 -22600142.63 -22600142.60 0.0525 0.0506  
 Moon -66587-08-22 13:25 J -22599245.18 -22599244.94 -22599244.71 0.0510 0.0086  
 Earth -66587-08-22 14:23 J -22599245.13 -22599244.90 -22599244.68 0.0510 0.0113 \*  
 Venus -66586-10-06 02:23 J -22598835.59 -22598835.40 -22598835.22 0.0503 0.0221  
 Mercury -66584-11-01 11:59 J -22598078.17 -22598078.00 -22598077.83 0.0499 0.0218

Mercury -66583-01-30 23:59 J -22597987.59 -22597987.50 -22597987.40 0.0500 0.0422  
 Venus -66580-08-10 05:45 J -22596700.42 -22596700.26 -22596700.10 0.0521 0.0313  
 Mercury -66578-09-27 19:40 J -22595921.81 -22595921.68 -22595921.56 0.0526 0.0097  
 Mercury -66578-12-26 00:57 J -22595832.55 -22595832.46 -22595832.38 0.0525 0.0384  
 Moon -66575-08-27 00:42 J -22594857.68 -22594857.47 -22594857.25 0.0509 0.0134  
 Earth -66575-08-27 01:11 J -22594857.67 -22594857.45 -22594857.23 0.0509 0.0144 \*  
 Venus -66574-06-11 01:25 J -22594569.63 -22594569.44 -22594569.24 0.0504 0.0164  
 Mercury -66572-08-20 08:37 J -22593768.26 -22593768.14 -22593768.02 0.0499 0.0376  
 Mercury -66572-11-18 20:37 J -22593677.79 -22593677.64 -22593677.48 0.0500 0.0264  
 Mercury -66566-07-16 23:30 J -22591611.63 -22591611.52 -22591611.40 0.0526 0.0223  
 Mercury -66566-10-14 04:47 J -22591522.41 -22591522.30 -22591522.19 0.0526 0.0259  
 Earth -66563-08-31 12:57 J -22590470.10 -22590469.96 -22590469.82 0.0508 0.0402  
 Moon -66563-08-31 15:06 J -22590470.03 -22590469.87 -22590469.71 0.0508 0.0373 \*  
 Mercury -66560-09-06 17:01 J -22589367.97 -22589367.79 -22589367.60 0.0499 0.0102  
 Venus -66556-08-13 00:42 J -22587931.61 -22587931.47 -22587931.32 0.0523 0.0357  
 Mars -66555-07-14 16:04 J -22587596.05 -22587595.83 -22587595.60 0.0527 0.0238  
 Mercury -66554-05-05 03:49 J -22587301.43 -22587301.34 -22587301.24 0.0527 0.0343  
 Mercury -66554-08-02 09:21 J -22587212.23 -22587212.11 -22587211.99 0.0526 0.0141  
 Venus -66550-06-13 13:40 J -22585801.02 -22585800.93 -22585800.83 0.0502 0.0440  
 Mercury -66548-06-25 12:28 J -22585058.16 -22585057.98 -22585057.79 0.0499 0.0070  
 Venus -66544-04-17 17:01 J -22583665.99 -22583665.79 -22583665.59 0.0522 0.0084  
 Mercury -66542-02-21 08:09 J -22582991.21 -22582991.16 -22582991.10 0.0527 0.0464  
 Mercury -66542-05-21 13:40 J -22582902.05 -22582901.93 -22582901.80 0.0527 0.0024  
 Mercury -66542-08-18 18:57 J -22582812.74 -22582812.71 -22582812.67 0.0526 0.0503  
 Venus -66538-02-16 13:11 J -22581535.16 -22581534.95 -22581534.75 0.0503 0.0057  
 Mars -66537-04-29 05:01 J -22581097.59 -22581097.29 -22581096.99 0.0499 0.0098  
 Mercury -66536-04-13 08:52 J -22580748.30 -22580748.13 -22580747.96 0.0499 0.0230  
 Mercury -66536-07-12 20:37 J -22580657.74 -22580657.64 -22580657.52 0.0499 0.0409  
 Moon -66533-02-22 12:13 J -22579703.19 -22579702.99 -22579702.79 0.0515 0.0261  
 Earth -66533-02-22 16:04 J -22579703.03 -22579702.83 -22579702.61 0.0515 0.0251 \*

Venus -66533-12-21 10:47 J -22579400.08 -22579400.05 -22579400.01 0.0521 0.0512  
 Mercury -66530-03-09 17:45 J -22578591.88 -22578591.76 -22578591.64 0.0526 0.0104  
 Mercury -66530-06-06 23:01 J -22578502.62 -22578502.54 -22578502.45 0.0526 0.0378  
 Venus -66527-10-22 10:47 J -22577269.20 -22577269.05 -22577268.90 0.0504 0.0336  
 Mercury -66524-01-30 05:16 J -22576438.39 -22576438.28 -22576438.16 0.0499 0.0390  
 Mercury -66524-04-30 17:16 J -22576347.94 -22576347.78 -22576347.61 0.0500 0.0249  
 Earth -66521-02-27 16:18 J -22575315.05 -22575314.82 -22575314.58 0.0516 0.0037  
 Moon -66521-02-27 19:54 J -22575314.90 -22575314.67 -22575314.44 0.0516 0.0068 \*  
 Mars -66519-04-17 21:35 J -22574534.77 -22574534.60 -22574534.41 0.0527 0.0355  
 Mercury -66519-12-26 21:49 J -22574281.70 -22574281.59 -22574281.47 0.0526 0.0228  
 Mercury -66518-03-26 03:06 J -22574192.48 -22574192.37 -22574192.26 0.0526 0.0255  
 Moon -66516-08-17 01:40 J -22573317.58 -22573317.43 -22573317.27 0.0511 0.0389  
 Earth -66516-08-17 02:37 J -22573317.52 -22573317.39 -22573317.25 0.0511 0.0414 \*  
 Mercury -66512-02-16 13:54 J -22572038.10 -22572037.92 -22572037.73 0.0499 0.0090  
 Moon -66509-03-03 11:45 J -22570927.20 -22570927.01 -22570926.82 0.0517 0.0321  
 Earth -66509-03-03 13:40 J -22570927.11 -22570926.93 -22570926.74 0.0517 0.0318 \*  
 Venus -66509-12-24 06:57 J -22570631.40 -22570631.21 -22570631.01 0.0522 0.0161  
 Mercury -66507-10-15 01:40 J -22569971.52 -22569971.43 -22569971.33 0.0526 0.0355  
 Mercury -66506-01-12 07:11 J -22569882.33 -22569882.20 -22569882.08 0.0526 0.0129  
 Moon -66504-08-21 14:09 J -22568930.12 -22568929.91 -22568929.69 0.0510 0.0128  
 Earth -66504-08-21 14:37 J -22568930.11 -22568929.89 -22568929.67 0.0510 0.0153 \*  
 Venus -66503-10-24 22:18 J -22568500.74 -22568500.57 -22568500.40 0.0503 0.0267  
 Mercury -66501-12-05 10:18 J -22567728.26 -22567728.07 -22567727.88 0.0499 0.0072  
 Venus -66497-08-28 23:59 J -22566365.68 -22566365.50 -22566365.33 0.0521 0.0274  
 Mercury -66495-08-03 05:59 J -22565661.30 -22565661.25 -22565661.20 0.0527 0.0476  
 Mercury -66495-10-31 11:30 J -22565572.15 -22565572.02 -22565571.90 0.0526 0.0012  
 Mercury -66494-01-28 16:47 J -22565482.84 -22565482.80 -22565482.76 0.0526 0.0490  
 Earth -66492-08-26 04:04 J -22564542.55 -22564542.33 -22564542.10 0.0509 0.0113  
 Moon -66492-08-26 06:13 J -22564542.48 -22564542.24 -22564542.01 0.0509 0.0097 \*  
 Venus -66491-06-29 22:18 J -22564234.77 -22564234.57 -22564234.37 0.0503 0.0116

Mercury -66489-09-23 05:59 J -22563418.41 -22563418.25 -22563418.09 0.0499 0.0240  
 Mercury -66489-12-22 17:45 J -22563327.87 -22563327.76 -22563327.64 0.0499 0.0398  
 Mercury -66483-08-19 15:49 J -22561261.96 -22561261.84 -22561261.72 0.0527 0.0113  
 Mercury -66483-11-16 21:06 J -22561172.71 -22561172.62 -22561172.53 0.0526 0.0371  
 Moon -66480-08-30 12:42 J -22560155.14 -22560154.97 -22560154.81 0.0508 0.0345  
 Earth -66480-08-30 15:49 J -22560154.99 -22560154.84 -22560154.68 0.0508 0.0371 \*  
 Venus -66479-03-04 21:49 J -22559968.62 -22559968.59 -22559968.56 0.0504 0.0498  
 Mercury -66477-07-12 02:23 J -22559108.51 -22559108.40 -22559108.29 0.0499 0.0401  
 Mercury -66477-10-10 14:09 J -22559018.07 -22559017.91 -22559017.74 0.0499 0.0236  
 Venus -66473-08-31 19:54 J -22557596.80 -22557596.67 -22557596.54 0.0523 0.0398  
 Mercury -66471-06-07 19:54 J -22556951.78 -22556951.67 -22556951.56 0.0527 0.0237  
 Mercury -66471-09-05 01:11 J -22556862.56 -22556862.45 -22556862.34 0.0526 0.0246  
 Venus -66467-07-02 07:40 J -22555466.24 -22555466.18 -22555466.11 0.0502 0.0476  
 Mercury -66465-07-29 10:33 J -22554708.25 -22554708.06 -22554707.87 0.0499 0.0075  
 Venus -66461-05-06 13:54 J -22553331.12 -22553330.92 -22553330.71 0.0522 0.0033  
 Mercury -66459-03-26 23:59 J -22552641.59 -22552641.50 -22552641.41 0.0526 0.0360  
 Mercury -66459-06-24 05:30 J -22552552.40 -22552552.27 -22552552.15 0.0526 0.0124  
 Venus -66455-03-07 06:42 J -22551200.42 -22551200.22 -22551200.02 0.0503 0.0092  
 Mercury -66453-05-17 07:11 J -22550398.39 -22550398.20 -22550398.02 0.0499 0.0085  
 Earth -66450-02-21 13:54 J -22549388.12 -22549387.92 -22549387.73 0.0514 0.0294  
 Moon -66450-02-21 17:45 J -22549387.95 -22549387.76 -22549387.57 0.0514 0.0297 \*  
 Venus -66449-01-10 06:13 J -22549065.33 -22549065.24 -22549065.15 0.0521 0.0467  
 Mercury -66447-01-13 03:49 J -22548331.38 -22548331.34 -22548331.29 0.0527 0.0488  
 Mercury -66447-04-12 09:21 J -22548242.24 -22548242.11 -22548241.99 0.0526 0.0007  
 Mercury -66447-07-10 14:37 J -22548152.94 -22548152.89 -22548152.84 0.0525 0.0477  
 Venus -66444-11-10 06:13 J -22546934.41 -22546934.24 -22546934.08 0.0504 0.0292  
 Mercury -66441-03-05 03:35 J -22546088.52 -22546088.35 -22546088.19 0.0499 0.0245  
 Mercury -66441-06-03 15:35 J -22545997.96 -22545997.85 -22545997.74 0.0500 0.0395  
 Moon -66438-02-26 08:09 J -22545000.41 -22545000.16 -22544999.92 0.0516 0.0015  
 Earth -66438-02-26 10:47 J -22545000.29 -22545000.05 -22544999.81 0.0516 0.0015 \*

Mercury -66435-01-29 13:40 J -22543932.06 -22543931.93 -22543931.81 0.0527 0.0126

Mercury -66435-04-28 18:57 J -22543842.80 -22543842.71 -22543842.62 0.0526 0.0358

Moon -66433-08-16 04:04 J -22543002.44 -22543002.33 -22543002.20 0.0512 0.0427

Earth -66433-08-16 04:33 J -22543002.41 -22543002.31 -22543002.20 0.0512 0.0451 \*

Mercury -66430-12-22 23:30 J -22541778.62 -22541778.52 -22541778.42 0.0498 0.0410

Mercury -66429-03-22 11:16 J -22541688.19 -22541688.03 -22541687.86 0.0499 0.0227

Earth -66426-03-03 05:59 J -22540612.45 -22540612.25 -22540612.04 0.0517 0.0263

Moon -66426-03-03 06:28 J -22540612.42 -22540612.23 -22540612.03 0.0517 0.0264 \*

Venus -66425-01-13 00:57 J -22540296.65 -22540296.46 -22540296.27 0.0523 0.0197

Mercury -66424-11-17 17:45 J -22539621.87 -22539621.76 -22539621.64 0.0527 0.0248

Mercury -66423-02-14 23:16 J -22539532.64 -22539532.53 -22539532.42 0.0526 0.0238

Earth -66421-08-20 17:16 J -22538614.99 -22538614.78 -22538614.56 0.0510 0.0188

Moon -66421-08-20 19:11 J -22538614.92 -22538614.70 -22538614.47 0.0510 0.0166 \*

Venus -66420-11-12 18:28 J -22538165.88 -22538165.73 -22538165.57 0.0502 0.0313

Mercury -66417-01-09 07:40 J -22537378.37 -22537378.18 -22537377.99 0.0499 0.0065

Moon -66414-03-08 07:11 J -22536224.20 -22536224.20 -22536224.18 0.0518 0.0517

Venus -66414-09-17 18:57 J -22536030.89 -22536030.71 -22536030.53 0.0522 0.0232

Mercury -66412-09-05 22:04 J -22535311.67 -22535311.58 -22535311.49 0.0527 0.0370

Mercury -66412-12-04 03:21 J -22535222.48 -22535222.36 -22535222.23 0.0526 0.0115

Moon -66409-08-24 22:18 J -22534227.79 -22534227.57 -22534227.34 0.0509 0.0043

Earth -66409-08-25 01:25 J -22534227.67 -22534227.44 -22534227.21 0.0509 0.0064 \*

Venus -66408-07-18 15:49 J -22533900.04 -22533899.84 -22533899.64 0.0504 0.0081

Mercury -66406-10-28 03:49 J -22533068.52 -22533068.34 -22533068.16 0.0499 0.0099

Mars -66401-10-06 21:35 J -22531262.85 -22531262.60 -22531262.35 0.0526 0.0092

Mercury -66400-06-25 02:09 J -22531001.45 -22531001.41 -22531001.36 0.0526 0.0492

Mercury -66400-09-22 07:40 J -22530912.31 -22530912.18 -22530912.05 0.0526 0.0009

Mercury -66400-12-20 12:57 J -22530823.01 -22530822.96 -22530822.91 0.0525 0.0473

Earth -66397-08-29 11:59 J -22529840.17 -22529840.00 -22529839.82 0.0508 0.0321

Moon -66397-08-29 15:49 J -22529840.02 -22529839.84 -22529839.65 0.0508 0.0299 \*

Venus -66396-03-23 14:52 J -22529633.95 -22529633.88 -22529633.80 0.0505 0.0465

Mercury -66394-08-16 00:28 J -22528758.64 -22528758.48 -22528758.32 0.0499 0.0257

Mercury -66394-11-14 12:28 J -22528668.10 -22528667.98 -22528667.86 0.0500 0.0384

Venus -66390-09-20 15:21 J -22527261.96 -22527261.86 -22527261.74 0.0523 0.0444

Mercury -66388-07-11 11:30 J -22526602.14 -22526602.02 -22526601.90 0.0526 0.0135

Mercury -66388-10-08 16:47 J -22526512.89 -22526512.80 -22526512.70 0.0526 0.0348

Mars -66383-07-23 01:40 J -22524764.73 -22524764.43 -22524764.13 0.0499 0.0066

Mercury -66382-06-03 20:52 J -22524448.73 -22524448.63 -22524448.52 0.0499 0.0416

Mercury -66382-09-02 08:52 J -22524358.29 -22524358.13 -22524357.96 0.0499 0.0224

Venus -66378-05-26 08:23 J -22522996.35 -22522996.15 -22522995.95 0.0522 0.0010

Mercury -66376-04-29 15:49 J -22522291.95 -22522291.84 -22522291.73 0.0527 0.0257

Mercury -66376-07-27 21:06 J -22522202.73 -22522202.62 -22522202.50 0.0526 0.0227

Venus -66372-03-26 03:35 J -22520865.55 -22520865.35 -22520865.15 0.0503 0.0142

Mercury -66370-06-21 05:01 J -22520048.48 -22520048.29 -22520048.10 0.0499 0.0058

Moon -66367-02-20 04:04 J -22519073.50 -22519073.33 -22519073.15 0.0514 0.0350

Earth -66367-02-20 07:25 J -22519073.36 -22519073.19 -22519073.01 0.0514 0.0348 \*

Venus -66366-01-29 00:13 J -22518730.60 -22518730.49 -22518730.37 0.0521 0.0428

Mars -66365-07-10 21:06 J -22518201.72 -22518201.62 -22518201.52 0.0527 0.0480

Mercury -66364-02-15 19:54 J -22517981.75 -22517981.67 -22517981.58 0.0527 0.0380

Mercury -66364-05-16 01:25 J -22517892.56 -22517892.44 -22517892.31 0.0527 0.0107

Venus -66361-11-29 03:21 J -22516599.54 -22516599.36 -22516599.18 0.0504 0.0240

Mercury -66358-04-09 01:25 J -22515738.62 -22515738.44 -22515738.26 0.0499 0.0102

Earth -66355-02-25 06:57 J -22514685.45 -22514685.21 -22514684.98 0.0515 0.0063

Moon -66355-02-25 08:09 J -22514685.39 -22514685.16 -22514684.93 0.0515 0.0033 \*

Mercury -66353-12-05 00:13 J -22513671.52 -22513671.49 -22513671.45 0.0527 0.0501

Mercury -66352-03-04 05:45 J -22513582.39 -22513582.26 -22513582.13 0.0526 0.0016

Mercury -66352-06-01 11:01 J -22513493.09 -22513493.04 -22513492.98 0.0526 0.0466

Earth -66350-08-16 02:37 J -22512687.43 -22512687.39 -22512687.34 0.0512 0.0500

Moon -66350-08-16 04:18 J -22512687.41 -22512687.32 -22512687.23 0.0512 0.0471 \*

Mercury -66346-01-25 21:21 J -22511428.76 -22511428.61 -22511428.45 0.0499 0.0268

Mercury -66346-04-26 09:21 J -22511338.23 -22511338.11 -22511337.98 0.0500 0.0374



Earth -66343-03-02 08:09 J -22510297.37 -22510297.16 -22510296.95 0.0517 0.0229  
 Moon -66343-03-02 08:52 J -22510297.35 -22510297.13 -22510296.90 0.0517 0.0225 \*  
 Venus -66342-01-31 23:30 J -22509961.69 -22509961.52 -22509961.34 0.0523 0.0259  
 Mercury -66341-12-21 10:04 J -22509272.20 -22509272.08 -22509271.96 0.0526 0.0136  
 Mercury -66340-03-20 15:21 J -22509182.95 -22509182.86 -22509182.76 0.0526 0.0347  
 Moon -66338-08-20 11:16 J -22508300.23 -22508300.03 -22508299.82 0.0511 0.0224  
 Earth -66338-08-20 14:23 J -22508300.10 -22508299.90 -22508299.70 0.0511 0.0239 \*  
 Venus -66337-12-01 12:13 J -22507831.14 -22507830.99 -22507830.84 0.0503 0.0350  
 Mercury -66335-11-13 17:59 J -22507118.84 -22507118.75 -22507118.65 0.0499 0.0425  
 Mercury -66334-02-12 05:59 J -22507028.41 -22507028.25 -22507028.08 0.0500 0.0216  
 Moon -66331-03-07 04:04 J -22505909.40 -22505909.33 -22505909.25 0.0517 0.0484  
 Earth -66331-03-07 06:28 J -22505909.24 -22505909.23 -22505909.21 0.0517 0.0516  
 Venus -66331-10-06 16:18 J -22505696.01 -22505695.82 -22505695.63 0.0521 0.0176  
 Mercury -66329-10-09 14:09 J -22504962.02 -22504961.91 -22504961.81 0.0526 0.0263  
 Mercury -66328-01-06 19:25 J -22504872.81 -22504872.69 -22504872.58 0.0526 0.0221  
 Earth -66326-08-25 02:09 J -22503912.64 -22503912.41 -22503912.18 0.0510 0.0027  
 Moon -66326-08-25 05:45 J -22503912.49 -22503912.26 -22503912.03 0.0510 0.0009 \*  
 Venus -66325-08-06 11:59 J -22503565.20 -22503565.00 -22503564.79 0.0504 0.0033  
 Mercury -66323-12-01 02:37 J -22502718.57 -22502718.39 -22502718.20 0.0499 0.0058  
 Mercury -66317-07-28 18:13 J -22500651.82 -22500651.74 -22500651.65 0.0527 0.0385  
 Mercury -66317-10-25 23:45 J -22500562.64 -22500562.51 -22500562.39 0.0526 0.0101  
 Moon -66314-08-29 12:13 J -22499525.18 -22499524.99 -22499524.79 0.0509 0.0268  
 Earth -66314-08-29 16:04 J -22499525.02 -22499524.83 -22499524.64 0.0509 0.0292 \*  
 Venus -66313-04-11 12:42 J -22499299.08 -22499298.97 -22499298.85 0.0505 0.0410  
 Mercury -66311-09-18 23:16 J -22498408.72 -22498408.53 -22498408.35 0.0499 0.0106  
 Venus -66307-10-09 11:01 J -22496927.11 -22496927.04 -22496926.97 0.0523 0.0489  
 Mercury -66305-05-16 22:33 J -22496341.59 -22496341.56 -22496341.53 0.0527 0.0508  
 Mercury -66305-08-14 04:04 J -22496252.46 -22496252.33 -22496252.21 0.0527 0.0028  
 Mercury -66305-11-11 09:21 J -22496163.17 -22496163.11 -22496163.05 0.0526 0.0462  
 Mercury -66299-07-07 19:40 J -22494098.84 -22494098.68 -22494098.52 0.0499 0.0265

Mercury -66299-10-06 07:25 J -22494008.30 -22494008.19 -22494008.06 0.0499 0.0376  
 Venus -66295-06-14 05:45 J -22492661.47 -22492661.26 -22492661.06 0.0522 0.0066  
 Mercury -66293-06-02 08:23 J -22491942.27 -22491942.15 -22491942.03 0.0526 0.0141  
 Mercury -66293-08-30 13:40 J -22491853.02 -22491852.93 -22491852.83 0.0526 0.0342  
 Venus -66289-04-13 22:18 J -22490530.76 -22490530.57 -22490530.38 0.0503 0.0183  
 Mercury -66287-04-25 15:21 J -22489788.95 -22489788.86 -22489788.76 0.0499 0.0432  
 Mercury -66287-07-25 03:35 J -22489698.52 -22489698.35 -22489698.18 0.0500 0.0209  
 Earth -66284-02-19 11:45 J -22488758.17 -22488758.01 -22488757.85 0.0514 0.0378  
 Moon -66284-02-19 13:11 J -22488758.10 -22488757.95 -22488757.78 0.0514 0.0370 \*  
 Venus -66283-02-17 00:42 J -22488395.62 -22488395.47 -22488395.32 0.0521 0.0356  
 Mars -66282-03-29 03:21 J -22487990.38 -22487990.36 -22487990.33 0.0526 0.0523  
 Mercury -66281-03-21 12:42 J -22487632.07 -22487631.97 -22487631.85 0.0526 0.0260  
 Mercury -66281-06-18 18:13 J -22487542.86 -22487542.74 -22487542.63 0.0526 0.0224  
 Venus -66278-12-18 21:49 J -22486264.78 -22486264.59 -22486264.40 0.0504 0.0200  
 Mercury -66275-05-13 00:13 J -22485388.68 -22485388.49 -22485388.30 0.0500 0.0051  
 Earth -66272-02-24 10:47 J -22484370.29 -22484370.05 -22484369.82 0.0515 0.0092  
 Moon -66272-02-24 11:01 J -22484370.28 -22484370.04 -22484369.79 0.0515 0.0061 \*  
 Mercury -66269-01-08 16:47 J -22483321.88 -22483321.80 -22483321.71 0.0526 0.0385  
 Mercury -66269-04-06 22:04 J -22483232.70 -22483232.58 -22483232.45 0.0526 0.0100  
 Moon -66267-08-15 02:09 J -22482372.42 -22482372.41 -22482372.38 0.0512 0.0510  
 Mars -66264-01-08 02:09 J -22481495.57 -22481495.41 -22481495.24 0.0500 0.0418  
 Mercury -66263-02-28 21:06 J -22481078.80 -22481078.62 -22481078.44 0.0499 0.0106  
 Moon -66260-03-01 06:42 J -22479982.43 -22479982.22 -22479982.00 0.0516 0.0187  
 Earth -66260-03-01 08:37 J -22479982.35 -22479982.14 -22479981.91 0.0516 0.0193 \*  
 Venus -66259-02-19 20:52 J -22479626.79 -22479626.63 -22479626.47 0.0522 0.0314  
 Mercury -66258-10-27 20:52 J -22479011.65 -22479011.63 -22479011.59 0.0527 0.0508  
 Mercury -66257-01-25 02:23 J -22478922.52 -22478922.40 -22478922.27 0.0526 0.0024  
 Mercury -66257-04-23 07:40 J -22478833.24 -22478833.18 -22478833.12 0.0526 0.0460  
 Earth -66255-08-19 19:25 J -22477984.88 -22477984.69 -22477984.49 0.0511 0.0269  
 Moon -66255-08-19 23:16 J -22477984.73 -22477984.53 -22477984.33 0.0511 0.0261 \*

Venus -66254-12-21 11:16 J -22477496.14 -22477496.03 -22477495.90 0.0503 0.0411  
 Mercury -66252-12-17 17:45 J -22476768.92 -22476768.76 -22476768.60 0.0499 0.0264  
 Mercury -66251-03-18 05:45 J -22476678.38 -22476678.26 -22476678.14 0.0499 0.0377  
 Earth -66248-03-06 05:01 J -22475594.37 -22475594.29 -22475594.19 0.0517 0.0475  
 Moon -66248-03-06 08:37 J -22475594.26 -22475594.14 -22475594.01 0.0517 0.0443 \*  
 Venus -66248-10-25 13:11 J -22475361.15 -22475360.95 -22475360.75 0.0521 0.0121  
 Mars -66247-12-31 07:25 J -22474929.44 -22474929.19 -22474928.94 0.0527 0.0061  
 Mercury -66246-11-13 06:42 J -22474612.34 -22474612.22 -22474612.10 0.0527 0.0144  
 Mercury -66245-02-10 11:59 J -22474523.09 -22474523.00 -22474522.90 0.0526 0.0341  
 Moon -66243-08-24 05:45 J -22473597.49 -22473597.26 -22473597.02 0.0510 0.0032  
 Earth -66243-08-24 09:35 J -22473597.33 -22473597.10 -22473596.87 0.0510 0.0008 \*  
 Venus -66242-08-26 11:45 J -22473230.22 -22473230.01 -22473229.81 0.0504 0.0033  
 Mercury -66240-10-05 14:23 J -22472458.99 -22472458.90 -22472458.80 0.0499 0.0421  
 Mercury -66239-01-04 02:23 J -22472368.57 -22472368.40 -22472368.23 0.0499 0.0218  
 Mercury -66234-09-01 11:16 J -22470302.14 -22470302.03 -22470301.92 0.0526 0.0261  
 Mercury -66234-11-29 16:33 J -22470212.92 -22470212.81 -22470212.69 0.0526 0.0224  
 Earth -66231-08-28 18:13 J -22469209.93 -22469209.74 -22469209.53 0.0509 0.0256  
 Moon -66231-08-28 21:21 J -22469209.81 -22469209.61 -22469209.41 0.0509 0.0237 \*  
 Venus -66230-05-01 08:52 J -22468964.27 -22468964.13 -22468963.98 0.0504 0.0362  
 Mars -66229-10-15 09:06 J -22468431.38 -22468431.12 -22468430.86 0.0499 0.0251  
 Mercury -66228-10-22 22:04 J -22468058.77 -22468058.58 -22468058.39 0.0500 0.0050  
 Mercury -66222-06-20 15:49 J -22465991.92 -22465991.84 -22465991.75 0.0526 0.0378  
 Mercury -66222-09-17 21:06 J -22465902.74 -22465902.62 -22465902.49 0.0526 0.0109  
 Mercury -66216-08-10 18:57 J -22463748.89 -22463748.71 -22463748.53 0.0500 0.0107  
 Venus -66212-07-03 06:57 J -22462326.41 -22462326.21 -22462326.02 0.0522 0.0139  
 Mercury -66210-04-08 19:54 J -22461681.70 -22461681.67 -22461681.64 0.0526 0.0502  
 Mercury -66210-07-07 01:25 J -22461592.57 -22461592.44 -22461592.32 0.0526 0.0025  
 Mercury -66210-10-04 06:28 J -22461503.28 -22461503.23 -22461503.17 0.0525 0.0464  
 Venus -66206-05-03 21:21 J -22460195.78 -22460195.61 -22460195.43 0.0503 0.0244  
 Mercury -66204-05-29 16:04 J -22459438.99 -22459438.83 -22459438.67 0.0499 0.0262

Mercury -66204-08-28 04:04 J -22459348.45 -22459348.33 -22459348.21 0.0500 0.0382  
 Moon -66201-02-19 16:04 J -22458442.99 -22458442.83 -22458442.67 0.0514 0.0388  
 Earth -66201-02-19 16:04 J -22458442.97 -22458442.83 -22458442.68 0.0514 0.0405 \*  
 Venus -66200-03-08 00:13 J -22458060.66 -22458060.49 -22458060.32 0.0521 0.0290  
 Mercury -66198-04-25 05:30 J -22457282.39 -22457282.27 -22457282.14 0.0526 0.0140  
 Mercury -66198-07-23 10:47 J -22457193.14 -22457193.05 -22457192.95 0.0526 0.0345  
 Venus -66194-01-06 22:18 J -22455929.76 -22455929.57 -22455929.37 0.0504 0.0132  
 Mercury -66192-03-17 12:42 J -22455129.06 -22455128.97 -22455128.86 0.0499 0.0417  
 Mercury -66192-06-16 00:42 J -22455038.63 -22455038.47 -22455038.30 0.0499 0.0225  
 Moon -66189-02-24 11:16 J -22454055.25 -22454055.03 -22454054.80 0.0515 0.0097  
 Earth -66189-02-24 12:57 J -22454055.19 -22454054.96 -22454054.73 0.0515 0.0127 \*  
 Mercury -66186-02-11 09:49 J -22452972.19 -22452972.09 -22452971.98 0.0527 0.0261  
 Mercury -66186-05-11 15:21 J -22452882.98 -22452882.86 -22452882.75 0.0526 0.0225  
 Mercury -66180-04-03 21:35 J -22450728.79 -22450728.60 -22450728.41 0.0499 0.0066  
 Earth -66177-02-29 13:11 J -22449667.17 -22449666.95 -22449666.72 0.0516 0.0165  
 Moon -66177-02-29 16:33 J -22449667.04 -22449666.81 -22449666.58 0.0516 0.0152 \*  
 Venus -66176-03-10 21:35 J -22449291.73 -22449291.60 -22449291.46 0.0523 0.0387  
 Mercury -66175-11-30 14:37 J -22448661.98 -22448661.89 -22448661.80 0.0526 0.0376  
 Mercury -66174-02-27 19:54 J -22448572.79 -22448572.67 -22448572.54 0.0526 0.0110  
 Moon -66172-08-18 21:49 J -22447669.78 -22447669.59 -22447669.40 0.0511 0.0294  
 Earth -66172-08-19 01:25 J -22447669.62 -22447669.44 -22447669.25 0.0511 0.0297 \*  
 Venus -66170-01-09 09:06 J -22447161.19 -22447161.12 -22447161.04 0.0502 0.0464  
 Mercury -66168-01-20 17:16 J -22446418.97 -22446418.78 -22446418.60 0.0500 0.0104  
 Moon -66165-03-05 11:16 J -22445279.16 -22445279.03 -22445278.90 0.0517 0.0432  
 Earth -66165-03-05 15:06 J -22445278.97 -22445278.87 -22445278.76 0.0517 0.0461 \*  
 Venus -66165-11-13 17:16 J -22445025.99 -22445025.78 -22445025.58 0.0522 0.0034  
 Mercury -66163-09-18 19:11 J -22444351.74 -22444351.70 -22444351.66 0.0526 0.0491  
 Mercury -66163-12-17 00:42 J -22444262.60 -22444262.47 -22444262.35 0.0526 0.0013  
 Mercury -66162-03-16 05:45 J -22444173.30 -22444173.26 -22444173.20 0.0525 0.0476  
 Earth -66160-08-23 14:09 J -22443282.14 -22443281.91 -22443281.68 0.0510 0.0032

Moon -66160-08-23 17:01 J -22443282.01 -22443281.79 -22443281.57 0.0510 0.0061 \*  
 Venus -66159-09-14 09:06 J -22442895.32 -22442895.12 -22442894.92 0.0503 0.0086  
 Mercury -66157-11-08 14:09 J -22442109.07 -22442108.91 -22442108.75 0.0500 0.0259  
 Mercury -66156-02-07 02:23 J -22442018.52 -22442018.40 -22442018.28 0.0500 0.0386  
 Venus -66153-07-19 11:01 J -22440760.13 -22440760.04 -22440759.95 0.0521 0.0460  
 Mercury -66151-10-05 04:47 J -22439952.42 -22439952.30 -22439952.18 0.0526 0.0130  
 Mercury -66150-01-02 10:04 J -22439863.17 -22439863.08 -22439862.99 0.0525 0.0353  
 Moon -66148-08-28 00:57 J -22438894.67 -22438894.46 -22438894.24 0.0509 0.0220  
 Earth -66148-08-28 02:23 J -22438894.60 -22438894.40 -22438894.19 0.0509 0.0235 \*  
 Venus -66147-05-20 09:21 J -22438629.27 -22438629.11 -22438628.95 0.0505 0.0294  
 Mercury -66145-08-27 11:16 J -22437799.13 -22437799.03 -22437798.92 0.0499 0.0412  
 Mercury -66145-11-25 23:16 J -22437708.69 -22437708.53 -22437708.36 0.0500 0.0232  
 Mercury -66139-07-24 09:06 J -22435642.23 -22435642.12 -22435642.01 0.0526 0.0251  
 Mercury -66139-10-21 14:23 J -22435553.01 -22435552.90 -22435552.79 0.0526 0.0233  
 Earth -66136-09-01 16:18 J -22434506.84 -22434506.82 -22434506.77 0.0508 0.0502  
 Mercury -66133-09-13 20:23 J -22433398.83 -22433398.65 -22433398.46 0.0499 0.0076  
 Venus -66129-07-22 07:25 J -22431991.38 -22431991.19 -22431991.01 0.0522 0.0211  
 Mars -66128-06-22 06:28 J -22431656.43 -22431656.23 -22431656.03 0.0526 0.0323  
 Mercury -66127-05-12 13:25 J -22431332.03 -22431331.94 -22431331.85 0.0527 0.0372  
 Mercury -66127-08-09 18:42 J -22431242.84 -22431242.72 -22431242.59 0.0526 0.0115  
 Venus -66123-05-22 23:45 J -22429860.66 -22429860.51 -22429860.35 0.0503 0.0322  
 Mercury -66121-07-02 17:16 J -22429088.96 -22429088.78 -22429088.59 0.0499 0.0081  
 Moon -66118-02-18 22:04 J -22428127.72 -22428127.58 -22428127.45 0.0514 0.0410  
 Earth -66118-02-18 23:16 J -22428127.65 -22428127.53 -22428127.39 0.0514 0.0429 \*  
 Venus -66117-03-27 02:23 J -22427725.59 -22427725.40 -22427725.21 0.0521 0.0210  
 Mercury -66115-02-28 17:59 J -22427021.79 -22427021.75 -22427021.70 0.0526 0.0486  
 Mercury -66115-05-28 23:30 J -22426932.65 -22426932.52 -22426932.39 0.0526 0.0004  
 Mercury -66115-08-26 04:47 J -22426843.35 -22426843.30 -22426843.25 0.0525 0.0483  
 Venus -66111-01-25 21:35 J -22425594.80 -22425594.60 -22425594.39 0.0504 0.0070  
 Mars -66110-04-04 05:59 J -22425161.52 -22425161.25 -22425160.97 0.0499 0.0191

Mercury -66109-04-20 12:42 J -22424779.13 -22424778.97 -22424778.81 0.0500 0.0252  
 Mercury -66109-07-20 00:57 J -22424688.58 -22424688.46 -22424688.35 0.0500 0.0392  
 Earth -66106-02-23 23:45 J -22423739.73 -22423739.51 -22423739.28 0.0515 0.0138  
 Moon -66106-02-24 02:52 J -22423739.61 -22423739.38 -22423739.14 0.0515 0.0112 \*  
 Mercury -66103-03-17 04:18 J -22422622.44 -22422622.32 -22422622.20 0.0526 0.0114  
 Mercury -66103-06-14 09:35 J -22422533.19 -22422533.10 -22422533.01 0.0525 0.0369  
 Venus -66100-09-30 22:04 J -22421328.67 -22421328.58 -22421328.49 0.0505 0.0447  
 Mercury -66097-02-07 09:49 J -22420469.20 -22420469.09 -22420468.98 0.0500 0.0406  
 Mercury -66097-05-07 21:49 J -22420378.75 -22420378.59 -22420378.42 0.0500 0.0238  
 Moon -66094-02-28 20:52 J -22419351.86 -22419351.63 -22419351.40 0.0516 0.0136  
 Earth -66094-03-01 00:42 J -22419351.69 -22419351.47 -22419351.24 0.0516 0.0157 \*  
 Venus -66093-03-30 02:09 J -22418956.49 -22418956.41 -22418956.33 0.0523 0.0475  
 Mars -66092-03-27 03:35 J -22418594.55 -22418594.35 -22418594.14 0.0526 0.0303  
 Mercury -66091-01-03 08:23 J -22418312.26 -22418312.15 -22418312.03 0.0526 0.0238  
 Mercury -66091-04-02 13:40 J -22418223.04 -22418222.93 -22418222.81 0.0525 0.0247  
 Earth -66089-08-18 11:16 J -22417354.20 -22417354.03 -22417353.84 0.0511 0.0315  
 Moon -66089-08-18 14:09 J -22417354.08 -22417353.91 -22417353.74 0.0511 0.0318 \*  
 Mercury -66085-02-24 19:11 J -22416068.88 -22416068.70 -22416068.51 0.0500 0.0085  
 Earth -66082-03-06 00:28 J -22414963.60 -22414963.48 -22414963.36 0.0517 0.0447  
 Moon -66082-03-06 03:35 J -22414963.48 -22414963.35 -22414963.22 0.0517 0.0426 \*  
 Venus -66082-12-03 19:54 J -22414690.87 -22414690.67 -22414690.47 0.0522 0.0049  
 Mercury -66080-10-22 12:42 J -22414002.06 -22414001.97 -22414001.88 0.0526 0.0359  
 Mercury -66079-01-19 18:13 J -22413912.87 -22413912.74 -22413912.62 0.0526 0.0128  
 Moon -66077-08-23 00:13 J -22412966.73 -22412966.49 -22412966.25 0.0511 0.0074  
 Earth -66077-08-23 01:40 J -22412966.66 -22412966.43 -22412966.20 0.0511 0.0044 \*  
 Venus -66076-10-03 11:45 J -22412560.20 -22412560.01 -22412559.81 0.0504 0.0165  
 Mercury -66074-12-13 16:18 J -22411759.00 -22411758.82 -22411758.63 0.0499 0.0070  
 Venus -66070-08-08 12:42 J -22410425.11 -22410424.97 -22410424.83 0.0521 0.0382  
 Mercury -66068-08-10 17:01 J -22409691.84 -22409691.79 -22409691.74 0.0527 0.0480  
 Mercury -66068-11-07 22:33 J -22409602.69 -22409602.56 -22409602.44 0.0526 0.0009

Mercury -66067-02-05 03:49 J -22409513.38 -22409513.34 -22409513.30 0.0525 0.0490

Moon -66065-08-27 15:21 J -22408579.06 -22408578.86 -22408578.66 0.0510 0.0226

Earth -66065-08-27 16:04 J -22408579.03 -22408578.83 -22408578.62 0.0510 0.0227 \*

Venus -66064-06-08 12:42 J -22408294.15 -22408293.97 -22408293.78 0.0504 0.0211

Mercury -66062-10-01 13:11 J -22407449.11 -22407448.95 -22407448.78 0.0499 0.0226

Mercury -66062-12-31 01:11 J -22407358.54 -22407358.45 -22407358.34 0.0500 0.0419

Mercury -66056-08-27 03:21 J -22405292.48 -22405292.36 -22405292.24 0.0526 0.0106

Mercury -66056-11-24 08:37 J -22405203.23 -22405203.14 -22405203.05 0.0525 0.0378

Earth -66053-09-01 02:37 J -22404191.44 -22404191.39 -22404191.32 0.0508 0.0487

Mercury -66050-07-20 08:37 J -22403139.25 -22403139.14 -22403139.02 0.0499 0.0397

Mercury -66050-10-18 20:37 J -22403048.80 -22403048.64 -22403048.47 0.0500 0.0247

Venus -66046-08-11 13:25 J -22401656.10 -22401655.94 -22401655.77 0.0523 0.0309

Mercury -66044-06-15 08:09 J -22400982.28 -22400982.16 -22400982.05 0.0526 0.0220

Mercury -66044-09-12 13:25 J -22400893.05 -22400892.94 -22400892.83 0.0525 0.0265

Venus -66040-06-10 23:30 J -22399525.64 -22399525.52 -22399525.38 0.0503 0.0386

Mercury -66038-08-06 17:45 J -22398738.94 -22398738.76 -22398738.57 0.0500 0.0092

Earth -66035-02-18 11:16 J -22397812.15 -22397812.03 -22397811.90 0.0514 0.0436

Moon -66035-02-18 14:23 J -22397812.05 -22397811.90 -22397811.76 0.0514 0.0408 \*

Venus -66034-04-16 07:40 J -22397390.38 -22397390.18 -22397389.98 0.0522 0.0118

Mercury -66032-04-03 12:13 J -22396672.08 -22396671.99 -22396671.89 0.0526 0.0343

Mercury -66032-07-01 17:45 J -22396582.89 -22396582.76 -22396582.64 0.0525 0.0143

Venus -66028-02-14 00:13 J -22395259.70 -22395259.49 -22395259.29 0.0504 0.0012

Mercury -66026-05-25 15:06 J -22394429.05 -22394428.87 -22394428.68 0.0500 0.0061

Moon -66023-02-23 07:40 J -22393424.41 -22393424.18 -22393423.95 0.0515 0.0129

Earth -66023-02-23 11:30 J -22393424.25 -22393424.02 -22393423.80 0.0515 0.0147 \*

Mercury -66020-01-20 16:33 J -22392361.86 -22392361.81 -22392361.75 0.0526 0.0464

Mercury -66020-04-19 22:04 J -22392272.71 -22392272.58 -22392272.46 0.0526 0.0024

Mercury -66020-07-18 03:06 J -22392183.40 -22392183.37 -22392183.33 0.0525 0.0504

Venus -66017-10-20 00:57 J -22390993.59 -22390993.46 -22390993.31 0.0505 0.0368

Mercury -66014-03-13 12:28 J -22390119.15 -22390118.98 -22390118.81 0.0499 0.0213

Mercury -66014-06-12 00:28 J -22390028.57 -22390028.48 -22390028.39 0.0500 0.0432

Earth -66011-02-28 09:21 J -22389036.34 -22389036.11 -22389035.88 0.0516 0.0140

Moon -66011-02-28 12:42 J -22389036.20 -22389035.97 -22389035.74 0.0516 0.0112 \*

Mercury -66008-02-06 02:23 J -22387962.53 -22387962.40 -22387962.28 0.0526 0.0099

Mercury -66008-05-06 07:40 J -22387873.26 -22387873.18 -22387873.10 0.0526 0.0385

Moon -66006-08-19 00:13 J -22387038.66 -22387038.49 -22387038.30 0.0512 0.0331

Earth -66006-08-19 01:40 J -22387038.61 -22387038.43 -22387038.25 0.0512 0.0323 \*

Mercury -66003-12-30 09:21 J -22385809.23 -22385809.11 -22385808.98 0.0499 0.0369

Mercury -66002-03-30 21:21 J -22385718.76 -22385718.61 -22385718.45 0.0500 0.0275

# 66TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 66th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Moon	-65999-03-05 08:09 J	-22384648.29	-22384648.16	-22384648.00	0.0517	0.0413		
Earth	-65999-03-05 10:18 J	-22384648.19	-22384648.07	-22384647.94	0.0517	0.0433	*	
Venus	-65999-12-22 23:45 J	-22384355.71	-22384355.51	-22384355.31	0.0522	0.0137		
Mercury	-65997-11-25 07:11 J	-22383652.32	-22383652.20	-22383652.08	0.0526	0.0211		
Mercury	-65996-02-22 12:28 J	-22383563.09	-22383562.98	-22383562.87	0.0526	0.0274		
Moon	-65994-08-23 13:11 J	-22382651.16	-22382650.95	-22382650.73	0.0510	0.0081		
Earth	-65994-08-23 14:09 J	-22382651.14	-22382650.91	-22382650.68	0.0510	0.0053	*	
Venus	-65993-10-22 12:57 J	-22382225.14	-22382224.96	-22382224.78	0.0503	0.0234		
Mercury	-65990-01-16 16:47 J	-22381408.99	-22381408.80	-22381408.62	0.0500	0.0102		



Venus -65987-08-27 18:28 J -22380089.89 -22380089.73 -22380089.55 0.0522 0.0287

Mercury -65985-09-13 11:59 J -22379342.10 -22379342.00 -22379341.90 0.0526 0.0325

Mercury -65985-12-11 17:16 J -22379252.90 -22379252.78 -22379252.66 0.0526 0.0161

Earth -65982-08-28 03:21 J -22378263.57 -22378263.36 -22378263.15 0.0509 0.0215

Moon -65982-08-28 06:13 J -22378263.45 -22378263.24 -22378263.03 0.0509 0.0226 \*

Venus -65981-06-27 13:40 J -22377959.13 -22377958.93 -22377958.74 0.0504 0.0143

Mercury -65979-11-04 13:40 J -22377099.11 -22377098.93 -22377098.74 0.0500 0.0054

Mars -65974-09-17 14:09 J -22375321.16 -22375320.91 -22375320.66 0.0526 0.0044

Mercury -65973-07-02 16:04 J -22375031.89 -22375031.83 -22375031.76 0.0526 0.0448

Mercury -65973-09-29 21:35 J -22374942.73 -22374942.60 -22374942.47 0.0526 0.0038

Mercury -65973-12-28 02:52 J -22374853.40 -22374853.38 -22374853.37 0.0525 0.0520

Earth -65970-09-01 15:06 J -22373875.94 -22373875.87 -22373875.79 0.0508 0.0478

Mercury -65967-08-23 11:16 J -22372789.20 -22372789.03 -22372788.86 0.0500 0.0205

Mercury -65967-11-21 23:16 J -22372698.61 -22372698.53 -22372698.44 0.0500 0.0442

Venus -65963-08-30 17:16 J -22371320.91 -22371320.78 -22371320.64 0.0523 0.0395

Mercury -65961-07-19 01:54 J -22370632.54 -22370632.42 -22370632.30 0.0526 0.0083

Mercury -65961-10-16 07:11 J -22370543.28 -22370543.20 -22370543.12 0.0525 0.0400

Venus -65957-06-30 03:06 J -22369190.44 -22369190.37 -22369190.29 0.0503 0.0466

Mars -65956-06-29 14:37 J -22368826.19 -22368825.89 -22368825.60 0.0500 0.0105

Mercury -65955-06-11 08:23 J -22368479.28 -22368479.15 -22368479.02 0.0499 0.0357

Mercury -65955-09-09 20:23 J -22368388.80 -22368388.65 -22368388.49 0.0500 0.0288

Moon -65952-02-17 17:16 J -22367496.91 -22367496.78 -22367496.65 0.0513 0.0424

Earth -65952-02-17 20:52 J -22367496.73 -22367496.63 -22367496.51 0.0513 0.0451 \*

Venus -65951-05-05 10:18 J -22367055.27 -22367055.07 -22367054.87 0.0522 0.0036

Mercury -65949-05-07 06:13 J -22366322.36 -22366322.24 -22366322.12 0.0526 0.0204

Mercury -65949-08-04 11:30 J -22366233.13 -22366233.02 -22366232.91 0.0526 0.0281

Venus -65945-03-05 04:04 J -22364924.53 -22364924.33 -22364924.13 0.0504 0.0092

Mercury -65943-06-28 17:16 J -22364078.96 -22364078.78 -22364078.59 0.0500 0.0131

Earth -65940-02-22 20:52 J -22363108.85 -22363108.63 -22363108.40 0.0515 0.0163

Moon -65940-02-23 00:13 J -22363108.71 -22363108.49 -22363108.27 0.0515 0.0155 \*

Venus -65939-01-08 04:47 J -22362789.39 -22362789.30 -22362789.20 0.0521 0.0457

Mercury -65937-02-24 11:01 J -22362012.14 -22362012.04 -22362011.94 0.0526 0.0317

Mercury -65937-05-23 16:18 J -22361922.94 -22361922.82 -22361922.70 0.0526 0.0170

Venus -65934-11-09 02:52 J -22360658.54 -22360658.38 -22360658.21 0.0504 0.0294

Mercury -65931-04-16 12:42 J -22359769.16 -22359768.97 -22359768.79 0.0500 0.0044

Moon -65928-02-27 17:45 J -22358721.00 -22358720.76 -22358720.52 0.0516 0.0099

Earth -65928-02-27 19:54 J -22358720.90 -22358720.67 -22358720.44 0.0516 0.0131 \*

Mercury -65926-12-13 15:49 J -22357701.91 -22357701.84 -22357701.77 0.0526 0.0431

Mercury -65925-03-11 21:06 J -22357612.74 -22357612.62 -22357612.49 0.0526 0.0057

Moon -65923-08-18 13:25 J -22356723.10 -22356722.94 -22356722.78 0.0511 0.0350

Earth -65923-08-18 14:23 J -22356723.07 -22356722.90 -22356722.73 0.0511 0.0331 \*

Mercury -65919-02-02 09:35 J -22355459.27 -22355459.10 -22355458.93 0.0500 0.0199

Mercury -65919-05-03 21:49 J -22355368.67 -22355368.59 -22355368.51 0.0500 0.0448

Earth -65916-03-04 21:21 J -22354332.73 -22354332.61 -22354332.47 0.0517 0.0430

Moon -65916-03-04 21:35 J -22354332.72 -22354332.60 -22354332.46 0.0517 0.0419 \*

Venus -65915-01-11 04:33 J -22354020.49 -22354020.31 -22354020.12 0.0523 0.0227

Mercury -65914-12-30 01:25 J -22353302.56 -22353302.44 -22353302.31 0.0526 0.0068

Mercury -65913-03-28 06:42 J -22353213.30 -22353213.22 -22353213.15 0.0525 0.0416

Earth -65911-08-23 01:54 J -22352335.65 -22352335.42 -22352335.20 0.0510 0.0065

Moon -65911-08-23 04:47 J -22352335.53 -22352335.30 -22352335.07 0.0510 0.0086 \*

Venus -65910-11-11 15:21 J -22351890.02 -22351889.86 -22351889.70 0.0503 0.0310

Mercury -65908-11-21 06:57 J -22351149.34 -22351149.21 -22351149.07 0.0500 0.0351

Mercury -65907-02-19 19:11 J -22351058.85 -22351058.70 -22351058.55 0.0500 0.0295

Venus -65904-09-15 22:18 J -22349754.75 -22349754.57 -22349754.38 0.0521 0.0201

Mercury -65902-10-18 05:45 J -22348992.38 -22348992.26 -22348992.14 0.0526 0.0189

Mercury -65901-01-15 11:01 J -22348903.15 -22348903.04 -22348902.94 0.0525 0.0295

Moon -65899-08-27 11:01 J -22347948.24 -22347948.04 -22347947.83 0.0509 0.0219

Earth -65899-08-27 14:52 J -22347948.09 -22347947.88 -22347947.67 0.0509 0.0203 \*

Venus -65898-07-17 16:18 J -22347624.02 -22347623.82 -22347623.62 0.0504 0.0066

Mercury -65896-12-08 16:18 J -22346749.00 -22346748.82 -22346748.64 0.0500 0.0141

Mercury -65890-08-06 09:49 J -22344682.19 -22344682.09 -22344681.98 0.0526 0.0313  
 Mercury -65890-11-03 15:21 J -22344592.98 -22344592.86 -22344592.74 0.0526 0.0175  
 Earth -65887-09-01 04:33 J -22343560.39 -22343560.31 -22343560.22 0.0508 0.0471  
 Moon -65887-09-01 08:23 J -22343560.17 -22343560.15 -22343560.12 0.0508 0.0504  
 Venus -65886-03-22 17:16 J -22343357.88 -22343357.78 -22343357.68 0.0505 0.0440  
 Mercury -65884-09-26 13:11 J -22342439.14 -22342438.95 -22342438.77 0.0500 0.0020  
 Venus -65880-09-18 19:54 J -22340985.74 -22340985.67 -22340985.58 0.0523 0.0477  
 Mercury -65878-05-25 14:37 J -22340371.96 -22340371.89 -22340371.81 0.0526 0.0426  
 Mercury -65878-08-22 20:09 J -22340282.79 -22340282.66 -22340282.54 0.0526 0.0062  
 Mercury -65872-07-15 08:23 J -22338129.32 -22338129.15 -22338128.98 0.0499 0.0191  
 Mercury -65872-10-13 20:23 J -22338038.72 -22338038.65 -22338038.57 0.0500 0.0455  
 Earth -65869-02-18 04:04 J -22337181.42 -22337181.33 -22337181.23 0.0514 0.0470  
 Moon -65869-02-18 07:40 J -22337181.30 -22337181.18 -22337181.05 0.0514 0.0438 \*  
 Venus -65868-05-24 14:23 J -22336720.11 -22336719.90 -22336719.70 0.0523 0.0051  
 Mercury -65866-06-11 00:57 J -22335972.59 -22335972.46 -22335972.34 0.0526 0.0055  
 Mercury -65866-09-08 06:13 J -22335883.31 -22335883.24 -22335883.17 0.0525 0.0432  
 Venus -65862-03-25 04:33 J -22334589.50 -22334589.31 -22334589.11 0.0503 0.0158  
 Mercury -65860-05-03 05:16 J -22333819.41 -22333819.28 -22333819.15 0.0499 0.0348  
 Mercury -65860-08-01 17:16 J -22333728.93 -22333728.78 -22333728.63 0.0500 0.0298  
 Moon -65857-02-23 02:52 J -22332793.61 -22332793.38 -22332793.15 0.0515 0.0174  
 Earth -65857-02-23 05:16 J -22332793.50 -22332793.28 -22332793.05 0.0515 0.0177 \*  
 Venus -65856-01-27 08:23 J -22332454.29 -22332454.15 -22332454.01 0.0521 0.0375  
 Mars -65855-03-09 18:28 J -22332047.89 -22332047.73 -22332047.57 0.0526 0.0405  
 Mercury -65854-03-30 05:01 J -22331662.41 -22331662.29 -22331662.17 0.0526 0.0177  
 Mercury -65854-06-27 10:18 J -22331573.17 -22331573.07 -22331572.97 0.0525 0.0308  
 Venus -65851-11-28 04:18 J -22330323.49 -22330323.32 -22330323.13 0.0504 0.0223  
 Mercury -65848-05-20 14:37 J -22329419.07 -22329418.89 -22329418.71 0.0500 0.0144  
 Earth -65845-02-28 05:59 J -22328405.48 -22328405.25 -22328405.02 0.0516 0.0119  
 Moon -65845-02-28 06:28 J -22328405.45 -22328405.23 -22328405.00 0.0516 0.0087 \*  
 Mercury -65842-01-16 09:21 J -22327352.22 -22327352.11 -22327352.01 0.0526 0.0300

Mercury -65842-04-15 14:37 J -22327263.01 -22327262.89 -22327262.77 0.0525 0.0187  
 Earth -65840-08-17 23:30 J -22326407.69 -22326407.52 -22326407.35 0.0512 0.0351  
 Moon -65840-08-18 02:23 J -22326407.56 -22326407.40 -22326407.24 0.0512 0.0377 \*  
 Mars -65838-12-17 19:25 J -22325555.92 -22325555.69 -22325555.46 0.0500 0.0314  
 Mercury -65836-03-08 11:45 J -22325109.20 -22325109.01 -22325108.83 0.0500 0.0017  
 Earth -65833-03-04 04:04 J -22324017.46 -22324017.33 -22324017.17 0.0517 0.0408  
 Moon -65833-03-04 05:59 J -22324017.40 -22324017.25 -22324017.10 0.0517 0.0403 \*  
 Venus -65832-01-30 05:45 J -22323685.43 -22323685.26 -22323685.09 0.0522 0.0299  
 Mercury -65831-11-04 13:25 J -22323042.01 -22323041.94 -22323041.87 0.0526 0.0424  
 Mercury -65830-02-01 18:42 J -22322952.84 -22322952.72 -22322952.59 0.0526 0.0067  
 Moon -65828-08-22 09:21 J -22322020.33 -22322020.11 -22322019.89 0.0511 0.0100  
 Earth -65828-08-22 13:11 J -22322020.18 -22322019.95 -22322019.72 0.0511 0.0079 \*  
 Venus -65827-11-30 17:30 J -22321554.89 -22321554.77 -22321554.63 0.0503 0.0386  
 Mercury -65825-12-25 08:23 J -22320799.33 -22320799.15 -22320798.97 0.0499 0.0170  
 Mercury -65824-03-25 20:23 J -22320708.70 -22320708.65 -22320708.59 0.0500 0.0478  
 Venus -65821-10-04 23:45 J -22319419.71 -22319419.51 -22319419.31 0.0522 0.0126  
 Mars -65820-12-12 07:11 J -22318986.43 -22318986.20 -22318985.97 0.0526 0.0193  
 Mercury -65819-11-20 23:30 J -22318642.64 -22318642.52 -22318642.39 0.0526 0.0051  
 Mercury -65818-02-18 04:47 J -22318553.37 -22318553.30 -22318553.23 0.0525 0.0434  
 Earth -65816-08-27 02:23 J -22317632.61 -22317632.40 -22317632.18 0.0509 0.0194  
 Moon -65816-08-27 06:13 J -22317632.44 -22317632.24 -22317632.03 0.0509 0.0217 \*  
 Venus -65815-08-05 17:16 J -22317288.99 -22317288.78 -22317288.58 0.0503 0.0004  
 Mercury -65813-10-13 03:35 J -22316489.48 -22316489.35 -22316489.21 0.0499 0.0344  
 Mercury -65812-01-11 15:35 J -22316398.99 -22316398.85 -22316398.70 0.0500 0.0302  
 Mercury -65807-09-09 04:18 J -22314332.44 -22314332.32 -22314332.20 0.0526 0.0168  
 Mercury -65807-12-07 09:35 J -22314243.20 -22314243.10 -22314243.00 0.0526 0.0319  
 Moon -65804-08-31 11:45 J -22313245.07 -22313245.01 -22313244.94 0.0508 0.0486  
 Earth -65804-08-31 15:06 J -22313244.97 -22313244.87 -22313244.77 0.0508 0.0459 \*  
 Venus -65803-04-10 17:45 J -22313022.90 -22313022.76 -22313022.63 0.0504 0.0374  
 Mars -65802-09-23 23:59 J -22312491.71 -22312491.50 -22312491.28 0.0499 0.0351

Mercury -65801-10-30 12:28 J -22312089.16 -22312088.98 -22312088.80 0.0500 0.0144  
 Mercury -65795-06-28 08:23 J -22310022.25 -22310022.15 -22310022.04 0.0526 0.0291  
 Mercury -65795-09-25 13:40 J -22309933.04 -22309932.93 -22309932.81 0.0525 0.0196  
 Mercury -65789-08-18 09:35 J -22307779.29 -22307779.10 -22307778.91 0.0500 0.0013  
 Moon -65786-02-17 09:49 J -22306866.20 -22306866.09 -22306865.98 0.0514 0.0456  
 Earth -65786-02-17 12:28 J -22306866.05 -22306865.98 -22306865.91 0.0514 0.0489 \*  
 Venus -65785-06-12 15:49 J -22306385.03 -22306384.84 -22306384.64 0.0522 0.0126  
 Mercury -65783-04-16 12:28 J -22305712.05 -22305711.98 -22305711.90 0.0526 0.0415  
 Mercury -65783-07-14 17:59 J -22305622.88 -22305622.75 -22305622.63 0.0526 0.0073  
 Venus -65779-04-13 04:47 J -22304254.48 -22304254.30 -22304254.12 0.0503 0.0223  
 Mercury -65777-06-06 06:28 J -22303469.40 -22303469.23 -22303469.05 0.0500 0.0168  
 Mercury -65777-09-04 18:28 J -22303378.77 -22303378.73 -22303378.67 0.0500 0.0480  
 Earth -65774-02-22 10:18 J -22302478.29 -22302478.07 -22302477.85 0.0514 0.0202  
 Moon -65774-02-22 11:16 J -22302478.24 -22302478.03 -22302477.82 0.0514 0.0205 \*  
 Venus -65773-02-16 08:09 J -22302119.32 -22302119.16 -22302118.99 0.0521 0.0308  
 Mercury -65771-05-02 22:04 J -22301312.71 -22301312.58 -22301312.45 0.0526 0.0052  
 Mercury -65771-07-31 03:21 J -22301223.43 -22301223.36 -22301223.29 0.0525 0.0433  
 Venus -65768-12-17 05:16 J -22299988.47 -22299988.28 -22299988.08 0.0504 0.0154  
 Mercury -65765-03-25 03:06 J -22299159.51 -22299159.37 -22299159.23 0.0499 0.0327  
 Mercury -65765-06-23 15:06 J -22299069.01 -22299068.87 -22299068.72 0.0500 0.0319  
 Earth -65762-02-27 09:06 J -22298090.35 -22298090.12 -22298089.88 0.0516 0.0088  
 Moon -65762-02-27 10:18 J -22298090.32 -22298090.07 -22298089.83 0.0516 0.0057 \*  
 Mercury -65759-02-19 02:37 J -22297002.51 -22297002.39 -22297002.27 0.0526 0.0169  
 Mercury -65759-05-19 07:54 J -22296913.27 -22296913.17 -22296913.07 0.0526 0.0319  
 Moon -65757-08-17 05:45 J -22296092.40 -22296092.26 -22296092.12 0.0512 0.0398  
 Earth -65757-08-17 09:35 J -22296092.26 -22296092.10 -22296091.94 0.0512 0.0365 \*  
 Mercury -65753-04-11 10:18 J -22294759.24 -22294759.07 -22294758.89 0.0499 0.0144  
 Moon -65750-03-04 02:52 J -22293702.53 -22293702.38 -22293702.22 0.0517 0.0382  
 Earth -65750-03-04 05:59 J -22293702.41 -22293702.25 -22293702.09 0.0517 0.0377 \*  
 Venus -65749-02-19 05:59 J -22293350.40 -22293350.25 -22293350.11 0.0523 0.0366

Mercury -65748-12-08 07:11 J -22292692.30 -22292692.20 -22292692.09 0.0527 0.0287

Mercury -65747-03-07 12:42 J -22292603.09 -22292602.97 -22292602.86 0.0526 0.0202

Earth -65745-08-21 22:33 J -22291704.78 -22291704.56 -22291704.33 0.0510 0.0096

Moon -65745-08-22 02:23 J -22291704.62 -22291704.40 -22291704.17 0.0510 0.0111 \*

Venus -65744-12-19 16:33 J -22291219.90 -22291219.81 -22291219.71 0.0502 0.0442

Mercury -65741-01-29 06:57 J -22290449.39 -22290449.21 -22290449.02 0.0499 0.0021

Venus -65738-10-24 23:45 J -22289084.72 -22289084.51 -22289084.31 0.0522 0.0062

Mercury -65736-09-26 11:16 J -22288382.10 -22288382.03 -22288381.95 0.0526 0.0412

Mercury -65736-12-24 16:47 J -22288292.93 -22288292.80 -22288292.68 0.0526 0.0077

Moon -65733-08-26 04:47 J -22287317.51 -22287317.30 -22287317.07 0.0509 0.0189

Earth -65733-08-26 08:23 J -22287317.37 -22287317.15 -22287316.94 0.0509 0.0167 \*

Venus -65732-08-24 15:49 J -22286954.04 -22286953.84 -22286953.63 0.0503 0.0061

Mercury -65730-11-17 04:04 J -22286139.51 -22286139.33 -22286139.16 0.0500 0.0174

Mercury -65729-02-15 16:04 J -22286048.88 -22286048.83 -22286048.77 0.0500 0.0475

Venus -65726-06-29 17:01 J -22284818.86 -22284818.79 -22284818.72 0.0521 0.0487

Mercury -65724-10-12 20:52 J -22283982.75 -22283982.63 -22283982.50 0.0526 0.0049

Mercury -65723-01-10 02:09 J -22283893.48 -22283893.41 -22283893.34 0.0525 0.0437

Earth -65721-08-30 19:11 J -22282929.81 -22282929.70 -22282929.57 0.0508 0.0431

Moon -65721-08-30 20:52 J -22282929.72 -22282929.63 -22282929.53 0.0508 0.0452 \*

Venus -65720-04-29 15:49 J -22282687.99 -22282687.84 -22282687.68 0.0504 0.0319

Mercury -65718-09-05 00:42 J -22281829.60 -22281829.47 -22281829.32 0.0499 0.0332

Mercury -65718-12-04 12:57 J -22281739.11 -22281738.96 -22281738.82 0.0500 0.0316

Mercury -65712-08-01 00:57 J -22279672.58 -22279672.46 -22279672.34 0.0526 0.0174

Mercury -65712-10-29 06:13 J -22279583.34 -22279583.24 -22279583.14 0.0526 0.0313

Mercury -65706-06-23 21:21 J -22277519.63 -22277519.61 -22277519.57 0.0499 0.0491

Mercury -65706-09-22 09:21 J -22277429.29 -22277429.11 -22277428.93 0.0500 0.0154

Moon -65703-02-16 14:23 J -22276550.95 -22276550.90 -22276550.84 0.0513 0.0496

Venus -65702-07-02 13:40 J -22276050.12 -22276049.93 -22276049.74 0.0523 0.0181

Mars -65701-06-02 17:16 J -22275714.00 -22275713.78 -22275713.54 0.0526 0.0213

Mercury -65700-05-20 05:30 J -22275362.38 -22275362.27 -22275362.17 0.0527 0.0293

Mercury -65700-08-17 10:47 J -22275273.17 -22275273.05 -22275272.93 0.0526 0.0196

Venus -65696-05-02 03:35 J -22273919.52 -22273919.35 -22273919.18 0.0502 0.0279

Mercury -65694-07-11 04:47 J -22273119.49 -22273119.30 -22273119.12 0.0499 0.0022

Earth -65691-02-21 07:54 J -22272163.38 -22272163.17 -22272162.96 0.0515 0.0246

Moon -65691-02-21 08:09 J -22272163.37 -22272163.16 -22272162.94 0.0515 0.0249 \*

Venus -65690-03-07 05:45 J -22271784.44 -22271784.26 -22271784.08 0.0522 0.0255

Mercury -65688-03-08 09:49 J -22271052.16 -22271052.09 -22271052.01 0.0527 0.0414

Mercury -65688-06-05 15:21 J -22270962.99 -22270962.86 -22270962.74 0.0526 0.0077

Venus -65684-01-05 03:49 J -22269653.54 -22269653.34 -22269653.14 0.0503 0.0098

Mars -65683-03-12 13:54 J -22269222.21 -22269221.92 -22269221.62 0.0499 0.0098

Mercury -65682-04-29 01:11 J -22268809.62 -22268809.45 -22268809.27 0.0499 0.0182

Mercury -65682-07-28 13:11 J -22268719.01 -22268718.95 -22268718.88 0.0500 0.0465

Moon -65679-02-26 05:30 J -22267775.50 -22267775.27 -22267775.04 0.0516 0.0020

Earth -65679-02-26 07:54 J -22267775.40 -22267775.17 -22267774.93 0.0516 0.0051 \*

Mercury -65676-03-24 19:25 J -22266652.81 -22266652.69 -22266652.56 0.0526 0.0049

Mercury -65676-06-22 00:42 J -22266563.54 -22266563.47 -22266563.40 0.0525 0.0437

Earth -65674-08-17 12:13 J -22265777.12 -22265776.99 -22265776.84 0.0512 0.0404

Moon -65674-08-17 16:18 J -22265776.94 -22265776.82 -22265776.70 0.0512 0.0436 \*

Venus -65673-09-10 02:37 J -22265387.44 -22265387.39 -22265387.33 0.0505 0.0483

Mercury -65670-02-14 21:49 J -22264499.72 -22264499.59 -22264499.45 0.0499 0.0342

Mercury -65670-05-16 10:04 J -22264409.23 -22264409.08 -22264408.93 0.0500 0.0306

Earth -65667-03-03 08:23 J -22263387.31 -22263387.15 -22263386.96 0.0517 0.0347

Moon -65667-03-03 12:28 J -22263387.14 -22263386.98 -22263386.80 0.0517 0.0361 \*

Venus -65666-03-10 04:33 J -22263015.42 -22263015.31 -22263015.19 0.0523 0.0425

Mars -65665-03-07 06:13 J -22262652.41 -22262652.24 -22262652.07 0.0526 0.0390

Mercury -65664-01-10 23:30 J -22262342.64 -22262342.52 -22262342.40 0.0526 0.0174

Mercury -65664-04-10 04:47 J -22262253.40 -22262253.30 -22262253.20 0.0525 0.0314

Moon -65662-08-21 20:09 J -22261389.88 -22261389.66 -22261389.43 0.0511 0.0153

Earth -65662-08-21 23:45 J -22261389.73 -22261389.51 -22261389.29 0.0511 0.0137 \*

Venus -65660-01-07 13:25 J -22260884.98 -22260884.94 -22260884.90 0.0502 0.0490

Mercury -65659-12-03 18:42 J -22260189.72 -22260189.72 -22260189.71 0.0499 0.0499  
 Mercury -65658-03-04 06:42 J -22260099.40 -22260099.22 -22260099.04 0.0500 0.0147  
 Venus -65655-11-12 20:23 J -22258749.85 -22258749.65 -22258749.44 0.0522 0.0012  
 Mercury -65653-10-30 03:35 J -22258032.46 -22258032.35 -22258032.25 0.0526 0.0302  
 Mercury -65652-01-27 08:52 J -22257943.25 -22257943.13 -22257943.01 0.0526 0.0187  
 Earth -65650-08-26 11:30 J -22257002.25 -22257002.02 -22257001.80 0.0510 0.0133  
 Moon -65650-08-26 13:11 J -22257002.16 -22257001.95 -22257001.74 0.0510 0.0159 \*  
 Venus -65649-09-12 13:25 J -22256619.13 -22256618.94 -22256618.74 0.0503 0.0114  
 Mercury -65647-12-21 03:06 J -22255789.56 -22255789.37 -22255789.18 0.0499 0.0016  
 Venus -65643-07-18 12:57 J -22254484.06 -22254483.96 -22254483.85 0.0521 0.0439  
 Mercury -65641-08-18 07:54 J -22253722.25 -22253722.17 -22253722.10 0.0527 0.0423  
 Mercury -65641-11-15 13:11 J -22253633.07 -22253632.95 -22253632.82 0.0526 0.0070  
 Earth -65638-08-31 00:42 J -22252614.60 -22252614.47 -22252614.32 0.0509 0.0406  
 Moon -65638-08-31 01:11 J -22252614.58 -22252614.45 -22252614.31 0.0509 0.0416 \*  
 Venus -65637-05-18 13:54 J -22252353.09 -22252352.92 -22252352.75 0.0504 0.0265  
 Mercury -65635-10-08 22:33 J -22251479.73 -22251479.56 -22251479.38 0.0499 0.0189  
 Mercury -65634-01-07 10:33 J -22251389.13 -22251389.06 -22251388.99 0.0499 0.0458  
 Mercury -65629-09-03 17:45 J -22249322.89 -22249322.76 -22249322.64 0.0527 0.0055  
 Mercury -65629-12-01 23:01 J -22249233.61 -22249233.54 -22249233.47 0.0526 0.0434  
 Mercury -65623-07-27 18:57 J -22247169.84 -22247169.71 -22247169.57 0.0499 0.0351  
 Mercury -65623-10-26 06:57 J -22247079.36 -22247079.21 -22247079.06 0.0499 0.0295  
 Venus -65619-07-21 10:04 J -22245715.26 -22245715.08 -22245714.90 0.0523 0.0228  
 Mercury -65617-06-22 21:49 J -22245012.71 -22245012.59 -22245012.47 0.0526 0.0180  
 Mercury -65617-09-20 03:06 J -22244923.47 -22244923.37 -22244923.27 0.0526 0.0308  
 Venus -65613-05-20 23:01 J -22243584.69 -22243584.54 -22243584.38 0.0502 0.0322  
 Mercury -65611-08-14 03:21 J -22242769.54 -22242769.36 -22242769.17 0.0500 0.0134  
 Moon -65608-02-20 06:57 J -22241848.39 -22241848.21 -22241848.02 0.0514 0.0296  
 Earth -65608-02-20 09:06 J -22241848.32 -22241848.12 -22241847.92 0.0514 0.0283 \*  
 Venus -65607-03-26 03:35 J -22241449.54 -22241449.35 -22241449.16 0.0522 0.0198  
 Mercury -65605-04-11 01:54 J -22240702.52 -22240702.42 -22240702.32 0.0526 0.0305



Mercury -65605-07-09 07:11 J -22240613.31 -22240613.20 -22240613.08 0.0526 0.0185  
 Venus -65601-01-24 22:47 J -22239318.76 -22239318.55 -22239318.35 0.0504 0.0059  
 Mercury -65599-06-01 23:59 J -22238459.68 -22238459.50 -22238459.31 0.0499 0.0028  
 Earth -65596-02-25 06:42 J -22237460.46 -22237460.22 -22237459.98 0.0515 0.0008  
 Moon -65596-02-25 10:33 J -22237460.30 -22237460.06 -22237459.82 0.0515 0.0021 \*  
 Mercury -65593-01-29 05:45 J -22236392.33 -22236392.26 -22236392.19 0.0526 0.0434  
 Mercury -65593-04-27 11:16 J -22236303.16 -22236303.03 -22236302.91 0.0526 0.0057  
 Moon -65591-08-16 09:21 J -22235462.19 -22235462.11 -22235462.03 0.0512 0.0480  
 Earth -65591-08-16 12:42 J -22235462.07 -22235461.97 -22235461.86 0.0512 0.0448 \*  
 Venus -65590-09-29 22:33 J -22235052.65 -22235052.56 -22235052.45 0.0505 0.0437  
 Mercury -65587-03-20 20:23 J -22234149.82 -22234149.65 -22234149.47 0.0499 0.0190  
 Mercury -65587-06-19 08:23 J -22234059.22 -22234059.15 -22234059.07 0.0500 0.0459  
 Moon -65584-03-01 23:59 J -22233072.69 -22233072.50 -22233072.31 0.0516 0.0308  
 Earth -65584-03-02 04:04 J -22233072.52 -22233072.33 -22233072.14 0.0516 0.0296 \*  
 Venus -65583-03-28 23:01 J -22232680.63 -22232680.54 -22232680.45 0.0523 0.0465  
 Mercury -65581-02-14 15:35 J -22231992.98 -22231992.85 -22231992.73 0.0526 0.0067  
 Mercury -65581-05-13 20:52 J -22231903.70 -22231903.63 -22231903.56 0.0526 0.0422  
 Earth -65579-08-21 02:52 J -22231074.59 -22231074.38 -22231074.16 0.0511 0.0171  
 Moon -65579-08-21 04:47 J -22231074.51 -22231074.30 -22231074.09 0.0511 0.0177 \*  
 Mercury -65575-01-06 16:18 J -22229839.95 -22229839.82 -22229839.69 0.0499 0.0360  
 Mercury -65575-04-07 04:04 J -22229749.48 -22229749.33 -22229749.18 0.0499 0.0285  
 Venus -65572-12-01 14:37 J -22228415.09 -22228414.89 -22228414.69 0.0523 0.0028  
 Mercury -65570-12-03 19:54 J -22227682.79 -22227682.67 -22227682.55 0.0527 0.0189  
 Mercury -65569-03-02 01:11 J -22227593.55 -22227593.45 -22227593.35 0.0526 0.0301  
 Earth -65567-08-25 15:21 J -22226687.09 -22226686.86 -22226686.63 0.0510 0.0100  
 Moon -65567-08-25 15:35 J -22226687.08 -22226686.85 -22226686.62 0.0510 0.0128 \*  
 Venus -65566-10-02 10:18 J -22226284.27 -22226284.07 -22226283.88 0.0503 0.0161  
 Mercury -65563-01-24 00:28 J -22225439.67 -22225439.48 -22225439.30 0.0499 0.0122  
 Venus -65560-08-06 07:54 J -22224149.29 -22224149.17 -22224149.03 0.0521 0.0398  
 Mercury -65558-09-21 23:59 J -22223372.60 -22223372.50 -22223372.40 0.0527 0.0314

Mercury -65558-12-20 05:16 J -22223283.39 -22223283.28 -22223283.16 0.0526 0.0176  
 Moon -65555-08-29 21:35 J -22222299.75 -22222299.60 -22222299.44 0.0509 0.0368  
 Earth -65555-08-29 23:16 J -22222299.68 -22222299.53 -22222299.36 0.0509 0.0359 \*  
 Venus -65554-06-07 08:09 J -22222018.34 -22222018.16 -22222017.98 0.0504 0.0227  
 Mercury -65552-11-11 20:37 J -22221129.82 -22221129.64 -22221129.45 0.0499 0.0043  
 Mars -65547-08-27 01:40 J -22219380.68 -22219380.43 -22219380.17 0.0526 0.0055  
 Mercury -65546-07-11 04:04 J -22219062.40 -22219062.33 -22219062.26 0.0526 0.0438  
 Mercury -65546-10-08 09:35 J -22218973.23 -22218973.10 -22218972.98 0.0526 0.0052  
 Mercury -65540-08-30 17:16 J -22216819.95 -22216819.78 -22216819.61 0.0499 0.0203  
 Mercury -65540-11-29 05:16 J -22216729.36 -22216729.28 -22216729.19 0.0500 0.0446  
 Venus -65536-08-09 05:16 J -22215380.44 -22215380.28 -22215380.10 0.0522 0.0273  
 Mercury -65534-07-27 13:25 J -22214663.07 -22214662.94 -22214662.82 0.0526 0.0078  
 Mercury -65534-10-24 18:42 J -22214573.80 -22214573.72 -22214573.64 0.0525 0.0410  
 Venus -65530-06-09 18:28 J -22213249.86 -22213249.73 -22213249.58 0.0503 0.0366  
 Mars -65529-06-04 14:52 J -22212889.17 -22212888.88 -22212888.58 0.0499 0.0072  
 Mercury -65528-06-18 13:40 J -22212510.05 -22212509.93 -22212509.80 0.0499 0.0365  
 Mercury -65528-09-17 01:40 J -22212419.58 -22212419.43 -22212419.27 0.0500 0.0283  
 Earth -65525-02-20 04:04 J -22211533.50 -22211533.33 -22211533.14 0.0513 0.0335  
 Moon -65525-02-20 07:40 J -22211533.36 -22211533.18 -22211533.01 0.0513 0.0353 \*  
 Venus -65524-04-13 21:35 J -22211114.79 -22211114.60 -22211114.40 0.0521 0.0160  
 Mercury -65522-05-15 17:45 J -22210352.88 -22210352.76 -22210352.65 0.0527 0.0202  
 Mercury -65522-08-12 23:01 J -22210263.65 -22210263.54 -22210263.44 0.0526 0.0288  
 Venus -65518-02-12 19:25 J -22208983.90 -22208983.69 -22208983.49 0.0503 0.0012  
 Mercury -65516-07-05 21:35 J -22208109.79 -22208109.60 -22208109.42 0.0499 0.0113  
 Moon -65513-02-24 18:42 J -22207145.96 -22207145.72 -22207145.49 0.0515 0.0084  
 Earth -65513-02-24 22:47 J -22207145.79 -22207145.55 -22207145.32 0.0515 0.0054 \*  
 Mars -65511-05-31 04:47 J -22206319.34 -22206319.30 -22206319.26 0.0527 0.0519  
 Mercury -65510-03-03 21:49 J -22206042.69 -22206042.59 -22206042.49 0.0527 0.0326  
 Mercury -65510-06-01 03:21 J -22205953.48 -22205953.36 -22205953.24 0.0526 0.0166  
 Earth -65508-08-15 15:35 J -22205146.91 -22205146.85 -22205146.77 0.0513 0.0487

Venus -65507-10-18 19:25 J -22204717.82 -22204717.69 -22204717.56 0.0504 0.0387  
 Mercury -65504-04-23 17:45 J -22203799.94 -22203799.76 -22203799.57 0.0499 0.0052  
 Earth -65501-02-29 21:49 J -22202757.79 -22202757.59 -22202757.37 0.0516 0.0242  
 Moon -65501-03-01 01:40 J -22202757.63 -22202757.43 -22202757.23 0.0516 0.0257 \*  
 Venus -65500-04-16 17:59 J -22202345.80 -22202345.75 -22202345.70 0.0523 0.0505  
 Mercury -65499-12-21 01:54 J -22201732.48 -22201732.42 -22201732.35 0.0527 0.0450  
 Mercury -65498-03-20 07:25 J -22201643.31 -22201643.19 -22201643.06 0.0526 0.0043  
 Moon -65496-08-20 00:28 J -22200759.70 -22200759.48 -22200759.27 0.0511 0.0222  
 Earth -65496-08-20 00:28 J -22200759.68 -22200759.48 -22200759.27 0.0511 0.0224 \*  
 Mercury -65492-02-09 13:54 J -22199490.09 -22199489.92 -22199489.75 0.0499 0.0217  
 Mercury -65492-05-11 01:54 J -22199399.51 -22199399.42 -22199399.32 0.0500 0.0432  
 Venus -65489-12-20 12:13 J -22198080.19 -22198079.99 -22198079.79 0.0522 0.0084  
 Mercury -65486-01-06 11:45 J -22197333.13 -22197333.01 -22197332.88 0.0526 0.0081  
 Mercury -65486-04-05 17:01 J -22197243.87 -22197243.79 -22197243.71 0.0525 0.0406  
 Moon -65484-08-24 09:49 J -22196372.31 -22196372.09 -22196371.87 0.0510 0.0075  
 Earth -65484-08-24 11:30 J -22196372.25 -22196372.02 -22196371.79 0.0510 0.0045 \*  
 Venus -65483-10-21 03:21 J -22195949.55 -22195949.36 -22195949.17 0.0503 0.0194  
 Mercury -65481-11-28 10:33 J -22195180.18 -22195180.06 -22195179.94 0.0499 0.0377  
 Mercury -65480-02-26 22:33 J -22195089.72 -22195089.56 -22195089.40 0.0500 0.0271  
 Venus -65477-08-25 04:04 J -22193814.48 -22193814.33 -22193814.18 0.0521 0.0349  
 Mercury -65475-10-25 15:35 J -22193022.97 -22193022.85 -22193022.73 0.0526 0.0211  
 Mercury -65474-01-22 20:52 J -22192933.73 -22192933.63 -22192933.52 0.0526 0.0278  
 Earth -65472-08-28 22:33 J -22191984.74 -22191984.56 -22191984.38 0.0510 0.0315  
 Moon -65472-08-29 01:25 J -22191984.62 -22191984.44 -22191984.26 0.0510 0.0321 \*  
 Venus -65471-06-26 03:21 J -22191683.55 -22191683.36 -22191683.17 0.0504 0.0185  
 Mercury -65469-12-15 18:57 J -22190779.89 -22190779.71 -22190779.53 0.0499 0.0108  
 Mercury -65463-08-13 19:40 J -22188712.77 -22188712.68 -22188712.58 0.0527 0.0336  
 Mercury -65463-11-11 01:11 J -22188623.57 -22188623.45 -22188623.33 0.0526 0.0155  
 Mercury -65457-10-03 15:06 J -22186470.06 -22186469.87 -22186469.68 0.0499 0.0059  
 Venus -65453-08-27 23:01 J -22185045.70 -22185045.54 -22185045.37 0.0523 0.0309

Mercury -65451-06-01 23:59 J -22184402.56 -22184402.50 -22184402.44 0.0527 0.0461  
 Mercury -65451-08-30 05:30 J -22184313.40 -22184313.27 -22184313.15 0.0527 0.0033  
 Mercury -65451-11-27 10:47 J -22184224.06 -22184224.05 -22184224.03 0.0526 0.0520  
 Venus -65447-06-28 15:21 J -22182914.96 -22182914.86 -22182914.74 0.0502 0.0415  
 Mercury -65445-07-22 11:30 J -22182160.19 -22182160.02 -22182159.85 0.0499 0.0222  
 Mercury -65445-10-20 23:30 J -22182069.62 -22182069.52 -22182069.43 0.0499 0.0426  
 Moon -65442-02-18 19:11 J -22181218.83 -22181218.70 -22181218.56 0.0513 0.0412  
 Earth -65442-02-18 23:16 J -22181218.68 -22181218.53 -22181218.38 0.0513 0.0389 \*  
 Venus -65441-05-02 16:47 J -22180780.00 -22180779.80 -22180779.60 0.0522 0.0116  
 Mercury -65439-06-18 09:49 J -22180003.22 -22180003.09 -22180002.97 0.0526 0.0092  
 Mercury -65439-09-15 15:06 J -22179913.95 -22179913.87 -22179913.79 0.0526 0.0397  
 Venus -65435-03-03 12:57 J -22178649.16 -22178648.96 -22178648.75 0.0503 0.0026  
 Mercury -65433-05-10 07:25 J -22177850.30 -22177850.19 -22177850.07 0.0499 0.0390  
 Mercury -65433-08-08 19:11 J -22177759.85 -22177759.70 -22177759.53 0.0500 0.0259  
 Earth -65430-02-23 23:45 J -22176830.74 -22176830.51 -22176830.28 0.0515 0.0092  
 Moon -65430-02-24 03:35 J -22176830.58 -22176830.35 -22176830.12 0.0515 0.0119 \*  
 Mars -65428-02-14 18:13 J -22176108.79 -22176108.74 -22176108.67 0.0526 0.0510  
 Mercury -65427-04-06 14:09 J -22175693.03 -22175692.91 -22175692.80 0.0526 0.0213  
 Mercury -65427-07-04 19:25 J -22175603.80 -22175603.69 -22175603.58 0.0526 0.0276  
 Venus -65424-11-06 12:28 J -22174383.12 -22174382.98 -22174382.83 0.0504 0.0354  
 Mercury -65421-05-27 16:04 J -22173450.02 -22173449.83 -22173449.65 0.0500 0.0098  
 Moon -65418-02-28 19:25 J -22172442.91 -22172442.69 -22172442.46 0.0515 0.0216  
 Earth -65418-02-28 22:18 J -22172442.79 -22172442.57 -22172442.35 0.0515 0.0203 \*  
 Mercury -65415-01-23 17:59 J -22171382.85 -22171382.75 -22171382.66 0.0526 0.0342  
 Mercury -65415-04-22 23:16 J -22171293.65 -22171293.53 -22171293.41 0.0526 0.0149  
 Moon -65413-08-18 22:33 J -22170444.75 -22170444.56 -22170444.37 0.0512 0.0263  
 Earth -65413-08-18 23:59 J -22170444.69 -22170444.50 -22170444.31 0.0512 0.0270 \*  
 Mars -65411-11-21 16:18 J -22169619.98 -22169619.82 -22169619.65 0.0500 0.0412  
 Mercury -65409-03-15 12:42 J -22169140.16 -22169139.97 -22169139.79 0.0499 0.0064  
 Earth -65406-03-05 19:54 J -22168054.73 -22168054.67 -22168054.60 0.0516 0.0495

Venus -65405-01-09 07:25 J -22167745.39 -22167745.19 -22167744.99 0.0522 0.0127

Mercury -65404-11-11 22:04 J -22167072.63 -22167072.58 -22167072.52 0.0527 0.0467

Mercury -65403-02-09 03:35 J -22166983.48 -22166983.35 -22166983.22 0.0526 0.0025

Mercury -65403-05-09 08:52 J -22166894.16 -22166894.13 -22166894.11 0.0525 0.0512

Earth -65401-08-23 13:40 J -22166057.15 -22166056.93 -22166056.70 0.0511 0.0013

Moon -65401-08-23 16:47 J -22166057.04 -22166056.80 -22166056.57 0.0511 0.0041 \*

Venus -65400-11-09 00:42 J -22165614.65 -22165614.47 -22165614.29 0.0503 0.0245

Mercury -65397-01-02 09:06 J -22164830.29 -22164830.12 -22164829.96 0.0499 0.0227

Mercury -65397-04-01 20:52 J -22164739.72 -22164739.63 -22164739.53 0.0499 0.0422

Venus -65394-09-13 22:33 J -22163479.72 -22163479.56 -22163479.39 0.0521 0.0308

Mars -65393-11-19 00:57 J -22163047.71 -22163047.46 -22163047.21 0.0527 0.0073

Mercury -65392-11-28 07:54 J -22162673.30 -22162673.17 -22162673.05 0.0527 0.0101

Mercury -65391-02-25 13:11 J -22162584.03 -22162583.95 -22162583.87 0.0526 0.0391

Moon -65389-08-27 23:30 J -22161669.71 -22161669.52 -22161669.33 0.0510 0.0286

Earth -65389-08-28 02:52 J -22161669.56 -22161669.38 -22161669.18 0.0510 0.0282 \*

Venus -65388-07-15 01:11 J -22161348.65 -22161348.45 -22161348.25 0.0504 0.0130

Mercury -65386-10-21 05:30 J -22160520.38 -22160520.27 -22160520.15 0.0499 0.0388

Mercury -65385-01-19 17:16 J -22160429.94 -22160429.78 -22160429.62 0.0499 0.0259

Mercury -65380-09-16 12:13 J -22158363.11 -22158362.99 -22158362.88 0.0526 0.0220

Mercury -65380-12-14 17:30 J -22158273.88 -22158273.77 -22158273.66 0.0526 0.0270

Mars -65375-08-28 11:01 J -22156556.31 -22156556.04 -22156555.78 0.0499 0.0226

Mercury -65374-11-07 13:11 J -22156120.14 -22156119.95 -22156119.77 0.0500 0.0089

Venus -65370-09-16 22:47 J -22154710.68 -22154710.55 -22154710.40 0.0523 0.0376

Mercury -65368-07-05 16:33 J -22154052.90 -22154052.81 -22154052.71 0.0526 0.0341

Mercury -65368-10-02 22:04 J -22153963.70 -22153963.58 -22153963.46 0.0526 0.0150

Venus -65364-07-17 09:35 J -22152580.18 -22152580.10 -22152580.01 0.0502 0.0452

Mercury -65362-08-26 09:49 J -22151810.27 -22151810.09 -22151809.90 0.0500 0.0071

Earth -65359-02-18 02:09 J -22150903.54 -22150903.41 -22150903.27 0.0513 0.0422

Moon -65359-02-18 06:13 J -22150903.35 -22150903.24 -22150903.13 0.0513 0.0447 \*

Venus -65358-05-22 15:35 J -22150445.06 -22150444.85 -22150444.65 0.0522 0.0054

Mercury -65356-04-23 20:37 J -22149742.70 -22149742.64 -22149742.59 0.0526 0.0468

Mercury -65356-07-22 01:54 J -22149653.54 -22149653.42 -22149653.29 0.0526 0.0028

Mercury -65356-10-19 07:11 J -22149564.22 -22149564.20 -22149564.17 0.0525 0.0509

Venus -65352-03-22 09:49 J -22148314.29 -22148314.09 -22148313.89 0.0504 0.0076

Mercury -65350-06-14 06:42 J -22147500.39 -22147500.22 -22147500.05 0.0499 0.0230

Mercury -65350-09-12 18:42 J -22147409.82 -22147409.72 -22147409.62 0.0500 0.0421

Moon -65347-02-22 20:52 J -22146515.87 -22146515.63 -22146515.40 0.0514 0.0159

Earth -65347-02-22 23:59 J -22146515.73 -22146515.50 -22146515.27 0.0514 0.0132 \*

Venus -65346-01-25 07:54 J -22146179.24 -22146179.17 -22146179.10 0.0520 0.0482

Mercury -65344-05-10 06:13 J -22145343.36 -22145343.24 -22145343.12 0.0526 0.0101

Mercury -65344-08-07 11:30 J -22145254.10 -22145254.02 -22145253.94 0.0526 0.0388

Venus -65341-11-25 10:47 J -22144048.21 -22144048.05 -22144047.88 0.0505 0.0297

Mercury -65338-04-02 03:21 J -22143190.47 -22143190.36 -22143190.24 0.0499 0.0389

Mercury -65338-07-01 15:21 J -22143100.02 -22143099.86 -22143099.70 0.0499 0.0259

Earth -65335-02-27 19:54 J -22142127.90 -22142127.67 -22142127.44 0.0515 0.0155

Moon -65335-02-27 20:52 J -22142127.84 -22142127.63 -22142127.41 0.0515 0.0175 \*

Mercury -65332-02-26 10:33 J -22141033.18 -22141033.06 -22141032.95 0.0527 0.0226

Mercury -65332-05-26 15:49 J -22140943.95 -22140943.84 -22140943.73 0.0526 0.0266

Earth -65330-08-19 05:45 J -22140129.44 -22140129.26 -22140129.07 0.0513 0.0303

Moon -65330-08-19 08:52 J -22140129.33 -22140129.13 -22140128.94 0.0513 0.0287 \*

Mercury -65326-04-19 11:45 J -22138790.19 -22138790.01 -22138789.82 0.0499 0.0097

Earth -65323-03-04 19:54 J -22137739.78 -22137739.67 -22137739.56 0.0516 0.0453

Moon -65323-03-04 21:21 J -22137739.70 -22137739.61 -22137739.50 0.0516 0.0472 \*

Venus -65322-01-28 05:30 J -22137410.46 -22137410.27 -22137410.08 0.0522 0.0186

Mercury -65321-12-15 14:52 J -22136722.97 -22136722.88 -22136722.78 0.0527 0.0345

Mercury -65320-03-14 20:23 J -22136633.77 -22136633.65 -22136633.53 0.0526 0.0147

Moon -65318-08-23 12:28 J -22135742.21 -22135741.98 -22135741.76 0.0511 0.0005

Earth -65318-08-23 15:49 J -22135742.07 -22135741.84 -22135741.61 0.0511 0.0034 \*

Venus -65317-11-27 20:23 J -22135279.82 -22135279.65 -22135279.49 0.0503 0.0290

Mercury -65314-02-05 07:25 J -22134480.37 -22134480.19 -22134480.00 0.0500 0.0075

Venus -65311-10-02 23:59 J -22133144.68 -22133144.50 -22133144.32 0.0521 0.0232  
 Mercury -65309-10-03 19:25 J -22132412.74 -22132412.69 -22132412.63 0.0526 0.0463  
 Mercury -65308-01-01 00:57 J -22132323.59 -22132323.46 -22132323.33 0.0526 0.0029  
 Mercury -65308-03-31 06:13 J -22132234.26 -22132234.24 -22132234.22 0.0525 0.0515  
 Earth -65306-08-28 04:04 J -22131354.53 -22131354.33 -22131354.13 0.0510 0.0240  
 Moon -65306-08-28 07:40 J -22131354.38 -22131354.18 -22131353.97 0.0510 0.0238 \*  
 Venus -65305-08-02 20:23 J -22131013.84 -22131013.65 -22131013.44 0.0504 0.0087  
 Mercury -65303-11-24 04:18 J -22130170.48 -22130170.32 -22130170.15 0.0500 0.0233  
 Mercury -65302-02-22 16:18 J -22130079.92 -22130079.82 -22130079.71 0.0500 0.0419  
 Mercury -65297-10-20 05:01 J -22128013.41 -22128013.29 -22128013.17 0.0526 0.0098  
 Mercury -65296-01-17 10:18 J -22127924.15 -22127924.07 -22127923.99 0.0525 0.0390  
 Moon -65294-09-01 12:28 J -22126967.05 -22126966.98 -22126966.90 0.0509 0.0479  
 Venus -65293-04-07 20:52 J -22126747.71 -22126747.63 -22126747.55 0.0505 0.0462  
 Mercury -65291-09-12 01:25 J -22125860.56 -22125860.44 -22125860.33 0.0499 0.0389  
 Mercury -65291-12-11 13:11 J -22125770.10 -22125769.95 -22125769.78 0.0500 0.0261  
 Venus -65287-10-05 21:21 J -22124375.71 -22124375.61 -22124375.49 0.0523 0.0436  
 Mercury -65285-08-08 09:06 J -22123703.23 -22123703.12 -22123703.00 0.0526 0.0222  
 Mercury -65285-11-05 14:37 J -22123614.00 -22123613.89 -22123613.78 0.0526 0.0269  
 Mercury -65279-09-29 10:04 J -22121460.26 -22121460.08 -22121459.89 0.0499 0.0101  
 Moon -65276-02-16 23:59 J -22120588.57 -22120588.50 -22120588.43 0.0512 0.0486  
 Earth -65276-02-17 03:35 J -22120588.45 -22120588.35 -22120588.25 0.0512 0.0461 \*  
 Venus -65275-06-10 13:25 J -22120110.14 -22120109.94 -22120109.74 0.0522 0.0004  
 Mars -65274-05-11 07:40 J -22119775.36 -22119775.18 -22119774.98 0.0526 0.0345  
 Mercury -65273-05-27 13:25 J -22119393.03 -22119392.94 -22119392.84 0.0527 0.0346  
 Mercury -65273-08-24 18:57 J -22119303.83 -22119303.71 -22119303.59 0.0526 0.0147  
 Venus -65269-04-10 10:04 J -22117979.27 -22117979.08 -22117978.88 0.0503 0.0143  
 Mercury -65267-07-18 06:57 J -22117150.40 -22117150.21 -22117150.03 0.0499 0.0060  
 Earth -65264-02-22 02:52 J -22116200.60 -22116200.38 -22116200.16 0.0514 0.0167  
 Moon -65264-02-22 04:18 J -22116200.53 -22116200.32 -22116200.10 0.0514 0.0187 \*  
 Venus -65263-02-13 07:25 J -22115844.31 -22115844.19 -22115844.06 0.0521 0.0415

Mercury -65261-03-15 17:59 J -22115082.81 -22115082.75 -22115082.69 0.0527 0.0463  
 Mercury -65261-06-12 23:30 J -22114993.65 -22114993.52 -22114993.39 0.0526 0.0030  
 Mercury -65261-09-10 04:47 J -22114904.32 -22114904.30 -22114904.28 0.0525 0.0517  
 Venus -65258-12-15 08:09 J -22113713.33 -22113713.16 -22113712.98 0.0504 0.0244  
 Mars -65256-02-14 05:30 J -22113286.53 -22113286.27 -22113286.00 0.0500 0.0224  
 Mercury -65255-05-06 02:23 J -22112840.56 -22112840.40 -22112840.23 0.0499 0.0232  
 Mercury -65255-08-04 14:23 J -22112750.00 -22112749.90 -22112749.80 0.0500 0.0420  
 Earth -65252-02-27 03:21 J -22111812.58 -22111812.36 -22111812.12 0.0515 0.0136  
 Moon -65252-02-27 04:33 J -22111812.54 -22111812.31 -22111812.07 0.0515 0.0161 \*  
 Mercury -65249-04-01 04:04 J -22110683.45 -22110683.33 -22110683.20 0.0526 0.0089  
 Mercury -65249-06-29 09:21 J -22110594.18 -22110594.11 -22110594.03 0.0525 0.0402  
 Moon -65247-08-18 06:57 J -22109814.38 -22109814.21 -22109814.03 0.0512 0.0321  
 Earth -65247-08-18 10:33 J -22109814.23 -22109814.06 -22109813.89 0.0512 0.0335 \*  
 Mercury -65243-02-21 23:16 J -22108530.64 -22108530.53 -22108530.41 0.0499 0.0389  
 Mercury -65243-05-23 11:16 J -22108440.19 -22108440.03 -22108439.87 0.0500 0.0262  
 Moon -65240-03-04 00:57 J -22107424.56 -22107424.46 -22107424.35 0.0516 0.0453  
 Earth -65240-03-04 04:04 J -22107424.45 -22107424.33 -22107424.20 0.0516 0.0437 \*  
 Venus -65239-02-16 07:54 J -22107075.34 -22107075.17 -22107074.99 0.0522 0.0265  
 Mars -65238-02-13 09:06 J -22106713.33 -22106713.12 -22106712.90 0.0526 0.0284  
 Mercury -65237-01-19 08:23 J -22106373.27 -22106373.15 -22106373.04 0.0526 0.0213  
 Mercury -65237-04-17 13:40 J -22106284.04 -22106283.93 -22106283.83 0.0525 0.0277  
 Earth -65235-08-22 22:18 J -22105426.79 -22105426.57 -22105426.34 0.0511 0.0061  
 Moon -65235-08-23 02:09 J -22105426.64 -22105426.41 -22105426.18 0.0511 0.0030 \*  
 Venus -65234-12-17 19:54 J -22104944.81 -22104944.67 -22104944.52 0.0503 0.0353  
 Mercury -65231-03-11 08:23 J -22104130.33 -22104130.15 -22104129.96 0.0500 0.0106  
 Venus -65228-10-22 00:42 J -22102809.66 -22102809.47 -22102809.27 0.0521 0.0161  
 Mercury -65226-11-07 12:28 J -22102063.07 -22102062.98 -22102062.88 0.0526 0.0337  
 Mercury -65225-02-04 17:59 J -22101973.87 -22101973.75 -22101973.63 0.0526 0.0155  
 Moon -65223-08-27 09:21 J -22101039.32 -22101039.11 -22101038.89 0.0510 0.0207  
 Earth -65223-08-27 12:13 J -22101039.19 -22101038.99 -22101038.78 0.0510 0.0219 \*



Venus -65222-08-22 21:35 J -22100678.81 -22100678.60 -22100678.40 0.0504 0.0018  
 Mars -65221-11-21 19:11 J -22100221.81 -22100221.70 -22100221.58 0.0499 0.0460  
 Mercury -65220-12-28 05:30 J -22099820.46 -22099820.27 -22099820.08 0.0499 0.0052  
 Mercury -65214-08-26 16:47 J -22097752.86 -22097752.80 -22097752.74 0.0527 0.0461  
 Mercury -65214-11-23 22:18 J -22097663.70 -22097663.57 -22097663.45 0.0526 0.0034  
 Mercury -65213-02-21 03:35 J -22097574.36 -22097574.35 -22097574.34 0.0525 0.0521  
 Earth -65211-09-01 02:23 J -22096651.45 -22096651.40 -22096651.35 0.0509 0.0496  
 Moon -65211-09-01 03:35 J -22096651.43 -22096651.35 -22096651.26 0.0509 0.0468 \*  
 Venus -65210-04-27 22:33 J -22096412.68 -22096412.56 -22096412.43 0.0505 0.0388  
 Mercury -65208-10-16 02:23 J -22095510.57 -22095510.40 -22095510.23 0.0499 0.0211  
 Mercury -65207-01-14 14:09 J -22095419.99 -22095419.91 -22095419.82 0.0500 0.0441  
 Venus -65204-10-24 22:47 J -22094040.58 -22094040.55 -22094040.50 0.0523 0.0511  
 Mercury -65202-09-12 02:52 J -22093353.50 -22093353.38 -22093353.25 0.0526 0.0085  
 Mercury -65202-12-10 08:09 J -22093264.23 -22093264.16 -22093264.08 0.0525 0.0407  
 Mercury -65196-08-03 21:49 J -22091200.71 -22091200.59 -22091200.47 0.0499 0.0383  
 Mercury -65196-11-02 09:35 J -22091110.25 -22091110.10 -22091109.93 0.0500 0.0268  
 Earth -65193-02-17 11:59 J -22090273.08 -22090273.00 -22090272.91 0.0513 0.0480  
 Moon -65193-02-17 13:54 J -22090272.94 -22090272.92 -22090272.88 0.0513 0.0508 \*  
 Venus -65192-06-29 17:59 J -22089774.95 -22089774.75 -22089774.55 0.0522 0.0094  
 Mercury -65190-07-01 07:40 J -22089043.29 -22089043.18 -22089043.06 0.0526 0.0199  
 Mercury -65190-09-28 12:57 J -22088954.06 -22088953.96 -22088953.85 0.0525 0.0292  
 Venus -65186-04-30 08:23 J -22087644.33 -22087644.15 -22087643.96 0.0503 0.0200  
 Mercury -65184-08-21 06:42 J -22086800.40 -22086800.22 -22086800.03 0.0500 0.0110  
 Earth -65181-02-22 12:42 J -22085885.19 -22085884.97 -22085884.74 0.0514 0.0180  
 Moon -65181-02-22 13:25 J -22085885.17 -22085884.94 -22085884.71 0.0514 0.0187 \*  
 Venus -65180-03-04 11:30 J -22085509.17 -22085509.02 -22085508.86 0.0521 0.0329  
 Mercury -65178-04-19 11:59 J -22084733.10 -22084733.00 -22084732.90 0.0526 0.0324  
 Mercury -65178-07-17 17:16 J -22084643.90 -22084643.78 -22084643.66 0.0525 0.0167  
 Venus -65174-01-03 09:06 J -22083378.31 -22083378.12 -22083377.93 0.0504 0.0175  
 Mercury -65172-06-09 04:04 J -22082490.52 -22082490.33 -22082490.14 0.0500 0.0045

Moon -65169-02-27 09:49 J -22081497.31 -22081497.09 -22081496.87 0.0515 0.0149  
 Earth -65169-02-27 12:42 J -22081497.20 -22081496.97 -22081496.74 0.0515 0.0118 \*  
 Mercury -65166-02-05 16:04 J -22080422.89 -22080422.83 -22080422.76 0.0526 0.0447  
 Mercury -65166-05-05 21:35 J -22080333.73 -22080333.60 -22080333.47 0.0526 0.0045  
 Earth -65164-08-17 19:54 J -22079498.82 -22079498.67 -22079498.50 0.0513 0.0356  
 Moon -65164-08-17 23:45 J -22079498.68 -22079498.51 -22079498.33 0.0513 0.0334 \*  
 Mercury -65160-03-28 01:11 J -22078180.62 -22078180.45 -22078180.27 0.0499 0.0200  
 Mercury -65160-06-26 13:11 J -22078090.02 -22078089.95 -22078089.87 0.0500 0.0453  
 Earth -65157-03-03 10:18 J -22077109.20 -22077109.07 -22077108.92 0.0516 0.0414  
 Moon -65157-03-03 14:23 J -22077109.03 -22077108.90 -22077108.76 0.0516 0.0425 \*  
 Venus -65156-03-07 09:06 J -22076740.28 -22076740.12 -22076739.97 0.0522 0.0339  
 Mercury -65154-02-22 01:54 J -22076023.55 -22076023.42 -22076023.30 0.0526 0.0078  
 Mercury -65154-05-22 07:11 J -22075934.28 -22075934.20 -22075934.12 0.0526 0.0412  
 Moon -65152-08-22 07:54 J -22075111.40 -22075111.17 -22075110.93 0.0512 0.0051  
 Earth -65152-08-22 10:47 J -22075111.27 -22075111.05 -22075110.82 0.0512 0.0075 \*  
 Venus -65150-01-05 22:47 J -22074609.64 -22074609.55 -22074609.44 0.0503 0.0432  
 Mercury -65148-01-13 22:18 J -22073870.70 -22073870.57 -22073870.44 0.0499 0.0357  
 Mercury -65148-04-14 10:04 J -22073780.23 -22073780.08 -22073779.93 0.0500 0.0293  
 Venus -65145-11-10 03:21 J -22072474.56 -22072474.36 -22072474.16 0.0522 0.0080  
 Mercury -65143-12-11 06:42 J -22071713.34 -22071713.22 -22071713.10 0.0526 0.0192  
 Mercury -65142-03-10 11:59 J -22071624.10 -22071624.00 -22071623.90 0.0526 0.0299  
 Earth -65140-08-26 22:47 J -22070723.76 -22070723.55 -22070723.34 0.0510 0.0204  
 Moon -65140-08-26 23:59 J -22070723.70 -22070723.50 -22070723.29 0.0510 0.0185 \*  
 Venus -65139-09-10 21:35 J -22070343.80 -22070343.60 -22070343.39 0.0503 0.0049  
 Mercury -65136-01-31 05:30 J -22069470.45 -22069470.27 -22069470.09 0.0500 0.0119  
 Venus -65133-07-15 21:35 J -22068208.65 -22068208.60 -22068208.54 0.0521 0.0499  
 Mercury -65131-09-29 11:30 J -22067403.12 -22067403.02 -22067402.92 0.0526 0.0307  
 Mercury -65131-12-27 16:47 J -22067313.92 -22067313.80 -22067313.68 0.0526 0.0184  
 Moon -65128-08-31 11:59 J -22066336.11 -22066336.00 -22066335.89 0.0509 0.0449  
 Earth -65128-08-31 11:59 J -22066336.08 -22066336.00 -22066335.93 0.0509 0.0478 \*

Venus -65127-05-16 22:33 J -22066077.71 -22066077.56 -22066077.40 0.0504 0.0324  
 Mercury -65125-11-19 02:37 J -22065160.58 -22065160.39 -22065160.21 0.0500 0.0038  
 Mars -65120-08-05 10:47 J -22063440.30 -22063440.05 -22063439.80 0.0526 0.0078  
 Mercury -65119-07-18 15:35 J -22063092.92 -22063092.85 -22063092.78 0.0526 0.0432  
 Mercury -65119-10-15 21:06 J -22063003.75 -22063003.62 -22063003.50 0.0526 0.0061  
 Mercury -65113-09-06 23:59 J -22060850.67 -22060850.50 -22060850.33 0.0500 0.0192  
 Mercury -65113-12-06 11:59 J -22060760.06 -22060760.00 -22060759.93 0.0500 0.0462  
 Earth -65110-02-16 23:30 J -22059957.58 -22059957.52 -22059957.45 0.0513 0.0491  
 Venus -65109-07-18 21:35 J -22059439.79 -22059439.60 -22059439.41 0.0522 0.0178  
 Mercury -65107-08-04 01:25 J -22058693.57 -22058693.44 -22058693.32 0.0526 0.0062  
 Mercury -65107-11-01 06:42 J -22058604.29 -22058604.22 -22058604.15 0.0525 0.0427  
 Venus -65103-05-19 11:16 J -22057309.19 -22057309.03 -22057308.86 0.0503 0.0278  
 Mars -65102-05-12 06:57 J -22056951.50 -22056951.21 -22056950.91 0.0500 0.0049  
 Mercury -65101-06-25 21:21 J -22056540.75 -22056540.61 -22056540.48 0.0499 0.0345  
 Mercury -65101-09-24 09:06 J -22056450.26 -22056450.12 -22056449.97 0.0500 0.0307  
 Moon -65098-02-21 18:57 J -22055569.92 -22055569.71 -22055569.49 0.0513 0.0200  
 Earth -65098-02-21 21:35 J -22055569.82 -22055569.60 -22055569.38 0.0513 0.0199 \*  
 Venus -65097-03-23 13:40 J -22055174.10 -22055173.93 -22055173.74 0.0521 0.0250  
 Mercury -65095-05-23 05:45 J -22054383.38 -22054383.26 -22054383.14 0.0526 0.0185  
 Mercury -65095-08-20 11:01 J -22054294.14 -22054294.04 -22054293.94 0.0526 0.0306  
 Venus -65091-01-22 12:42 J -22053043.16 -22053042.97 -22053042.76 0.0504 0.0093  
 Mercury -65089-07-13 06:13 J -22052140.42 -22052140.24 -22052140.06 0.0500 0.0148  
 Earth -65086-02-26 21:49 J -22051181.83 -22051181.59 -22051181.36 0.0515 0.0101  
 Moon -65086-02-27 01:40 J -22051181.66 -22051181.43 -22051181.20 0.0515 0.0136 \*  
 Mercury -65083-03-11 10:33 J -22050073.17 -22050073.06 -22050072.96 0.0526 0.0300  
 Mercury -65083-06-08 15:49 J -22049983.96 -22049983.84 -22049983.72 0.0526 0.0193  
 Moon -65081-08-17 06:13 J -22049183.41 -22049183.24 -22049183.07 0.0512 0.0339  
 Earth -65081-08-17 09:06 J -22049183.28 -22049183.12 -22049182.96 0.0512 0.0365 \*  
 Venus -65080-09-27 12:28 J -22048777.05 -22048776.98 -22048776.92 0.0505 0.0473  
 Mercury -65077-05-01 01:25 J -22047830.62 -22047830.44 -22047830.25 0.0500 0.0029

Moon -65074-03-03 17:30 J -22046793.91 -22046793.77 -22046793.63 0.0516 0.0413  
 Earth -65074-03-03 21:35 J -22046793.75 -22046793.60 -22046793.46 0.0516 0.0406 \*  
 Venus -65073-03-26 14:52 J -22046404.99 -22046404.88 -22046404.77 0.0523 0.0434  
 Mercury -65072-12-28 15:21 J -22045762.94 -22045762.86 -22045762.79 0.0526 0.0415  
 Mercury -65071-03-27 20:37 J -22045673.76 -22045673.64 -22045673.51 0.0526 0.0080  
 Earth -65069-08-21 23:16 J -22044795.76 -22044795.53 -22044795.31 0.0511 0.0084  
 Moon -65069-08-22 00:13 J -22044795.70 -22044795.49 -22044795.26 0.0511 0.0071 \*  
 Venus -65067-01-24 23:30 J -22044274.55 -22044274.52 -22044274.49 0.0502 0.0496  
 Mercury -65065-02-17 22:33 J -22043520.73 -22043520.56 -22043520.39 0.0500 0.0184  
 Mercury -65065-05-18 10:33 J -22043430.11 -22043430.06 -22043429.99 0.0500 0.0470  
 Venus -65062-11-30 08:52 J -22042139.33 -22042139.13 -22042138.93 0.0522 0.0012  
 Mercury -65059-01-14 00:57 J -22041363.58 -22041363.46 -22041363.33 0.0526 0.0045  
 Mercury -65059-04-13 06:13 J -22041274.31 -22041274.24 -22041274.17 0.0525 0.0443  
 Earth -65057-08-26 10:47 J -22040408.26 -22040408.05 -22040407.83 0.0510 0.0192  
 Moon -65057-08-26 11:01 J -22040408.26 -22040408.04 -22040407.81 0.0510 0.0166 \*  
 Venus -65056-09-30 00:13 J -22040008.69 -22040008.49 -22040008.29 0.0503 0.0124  
 Mercury -65054-12-06 19:54 J -22039210.80 -22039210.67 -22039210.53 0.0500 0.0338  
 Mercury -65053-03-06 07:54 J -22039120.31 -22039120.17 -22039120.02 0.0500 0.0316  
 Venus -65050-08-05 02:09 J -22037873.53 -22037873.41 -22037873.28 0.0521 0.0410  
 Mercury -65048-11-02 05:16 J -22037053.40 -22037053.28 -22037053.16 0.0526 0.0168  
 Mercury -65047-01-30 10:33 J -22036964.16 -22036964.06 -22036963.96 0.0525 0.0322  
 Moon -65045-08-30 22:18 J -22036020.67 -22036020.57 -22036020.46 0.0509 0.0446  
 Earth -65045-08-30 23:59 J -22036020.58 -22036020.50 -22036020.41 0.0509 0.0468 \*  
 Venus -65044-06-05 01:25 J -22035742.61 -22035742.44 -22035742.26 0.0505 0.0247  
 Mercury -65042-09-24 17:16 J -22034900.80 -22034900.78 -22034900.74 0.0499 0.0490  
 Mercury -65042-12-24 05:16 J -22034810.46 -22034810.28 -22034810.10 0.0500 0.0160  
 Mercury -65036-08-21 09:35 J -22032743.21 -22032743.10 -22032743.00 0.0526 0.0292  
 Mercury -65036-11-18 14:52 J -22032653.99 -22032653.88 -22032653.76 0.0526 0.0201  
 Mercury -65030-10-12 02:09 J -22030500.60 -22030500.41 -22030500.22 0.0500 0.0002  
 Earth -65027-02-16 09:21 J -22029642.14 -22029642.11 -22029642.08 0.0512 0.0508

Venus -65026-08-08 01:11 J -22029104.63 -22029104.45 -22029104.28 0.0522 0.0264

Mercury -65024-06-09 14:23 J -22028432.98 -22028432.90 -22028432.82 0.0526 0.0407

Mercury -65024-09-06 19:40 J -22028343.80 -22028343.68 -22028343.55 0.0526 0.0088

Venus -65020-06-07 12:57 J -22026974.10 -22026973.96 -22026973.81 0.0502 0.0347

Mercury -65018-07-30 21:21 J -22026190.78 -22026190.61 -22026190.43 0.0499 0.0175

Mercury -65018-10-29 09:35 J -22026100.15 -22026100.10 -22026100.05 0.0500 0.0480

Earth -65015-02-21 06:42 J -22025254.43 -22025254.22 -22025254.00 0.0514 0.0214

Moon -65015-02-21 10:33 J -22025254.28 -22025254.06 -22025253.83 0.0514 0.0205 \*

Venus -65014-04-12 18:57 J -22024838.90 -22024838.71 -22024838.52 0.0522 0.0160

Mercury -65012-03-28 18:57 J -22024122.72 -22024122.71 -22024122.69 0.0527 0.0523

Mercury -65012-06-26 00:28 J -22024033.60 -22024033.48 -22024033.35 0.0526 0.0033

Mercury -65012-09-23 05:45 J -22023944.31 -22023944.26 -22023944.20 0.0525 0.0462

Venus -65008-02-10 14:09 J -22022708.11 -22022707.91 -22022707.70 0.0503 0.0024

Mercury -65006-05-18 18:28 J -22021880.86 -22021880.73 -22021880.59 0.0499 0.0331

Mercury -65006-08-17 06:28 J -22021790.37 -22021790.23 -22021790.08 0.0500 0.0323

Moon -65003-02-26 04:33 J -22020866.54 -22020866.31 -22020866.08 0.0515 0.0126

Earth -65003-02-26 08:23 J -22020866.38 -22020866.15 -22020865.91 0.0515 0.0093 \*

Mars -65001-01-26 13:11 J -22020167.09 -22020166.95 -22020166.81 0.0526 0.0435

# 65TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 65th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
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Mercury -65000-04-14 04:47 J -22019723.42 -22019723.30 -22019723.18 0.0526 0.0152  
 Mercury -65000-07-12 10:04 J -22019634.17 -22019634.08 -22019633.98 0.0525 0.0339  
 Earth -64998-08-17 21:06 J -22018867.77 -22018867.62 -22018867.46 0.0512 0.0379  
 Moon -64998-08-17 22:18 J -22018867.73 -22018867.57 -22018867.41 0.0512 0.0350 \*  
 Venus -64997-10-16 14:52 J -22018442.01 -22018441.88 -22018441.76 0.0505 0.0398  
 Mercury -64994-03-06 15:49 J -22017570.87 -22017570.84 -22017570.79 0.0500 0.0484  
 Mercury -64994-06-05 03:49 J -22017480.51 -22017480.34 -22017480.16 0.0500 0.0168  
 Earth -64991-03-03 09:21 J -22016478.26 -22016478.11 -22016477.96 0.0516 0.0397  
 Moon -64991-03-03 12:13 J -22016478.13 -22016477.99 -22016477.84 0.0516 0.0395 \*  
 Venus -64990-04-15 18:57 J -22016069.73 -22016069.71 -22016069.69 0.0523 0.0518  
 Mercury -64988-01-31 09:06 J -22015413.23 -22015413.12 -22015413.01 0.0526 0.0275  
 Mercury -64988-04-30 14:23 J -22015324.01 -22015323.90 -22015323.78 0.0525 0.0217  
 Earth -64986-08-22 10:18 J -22014480.29 -22014480.07 -22014479.84 0.0511 0.0100  
 Moon -64986-08-22 11:01 J -22014480.28 -22014480.04 -22014479.81 0.0511 0.0091 \*  
 Mars -64984-10-30 02:23 J -22013680.61 -22013680.40 -22013680.19 0.0500 0.0341  
 Mercury -64982-03-24 01:11 J -22013170.64 -22013170.45 -22013170.26 0.0500 0.0014  
 Venus -64979-12-19 11:30 J -22011804.22 -22011804.02 -22011803.82 0.0522 0.0092  
 Mercury -64977-11-19 13:11 J -22011103.03 -22011102.95 -22011102.87 0.0526 0.0400  
 Mercury -64976-02-16 18:42 J -22011013.84 -22011013.72 -22011013.60 0.0526 0.0094  
 Moon -64974-08-26 22:33 J -22010092.77 -22010092.56 -22010092.35 0.0511 0.0155  
 Earth -64974-08-27 00:13 J -22010092.70 -22010092.49 -22010092.27 0.0511 0.0184 \*  
 Venus -64973-10-19 03:35 J -22009673.53 -22009673.35 -22009673.16 0.0503 0.0205  
 Mercury -64970-01-09 22:04 J -22008860.76 -22008860.58 -22008860.40 0.0500 0.0146  
 Venus -64967-08-24 05:01 J -22007538.44 -22007538.29 -22007538.13 0.0521 0.0329  
 Mars -64966-10-31 10:18 J -22007105.31 -22007105.07 -22007104.83 0.0526 0.0176  
 Mercury -64965-09-07 17:59 J -22006792.77 -22006792.75 -22006792.73 0.0527 0.0516  
 Mercury -64965-12-05 23:30 J -22006703.65 -22006703.52 -22006703.39 0.0526 0.0021  
 Mercury -64964-03-05 04:47 J -22006614.35 -22006614.30 -22006614.25 0.0525 0.0469  
 Earth -64962-08-31 13:25 J -22005705.03 -22005704.94 -22005704.84 0.0509 0.0463  
 Moon -64962-08-31 16:33 J -22005704.91 -22005704.81 -22005704.69 0.0509 0.0450 \*

Venus -64961-06-24 03:49 J -22005407.53 -22005407.34 -22005407.15 0.0504 0.0174  
 Mercury -64959-10-28 17:30 J -22004550.91 -22004550.77 -22004550.63 0.0499 0.0321  
 Mercury -64958-01-27 05:16 J -22004460.42 -22004460.28 -22004460.14 0.0500 0.0332  
 Mercury -64953-09-24 04:18 J -22002393.44 -22002393.32 -22002393.20 0.0526 0.0137  
 Mercury -64953-12-22 09:35 J -22002304.19 -22002304.10 -22002304.01 0.0525 0.0355  
 Mars -64948-08-05 23:45 J -22000616.73 -22000616.51 -22000616.27 0.0499 0.0306  
 Mercury -64947-08-16 14:23 J -22000240.95 -22000240.90 -22000240.85 0.0499 0.0478  
 Mercury -64947-11-15 02:09 J -22000150.58 -22000150.41 -22000150.23 0.0500 0.0173  
 Venus -64943-08-27 05:16 J -21998769.42 -21998769.28 -21998769.12 0.0523 0.0348  
 Mercury -64941-07-13 08:37 J -21998083.25 -21998083.14 -21998083.03 0.0526 0.0262  
 Mercury -64941-10-10 13:54 J -21997994.03 -21997993.92 -21997993.81 0.0525 0.0231  
 Venus -64937-06-26 15:06 J -21996638.98 -21996638.87 -21996638.76 0.0502 0.0419  
 Mercury -64935-09-02 23:30 J -21995840.71 -21995840.52 -21995840.33 0.0500 0.0019  
 Moon -64932-02-20 14:09 J -21994939.13 -21994938.91 -21994938.70 0.0514 0.0217  
 Earth -64932-02-20 18:13 J -21994938.95 -21994938.74 -21994938.53 0.0514 0.0225 \*  
 Venus -64931-05-01 22:47 J -21994503.76 -21994503.55 -21994503.35 0.0522 0.0076  
 Mercury -64929-05-01 12:42 J -21993773.05 -21993772.97 -21993772.88 0.0526 0.0386  
 Mercury -64929-07-29 18:13 J -21993683.87 -21993683.74 -21993683.62 0.0525 0.0108  
 Venus -64925-03-01 16:04 J -21992373.03 -21992372.83 -21992372.63 0.0504 0.0049  
 Mercury -64923-06-21 20:37 J -21991530.81 -21991530.64 -21991530.45 0.0500 0.0139  
 Earth -64920-02-25 16:47 J -21990551.03 -21990550.80 -21990550.56 0.0515 0.0073  
 Moon -64920-02-25 20:09 J -21990550.89 -21990550.66 -21990550.44 0.0515 0.0104 \*  
 Venus -64919-01-04 14:37 J -21990237.94 -21990237.89 -21990237.84 0.0520 0.0502  
 Mercury -64917-02-18 16:47 J -21989462.82 -21989462.80 -21989462.77 0.0526 0.0512  
 Mercury -64917-05-17 22:18 J -21989373.69 -21989373.57 -21989373.44 0.0526 0.0020  
 Mercury -64917-08-15 03:35 J -21989284.40 -21989284.35 -21989284.30 0.0525 0.0473  
 Earth -64915-08-17 08:37 J -21988552.28 -21988552.14 -21988551.99 0.0513 0.0395  
 Moon -64915-08-17 09:21 J -21988552.27 -21988552.11 -21988551.93 0.0513 0.0362 \*  
 Venus -64914-11-05 17:16 J -21988106.93 -21988106.78 -21988106.62 0.0505 0.0321  
 Mercury -64911-04-09 17:30 J -21987220.91 -21987220.77 -21987220.62 0.0499 0.0298

Mercury -64911-07-09 05:30 J -21987130.40 -21987130.27 -21987130.14 0.0500 0.0357

Moon -64908-03-02 14:52 J -21986163.04 -21986162.88 -21986162.69 0.0516 0.0362

Earth -64908-03-02 16:18 J -21986162.98 -21986162.82 -21986162.66 0.0516 0.0375 \*

Mercury -64905-03-06 03:06 J -21985063.49 -21985063.37 -21985063.25 0.0526 0.0133

Mercury -64905-06-03 08:23 J -21984974.24 -21984974.15 -21984974.06 0.0525 0.0359

Moon -64903-08-21 21:21 J -21984164.83 -21984164.61 -21984164.39 0.0511 0.0105

Earth -64903-08-21 23:30 J -21984164.75 -21984164.52 -21984164.30 0.0511 0.0107 \*

Mercury -64899-01-26 12:57 J -21982911.01 -21982910.96 -21982910.90 0.0499 0.0472

Mercury -64899-04-27 00:42 J -21982820.64 -21982820.47 -21982820.29 0.0500 0.0179

Venus -64895-01-07 14:09 J -21981469.11 -21981468.91 -21981468.72 0.0523 0.0169

Mercury -64894-12-24 07:40 J -21980753.29 -21980753.18 -21980753.07 0.0527 0.0251

Mercury -64893-03-22 13:11 J -21980664.06 -21980663.95 -21980663.84 0.0526 0.0243

Earth -64891-08-26 12:42 J -21979777.18 -21979776.97 -21979776.75 0.0510 0.0174

Moon -64891-08-26 16:04 J -21979777.05 -21979776.83 -21979776.61 0.0510 0.0144 \*

Venus -64890-11-08 04:18 J -21979338.49 -21979338.32 -21979338.14 0.0502 0.0270

Mercury -64887-02-12 21:35 J -21978510.78 -21978510.60 -21978510.41 0.0500 0.0020

Venus -64884-09-12 07:25 J -21977203.36 -21977203.19 -21977203.00 0.0522 0.0254

Mercury -64882-10-12 11:59 J -21976443.09 -21976443.00 -21976442.91 0.0526 0.0376

Mercury -64881-01-09 17:30 J -21976353.90 -21976353.77 -21976353.65 0.0526 0.0120

Moon -64879-08-30 19:25 J -21975389.80 -21975389.69 -21975389.57 0.0509 0.0438

Earth -64879-08-30 23:16 J -21975389.64 -21975389.53 -21975389.42 0.0509 0.0444 \*

Venus -64878-07-14 04:33 J -21975072.51 -21975072.31 -21975072.11 0.0504 0.0106

Mercury -64876-12-01 18:42 J -21974200.89 -21974200.72 -21974200.53 0.0500 0.0138

Mercury -64870-07-31 16:04 J -21972132.86 -21972132.83 -21972132.79 0.0526 0.0500

Mercury -64870-10-28 21:35 J -21972043.72 -21972043.60 -21972043.47 0.0526 0.0009

Mercury -64869-01-26 02:52 J -21971954.43 -21971954.38 -21971954.33 0.0525 0.0484

Venus -64866-03-19 05:16 J -21970806.34 -21970806.28 -21970806.21 0.0505 0.0478

Mercury -64864-09-19 15:49 J -21969890.99 -21969890.84 -21969890.68 0.0499 0.0294

Mercury -64864-12-19 03:49 J -21969800.47 -21969800.34 -21969800.21 0.0500 0.0361

Venus -64860-09-15 05:45 J -21968434.38 -21968434.26 -21968434.13 0.0523 0.0416



Mercury -64858-08-17 01:40 J -21967733.55 -21967733.43 -21967733.31 0.0526 0.0132

Mercury -64858-11-14 06:57 J -21967644.30 -21967644.21 -21967644.12 0.0525 0.0360

Venus -64854-07-16 16:18 J -21966303.85 -21966303.82 -21966303.77 0.0502 0.0490

Mercury -64852-07-08 12:42 J -21965581.04 -21965580.97 -21965580.89 0.0499 0.0453

Mercury -64852-10-07 00:28 J -21965490.65 -21965490.48 -21965490.30 0.0500 0.0199

Earth -64849-02-20 22:47 J -21964623.75 -21964623.55 -21964623.34 0.0513 0.0254

Moon -64849-02-21 02:37 J -21964623.60 -21964623.39 -21964623.19 0.0513 0.0239 \*

Venus -64848-05-20 23:01 J -21964168.75 -21964168.54 -21964168.34 0.0522 0.0011

Mars -64847-04-22 01:40 J -21963832.67 -21963832.43 -21963832.19 0.0526 0.0205

Mercury -64846-06-05 06:13 J -21963423.35 -21963423.24 -21963423.13 0.0526 0.0251

Mercury -64846-09-02 11:45 J -21963334.12 -21963334.01 -21963333.90 0.0526 0.0244

Venus -64842-03-21 16:47 J -21962038.00 -21962037.80 -21962037.60 0.0503 0.0114

Mercury -64840-07-25 19:54 J -21961180.86 -21961180.67 -21961180.48 0.0499 0.0022

Moon -64837-02-25 16:47 J -21960236.05 -21960235.80 -21960235.56 0.0515 0.0064

Earth -64837-02-25 18:42 J -21960235.96 -21960235.72 -21960235.49 0.0515 0.0040 \*

Venus -64836-01-23 14:37 J -21959902.99 -21959902.89 -21959902.77 0.0522 0.0438

Mercury -64834-03-24 10:47 J -21959113.14 -21959113.05 -21959112.96 0.0527 0.0371

Mercury -64834-06-21 16:18 J -21959023.94 -21959023.82 -21959023.70 0.0526 0.0126

Moon -64832-08-16 18:13 J -21958236.89 -21958236.74 -21958236.60 0.0513 0.0380

Earth -64832-08-16 20:09 J -21958236.79 -21958236.66 -21958236.52 0.0513 0.0410 \*

Venus -64831-11-24 17:45 J -21957771.93 -21957771.76 -21957771.59 0.0504 0.0256

Mars -64829-01-24 11:16 J -21957346.31 -21957346.03 -21957345.74 0.0499 0.0100

Mercury -64828-05-13 16:33 J -21956870.99 -21956870.81 -21956870.63 0.0499 0.0140

Moon -64825-03-01 18:57 J -21955847.88 -21955847.71 -21955847.53 0.0516 0.0329

Earth -64825-03-01 19:25 J -21955847.86 -21955847.69 -21955847.51 0.0516 0.0348 \*

Mercury -64822-01-10 15:06 J -21954802.91 -21954802.87 -21954802.83 0.0527 0.0496

Mercury -64822-04-09 20:37 J -21954713.77 -21954713.64 -21954713.52 0.0526 0.0013

Mercury -64822-07-08 01:40 J -21954624.47 -21954624.43 -21954624.38 0.0525 0.0491

Earth -64820-08-21 06:28 J -21953849.45 -21953849.23 -21953849.01 0.0511 0.0135

Moon -64820-08-21 09:49 J -21953849.32 -21953849.09 -21953848.87 0.0511 0.0140 \*

Mercury -64816-03-01 13:40 J -21952561.08 -21952560.93 -21952560.78 0.0499 0.0298  
 Mercury -64816-05-31 01:40 J -21952470.56 -21952470.43 -21952470.30 0.0500 0.0357  
 Venus -64812-01-26 15:06 J -21951134.05 -21951133.87 -21951133.68 0.0523 0.0241  
 Mars -64811-01-24 23:30 J -21950770.67 -21950770.52 -21950770.36 0.0526 0.0412  
 Mercury -64810-01-27 00:42 J -21950403.59 -21950403.47 -21950403.34 0.0526 0.0125  
 Mercury -64810-04-26 05:59 J -21950314.34 -21950314.25 -21950314.16 0.0525 0.0367  
 Moon -64808-08-25 14:23 J -21949462.13 -21949461.90 -21949461.68 0.0510 0.0111  
 Earth -64808-08-25 17:59 J -21949461.97 -21949461.75 -21949461.53 0.0510 0.0142 \*  
 Venus -64807-11-27 03:21 J -21949003.51 -21949003.36 -21949003.20 0.0503 0.0328  
 Mercury -64805-12-18 10:33 J -21948251.13 -21948251.06 -21948250.98 0.0499 0.0455  
 Mercury -64804-03-18 22:33 J -21948160.74 -21948160.56 -21948160.39 0.0500 0.0198  
 Venus -64801-10-01 06:42 J -21946868.41 -21946868.22 -21946868.02 0.0521 0.0190  
 Mercury -64799-11-15 04:47 J -21946093.41 -21946093.30 -21946093.19 0.0526 0.0254  
 Mercury -64798-02-12 10:04 J -21946004.19 -21946004.08 -21946003.97 0.0526 0.0241  
 Earth -64796-08-30 06:13 J -21945074.37 -21945074.24 -21945074.11 0.0510 0.0420  
 Moon -64796-08-30 09:06 J -21945074.23 -21945074.12 -21945073.99 0.0510 0.0426 \*  
 Venus -64795-08-02 04:18 J -21944737.52 -21944737.32 -21944737.12 0.0504 0.0043  
 Mercury -64792-01-04 18:57 J -21943850.89 -21943850.71 -21943850.52 0.0500 0.0036  
 Mercury -64787-09-03 09:06 J -21941783.20 -21941783.12 -21941783.03 0.0527 0.0375  
 Mercury -64787-12-01 14:37 J -21941694.01 -21941693.89 -21941693.77 0.0526 0.0122  
 Venus -64783-04-07 05:16 J -21940471.39 -21940471.28 -21940471.16 0.0504 0.0415  
 Mercury -64781-10-23 14:23 J -21939541.07 -21939540.90 -21939540.72 0.0499 0.0141  
 Venus -64777-10-04 04:04 J -21938099.40 -21938099.33 -21938099.24 0.0524 0.0474  
 Mercury -64775-06-22 13:40 J -21937472.97 -21937472.93 -21937472.89 0.0527 0.0497  
 Mercury -64775-09-19 19:11 J -21937383.83 -21937383.70 -21937383.57 0.0526 0.0001  
 Mercury -64775-12-18 00:28 J -21937294.52 -21937294.48 -21937294.44 0.0526 0.0493  
 Mercury -64769-08-11 11:01 J -21935231.18 -21935231.04 -21935230.89 0.0499 0.0303  
 Mercury -64769-11-09 22:47 J -21935140.68 -21935140.55 -21935140.41 0.0500 0.0351  
 Moon -64766-02-19 19:40 J -21934308.88 -21934308.68 -21934308.47 0.0513 0.0278  
 Earth -64766-02-19 22:04 J -21934308.76 -21934308.58 -21934308.38 0.0513 0.0297 \*

Venus -64765-06-08 21:35 J -21933833.80 -21933833.60 -21933833.40 0.0523 0.0051  
 Mercury -64763-07-08 23:16 J -21933073.65 -21933073.53 -21933073.40 0.0526 0.0126  
 Mercury -64763-10-06 04:33 J -21932984.39 -21932984.31 -21932984.22 0.0525 0.0369  
 Venus -64759-04-09 14:23 J -21931703.09 -21931702.90 -21931702.70 0.0503 0.0168  
 Mercury -64757-05-30 07:54 J -21930921.23 -21930921.17 -21930921.10 0.0499 0.0463  
 Mercury -64757-08-28 19:40 J -21930830.85 -21930830.68 -21930830.50 0.0500 0.0190  
 Earth -64754-02-24 23:01 J -21929920.78 -21929920.54 -21929920.30 0.0515 0.0009  
 Moon -64754-02-24 23:01 J -21929920.77 -21929920.54 -21929920.31 0.0515 0.0029 \*  
 Venus -64753-02-12 14:37 J -21929568.03 -21929567.89 -21929567.74 0.0521 0.0371  
 Mercury -64751-04-27 03:35 J -21928763.46 -21928763.35 -21928763.24 0.0526 0.0251  
 Mercury -64751-07-25 08:52 J -21928674.24 -21928674.13 -21928674.02 0.0526 0.0243  
 Earth -64749-08-15 22:04 J -21927921.69 -21927921.58 -21927921.48 0.0513 0.0453  
 Moon -64749-08-16 00:57 J -21927921.58 -21927921.46 -21927921.32 0.0513 0.0424 \*  
 Venus -64748-12-13 14:37 J -21927437.07 -21927436.89 -21927436.70 0.0504 0.0207  
 Mercury -64745-06-16 16:33 J -21926521.00 -21926520.81 -21926520.63 0.0500 0.0030  
 Earth -64742-03-01 21:06 J -21925532.81 -21925532.62 -21925532.43 0.0515 0.0311  
 Moon -64742-03-01 23:01 J -21925532.74 -21925532.54 -21925532.33 0.0515 0.0287 \*  
 Mercury -64739-02-13 07:25 J -21924453.28 -21924453.19 -21924453.11 0.0526 0.0381  
 Mercury -64739-05-13 12:42 J -21924364.09 -21924363.97 -21924363.84 0.0526 0.0116  
 Moon -64737-08-20 06:28 J -21923534.44 -21923534.23 -21923534.02 0.0512 0.0184  
 Earth -64737-08-20 10:04 J -21923534.29 -21923534.08 -21923533.86 0.0512 0.0172 \*  
 Mercury -64733-04-04 12:57 J -21922211.14 -21922210.96 -21922210.78 0.0499 0.0135  
 Venus -64729-02-15 11:45 J -21920799.17 -21920799.01 -21920798.84 0.0523 0.0291  
 Mercury -64728-12-02 11:45 J -21920143.05 -21920143.01 -21920142.98 0.0527 0.0504  
 Mercury -64727-03-01 17:16 J -21920053.91 -21920053.78 -21920053.65 0.0526 0.0007  
 Mercury -64727-05-29 22:33 J -21919964.60 -21919964.56 -21919964.51 0.0526 0.0486  
 Earth -64725-08-25 00:13 J -21919146.71 -21919146.49 -21919146.27 0.0511 0.0116  
 Moon -64725-08-25 03:21 J -21919146.58 -21919146.36 -21919146.14 0.0511 0.0088 \*  
 Venus -64724-12-16 01:40 J -21918668.55 -21918668.43 -21918668.29 0.0502 0.0382  
 Mercury -64721-01-22 08:37 J -21917901.28 -21917901.14 -21917900.99 0.0499 0.0308

Mercury -64721-04-21 20:23 J -21917810.78 -21917810.65 -21917810.51 0.0499 0.0345

Venus -64718-10-21 02:37 J -21916533.58 -21916533.39 -21916533.19 0.0522 0.0145

Mercury -64716-12-18 21:35 J -21915743.72 -21915743.60 -21915743.48 0.0527 0.0130

Mercury -64715-03-18 03:06 J -21915654.46 -21915654.37 -21915654.28 0.0526 0.0366

Moon -64713-08-29 10:18 J -21914759.21 -21914759.07 -21914758.92 0.0509 0.0399

Earth -64713-08-29 12:42 J -21914759.11 -21914758.97 -21914758.82 0.0509 0.0394 \*

Venus -64712-08-21 02:37 J -21914402.60 -21914402.39 -21914402.19 0.0503 0.0016

Mercury -64710-11-10 05:16 J -21913591.34 -21913591.28 -21913591.22 0.0499 0.0470

Mercury -64709-02-08 16:47 J -21913500.97 -21913500.80 -21913500.62 0.0499 0.0181

Mercury -64704-10-07 01:40 J -21911433.54 -21911433.43 -21911433.31 0.0527 0.0257

Mercury -64703-01-04 07:11 J -21911344.31 -21911344.20 -21911344.09 0.0526 0.0240

Venus -64700-04-26 01:25 J -21910136.58 -21910136.44 -21910136.30 0.0504 0.0369

Mercury -64698-11-27 13:25 J -21909191.13 -21909190.94 -21909190.75 0.0499 0.0017

Mars -64693-07-15 20:09 J -21907498.92 -21907498.66 -21907498.40 0.0526 0.0017

Mercury -64692-07-26 05:59 J -21907123.34 -21907123.25 -21907123.17 0.0526 0.0382

Mercury -64692-10-23 11:16 J -21907034.15 -21907034.03 -21907033.90 0.0526 0.0116

Mercury -64686-09-15 10:04 J -21904881.26 -21904881.08 -21904880.90 0.0499 0.0144

Earth -64683-02-18 22:47 J -21903993.73 -21903993.55 -21903993.37 0.0513 0.0337

Moon -64683-02-18 23:16 J -21903993.70 -21903993.53 -21903993.34 0.0513 0.0313 \*

Venus -64682-06-28 17:59 J -21903498.95 -21903498.75 -21903498.55 0.0522 0.0101

Mercury -64680-05-14 09:35 J -21902813.12 -21902813.10 -21902813.07 0.0527 0.0514

Mercury -64680-08-11 15:21 J -21902723.99 -21902723.86 -21902723.74 0.0526 0.0022

Mercury -64680-11-08 20:23 J -21902634.69 -21902634.65 -21902634.59 0.0525 0.0477

Venus -64676-04-28 11:01 J -21901368.22 -21901368.04 -21901367.85 0.0503 0.0216

Mars -64675-04-19 00:42 J -21901012.76 -21901012.47 -21901012.18 0.0499 0.0093

Mercury -64674-07-04 06:42 J -21900571.37 -21900571.22 -21900571.07 0.0499 0.0307

Mercury -64674-10-02 18:28 J -21900480.86 -21900480.73 -21900480.59 0.0500 0.0347

Earth -64671-02-23 19:40 J -21899605.91 -21899605.68 -21899605.44 0.0514 0.0041

Moon -64671-02-23 21:06 J -21899605.86 -21899605.62 -21899605.37 0.0514 0.0022 \*

Venus -64670-03-03 09:49 J -21899233.25 -21899233.09 -21899232.93 0.0521 0.0327

Mercury -64668-05-30 19:25 J -21898413.81 -21898413.69 -21898413.56 0.0527 0.0141  
 Mercury -64668-08-28 00:57 J -21898324.55 -21898324.46 -21898324.37 0.0526 0.0355  
 Moon -64666-08-15 21:49 J -21897606.68 -21897606.59 -21897606.50 0.0514 0.0468  
 Earth -64666-08-16 01:25 J -21897606.50 -21897606.44 -21897606.37 0.0514 0.0491 \*  
 Venus -64664-01-01 12:13 J -21897102.18 -21897101.99 -21897101.79 0.0504 0.0156  
 Mercury -64662-04-22 02:23 J -21896261.44 -21896261.40 -21896261.34 0.0498 0.0478  
 Mercury -64662-07-21 14:09 J -21896171.09 -21896170.91 -21896170.74 0.0499 0.0173  
 Moon -64659-02-28 11:16 J -21895218.23 -21895218.03 -21895217.82 0.0515 0.0229  
 Earth -64659-02-28 14:09 J -21895218.12 -21895217.91 -21895217.71 0.0515 0.0251 \*  
 Mercury -64656-03-18 23:45 J -21894103.62 -21894103.51 -21894103.40 0.0527 0.0265  
 Mercury -64656-06-16 05:16 J -21894014.39 -21894014.28 -21894014.17 0.0526 0.0232  
 Earth -64654-08-20 14:52 J -21893219.09 -21893218.88 -21893218.67 0.0512 0.0206  
 Moon -64654-08-20 17:59 J -21893218.95 -21893218.75 -21893218.55 0.0512 0.0227 \*  
 Mercury -64650-05-09 10:33 J -21891861.25 -21891861.06 -21891860.87 0.0499 0.0010  
 Venus -64646-03-06 07:11 J -21890464.35 -21890464.20 -21890464.04 0.0523 0.0334  
 Mercury -64644-01-05 03:49 J -21889793.42 -21889793.34 -21889793.25 0.0527 0.0392  
 Mercury -64644-04-04 09:21 J -21889704.23 -21889704.11 -21889703.98 0.0526 0.0108  
 Moon -64642-08-24 21:21 J -21888831.85 -21888831.61 -21888831.38 0.0511 0.0037  
 Earth -64642-08-24 23:45 J -21888831.74 -21888831.51 -21888831.28 0.0511 0.0066 \*  
 Venus -64640-01-03 20:23 J -21888333.75 -21888333.65 -21888333.53 0.0502 0.0422  
 Mercury -64638-02-25 06:57 J -21887551.39 -21887551.21 -21887551.04 0.0499 0.0159  
 Mercury -64638-05-26 18:42 J -21887460.73 -21887460.72 -21887460.71 0.0500 0.0499  
 Venus -64635-11-09 00:28 J -21886198.69 -21886198.48 -21886198.28 0.0522 0.0088  
 Mercury -64633-10-24 08:09 J -21885483.18 -21885483.16 -21885483.14 0.0527 0.0517  
 Mercury -64632-01-21 13:40 J -21885394.06 -21885393.93 -21885393.80 0.0526 0.0020  
 Mercury -64632-04-20 18:57 J -21885304.76 -21885304.71 -21885304.66 0.0525 0.0473  
 Earth -64630-08-29 10:04 J -21884444.24 -21884444.08 -21884443.91 0.0510 0.0341  
 Moon -64630-08-29 11:16 J -21884444.19 -21884444.03 -21884443.87 0.0510 0.0351 \*  
 Venus -64629-09-08 20:23 J -21884067.85 -21884067.65 -21884067.44 0.0503 0.0049  
 Mercury -64627-12-14 03:21 J -21883241.50 -21883241.36 -21883241.21 0.0499 0.0320

Mercury -64626-03-14 15:21 J -21883151.00 -21883150.86 -21883150.72 0.0500 0.0335

Venus -64623-07-14 15:49 J -21881932.86 -21881932.84 -21881932.82 0.0521 0.0517

Mercury -64621-11-09 17:30 J -21881083.89 -21881083.77 -21881083.65 0.0526 0.0151

Mercury -64620-02-06 22:47 J -21880994.64 -21880994.55 -21880994.45 0.0526 0.0344

Venus -64617-05-14 20:52 J -21879801.78 -21879801.63 -21879801.48 0.0504 0.0327

Mercury -64615-10-01 23:59 J -21878931.54 -21878931.50 -21878931.45 0.0499 0.0482

Mercury -64615-12-31 11:45 J -21878841.19 -21878841.01 -21878840.83 0.0499 0.0170

Mercury -64609-08-28 21:35 J -21876773.70 -21876773.60 -21876773.49 0.0527 0.0277

Mercury -64609-11-26 03:06 J -21876684.48 -21876684.37 -21876684.26 0.0526 0.0220

Mercury -64603-10-19 07:40 J -21874531.37 -21874531.18 -21874530.99 0.0499 0.0003

Earth -64600-02-17 14:37 J -21873679.03 -21873678.89 -21873678.74 0.0512 0.0401

Moon -64600-02-17 15:21 J -21873679.02 -21873678.86 -21873678.69 0.0512 0.0372 \*

Venus -64599-07-17 11:30 J -21873164.22 -21873164.02 -21873163.83 0.0523 0.0135

Mercury -64597-06-17 01:40 J -21872463.50 -21872463.43 -21872463.35 0.0527 0.0404

Mercury -64597-09-14 07:25 J -21872374.32 -21872374.19 -21872374.07 0.0527 0.0097

Venus -64593-05-17 07:40 J -21871033.34 -21871033.18 -21871033.00 0.0502 0.0264

Mercury -64591-08-07 04:04 J -21870221.51 -21870221.33 -21870221.16 0.0499 0.0167

Mercury -64591-11-05 15:35 J -21870130.88 -21870130.85 -21870130.80 0.0499 0.0489

Moon -64588-02-22 11:01 J -21869291.27 -21869291.04 -21869290.81 0.0514 0.0082

Earth -64588-02-22 13:11 J -21869291.18 -21869290.95 -21869290.71 0.0514 0.0101 \*

Venus -64587-03-22 04:18 J -21868898.49 -21868898.32 -21868898.15 0.0522 0.0288

Mercury -64585-07-03 11:30 J -21868064.14 -21868064.02 -21868063.89 0.0526 0.0031

Mercury -64585-09-30 16:47 J -21867974.85 -21867974.80 -21867974.74 0.0526 0.0464

Venus -64581-01-21 06:13 J -21866767.44 -21866767.24 -21866767.04 0.0504 0.0119

Mercury -64579-05-26 00:13 J -21865911.63 -21865911.49 -21865911.35 0.0499 0.0334

Mercury -64579-08-24 11:59 J -21865821.14 -21865821.00 -21865820.86 0.0500 0.0321

Earth -64576-02-27 13:54 J -21864903.14 -21864902.92 -21864902.70 0.0515 0.0208

Moon -64576-02-27 17:30 J -21864902.99 -21864902.77 -21864902.54 0.0515 0.0182 \*

Mars -64574-01-04 03:49 J -21864227.43 -21864227.34 -21864227.23 0.0526 0.0483

Mercury -64573-04-21 15:49 J -21863753.96 -21863753.84 -21863753.72 0.0526 0.0155

Mercury -64573-07-19 21:06 J -21863664.71 -21863664.62 -21863664.52 0.0526 0.0340  
 Moon -64571-08-19 08:23 J -21862904.34 -21862904.15 -21862903.95 0.0512 0.0288  
 Earth -64571-08-19 11:01 J -21862904.23 -21862904.04 -21862903.84 0.0512 0.0266 \*  
 Venus -64570-09-26 05:59 J -21862501.28 -21862501.25 -21862501.20 0.0505 0.0494  
 Mercury -64567-03-13 20:52 J -21861601.65 -21861601.63 -21861601.61 0.0499 0.0495  
 Mercury -64567-06-12 08:23 J -21861511.32 -21861511.15 -21861510.97 0.0500 0.0158  
 Moon -64564-03-04 08:37 J -21860515.21 -21860515.14 -21860515.08 0.0516 0.0494  
 Earth -64564-03-04 12:13 J -21860515.01 -21860514.99 -21860514.96 0.0516 0.0512  
 Venus -64563-03-25 02:52 J -21860129.51 -21860129.38 -21860129.24 0.0523 0.0380  
 Mercury -64561-02-08 19:40 J -21859443.79 -21859443.68 -21859443.58 0.0526 0.0286  
 Mercury -64561-05-08 00:57 J -21859354.57 -21859354.46 -21859354.34 0.0526 0.0211  
 Earth -64559-08-23 22:04 J -21858516.81 -21858516.58 -21858516.35 0.0512 0.0015  
 Moon -64559-08-23 23:16 J -21858516.75 -21858516.53 -21858516.30 0.0512 0.0016 \*  
 Venus -64557-01-23 15:49 J -21857998.92 -21857998.84 -21857998.76 0.0502 0.0462  
 Mars -64557-10-05 10:47 J -21857743.23 -21857743.05 -21857742.85 0.0500 0.0375  
 Mercury -64555-03-31 05:01 J -21857201.48 -21857201.29 -21857201.10 0.0499 0.0007  
 Venus -64552-11-27 18:42 J -21855863.93 -21855863.72 -21855863.52 0.0522 0.0050  
 Mercury -64550-11-27 23:45 J -21855133.59 -21855133.51 -21855133.43 0.0527 0.0413  
 Mercury -64549-02-25 05:16 J -21855044.41 -21855044.28 -21855044.16 0.0526 0.0085  
 Earth -64547-08-28 11:30 J -21854129.20 -21854129.02 -21854128.83 0.0511 0.0300  
 Moon -64547-08-28 11:45 J -21854129.19 -21854129.01 -21854128.81 0.0511 0.0313 \*  
 Venus -64546-09-28 17:01 J -21853732.99 -21853732.79 -21853732.59 0.0503 0.0094  
 Mercury -64543-01-17 01:11 J -21852891.62 -21852891.45 -21852891.27 0.0499 0.0175  
 Mercury -64543-04-17 12:57 J -21852801.00 -21852800.96 -21852800.91 0.0499 0.0480  
 Venus -64540-08-02 08:52 J -21851598.21 -21851598.13 -21851598.06 0.0521 0.0483  
 Mars -64539-10-08 15:21 J -21851166.11 -21851165.86 -21851165.61 0.0527 0.0103  
 Mercury -64538-12-14 09:21 J -21850734.23 -21850734.11 -21850733.98 0.0527 0.0044  
 Mercury -64537-03-12 14:52 J -21850644.94 -21850644.88 -21850644.82 0.0526 0.0454  
 Venus -64534-06-03 17:45 J -21849466.93 -21849466.76 -21849466.59 0.0504 0.0276  
 Mercury -64532-11-04 21:35 J -21848581.73 -21848581.60 -21848581.46 0.0499 0.0339

Mercury -64531-02-03 09:21 J -21848491.26 -21848491.11 -21848490.97 0.0499 0.0314

Mercury -64526-10-02 13:40 J -21846424.05 -21846423.93 -21846423.81 0.0527 0.0166

Mercury -64526-12-30 18:57 J -21846334.80 -21846334.71 -21846334.61 0.0526 0.0331

Mars -64521-07-11 17:59 J -21844680.00 -21844679.75 -21844679.49 0.0499 0.0236

Mercury -64520-11-22 05:16 J -21844181.46 -21844181.28 -21844181.10 0.0499 0.0144

Moon -64517-02-17 13:11 J -21843364.08 -21843363.95 -21843363.81 0.0512 0.0417

Earth -64517-02-17 15:06 J -21843363.99 -21843363.87 -21843363.75 0.0512 0.0445 \*

Venus -64516-08-05 09:35 J -21842829.29 -21842829.10 -21842828.91 0.0523 0.0193

Mercury -64514-07-21 17:59 J -21842113.85 -21842113.75 -21842113.64 0.0526 0.0289

Mercury -64514-10-18 23:30 J -21842024.64 -21842024.52 -21842024.41 0.0526 0.0208

Venus -64510-06-06 00:57 J -21840698.62 -21840698.46 -21840698.30 0.0503 0.0296

Mercury -64508-09-10 01:54 J -21839871.61 -21839871.42 -21839871.24 0.0499 0.0020

Earth -64505-02-22 13:11 J -21838976.17 -21838975.95 -21838975.72 0.0513 0.0143

Moon -64505-02-22 16:33 J -21838976.04 -21838975.81 -21838975.57 0.0513 0.0127 \*

Venus -64504-04-10 01:11 J -21838563.63 -21838563.45 -21838563.27 0.0521 0.0236

Mercury -64502-05-09 21:49 J -21837803.66 -21837803.59 -21837803.51 0.0526 0.0420

Mercury -64502-08-07 03:21 J -21837714.49 -21837714.36 -21837714.24 0.0526 0.0077

Venus -64498-02-09 01:25 J -21836432.64 -21836432.44 -21836432.24 0.0504 0.0078

Mercury -64496-06-28 22:33 J -21835561.74 -21835561.56 -21835561.39 0.0499 0.0182

Mercury -64496-09-27 10:18 J -21835471.12 -21835471.07 -21835471.01 0.0500 0.0476

Moon -64493-02-27 06:57 J -21834588.44 -21834588.21 -21834587.98 0.0514 0.0129

Earth -64493-02-27 10:47 J -21834588.28 -21834588.05 -21834587.83 0.0514 0.0158 \*

Mercury -64490-05-26 07:25 J -21833404.31 -21833404.19 -21833404.06 0.0526 0.0050

Mercury -64490-08-23 12:42 J -21833315.03 -21833314.97 -21833314.90 0.0526 0.0446

Earth -64488-08-18 11:45 J -21832589.19 -21832589.01 -21832588.83 0.0513 0.0312

Moon -64488-08-18 13:11 J -21832589.11 -21832588.95 -21832588.78 0.0513 0.0337 \*

Venus -64487-10-15 02:52 J -21832166.47 -21832166.38 -21832166.28 0.0505 0.0445

Mercury -64484-04-16 18:57 J -21831251.84 -21831251.71 -21831251.57 0.0499 0.0346

Mercury -64484-07-16 06:42 J -21831161.37 -21831161.22 -21831161.07 0.0499 0.0308

Earth -64481-03-03 05:30 J -21830200.37 -21830200.27 -21830200.15 0.0515 0.0453



Moon -64481-03-03 08:37 J -21830200.25 -21830200.14 -21830200.02 0.0515 0.0442 \*  
 Venus -64480-04-12 20:52 J -21829794.75 -21829794.63 -21829794.51 0.0523 0.0417  
 Mercury -64478-03-14 11:30 J -21829094.13 -21829094.02 -21829093.90 0.0527 0.0177  
 Mercury -64478-06-11 17:01 J -21829004.89 -21829004.79 -21829004.69 0.0526 0.0321  
 Earth -64476-08-23 01:25 J -21828201.67 -21828201.44 -21828201.21 0.0512 0.0024  
 Moon -64476-08-23 01:40 J -21828201.67 -21828201.43 -21828201.19 0.0512 0.0047 \*  
 Mercury -64472-05-04 03:06 J -21826851.55 -21826851.37 -21826851.19 0.0499 0.0143  
 Venus -64469-12-16 14:09 J -21825529.11 -21825528.91 -21825528.70 0.0522 0.0003  
 Mercury -64467-12-31 16:04 J -21824783.94 -21824783.83 -21824783.73 0.0527 0.0299  
 Mercury -64466-03-30 21:21 J -21824694.72 -21824694.61 -21824694.49 0.0526 0.0200  
 Moon -64464-08-27 08:37 J -21823814.33 -21823814.14 -21823813.95 0.0511 0.0270  
 Earth -64464-08-27 10:33 J -21823814.25 -21823814.06 -21823813.86 0.0511 0.0251 \*  
 Venus -64463-10-17 11:01 J -21823398.24 -21823398.04 -21823397.84 0.0503 0.0131  
 Mercury -64460-02-19 22:47 J -21822541.73 -21822541.55 -21822541.36 0.0499 0.0030  
 Venus -64457-08-21 07:54 J -21821263.29 -21821263.17 -21821263.05 0.0521 0.0420  
 Mercury -64455-10-19 20:23 J -21820473.72 -21820473.65 -21820473.58 0.0527 0.0420  
 Mercury -64454-01-17 01:54 J -21820384.54 -21820384.42 -21820384.29 0.0526 0.0078  
 Venus -64451-06-22 11:16 J -21819132.20 -21819132.03 -21819131.85 0.0504 0.0241  
 Mercury -64449-12-08 19:40 J -21818231.86 -21818231.68 -21818231.51 0.0499 0.0191  
 Mercury -64448-03-09 07:25 J -21818141.25 -21818141.19 -21818141.12 0.0500 0.0467  
 Mercury -64443-11-05 05:45 J -21816074.38 -21816074.26 -21816074.13 0.0526 0.0055  
 Mercury -64442-02-02 11:01 J -21815985.10 -21815985.04 -21815984.97 0.0525 0.0442  
 Mercury -64437-09-26 16:33 J -21813921.94 -21813921.81 -21813921.68 0.0499 0.0351  
 Mercury -64437-12-26 04:18 J -21813831.47 -21813831.32 -21813831.17 0.0500 0.0305  
 Earth -64434-02-16 14:37 J -21813048.95 -21813048.89 -21813048.81 0.0512 0.0488  
 Moon -64434-02-16 17:30 J -21813048.87 -21813048.77 -21813048.65 0.0512 0.0456 \*  
 Venus -64433-08-24 05:45 J -21812494.44 -21812494.26 -21812494.08 0.0522 0.0241  
 Mercury -64431-08-24 10:04 J -21811764.20 -21811764.08 -21811763.96 0.0526 0.0179  
 Mercury -64431-11-21 15:21 J -21811674.96 -21811674.86 -21811674.76 0.0526 0.0318  
 Venus -64427-06-24 22:47 J -21810363.70 -21810363.55 -21810363.40 0.0503 0.0349

Mercury -64425-10-14 00:42 J -21809521.64 -21809521.47 -21809521.29 0.0499 0.0141

Moon -64422-02-21 06:13 J -21808661.46 -21808661.24 -21808661.02 0.0513 0.0185

Earth -64422-02-21 10:04 J -21808661.30 -21808661.08 -21808660.86 0.0513 0.0196 \*

Venus -64421-04-28 20:23 J -21808228.84 -21808228.65 -21808228.46 0.0521 0.0191

Mars -64420-03-29 04:33 J -21807894.50 -21807894.31 -21807894.11 0.0526 0.0350

Mercury -64419-06-12 14:09 J -21807454.01 -21807453.91 -21807453.81 0.0527 0.0306

Mercury -64419-09-09 19:40 J -21807364.80 -21807364.68 -21807364.56 0.0526 0.0193

Venus -64415-02-27 23:45 J -21806097.71 -21806097.51 -21806097.31 0.0504 0.0021

Mercury -64413-08-01 21:21 J -21805211.80 -21805211.61 -21805211.42 0.0499 0.0023

Earth -64410-02-26 08:52 J -21804273.36 -21804273.13 -21804272.89 0.0514 0.0109

Moon -64410-02-26 12:13 J -21804273.22 -21804272.99 -21804272.76 0.0514 0.0079 \*

Mercury -64407-03-31 18:28 J -21803143.80 -21803143.73 -21803143.65 0.0527 0.0427

Mercury -64407-06-28 23:59 J -21803054.62 -21803054.50 -21803054.37 0.0526 0.0075

Earth -64405-08-17 13:25 J -21802274.10 -21802273.94 -21802273.78 0.0513 0.0355

Moon -64405-08-17 13:25 J -21802274.10 -21802273.94 -21802273.78 0.0513 0.0379 \*

Venus -64404-11-02 22:04 J -21801831.70 -21801831.58 -21801831.46 0.0505 0.0402

Mars -64403-12-29 12:13 J -21801410.25 -21801409.99 -21801409.73 0.0500 0.0219

Mercury -64401-05-20 17:01 J -21800901.96 -21800901.79 -21800901.62 0.0499 0.0197

Mercury -64401-08-19 04:47 J -21800811.36 -21800811.30 -21800811.23 0.0500 0.0462

Moon -64398-03-03 07:25 J -21799885.34 -21799885.19 -21799885.04 0.0516 0.0410

Earth -64398-03-03 09:35 J -21799885.24 -21799885.10 -21799884.97 0.0516 0.0421 \*

Venus -64397-05-01 21:35 J -21799459.67 -21799459.60 -21799459.53 0.0523 0.0487

Mercury -64395-04-17 04:33 J -21798744.43 -21798744.31 -21798744.18 0.0526 0.0051

Mercury -64395-07-15 09:49 J -21798655.15 -21798655.09 -21798655.02 0.0525 0.0447

Moon -64393-08-22 00:13 J -21797886.71 -21797886.49 -21797886.27 0.0512 0.0087

Earth -64393-08-22 02:09 J -21797886.64 -21797886.41 -21797886.18 0.0512 0.0070 \*

Mercury -64389-03-08 13:40 J -21796592.05 -21796591.93 -21796591.79 0.0499 0.0358

Mercury -64389-06-07 01:40 J -21796501.58 -21796501.43 -21796501.28 0.0500 0.0300

Venus -64385-01-05 14:09 J -21795194.11 -21795193.91 -21795193.70 0.0522 0.0065

Mars -64384-01-01 10:04 J -21794832.29 -21794832.08 -21794831.86 0.0526 0.0281

Mercury -64383-02-03 08:37 J -21794434.26 -21794434.14 -21794434.02 0.0526 0.0177

Mercury -64383-05-03 13:54 J -21794345.01 -21794344.92 -21794344.82 0.0525 0.0320

Earth -64381-08-26 13:25 J -21793499.15 -21793498.94 -21793498.74 0.0511 0.0213

Moon -64381-08-26 16:47 J -21793499.01 -21793498.80 -21793498.59 0.0511 0.0240 \*

Venus -64380-11-05 08:23 J -21793063.34 -21793063.15 -21793062.96 0.0503 0.0183

Mercury -64377-03-25 22:33 J -21792191.74 -21792191.56 -21792191.38 0.0500 0.0140

Venus -64374-09-10 06:13 J -21790928.39 -21790928.24 -21790928.09 0.0521 0.0361

Mercury -64372-11-22 12:42 J -21790124.07 -21790123.97 -21790123.86 0.0526 0.0304

Mercury -64371-02-19 18:13 J -21790034.86 -21790034.74 -21790034.62 0.0526 0.0195

Earth -64369-08-31 02:37 J -21789111.43 -21789111.39 -21789111.33 0.0510 0.0497

Venus -64368-07-11 10:04 J -21788797.27 -21788797.08 -21788796.89 0.0504 0.0183

Mars -64367-10-05 10:18 J -21788346.21 -21788346.07 -21788345.91 0.0499 0.0429

Mercury -64365-01-12 19:25 J -21787881.88 -21787881.69 -21787881.50 0.0499 0.0022

Mercury -64360-09-10 16:47 J -21785813.87 -21785813.80 -21785813.72 0.0527 0.0431

Mercury -64360-12-08 22:33 J -21785724.69 -21785724.56 -21785724.44 0.0526 0.0071

Mercury -64354-10-31 16:04 J -21783572.00 -21783571.83 -21783571.65 0.0499 0.0184

Mercury -64353-01-30 03:49 J -21783481.39 -21783481.34 -21783481.28 0.0500 0.0474

Moon -64351-02-15 12:42 J -21782734.01 -21782733.97 -21782733.92 0.0511 0.0499

Venus -64350-09-13 04:33 J -21782159.48 -21782159.31 -21782159.15 0.0523 0.0303

Mercury -64348-09-27 03:06 J -21781414.50 -21781414.37 -21781414.25 0.0526 0.0050

Mercury -64348-12-25 08:23 J -21781325.21 -21781325.15 -21781325.08 0.0525 0.0445

Venus -64344-07-13 19:11 J -21780028.82 -21780028.70 -21780028.57 0.0502 0.0396

Mercury -64342-08-19 11:30 J -21779262.14 -21779262.02 -21779261.88 0.0499 0.0359

Mercury -64342-11-17 23:30 J -21779171.67 -21779171.52 -21779171.37 0.0500 0.0299

Earth -64339-02-20 15:06 J -21778346.08 -21778345.87 -21778345.65 0.0513 0.0224

Moon -64339-02-20 18:42 J -21778345.93 -21778345.72 -21778345.51 0.0513 0.0223 \*

Venus -64338-05-18 22:33 J -21777893.76 -21777893.56 -21777893.36 0.0522 0.0113

Mercury -64336-07-16 07:40 J -21777104.30 -21777104.18 -21777104.06 0.0526 0.0168

Mercury -64336-10-13 12:57 J -21777015.05 -21777014.96 -21777014.86 0.0525 0.0329

Venus -64332-03-18 19:54 J -21775762.87 -21775762.67 -21775762.46 0.0503 0.0028

Mercury -64330-09-05 20:23 J -21774861.83 -21774861.65 -21774861.47 0.0500 0.0139

Moon -64327-02-25 13:11 J -21773958.19 -21773957.95 -21773957.70 0.0514 0.0053

Earth -64327-02-25 15:35 J -21773958.08 -21773957.85 -21773957.61 0.0514 0.0087 \*

Mercury -64324-05-04 11:45 J -21772794.11 -21772794.01 -21772793.90 0.0526 0.0296

Mercury -64324-08-01 17:16 J -21772704.90 -21772704.78 -21772704.67 0.0526 0.0202

Moon -64322-08-17 16:47 J -21771958.92 -21771958.80 -21771958.67 0.0513 0.0419

Earth -64322-08-17 18:28 J -21771958.87 -21771958.73 -21771958.58 0.0513 0.0389 \*

Venus -64321-11-21 20:37 J -21771496.78 -21771496.64 -21771496.48 0.0505 0.0345

Mercury -64318-06-24 17:30 J -21770551.96 -21770551.77 -21770551.58 0.0500 0.0020

Earth -64315-03-02 14:37 J -21769570.03 -21769569.89 -21769569.73 0.0515 0.0394

Moon -64315-03-02 15:21 J -21769570.01 -21769569.86 -21769569.71 0.0515 0.0390 \*

Mercury -64312-02-20 15:49 J -21768483.91 -21768483.84 -21768483.76 0.0526 0.0423

Mercury -64312-05-20 21:35 J -21768394.73 -21768394.60 -21768394.48 0.0526 0.0079

Earth -64310-08-22 08:23 J -21767571.38 -21767571.15 -21767570.93 0.0513 0.0101

Moon -64310-08-22 11:45 J -21767571.23 -21767571.01 -21767570.78 0.0513 0.0107 \*

Mercury -64306-04-12 14:37 J -21766242.07 -21766241.89 -21766241.72 0.0499 0.0178

Mercury -64306-07-12 02:23 J -21766151.44 -21766151.40 -21766151.35 0.0500 0.0481

Venus -64302-01-24 13:11 J -21764859.15 -21764858.95 -21764858.75 0.0522 0.0126

Mercury -64300-03-09 01:40 J -21764084.55 -21764084.43 -21764084.30 0.0526 0.0049

Mercury -64300-06-06 06:57 J -21763995.27 -21763995.21 -21763995.14 0.0526 0.0447

Moon -64298-08-26 18:28 J -21763183.93 -21763183.73 -21763183.52 0.0512 0.0220

Earth -64298-08-26 22:33 J -21763183.77 -21763183.56 -21763183.34 0.0512 0.0190 \*

Venus -64297-11-24 09:21 J -21762728.29 -21762728.11 -21762727.93 0.0503 0.0252

Mercury -64294-01-29 11:30 J -21761932.16 -21761932.02 -21761931.88 0.0499 0.0338

Mercury -64294-04-29 23:01 J -21761841.68 -21761841.54 -21761841.39 0.0500 0.0319

Venus -64291-09-29 06:28 J -21760593.40 -21760593.23 -21760593.06 0.0521 0.0291

Mercury -64289-12-26 06:28 J -21759774.35 -21759774.23 -21759774.11 0.0526 0.0167

Mercury -64288-03-25 11:45 J -21759685.11 -21759685.01 -21759684.91 0.0526 0.0331

Earth -64286-08-31 09:35 J -21758796.18 -21758796.10 -21758796.01 0.0510 0.0472

Moon -64286-08-31 13:25 J -21758795.99 -21758795.94 -21758795.88 0.0510 0.0493

Venus -64285-07-30 08:23 J -21758462.34 -21758462.15 -21758461.95 0.0504 0.0128

Mercury -64282-02-15 18:42 J -21757531.90 -21757531.72 -21757531.54 0.0500 0.0143

Mercury -64277-10-14 11:01 J -21755464.14 -21755464.04 -21755463.93 0.0526 0.0284

Mercury -64276-01-11 16:33 J -21755374.93 -21755374.81 -21755374.70 0.0526 0.0215

Venus -64273-04-04 09:35 J -21754196.13 -21754196.10 -21754196.06 0.0505 0.0495

Mercury -64271-12-04 15:35 J -21753222.04 -21753221.85 -21753221.66 0.0500 0.0017

Venus -64267-10-02 07:54 J -21751824.30 -21751824.17 -21751824.03 0.0523 0.0385

Mars -64266-06-23 20:23 J -21751559.90 -21751559.65 -21751559.39 0.0526 0.0111

Mercury -64265-08-02 15:21 J -21751153.94 -21751153.86 -21751153.79 0.0526 0.0411

Mercury -64265-10-30 20:37 J -21751064.76 -21751064.64 -21751064.51 0.0526 0.0090

Venus -64261-08-01 19:25 J -21749693.76 -21749693.69 -21749693.60 0.0503 0.0461

Mercury -64259-09-22 12:57 J -21748912.14 -21748911.96 -21748911.79 0.0500 0.0174

Mercury -64259-12-22 00:42 J -21748821.50 -21748821.47 -21748821.42 0.0500 0.0488

Moon -64256-02-19 21:21 J -21748030.82 -21748030.61 -21748030.40 0.0513 0.0250

Earth -64256-02-19 23:59 J -21748030.71 -21748030.50 -21748030.29 0.0513 0.0244 \*

Venus -64255-06-07 00:28 J -21747558.68 -21747558.48 -21747558.27 0.0522 0.0039

Mercury -64253-08-19 00:57 J -21746754.58 -21746754.46 -21746754.33 0.0526 0.0036

Mercury -64253-11-16 06:13 J -21746665.30 -21746665.24 -21746665.18 0.0525 0.0458

Venus -64249-04-06 21:21 J -21745427.81 -21745427.61 -21745427.41 0.0504 0.0097

Mars -64248-03-24 23:16 J -21745075.82 -21745075.53 -21745075.24 0.0500 0.0015

Mercury -64247-07-11 10:18 J -21744602.21 -21744602.07 -21744601.93 0.0499 0.0329

Mercury -64247-10-09 22:04 J -21744511.72 -21744511.58 -21744511.44 0.0500 0.0329

Earth -64244-02-24 21:35 J -21743642.83 -21743642.60 -21743642.36 0.0513 0.0059

Moon -64244-02-24 22:33 J -21743642.79 -21743642.56 -21743642.33 0.0513 0.0027 \*

Venus -64243-02-09 16:04 J -21743292.92 -21743292.83 -21743292.74 0.0520 0.0462

Mercury -64241-06-07 05:16 J -21742444.40 -21742444.28 -21742444.16 0.0526 0.0162

Mercury -64241-09-04 10:33 J -21742355.15 -21742355.06 -21742354.96 0.0526 0.0336

Earth -64239-08-17 05:16 J -21741643.42 -21741643.28 -21741643.14 0.0514 0.0410

Moon -64239-08-17 08:23 J -21741643.26 -21741643.15 -21741643.02 0.0514 0.0440 \*

Venus -64238-12-11 23:01 J -21741161.71 -21741161.54 -21741161.37 0.0505 0.0269

Mercury -64235-04-29 07:11 J -21740292.23 -21740292.20 -21740292.16 0.0499 0.0487

Mercury -64235-07-28 18:42 J -21740201.89 -21740201.72 -21740201.54 0.0500 0.0168

Earth -64232-03-01 21:21 J -21739254.77 -21739254.61 -21739254.44 0.0515 0.0369

Moon -64232-03-01 22:33 J -21739254.72 -21739254.56 -21739254.38 0.0515 0.0371 \*

Mars -64230-03-28 21:06 J -21738497.68 -21738497.62 -21738497.53 0.0526 0.0500

Mercury -64229-03-26 09:49 J -21738134.19 -21738134.09 -21738133.98 0.0526 0.0279

Mercury -64229-06-23 15:21 J -21738044.97 -21738044.86 -21738044.74 0.0526 0.0220

Moon -64227-08-21 14:37 J -21737256.11 -21737255.89 -21737255.66 0.0512 0.0122

Earth -64227-08-21 18:42 J -21737255.94 -21737255.72 -21737255.50 0.0512 0.0117 \*

Mercury -64223-05-16 14:09 J -21735892.09 -21735891.91 -21735891.72 0.0500 0.0014

Venus -64219-02-12 17:59 J -21734523.94 -21734523.75 -21734523.57 0.0523 0.0215

Mercury -64217-01-13 14:37 J -21733823.97 -21733823.89 -21733823.81 0.0526 0.0395

Mercury -64217-04-11 20:09 J -21733734.78 -21733734.66 -21733734.54 0.0526 0.0104

Earth -64215-08-26 08:23 J -21732868.36 -21732868.15 -21732867.93 0.0511 0.0172

Moon -64215-08-26 11:59 J -21732868.20 -21732868.00 -21732867.79 0.0511 0.0205 \*

Venus -64214-12-14 08:37 J -21732393.29 -21732393.14 -21732392.98 0.0503 0.0312

Mercury -64211-03-04 11:16 J -21731582.20 -21731582.03 -21731581.85 0.0500 0.0168

Mercury -64211-06-02 23:16 J -21731491.55 -21731491.53 -21731491.50 0.0500 0.0493

Venus -64208-10-18 11:16 J -21730258.22 -21730258.03 -21730257.84 0.0521 0.0204

Mercury -64206-11-01 18:57 J -21729513.73 -21729513.71 -21729513.70 0.0526 0.0521

Mercury -64205-01-30 00:28 J -21729424.61 -21729424.48 -21729424.35 0.0526 0.0021

Mercury -64205-04-28 05:45 J -21729335.31 -21729335.26 -21729335.21 0.0525 0.0473

Moon -64203-08-30 17:30 J -21728480.86 -21728480.77 -21728480.68 0.0510 0.0468

Earth -64203-08-30 20:09 J -21728480.76 -21728480.66 -21728480.56 0.0510 0.0455 \*

Venus -64202-08-19 09:49 J -21728127.29 -21728127.09 -21728126.89 0.0504 0.0058

Mercury -64200-12-21 08:52 J -21727272.27 -21727272.13 -21727271.99 0.0499 0.0323

Mercury -64199-03-21 20:37 J -21727181.78 -21727181.64 -21727181.50 0.0500 0.0337

Mercury -64194-11-18 04:47 J -21725114.42 -21725114.30 -21725114.18 0.0526 0.0146

Mercury -64193-02-15 10:04 J -21725025.17 -21725025.08 -21725024.99 0.0525 0.0351

Venus -64190-04-24 11:45 J -21723861.12 -21723861.01 -21723860.90 0.0505 0.0422

Mercury -64188-10-09 06:13 J -21722962.29 -21722962.24 -21722962.19 0.0499 0.0476  
 Mercury -64187-01-07 17:45 J -21722871.93 -21722871.76 -21722871.58 0.0500 0.0180  
 Venus -64184-10-21 09:49 J -21721489.19 -21721489.09 -21721489.00 0.0523 0.0460  
 Mercury -64182-09-06 08:52 J -21720804.24 -21720804.13 -21720804.02 0.0526 0.0272  
 Mercury -64182-12-04 14:23 J -21720715.01 -21720714.90 -21720714.79 0.0526 0.0228  
 Mercury -64176-10-26 14:52 J -21718562.07 -21718561.88 -21718561.70 0.0499 0.0020  
 Earth -64173-02-20 08:37 J -21717715.34 -21717715.14 -21717714.94 0.0512 0.0264  
 Moon -64173-02-20 09:35 J -21717715.29 -21717715.10 -21717714.90 0.0512 0.0277 \*  
 Venus -64172-06-26 03:21 J -21717223.56 -21717223.36 -21717223.15 0.0522 0.0046  
 Mercury -64170-06-25 13:40 J -21716494.01 -21716493.93 -21716493.85 0.0527 0.0388  
 Mercury -64170-09-22 19:11 J -21716404.82 -21716404.70 -21716404.58 0.0526 0.0112  
 Venus -64166-04-26 22:18 J -21715092.76 -21715092.57 -21715092.38 0.0503 0.0163  
 Mercury -64164-08-14 10:04 J -21714252.25 -21714252.08 -21714251.90 0.0499 0.0159  
 Earth -64161-02-25 06:42 J -21713327.46 -21713327.22 -21713326.98 0.0514 0.0044  
 Moon -64161-02-25 07:40 J -21713327.43 -21713327.18 -21713326.94 0.0514 0.0017 \*  
 Venus -64160-02-28 20:52 J -21712957.77 -21712957.63 -21712957.49 0.0521 0.0375  
 Mercury -64158-04-13 18:28 J -21712183.76 -21712183.73 -21712183.70 0.0527 0.0505  
 Mercury -64158-07-11 23:59 J -21712094.63 -21712094.50 -21712094.37 0.0526 0.0007  
 Mercury -64158-10-09 05:16 J -21712005.32 -21712005.28 -21712005.24 0.0525 0.0491  
 Moon -64156-08-16 14:37 J -21711328.00 -21711327.89 -21711327.78 0.0513 0.0452  
 Earth -64156-08-16 18:28 J -21711327.86 -21711327.73 -21711327.60 0.0513 0.0420 \*  
 Venus -64155-12-30 23:59 J -21710826.68 -21710826.50 -21710826.31 0.0504 0.0202  
 Mercury -64152-06-02 07:25 J -21709942.34 -21709942.19 -21709942.05 0.0499 0.0315  
 Mercury -64152-08-31 19:11 J -21709851.83 -21709851.70 -21709851.57 0.0500 0.0344  
 Moon -64149-03-01 05:30 J -21708939.42 -21708939.27 -21708939.11 0.0515 0.0373  
 Earth -64149-03-01 08:23 J -21708939.31 -21708939.15 -21708938.97 0.0515 0.0361 \*  
 Mars -64148-12-13 13:25 J -21708287.04 -21708286.94 -21708286.83 0.0526 0.0480  
 Mercury -64146-04-30 04:18 J -21707784.44 -21707784.32 -21707784.20 0.0526 0.0129  
 Mercury -64146-07-28 09:35 J -21707695.19 -21707695.10 -21707695.01 0.0525 0.0368  
 Earth -64144-08-21 06:28 J -21706940.45 -21706940.23 -21706940.01 0.0512 0.0133

Moon -64144-08-21 10:04 J -21706940.30 -21706940.08 -21706939.86 0.0512 0.0129 \*  
 Mercury -64140-03-21 04:47 J -21705632.35 -21705632.30 -21705632.23 0.0499 0.0469  
 Mercury -64140-06-19 16:33 J -21705541.98 -21705541.81 -21705541.64 0.0500 0.0188  
 Venus -64136-03-03 22:04 J -21704188.74 -21704188.58 -21704188.41 0.0523 0.0301  
 Mercury -64134-02-16 08:37 J -21703474.25 -21703474.14 -21703474.03 0.0526 0.0254  
 Mercury -64134-05-16 13:54 J -21703385.03 -21703384.92 -21703384.81 0.0525 0.0245  
 Moon -64132-08-25 17:16 J -21702553.00 -21702552.78 -21702552.56 0.0511 0.0185  
 Earth -64132-08-25 19:54 J -21702552.89 -21702552.67 -21702552.45 0.0511 0.0156 \*  
 Venus -64130-01-02 11:30 J -21702058.14 -21702058.02 -21702057.89 0.0503 0.0388  
 Mars -64130-09-13 03:06 J -21701804.56 -21701804.37 -21701804.17 0.0500 0.0361  
 Mercury -64128-04-07 13:54 J -21701232.11 -21701231.92 -21701231.73 0.0500 0.0032  
 Venus -64125-11-06 13:54 J -21699923.12 -21699922.92 -21699922.72 0.0521 0.0124  
 Mercury -64123-12-05 12:42 J -21699164.06 -21699163.97 -21699163.88 0.0526 0.0380  
 Mercury -64122-03-04 18:13 J -21699074.86 -21699074.74 -21699074.62 0.0526 0.0120  
 Earth -64120-08-30 09:49 J -21698165.20 -21698165.09 -21698164.98 0.0510 0.0447  
 Moon -64120-08-30 10:18 J -21698165.17 -21698165.07 -21698164.97 0.0510 0.0450 \*  
 Venus -64119-09-07 13:25 J -21697792.14 -21697791.94 -21697791.73 0.0504 0.0026  
 Mercury -64116-01-24 10:47 J -21696922.23 -21696922.05 -21696921.86 0.0499 0.0128  
 Mars -64112-09-17 19:11 J -21695224.94 -21695224.70 -21695224.45 0.0526 0.0144  
 Mercury -64111-09-23 17:16 J -21694853.81 -21694853.78 -21694853.73 0.0527 0.0498  
 Mercury -64111-12-21 23:01 J -21694764.67 -21694764.54 -21694764.41 0.0526 0.0005  
 Mercury -64110-03-21 04:18 J -21694675.35 -21694675.32 -21694675.28 0.0525 0.0500  
 Venus -64107-05-13 13:54 J -21693526.06 -21693525.92 -21693525.77 0.0504 0.0349  
 Mercury -64105-11-12 06:13 J -21692612.38 -21692612.24 -21692612.09 0.0499 0.0305  
 Mercury -64104-02-10 17:59 J -21692521.87 -21692521.75 -21692521.61 0.0500 0.0356  
 Mercury -64099-10-10 03:49 J -21690454.46 -21690454.34 -21690454.22 0.0526 0.0112  
 Mercury -64098-01-07 09:06 J -21690365.20 -21690365.12 -21690365.03 0.0525 0.0386  
 Mars -64094-06-19 15:21 J -21688741.10 -21688740.86 -21688740.61 0.0499 0.0264  
 Mercury -64093-08-31 03:35 J -21688302.42 -21688302.35 -21688302.28 0.0499 0.0461  
 Mercury -64093-11-29 15:06 J -21688212.04 -21688211.87 -21688211.69 0.0500 0.0196



Earth -64090-02-19 18:28 J -21687399.93 -21687399.73 -21687399.53 0.0513 0.0278  
 Moon -64090-02-19 18:57 J -21687399.91 -21687399.71 -21687399.50 0.0513 0.0294 \*  
 Venus -64089-07-15 08:52 J -21686888.33 -21686888.13 -21686887.93 0.0523 0.0133  
 Mercury -64087-07-29 08:09 J -21686144.27 -21686144.16 -21686144.05 0.0526 0.0237  
 Mercury -64087-10-26 13:25 J -21686055.04 -21686054.94 -21686054.83 0.0525 0.0263  
 Venus -64083-05-16 00:57 J -21684757.64 -21684757.46 -21684757.28 0.0503 0.0238  
 Mercury -64081-09-17 12:42 J -21683902.16 -21683901.97 -21683901.79 0.0500 0.0042  
 Moon -64078-02-24 16:47 J -21683012.03 -21683011.80 -21683011.57 0.0514 0.0011  
 Earth -64078-02-24 19:25 J -21683011.92 -21683011.69 -21683011.45 0.0514 0.0035 \*  
 Venus -64077-03-20 01:40 J -21682622.60 -21682622.43 -21682622.26 0.0521 0.0286  
 Mercury -64075-05-17 12:28 J -21681834.07 -21681833.98 -21681833.89 0.0526 0.0362  
 Mercury -64075-08-14 17:45 J -21681744.88 -21681744.76 -21681744.63 0.0526 0.0140  
 Earth -64073-08-16 05:30 J -21681012.38 -21681012.27 -21681012.15 0.0514 0.0440  
 Moon -64073-08-16 08:52 J -21681012.21 -21681012.13 -21681012.04 0.0514 0.0469 \*  
 Venus -64071-01-19 02:37 J -21680491.58 -21680491.39 -21680491.19 0.0504 0.0127  
 Mercury -64069-07-06 09:49 J -21679592.27 -21679592.09 -21679591.90 0.0500 0.0117  
 Earth -64066-03-01 18:28 J -21678623.90 -21678623.73 -21678623.55 0.0515 0.0344  
 Moon -64066-03-01 22:18 J -21678623.73 -21678623.57 -21678623.40 0.0515 0.0369 \*  
 Mercury -64063-03-05 16:33 J -21677523.86 -21677523.81 -21677523.77 0.0527 0.0489  
 Mercury -64063-06-02 22:04 J -21677434.71 -21677434.58 -21677434.45 0.0526 0.0013  
 Mercury -64063-08-31 03:21 J -21677345.39 -21677345.36 -21677345.33 0.0525 0.0508  
 Moon -64061-08-20 17:16 J -21676625.01 -21676624.78 -21676624.55 0.0513 0.0138  
 Earth -64061-08-20 19:40 J -21676624.90 -21676624.68 -21676624.46 0.0513 0.0146 \*  
 Venus -64060-09-24 04:33 J -21676225.34 -21676225.31 -21676225.26 0.0505 0.0491  
 Mercury -64057-04-24 06:57 J -21675282.36 -21675282.21 -21675282.05 0.0499 0.0275  
 Mercury -64057-07-23 18:42 J -21675191.83 -21675191.72 -21675191.60 0.0500 0.0386  
 Venus -64053-03-23 01:11 J -21673853.58 -21673853.45 -21673853.31 0.0523 0.0383  
 Mercury -64051-03-22 02:52 J -21673124.50 -21673124.38 -21673124.26 0.0526 0.0104  
 Mercury -64051-06-19 08:09 J -21673035.24 -21673035.16 -21673035.08 0.0526 0.0394  
 Earth -64049-08-25 10:18 J -21672237.29 -21672237.07 -21672236.85 0.0511 0.0151

Moon -64049-08-25 10:33 J -21672237.26 -21672237.06 -21672236.85 0.0511 0.0179 \*  
 Venus -64047-01-21 13:40 J -21671723.01 -21671722.93 -21671722.84 0.0502 0.0457  
 Mercury -64045-02-11 02:37 J -21670972.47 -21670972.39 -21670972.32 0.0499 0.0450  
 Mercury -64045-05-11 14:09 J -21670882.08 -21670881.91 -21670881.74 0.0500 0.0207  
 Venus -64042-11-26 17:59 J -21669587.95 -21669587.75 -21669587.54 0.0523 0.0041  
 Mercury -64039-01-08 07:40 J -21668814.30 -21668814.18 -21668814.07 0.0527 0.0222  
 Mercury -64039-04-07 12:57 J -21668725.06 -21668724.96 -21668724.85 0.0526 0.0279  
 Earth -64037-08-29 23:59 J -21667849.61 -21667849.50 -21667849.39 0.0510 0.0441  
 Moon -64037-08-30 01:40 J -21667849.55 -21667849.43 -21667849.30 0.0510 0.0429 \*  
 Venus -64036-09-26 15:21 J -21667457.06 -21667456.86 -21667456.66 0.0503 0.0094  
 Mercury -64033-02-28 11:01 J -21666572.22 -21666572.04 -21666571.85 0.0500 0.0048  
 Venus -64030-08-01 11:30 J -21665322.12 -21665322.02 -21665321.92 0.0521 0.0457  
 Mercury -64028-10-27 11:45 J -21664504.10 -21664504.01 -21664503.91 0.0526 0.0348  
 Mercury -64027-01-24 17:16 J -21664414.90 -21664414.78 -21664414.66 0.0526 0.0155  
 Venus -64024-06-01 16:18 J -21663190.99 -21663190.82 -21663190.65 0.0504 0.0275  
 Mercury -64022-12-17 08:23 J -21662262.33 -21662262.15 -21662261.96 0.0500 0.0110  
 Mercury -64016-08-15 16:04 J -21660193.88 -21660193.83 -21660193.77 0.0526 0.0472  
 Mercury -64016-11-12 21:35 J -21660104.72 -21660104.60 -21660104.47 0.0526 0.0032  
 Mercury -64015-02-10 02:52 J -21660015.38 -21660015.38 -21660015.37 0.0525 0.0524  
 Mercury -64010-10-05 05:45 J -21657952.41 -21657952.26 -21657952.10 0.0499 0.0266  
 Mercury -64009-01-03 17:30 J -21657861.88 -21657861.77 -21657861.65 0.0500 0.0396  
 Moon -64007-02-19 02:23 J -21657084.58 -21657084.40 -21657084.22 0.0512 0.0318  
 Earth -64007-02-19 04:47 J -21657084.50 -21657084.30 -21657084.11 0.0512 0.0295 \*  
 Venus -64006-08-04 11:16 J -21656553.22 -21656553.03 -21656552.84 0.0522 0.0211  
 Mercury -64004-09-01 01:54 J -21655794.55 -21655794.42 -21655794.30 0.0526 0.0099  
 Mercury -64004-11-29 07:11 J -21655705.28 -21655705.20 -21655705.12 0.0525 0.0400

# 64TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 64th millennium BCE.**

PLANET	MAX-	C	START	MAX	END	SUNRAD	DEPTH	S
TRANSIT								
TIME								
Venus	-64000-06-04	04:04 J	-21654422.49	-21654422.33	-21654422.18	0.0503	0.0315	
Mercury	-63998-07-24	02:52 J	-21653642.47	-21653642.38	-21653642.28	0.0499	0.0424	
Mercury	-63998-10-22	14:23 J	-21653552.06	-21653551.90	-21653551.73	0.0500	0.0234	
Earth	-63995-02-24	03:21 J	-21652696.59	-21652696.36	-21652696.12	0.0513	0.0016	
Moon	-63995-02-24	07:25 J	-21652696.43	-21652696.19	-21652695.95	0.0513	0.0008	*
Venus	-63994-04-09	04:04 J	-21652287.52	-21652287.33	-21652287.14	0.0522	0.0208	
Mars	-63993-03-09	11:30 J	-21651952.25	-21651952.02	-21651951.78	0.0526	0.0224	
Mercury	-63992-06-20	06:28 J	-21651484.35	-21651484.23	-21651484.11	0.0527	0.0216	
Mercury	-63992-09-17	11:59 J	-21651395.11	-21651395.00	-21651394.90	0.0526	0.0284	
Moon	-63990-08-16	17:01 J	-21650696.87	-21650696.79	-21650696.69	0.0514	0.0472	
Earth	-63990-08-16	19:25 J	-21650696.80	-21650696.69	-21650696.58	0.0514	0.0448	*
Venus	-63988-02-07	05:01 J	-21650156.49	-21650156.29	-21650156.09	0.0503	0.0055	
Mercury	-63986-08-10	09:49 J	-21649242.27	-21649242.09	-21649241.90	0.0499	0.0055	
Moon	-63983-02-28	19:54 J	-21648308.84	-21648308.67	-21648308.49	0.0515	0.0345	
Earth	-63983-02-28	23:59 J	-21648308.68	-21648308.50	-21648308.31	0.0515	0.0320	*
Mercury	-63980-04-08	11:01 J	-21647174.13	-21647174.04	-21647173.94	0.0527	0.0336	
Mercury	-63980-07-06	16:33 J	-21647084.93	-21647084.81	-21647084.69	0.0526	0.0168	
Earth	-63978-08-21	10:04 J	-21646309.30	-21646309.08	-21646308.86	0.0512	0.0153	
Moon	-63978-08-21	10:18 J	-21646309.28	-21646309.07	-21646308.85	0.0512	0.0136	*
Venus	-63977-10-13	06:42 J	-21645890.32	-21645890.22	-21645890.10	0.0504	0.0419	
Mars	-63976-12-07	21:21 J	-21645469.89	-21645469.61	-21645469.32	0.0499	0.0103	

Mercury -63974-05-29 06:42 J -21644932.40 -21644932.22 -21644932.03 0.0499 0.0106

Venus -63970-04-12 04:33 J -21643518.40 -21643518.31 -21643518.21 0.0524 0.0462

Mercury -63968-01-25 15:21 J -21642863.92 -21642863.86 -21642863.80 0.0527 0.0461

Mercury -63968-04-24 20:52 J -21642774.75 -21642774.63 -21642774.50 0.0526 0.0045

Earth -63966-08-25 21:06 J -21641921.84 -21641921.62 -21641921.40 0.0511 0.0133

Moon -63966-08-25 23:01 J -21641921.76 -21641921.54 -21641921.31 0.0511 0.0154 \*

Mercury -63962-03-17 04:04 J -21640622.49 -21640622.33 -21640622.17 0.0499 0.0263

Mercury -63962-06-15 15:49 J -21640531.95 -21640531.84 -21640531.72 0.0500 0.0400

Venus -63959-12-15 21:49 J -21639252.80 -21639252.59 -21639252.39 0.0522 0.0044

Mars -63958-12-13 20:09 J -21638889.81 -21638889.66 -21638889.50 0.0526 0.0414

Mercury -63956-02-11 01:11 J -21638464.57 -21638464.45 -21638464.32 0.0526 0.0084

Mercury -63956-05-11 06:28 J -21638375.30 -21638375.23 -21638375.15 0.0525 0.0414

Moon -63954-08-30 05:59 J -21637534.39 -21637534.25 -21637534.11 0.0510 0.0402

Earth -63954-08-30 08:52 J -21637534.25 -21637534.13 -21637533.99 0.0510 0.0419 \*

Venus -63953-10-15 16:18 J -21637122.00 -21637121.82 -21637121.62 0.0503 0.0162

Mercury -63950-01-03 01:11 J -21636312.54 -21636312.45 -21636312.34 0.0499 0.0420

Mercury -63950-04-03 12:57 J -21636222.12 -21636221.96 -21636221.79 0.0500 0.0241

Venus -63947-08-20 13:11 J -21634987.09 -21634986.95 -21634986.81 0.0521 0.0382

Mercury -63945-11-30 05:16 J -21634154.40 -21634154.28 -21634154.16 0.0526 0.0213

Mercury -63944-02-27 10:33 J -21634065.16 -21634065.06 -21634064.95 0.0526 0.0288

Venus -63941-06-20 18:13 J -21632855.93 -21632855.74 -21632855.56 0.0504 0.0203

Mercury -63938-01-20 09:49 J -21631912.27 -21631912.09 -21631911.90 0.0500 0.0078

Mercury -63933-09-18 09:49 J -21629844.19 -21629844.09 -21629843.99 0.0527 0.0333

Mercury -63933-12-16 15:21 J -21629754.98 -21629754.86 -21629754.74 0.0526 0.0169

Mercury -63927-11-08 05:16 J -21627602.46 -21627602.28 -21627602.09 0.0499 0.0100

Earth -63924-02-18 06:42 J -21626769.39 -21626769.22 -21626769.03 0.0512 0.0332

Moon -63924-02-18 10:18 J -21626769.23 -21626769.07 -21626768.89 0.0513 0.0360 \*

Venus -63923-08-23 12:13 J -21626218.16 -21626217.99 -21626217.81 0.0523 0.0281

Mercury -63921-07-07 14:23 J -21625533.96 -21625533.90 -21625533.84 0.0527 0.0455

Mercury -63921-10-04 19:54 J -21625444.79 -21625444.67 -21625444.54 0.0526 0.0052

Venus -63917-06-23 04:47 J -21624087.43 -21624087.30 -21624087.16 0.0502 0.0380  
 Mercury -63915-08-27 02:09 J -21623292.57 -21623292.41 -21623292.25 0.0499 0.0261  
 Mercury -63915-11-25 13:54 J -21623202.03 -21623201.92 -21623201.81 0.0500 0.0399  
 Moon -63912-02-23 03:21 J -21622381.60 -21622381.36 -21622381.13 0.0514 0.0035  
 Earth -63912-02-23 07:11 J -21622381.43 -21622381.20 -21622380.96 0.0514 0.0019 \*  
 Venus -63911-04-28 05:16 J -21621952.47 -21621952.28 -21621952.08 0.0522 0.0140  
 Mercury -63909-07-24 00:13 J -21621134.61 -21621134.49 -21621134.36 0.0526 0.0076  
 Mercury -63909-10-21 05:30 J -21621045.34 -21621045.27 -21621045.19 0.0525 0.0422  
 Earth -63907-08-16 04:04 J -21620381.40 -21620381.33 -21620381.24 0.0514 0.0476  
 Moon -63907-08-16 04:33 J -21620381.36 -21620381.31 -21620381.25 0.0514 0.0493 \*  
 Venus -63905-02-27 05:16 J -21619821.48 -21619821.28 -21619821.08 0.0503 0.0011  
 Mercury -63903-06-14 23:16 J -21618982.62 -21618982.53 -21618982.43 0.0499 0.0420  
 Mercury -63903-09-13 11:01 J -21618892.21 -21618892.04 -21618891.88 0.0500 0.0240  
 Earth -63900-02-28 08:23 J -21617993.34 -21617993.15 -21617992.95 0.0515 0.0299  
 Moon -63900-02-28 11:30 J -21617993.19 -21617993.02 -21617992.84 0.0515 0.0329 \*  
 Mercury -63897-05-12 04:33 J -21616824.43 -21616824.31 -21616824.20 0.0526 0.0203  
 Mercury -63897-08-09 09:49 J -21616735.19 -21616735.09 -21616734.99 0.0526 0.0297  
 Earth -63895-08-20 16:18 J -21615994.03 -21615993.82 -21615993.60 0.0513 0.0186  
 Moon -63895-08-20 18:13 J -21615993.96 -21615993.74 -21615993.51 0.0513 0.0160 \*  
 Venus -63894-11-02 06:13 J -21615555.38 -21615555.24 -21615555.10 0.0504 0.0358  
 Mercury -63891-07-02 07:54 J -21614582.35 -21614582.17 -21614581.98 0.0500 0.0080  
 Mercury -63885-02-29 08:23 J -21612514.25 -21612514.15 -21612514.05 0.0527 0.0333  
 Mercury -63885-05-28 13:54 J -21612425.04 -21612424.92 -21612424.80 0.0526 0.0169  
 Moon -63883-08-25 01:54 J -21611606.64 -21611606.42 -21611606.21 0.0512 0.0126  
 Earth -63883-08-25 05:01 J -21611606.52 -21611606.29 -21611606.07 0.0512 0.0106 \*  
 Mercury -63879-04-20 04:47 J -21610272.49 -21610272.30 -21610272.12 0.0499 0.0084  
 Venus -63875-01-03 21:06 J -21608917.82 -21608917.62 -21608917.42 0.0522 0.0106  
 Mercury -63874-12-18 12:42 J -21608204.03 -21608203.97 -21608203.90 0.0527 0.0456  
 Mercury -63873-03-16 18:28 J -21608114.86 -21608114.73 -21608114.61 0.0526 0.0049  
 Earth -63871-08-29 19:11 J -21607218.84 -21607218.70 -21607218.56 0.0510 0.0403

Moon -63871-08-29 23:01 J -21607218.69 -21607218.54 -21607218.38 0.0510 0.0382 \*  
 Venus -63870-11-04 17:01 J -21606786.97 -21606786.79 -21606786.61 0.0502 0.0225  
 Mercury -63867-02-06 00:13 J -21605962.64 -21605962.49 -21605962.33 0.0499 0.0260  
 Mercury -63867-05-07 11:59 J -21605872.11 -21605872.00 -21605871.89 0.0499 0.0401  
 Venus -63864-09-08 11:30 J -21604652.17 -21604652.02 -21604651.85 0.0522 0.0326  
 Mercury -63861-01-03 23:01 J -21603804.67 -21603804.54 -21603804.42 0.0527 0.0075  
 Mercury -63861-04-02 04:18 J -21603715.39 -21603715.32 -21603715.25 0.0526 0.0426  
 Venus -63858-07-10 18:28 J -21602520.92 -21602520.73 -21602520.53 0.0503 0.0140  
 Mars -63857-05-27 21:06 J -21602198.68 -21602198.62 -21602198.54 0.0499 0.0483  
 Mercury -63856-11-24 21:06 J -21601652.71 -21601652.62 -21601652.52 0.0499 0.0421  
 Mercury -63855-02-23 08:37 J -21601562.31 -21601562.14 -21601561.98 0.0499 0.0236  
 Mercury -63850-10-23 03:06 J -21599494.48 -21599494.37 -21599494.25 0.0527 0.0201  
 Mercury -63849-01-20 08:37 J -21599405.24 -21599405.14 -21599405.04 0.0526 0.0301  
 Mercury -63844-12-12 05:30 J -21597252.46 -21597252.27 -21597252.09 0.0499 0.0074  
 Moon -63841-02-18 09:06 J -21596454.27 -21596454.12 -21596453.96 0.0512 0.0394  
 Earth -63841-02-18 13:11 J -21596454.11 -21596453.95 -21596453.78 0.0512 0.0361 \*  
 Venus -63840-09-11 13:11 J -21595883.10 -21595882.95 -21595882.80 0.0523 0.0350  
 Mars -63839-06-03 19:54 J -21595617.94 -21595617.67 -21595617.41 0.0526 0.0011  
 Mercury -63838-08-11 07:11 J -21595184.29 -21595184.20 -21595184.10 0.0527 0.0328  
 Mercury -63838-11-08 12:42 J -21595095.08 -21595094.97 -21595094.85 0.0526 0.0176  
 Venus -63834-07-13 02:37 J -21593752.48 -21593752.39 -21593752.28 0.0502 0.0434  
 Mercury -63832-09-30 02:23 J -21592942.58 -21592942.40 -21592942.22 0.0499 0.0087  
 Earth -63829-02-23 11:16 J -21592066.26 -21592066.03 -21592065.79 0.0513 0.0052  
 Moon -63829-02-23 14:52 J -21592066.12 -21592065.88 -21592065.65 0.0513 0.0061 \*  
 Venus -63828-05-17 04:18 J -21591617.52 -21591617.32 -21591617.12 0.0522 0.0078  
 Mercury -63826-05-30 11:16 J -21590874.09 -21590874.03 -21590873.97 0.0527 0.0460  
 Mercury -63826-08-27 16:47 J -21590784.93 -21590784.80 -21590784.67 0.0526 0.0044  
 Venus -63822-03-18 04:04 J -21589486.53 -21589486.33 -21589486.13 0.0503 0.0067  
 Mars -63821-03-03 01:40 J -21589135.71 -21589135.43 -21589135.15 0.0499 0.0120  
 Mercury -63820-07-18 23:01 J -21588632.70 -21588632.54 -21588632.37 0.0499 0.0251

Mercury -63820-10-17 10:47 J -21588542.15 -21588542.05 -21588541.94 0.0500 0.0411  
 Moon -63817-02-28 07:11 J -21587678.40 -21587678.20 -21587677.99 0.0514 0.0283  
 Earth -63817-02-28 09:06 J -21587678.32 -21587678.12 -21587677.91 0.0514 0.0257 \*  
 Venus -63816-01-19 19:54 J -21587351.73 -21587351.67 -21587351.62 0.0521 0.0500  
 Mercury -63814-06-15 21:06 J -21586474.74 -21586474.62 -21586474.49 0.0527 0.0080  
 Mercury -63814-09-13 02:37 J -21586385.47 -21586385.39 -21586385.32 0.0526 0.0421  
 Moon -63812-08-19 20:23 J -21585678.85 -21585678.65 -21585678.44 0.0513 0.0185  
 Earth -63812-08-19 23:30 J -21585678.72 -21585678.52 -21585678.31 0.0513 0.0215 \*  
 Venus -63811-11-21 05:45 J -21585220.42 -21585220.26 -21585220.10 0.0504 0.0298  
 Mercury -63808-05-06 18:57 J -21584322.80 -21584322.71 -21584322.61 0.0498 0.0423  
 Mercury -63808-08-05 06:13 J -21584232.40 -21584232.24 -21584232.07 0.0499 0.0234  
 Mercury -63802-04-04 01:25 J -21582164.55 -21582164.44 -21582164.32 0.0527 0.0205  
 Mercury -63802-07-02 06:57 J -21582075.31 -21582075.21 -21582075.10 0.0526 0.0299  
 Earth -63800-08-24 13:11 J -21581291.17 -21581290.95 -21581290.72 0.0512 0.0080  
 Moon -63800-08-24 17:01 J -21581291.01 -21581290.79 -21581290.56 0.0512 0.0098 \*  
 Mercury -63796-05-24 02:52 J -21579922.56 -21579922.38 -21579922.19 0.0499 0.0068  
 Venus -63792-01-22 18:28 J -21578582.92 -21578582.73 -21578582.53 0.0523 0.0158  
 Mercury -63790-01-21 05:45 J -21577854.36 -21577854.26 -21577854.16 0.0527 0.0331  
 Mercury -63790-04-20 11:16 J -21577765.15 -21577765.03 -21577764.91 0.0526 0.0172  
 Moon -63788-08-28 18:57 J -21576903.88 -21576903.71 -21576903.54 0.0511 0.0340  
 Earth -63788-08-28 22:33 J -21576903.72 -21576903.56 -21576903.40 0.0511 0.0363 \*  
 Venus -63787-11-23 13:54 J -21576452.09 -21576451.92 -21576451.75 0.0502 0.0274  
 Mercury -63784-03-11 23:30 J -21575612.70 -21575612.52 -21575612.33 0.0499 0.0096  
 Venus -63781-09-27 11:01 J -21574317.21 -21574317.04 -21574316.85 0.0522 0.0261  
 Mercury -63779-11-09 09:49 J -21573544.15 -21573544.09 -21573544.03 0.0527 0.0459  
 Mercury -63778-02-06 15:21 J -21573454.98 -21573454.86 -21573454.73 0.0526 0.0049  
 Venus -63775-07-29 14:37 J -21572186.09 -21572185.89 -21572185.70 0.0503 0.0095  
 Mercury -63773-12-28 20:23 J -21571302.81 -21571302.65 -21571302.49 0.0499 0.0258  
 Mercury -63772-03-29 08:09 J -21571212.27 -21571212.16 -21571212.05 0.0500 0.0404  
 Mercury -63767-11-25 19:11 J -21569144.82 -21569144.70 -21569144.57 0.0526 0.0088

Mercury -63766-02-23 00:42 J -21569055.55 -21569055.47 -21569055.40 0.0526 0.0413  
 Venus -63763-04-03 15:35 J -21567919.93 -21567919.85 -21567919.77 0.0505 0.0462  
 Mercury -63761-10-16 17:01 J -21566992.88 -21566992.79 -21566992.69 0.0499 0.0421  
 Mercury -63760-01-15 04:33 J -21566902.47 -21566902.31 -21566902.14 0.0499 0.0238  
 Earth -63758-02-17 11:45 J -21566139.14 -21566139.01 -21566138.86 0.0512 0.0409  
 Moon -63758-02-17 15:35 J -21566138.96 -21566138.85 -21566138.73 0.0512 0.0442 \*  
 Venus -63757-09-30 09:06 J -21565548.25 -21565548.12 -21565547.99 0.0523 0.0396  
 Mercury -63755-09-13 23:30 J -21564834.63 -21564834.52 -21564834.40 0.0527 0.0213  
 Mercury -63755-12-12 05:01 J -21564745.39 -21564745.29 -21564745.19 0.0526 0.0290  
 Venus -63751-08-01 00:57 J -21563417.51 -21563417.46 -21563417.41 0.0502 0.0484  
 Mercury -63749-11-03 00:13 J -21562592.67 -21562592.49 -21562592.30 0.0499 0.0064  
 Moon -63746-02-22 02:23 J -21561751.63 -21561751.40 -21561751.16 0.0513 0.0125  
 Earth -63746-02-22 05:16 J -21561751.51 -21561751.28 -21561751.05 0.0513 0.0113 \*  
 Venus -63745-06-04 22:47 J -21561282.75 -21561282.55 -21561282.34 0.0522 0.0039  
 Mercury -63743-07-03 03:49 J -21560524.44 -21560524.34 -21560524.25 0.0527 0.0340  
 Mercury -63743-09-30 09:21 J -21560435.23 -21560435.11 -21560434.99 0.0527 0.0166  
 Venus -63739-04-06 01:54 J -21559151.61 -21559151.42 -21559151.22 0.0503 0.0120  
 Mercury -63737-08-21 20:52 J -21558282.81 -21558282.63 -21558282.45 0.0499 0.0104  
 Earth -63734-02-27 04:18 J -21557363.54 -21557363.32 -21557363.10 0.0514 0.0199  
 Moon -63734-02-27 04:33 J -21557363.51 -21557363.31 -21557363.10 0.0514 0.0228 \*  
 Venus -63733-02-08 15:06 J -21557016.96 -21557016.87 -21557016.77 0.0521 0.0457  
 Mercury -63731-04-21 07:54 J -21556214.23 -21556214.17 -21556214.11 0.0527 0.0467  
 Mercury -63731-07-19 13:40 J -21556125.06 -21556124.93 -21556124.81 0.0526 0.0043  
 Earth -63729-08-19 00:13 J -21555363.68 -21555363.49 -21555363.29 0.0513 0.0265  
 Moon -63729-08-19 04:04 J -21555363.53 -21555363.33 -21555363.12 0.0513 0.0232 \*  
 Venus -63728-12-10 00:57 J -21554885.63 -21554885.46 -21554885.28 0.0504 0.0256  
 Mercury -63725-06-09 17:16 J -21553972.94 -21553972.78 -21553972.62 0.0499 0.0270  
 Mercury -63725-09-08 04:47 J -21553882.41 -21553882.30 -21553882.18 0.0500 0.0392  
 Mars -63721-11-22 00:13 J -21552346.62 -21552346.49 -21552346.36 0.0526 0.0453  
 Mercury -63719-05-07 17:45 J -21551814.88 -21551814.76 -21551814.64 0.0526 0.0088



Mercury -63719-08-04 23:01 J -21551725.61 -21551725.54 -21551725.46 0.0526 0.0412  
 Moon -63717-08-23 07:40 J -21550976.40 -21550976.18 -21550975.95 0.0512 0.0042  
 Earth -63717-08-23 11:45 J -21550976.24 -21550976.01 -21550975.79 0.0512 0.0027 \*  
 Mercury -63713-03-28 13:54 J -21549663.00 -21549662.92 -21549662.82 0.0499 0.0433  
 Mercury -63713-06-27 01:25 J -21549572.60 -21549572.44 -21549572.27 0.0499 0.0227  
 Venus -63709-02-11 15:06 J -21548248.06 -21548247.87 -21548247.68 0.0523 0.0207  
 Mercury -63707-02-23 21:35 J -21547504.72 -21547504.60 -21547504.49 0.0527 0.0222  
 Mercury -63707-05-24 03:06 J -21547415.48 -21547415.37 -21547415.27 0.0526 0.0281  
 Earth -63705-08-27 22:18 J -21546588.75 -21546588.57 -21546588.39 0.0511 0.0315  
 Moon -63705-08-28 01:11 J -21546588.63 -21546588.45 -21546588.26 0.0511 0.0292 \*  
 Venus -63704-12-12 09:35 J -21546117.25 -21546117.10 -21546116.93 0.0503 0.0319  
 Mars -63703-08-21 04:18 J -21545865.53 -21545865.32 -21545865.09 0.0500 0.0315  
 Mercury -63701-04-14 22:04 J -21545262.77 -21545262.58 -21545262.39 0.0499 0.0061  
 Venus -63698-10-17 05:59 J -21543982.43 -21543982.25 -21543982.06 0.0521 0.0218  
 Mercury -63696-12-13 01:40 J -21543194.52 -21543194.43 -21543194.34 0.0527 0.0350  
 Mercury -63695-03-12 07:11 J -21543105.32 -21543105.20 -21543105.08 0.0526 0.0156  
 Venus -63692-08-17 11:45 J -21541851.21 -21541851.01 -21541850.81 0.0503 0.0046  
 Mercury -63689-02-01 17:59 J -21540952.93 -21540952.75 -21540952.56 0.0499 0.0112  
 Mars -63685-08-26 19:25 J -21539284.94 -21539284.69 -21539284.44 0.0527 0.0144  
 Mercury -63684-10-01 05:45 J -21538884.31 -21538884.26 -21538884.21 0.0528 0.0480  
 Mercury -63684-12-29 11:30 J -21538795.15 -21538795.02 -21538794.90 0.0527 0.0029  
 Venus -63680-04-22 12:42 J -21537585.08 -21537584.97 -21537584.85 0.0504 0.0411  
 Mercury -63678-11-20 14:37 J -21536643.05 -21536642.89 -21536642.74 0.0498 0.0277  
 Mercury -63677-02-19 02:09 J -21536552.53 -21536552.41 -21536552.29 0.0499 0.0382  
 Moon -63675-02-16 02:37 J -21535824.43 -21535824.39 -21535824.35 0.0511 0.0503  
 Earth -63675-02-16 05:45 J -21535824.35 -21535824.26 -21535824.17 0.0511 0.0471 \*  
 Venus -63674-10-20 03:35 J -21535213.45 -21535213.35 -21535213.23 0.0524 0.0437  
 Mercury -63672-10-17 15:35 J -21534484.97 -21534484.85 -21534484.72 0.0527 0.0100  
 Mercury -63671-01-14 21:06 J -21534395.70 -21534395.62 -21534395.54 0.0526 0.0403  
 Mars -63667-05-27 01:54 J -21532802.66 -21532802.42 -21532802.17 0.0499 0.0274

Mercury -63666-09-08 10:47 J -21532333.13 -21532333.05 -21532332.97 0.0499 0.0446  
 Mercury -63666-12-07 22:04 J -21532242.74 -21532242.58 -21532242.41 0.0499 0.0213  
 Earth -63663-02-21 05:16 J -21531436.50 -21531436.28 -21531436.05 0.0513 0.0160  
 Moon -63663-02-21 06:28 J -21531436.44 -21531436.23 -21531436.01 0.0513 0.0164 \*  
 Venus -63662-06-24 20:37 J -21530947.84 -21530947.64 -21530947.43 0.0522 0.0020  
 Mercury -63660-08-05 19:54 J -21530174.78 -21530174.67 -21530174.56 0.0527 0.0225  
 Mercury -63660-11-03 01:25 J -21530085.55 -21530085.44 -21530085.34 0.0526 0.0278  
 Venus -63656-04-24 19:25 J -21528816.89 -21528816.69 -21528816.50 0.0503 0.0154  
 Mercury -63654-09-25 18:42 J -21527932.90 -21527932.72 -21527932.53 0.0499 0.0049  
 Earth -63651-02-26 03:35 J -21527048.58 -21527048.35 -21527048.12 0.0514 0.0154  
 Moon -63651-02-26 05:16 J -21527048.51 -21527048.28 -21527048.05 0.0514 0.0183 \*  
 Venus -63650-02-27 11:45 J -21526682.14 -21526682.01 -21526681.88 0.0521 0.0406  
 Mercury -63648-05-24 23:45 J -21525864.60 -21525864.51 -21525864.42 0.0527 0.0360  
 Mercury -63648-08-22 05:16 J -21525775.40 -21525775.28 -21525775.16 0.0526 0.0145  
 Moon -63646-08-18 18:13 J -21525048.92 -21525048.74 -21525048.54 0.0514 0.0291  
 Earth -63646-08-18 22:18 J -21525048.75 -21525048.57 -21525048.39 0.0514 0.0322 \*  
 Venus -63645-12-28 20:09 J -21524550.85 -21524550.66 -21524550.48 0.0504 0.0216  
 Mercury -63642-07-14 15:21 J -21523623.04 -21523622.86 -21523622.67 0.0499 0.0118  
 Moon -63639-03-02 21:21 J -21522660.70 -21522660.61 -21522660.50 0.0515 0.0464  
 Earth -63639-03-03 00:42 J -21522660.56 -21522660.47 -21522660.36 0.0515 0.0464 \*  
 Mercury -63636-03-13 03:35 J -21521554.39 -21521554.35 -21521554.30 0.0527 0.0489  
 Mercury -63636-06-10 09:21 J -21521465.23 -21521465.11 -21521464.98 0.0527 0.0019  
 Mercury -63636-09-07 14:37 J -21521375.90 -21521375.89 -21521375.87 0.0526 0.0518  
 Earth -63634-08-23 12:13 J -21520661.22 -21520660.99 -21520660.76 0.0513 0.0024  
 Moon -63634-08-23 15:21 J -21520661.09 -21520660.86 -21520660.64 0.0513 0.0014 \*  
 Mercury -63630-05-02 11:45 J -21519313.16 -21519313.01 -21519312.86 0.0498 0.0285  
 Mercury -63630-07-31 23:16 J -21519222.65 -21519222.53 -21519222.41 0.0499 0.0374  
 Venus -63626-03-02 07:54 J -21517913.35 -21517913.17 -21517912.99 0.0523 0.0240  
 Mercury -63624-03-29 13:25 J -21517155.06 -21517154.94 -21517154.81 0.0527 0.0112  
 Mercury -63624-06-26 18:57 J -21517065.79 -21517065.71 -21517065.63 0.0526 0.0392

Moon -63622-08-27 23:45 J -21516273.72 -21516273.51 -21516273.30 0.0512 0.0244  
 Earth -63622-08-28 01:11 J -21516273.64 -21516273.45 -21516273.25 0.0512 0.0273 \*  
 Venus -63621-12-31 06:28 J -21515782.36 -21515782.23 -21515782.09 0.0502 0.0367  
 Mercury -63618-02-18 08:09 J -21515003.23 -21515003.16 -21515003.07 0.0498 0.0451  
 Mercury -63618-05-19 19:25 J -21514912.85 -21514912.69 -21514912.51 0.0499 0.0207  
 Venus -63615-11-05 00:13 J -21513647.68 -21513647.49 -21513647.30 0.0522 0.0179  
 Mercury -63612-01-15 17:45 J -21512844.87 -21512844.76 -21512844.65 0.0527 0.0237  
 Mercury -63612-04-14 23:16 J -21512755.64 -21512755.53 -21512755.42 0.0526 0.0267  
 Venus -63609-09-05 05:16 J -21511516.48 -21511516.28 -21511516.07 0.0503 0.0013  
 Mercury -63606-03-07 15:35 J -21510603.04 -21510602.85 -21510602.67 0.0499 0.0035  
 Mercury -63601-11-03 22:04 J -21508534.67 -21508534.58 -21508534.49 0.0527 0.0363  
 Mercury -63600-02-01 03:35 J -21508445.47 -21508445.35 -21508445.23 0.0526 0.0142  
 Venus -63597-05-11 05:45 J -21507250.39 -21507250.26 -21507250.12 0.0504 0.0379  
 Mercury -63595-12-24 12:13 J -21506293.17 -21506292.99 -21506292.81 0.0499 0.0130  
 Venus -63591-11-08 00:13 J -21504878.56 -21504878.49 -21504878.41 0.0523 0.0485  
 Mercury -63589-08-23 01:40 J -21504224.46 -21504224.43 -21504224.39 0.0527 0.0497  
 Mercury -63589-11-20 07:25 J -21504135.32 -21504135.19 -21504135.06 0.0526 0.0011  
 Mercury -63588-02-17 12:42 J -21504045.99 -21504045.97 -21504045.94 0.0525 0.0509  
 Mercury -63583-10-12 08:52 J -21501983.28 -21501983.13 -21501982.98 0.0499 0.0294  
 Mercury -63582-01-10 20:23 J -21501892.77 -21501892.65 -21501892.52 0.0500 0.0369  
 Earth -63580-02-20 02:23 J -21501121.61 -21501121.40 -21501121.18 0.0512 0.0212  
 Moon -63580-02-20 03:06 J -21501121.59 -21501121.37 -21501121.14 0.0512 0.0208 \*  
 Venus -63579-07-13 15:21 J -21500613.06 -21500612.86 -21500612.65 0.0522 0.0060  
 Mercury -63577-09-08 11:30 J -21499825.14 -21499825.02 -21499824.90 0.0527 0.0119  
 Mercury -63577-12-06 17:01 J -21499735.88 -21499735.79 -21499735.71 0.0526 0.0383  
 Venus -63573-05-13 15:49 J -21498482.02 -21498481.84 -21498481.65 0.0503 0.0200  
 Mercury -63571-07-31 05:30 J -21497673.34 -21497673.27 -21497673.19 0.0498 0.0458  
 Mercury -63571-10-29 16:47 J -21497582.97 -21497582.80 -21497582.63 0.0499 0.0200  
 Moon -63568-02-24 17:59 J -21496733.97 -21496733.75 -21496733.52 0.0513 0.0120  
 Earth -63568-02-24 20:52 J -21496733.87 -21496733.63 -21496733.40 0.0513 0.0089 \*

Venus -63567-03-18 05:01 J -21496347.43 -21496347.29 -21496347.15 0.0521 0.0371  
 Mars -63566-02-14 17:01 J -21496013.98 -21496013.79 -21496013.58 0.0526 0.0336  
 Mercury -63565-06-27 15:35 J -21495514.96 -21495514.85 -21495514.74 0.0527 0.0250  
 Mercury -63565-09-24 21:06 J -21495425.73 -21495425.62 -21495425.51 0.0527 0.0256  
 Earth -63563-08-18 00:28 J -21494733.64 -21494733.48 -21494733.32 0.0515 0.0369  
 Moon -63563-08-18 03:49 J -21494733.51 -21494733.34 -21494733.17 0.0515 0.0338 \*  
 Venus -63561-01-17 17:01 J -21494215.97 -21494215.79 -21494215.59 0.0504 0.0165  
 Mercury -63559-08-17 13:11 J -21493273.13 -21493272.95 -21493272.76 0.0499 0.0035  
 Earth -63556-03-01 19:11 J -21492345.84 -21492345.70 -21492345.55 0.0514 0.0403  
 Moon -63556-03-01 23:16 J -21492345.67 -21492345.53 -21492345.38 0.0514 0.0402 \*  
 Mercury -63553-04-15 19:54 J -21491204.76 -21491204.67 -21491204.58 0.0527 0.0374  
 Mercury -63553-07-14 01:25 J -21491115.56 -21491115.44 -21491115.31 0.0526 0.0133  
 Moon -63551-08-22 09:06 J -21490346.35 -21490346.12 -21490345.88 0.0513 0.0073  
 Earth -63551-08-22 11:01 J -21490346.26 -21490346.04 -21490345.81 0.0513 0.0076 \*  
 Mars -63549-11-13 00:42 J -21489532.73 -21489532.47 -21489532.19 0.0499 0.0177  
 Mercury -63547-06-05 09:06 J -21488963.30 -21488963.12 -21488962.94 0.0499 0.0141  
 Venus -63543-03-21 06:28 J -21487578.39 -21487578.23 -21487578.06 0.0523 0.0301  
 Mercury -63541-02-03 00:13 J -21486894.53 -21486894.49 -21486894.45 0.0527 0.0498  
 Mercury -63541-05-02 05:59 J -21486805.38 -21486805.25 -21486805.13 0.0526 0.0015  
 Mercury -63541-07-30 11:16 J -21486716.06 -21486716.03 -21486716.00 0.0525 0.0508  
 Earth -63539-08-26 23:01 J -21485958.74 -21485958.54 -21485958.33 0.0512 0.0217  
 Moon -63539-08-26 23:01 J -21485958.74 -21485958.54 -21485958.33 0.0512 0.0188 \*  
 Venus -63537-01-19 23:45 J -21485447.62 -21485447.51 -21485447.38 0.0502 0.0400  
 Mercury -63535-03-24 05:45 J -21484653.40 -21484653.26 -21484653.11 0.0499 0.0305  
 Mercury -63535-06-22 17:16 J -21484562.90 -21484562.78 -21484562.64 0.0500 0.0358  
 Venus -63532-11-23 22:04 J -21483312.78 -21483312.58 -21483312.38 0.0522 0.0124  
 Mars -63531-11-20 03:49 J -21482951.55 -21482951.34 -21482951.12 0.0526 0.0299  
 Mercury -63529-02-19 09:49 J -21482495.21 -21482495.09 -21482494.97 0.0526 0.0123  
 Mercury -63529-05-18 15:06 J -21482405.95 -21482405.87 -21482405.78 0.0526 0.0379  
 Earth -63527-08-31 09:35 J -21481571.13 -21481571.10 -21481571.07 0.0511 0.0506

Moon -63527-08-31 10:47 J -21481571.10 -21481571.05 -21481570.99 0.0511 0.0495 \*  
 Venus -63526-09-25 00:42 J -21481181.67 -21481181.47 -21481181.27 0.0504 0.0033  
 Mercury -63523-01-10 02:37 J -21480343.45 -21480343.39 -21480343.32 0.0499 0.0466  
 Mercury -63523-04-10 14:09 J -21480253.08 -21480252.91 -21480252.74 0.0499 0.0194  
 Mercury -63518-12-08 13:54 J -21478185.03 -21478184.92 -21478184.81 0.0527 0.0253  
 Mercury -63517-03-06 19:25 J -21478095.80 -21478095.69 -21478095.58 0.0526 0.0252  
 Venus -63514-05-31 02:37 J -21476915.54 -21476915.39 -21476915.23 0.0505 0.0330  
 Mars -63513-08-19 07:40 J -21476469.30 -21476469.18 -21476469.03 0.0499 0.0437  
 Mercury -63511-01-27 10:47 J -21475943.24 -21475943.05 -21475942.86 0.0499 0.0028  
 Mercury -63506-09-26 17:45 J -21473874.84 -21473874.76 -21473874.67 0.0527 0.0384  
 Mercury -63506-12-24 23:30 J -21473785.64 -21473785.52 -21473785.40 0.0527 0.0124  
 Mercury -63500-11-15 07:25 J -21471633.37 -21471633.19 -21471633.01 0.0499 0.0137  
 Moon -63497-02-19 21:21 J -21470806.81 -21470806.61 -21470806.41 0.0511 0.0259  
 Earth -63497-02-19 23:30 J -21470806.72 -21470806.52 -21470806.31 0.0511 0.0267 \*  
 Venus -63496-08-01 11:30 J -21470278.22 -21470278.02 -21470277.82 0.0522 0.0108  
 Mercury -63494-07-15 22:18 J -21469564.60 -21469564.57 -21469564.54 0.0527 0.0507  
 Mercury -63494-10-13 04:04 J -21469475.46 -21469475.33 -21469475.21 0.0527 0.0019  
 Mercury -63493-01-10 09:21 J -21469386.14 -21469386.11 -21469386.08 0.0526 0.0502  
 Venus -63490-06-02 10:33 J -21468147.24 -21468147.06 -21468146.88 0.0503 0.0239  
 Mercury -63488-09-03 03:06 J -21467323.52 -21467323.37 -21467323.23 0.0499 0.0312  
 Mercury -63488-12-02 14:23 J -21467233.02 -21467232.90 -21467232.76 0.0500 0.0351  
 Earth -63485-02-24 22:33 J -21466418.80 -21466418.56 -21466418.33 0.0513 0.0050  
 Moon -63485-02-25 02:23 J -21466418.64 -21466418.40 -21466418.16 0.0513 0.0083 \*  
 Venus -63484-04-06 04:33 J -21466012.47 -21466012.31 -21466012.14 0.0521 0.0306  
 Mercury -63482-08-01 08:23 J -21465165.27 -21465165.15 -21465165.02 0.0527 0.0122  
 Mercury -63482-10-29 13:54 J -21465076.01 -21465075.92 -21465075.84 0.0526 0.0381  
 Moon -63480-08-16 22:33 J -21464418.71 -21464418.56 -21464418.40 0.0514 0.0388  
 Earth -63480-08-17 00:42 J -21464418.59 -21464418.47 -21464418.33 0.0514 0.0418 \*  
 Venus -63478-02-05 11:30 J -21463881.21 -21463881.02 -21463880.82 0.0504 0.0127  
 Mercury -63476-06-21 23:45 J -21463013.55 -21463013.51 -21463013.44 0.0499 0.0474

Mercury -63476-09-20 11:16 J -21462923.20 -21462923.03 -21462922.85 0.0500 0.0186

Moon -63473-02-29 17:59 J -21462030.91 -21462030.75 -21462030.58 0.0514 0.0367

Earth -63473-02-29 22:18 J -21462030.73 -21462030.57 -21462030.41 0.0514 0.0369 \*

Mercury -63470-05-20 12:28 J -21460855.09 -21460854.98 -21460854.87 0.0526 0.0253

Mercury -63470-08-17 17:59 J -21460765.86 -21460765.75 -21460765.64 0.0526 0.0252

Earth -63468-08-21 12:13 J -21460031.21 -21460030.99 -21460030.77 0.0513 0.0123

Moon -63468-08-21 12:28 J -21460031.19 -21460030.98 -21460030.77 0.0513 0.0128 \*

Venus -63467-10-11 12:13 J -21459615.01 -21459614.99 -21459614.94 0.0505 0.0496

Mercury -63464-07-09 08:23 J -21458613.34 -21458613.15 -21458612.97 0.0499 0.0026

Venus -63460-04-09 03:49 J -21457243.48 -21457243.34 -21457243.19 0.0523 0.0353

Mercury -63458-03-08 16:33 J -21456544.90 -21456544.81 -21456544.73 0.0527 0.0382

Mercury -63458-06-05 22:04 J -21456455.70 -21456455.58 -21456455.46 0.0526 0.0124

Earth -63456-08-26 01:40 J -21455643.64 -21455643.43 -21455643.21 0.0512 0.0176

Moon -63456-08-26 03:06 J -21455643.60 -21455643.37 -21455643.14 0.0512 0.0144 \*

Venus -63454-02-07 22:04 J -21455112.66 -21455112.58 -21455112.49 0.0503 0.0453

Mercury -63452-04-27 05:16 J -21454303.46 -21454303.28 -21454303.10 0.0499 0.0138

Venus -63449-12-12 18:13 J -21452977.94 -21452977.74 -21452977.54 0.0522 0.0075

Mercury -63447-12-25 20:23 J -21452234.67 -21452234.65 -21452234.62 0.0527 0.0513

Mercury -63446-03-25 02:09 J -21452145.53 -21452145.41 -21452145.28 0.0527 0.0009

Mercury -63446-06-22 07:40 J -21452056.22 -21452056.18 -21452056.15 0.0526 0.0497

Moon -63444-08-30 12:42 J -21451256.05 -21451255.97 -21451255.88 0.0511 0.0467

Earth -63444-08-30 15:06 J -21451255.95 -21451255.87 -21451255.78 0.0511 0.0473 \*

Venus -63443-10-13 23:30 J -21450846.72 -21450846.52 -21450846.32 0.0504 0.0091

Mercury -63440-02-13 01:54 J -21449993.56 -21449993.42 -21449993.27 0.0499 0.0301

Mercury -63440-05-14 13:25 J -21449903.07 -21449902.94 -21449902.81 0.0499 0.0360

Venus -63437-08-17 10:47 J -21448712.12 -21448712.05 -21448711.99 0.0521 0.0490

Mercury -63434-01-11 06:42 J -21447835.34 -21447835.22 -21447835.10 0.0527 0.0126

Mercury -63434-04-10 12:13 J -21447746.08 -21447745.99 -21447745.91 0.0526 0.0378

Venus -63431-06-18 23:01 J -21446580.71 -21446580.54 -21446580.38 0.0504 0.0284

Mercury -63429-12-01 21:35 J -21445683.65 -21445683.60 -21445683.55 0.0499 0.0477

Mercury -63428-03-02 08:52 J -21445593.30 -21445593.13 -21445592.95 0.0499 0.0183

Mercury -63423-10-30 11:16 J -21443525.14 -21443525.03 -21443524.92 0.0527 0.0247

Mercury -63422-01-27 16:47 J -21443435.91 -21443435.80 -21443435.69 0.0526 0.0258

Mercury -63417-12-19 05:45 J -21441283.44 -21441283.26 -21441283.07 0.0499 0.0023

Earth -63414-02-19 04:18 J -21440491.51 -21440491.32 -21440491.13 0.0512 0.0297

Moon -63414-02-19 07:54 J -21440491.37 -21440491.17 -21440490.96 0.0512 0.0279 \*

Venus -63413-08-20 12:42 J -21439943.16 -21439942.97 -21439942.78 0.0522 0.0179

Mars -63412-05-10 18:28 J -21439679.98 -21439679.73 -21439679.47 0.0526 0.0132

Mercury -63411-08-18 15:21 J -21439214.95 -21439214.86 -21439214.77 0.0527 0.0377

Mercury -63411-11-15 20:52 J -21439125.75 -21439125.63 -21439125.51 0.0526 0.0130

Venus -63407-06-21 08:37 J -21437812.31 -21437812.14 -21437811.98 0.0503 0.0292

Mercury -63405-10-07 02:52 J -21436973.55 -21436973.38 -21436973.20 0.0499 0.0140

Moon -63402-02-23 22:47 J -21436103.78 -21436103.55 -21436103.31 0.0513 0.0049

Earth -63402-02-24 03:06 J -21436103.61 -21436103.37 -21436103.14 0.0513 0.0019 \*

Venus -63401-04-25 04:04 J -21435677.50 -21435677.33 -21435677.14 0.0521 0.0243

Mercury -63399-06-06 19:25 J -21434904.72 -21434904.69 -21434904.66 0.0527 0.0506

Mercury -63399-09-04 01:11 J -21434815.58 -21434815.45 -21434815.33 0.0526 0.0011

Mercury -63399-12-02 06:28 J -21434726.26 -21434726.23 -21434726.20 0.0525 0.0502

Earth -63397-08-16 04:47 J -21434103.39 -21434103.30 -21434103.19 0.0515 0.0458

Moon -63397-08-16 05:16 J -21434103.39 -21434103.28 -21434103.16 0.0515 0.0432 \*

Venus -63395-02-24 10:33 J -21433546.26 -21433546.06 -21433545.86 0.0504 0.0069

Mars -63394-02-06 19:54 J -21433198.95 -21433198.67 -21433198.38 0.0500 0.0017

Mercury -63393-07-26 00:13 J -21432663.64 -21432663.49 -21432663.34 0.0499 0.0298

Mercury -63393-10-24 11:30 J -21432573.14 -21432573.02 -21432572.89 0.0499 0.0366

Earth -63390-02-28 23:45 J -21431715.69 -21431715.51 -21431715.32 0.0514 0.0329

Moon -63390-03-01 03:21 J -21431715.54 -21431715.36 -21431715.18 0.0514 0.0322 \*

Mercury -63387-06-23 05:16 J -21430505.41 -21430505.28 -21430505.16 0.0527 0.0127

Mercury -63387-09-20 10:33 J -21430416.14 -21430416.06 -21430415.97 0.0526 0.0378

Earth -63385-08-20 19:25 J -21429715.91 -21429715.69 -21429715.47 0.0514 0.0154

Moon -63385-08-20 20:52 J -21429715.86 -21429715.63 -21429715.41 0.0514 0.0164 \*

Venus -63384-10-30 12:28 J -21429280.08 -21429279.98 -21429279.87 0.0505 0.0430  
 Mercury -63381-05-13 21:06 J -21428353.69 -21428353.62 -21428353.55 0.0499 0.0459  
 Mercury -63381-08-12 08:23 J -21428263.32 -21428263.15 -21428262.98 0.0499 0.0200  
 Venus -63377-04-28 03:06 J -21426908.48 -21426908.37 -21426908.24 0.0523 0.0417  
 Mars -63376-02-13 00:42 J -21426617.57 -21426617.47 -21426617.36 0.0527 0.0482  
 Mercury -63375-04-11 09:49 J -21426195.20 -21426195.09 -21426194.98 0.0527 0.0247  
 Mercury -63375-07-09 15:21 J -21426105.97 -21426105.86 -21426105.75 0.0526 0.0258  
 Moon -63373-08-25 05:30 J -21425328.48 -21425328.27 -21425328.05 0.0512 0.0115  
 Earth -63373-08-25 08:09 J -21425328.38 -21425328.16 -21425327.94 0.0512 0.0147 \*  
 Venus -63371-02-26 19:40 J -21424777.68 -21424777.68 -21424777.68 0.0502 0.0502  
 Mercury -63369-05-31 03:49 J -21423953.53 -21423953.34 -21423953.15 0.0499 0.0022  
 Venus -63365-01-01 20:52 J -21422642.83 -21422642.63 -21422642.42 0.0522 0.0004  
 Mercury -63363-01-28 14:23 J -21421884.99 -21421884.90 -21421884.81 0.0527 0.0367  
 Mercury -63363-04-27 20:09 J -21421795.79 -21421795.66 -21421795.54 0.0526 0.0141  
 Earth -63361-08-29 21:06 J -21420940.72 -21420940.62 -21420940.50 0.0511 0.0443  
 Moon -63361-08-30 00:42 J -21420940.58 -21420940.47 -21420940.35 0.0511 0.0446 \*  
 Venus -63360-11-01 20:52 J -21420511.82 -21420511.63 -21420511.43 0.0503 0.0141  
 Mercury -63357-03-19 00:57 J -21419643.64 -21419643.46 -21419643.28 0.0499 0.0139  
 Venus -63354-09-06 13:25 J -21418377.06 -21418376.94 -21418376.81 0.0521 0.0414  
 Mercury -63352-11-16 18:28 J -21417574.77 -21417574.73 -21417574.69 0.0527 0.0496  
 Mercury -63351-02-14 00:13 J -21417485.62 -21417485.49 -21417485.36 0.0526 0.0012  
 Mercury -63351-05-14 05:30 J -21417396.29 -21417396.27 -21417396.24 0.0525 0.0512  
 Venus -63348-07-07 22:18 J -21416245.75 -21416245.57 -21416245.39 0.0504 0.0224  
 Mercury -63345-01-05 22:04 J -21415333.72 -21415333.58 -21415333.42 0.0499 0.0298  
 Mercury -63345-04-05 09:49 J -21415243.21 -21415243.09 -21415242.96 0.0500 0.0368  
 Mercury -63340-12-03 04:33 J -21413175.44 -21413175.31 -21413175.19 0.0526 0.0117  
 Mercury -63339-03-02 09:49 J -21413086.17 -21413086.09 -21413086.01 0.0526 0.0388  
 Mercury -63334-10-24 19:40 J -21411023.75 -21411023.68 -21411023.60 0.0499 0.0452  
 Mercury -63333-01-23 06:57 J -21410933.38 -21410933.21 -21410933.04 0.0499 0.0209  
 Moon -63331-02-18 05:45 J -21410176.44 -21410176.26 -21410176.07 0.0511 0.0312



Earth -63331-02-18 09:49 J -21410176.27 -21410176.09 -21410175.90 0.0511 0.0327 \*  
 Venus -63330-09-09 12:28 J -21409608.16 -21409607.98 -21409607.80 0.0522 0.0243  
 Mercury -63328-09-21 08:37 J -21408865.26 -21408865.14 -21408865.03 0.0527 0.0245  
 Mercury -63328-12-19 14:09 J -21408776.02 -21408775.91 -21408775.80 0.0526 0.0262  
 Venus -63324-07-10 10:04 J -21407477.22 -21407477.08 -21407476.94 0.0503 0.0362  
 Mercury -63322-11-11 03:49 J -21406623.52 -21406623.34 -21406623.15 0.0499 0.0046  
 Earth -63319-02-23 08:23 J -21405788.39 -21405788.15 -21405787.91 0.0512 0.0014  
 Moon -63319-02-23 12:13 J -21405788.23 -21405787.99 -21405787.76 0.0512 0.0018 \*  
 Venus -63318-05-15 05:01 J -21405342.48 -21405342.29 -21405342.09 0.0521 0.0172  
 Mercury -63316-07-10 13:11 J -21404555.04 -21404554.95 -21404554.86 0.0527 0.0364  
 Mercury -63316-10-07 18:42 J -21404465.84 -21404465.72 -21404465.59 0.0526 0.0144  
 Earth -63314-08-16 14:23 J -21403787.98 -21403787.90 -21403787.81 0.0515 0.0479  
 Moon -63314-08-16 15:49 J -21403787.95 -21403787.84 -21403787.72 0.0515 0.0453 \*  
 Venus -63312-03-15 10:04 J -21403211.29 -21403211.08 -21403210.88 0.0503 0.0013  
 Mercury -63310-08-29 23:16 J -21402313.71 -21402313.53 -21402313.35 0.0499 0.0134  
 Moon -63307-02-28 04:47 J -21401400.50 -21401400.30 -21401400.10 0.0514 0.0290  
 Earth -63307-02-28 06:42 J -21401400.40 -21401400.22 -21401400.02 0.0514 0.0307 \*  
 Mercury -63304-04-28 17:45 J -21400244.80 -21400244.76 -21400244.71 0.0527 0.0483  
 Mercury -63304-07-26 23:30 J -21400155.64 -21400155.52 -21400155.39 0.0526 0.0028  
 Moon -63302-08-21 02:52 J -21399400.59 -21399400.38 -21399400.17 0.0513 0.0189  
 Earth -63302-08-21 05:30 J -21399400.49 -21399400.27 -21399400.06 0.0513 0.0173 \*  
 Venus -63301-11-18 11:59 J -21398945.14 -21398945.00 -21398944.87 0.0504 0.0371  
 Mercury -63298-06-17 20:23 J -21398003.79 -21398003.65 -21398003.49 0.0499 0.0293  
 Mercury -63298-09-16 07:54 J -21397913.29 -21397913.17 -21397913.04 0.0500 0.0373  
 Venus -63294-05-18 07:25 J -21396573.24 -21396573.19 -21396573.13 0.0523 0.0500  
 Mercury -63292-05-15 03:49 J -21395845.46 -21395845.34 -21395845.22 0.0526 0.0101  
 Mercury -63292-08-12 09:06 J -21395756.20 -21395756.12 -21395756.04 0.0525 0.0402  
 Earth -63290-08-25 17:16 J -21395013.00 -21395012.78 -21395012.55 0.0512 0.0124  
 Moon -63290-08-25 20:52 J -21395012.86 -21395012.63 -21395012.40 0.0512 0.0095 \*  
 Mercury -63286-04-05 17:59 J -21393693.83 -21393693.75 -21393693.67 0.0499 0.0449

Mercury -63286-07-05 05:16 J -21393603.44 -21393603.28 -21393603.11 0.0500 0.0215  
 Venus -63282-01-20 23:59 J -21392307.70 -21392307.50 -21392307.30 0.0522 0.0083  
 Mercury -63280-03-03 07:54 J -21391535.28 -21391535.17 -21391535.05 0.0526 0.0229  
 Mercury -63280-05-31 13:25 J -21391446.04 -21391445.94 -21391445.83 0.0526 0.0277  
 Moon -63278-08-30 02:52 J -21390625.50 -21390625.38 -21390625.25 0.0511 0.0431  
 Earth -63278-08-30 06:28 J -21390625.35 -21390625.23 -21390625.09 0.0511 0.0421 \*  
 Venus -63277-11-20 22:18 J -21390176.75 -21390176.57 -21390176.38 0.0503 0.0211  
 Mars -63276-07-28 02:52 J -21389927.57 -21389927.38 -21389927.18 0.0500 0.0360  
 Mercury -63274-04-23 02:37 J -21389293.57 -21389293.39 -21389293.20 0.0499 0.0057  
 Venus -63271-09-25 14:52 J -21388042.03 -21388041.88 -21388041.72 0.0521 0.0340  
 Mercury -63269-12-20 11:59 J -21387225.09 -21387225.00 -21387224.90 0.0527 0.0358  
 Mercury -63268-03-19 17:45 J -21387135.88 -21387135.76 -21387135.64 0.0526 0.0150  
 Venus -63265-07-27 00:42 J -21385910.66 -21385910.47 -21385910.27 0.0504 0.0150  
 Mercury -63262-02-08 23:45 J -21384983.69 -21384983.51 -21384983.33 0.0499 0.0106  
 Mars -63258-08-05 09:06 J -21383345.37 -21383345.12 -21383344.86 0.0526 0.0103  
 Mercury -63257-10-08 16:47 J -21382914.85 -21382914.80 -21382914.75 0.0527 0.0477  
 Mercury -63256-01-05 22:33 J -21382825.69 -21382825.56 -21382825.44 0.0526 0.0035  
 Mercury -63251-11-27 19:11 J -21380673.85 -21380673.70 -21380673.54 0.0499 0.0284  
 Mercury -63250-02-26 06:42 J -21380583.34 -21380583.22 -21380583.10 0.0500 0.0382  
 Earth -63248-02-17 16:47 J -21379860.97 -21379860.80 -21379860.63 0.0512 0.0352  
 Moon -63248-02-17 20:37 J -21379860.81 -21379860.64 -21379860.46 0.0512 0.0331 \*  
 Venus -63247-09-28 17:01 J -21379272.95 -21379272.79 -21379272.63 0.0523 0.0329  
 Mercury -63245-10-25 03:21 J -21378515.49 -21378515.36 -21378515.24 0.0527 0.0087  
 Mercury -63244-01-22 08:37 J -21378426.21 -21378426.14 -21378426.06 0.0526 0.0418  
 Venus -63241-07-29 10:18 J -21377142.17 -21377142.07 -21377141.96 0.0502 0.0423  
 Mars -63240-05-03 03:35 J -21376864.60 -21376864.35 -21376864.10 0.0499 0.0238  
 Mercury -63239-09-15 16:33 J -21376363.89 -21376363.81 -21376363.73 0.0499 0.0442  
 Mercury -63239-12-15 03:49 J -21376273.51 -21376273.34 -21376273.17 0.0500 0.0221  
 Moon -63236-02-22 15:21 J -21375473.11 -21375472.86 -21375472.61 0.0513 0.0008  
 Earth -63236-02-22 17:45 J -21375473.00 -21375472.76 -21375472.52 0.0513 0.0029 \*

Venus -63235-06-03 10:04 J -21375007.29 -21375007.08 -21375006.88 0.0522 0.0086

Mercury -63233-08-13 07:25 J -21374205.30 -21374205.19 -21374205.07 0.0526 0.0213

Mercury -63233-11-10 12:57 J -21374116.06 -21374115.96 -21374115.85 0.0526 0.0293

Moon -63231-08-15 23:01 J -21373472.61 -21373472.54 -21373472.46 0.0515 0.0478

Earth -63231-08-16 01:40 J -21373472.47 -21373472.43 -21373472.37 0.0515 0.0499 \*

Venus -63229-04-03 11:45 J -21372876.21 -21372876.01 -21372875.81 0.0503 0.0061

Mercury -63227-10-03 01:11 J -21371963.63 -21371963.45 -21371963.26 0.0500 0.0064

Earth -63224-02-27 18:28 J -21371084.92 -21371084.73 -21371084.53 0.0514 0.0294

Moon -63224-02-27 18:28 J -21371084.92 -21371084.73 -21371084.54 0.0514 0.0271 \*

Venus -63223-02-06 02:23 J -21370741.46 -21370741.40 -21370741.35 0.0521 0.0500

Mercury -63221-06-01 11:45 J -21369895.11 -21369895.01 -21369894.91 0.0527 0.0339

Mercury -63221-08-29 17:16 J -21369805.90 -21369805.78 -21369805.66 0.0526 0.0168

Earth -63219-08-20 15:21 J -21369085.06 -21369084.86 -21369084.64 0.0514 0.0197

Moon -63219-08-20 18:57 J -21369084.91 -21369084.71 -21369084.50 0.0514 0.0217 \*

Venus -63218-12-08 13:54 J -21368610.08 -21368609.92 -21368609.76 0.0505 0.0299

Mercury -63215-07-21 22:47 J -21367653.73 -21367653.55 -21367653.37 0.0499 0.0094

Mercury -63209-03-20 15:49 J -21365584.90 -21365584.84 -21365584.78 0.0527 0.0469

Mercury -63209-06-17 21:35 J -21365495.73 -21365495.60 -21365495.48 0.0526 0.0042

Moon -63207-08-25 02:23 J -21364697.63 -21364697.40 -21364697.18 0.0513 0.0085

Earth -63207-08-25 05:45 J -21364697.48 -21364697.26 -21364697.03 0.0513 0.0110 \*

Mercury -63203-05-09 19:54 J -21363343.83 -21363343.67 -21363343.51 0.0499 0.0254

Mercury -63203-08-08 07:25 J -21363253.29 -21363253.19 -21363253.09 0.0500 0.0412

Venus -63199-02-09 02:52 J -21361972.57 -21361972.38 -21361972.18 0.0522 0.0162

Mercury -63197-04-06 02:09 J -21361185.53 -21361185.41 -21361185.28 0.0527 0.0079

Mercury -63197-07-04 07:40 J -21361096.25 -21361096.18 -21361096.11 0.0526 0.0426

Earth -63195-08-29 19:54 J -21360309.80 -21360309.67 -21360309.53 0.0511 0.0413

Moon -63195-08-29 22:33 J -21360309.67 -21360309.56 -21360309.44 0.0511 0.0436 \*

Venus -63194-12-11 00:13 J -21359841.66 -21359841.49 -21359841.33 0.0502 0.0278

Mercury -63191-02-25 15:21 J -21359033.94 -21359033.86 -21359033.76 0.0499 0.0431

Mercury -63191-05-27 02:52 J -21358943.55 -21358943.38 -21358943.22 0.0499 0.0232

Venus -63188-10-14 18:57 J -21357706.88 -21357706.71 -21357706.53 0.0522 0.0257  
 Mercury -63185-01-24 06:57 J -21356875.32 -21356875.21 -21356875.09 0.0527 0.0197  
 Mercury -63185-04-22 12:28 J -21356786.08 -21356785.98 -21356785.88 0.0526 0.0310  
 Venus -63182-08-16 02:23 J -21355575.59 -21355575.40 -21355575.20 0.0503 0.0082  
 Mercury -63179-03-14 23:59 J -21354633.69 -21354633.50 -21354633.32 0.0499 0.0071  
 Mercury -63174-11-12 11:16 J -21352565.13 -21352565.03 -21352564.93 0.0527 0.0323  
 Mercury -63173-02-09 16:47 J -21352475.91 -21352475.80 -21352475.68 0.0526 0.0186  
 Venus -63170-04-21 03:49 J -21351309.43 -21351309.34 -21351309.24 0.0505 0.0444  
 Mercury -63168-12-31 21:21 J -21350323.79 -21350323.61 -21350323.42 0.0499 0.0087  
 Moon -63165-02-18 03:06 J -21349545.56 -21349545.37 -21349545.19 0.0511 0.0339  
 Earth -63165-02-18 05:30 J -21349545.43 -21349545.27 -21349545.09 0.0511 0.0364 \*  
 Venus -63164-10-17 21:35 J -21348937.72 -21348937.60 -21348937.48 0.0523 0.0417  
 Mercury -63162-08-31 15:35 J -21348254.92 -21348254.85 -21348254.79 0.0527 0.0450  
 Mercury -63162-11-28 21:06 J -21348165.74 -21348165.62 -21348165.49 0.0526 0.0061  
 Venus -63158-08-18 12:42 J -21346806.99 -21346806.97 -21346806.94 0.0502 0.0497  
 Mercury -63156-10-19 18:57 J -21346013.87 -21346013.71 -21346013.55 0.0499 0.0242  
 Mercury -63155-01-18 06:28 J -21345923.33 -21345923.23 -21345923.13 0.0500 0.0425  
 Earth -63153-02-23 04:33 J -21345157.55 -21345157.31 -21345157.07 0.0512 0.0045  
 Moon -63153-02-23 04:47 J -21345157.53 -21345157.30 -21345157.07 0.0512 0.0033 \*  
 Venus -63152-06-22 12:57 J -21344672.17 -21344671.96 -21344671.76 0.0522 0.0008  
 Mercury -63150-09-17 01:25 J -21343855.57 -21343855.44 -21343855.32 0.0526 0.0071  
 Mercury -63150-12-15 06:42 J -21343766.29 -21343766.22 -21343766.15 0.0526 0.0435  
 Moon -63148-08-15 17:16 J -21343156.82 -21343156.78 -21343156.72 0.0515 0.0500  
 Venus -63146-04-23 15:06 J -21342541.07 -21342540.87 -21342540.68 0.0503 0.0139  
 Mercury -63144-08-07 16:04 J -21341703.94 -21341703.83 -21341703.72 0.0499 0.0402  
 Mercury -63144-11-06 03:21 J -21341613.52 -21341613.36 -21341613.20 0.0500 0.0262  
 Earth -63141-02-28 03:21 J -21340769.55 -21340769.36 -21340769.15 0.0513 0.0276  
 Moon -63141-02-28 05:16 J -21340769.49 -21340769.28 -21340769.05 0.0513 0.0246 \*  
 Venus -63140-02-25 05:16 J -21340406.40 -21340406.28 -21340406.16 0.0521 0.0420  
 Mars -63139-01-24 19:40 J -21340072.91 -21340072.68 -21340072.45 0.0526 0.0269

Mercury -63138-07-06 05:59 J -21339545.37 -21339545.25 -21339545.13 0.0527 0.0189

Mercury -63138-10-03 11:30 J -21339456.12 -21339456.02 -21339455.92 0.0526 0.0318

Moon -63136-08-20 02:23 J -21338769.60 -21338769.40 -21338769.19 0.0514 0.0230

Earth -63136-08-20 05:59 J -21338769.46 -21338769.25 -21338769.04 0.0514 0.0203 \*

Venus -63135-12-27 16:33 J -21338274.99 -21338274.81 -21338274.63 0.0504 0.0226

Mercury -63132-08-24 22:47 J -21337303.73 -21337303.55 -21337303.36 0.0499 0.0082

Mercury -63126-04-24 10:47 J -21335235.15 -21335235.05 -21335234.95 0.0527 0.0308

Mercury -63126-07-22 16:18 J -21335145.93 -21335145.82 -21335145.70 0.0526 0.0201

Earth -63124-08-24 20:52 J -21334381.85 -21334381.63 -21334381.40 0.0512 0.0104

Moon -63124-08-24 23:30 J -21334381.74 -21334381.52 -21334381.30 0.0512 0.0090 \*

Mars -63122-10-22 22:18 J -21333592.84 -21333592.57 -21333592.29 0.0499 0.0107

Mercury -63120-06-12 19:54 J -21332993.85 -21332993.67 -21332993.48 0.0499 0.0079

Venus -63116-02-28 07:25 J -21331637.37 -21331637.19 -21331637.01 0.0523 0.0248

Mercury -63114-02-10 14:52 J -21330924.94 -21330924.88 -21330924.80 0.0527 0.0435

Mercury -63114-05-10 20:37 J -21330835.76 -21330835.64 -21330835.51 0.0526 0.0076

Moon -63112-08-29 06:57 J -21329994.33 -21329994.21 -21329994.07 0.0511 0.0422

Earth -63112-08-29 08:23 J -21329994.28 -21329994.15 -21329994.00 0.0511 0.0398 \*

Venus -63111-12-30 02:23 J -21329506.54 -21329506.40 -21329506.25 0.0502 0.0351

Mercury -63108-03-31 17:30 J -21328683.93 -21328683.77 -21328683.61 0.0499 0.0236

Mercury -63108-06-30 05:01 J -21328593.38 -21328593.29 -21328593.20 0.0500 0.0432

Venus -63105-11-02 23:45 J -21327371.70 -21327371.51 -21327371.31 0.0522 0.0169

Mars -63104-10-30 16:33 J -21327009.99 -21327009.81 -21327009.64 0.0526 0.0390

Mercury -63102-02-27 00:57 J -21326525.59 -21326525.46 -21326525.33 0.0526 0.0051

Mercury -63102-05-27 06:13 J -21326436.30 -21326436.24 -21326436.17 0.0525 0.0453

Venus -63099-09-04 04:33 J -21325240.51 -21325240.31 -21325240.11 0.0503 0.0009

Mercury -63096-01-17 14:52 J -21324373.99 -21324373.88 -21324373.76 0.0499 0.0392

Mercury -63096-04-18 02:09 J -21324283.56 -21324283.41 -21324283.25 0.0500 0.0274

Mercury -63091-12-16 05:01 J -21322215.41 -21322215.29 -21322215.17 0.0527 0.0181

Mercury -63090-03-15 10:33 J -21322126.16 -21322126.06 -21322125.96 0.0526 0.0326

Venus -63087-05-10 06:42 J -21320974.35 -21320974.22 -21320974.08 0.0505 0.0369

Mercury -63084-02-03 23:16 J -21319973.71 -21319973.53 -21319973.35 0.0499 0.0111  
 Earth -63082-02-17 14:37 J -21319230.05 -21319229.89 -21319229.73 0.0511 0.0384  
 Moon -63082-02-17 15:06 J -21319230.02 -21319229.87 -21319229.70 0.0511 0.0357 \*  
 Venus -63081-11-05 23:59 J -21318602.56 -21318602.50 -21318602.43 0.0523 0.0494  
 Mercury -63079-10-04 09:35 J -21317905.20 -21317905.10 -21317904.99 0.0527 0.0302  
 Mercury -63078-01-01 15:06 J -21317815.98 -21317815.87 -21317815.75 0.0526 0.0209  
 Mercury -63073-11-22 18:57 J -21315663.90 -21315663.71 -21315663.53 0.0499 0.0069  
 Earth -63070-02-22 09:21 J -21314842.34 -21314842.11 -21314841.87 0.0513 0.0076  
 Moon -63070-02-22 11:01 J -21314842.29 -21314842.04 -21314841.80 0.0513 0.0069 \*  
 Venus -63069-07-11 15:35 J -21314337.05 -21314336.85 -21314336.64 0.0523 0.0072  
 Mercury -63067-07-23 14:09 J -21313594.98 -21313594.91 -21313594.83 0.0527 0.0424  
 Mercury -63067-10-20 19:54 J -21313505.79 -21313505.67 -21313505.54 0.0527 0.0089  
 Venus -63063-05-12 17:16 J -21312205.97 -21312205.78 -21312205.60 0.0502 0.0209  
 Mercury -63061-09-10 15:49 J -21311354.00 -21311353.84 -21311353.67 0.0499 0.0230  
 Mercury -63061-12-10 03:21 J -21311263.44 -21311263.36 -21311263.27 0.0500 0.0438  
 Moon -63058-02-27 07:25 J -21310454.40 -21310454.19 -21310453.98 0.0514 0.0220  
 Earth -63058-02-27 10:18 J -21310454.27 -21310454.07 -21310453.86 0.0514 0.0252 \*  
 Venus -63057-03-16 08:37 J -21310071.30 -21310071.14 -21310070.99 0.0522 0.0342  
 Mercury -63055-08-09 00:13 J -21309195.61 -21309195.49 -21309195.36 0.0526 0.0042  
 Mercury -63055-11-06 05:45 J -21309106.32 -21309106.26 -21309106.21 0.0526 0.0466  
 Earth -63053-08-19 17:45 J -21308453.96 -21308453.76 -21308453.55 0.0514 0.0223  
 Moon -63053-08-19 20:09 J -21308453.85 -21308453.66 -21308453.47 0.0514 0.0254 \*  
 Venus -63051-01-15 18:28 J -21307939.92 -21307939.73 -21307939.54 0.0504 0.0155  
 Mercury -63049-06-29 13:25 J -21307044.06 -21307043.94 -21307043.82 0.0499 0.0387  
 Mercury -63049-09-28 00:42 J -21306953.62 -21306953.47 -21306953.31 0.0500 0.0278  
 Mercury -63043-05-28 04:33 J -21304885.43 -21304885.31 -21304885.19 0.0527 0.0165  
 Mercury -63043-08-25 10:04 J -21304796.18 -21304796.08 -21304795.99 0.0526 0.0341  
 Moon -63041-08-24 05:16 J -21304066.52 -21304066.28 -21304066.05 0.0513 0.0068  
 Earth -63041-08-24 06:28 J -21304066.46 -21304066.23 -21304066.01 0.0513 0.0078 \*  
 Mercury -63037-07-16 22:04 J -21302643.76 -21302643.58 -21302643.40 0.0499 0.0119

Venus	-63033-03-19 09:35 J	-21301302.26	-21301302.10	-21301301.94	0.0523	0.0322
Mercury	-63031-03-16 08:37 J	-21300575.25	-21300575.14	-21300575.04	0.0527	0.0296
Mercury	-63031-06-13 14:09 J	-21300486.03	-21300485.91	-21300485.80	0.0526	0.0213
Earth	-63029-08-28 19:11 J	-21299678.85	-21299678.70	-21299678.54	0.0512	0.0380
Moon	-63029-08-28 18:57 J	-21299678.84	-21299678.71	-21299678.57	0.0512	0.0408 *
Venus	-63027-01-18 04:47 J	-21299171.41	-21299171.30	-21299171.19	0.0502	0.0422
Mercury	-63025-05-04 18:57 J	-21298333.90	-21298333.71	-21298333.52	0.0499	0.0045
Venus	-63022-11-23 01:25 J	-21297036.64	-21297036.44	-21297036.24	0.0522	0.0096
Mercury	-63019-01-02 12:57 J	-21296265.03	-21296264.96	-21296264.88	0.0527	0.0419
Mercury	-63019-04-01 18:42 J	-21296175.84	-21296175.72	-21296175.59	0.0527	0.0093
Venus	-63016-09-23 06:42 J	-21294905.42	-21294905.22	-21294905.02	0.0503	0.0061
Mercury	-63013-02-21 14:37 J	-21294024.05	-21294023.89	-21294023.72	0.0499	0.0222
Mercury	-63013-05-22 01:54 J	-21293933.50	-21293933.42	-21293933.33	0.0499	0.0445
Venus	-63010-07-28 15:49 J	-21292770.84	-21292770.84	-21292770.84	0.0521	0.0521
Mercury	-63007-01-18 23:16 J	-21291865.65	-21291865.53	-21291865.40	0.0527	0.0035
Mercury	-63007-04-18 04:47 J	-21291776.35	-21291776.30	-21291776.25	0.0526	0.0477
Venus	-63004-05-29 08:52 J	-21290639.29	-21290639.13	-21290638.96	0.0504	0.0297
Mars	-63003-04-12 17:16 J	-21290320.89	-21290320.78	-21290320.65	0.0499	0.0451
Mercury	-63002-12-10 11:45 J	-21289714.13	-21289714.01	-21289713.89	0.0498	0.0382
Mercury	-63001-03-09 22:47 J	-21289623.70	-21289623.55	-21289623.39	0.0499	0.0281

# 63RD MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 63rd millennium BCE.**

PLANET	MAX- TRANSIT	C	START	MAX	END	SUNRAD	DEPTH	S
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TIME

Earth -62999-02-16 18:28 J -21288914.86 -21288914.73 -21288914.59 0.0511 0.0420

Moon -62999-02-16 19:25 J -21288914.84 -21288914.69 -21288914.52 0.0511 0.0388 \*

Mercury -62996-11-07 03:35 J -21287555.47 -21287555.35 -21287555.23 0.0527 0.0156

Mercury -62995-02-04 09:06 J -21287466.21 -21287466.12 -21287466.03 0.0526 0.0351

Mercury -62990-12-27 20:09 J -21285313.84 -21285313.66 -21285313.48 0.0499 0.0120

Moon -62987-02-21 16:33 J -21284527.04 -21284526.81 -21284526.58 0.0512 0.0095

Earth -62987-02-21 19:25 J -21284526.93 -21284526.69 -21284526.46 0.0512 0.0097 \*

Venus -62986-07-31 18:57 J -21284001.91 -21284001.71 -21284001.51 0.0523 0.0152

Mars -62985-04-20 17:45 J -21283738.02 -21283737.76 -21283737.49 0.0526 0.0004

Mercury -62984-08-26 07:54 J -21283245.28 -21283245.17 -21283245.07 0.0527 0.0284

Mercury -62984-11-23 13:25 J -21283156.05 -21283155.94 -21283155.83 0.0526 0.0225

Venus -62980-05-31 17:16 J -21281870.95 -21281870.78 -21281870.61 0.0502 0.0272

Mercury -62978-10-15 17:16 J -21281003.97 -21281003.78 -21281003.59 0.0499 0.0041

Earth -62975-02-26 17:59 J -21280138.96 -21280138.75 -21280138.53 0.0513 0.0227

Moon -62975-02-26 21:49 J -21280138.81 -21280138.59 -21280138.37 0.0513 0.0196 \*

Venus -62974-04-05 09:49 J -21279736.26 -21279736.09 -21279735.91 0.0521 0.0271

Mercury -62972-06-14 11:45 J -21278935.09 -21278935.01 -21278934.93 0.0527 0.0417

Mercury -62972-09-11 17:30 J -21278845.90 -21278845.77 -21278845.65 0.0526 0.0095

Moon -62970-08-20 00:42 J -21278138.66 -21278138.47 -21278138.27 0.0514 0.0284

Earth -62970-08-20 01:40 J -21278138.62 -21278138.43 -21278138.22 0.0514 0.0253 \*

Venus -62968-02-03 19:25 J -21277604.89 -21277604.69 -21277604.50 0.0504 0.0089

Mars -62967-01-16 15:06 J -21277258.14 -21277257.87 -21277257.60 0.0499 0.0137

Mercury -62966-08-03 14:09 J -21276694.08 -21276693.91 -21276693.74 0.0499 0.0204

Mercury -62966-11-02 01:40 J -21276603.49 -21276603.43 -21276603.36 0.0500 0.0464

Mercury -62960-06-30 21:49 J -21274535.71 -21274535.59 -21274535.46 0.0527 0.0034

Mercury -62960-09-28 03:21 J -21274446.41 -21274446.36 -21274446.31 0.0526 0.0477

Moon -62958-08-24 16:47 J -21273751.02 -21273750.80 -21273750.58 0.0513 0.0055

Earth -62958-08-24 17:16 J -21273751.01 -21273750.78 -21273750.55 0.0513 0.0059 \*

Venus -62957-10-09 21:35 J -21273338.68 -21273338.60 -21273338.50 0.0504 0.0448



Mercury -62954-05-22 10:04 J -21272384.20 -21272384.08 -21272383.96 0.0498 0.0378  
 Mercury -62954-08-20 21:06 J -21272293.77 -21272293.62 -21272293.46 0.0499 0.0285  
 Venus -62950-04-08 08:52 J -21270967.27 -21270967.13 -21270966.99 0.0524 0.0383  
 Mercury -62948-04-19 02:23 J -21270225.52 -21270225.40 -21270225.28 0.0527 0.0153  
 Mercury -62948-07-17 07:54 J -21270136.26 -21270136.17 -21270136.08 0.0526 0.0356  
 Earth -62946-08-29 07:25 J -21269363.35 -21269363.19 -21269363.03 0.0512 0.0364  
 Moon -62946-08-29 09:35 J -21269363.25 -21269363.10 -21269362.95 0.0512 0.0392 \*  
 Venus -62944-02-06 05:30 J -21268836.31 -21268836.27 -21268836.22 0.0501 0.0485  
 Mercury -62942-06-08 17:59 J -21267983.93 -21267983.75 -21267983.57 0.0499 0.0120  
 Venus -62939-12-12 01:25 J -21266701.65 -21266701.44 -21266701.24 0.0523 0.0032  
 Mercury -62936-02-05 06:42 J -21265915.33 -21265915.22 -21265915.12 0.0527 0.0280  
 Mercury -62936-05-05 12:13 J -21265826.10 -21265825.99 -21265825.87 0.0526 0.0230  
 Venus -62933-10-12 05:59 J -21264570.45 -21264570.25 -21264570.05 0.0503 0.0121  
 Mercury -62930-03-27 15:06 J -21263674.06 -21263673.87 -21263673.69 0.0499 0.0044  
 Venus -62927-08-16 17:45 J -21262435.86 -21262435.76 -21262435.65 0.0521 0.0446  
 Mercury -62925-11-24 10:47 J -21261605.13 -21261605.05 -21261604.97 0.0527 0.0409  
 Mercury -62924-02-21 16:33 J -21261515.94 -21261515.81 -21261515.69 0.0526 0.0103  
 Venus -62921-06-17 07:25 J -21260304.37 -21260304.19 -21260304.02 0.0504 0.0241  
 Mercury -62918-01-13 11:59 J -21259364.16 -21259364.00 -21259363.83 0.0499 0.0205  
 Mercury -62918-04-13 23:30 J -21259273.58 -21259273.52 -21259273.45 0.0500 0.0464  
 Moon -62916-02-15 22:18 J -21258599.70 -21258599.57 -21258599.44 0.0511 0.0420  
 Earth -62916-02-16 00:42 J -21258599.57 -21258599.47 -21258599.35 0.0511 0.0450 \*  
 Mercury -62913-12-10 20:23 J -21257205.77 -21257205.65 -21257205.52 0.0527 0.0031  
 Mercury -62912-03-10 01:54 J -21257116.47 -21257116.42 -21257116.37 0.0526 0.0475  
 Mercury -62907-11-01 08:52 J -21255054.25 -21255054.13 -21255054.00 0.0499 0.0368  
 Mercury -62906-01-30 20:09 J -21254963.80 -21254963.66 -21254963.51 0.0499 0.0298  
 Earth -62904-02-20 21:49 J -21254211.82 -21254211.59 -21254211.36 0.0512 0.0136  
 Moon -62904-02-21 01:25 J -21254211.67 -21254211.44 -21254211.20 0.0512 0.0138 \*  
 Venus -62903-08-19 17:16 J -21253666.96 -21253666.78 -21253666.59 0.0523 0.0210  
 Mercury -62901-09-29 00:42 J -21252895.59 -21252895.47 -21252895.35 0.0527 0.0156

Mercury -62901-12-27 06:13 J -21252806.33 -21252806.24 -21252806.14 0.0526 0.0353  
 Venus -62897-06-19 17:16 J -21251535.93 -21251535.78 -21251535.63 0.0502 0.0332  
 Mercury -62895-11-18 16:04 J -21250654.01 -21250653.83 -21250653.65 0.0499 0.0120  
 Moon -62892-02-25 11:30 J -21249824.25 -21249824.02 -21249823.79 0.0513 0.0141  
 Earth -62892-02-25 15:21 J -21249824.08 -21249823.86 -21249823.63 0.0513 0.0172 \*  
 Venus -62891-04-24 06:42 J -21249401.41 -21249401.22 -21249401.03 0.0522 0.0221  
 Mercury -62889-07-18 05:01 J -21248585.40 -21248585.29 -21248585.18 0.0528 0.0283  
 Mercury -62889-10-15 10:47 J -21248496.17 -21248496.05 -21248495.94 0.0527 0.0229  
 Moon -62887-08-19 10:47 J -21247823.22 -21247823.05 -21247822.87 0.0514 0.0312  
 Earth -62887-08-19 11:16 J -21247823.22 -21247823.03 -21247822.84 0.0514 0.0280 \*  
 Venus -62885-02-23 19:11 J -21247269.90 -21247269.70 -21247269.49 0.0503 0.0029  
 Mercury -62883-09-06 12:42 J -21246344.16 -21246343.97 -21246343.78 0.0498 0.0046  
 Earth -62880-03-02 14:52 J -21245435.93 -21245435.88 -21245435.81 0.0514 0.0498  
 Moon -62880-03-02 17:30 J -21245435.80 -21245435.77 -21245435.72 0.0514 0.0505  
 Mercury -62877-05-06 09:06 J -21244275.19 -21244275.12 -21244275.04 0.0527 0.0412  
 Mercury -62877-08-03 15:06 J -21244186.00 -21244185.87 -21244185.75 0.0527 0.0104  
 Earth -62875-08-23 22:04 J -21243435.81 -21243435.58 -21243435.35 0.0513 0.0020  
 Moon -62875-08-24 00:13 J -21243435.73 -21243435.49 -21243435.26 0.0513 0.0023 \*  
 Venus -62874-10-29 19:25 J -21243003.81 -21243003.69 -21243003.57 0.0504 0.0394  
 Mercury -62871-06-25 09:35 J -21242034.27 -21242034.10 -21242033.94 0.0499 0.0211  
 Mercury -62871-09-23 20:52 J -21241943.70 -21241943.63 -21241943.56 0.0499 0.0457  
 Venus -62867-04-27 09:06 J -21240632.22 -21240632.12 -21240632.01 0.0524 0.0450  
 Mars -62867-10-09 22:33 J -21240466.69 -21240466.56 -21240466.41 0.0526 0.0446  
 Mercury -62865-05-22 19:11 J -21239875.83 -21239875.70 -21239875.57 0.0527 0.0026  
 Mercury -62865-08-20 00:28 J -21239786.52 -21239786.48 -21239786.42 0.0526 0.0480  
 Moon -62863-08-28 06:13 J -21239048.40 -21239048.24 -21239048.07 0.0512 0.0347  
 Earth -62863-08-28 09:21 J -21239048.28 -21239048.11 -21239047.92 0.0512 0.0318 \*  
 Mercury -62859-04-13 06:28 J -21237724.35 -21237724.23 -21237724.11 0.0499 0.0373  
 Mercury -62859-07-12 17:45 J -21237633.91 -21237633.76 -21237633.61 0.0499 0.0292  
 Venus -62856-12-30 23:59 J -21236366.71 -21236366.50 -21236366.30 0.0522 0.0027

Mercury -62853-03-10 23:01 J -21235565.66 -21235565.54 -21235565.42 0.0527 0.0161

Mercury -62853-06-08 04:33 J -21235476.40 -21235476.31 -21235476.22 0.0526 0.0348

Venus -62850-11-01 03:35 J -21234235.53 -21234235.35 -21234235.15 0.0503 0.0173

Mars -62849-07-06 14:52 J -21233987.11 -21233986.88 -21233986.63 0.0500 0.0257

Mercury -62847-04-30 14:23 J -21233324.08 -21233323.90 -21233323.72 0.0499 0.0125

Venus -62844-09-04 14:37 J -21232101.02 -21232100.89 -21232100.76 0.0521 0.0395

Mercury -62842-12-29 03:06 J -21231255.47 -21231255.37 -21231255.26 0.0527 0.0290

Mercury -62841-03-27 08:52 J -21231166.24 -21231166.13 -21231166.02 0.0527 0.0223

Venus -62838-07-07 06:13 J -21229969.43 -21229969.24 -21229969.05 0.0504 0.0185

Mercury -62835-02-16 10:18 J -21229014.25 -21229014.07 -21229013.88 0.0498 0.0050

Moon -62833-02-15 23:16 J -21228284.61 -21228284.53 -21228284.44 0.0510 0.0478

Mars -62831-07-15 05:01 J -21227404.53 -21227404.29 -21227404.03 0.0527 0.0172

Mercury -62830-10-17 07:11 J -21226945.27 -21226945.20 -21226945.12 0.0528 0.0420

Mercury -62829-01-14 13:11 J -21226856.08 -21226855.95 -21226855.83 0.0527 0.0096

Mercury -62824-12-05 06:57 J -21224704.37 -21224704.21 -21224704.04 0.0498 0.0216

Mercury -62823-03-05 18:13 J -21224613.82 -21224613.74 -21224613.66 0.0499 0.0450

Moon -62821-02-20 13:54 J -21223897.13 -21223896.92 -21223896.69 0.0511 0.0202

Earth -62821-02-20 17:45 J -21223896.97 -21223896.76 -21223896.53 0.0511 0.0197 \*

Venus -62820-09-07 13:25 J -21223332.11 -21223331.94 -21223331.76 0.0523 0.0257

Mercury -62818-11-02 17:16 J -21222545.90 -21222545.78 -21222545.65 0.0527 0.0037

Mercury -62817-01-30 22:47 J -21222456.60 -21222456.55 -21222456.50 0.0526 0.0475

Venus -62814-07-09 13:25 J -21221201.07 -21221200.94 -21221200.81 0.0502 0.0377

Mars -62813-04-11 04:47 J -21220924.51 -21220924.30 -21220924.07 0.0499 0.0316

Mercury -62812-09-23 03:35 J -21220394.47 -21220394.35 -21220394.23 0.0498 0.0382

Mercury -62812-12-22 14:37 J -21220304.04 -21220303.89 -21220303.73 0.0499 0.0282

Earth -62809-02-25 17:45 J -21219508.99 -21219508.76 -21219508.53 0.0513 0.0131

Moon -62809-02-25 20:52 J -21219508.86 -21219508.63 -21219508.41 0.0513 0.0103 \*

Venus -62808-05-13 05:45 J -21219066.45 -21219066.26 -21219066.06 0.0522 0.0158

Mercury -62806-08-21 21:35 J -21218235.72 -21218235.60 -21218235.48 0.0527 0.0161

Mercury -62806-11-19 03:06 J -21218146.46 -21218146.37 -21218146.28 0.0526 0.0348

Earth -62804-08-18 10:33 J -21217508.22 -21217508.06 -21217507.88 0.0515 0.0337  
 Moon -62804-08-18 12:28 J -21217508.14 -21217507.98 -21217507.81 0.0515 0.0364 \*  
 Venus -62802-03-14 14:23 J -21216935.10 -21216934.90 -21216934.70 0.0503 0.0015  
 Mercury -62800-10-10 11:30 J -21215994.20 -21215994.02 -21215993.84 0.0499 0.0116  
 Moon -62797-03-01 14:52 J -21215120.99 -21215120.88 -21215120.78 0.0514 0.0461  
 Earth -62797-03-01 16:04 J -21215120.93 -21215120.83 -21215120.71 0.0514 0.0455 \*  
 Mercury -62794-06-10 01:25 J -21213925.55 -21213925.44 -21213925.34 0.0527 0.0297  
 Mercury -62794-09-07 06:57 J -21213836.32 -21213836.21 -21213836.09 0.0526 0.0215  
 Moon -62792-08-22 18:57 J -21213120.93 -21213120.71 -21213120.48 0.0514 0.0026  
 Earth -62792-08-22 22:04 J -21213120.81 -21213120.58 -21213120.35 0.0514 0.0034 \*  
 Venus -62791-11-17 15:21 J -21212669.00 -21212668.86 -21212668.71 0.0504 0.0350  
 Mercury -62788-07-29 08:09 J -21211684.35 -21211684.16 -21211683.97 0.0499 0.0050  
 Venus -62784-05-16 04:33 J -21210297.38 -21210297.31 -21210297.24 0.0524 0.0492  
 Mercury -62782-03-29 05:16 J -21209615.35 -21209615.28 -21209615.20 0.0527 0.0428  
 Mercury -62782-06-26 11:16 J -21209526.16 -21209526.03 -21209525.91 0.0527 0.0088  
 Earth -62780-08-27 12:13 J -21208733.18 -21208732.99 -21208732.80 0.0513 0.0275  
 Moon -62780-08-27 16:04 J -21208733.01 -21208732.83 -21208732.65 0.0513 0.0306 \*  
 Mercury -62776-05-17 04:18 J -21207374.48 -21207374.32 -21207374.15 0.0498 0.0222  
 Mercury -62776-08-15 15:35 J -21207283.93 -21207283.85 -21207283.77 0.0499 0.0444  
 Venus -62772-01-18 17:30 J -21206031.97 -21206031.77 -21206031.56 0.0523 0.0062  
 Mercury -62770-04-14 15:21 J -21205215.99 -21205215.86 -21205215.74 0.0527 0.0044  
 Mercury -62770-07-12 20:52 J -21205126.69 -21205126.63 -21205126.58 0.0527 0.0466  
 Venus -62767-11-20 01:11 J -21203900.62 -21203900.45 -21203900.26 0.0502 0.0226  
 Mercury -62764-03-05 00:57 J -21203064.57 -21203064.46 -21203064.34 0.0498 0.0388  
 Mercury -62764-06-03 11:59 J -21202974.15 -21202974.00 -21202973.84 0.0499 0.0275  
 Venus -62761-09-23 09:06 J -21201766.27 -21201766.12 -21201765.97 0.0522 0.0354  
 Mercury -62758-01-31 19:25 J -21200905.81 -21200905.69 -21200905.57 0.0527 0.0172  
 Mercury -62758-05-01 01:11 J -21200816.55 -21200816.45 -21200816.36 0.0526 0.0340  
 Venus -62755-07-26 00:57 J -21199634.65 -21199634.46 -21199634.27 0.0504 0.0145  
 Mercury -62752-03-22 08:09 J -21198664.34 -21198664.16 -21198663.97 0.0499 0.0104

Mercury -62747-11-19 23:45 J -21196595.62 -21196595.51 -21196595.41 0.0527 0.0300

Mercury -62746-02-17 05:16 J -21196506.39 -21196506.28 -21196506.16 0.0526 0.0213

Mercury -62740-01-08 05:01 J -21194354.48 -21194354.29 -21194354.11 0.0499 0.0063

Earth -62738-02-19 18:13 J -21193581.95 -21193581.74 -21193581.53 0.0511 0.0242

Moon -62738-02-19 21:35 J -21193581.80 -21193581.60 -21193581.39 0.0511 0.0255 \*

Venus -62737-09-26 10:04 J -21192997.24 -21192997.08 -21192996.91 0.0523 0.0306

Mercury -62735-09-08 03:21 J -21192285.43 -21192285.36 -21192285.29 0.0527 0.0436

Mercury -62735-12-06 09:06 J -21192196.24 -21192196.12 -21192195.99 0.0527 0.0079

Venus -62731-07-28 08:52 J -21190866.24 -21190866.13 -21190866.02 0.0502 0.0418

Mercury -62729-10-27 01:40 J -21190044.59 -21190044.43 -21190044.26 0.0499 0.0228

Mercury -62728-01-25 12:57 J -21189954.04 -21189953.96 -21189953.87 0.0499 0.0440

Moon -62726-02-24 12:42 J -21189194.21 -21189193.97 -21189193.72 0.0512 0.0045

Earth -62726-02-24 14:52 J -21189194.12 -21189193.88 -21189193.64 0.0512 0.0075 \*

Venus -62725-06-01 00:28 J -21188731.68 -21188731.48 -21188731.28 0.0522 0.0117

Mercury -62723-09-24 13:11 J -21187886.07 -21187885.95 -21187885.82 0.0527 0.0054

Mercury -62723-12-22 18:42 J -21187796.78 -21187796.72 -21187796.66 0.0526 0.0456

Moon -62721-08-17 07:40 J -21187193.31 -21187193.18 -21187193.05 0.0515 0.0418

Earth -62721-08-17 10:33 J -21187193.20 -21187193.06 -21187192.91 0.0515 0.0391 \*

Venus -62719-04-02 11:01 J -21186600.24 -21186600.04 -21186599.84 0.0503 0.0062

Mercury -62717-08-14 22:18 J -21185734.68 -21185734.57 -21185734.46 0.0498 0.0395

Mercury -62717-11-13 09:06 J -21185644.27 -21185644.12 -21185643.96 0.0499 0.0267

Earth -62714-03-01 08:37 J -21184806.30 -21184806.14 -21184805.99 0.0513 0.0385

Moon -62714-03-01 08:52 J -21184806.27 -21184806.13 -21184805.98 0.0513 0.0395 \*

Mars -62712-01-01 16:47 J -21184134.01 -21184133.80 -21184133.58 0.0526 0.0320

Mercury -62711-07-13 17:16 J -21183575.90 -21183575.78 -21183575.66 0.0528 0.0184

Mercury -62711-10-10 23:01 J -21183486.64 -21183486.54 -21183486.45 0.0527 0.0328

Earth -62709-08-22 00:28 J -21182805.70 -21182805.48 -21182805.25 0.0514 0.0082

Moon -62709-08-22 04:18 J -21182805.54 -21182805.32 -21182805.09 0.0514 0.0062 \*

Venus -62708-12-06 12:42 J -21182334.13 -21182333.97 -21182333.81 0.0504 0.0299

Mercury -62705-09-01 05:45 J -21181334.45 -21181334.26 -21181334.08 0.0498 0.0098

Mercury -62699-05-01 21:21 J -21179265.71 -21179265.61 -21179265.50 0.0528 0.0313

Mercury -62699-07-30 03:06 J -21179176.48 -21179176.37 -21179176.25 0.0527 0.0202

Moon -62697-08-26 07:11 J -21178418.39 -21178418.20 -21178417.99 0.0513 0.0250

Earth -62697-08-26 11:01 J -21178418.24 -21178418.04 -21178417.83 0.0513 0.0219 \*

Mars -62695-09-29 15:49 J -21177654.11 -21177653.84 -21177653.56 0.0499 0.0114

Mercury -62693-06-20 01:40 J -21177024.61 -21177024.43 -21177024.24 0.0499 0.0076

Venus -62689-02-07 15:35 J -21175697.05 -21175696.85 -21175696.65 0.0523 0.0119

Mercury -62687-02-18 01:40 J -21174955.50 -21174955.43 -21174955.36 0.0527 0.0440

Mercury -62687-05-18 07:25 J -21174866.31 -21174866.19 -21174866.06 0.0527 0.0076

Venus -62684-12-08 18:28 J -21173565.90 -21173565.73 -21173565.55 0.0502 0.0257

Mercury -62681-04-07 22:33 J -21172714.73 -21172714.56 -21172714.40 0.0499 0.0241

Mercury -62681-07-07 09:49 J -21172624.19 -21172624.09 -21172624.00 0.0499 0.0427

Venus -62678-10-13 06:13 J -21171431.41 -21171431.24 -21171431.07 0.0521 0.0303

Mars -62677-10-07 11:45 J -21171071.21 -21171071.01 -21171070.80 0.0526 0.0325

Mercury -62675-03-06 11:16 J -21170556.15 -21170556.03 -21170555.90 0.0527 0.0061

Mercury -62675-06-03 16:47 J -21170466.86 -21170466.80 -21170466.74 0.0526 0.0448

Venus -62672-08-13 19:40 J -21169299.88 -21169299.68 -21169299.48 0.0504 0.0107

Mercury -62669-01-25 19:25 J -21168404.80 -21168404.69 -21168404.58 0.0498 0.0404

Mercury -62669-04-25 06:28 J -21168314.39 -21168314.23 -21168314.07 0.0499 0.0260

Mercury -62664-12-23 15:21 J -21166245.98 -21166245.86 -21166245.74 0.0527 0.0192

Mercury -62663-03-22 20:52 J -21166156.73 -21166156.63 -21166156.53 0.0526 0.0320

Venus -62660-04-18 22:04 J -21165033.66 -21165033.58 -21165033.51 0.0505 0.0464

Mars -62659-07-05 10:04 J -21164591.17 -21164591.08 -21164590.98 0.0499 0.0471

Mercury -62657-02-12 02:52 J -21164004.56 -21164004.38 -21164004.19 0.0498 0.0091

Moon -62655-02-18 09:06 J -21163267.30 -21163267.12 -21163266.93 0.0510 0.0324

Earth -62655-02-18 11:59 J -21163267.19 -21163267.00 -21163266.81 0.0510 0.0308 \*

Venus -62654-10-16 03:06 J -21162662.52 -21162662.37 -21162662.21 0.0523 0.0339

Mercury -62652-10-11 19:11 J -21161935.80 -21161935.70 -21161935.60 0.0528 0.0326

Mercury -62651-01-09 00:57 J -21161846.58 -21161846.46 -21161846.34 0.0527 0.0189

Venus -62648-08-16 05:30 J -21160531.34 -21160531.27 -21160531.19 0.0502 0.0466

Mercury -62646-11-30 23:30 J -21159694.71 -21159694.52 -21159694.34 0.0498 0.0077  
 Earth -62643-02-23 09:06 J -21158879.36 -21158879.12 -21158878.88 0.0512 0.0010  
 Moon -62643-02-23 10:04 J -21158879.31 -21158879.08 -21158878.85 0.0512 0.0018 \*  
 Venus -62642-06-20 18:42 J -21158396.92 -21158396.72 -21158396.51 0.0522 0.0078  
 Mercury -62640-07-30 23:30 J -21157625.58 -21157625.52 -21157625.46 0.0528 0.0453  
 Mercury -62640-10-28 05:16 J -21157536.40 -21157536.28 -21157536.15 0.0527 0.0064  
 Earth -62638-08-17 09:21 J -21156878.22 -21156878.11 -21156877.99 0.0516 0.0447  
 Moon -62638-08-17 13:11 J -21156878.04 -21156877.95 -21156877.86 0.0516 0.0468 \*  
 Venus -62636-04-21 04:47 J -21156265.50 -21156265.30 -21156265.10 0.0503 0.0096  
 Mercury -62634-09-18 19:11 J -21155384.85 -21155384.70 -21155384.53 0.0498 0.0253  
 Mercury -62634-12-18 06:28 J -21155294.33 -21155294.23 -21155294.12 0.0499 0.0416  
 Earth -62631-02-28 08:09 J -21154491.34 -21154491.16 -21154490.98 0.0513 0.0338  
 Moon -62631-02-28 08:52 J -21154491.30 -21154491.13 -21154490.94 0.0513 0.0350 \*  
 Venus -62630-02-23 11:01 J -21154131.10 -21154131.04 -21154130.96 0.0521 0.0489  
 Mercury -62628-08-16 09:35 J -21153226.22 -21153226.10 -21153225.97 0.0527 0.0065  
 Mercury -62628-11-13 15:06 J -21153136.93 -21153136.87 -21153136.80 0.0526 0.0446  
 Moon -62626-08-21 18:42 J -21152490.94 -21152490.72 -21152490.49 0.0514 0.0121  
 Earth -62626-08-21 22:33 J -21152490.78 -21152490.56 -21152490.34 0.0514 0.0140 \*  
 Venus -62625-12-25 05:59 J -21151999.42 -21151999.25 -21151999.08 0.0504 0.0266  
 Mercury -62622-07-07 16:04 J -21151074.92 -21151074.83 -21151074.72 0.0498 0.0416  
 Mercury -62622-10-06 03:06 J -21150984.53 -21150984.37 -21150984.20 0.0499 0.0249  
 Mercury -62616-06-04 13:25 J -21148916.05 -21148915.94 -21148915.82 0.0527 0.0198  
 Mercury -62616-09-01 19:11 J -21148826.80 -21148826.70 -21148826.60 0.0526 0.0314  
 Earth -62614-08-26 09:21 J -21148103.32 -21148103.11 -21148102.89 0.0513 0.0163  
 Moon -62614-08-26 12:28 J -21148103.19 -21148102.98 -21148102.78 0.0513 0.0194 \*  
 Mercury -62610-07-24 23:59 J -21146674.68 -21146674.50 -21146674.31 0.0499 0.0083  
 Venus -62606-02-26 11:01 J -21145362.24 -21145362.04 -21145361.85 0.0522 0.0163  
 Mercury -62604-03-23 17:30 J -21144605.87 -21144605.77 -21144605.67 0.0527 0.0329  
 Mercury -62604-06-20 23:16 J -21144516.65 -21144516.53 -21144516.41 0.0527 0.0184  
 Moon -62602-08-30 20:52 J -21143715.73 -21143715.63 -21143715.53 0.0512 0.0461

Earth -62602-08-30 22:33 J -21143715.65 -21143715.56 -21143715.47 0.0512 0.0470 \*  
 Venus -62601-12-27 15:06 J -21143231.03 -21143230.87 -21143230.71 0.0503 0.0303  
 Mercury -62598-05-12 20:52 J -21142364.81 -21142364.63 -21142364.45 0.0498 0.0083  
 Venus -62595-10-31 23:59 J -21141096.68 -21141096.50 -21141096.32 0.0521 0.0265  
 Mercury -62592-01-09 21:21 J -21140295.67 -21140295.61 -21140295.55 0.0528 0.0464  
 Mercury -62592-04-09 03:21 J -21140206.49 -21140206.36 -21140206.24 0.0527 0.0056  
 Venus -62589-09-01 17:01 J -21138964.99 -21138964.79 -21138964.59 0.0504 0.0055  
 Mercury -62586-02-28 17:30 J -21138054.93 -21138054.77 -21138054.61 0.0498 0.0249  
 Mercury -62586-05-30 04:33 J -21137964.41 -21137964.31 -21137964.20 0.0499 0.0417  
 Mercury -62580-01-26 07:40 J -21135896.31 -21135896.18 -21135896.06 0.0527 0.0073  
 Mercury -62580-04-25 13:11 J -21135807.02 -21135806.95 -21135806.88 0.0526 0.0438  
 Venus -62577-05-07 16:33 J -21134698.91 -21134698.81 -21134698.70 0.0505 0.0426  
 Mercury -62575-12-17 13:11 J -21133745.04 -21133744.95 -21133744.85 0.0498 0.0425  
 Mercury -62574-03-18 00:13 J -21133654.65 -21133654.49 -21133654.32 0.0499 0.0240  
 Earth -62572-02-17 11:59 J -21132952.17 -21132952.00 -21132951.83 0.0511 0.0354  
 Moon -62572-02-17 13:25 J -21132952.09 -21132951.94 -21132951.78 0.0511 0.0375 \*  
 Venus -62571-11-04 02:09 J -21132327.53 -21132327.41 -21132327.27 0.0523 0.0401  
 Mercury -62569-11-14 11:59 J -21131586.11 -21131586.00 -21131585.88 0.0527 0.0197  
 Mercury -62568-02-11 17:45 J -21131496.86 -21131496.76 -21131496.66 0.0526 0.0315  
 Venus -62565-09-03 23:30 J -21130196.53 -21130196.52 -21130196.50 0.0502 0.0500  
 Mercury -62562-01-03 21:06 J -21129344.81 -21129344.62 -21129344.44 0.0499 0.0074  
 Earth -62560-02-22 10:47 J -21128564.29 -21128564.05 -21128563.81 0.0512 0.0030  
 Moon -62560-02-22 11:01 J -21128564.28 -21128564.04 -21128563.79 0.0512 0.0057 \*  
 Venus -62559-07-09 17:45 J -21128061.96 -21128061.76 -21128061.55 0.0522 0.0019  
 Mars -62558-03-28 06:57 J -21127800.47 -21127800.21 -21127799.95 0.0526 0.0143  
 Mercury -62557-09-02 16:04 J -21127275.93 -21127275.83 -21127275.73 0.0527 0.0330  
 Mercury -62557-11-30 21:35 J -21127186.71 -21127186.60 -21127186.48 0.0526 0.0184  
 Earth -62555-08-16 09:06 J -21126563.16 -21126563.12 -21126563.06 0.0516 0.0502  
 Venus -62553-05-10 00:42 J -21125930.67 -21125930.47 -21125930.28 0.0503 0.0139  
 Mercury -62551-10-22 17:59 J -21125034.93 -21125034.75 -21125034.56 0.0499 0.0091



Moon -62548-02-27 06:13 J -21124176.42 -21124176.24 -21124176.06 0.0513 0.0310  
 Earth -62548-02-27 08:37 J -21124176.33 -21124176.14 -21124175.95 0.0513 0.0293 \*  
 Venus -62547-03-14 08:23 J -21123796.26 -21123796.15 -21123796.04 0.0521 0.0436  
 Mercury -62545-06-21 19:54 J -21122965.73 -21122965.67 -21122965.61 0.0527 0.0463  
 Mercury -62545-09-19 01:40 J -21122876.55 -21122876.43 -21122876.30 0.0527 0.0055  
 Earth -62543-08-20 23:16 J -21122175.74 -21122175.53 -21122175.32 0.0515 0.0191  
 Moon -62543-08-21 02:23 J -21122175.62 -21122175.40 -21122175.19 0.0515 0.0169 \*  
 Venus -62541-01-14 03:06 J -21121664.55 -21121664.37 -21121664.19 0.0504 0.0217  
 Mars -62541-12-23 00:28 J -21121320.76 -21121320.48 -21121320.20 0.0500 0.0047  
 Mercury -62539-08-10 15:06 J -21120725.03 -21120724.87 -21120724.71 0.0498 0.0252  
 Mercury -62539-11-09 02:23 J -21120634.50 -21120634.40 -21120634.30 0.0499 0.0416  
 Mercury -62533-07-08 05:45 J -21118566.39 -21118566.26 -21118566.13 0.0527 0.0079  
 Mercury -62533-10-05 11:16 J -21118477.10 -21118477.03 -21118476.96 0.0526 0.0431  
 Moon -62531-08-25 11:16 J -21117788.25 -21117788.03 -21117787.80 0.0514 0.0148  
 Earth -62531-08-25 13:11 J -21117788.17 -21117787.95 -21117787.73 0.0514 0.0122 \*  
 Mercury -62527-05-29 11:59 J -21116415.10 -21116415.00 -21116414.90 0.0498 0.0416  
 Mercury -62527-08-27 23:01 J -21116324.70 -21116324.54 -21116324.38 0.0499 0.0248  
 Venus -62523-03-17 07:40 J -21115027.37 -21115027.18 -21115026.99 0.0523 0.0214  
 Mars -62523-12-31 17:59 J -21114737.85 -21114737.75 -21114737.62 0.0527 0.0476  
 Mercury -62521-04-26 10:04 J -21114256.19 -21114256.08 -21114255.96 0.0527 0.0205  
 Mercury -62521-07-24 15:49 J -21114166.94 -21114166.84 -21114166.74 0.0527 0.0309  
 Moon -62519-08-30 00:57 J -21113400.59 -21113400.46 -21113400.34 0.0512 0.0415  
 Earth -62519-08-30 00:57 J -21113400.58 -21113400.46 -21113400.33 0.0512 0.0428 \*  
 Venus -62517-01-16 10:33 J -21112896.20 -21112896.06 -21112895.91 0.0502 0.0343  
 Mercury -62515-06-15 18:28 J -21112014.91 -21112014.73 -21112014.54 0.0499 0.0069  
 Venus -62512-11-20 00:13 J -21110761.68 -21110761.49 -21110761.30 0.0522 0.0200  
 Mercury -62509-02-13 14:37 J -21109945.98 -21109945.89 -21109945.79 0.0527 0.0327  
 Mercury -62509-05-12 20:23 J -21109856.77 -21109856.65 -21109856.53 0.0527 0.0188  
 Venus -62506-09-21 12:13 J -21108630.19 -21108629.99 -21108629.78 0.0503 0.0019  
 Mercury -62503-04-03 15:21 J -21107705.04 -21107704.86 -21107704.67 0.0499 0.0096

Mercury -62498-12-02 18:42 J -21105635.78 -21105635.72 -21105635.66 0.0527 0.0459

Mercury -62497-03-01 00:28 J -21105546.60 -21105546.48 -21105546.35 0.0527 0.0057

Venus -62494-05-27 13:40 J -21104364.06 -21104363.93 -21104363.80 0.0505 0.0377

Mercury -62491-01-20 12:42 J -21103395.13 -21103394.97 -21103394.81 0.0499 0.0256

Mercury -62491-04-20 23:59 J -21103304.60 -21103304.50 -21103304.40 0.0499 0.0413

Earth -62489-02-17 15:49 J -21102636.99 -21102636.84 -21102636.69 0.0510 0.0391

Moon -62489-02-17 15:49 J -21102636.99 -21102636.84 -21102636.70 0.0510 0.0412 \*

Venus -62488-11-23 00:57 J -21101992.55 -21101992.46 -21101992.36 0.0523 0.0458

Mercury -62486-12-19 04:33 J -21101236.43 -21101236.31 -21101236.18 0.0527 0.0074

Mercury -62485-03-17 10:04 J -21101147.15 -21101147.08 -21101147.01 0.0526 0.0436

Mercury -62480-11-08 10:04 J -21099085.18 -21099085.08 -21099084.98 0.0498 0.0414

Mercury -62479-02-06 20:52 J -21098994.78 -21098994.63 -21098994.46 0.0499 0.0251

Moon -62477-02-22 10:18 J -21098249.30 -21098249.07 -21098248.85 0.0511 0.0096

Earth -62477-02-22 11:59 J -21098249.23 -21098249.00 -21098248.76 0.0511 0.0074 \*

Venus -62476-07-28 15:06 J -21097727.08 -21097726.87 -21097726.67 0.0522 0.0036

Mercury -62474-10-07 08:37 J -21096926.26 -21096926.14 -21096926.03 0.0527 0.0207

Mercury -62473-01-04 14:09 J -21096837.01 -21096836.91 -21096836.81 0.0527 0.0307

Venus -62470-05-29 23:59 J -21095595.68 -21095595.50 -21095595.31 0.0503 0.0200

Mercury -62468-11-25 17:45 J -21094684.94 -21094684.76 -21094684.57 0.0499 0.0085

Earth -62465-02-27 09:49 J -21093861.29 -21093861.09 -21093860.88 0.0512 0.0250

Moon -62465-02-27 13:40 J -21093861.13 -21093860.93 -21093860.73 0.0512 0.0275 \*

Venus -62464-04-02 06:42 J -21093461.36 -21093461.22 -21093461.08 0.0521 0.0378

Mercury -62462-07-26 12:57 J -21092616.05 -21092615.96 -21092615.86 0.0527 0.0330

Mercury -62462-10-23 18:42 J -21092526.83 -21092526.72 -21092526.60 0.0527 0.0186

Moon -62460-08-20 02:37 J -21091860.60 -21091860.39 -21091860.17 0.0515 0.0203

Earth -62460-08-20 04:47 J -21091860.51 -21091860.30 -21091860.10 0.0515 0.0225 \*

Venus -62458-02-02 00:28 J -21091329.67 -21091329.48 -21091329.29 0.0504 0.0168

Mercury -62456-09-13 13:25 J -21090375.13 -21090374.94 -21090374.76 0.0499 0.0096

Mercury -62450-05-14 17:45 J -21088305.83 -21088305.76 -21088305.70 0.0527 0.0452

Mercury -62450-08-11 23:30 J -21088216.65 -21088216.52 -21088216.39 0.0527 0.0065

Earth -62448-08-24 19:11 J -21087472.93 -21087472.70 -21087472.48 0.0513 0.0089  
 Moon -62448-08-24 18:57 J -21087472.92 -21087472.71 -21087472.49 0.0513 0.0108 \*  
 Mercury -62444-07-02 10:18 J -21086065.22 -21086065.07 -21086064.90 0.0499 0.0258  
 Mercury -62444-09-30 21:35 J -21085974.70 -21085974.60 -21085974.49 0.0499 0.0413  
 Venus -62440-04-05 09:35 J -21084692.26 -21084692.10 -21084691.92 0.0523 0.0287  
 Mercury -62438-05-31 03:35 J -21083906.47 -21083906.35 -21083906.22 0.0527 0.0065  
 Mercury -62438-08-28 09:06 J -21083817.18 -21083817.12 -21083817.05 0.0526 0.0444  
 Earth -62436-08-29 06:42 J -21083085.36 -21083085.22 -21083085.07 0.0512 0.0394  
 Moon -62436-08-29 09:06 J -21083085.28 -21083085.12 -21083084.96 0.0512 0.0370 \*  
 Venus -62434-02-04 09:21 J -21082561.23 -21082561.11 -21082560.98 0.0502 0.0399  
 Mercury -62432-04-20 07:54 J -21081755.27 -21081755.17 -21081755.07 0.0499 0.0416  
 Mercury -62432-07-19 18:57 J -21081664.87 -21081664.71 -21081664.55 0.0499 0.0251  
 Venus -62429-12-09 01:11 J -21080426.65 -21080426.45 -21080426.25 0.0522 0.0130  
 Mercury -62426-03-19 07:40 J -21079596.29 -21079596.18 -21079596.06 0.0527 0.0196  
 Mercury -62426-06-16 13:25 J -21079507.04 -21079506.94 -21079506.84 0.0526 0.0317  
 Venus -62423-10-10 11:59 J -21078295.21 -21078295.00 -21078294.80 0.0504 0.0046  
 Mars -62422-06-13 07:40 J -21078049.38 -21078049.18 -21078048.97 0.0500 0.0336  
 Mercury -62420-05-07 16:18 J -21077355.01 -21077354.82 -21077354.64 0.0499 0.0091  
 Mercury -62414-01-05 11:45 J -21075286.11 -21075286.01 -21075285.91 0.0527 0.0328  
 Mercury -62414-04-04 17:30 J -21075196.89 -21075196.77 -21075196.65 0.0527 0.0188  
 Venus -62411-06-15 14:23 J -21074029.06 -21074028.90 -21074028.74 0.0505 0.0311  
 Mercury -62408-02-23 13:11 J -21073045.13 -21073044.95 -21073044.77 0.0499 0.0074  
 Moon -62406-02-16 19:11 J -21072321.80 -21072321.70 -21072321.59 0.0510 0.0451  
 Earth -62406-02-16 20:37 J -21072321.77 -21072321.64 -21072321.51 0.0510 0.0425 \*  
 Mars -62404-06-21 07:54 J -21071466.44 -21071466.17 -21071465.91 0.0526 0.0060  
 Mercury -62403-10-24 16:18 J -21070975.89 -21070975.82 -21070975.76 0.0528 0.0451  
 Mercury -62402-01-21 22:04 J -21070886.70 -21070886.58 -21070886.45 0.0527 0.0067  
 Mercury -62397-12-12 08:37 J -21068735.29 -21068735.14 -21068734.97 0.0499 0.0254  
 Mercury -62396-03-12 19:54 J -21068644.77 -21068644.67 -21068644.57 0.0499 0.0417  
 Earth -62394-02-21 16:47 J -21067934.03 -21067933.80 -21067933.57 0.0511 0.0105

Moon -62394-02-21 20:09 J -21067933.89 -21067933.66 -21067933.42 0.0511 0.0118 \*  
 Venus -62393-08-16 17:59 J -21067391.95 -21067391.75 -21067391.55 0.0523 0.0112  
 Mercury -62391-11-10 02:52 J -21066576.51 -21066576.38 -21066576.26 0.0527 0.0054  
 Mercury -62390-02-07 08:23 J -21066487.21 -21066487.15 -21066487.09 0.0526 0.0457  
 Venus -62387-06-17 22:47 J -21065260.72 -21065260.55 -21065260.37 0.0502 0.0253  
 Mars -62386-03-18 19:40 J -21064986.93 -21064986.68 -21064986.43 0.0499 0.0235  
 Mercury -62385-09-30 05:59 J -21064425.35 -21064425.25 -21064425.14 0.0499 0.0413  
 Mercury -62385-12-29 17:01 J -21064334.95 -21064334.79 -21064334.63 0.0499 0.0254  
 Moon -62382-02-26 13:11 J -21063546.16 -21063545.95 -21063545.74 0.0513 0.0255  
 Earth -62382-02-26 17:16 J -21063545.99 -21063545.78 -21063545.57 0.0513 0.0226 \*  
 Venus -62381-04-21 10:04 J -21063126.24 -21063126.08 -21063125.91 0.0521 0.0301  
 Mercury -62379-08-29 06:57 J -21062266.32 -21062266.21 -21062266.09 0.0527 0.0183  
 Mercury -62379-11-26 12:28 J -21062177.07 -21062176.98 -21062176.88 0.0526 0.0330  
 Earth -62377-08-19 13:11 J -21061545.14 -21061544.95 -21061544.75 0.0515 0.0255  
 Moon -62377-08-19 13:11 J -21061545.14 -21061544.95 -21061544.75 0.0515 0.0230 \*  
 Venus -62375-02-21 00:42 J -21060994.67 -21060994.47 -21060994.28 0.0504 0.0106  
 Mercury -62373-10-17 14:23 J -21060025.08 -21060024.90 -21060024.72 0.0499 0.0094  
 Mercury -62367-06-17 11:01 J -21057956.14 -21057956.04 -21057955.93 0.0527 0.0313  
 Mercury -62367-09-14 16:47 J -21057866.91 -21057866.80 -21057866.68 0.0526 0.0203  
 Earth -62365-08-24 02:52 J -21057157.61 -21057157.38 -21057157.15 0.0514 0.0059  
 Moon -62365-08-24 05:16 J -21057157.52 -21057157.28 -21057157.05 0.0514 0.0069 \*  
 Venus -62364-10-27 02:52 J -21056728.45 -21056728.38 -21056728.29 0.0505 0.0462  
 Mercury -62361-08-05 11:59 J -21055715.19 -21055715.00 -21055714.82 0.0499 0.0066  
 Venus -62357-04-24 10:33 J -21054357.21 -21054357.06 -21054356.91 0.0523 0.0355  
 Mercury -62355-04-05 15:06 J -21053645.94 -21053645.87 -21053645.80 0.0527 0.0445  
 Mercury -62355-07-03 20:52 J -21053556.75 -21053556.63 -21053556.50 0.0527 0.0074  
 Moon -62353-08-28 13:40 J -21052770.10 -21052769.93 -21052769.76 0.0513 0.0344  
 Earth -62353-08-28 17:01 J -21052769.94 -21052769.79 -21052769.63 0.0513 0.0373 \*  
 Venus -62351-02-23 11:16 J -21052226.09 -21052226.03 -21052225.95 0.0502 0.0470  
 Mercury -62349-05-24 09:06 J -21051405.29 -21051405.12 -21051404.96 0.0499 0.0227

Mercury -62349-08-22 20:09 J -21051314.74 -21051314.66 -21051314.57 0.0499 0.0443  
 Venus -62346-12-29 02:52 J -21050091.59 -21050091.38 -21050091.18 0.0522 0.0058  
 Mercury -62343-04-22 01:40 J -21049246.56 -21049246.43 -21049246.31 0.0527 0.0049  
 Mercury -62343-07-20 07:11 J -21049157.26 -21049157.20 -21049157.14 0.0526 0.0462  
 Venus -62340-10-29 12:13 J -21047960.18 -21047959.99 -21047959.79 0.0503 0.0107  
 Mercury -62337-03-12 04:47 J -21047095.41 -21047095.30 -21047095.20 0.0498 0.0405  
 Mercury -62337-06-10 15:35 J -21047005.01 -21047004.85 -21047004.69 0.0499 0.0262  
 Venus -62334-09-02 18:28 J -21045825.81 -21045825.73 -21045825.64 0.0521 0.0473  
 Mercury -62331-02-08 06:28 J -21044936.35 -21044936.23 -21044936.11 0.0527 0.0169  
 Mercury -62331-05-08 11:59 J -21044847.09 -21044847.00 -21044846.91 0.0526 0.0345  
 Venus -62328-07-04 15:06 J -21043694.05 -21043693.87 -21043693.70 0.0504 0.0247  
 Mercury -62325-03-29 12:42 J -21042695.15 -21042694.97 -21042694.78 0.0499 0.0100  
 Earth -62323-02-16 04:18 J -21042006.43 -21042006.32 -21042006.21 0.0510 0.0450  
 Moon -62323-02-16 07:25 J -21042006.27 -21042006.19 -21042006.10 0.0510 0.0477 \*  
 Mercury -62320-11-27 10:33 J -21040626.16 -21040626.06 -21040625.95 0.0527 0.0297  
 Mercury -62319-02-24 16:18 J -21040536.93 -21040536.82 -21040536.71 0.0526 0.0218  
 Mercury -62313-01-16 10:18 J -21038385.25 -21038385.07 -21038384.88 0.0499 0.0059  
 Moon -62311-02-21 00:28 J -21037618.71 -21037618.48 -21037618.25 0.0511 0.0130  
 Earth -62311-02-21 04:18 J -21037618.55 -21037618.32 -21037618.08 0.0511 0.0122 \*  
 Venus -62310-09-05 21:49 J -21037056.77 -21037056.59 -21037056.39 0.0523 0.0196  
 Mercury -62308-09-15 14:52 J -21036315.96 -21036315.88 -21036315.81 0.0527 0.0427  
 Mercury -62308-12-13 20:37 J -21036226.77 -21036226.64 -21036226.52 0.0526 0.0091  
 Venus -62304-07-07 00:28 J -21034925.63 -21034925.48 -21034925.32 0.0503 0.0323  
 Mercury -62302-11-04 07:54 J -21034075.34 -21034075.17 -21034075.00 0.0499 0.0216  
 Mercury -62301-02-02 19:11 J -21033984.77 -21033984.70 -21033984.63 0.0499 0.0456  
 Earth -62299-02-26 02:37 J -21033230.60 -21033230.39 -21033230.17 0.0512 0.0207  
 Moon -62299-02-26 06:13 J -21033230.44 -21033230.24 -21033230.03 0.0512 0.0240 \*  
 Venus -62298-05-11 12:28 J -21032791.16 -21032790.98 -21032790.79 0.0521 0.0224  
 Mercury -62296-10-02 00:42 J -21031916.60 -21031916.47 -21031916.34 0.0527 0.0041  
 Mercury -62296-12-30 06:13 J -21031827.30 -21031827.24 -21031827.19 0.0526 0.0470

Earth -62294-08-20 00:13 J -21031229.68 -21031229.49 -21031229.29 0.0515 0.0276  
 Moon -62294-08-20 02:37 J -21031229.60 -21031229.39 -21031229.19 0.0515 0.0246 \*  
 Venus -62292-03-12 03:21 J -21030659.56 -21030659.36 -21030659.16 0.0504 0.0032  
 Mercury -62290-08-23 05:01 J -21029765.40 -21029765.29 -21029765.16 0.0498 0.0377  
 Mercury -62290-11-21 16:04 J -21029674.98 -21029674.83 -21029674.67 0.0499 0.0292  
 Mars -62286-12-11 05:16 J -21028194.48 -21028194.28 -21028194.07 0.0526 0.0331  
 Mercury -62284-07-21 05:16 J -21027606.40 -21027606.28 -21027606.16 0.0527 0.0162  
 Mercury -62284-10-18 10:47 J -21027517.14 -21027517.05 -21027516.95 0.0526 0.0353  
 Moon -62282-08-24 12:28 J -21026842.20 -21026841.98 -21026841.75 0.0514 0.0052  
 Earth -62282-08-24 16:04 J -21026842.06 -21026841.83 -21026841.60 0.0514 0.0048 \*  
 Venus -62281-11-15 05:01 J -21026393.41 -21026393.29 -21026393.16 0.0504 0.0392  
 Mercury -62278-09-09 11:45 J -21025365.19 -21025365.01 -21025364.83 0.0499 0.0110  
 Venus -62274-05-14 14:52 J -21024021.99 -21024021.88 -21024021.77 0.0524 0.0437  
 Mercury -62272-05-09 10:04 J -21023296.19 -21023296.08 -21023295.97 0.0527 0.0282  
 Mercury -62272-08-06 15:49 J -21023206.96 -21023206.84 -21023206.73 0.0527 0.0234  
 Earth -62270-08-29 07:11 J -21022454.35 -21022454.20 -21022454.03 0.0512 0.0365  
 Moon -62270-08-29 11:16 J -21022454.20 -21022454.03 -21022453.85 0.0512 0.0333 \*  
 Mars -62268-09-06 21:06 J -21021714.89 -21021714.62 -21021714.35 0.0499 0.0102  
 Mercury -62266-06-28 08:52 J -21021055.31 -21021055.13 -21021054.94 0.0499 0.0052  
 Venus -62262-01-17 07:40 J -21019756.39 -21019756.18 -21019755.97 0.0523 0.0028  
 Mercury -62260-02-25 14:23 J -21018985.98 -21018985.90 -21018985.82 0.0527 0.0410  
 Mercury -62260-05-25 20:09 J -21018896.78 -21018896.66 -21018896.54 0.0527 0.0108  
 Venus -62257-11-17 14:23 J -21017625.08 -21017624.90 -21017624.71 0.0503 0.0179  
 Mercury -62254-04-16 06:28 J -21016745.39 -21016745.23 -21016745.06 0.0499 0.0209  
 Mercury -62254-07-15 17:45 J -21016654.82 -21016654.76 -21016654.69 0.0500 0.0464  
 Venus -62251-09-21 23:30 J -21015490.65 -21015490.52 -21015490.38 0.0521 0.0384  
 Mars -62250-09-16 14:23 J -21015131.10 -21015130.90 -21015130.70 0.0526 0.0348  
 Mercury -62248-03-14 00:28 J -21014586.61 -21014586.48 -21014586.36 0.0527 0.0025  
 Mercury -62248-06-11 05:45 J -21014497.30 -21014497.26 -21014497.21 0.0526 0.0490  
 Venus -62245-07-23 17:01 J -21013358.97 -21013358.79 -21013358.60 0.0504 0.0176

Mercury -62242-02-02 04:04 J -21012435.45 -21012435.33 -21012435.20 0.0499 0.0365  
 Mercury -62242-05-03 15:06 J -21012345.01 -21012344.87 -21012344.72 0.0499 0.0305  
 Moon -62240-02-15 11:59 J -21011691.04 -21011691.00 -21011690.95 0.0510 0.0498  
 Earth -62240-02-15 16:04 J -21011690.92 -21011690.83 -21011690.74 0.0510 0.0465  
 Mercury -62237-12-31 04:18 J -21010276.44 -21010276.32 -21010276.19 0.0527 0.0153  
 Mercury -62236-03-30 10:04 J -21010187.17 -21010187.08 -21010186.99 0.0526 0.0362  
 Mars -62232-06-12 19:40 J -21008651.72 -21008651.68 -21008651.63 0.0499 0.0492  
 Mercury -62230-02-19 12:13 J -21008035.17 -21008034.99 -21008034.81 0.0499 0.0142  
 Earth -62228-02-20 13:54 J -21007303.15 -21007302.92 -21007302.69 0.0511 0.0143  
 Moon -62228-02-20 17:30 J -21007302.99 -21007302.77 -21007302.54 0.0511 0.0143 \*  
 Venus -62227-09-25 00:57 J -21006721.63 -21006721.46 -21006721.28 0.0523 0.0274  
 Mercury -62225-10-19 09:06 J -21005966.23 -21005966.12 -21005966.02 0.0527 0.0274  
 Mercury -62224-01-16 14:37 J -21005877.00 -21005876.89 -21005876.77 0.0527 0.0243  
 Venus -62221-07-26 02:52 J -21004590.50 -21004590.38 -21004590.25 0.0502 0.0392  
 Mercury -62219-12-08 07:54 J -21003725.35 -21003725.17 -21003724.98 0.0499 0.0039  
 Moon -62216-02-25 06:28 J -21002915.45 -21002915.23 -21002915.01 0.0513 0.0208  
 Earth -62216-02-25 09:06 J -21002915.34 -21002915.12 -21002914.90 0.0513 0.0179 \*  
 Venus -62215-05-30 16:04 J -21002456.03 -21002455.83 -21002455.63 0.0522 0.0145  
 Mercury -62213-08-07 13:40 J -21001656.01 -21001655.93 -21001655.85 0.0528 0.0396  
 Mercury -62213-11-04 19:25 J -21001566.81 -21001566.69 -21001566.56 0.0527 0.0124  
 Moon -62211-08-19 12:57 J -21000914.16 -21000913.96 -21000913.77 0.0515 0.0252  
 Earth -62211-08-19 16:33 J -21000914.00 -21000913.81 -21000913.62 0.0515 0.0282 \*  
 Venus -62209-03-31 05:45 J -21000324.46 -21000324.26 -21000324.06 0.0503 0.0040  
 Mercury -62207-09-26 05:16 J -20999415.45 -20999415.28 -20999415.11 0.0498 0.0200  
 Mercury -62207-12-25 16:18 J -20999324.87 -20999324.82 -20999324.76 0.0499 0.0472  
 Mercury -62201-05-26 17:59 J -20997345.76 -20997345.75 -20997345.74 0.0528 0.0523  
 Mercury -62201-08-23 23:59 J -20997256.63 -20997256.50 -20997256.38 0.0527 0.0016  
 Mercury -62201-11-21 05:16 J -20997167.31 -20997167.28 -20997167.25 0.0526 0.0507  
 Earth -62199-08-24 05:01 J -20996526.52 -20996526.29 -20996526.06 0.0514 0.0032  
 Moon -62199-08-24 09:06 J -20996526.35 -20996526.12 -20996525.89 0.0514 0.0029 \*

Venus -62198-12-05 07:25 J -20996058.34 -20996058.19 -20996058.03 0.0504 0.0318  
 Mercury -62195-07-15 02:52 J -20995105.51 -20995105.38 -20995105.25 0.0499 0.0357  
 Mercury -62195-10-13 13:54 J -20995015.07 -20995014.92 -20995014.78 0.0499 0.0312  
 Mercury -62189-06-12 04:04 J -20992946.45 -20992946.33 -20992946.20 0.0527 0.0133  
 Mercury -62189-09-09 09:35 J -20992857.18 -20992857.10 -20992857.01 0.0526 0.0381  
 Moon -62187-08-28 14:37 J -20992139.07 -20992138.89 -20992138.70 0.0513 0.0310  
 Earth -62187-08-28 18:13 J -20992138.91 -20992138.74 -20992138.57 0.0513 0.0343 \*  
 Mercury -62183-08-01 11:16 J -20990705.21 -20990705.03 -20990704.85 0.0499 0.0153  
 Venus -62179-02-05 10:47 J -20989421.25 -20989421.05 -20989420.84 0.0522 0.0108  
 Mercury -62177-03-31 08:09 J -20988636.27 -20988636.16 -20988636.05 0.0527 0.0265  
 Mercury -62177-06-28 13:54 J -20988547.03 -20988546.92 -20988546.81 0.0526 0.0252  
 Venus -62174-12-07 17:30 J -20987289.94 -20987289.77 -20987289.60 0.0503 0.0254  
 Mercury -62171-05-20 08:23 J -20986395.33 -20986395.15 -20986394.96 0.0499 0.0013  
 Venus -62168-10-11 02:09 J -20985155.57 -20985155.41 -20985155.23 0.0521 0.0307  
 Mercury -62165-01-18 12:42 J -20984326.06 -20984325.97 -20984325.89 0.0528 0.0388  
 Mercury -62165-04-16 18:28 J -20984236.85 -20984236.73 -20984236.61 0.0527 0.0131  
 Venus -62162-08-12 20:09 J -20983023.86 -20983023.66 -20983023.47 0.0503 0.0103  
 Mercury -62159-03-08 04:18 J -20982085.49 -20982085.32 -20982085.15 0.0498 0.0188  
 Mercury -62159-06-06 15:21 J -20981994.90 -20981994.86 -20981994.82 0.0499 0.0483  
 Earth -62157-02-15 20:37 J -20981375.67 -20981375.64 -20981375.59 0.0510 0.0501  
 Mercury -62154-11-06 17:16 J -20980015.81 -20980015.78 -20980015.75 0.0528 0.0512  
 Mercury -62153-02-03 23:16 J -20979926.66 -20979926.53 -20979926.41 0.0527 0.0013  
 Mercury -62153-05-03 04:47 J -20979837.32 -20979837.30 -20979837.29 0.0526 0.0521  
 Venus -62150-04-17 22:47 J -20978757.62 -20978757.55 -20978757.45 0.0504 0.0455  
 Mars -62149-02-27 05:30 J -20978442.41 -20978442.27 -20978442.11 0.0500 0.0421  
 Mercury -62148-12-25 01:40 J -20977775.56 -20977775.43 -20977775.30 0.0498 0.0348  
 Mercury -62147-03-25 12:28 J -20977685.12 -20977684.98 -20977684.84 0.0499 0.0320  
 Moon -62145-02-20 17:45 J -20976987.99 -20976987.76 -20976987.53 0.0511 0.0171  
 Earth -62145-02-20 20:37 J -20976987.87 -20976987.64 -20976987.42 0.0511 0.0172 \*  
 Venus -62144-10-14 04:47 J -20976386.45 -20976386.30 -20976386.15 0.0524 0.0355



Mercury -62142-11-23 03:35 J -20975616.48 -20975616.35 -20975616.23 0.0527 0.0118

Mercury -62141-02-20 09:06 J -20975527.20 -20975527.12 -20975527.04 0.0526 0.0396

Venus -62138-08-15 05:01 J -20974255.36 -20974255.29 -20974255.21 0.0502 0.0462

Mercury -62135-01-11 09:49 J -20973375.27 -20973375.09 -20973374.91 0.0499 0.0160

Earth -62133-02-25 21:21 J -20972599.83 -20972599.61 -20972599.38 0.0512 0.0164

Moon -62133-02-25 22:04 J -20972599.79 -20972599.58 -20972599.37 0.0512 0.0193 \*

Venus -62132-06-18 20:52 J -20972120.83 -20972120.63 -20972120.42 0.0522 0.0057

Mars -62131-03-07 12:57 J -20971859.23 -20971858.96 -20971858.69 0.0526 0.0038

Mercury -62130-09-11 07:40 J -20971306.29 -20971306.18 -20971306.06 0.0527 0.0247

Mercury -62130-12-09 13:25 J -20971217.05 -20971216.94 -20971216.83 0.0526 0.0269

Earth -62128-08-19 02:09 J -20970598.59 -20970598.41 -20970598.23 0.0515 0.0310

Moon -62128-08-19 05:59 J -20970598.43 -20970598.25 -20970598.05 0.0515 0.0279 \*

Venus -62126-04-20 07:11 J -20969989.39 -20969989.20 -20969989.00 0.0503 0.0110

Mercury -62124-10-30 07:11 J -20969065.38 -20969065.20 -20969065.01 0.0499 0.0009

Earth -62121-03-01 20:37 J -20968211.69 -20968211.64 -20968211.58 0.0513 0.0499

Moon -62121-03-01 22:47 J -20968211.61 -20968211.55 -20968211.47 0.0513 0.0489 \*

Venus -62120-02-21 11:45 J -20967855.10 -20967855.01 -20967854.93 0.0521 0.0473

Mercury -62118-06-30 11:45 J -20966996.10 -20966996.01 -20966995.93 0.0527 0.0381

Mercury -62118-09-27 17:30 J -20966906.89 -20966906.77 -20966906.65 0.0527 0.0138

Moon -62116-08-23 12:13 J -20966211.22 -20966210.99 -20966210.76 0.0514 0.0003

Earth -62116-08-23 15:49 J -20966211.07 -20966210.84 -20966210.61 0.0514 0.0009 \*

Venus -62115-12-24 09:49 J -20965723.26 -20965723.09 -20965722.91 0.0504 0.0246

Mars -62114-12-02 20:09 J -20965379.93 -20965379.66 -20965379.40 0.0499 0.0152

Mercury -62112-08-18 04:33 J -20964755.49 -20964755.31 -20964755.14 0.0499 0.0163

Mercury -62106-04-18 16:04 J -20962685.86 -20962685.83 -20962685.80 0.0528 0.0506

Mercury -62106-07-16 22:04 J -20962596.71 -20962596.58 -20962596.45 0.0527 0.0015

Earth -62104-08-28 07:25 J -20961823.35 -20961823.19 -20961823.01 0.0513 0.0332

Moon -62104-08-28 09:35 J -20961823.27 -20961823.10 -20961822.92 0.0513 0.0305 \*

Mercury -62100-06-06 00:28 J -20960445.62 -20960445.48 -20960445.35 0.0498 0.0338

Mercury -62100-09-04 11:01 J -20960355.17 -20960355.04 -20960354.89 0.0499 0.0330

Venus -62096-02-24 12:13 J -20959086.18 -20959085.99 -20959085.79 0.0523 0.0178  
 Mercury -62094-05-05 02:37 J -20958286.51 -20958286.39 -20958286.27 0.0528 0.0109  
 Mercury -62094-08-02 08:23 J -20958197.23 -20958197.15 -20958197.08 0.0527 0.0407  
 Venus -62091-12-26 19:54 J -20956954.82 -20956954.67 -20956954.52 0.0502 0.0324  
 Mercury -62088-06-23 08:09 J -20956045.33 -20956045.16 -20956044.98 0.0499 0.0166  
 Venus -62085-10-30 04:18 J -20954820.50 -20954820.32 -20954820.13 0.0522 0.0234  
 Mercury -62082-02-21 06:57 J -20953976.32 -20953976.21 -20953976.10 0.0528 0.0236  
 Mercury -62082-05-21 12:42 J -20953887.08 -20953886.97 -20953886.87 0.0527 0.0281  
 Venus -62079-08-31 21:21 J -20952688.81 -20952688.61 -20952688.41 0.0503 0.0034  
 Mercury -62076-04-11 05:30 J -20951735.45 -20951735.27 -20951735.08 0.0499 0.0006  
 Mercury -62071-12-10 11:01 J -20949666.13 -20949666.04 -20949665.95 0.0527 0.0366  
 Mercury -62070-03-09 17:01 J -20949576.92 -20949576.79 -20949576.67 0.0527 0.0154  
 Venus -62067-05-06 23:30 J -20948422.65 -20948422.52 -20948422.40 0.0504 0.0390  
 Mercury -62064-01-28 02:52 J -20947425.55 -20947425.38 -20947425.20 0.0499 0.0156  
 Earth -62062-02-20 06:13 J -20946672.46 -20946672.24 -20946672.02 0.0511 0.0194  
 Moon -62062-02-20 07:11 J -20946672.41 -20946672.20 -20946671.98 0.0511 0.0186 \*  
 Venus -62061-11-02 06:28 J -20946051.34 -20946051.23 -20946051.11 0.0523 0.0428  
 Mercury -62059-09-28 14:52 J -20945355.91 -20945355.88 -20945355.84 0.0528 0.0501  
 Mercury -62059-12-26 20:52 J -20945266.76 -20945266.63 -20945266.50 0.0527 0.0020  
 Mercury -62053-11-16 00:13 J -20943115.64 -20943115.49 -20943115.35 0.0498 0.0319  
 Mercury -62052-02-14 11:01 J -20943025.17 -20943025.04 -20943024.91 0.0499 0.0351  
 Earth -62050-02-25 03:49 J -20942284.57 -20942284.34 -20942284.11 0.0512 0.0133  
 Moon -62050-02-25 05:30 J -20942284.50 -20942284.27 -20942284.03 0.0512 0.0159 \*  
 Venus -62049-07-07 21:49 J -20941785.80 -20941785.59 -20941785.39 0.0522 0.0014  
 Mercury -62047-10-15 01:25 J -20940956.57 -20940956.44 -20940956.32 0.0527 0.0107  
 Mercury -62046-01-12 06:57 J -20940867.29 -20940867.21 -20940867.13 0.0527 0.0409  
 Moon -62045-08-18 09:49 J -20940283.28 -20940283.09 -20940282.91 0.0516 0.0304  
 Earth -62045-08-18 13:25 J -20940283.12 -20940282.94 -20940282.77 0.0516 0.0332 \*  
 Venus -62043-05-09 09:06 J -20939654.31 -20939654.12 -20939653.93 0.0502 0.0177  
 Mercury -62041-09-03 20:09 J -20938805.68 -20938805.66 -20938805.63 0.0498 0.0492

Mercury -62041-12-03 06:42 J -20938715.39 -20938715.22 -20938715.04 0.0498 0.0172  
 Moon -62038-03-01 18:13 J -20937896.85 -20937896.74 -20937896.62 0.0513 0.0440  
 Earth -62038-03-01 21:35 J -20937896.70 -20937896.60 -20937896.48 0.0513 0.0454 \*  
 Venus -62037-03-12 10:47 J -20937520.17 -20937520.05 -20937519.92 0.0522 0.0413  
 Mercury -62035-08-03 05:45 J -20936646.37 -20936646.26 -20936646.15 0.0528 0.0232  
 Mercury -62035-10-31 11:30 J -20936557.13 -20936557.02 -20936556.91 0.0527 0.0287  
 Earth -62033-08-23 05:16 J -20935895.51 -20935895.28 -20935895.05 0.0514 0.0012  
 Moon -62033-08-23 07:11 J -20935895.42 -20935895.20 -20935894.98 0.0514 0.0022 \*  
 Venus -62031-01-12 11:59 J -20935388.19 -20935388.00 -20935387.81 0.0503 0.0175  
 Mercury -62029-09-21 03:49 J -20934405.53 -20934405.34 -20934405.16 0.0498 0.0008  
 Mercury -62023-05-22 10:04 J -20932336.18 -20932336.08 -20932335.99 0.0528 0.0361  
 Mercury -62023-08-19 15:49 J -20932246.96 -20932246.84 -20932246.72 0.0527 0.0159  
 Moon -62021-08-27 16:47 J -20931508.00 -20931507.80 -20931507.60 0.0513 0.0277  
 Earth -62021-08-27 16:33 J -20931507.98 -20931507.81 -20931507.62 0.0513 0.0303 \*  
 Mercury -62017-07-10 00:57 J -20930095.64 -20930095.46 -20930095.28 0.0498 0.0156  
 Venus -62013-03-15 14:52 J -20928751.05 -20928750.88 -20928750.70 0.0523 0.0257  
 Mars -62013-08-25 17:45 J -20928587.88 -20928587.76 -20928587.63 0.0526 0.0467  
 Mercury -62011-03-10 14:09 J -20928025.95 -20928025.91 -20928025.87 0.0528 0.0491  
 Mercury -62011-06-07 20:09 J -20927936.79 -20927936.66 -20927936.54 0.0527 0.0034  
 Venus -62007-01-14 18:57 J -20926619.84 -20926619.71 -20926619.58 0.0502 0.0382  
 Mercury -62005-04-27 22:04 J -20925785.72 -20925785.58 -20925785.43 0.0498 0.0317  
 Mercury -62005-07-27 09:06 J -20925695.25 -20925695.12 -20925694.99 0.0499 0.0353  
 Venus -62002-11-19 05:16 J -20924485.47 -20924485.28 -20924485.08 0.0522 0.0164

# 62ND MILLENNIUM BCE

This is a list of transits visible from Jupiter in the 62nd millennium

## BCE.

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-61999-03-26 23:59 J	-20923626.63	-20923626.50	-20923626.38	0.0527	0.0104		
Mercury	-61999-06-24 05:30 J	-20923537.35	-20923537.27	-20923537.19	0.0526	0.0410		
Venus	-61996-09-19 21:21 J	-20922353.82	-20922353.61	-20922353.41	0.0503	0.0029		
Mars	-61995-05-23 15:49 J	-20922108.09	-20922107.84	-20922107.59	0.0500	0.0202		
Mercury	-61993-02-14 19:25 J	-20921475.74	-20921475.69	-20921475.64	0.0498	0.0478		
Mercury	-61993-05-15 05:59 J	-20921385.42	-20921385.25	-20921385.08	0.0499	0.0187		
Mercury	-61987-01-13 04:18 J	-20919316.44	-20919316.32	-20919316.21	0.0528	0.0233		
Mercury	-61987-04-12 10:04 J	-20919227.19	-20919227.08	-20919226.98	0.0527	0.0286		
Venus	-61984-05-26 00:13 J	-20918087.64	-20918087.49	-20918087.34	0.0504	0.0325		
Mercury	-61981-03-03 01:54 J	-20917075.60	-20917075.42	-20917075.23	0.0498	0.0012		
Earth	-61979-02-19 04:47 J	-20916357.50	-20916357.30	-20916357.09	0.0510	0.0249		
Moon	-61979-02-19 05:45 J	-20916357.48	-20916357.26	-20916357.04	0.0510	0.0233	*	
Venus	-61978-11-22 04:18 J	-20915716.40	-20915716.32	-20915716.24	0.0524	0.0481		
Mars	-61977-05-31 13:40 J	-20915525.18	-20915524.93	-20915524.67	0.0527	0.0176		
Mercury	-61976-11-01 08:23 J	-20915006.24	-20915006.15	-20915006.06	0.0528	0.0363		
Mercury	-61975-01-29 14:23 J	-20914917.02	-20914916.90	-20914916.78	0.0528	0.0160		
Mercury	-61970-12-20 22:47 J	-20912765.72	-20912765.55	-20912765.37	0.0498	0.0156		
Moon	-61967-02-24 00:28 J	-20911969.71	-20911969.48	-20911969.26	0.0512	0.0105		
Earth	-61967-02-24 03:21 J	-20911969.59	-20911969.36	-20911969.12	0.0512	0.0081	*	
Venus	-61966-07-27 20:09 J	-20911450.86	-20911450.66	-20911450.45	0.0523	0.0070		
Mercury	-61964-08-20 12:28 J	-20910696.02	-20910695.98	-20910695.93	0.0528	0.0493		
Mercury	-61964-11-17 18:42 J	-20910606.85	-20910606.72	-20910606.60	0.0527	0.0033		
Earth	-61962-08-18 19:40 J	-20909967.83	-20909967.68	-20909967.51	0.0516	0.0372		
Moon	-61962-08-18 22:04 J	-20909967.74	-20909967.58	-20909967.42	0.0516	0.0351	*	
Venus	-61960-05-28 07:40 J	-20909319.36	-20909319.18	-20909319.00	0.0502	0.0233		

Mars -61959-02-25 23:01 J -20909045.73 -20909045.54 -20909045.35 0.0499 0.0357  
 Mercury -61958-10-08 19:54 J -20908455.81 -20908455.67 -20908455.53 0.0498 0.0320  
 Mercury -61957-01-07 06:42 J -20908365.35 -20908365.22 -20908365.09 0.0499 0.0349  
 Earth -61955-03-01 03:35 J -20907581.48 -20907581.35 -20907581.21 0.0513 0.0421  
 Moon -61955-03-01 07:40 J -20907581.32 -20907581.18 -20907581.02 0.0513 0.0403 \*  
 Venus -61954-04-01 12:13 J -20907185.15 -20907184.99 -20907184.84 0.0522 0.0341  
 Mercury -61952-09-05 22:47 J -20906296.67 -20906296.55 -20906296.42 0.0527 0.0099  
 Mercury -61952-12-04 04:18 J -20906207.39 -20906207.32 -20906207.24 0.0526 0.0417  
 Moon -61950-08-23 08:23 J -20905580.38 -20905580.15 -20905579.91 0.0515 0.0075  
 Earth -61950-08-23 08:37 J -20905580.37 -20905580.14 -20905579.91 0.0515 0.0055 \*  
 Venus -61948-01-31 09:21 J -20905053.31 -20905053.11 -20905052.92 0.0503 0.0123  
 Mercury -61946-07-27 17:01 J -20904145.83 -20904145.79 -20904145.74 0.0498 0.0481  
 Mercury -61946-10-26 03:35 J -20904055.52 -20904055.35 -20904055.17 0.0499 0.0184  
 Mercury -61940-06-25 02:37 J -20901986.50 -20901986.39 -20901986.28 0.0527 0.0235  
 Mercury -61940-09-22 08:23 J -20901897.26 -20901897.15 -20901897.05 0.0527 0.0283  
 Moon -61938-08-27 18:42 J -20901192.91 -20901192.72 -20901192.52 0.0514 0.0238  
 Earth -61938-08-27 20:23 J -20901192.85 -20901192.65 -20901192.45 0.0514 0.0259 \*  
 Venus -61937-10-06 11:16 J -20900787.09 -20900787.03 -20900786.97 0.0505 0.0481  
 Mercury -61934-08-14 00:28 J -20899745.66 -20899745.48 -20899745.29 0.0498 0.0019  
 Venus -61930-04-04 12:28 J -20898416.14 -20898415.98 -20898415.81 0.0523 0.0309  
 Mercury -61928-04-13 06:42 J -20897676.31 -20897676.22 -20897676.13 0.0528 0.0366  
 Mercury -61928-07-11 12:42 J -20897587.09 -20897586.97 -20897586.85 0.0527 0.0156  
 Venus -61924-02-02 18:13 J -20896284.83 -20896284.74 -20896284.63 0.0502 0.0439  
 Mercury -61922-06-01 20:37 J -20895435.81 -20895435.64 -20895435.46 0.0498 0.0157  
 Venus -61919-12-08 00:57 J -20894150.66 -20894150.46 -20894150.26 0.0522 0.0120  
 Mercury -61916-01-30 10:47 J -20893366.09 -20893366.05 -20893366.01 0.0529 0.0499  
 Mercury -61916-04-29 16:47 J -20893276.92 -20893276.80 -20893276.67 0.0528 0.0029  
 Venus -61913-10-08 20:37 J -20892018.83 -20892018.64 -20892018.44 0.0503 0.0088  
 Mercury -61910-03-20 17:45 J -20891125.90 -20891125.76 -20891125.62 0.0498 0.0322  
 Mercury -61910-06-19 04:18 J -20891035.45 -20891035.32 -20891035.19 0.0498 0.0345

Mercury -61904-02-15 21:06 J -20888966.75 -20888966.62 -20888966.50 0.0528 0.0103

Mercury -61904-05-16 02:37 J -20888877.46 -20888877.39 -20888877.31 0.0527 0.0414

Venus -61901-06-13 21:06 J -20887752.78 -20887752.62 -20887752.45 0.0504 0.0276

Mercury -61898-01-06 14:23 J -20886815.93 -20886815.90 -20886815.87 0.0498 0.0488

Mercury -61898-04-07 00:57 J -20886725.64 -20886725.46 -20886725.29 0.0498 0.0176

Moon -61896-02-18 05:59 J -20886042.44 -20886042.25 -20886042.05 0.0510 0.0270

Earth -61896-02-18 08:37 J -20886042.34 -20886042.14 -20886041.95 0.0510 0.0290 \*

Mercury -61893-12-05 01:11 J -20884656.56 -20884656.45 -20884656.33 0.0528 0.0234

Mercury -61892-03-04 06:57 J -20884567.31 -20884567.21 -20884567.10 0.0527 0.0285

Mercury -61886-01-23 21:49 J -20882415.78 -20882415.59 -20882415.41 0.0498 0.0011

Earth -61884-02-23 06:13 J -20881654.47 -20881654.24 -20881654.00 0.0511 0.0042

Moon -61884-02-23 10:18 J -20881654.31 -20881654.07 -20881653.83 0.0511 0.0065 \*

Venus -61883-08-15 18:28 J -20881115.92 -20881115.73 -20881115.53 0.0523 0.0126

Mercury -61881-09-23 05:01 J -20880346.38 -20880346.29 -20880346.20 0.0528 0.0372

Mercury -61881-12-21 10:47 J -20880257.17 -20880257.05 -20880256.93 0.0527 0.0150

Moon -61879-08-17 19:40 J -20879652.83 -20879652.68 -20879652.54 0.0516 0.0412

Earth -61879-08-17 20:09 J -20879652.78 -20879652.66 -20879652.53 0.0516 0.0428 \*

Venus -61877-06-16 04:18 J -20878984.48 -20878984.32 -20878984.15 0.0502 0.0280

Mercury -61875-11-11 18:42 J -20878105.90 -20878105.72 -20878105.54 0.0498 0.0156

Moon -61872-02-27 22:47 J -20877266.72 -20877266.55 -20877266.37 0.0512 0.0351

Earth -61872-02-28 02:52 J -20877266.53 -20877266.38 -20877266.21 0.0512 0.0369 \*

Venus -61871-04-20 08:23 J -20876850.32 -20876850.15 -20876849.98 0.0521 0.0293

Mercury -61869-07-12 08:52 J -20876036.16 -20876036.13 -20876036.09 0.0528 0.0505

Mercury -61869-10-09 14:52 J -20875947.00 -20875946.88 -20875946.75 0.0527 0.0027

Moon -61867-08-22 09:49 J -20875265.30 -20875265.09 -20875264.87 0.0515 0.0130

Earth -61867-08-22 11:16 J -20875265.25 -20875265.03 -20875264.80 0.0515 0.0103 \*

Venus -61865-02-20 07:25 J -20874718.39 -20874718.19 -20874717.99 0.0503 0.0072

Mercury -61863-08-30 15:06 J -20873796.01 -20873795.87 -20873795.73 0.0497 0.0326

Mercury -61863-11-29 01:40 J -20873705.56 -20873705.43 -20873705.29 0.0498 0.0341

Mars -61859-11-18 20:23 J -20872254.87 -20872254.65 -20872254.43 0.0526 0.0312

Mercury -61857-07-28 18:57 J -20871636.83 -20871636.71 -20871636.58 0.0528 0.0114  
 Mercury -61857-10-26 00:42 J -20871547.55 -20871547.47 -20871547.39 0.0527 0.0405  
 Earth -61855-08-27 01:25 J -20870877.64 -20870877.44 -20870877.23 0.0514 0.0219  
 Moon -61855-08-27 04:33 J -20870877.53 -20870877.31 -20870877.10 0.0514 0.0199 \*  
 Venus -61854-10-26 09:35 J -20870452.20 -20870452.10 -20870451.99 0.0505 0.0425  
 Mercury -61851-06-18 11:59 J -20869486.02 -20869486.00 -20869485.97 0.0497 0.0491  
 Mercury -61851-09-16 22:18 J -20869395.74 -20869395.57 -20869395.39 0.0498 0.0172  
 Venus -61847-04-23 07:40 J -20868081.33 -20868081.18 -20868081.03 0.0524 0.0351  
 Mercury -61845-05-16 23:16 J -20867326.64 -20867326.53 -20867326.42 0.0528 0.0243  
 Mercury -61845-08-14 05:01 J -20867237.40 -20867237.29 -20867237.18 0.0527 0.0277  
 Venus -61841-02-22 13:54 J -20865949.98 -20865949.92 -20865949.87 0.0502 0.0480  
 Mars -61841-08-16 03:06 J -20865774.65 -20865774.37 -20865774.09 0.0499 0.0039  
 Mercury -61839-07-05 18:42 J -20865085.90 -20865085.72 -20865085.53 0.0498 0.0004  
 Venus -61836-12-26 23:30 J -20863815.72 -20863815.52 -20863815.31 0.0522 0.0061  
 Mercury -61833-03-05 03:21 J -20863016.45 -20863016.36 -20863016.27 0.0528 0.0373  
 Mercury -61833-06-02 09:21 J -20862927.23 -20862927.11 -20862926.99 0.0527 0.0149  
 Venus -61830-10-28 15:06 J -20861684.07 -20861683.87 -20861683.67 0.0503 0.0124  
 Mercury -61827-04-23 15:35 J -20860776.02 -20860775.85 -20860775.67 0.0498 0.0166  
 Venus -61824-08-31 13:54 J -20859550.00 -20859549.92 -20859549.84 0.0521 0.0476  
 Mars -61823-08-25 02:23 J -20859191.60 -20859191.40 -20859191.20 0.0527 0.0351  
 Mercury -61822-12-23 06:57 J -20858706.23 -20858706.21 -20858706.18 0.0528 0.0512  
 Mercury -61821-03-21 12:57 J -20858617.08 -20858616.96 -20858616.83 0.0527 0.0020  
 Mercury -61821-06-18 18:28 J -20858527.73 -20858527.73 -20858527.72 0.0526 0.0526  
 Venus -61818-07-03 16:33 J -20857417.98 -20857417.81 -20857417.63 0.0504 0.0235  
 Mercury -61815-02-09 12:28 J -20856466.11 -20856465.98 -20856465.84 0.0498 0.0332  
 Mercury -61815-05-10 23:16 J -20856375.66 -20856375.53 -20856375.39 0.0499 0.0338  
 Earth -61813-02-18 06:57 J -20855727.38 -20855727.21 -20855727.03 0.0509 0.0344  
 Moon -61813-02-18 10:47 J -20855727.24 -20855727.05 -20855726.86 0.0509 0.0316 \*  
 Mercury -61809-01-08 17:01 J -20854306.91 -20854306.79 -20854306.66 0.0528 0.0122  
 Mercury -61809-04-06 22:47 J -20854217.63 -20854217.55 -20854217.47 0.0527 0.0396

Mercury -61803-02-26 19:40 J -20852065.86 -20852065.68 -20852065.50 0.0498 0.0165

Moon -61801-02-22 19:40 J -20851339.91 -20851339.68 -20851339.44 0.0510 0.0009

Earth -61801-02-22 23:59 J -20851339.74 -20851339.50 -20851339.26 0.0510 0.0030 \*

Venus -61800-09-03 11:30 J -20850781.22 -20850781.02 -20850780.82 0.0523 0.0158

Mercury -61798-10-27 20:52 J -20849996.74 -20849996.63 -20849996.52 0.0528 0.0257

Mercury -61797-01-25 02:52 J -20849907.49 -20849907.38 -20849907.27 0.0528 0.0265

Moon -61796-08-16 21:06 J -20849337.70 -20849337.62 -20849337.53 0.0517 0.0474

Earth -61796-08-16 22:04 J -20849337.65 -20849337.58 -20849337.49 0.0517 0.0481 \*

Venus -61794-07-06 01:40 J -20848649.57 -20848649.43 -20848649.27 0.0502 0.0331

Mercury -61792-12-15 16:18 J -20847756.01 -20847755.82 -20847755.63 0.0498 0.0005

Earth -61789-02-27 20:37 J -20846951.82 -20846951.64 -20846951.44 0.0512 0.0301

Moon -61789-02-28 00:13 J -20846951.68 -20846951.49 -20846951.29 0.0512 0.0284 \*

Venus -61788-05-09 02:23 J -20846515.58 -20846515.40 -20846515.22 0.0522 0.0255

Mercury -61786-08-16 01:11 J -20845686.54 -20845686.45 -20845686.37 0.0528 0.0387

Mercury -61786-11-13 07:11 J -20845597.33 -20845597.20 -20845597.08 0.0527 0.0138

Earth -61784-08-21 10:47 J -20844950.27 -20844950.05 -20844949.83 0.0516 0.0160

Moon -61784-08-21 13:25 J -20844950.16 -20844949.94 -20844949.72 0.0516 0.0189 \*

Venus -61782-03-11 01:40 J -20844383.63 -20844383.43 -20844383.23 0.0503 0.0035

Mercury -61780-10-03 12:28 J -20843446.15 -20843445.98 -20843445.81 0.0498 0.0178

Mercury -61779-01-01 23:16 J -20843355.55 -20843355.53 -20843355.50 0.0499 0.0494

Mercury -61774-06-04 05:16 J -20841376.30 -20841376.28 -20841376.25 0.0528 0.0516

Mercury -61774-09-01 11:16 J -20841287.15 -20841287.03 -20841286.90 0.0527 0.0020

Mercury -61774-11-29 16:47 J -20841197.80 -20841197.80 -20841197.78 0.0526 0.0524

Moon -61772-08-25 20:09 J -20840562.88 -20840562.66 -20840562.45 0.0514 0.0137

Earth -61772-08-25 23:30 J -20840562.74 -20840562.52 -20840562.30 0.0514 0.0157 \*

Venus -61771-11-14 03:06 J -20840117.49 -20840117.37 -20840117.25 0.0504 0.0392

Mercury -61768-07-22 09:21 J -20839136.24 -20839136.11 -20839135.98 0.0498 0.0344

Mercury -61768-10-20 19:54 J -20839045.80 -20839045.67 -20839045.52 0.0499 0.0326

Venus -61764-05-12 04:47 J -20837746.43 -20837746.30 -20837746.17 0.0523 0.0401

Mercury -61762-06-20 15:06 J -20836976.99 -20836976.87 -20836976.75 0.0527 0.0129



Mercury -61762-09-17 20:52 J -20836887.72 -20836887.63 -20836887.55 0.0527 0.0389

Earth -61760-08-30 10:04 J -20836175.17 -20836175.08 -20836174.98 0.0513 0.0467

Moon -61760-08-30 13:54 J -20836174.99 -20836174.92 -20836174.86 0.0513 0.0491 \*

Mercury -61756-08-08 16:47 J -20834735.98 -20834735.80 -20834735.62 0.0498 0.0157

Venus -61752-01-14 18:42 J -20833480.93 -20833480.72 -20833480.52 0.0522 0.0019

Mercury -61750-04-08 18:57 J -20832666.81 -20832666.71 -20832666.59 0.0528 0.0264

Mercury -61750-07-07 00:57 J -20832577.57 -20832577.46 -20832577.35 0.0527 0.0258

Venus -61747-11-16 11:16 J -20831349.22 -20831349.03 -20831348.84 0.0503 0.0168

Mercury -61744-05-27 13:25 J -20830426.12 -20830425.94 -20830425.75 0.0498 0.0014

Venus -61741-09-19 06:28 J -20829215.33 -20829215.23 -20829215.12 0.0521 0.0444

Mercury -61738-01-25 22:47 J -20828356.63 -20828356.55 -20828356.47 0.0528 0.0401

Mercury -61738-04-25 04:47 J -20828267.42 -20828267.30 -20828267.18 0.0528 0.0124

Venus -61735-07-22 13:25 J -20827083.12 -20827082.94 -20827082.75 0.0504 0.0186

Mercury -61732-03-15 10:04 J -20826116.25 -20826116.08 -20826115.90 0.0498 0.0181

Mercury -61732-06-13 20:52 J -20826025.65 -20826025.63 -20826025.60 0.0498 0.0490

Moon -61730-02-16 21:35 J -20825412.75 -20825412.60 -20825412.44 0.0509 0.0386

Earth -61730-02-17 01:40 J -20825412.56 -20825412.43 -20825412.29 0.0509 0.0411 \*

Mercury -61726-02-11 09:06 J -20823957.25 -20823957.12 -20823956.99 0.0528 0.0005

Mercury -61726-05-11 14:37 J -20823867.91 -20823867.89 -20823867.86 0.0527 0.0512

Mars -61722-02-04 03:35 J -20822503.47 -20822503.35 -20822503.22 0.0500 0.0444

Mercury -61720-01-01 05:59 J -20821806.37 -20821806.25 -20821806.11 0.0498 0.0356

Mercury -61720-04-01 16:47 J -20821715.94 -20821715.80 -20821715.65 0.0499 0.0313

Earth -61718-02-21 22:47 J -20821024.79 -20821024.55 -20821024.32 0.0510 0.0082

Moon -61718-02-22 02:37 J -20821024.62 -20821024.39 -20821024.16 0.0510 0.0059 \*

Venus -61717-09-22 09:35 J -20820446.29 -20820446.10 -20820445.92 0.0523 0.0214

Mercury -61715-11-30 13:25 J -20819647.06 -20819646.94 -20819646.82 0.0528 0.0132

Mercury -61714-02-27 19:11 J -20819557.79 -20819557.70 -20819557.62 0.0527 0.0386

Venus -61711-07-24 18:57 J -20818314.85 -20818314.71 -20818314.57 0.0502 0.0361

Mercury -61708-01-18 13:25 J -20817406.11 -20817405.94 -20817405.76 0.0498 0.0146

Moon -61706-02-26 18:13 J -20816636.95 -20816636.74 -20816636.52 0.0512 0.0232

Earth -61706-02-26 20:52 J -20816636.84 -20816636.63 -20816636.42 0.0512 0.0254 \*  
 Venus -61705-05-27 23:59 J -20816180.69 -20816180.50 -20816180.31 0.0522 0.0202  
 Mars -61704-02-11 04:47 J -20815921.56 -20815921.30 -20815921.03 0.0526 0.0146  
 Mercury -61703-09-18 17:16 J -20815336.89 -20815336.78 -20815336.67 0.0528 0.0269  
 Mercury -61703-12-16 23:01 J -20815247.65 -20815247.54 -20815247.43 0.0527 0.0251  
 Moon -61701-08-20 05:01 J -20814635.48 -20814635.29 -20814635.10 0.0516 0.0255  
 Earth -61701-08-20 08:09 J -20814635.36 -20814635.16 -20814634.95 0.0516 0.0224 \*  
 Venus -61699-03-29 20:23 J -20814048.85 -20814048.65 -20814048.45 0.0503 0.0004  
 Mercury -61697-11-06 10:33 J -20813096.25 -20813096.06 -20813095.88 0.0498 0.0022  
 Mercury -61691-07-07 21:06 J -20811026.70 -20811026.62 -20811026.54 0.0528 0.0405  
 Mercury -61691-10-05 03:06 J -20810937.50 -20810937.37 -20810937.25 0.0527 0.0119  
 Earth -61689-08-24 22:04 J -20810247.81 -20810247.58 -20810247.36 0.0515 0.0099  
 Moon -61689-08-25 01:40 J -20810247.65 -20810247.43 -20810247.20 0.0515 0.0084 \*  
 Venus -61688-12-02 22:47 J -20809782.69 -20809782.55 -20809782.40 0.0505 0.0349  
 Mars -61687-11-09 07:25 J -20809441.46 -20809441.19 -20809440.92 0.0499 0.0105  
 Mercury -61685-08-25 07:25 J -20808786.36 -20808786.19 -20808786.02 0.0498 0.0187  
 Mercury -61685-11-23 18:13 J -20808695.78 -20808695.74 -20808695.70 0.0498 0.0485  
 Venus -61681-05-30 21:49 J -20807411.70 -20807411.59 -20807411.47 0.0523 0.0435  
 Mercury -61679-07-24 06:57 J -20806627.34 -20806627.21 -20806627.08 0.0528 0.0017  
 Mercury -61679-10-21 12:28 J -20806538.01 -20806537.98 -20806537.94 0.0527 0.0501  
 Moon -61677-08-29 08:23 J -20805860.26 -20805860.15 -20805860.03 0.0514 0.0443  
 Earth -61677-08-29 11:45 J -20805860.14 -20805860.01 -20805859.88 0.0514 0.0419 \*  
 Mercury -61673-06-13 04:18 J -20804476.45 -20804476.32 -20804476.19 0.0497 0.0353  
 Mercury -61673-09-11 14:37 J -20804386.03 -20804385.89 -20804385.74 0.0498 0.0315  
 Venus -61669-02-03 13:11 J -20803146.16 -20803145.95 -20803145.75 0.0522 0.0023  
 Mars -61669-11-16 22:18 J -20802858.67 -20802858.57 -20802858.45 0.0527 0.0480  
 Mercury -61667-05-12 11:16 J -20802317.15 -20802317.03 -20802316.91 0.0528 0.0144  
 Mercury -61667-08-09 17:01 J -20802227.88 -20802227.79 -20802227.70 0.0527 0.0376  
 Venus -61664-12-05 05:30 J -20801014.46 -20801014.27 -20801014.09 0.0503 0.0203  
 Mercury -61661-06-30 10:33 J -20800076.24 -20800076.06 -20800075.88 0.0498 0.0135

Venus -61658-10-09 04:47 J -20798880.43 -20798880.30 -20798880.16 0.0521 0.0387

Mercury -61655-02-28 15:35 J -20798006.96 -20798006.85 -20798006.74 0.0528 0.0271

Mercury -61655-05-28 21:35 J -20797917.72 -20797917.60 -20797917.49 0.0527 0.0251

Venus -61652-08-10 07:25 J -20796748.39 -20796748.19 -20796748.00 0.0504 0.0153

Mercury -61649-04-18 07:25 J -20795766.38 -20795766.19 -20795766.01 0.0498 0.0033

Earth -61647-02-16 01:54 J -20795097.51 -20795097.42 -20795097.31 0.0509 0.0458

Moon -61647-02-16 05:59 J -20795097.36 -20795097.25 -20795097.12 0.0509 0.0430 \*

Mercury -61644-12-17 19:25 J -20793696.77 -20793696.69 -20793696.61 0.0528 0.0407

Mercury -61643-03-17 01:25 J -20793607.56 -20793607.44 -20793607.32 0.0527 0.0116

Mercury -61637-02-05 04:33 J -20791456.48 -20791456.31 -20791456.14 0.0498 0.0196

Mercury -61637-05-05 15:21 J -20791365.91 -20791365.86 -20791365.81 0.0499 0.0477

Moon -61635-02-20 19:54 J -20790709.91 -20790709.67 -20790709.43 0.0510 0.0113

Earth -61635-02-20 23:01 J -20790709.77 -20790709.54 -20790709.31 0.0510 0.0131 \*

Venus -61634-10-12 05:59 J -20790111.43 -20790111.25 -20790111.07 0.0523 0.0262

Mercury -61631-01-03 05:30 J -20789297.40 -20789297.27 -20789297.15 0.0527 0.0025

Mercury -61631-04-02 11:01 J -20789208.08 -20789208.04 -20789208.00 0.0526 0.0499

Venus -61628-08-12 15:35 J -20787979.96 -20787979.85 -20787979.73 0.0502 0.0406

Mercury -61626-11-24 01:40 J -20787146.55 -20787146.43 -20787146.30 0.0498 0.0358

Mercury -61625-02-22 12:13 J -20787056.13 -20787055.99 -20787055.84 0.0498 0.0311

Earth -61623-02-25 17:59 J -20786321.97 -20786321.75 -20786321.53 0.0511 0.0196

Moon -61623-02-25 18:42 J -20786321.93 -20786321.72 -20786321.50 0.0511 0.0172 \*

Venus -61622-06-16 18:42 J -20785845.92 -20785845.72 -20785845.53 0.0521 0.0162

Mercury -61620-10-22 09:21 J -20784987.24 -20784987.11 -20784986.99 0.0528 0.0154

Mercury -61619-01-19 14:52 J -20784897.96 -20784897.88 -20784897.79 0.0527 0.0368

Earth -61618-08-20 09:49 J -20784320.29 -20784320.09 -20784319.90 0.0517 0.0275

Moon -61618-08-20 13:25 J -20784320.12 -20784319.94 -20784319.75 0.0517 0.0305 \*

Venus -61616-04-17 17:45 J -20783713.95 -20783713.76 -20783713.55 0.0504 0.0056

Mercury -61614-12-11 08:52 J -20782746.30 -20782746.13 -20782745.95 0.0498 0.0142

Moon -61611-03-02 16:33 J -20781933.82 -20781933.81 -20781933.79 0.0512 0.0511

Mercury -61608-08-10 13:40 J -20780677.04 -20780676.93 -20780676.83 0.0528 0.0281

Mercury -61608-11-07 19:25 J -20780587.80 -20780587.69 -20780587.58 0.0527 0.0242

Moon -61606-08-24 20:09 J -20779932.89 -20779932.66 -20779932.43 0.0515 0.0040

Earth -61606-08-24 23:30 J -20779932.75 -20779932.52 -20779932.29 0.0515 0.0051 \*

Venus -61605-12-21 18:13 J -20779447.89 -20779447.74 -20779447.58 0.0504 0.0310

Mercury -61602-09-29 04:33 J -20778436.49 -20778436.31 -20778436.12 0.0498 0.0040

Venus -61598-06-19 21:21 J -20777076.66 -20777076.61 -20777076.54 0.0524 0.0497

Mercury -61596-05-29 17:59 J -20776366.83 -20776366.75 -20776366.67 0.0528 0.0406

Mercury -61596-08-26 23:59 J -20776277.62 -20776277.50 -20776277.38 0.0527 0.0118

Earth -61594-08-29 13:25 J -20775545.10 -20775544.94 -20775544.78 0.0514 0.0372

Moon -61594-08-29 15:21 J -20775544.99 -20775544.86 -20775544.72 0.0514 0.0403 \*

Mercury -61590-07-18 01:40 J -20774126.60 -20774126.43 -20774126.26 0.0498 0.0204

Mercury -61590-10-16 12:28 J -20774036.04 -20774035.98 -20774035.92 0.0499 0.0470

Venus -61586-02-22 12:57 J -20772811.16 -20772810.96 -20772810.76 0.0522 0.0084

Mercury -61584-06-15 04:04 J -20771967.46 -20771967.33 -20771967.20 0.0527 0.0017

Mercury -61584-09-12 09:35 J -20771878.13 -20771878.10 -20771878.06 0.0526 0.0501

Venus -61581-12-24 01:54 J -20770679.60 -20770679.42 -20770679.25 0.0503 0.0247

Mercury -61578-05-05 23:01 J -20769816.66 -20769816.54 -20769816.41 0.0498 0.0365

Mercury -61578-08-04 09:35 J -20769726.24 -20769726.10 -20769725.95 0.0499 0.0305

Venus -61575-10-28 03:06 J -20768545.52 -20768545.37 -20768545.21 0.0521 0.0330

Mercury -61572-04-03 07:54 J -20767657.29 -20767657.17 -20767657.04 0.0528 0.0150

Mercury -61572-07-01 13:40 J -20767568.02 -20767567.93 -20767567.84 0.0527 0.0371

Venus -61569-08-29 04:33 J -20766413.50 -20766413.31 -20766413.11 0.0504 0.0104

Mars -61568-04-29 14:37 J -20766170.11 -20766169.89 -20766169.67 0.0500 0.0286

Mercury -61566-05-23 06:42 J -20765416.39 -20765416.22 -20765416.04 0.0498 0.0142

Moon -61564-02-14 23:45 J -20764782.58 -20764782.51 -20764782.42 0.0508 0.0478

Earth -61564-02-15 03:21 J -20764782.39 -20764782.36 -20764782.33 0.0508 0.0503

Mercury -61560-01-20 11:45 J -20763347.11 -20763347.01 -20763346.90 0.0528 0.0286

Mercury -61560-04-19 17:45 J -20763257.87 -20763257.76 -20763257.65 0.0527 0.0238

Venus -61557-05-04 06:57 J -20762147.28 -20762147.21 -20762147.12 0.0505 0.0457

Mercury -61554-03-11 03:49 J -20761106.53 -20761106.34 -20761106.16 0.0498 0.0028

Earth -61552-02-19 23:30 J -20760394.74 -20760394.52 -20760394.30 0.0509 0.0178  
 Moon -61552-02-20 00:57 J -20760394.68 -20760394.46 -20760394.25 0.0509 0.0168 \*  
 Venus -61551-10-31 03:21 J -20759776.52 -20759776.36 -20759776.20 0.0523 0.0315  
 Mars -61550-05-07 13:11 J -20759588.23 -20759587.95 -20759587.68 0.0526 0.0020  
 Mercury -61549-11-08 16:18 J -20759036.90 -20759036.82 -20759036.75 0.0528 0.0412  
 Mercury -61548-02-05 22:18 J -20758947.70 -20758947.57 -20758947.45 0.0527 0.0114  
 Venus -61545-08-31 11:59 J -20757645.08 -20757645.00 -20757644.91 0.0502 0.0449  
 Mercury -61543-12-27 23:16 J -20756796.69 -20756796.53 -20756796.36 0.0498 0.0206  
 Mercury -61542-03-28 10:04 J -20756706.14 -20756706.08 -20756706.01 0.0499 0.0468  
 Earth -61540-02-24 19:25 J -20756006.91 -20756006.69 -20756006.46 0.0511 0.0153  
 Moon -61540-02-24 20:23 J -20756006.89 -20756006.65 -20756006.41 0.0511 0.0124 \*  
 Venus -61539-07-05 19:11 J -20755510.91 -20755510.70 -20755510.50 0.0522 0.0097  
 Mercury -61537-11-25 02:52 J -20754637.51 -20754637.38 -20754637.25 0.0528 0.0009  
 Mercury -61536-02-22 08:23 J -20754548.18 -20754548.15 -20754548.12 0.0527 0.0507  
 Moon -61535-08-19 11:45 J -20754005.18 -20754005.01 -20754004.83 0.0516 0.0343  
 Earth -61535-08-19 15:21 J -20754005.04 -20754004.86 -20754004.68 0.0516 0.0312 \*  
 Venus -61533-05-06 14:23 J -20753379.10 -20753378.90 -20753378.70 0.0503 0.0098  
 Mars -61532-02-01 13:54 J -20753108.16 -20753107.92 -20753107.69 0.0499 0.0258  
 Mercury -61531-10-15 20:37 J -20752486.76 -20752486.64 -20752486.52 0.0498 0.0368  
 Mercury -61530-01-14 07:11 J -20752396.35 -20752396.20 -20752396.05 0.0499 0.0302  
 Moon -61528-03-01 16:33 J -20751618.88 -20751618.81 -20751618.73 0.0513 0.0481  
 Earth -61528-03-01 18:57 J -20751618.76 -20751618.71 -20751618.64 0.0513 0.0495 \*  
 Venus -61527-03-10 10:47 J -20751245.10 -20751245.05 -20751245.00 0.0521 0.0504  
 Mercury -61525-09-13 06:57 J -20750327.33 -20750327.21 -20750327.09 0.0527 0.0142  
 Mercury -61525-12-11 12:42 J -20750238.06 -20750237.97 -20750237.89 0.0527 0.0377  
 Earth -61523-08-24 03:49 J -20749617.56 -20749617.34 -20749617.11 0.0515 0.0012  
 Moon -61523-08-24 06:13 J -20749617.46 -20749617.24 -20749617.02 0.0515 0.0008 \*  
 Venus -61521-01-10 16:18 J -20749112.99 -20749112.82 -20749112.65 0.0504 0.0258  
 Mercury -61519-11-02 04:33 J -20748086.49 -20748086.31 -20748086.13 0.0499 0.0139  
 Mercury -61513-07-02 11:01 J -20746017.15 -20746017.04 -20746016.93 0.0528 0.0275

Mercury -61513-09-29 16:47 J -20745927.91 -20745927.80 -20745927.69 0.0527 0.0247  
 Moon -61511-08-28 16:18 J -20745229.98 -20745229.82 -20745229.64 0.0514 0.0360  
 Earth -61511-08-28 17:16 J -20745229.95 -20745229.78 -20745229.60 0.0514 0.0330 \*  
 Mercury -61507-08-21 01:54 J -20743776.61 -20743776.42 -20743776.23 0.0498 0.0022  
 Venus -61503-03-13 11:16 J -20742476.23 -20742476.03 -20742475.83 0.0522 0.0141  
 Mercury -61501-04-20 14:37 J -20741706.96 -20741706.89 -20741706.81 0.0528 0.0412  
 Mercury -61501-07-18 20:52 J -20741617.76 -20741617.63 -20741617.51 0.0527 0.0115  
 Venus -61497-01-13 01:40 J -20740344.58 -20740344.43 -20740344.27 0.0503 0.0308  
 Mercury -61495-06-08 23:01 J -20739466.71 -20739466.54 -20739466.37 0.0498 0.0187  
 Mercury -61495-09-07 09:35 J -20739376.13 -20739376.10 -20739376.06 0.0499 0.0487  
 Venus -61492-11-16 02:23 J -20738210.58 -20738210.40 -20738210.23 0.0521 0.0270  
 Mercury -61489-05-07 01:11 J -20737307.57 -20737307.45 -20737307.32 0.0528 0.0019  
 Mercury -61489-08-04 06:57 J -20737218.24 -20737218.21 -20737218.18 0.0527 0.0507  
 Venus -61486-09-18 03:06 J -20736078.57 -20736078.37 -20736078.17 0.0503 0.0051  
 Mercury -61483-03-27 18:42 J -20735156.84 -20735156.72 -20735156.59 0.0498 0.0366  
 Mercury -61483-06-26 05:16 J -20735066.43 -20735066.28 -20735066.13 0.0499 0.0304  
 Mercury -61477-02-24 05:59 J -20732997.37 -20732997.25 -20732997.13 0.0528 0.0133  
 Mercury -61477-05-23 11:45 J -20732908.10 -20732908.01 -20732907.93 0.0527 0.0388  
 Venus -61474-05-24 05:45 J -20731812.37 -20731812.26 -20731812.13 0.0505 0.0402  
 Mercury -61471-04-14 02:23 J -20730756.58 -20730756.40 -20730756.22 0.0499 0.0140  
 Earth -61469-02-20 04:33 J -20730079.53 -20730079.31 -20730079.09 0.0510 0.0211  
 Moon -61469-02-20 05:01 J -20730079.52 -20730079.29 -20730079.07 0.0510 0.0208 \*  
 Venus -61468-11-19 05:59 J -20729441.38 -20729441.25 -20729441.11 0.0524 0.0390  
 Mercury -61466-12-13 10:04 J -20728687.19 -20728687.08 -20728686.97 0.0528 0.0264  
 Mercury -61465-03-11 15:49 J -20728597.95 -20728597.84 -20728597.73 0.0527 0.0259  
 Mercury -61459-01-30 23:45 J -20726446.69 -20726446.51 -20726446.32 0.0498 0.0025  
 Moon -61457-02-25 01:40 J -20725691.66 -20725691.43 -20725691.21 0.0511 0.0096  
 Earth -61457-02-25 03:49 J -20725691.57 -20725691.34 -20725691.11 0.0511 0.0127 \*  
 Venus -61456-07-24 21:21 J -20725175.82 -20725175.61 -20725175.40 0.0522 0.0022  
 Mercury -61454-10-01 14:09 J -20724376.99 -20724376.91 -20724376.83 0.0528 0.0397

Mercury -61454-12-29 20:09 J -20724287.78 -20724287.66 -20724287.54 0.0527 0.0128  
 Earth -61452-08-18 21:06 J -20723689.78 -20723689.62 -20723689.44 0.0517 0.0353  
 Moon -61452-08-18 23:30 J -20723689.66 -20723689.52 -20723689.36 0.0517 0.0382 \*  
 Venus -61450-05-26 14:09 J -20723044.09 -20723043.91 -20723043.71 0.0503 0.0160  
 Mercury -61448-11-18 21:21 J -20722136.78 -20722136.61 -20722136.43 0.0498 0.0180  
 Mercury -61447-02-17 08:23 J -20722046.17 -20722046.15 -20722046.13 0.0499 0.0495  
 Earth -61445-03-01 01:25 J -20721303.54 -20721303.44 -20721303.34 0.0512 0.0464  
 Moon -61445-03-01 05:01 J -20721303.40 -20721303.29 -20721303.18 0.0512 0.0456 \*  
 Venus -61444-03-29 11:01 J -20720910.15 -20720910.04 -20720909.93 0.0520 0.0438  
 Mercury -61442-10-17 23:59 J -20719977.62 -20719977.50 -20719977.37 0.0527 0.0016  
 Mercury -61441-01-15 05:45 J -20719888.29 -20719888.26 -20719888.24 0.0527 0.0512  
 Moon -61440-08-23 11:16 J -20719302.27 -20719302.03 -20719301.80 0.0516 0.0020  
 Earth -61440-08-23 11:59 J -20719302.23 -20719302.00 -20719301.77 0.0516 0.0024 \*  
 Venus -61438-01-29 17:16 J -20718777.96 -20718777.78 -20718777.59 0.0504 0.0192  
 Mercury -61436-09-06 18:42 J -20717826.85 -20717826.72 -20717826.58 0.0498 0.0342  
 Mercury -61436-12-06 05:16 J -20717736.42 -20717736.28 -20717736.14 0.0499 0.0329  
 Mars -61432-10-25 15:06 J -20716317.04 -20716316.87 -20716316.69 0.0525 0.0408  
 Mercury -61430-08-06 04:33 J -20715667.43 -20715667.31 -20715667.18 0.0528 0.0131  
 Mercury -61430-11-03 10:18 J -20715578.15 -20715578.07 -20715577.98 0.0527 0.0391  
 Moon -61428-08-28 02:37 J -20714914.55 -20714914.39 -20714914.22 0.0514 0.0341  
 Earth -61428-08-28 03:21 J -20714914.54 -20714914.36 -20714914.18 0.0514 0.0309 \*  
 Mercury -61424-09-24 00:57 J -20713426.64 -20713426.46 -20713426.29 0.0498 0.0146  
 Venus -61420-04-01 13:54 J -20712141.10 -20712140.92 -20712140.73 0.0523 0.0216  
 Mercury -61418-05-25 09:21 J -20711357.22 -20711357.11 -20711357.00 0.0528 0.0253  
 Mercury -61418-08-22 15:06 J -20711267.97 -20711267.87 -20711267.76 0.0527 0.0272  
 Venus -61414-02-01 01:40 J -20710009.56 -20710009.43 -20710009.29 0.0502 0.0366  
 Mars -61414-07-24 17:01 J -20709836.06 -20709835.79 -20709835.52 0.0500 0.0084  
 Mercury -61412-07-12 22:04 J -20709116.76 -20709116.58 -20709116.39 0.0498 0.0020  
 Venus -61409-12-05 05:59 J -20707875.44 -20707875.25 -20707875.06 0.0522 0.0192  
 Mercury -61406-03-13 13:25 J -20707047.02 -20707046.94 -20707046.85 0.0528 0.0383

Mercury -61406-06-10 19:25 J -20706957.81 -20706957.69 -20706957.57 0.0527 0.0143

Venus -61403-10-07 03:49 J -20705743.54 -20705743.34 -20705743.13 0.0503 0.0017

Mercury -61400-04-30 19:40 J -20704806.85 -20704806.68 -20704806.50 0.0498 0.0176

Mars -61396-08-01 11:45 J -20703253.23 -20703253.01 -20703252.78 0.0526 0.0289

Mercury -61395-12-30 17:30 J -20702736.79 -20702736.77 -20702736.74 0.0528 0.0515

Mercury -61394-03-29 23:45 J -20702647.64 -20702647.51 -20702647.39 0.0527 0.0017

Venus -61391-06-12 06:42 J -20701477.37 -20701477.22 -20701477.07 0.0505 0.0336

Mercury -61388-02-16 17:30 J -20700496.90 -20700496.77 -20700496.63 0.0498 0.0332

Mercury -61388-05-18 04:04 J -20700406.46 -20700406.33 -20700406.19 0.0499 0.0340

Moon -61386-02-19 12:13 J -20699764.19 -20699763.99 -20699763.78 0.0509 0.0237

Earth -61386-02-19 14:23 J -20699764.11 -20699763.90 -20699763.69 0.0509 0.0233 \*

Venus -61385-12-08 07:40 J -20699106.27 -20699106.18 -20699106.08 0.0523 0.0461

Mercury -61382-01-16 03:35 J -20698337.47 -20698337.35 -20698337.22 0.0528 0.0122

Mercury -61382-04-15 09:21 J -20698248.19 -20698248.11 -20698248.03 0.0527 0.0398

Mars -61378-04-29 04:18 J -20696773.37 -20696773.32 -20696773.25 0.0499 0.0486

Mercury -61377-12-05 15:06 J -20696186.90 -20696186.87 -20696186.85 0.0498 0.0492

Mercury -61376-03-06 01:11 J -20696096.62 -20696096.45 -20696096.27 0.0498 0.0175

Earth -61374-02-24 11:45 J -20695376.24 -20695376.01 -20695375.77 0.0510 0.0101

Moon -61374-02-24 15:06 J -20695376.11 -20695375.87 -20695375.62 0.0510 0.0071 \*

Venus -61373-08-12 23:16 J -20694840.73 -20694840.53 -20694840.32 0.0522 0.0052

Mercury -61371-11-04 08:09 J -20694027.27 -20694027.16 -20694027.05 0.0528 0.0247

Mercury -61370-02-01 13:54 J -20693938.02 -20693937.92 -20693937.81 0.0527 0.0278

Moon -61369-08-18 08:37 J -20693374.29 -20693374.14 -20693373.98 0.0517 0.0396

Earth -61369-08-18 09:21 J -20693374.26 -20693374.11 -20693373.94 0.0517 0.0370 \*

Venus -61367-06-14 15:35 J -20692709.02 -20692708.85 -20692708.66 0.0502 0.0223

Mercury -61365-12-22 20:52 J -20691786.81 -20691786.63 -20691786.44 0.0498 0.0012

Moon -61362-03-01 03:06 J -20690988.50 -20690988.37 -20690988.24 0.0512 0.0429

Earth -61362-03-01 06:57 J -20690988.33 -20690988.21 -20690988.08 0.0512 0.0432 \*

Venus -61361-04-17 13:54 J -20690575.07 -20690574.92 -20690574.77 0.0522 0.0364

Mercury -61359-08-23 12:42 J -20689717.05 -20689716.97 -20689716.88 0.0528 0.0370



Mercury -61359-11-20 18:42 J -20689627.84 -20689627.72 -20689627.59 0.0527 0.0158  
 Moon -61357-08-23 01:54 J -20688986.65 -20688986.42 -20688986.20 0.0515 0.0025  
 Earth -61357-08-23 02:37 J -20688986.62 -20688986.39 -20688986.16 0.0515 0.0034 \*  
 Venus -61355-02-17 18:57 J -20688442.90 -20688442.71 -20688442.51 0.0503 0.0125  
 Mercury -61353-10-10 18:28 J -20687476.91 -20687476.73 -20687476.56 0.0498 0.0168  
 Mercury -61347-06-11 17:01 J -20685406.83 -20685406.79 -20685406.75 0.0528 0.0499  
 Mercury -61347-09-08 23:16 J -20685317.66 -20685317.53 -20685317.41 0.0527 0.0034  
 Earth -61345-08-27 15:35 J -20684599.04 -20684598.85 -20684598.66 0.0514 0.0288  
 Moon -61345-08-27 17:45 J -20684598.94 -20684598.76 -20684598.57 0.0514 0.0317 \*  
 Venus -61344-10-23 21:06 J -20684176.68 -20684176.62 -20684176.55 0.0505 0.0477  
 Mercury -61341-07-29 16:04 J -20683166.97 -20683166.83 -20683166.69 0.0498 0.0326  
 Mercury -61341-10-28 02:37 J -20683076.52 -20683076.39 -20683076.26 0.0499 0.0347  
 Venus -61337-04-20 18:42 J -20681805.88 -20681805.72 -20681805.55 0.0523 0.0302  
 Mercury -61335-06-28 03:21 J -20681007.48 -20681007.36 -20681007.24 0.0527 0.0102  
 Mercury -61335-09-25 09:06 J -20680918.20 -20680918.12 -20680918.05 0.0527 0.0418  
 Venus -61331-02-20 03:35 J -20679674.45 -20679674.35 -20679674.25 0.0502 0.0434  
 Mercury -61329-05-17 13:54 J -20678856.96 -20678856.92 -20678856.87 0.0498 0.0481  
 Mercury -61329-08-16 00:13 J -20678766.66 -20678766.49 -20678766.32 0.0499 0.0187  
 Venus -61326-12-25 09:06 J -20677540.32 -20677540.12 -20677539.92 0.0522 0.0114  
 Mercury -61323-04-16 07:11 J -20676697.31 -20676697.20 -20676697.08 0.0528 0.0237  
 Mercury -61323-07-14 13:11 J -20676608.06 -20676607.95 -20676607.85 0.0527 0.0287  
 Venus -61320-10-26 06:28 J -20675408.42 -20675408.23 -20675408.03 0.0503 0.0087  
 Mercury -61317-06-03 21:35 J -20674456.79 -20674456.60 -20674456.42 0.0498 0.0026  
 Mercury -61311-02-02 11:45 J -20672387.10 -20672387.01 -20672386.92 0.0528 0.0362  
 Mercury -61311-05-02 17:45 J -20672297.88 -20672297.76 -20672297.64 0.0527 0.0165  
 Venus -61308-07-01 09:21 J -20671142.27 -20671142.11 -20671141.93 0.0504 0.0265  
 Mercury -61305-03-22 17:16 J -20670146.95 -20670146.78 -20670146.60 0.0498 0.0156  
 Earth -61303-02-18 19:40 J -20669448.88 -20669448.68 -20669448.48 0.0509 0.0269  
 Moon -61303-02-18 22:47 J -20669448.75 -20669448.55 -20669448.34 0.0509 0.0274 \*  
 Mercury -61300-11-21 16:18 J -20668076.86 -20668076.82 -20668076.77 0.0529 0.0487

Mercury -61299-02-18 22:33 J -20667987.69 -20667987.56 -20667987.43 0.0528 0.0043  
 Mars -61295-01-13 09:21 J -20666563.27 -20666563.11 -20666562.93 0.0500 0.0393  
 Mercury -61293-01-09 14:52 J -20665837.02 -20665836.88 -20665836.74 0.0498 0.0316  
 Mercury -61293-04-09 01:11 J -20665746.57 -20665746.45 -20665746.31 0.0499 0.0356  
 Moon -61291-02-23 15:35 J -20665061.09 -20665060.85 -20665060.62 0.0511 0.0042  
 Earth -61291-02-23 19:25 J -20665060.93 -20665060.69 -20665060.46 0.0511 0.0073 \*  
 Venus -61290-09-02 03:49 J -20664505.54 -20664505.34 -20664505.14 0.0523 0.0134  
 Mercury -61288-12-08 02:52 J -20663677.51 -20663677.38 -20663677.25 0.0528 0.0085  
 Mercury -61287-03-07 08:37 J -20663588.21 -20663588.14 -20663588.07 0.0527 0.0435  
 Moon -61286-08-18 21:49 J -20663058.71 -20663058.59 -20663058.45 0.0517 0.0415  
 Earth -61286-08-18 22:47 J -20663058.70 -20663058.55 -20663058.40 0.0517 0.0389 \*  
 Venus -61284-07-03 17:59 J -20662373.91 -20662373.75 -20662373.58 0.0502 0.0295  
 Mercury -61282-10-28 12:42 J -20661527.03 -20661526.97 -20661526.92 0.0498 0.0473  
 Mercury -61281-01-26 22:47 J -20661436.72 -20661436.55 -20661436.38 0.0499 0.0195  
 Earth -61279-02-28 19:54 J -20660672.80 -20660672.67 -20660672.53 0.0512 0.0419  
 Moon -61279-02-28 23:01 J -20660672.66 -20660672.54 -20660672.41 0.0512 0.0431 \*  
 Venus -61278-05-07 19:25 J -20660239.87 -20660239.69 -20660239.51 0.0522 0.0274  
 Mars -61277-01-21 01:25 J -20659981.71 -20659981.44 -20659981.17 0.0526 0.0107  
 Mercury -61276-09-26 06:57 J -20659367.32 -20659367.21 -20659367.09 0.0528 0.0217  
 Mercury -61276-12-24 12:57 J -20659278.06 -20659277.96 -20659277.86 0.0527 0.0308  
 Earth -61274-08-23 13:11 J -20658671.18 -20658670.95 -20658670.73 0.0516 0.0061  
 Moon -61274-08-23 15:35 J -20658671.09 -20658670.85 -20658670.62 0.0516 0.0044 \*  
 Venus -61272-03-08 20:52 J -20658107.83 -20658107.63 -20658107.43 0.0504 0.0055  
 Mercury -61270-11-14 20:23 J -20657126.83 -20657126.65 -20657126.46 0.0498 0.0038  
 Mercury -61264-07-15 11:01 J -20655057.14 -20655057.04 -20655056.95 0.0528 0.0352  
 Mercury -61264-10-12 16:47 J -20654967.91 -20654967.80 -20654967.67 0.0527 0.0176  
 Moon -61262-08-27 23:30 J -20654283.70 -20654283.52 -20654283.33 0.0515 0.0294  
 Earth -61262-08-28 03:06 J -20654283.57 -20654283.37 -20654283.18 0.0515 0.0269 \*  
 Venus -61261-11-11 23:45 J -20653841.62 -20653841.51 -20653841.38 0.0505 0.0404  
 Mars -61260-10-18 15:49 J -20653501.10 -20653500.84 -20653500.58 0.0500 0.0162

Mercury -61258-09-02 17:45 J -20652816.94 -20652816.76 -20652816.58 0.0498 0.0127  
 Venus -61254-05-10 21:35 J -20651470.74 -20651470.60 -20651470.46 0.0523 0.0378  
 Mercury -61252-05-03 15:21 J -20650746.91 -20650746.86 -20650746.81 0.0528 0.0478  
 Mercury -61252-07-31 21:35 J -20650657.73 -20650657.60 -20650657.48 0.0528 0.0054  
 Mercury -61246-06-21 13:54 J -20648507.07 -20648506.92 -20648506.77 0.0498 0.0304  
 Mercury -61246-09-20 00:13 J -20648416.61 -20648416.49 -20648416.36 0.0498 0.0368  
 Venus -61242-01-13 11:45 J -20647205.22 -20647205.01 -20647204.81 0.0523 0.0041  
 Mercury -61240-05-20 02:09 J -20646347.54 -20646347.41 -20646347.28 0.0528 0.0072  
 Mercury -61240-08-17 07:54 J -20646258.23 -20646258.17 -20646258.11 0.0527 0.0450  
 Venus -61237-11-14 09:35 J -20645073.29 -20645073.10 -20645072.91 0.0502 0.0160  
 Mercury -61234-04-09 11:16 J -20644197.09 -20644197.03 -20644196.96 0.0497 0.0463  
 Mercury -61234-07-08 21:35 J -20644106.77 -20644106.60 -20644106.43 0.0498 0.0204  
 Venus -61231-09-18 03:21 J -20642939.46 -20642939.36 -20642939.24 0.0521 0.0445  
 Mercury -61228-03-08 06:28 J -20642037.35 -20642037.23 -20642037.11 0.0528 0.0201  
 Mercury -61228-06-05 12:13 J -20641948.09 -20641947.99 -20641947.89 0.0527 0.0324  
 Venus -61225-07-20 11:45 J -20640807.19 -20640807.01 -20640806.82 0.0504 0.0193  
 Mercury -61222-04-26 19:11 J -20639796.89 -20639796.70 -20639796.52 0.0498 0.0045  
 Moon -61220-02-18 04:47 J -20639133.49 -20639133.30 -20639133.11 0.0509 0.0297  
 Earth -61220-02-18 08:37 J -20639133.33 -20639133.14 -20639132.94 0.0509 0.0284 \*  
 Mercury -61217-12-25 10:33 J -20637727.15 -20637727.06 -20637726.96 0.0528 0.0332  
 Mercury -61216-03-24 16:33 J -20637637.93 -20637637.81 -20637637.69 0.0527 0.0195  
 Mercury -61210-02-12 16:47 J -20635486.98 -20635486.80 -20635486.62 0.0498 0.0116  
 Earth -61208-02-23 07:11 J -20634745.44 -20634745.20 -20634744.96 0.0510 0.0057  
 Moon -61208-02-23 10:33 J -20634745.29 -20634745.06 -20634744.82 0.0510 0.0032 \*  
 Venus -61207-09-21 07:11 J -20634170.39 -20634170.20 -20634170.01 0.0523 0.0212  
 Mercury -61205-10-13 14:23 J -20633416.95 -20633416.90 -20633416.84 0.0528 0.0469  
 Mercury -61204-01-10 20:37 J -20633327.77 -20633327.64 -20633327.52 0.0527 0.0061  
 Earth -61203-08-18 08:52 J -20632743.26 -20632743.13 -20632742.99 0.0517 0.0417  
 Moon -61203-08-18 11:16 J -20632743.15 -20632743.03 -20632742.90 0.0517 0.0434 \*  
 Venus -61201-07-22 20:37 J -20632038.77 -20632038.64 -20632038.50 0.0502 0.0367

Mercury -61199-12-01 14:09 J -20631177.06 -20631176.91 -20631176.76 0.0498 0.0277  
 Mercury -61198-03-02 00:28 J -20631086.58 -20631086.48 -20631086.36 0.0499 0.0397  
 Moon -61196-02-28 02:52 J -20630357.52 -20630357.38 -20630357.23 0.0512 0.0410  
 Earth -61196-02-28 04:47 J -20630357.44 -20630357.30 -20630357.14 0.0512 0.0396 \*  
 Venus -61195-05-26 21:49 J -20629904.78 -20629904.59 -20629904.40 0.0522 0.0198  
 Mercury -61193-10-30 00:57 J -20629017.58 -20629017.46 -20629017.33 0.0528 0.0068  
 Mercury -61192-01-27 06:42 J -20628928.28 -20628928.22 -20628928.15 0.0527 0.0457  
 Moon -61191-08-22 23:01 J -20628355.76 -20628355.54 -20628355.31 0.0516 0.0054  
 Earth -61191-08-23 02:23 J -20628355.62 -20628355.40 -20628355.17 0.0516 0.0077 \*  
 Venus -61189-03-27 23:59 J -20627772.71 -20627772.50 -20627772.30 0.0503 0.0021  
 Mercury -61187-09-19 10:18 J -20626867.14 -20626867.07 -20626866.99 0.0497 0.0452  
 Mercury -61187-12-18 20:23 J -20626776.81 -20626776.65 -20626776.48 0.0498 0.0216  
 Mercury -61181-08-18 05:30 J -20624707.39 -20624707.27 -20624707.15 0.0529 0.0192  
 Mercury -61181-11-15 11:30 J -20624618.12 -20624618.02 -20624617.93 0.0528 0.0334  
 Earth -61179-08-27 18:57 J -20623967.91 -20623967.71 -20623967.51 0.0515 0.0260  
 Moon -61179-08-27 22:33 J -20623967.75 -20623967.56 -20623967.37 0.0515 0.0279 \*  
 Venus -61178-12-02 03:21 J -20623506.51 -20623506.36 -20623506.21 0.0504 0.0327  
 Mercury -61175-10-06 17:45 J -20622466.94 -20622466.76 -20622466.57 0.0498 0.0052  
 Venus -61171-05-30 00:28 J -20621135.58 -20621135.48 -20621135.38 0.0524 0.0455  
 Mercury -61169-06-06 09:49 J -20620397.19 -20620397.09 -20620396.99 0.0528 0.0320  
 Mercury -61169-09-03 15:49 J -20620307.96 -20620307.84 -20620307.72 0.0527 0.0207  
 Mercury -61163-07-25 15:06 J -20618157.05 -20618156.87 -20618156.68 0.0498 0.0110  
 Venus -61159-02-01 16:18 J -20616870.02 -20616869.82 -20616869.61 0.0523 0.0049  
 Mercury -61157-03-25 13:54 J -20616086.98 -20616086.92 -20616086.85 0.0528 0.0452  
 Mercury -61157-06-22 20:09 J -20615997.79 -20615997.66 -20615997.54 0.0527 0.0078  
 Venus -61154-12-04 10:33 J -20614738.24 -20614738.06 -20614737.88 0.0502 0.0226  
 Mercury -61151-05-13 12:42 J -20613847.12 -20613846.97 -20613846.81 0.0498 0.0269  
 Mercury -61151-08-11 23:16 J -20613756.63 -20613756.53 -20613756.42 0.0499 0.0405  
 Venus -61148-10-07 06:42 J -20612604.37 -20612604.22 -20612604.08 0.0521 0.0366  
 Mercury -61145-04-10 23:59 J -20611687.63 -20611687.50 -20611687.37 0.0528 0.0058

Mercury -61145-07-09 05:45 J -20611598.32 -20611598.26 -20611598.20 0.0527 0.0463  
 Venus -61142-08-09 13:25 J -20610472.13 -20610471.94 -20610471.74 0.0504 0.0124  
 Mars -61141-04-09 04:33 J -20610228.57 -20610228.31 -20610228.05 0.0500 0.0160  
 Mercury -61139-03-01 10:18 J -20609537.16 -20609537.07 -20609536.98 0.0498 0.0430  
 Mercury -61139-05-30 20:23 J -20609446.81 -20609446.65 -20609446.48 0.0498 0.0239  
 Earth -61137-02-18 16:47 J -20608817.98 -20608817.80 -20608817.61 0.0509 0.0313  
 Moon -61137-02-18 20:23 J -20608817.82 -20608817.65 -20608817.47 0.0509 0.0332 \*  
 Mercury -61133-01-29 04:18 J -20607377.44 -20607377.32 -20607377.20 0.0528 0.0187  
 Mercury -61133-04-27 10:18 J -20607288.17 -20607288.07 -20607287.98 0.0527 0.0339  
 Venus -61130-04-14 17:01 J -20606205.86 -20606205.79 -20606205.72 0.0505 0.0470  
 Mercury -61127-03-18 16:33 J -20605137.00 -20605136.81 -20605136.63 0.0498 0.0061  
 Moon -61125-02-23 06:42 J -20604430.46 -20604430.22 -20604429.97 0.0510 0.0016  
 Earth -61125-02-23 09:06 J -20604430.35 -20604430.12 -20604429.88 0.0510 0.0013 \*  
 Venus -61124-10-10 07:11 J -20603835.37 -20603835.20 -20603835.03 0.0524 0.0277  
 Mars -61123-04-16 15:21 J -20603647.12 -20603646.86 -20603646.59 0.0527 0.0143  
 Mercury -61122-11-17 08:37 J -20603067.24 -20603067.14 -20603067.04 0.0529 0.0316  
 Mercury -61121-02-14 14:37 J -20602978.00 -20602977.89 -20602977.77 0.0528 0.0215  
 Moon -61120-08-17 19:40 J -20602427.78 -20602427.68 -20602427.56 0.0518 0.0448  
 Earth -61120-08-17 23:16 J -20602427.65 -20602427.53 -20602427.41 0.0518 0.0435 \*  
 Venus -61118-08-11 23:01 J -20601703.63 -20601703.54 -20601703.44 0.0501 0.0436  
 Mercury -61115-01-04 13:40 J -20600827.11 -20600826.93 -20600826.75 0.0497 0.0103  
 Earth -61113-02-28 08:09 J -20600042.33 -20600042.16 -20600041.99 0.0512 0.0352  
 Moon -61113-02-28 08:37 J -20600042.29 -20600042.14 -20600041.98 0.0512 0.0373 \*  
 Venus -61112-06-14 22:47 J -20599569.75 -20599569.55 -20599569.35 0.0523 0.0131  
 Mercury -61110-09-05 12:57 J -20598757.03 -20598756.96 -20598756.89 0.0529 0.0445  
 Mercury -61110-12-03 19:11 J -20598667.83 -20598667.70 -20598667.58 0.0528 0.0087  
 Earth -61108-08-22 12:57 J -20598040.19 -20598039.96 -20598039.74 0.0516 0.0105  
 Moon -61108-08-22 16:33 J -20598040.04 -20598039.81 -20598039.59 0.0516 0.0074 \*  
 Venus -61106-04-17 00:42 J -20597437.67 -20597437.47 -20597437.27 0.0503 0.0085  
 Mars -61105-01-13 05:45 J -20597166.43 -20597166.26 -20597166.09 0.0499 0.0387

Mercury -61104-10-23 11:01 J -20596517.20 -20596517.04 -20596516.88 0.0498 0.0266

Mercury -61103-01-21 21:21 J -20596426.71 -20596426.61 -20596426.50 0.0498 0.0408

Mercury -61098-09-21 23:16 J -20594357.66 -20594357.53 -20594357.40 0.0528 0.0045

Mercury -61098-12-20 05:01 J -20594268.34 -20594268.29 -20594268.24 0.0527 0.0477

Moon -61096-08-26 23:16 J -20593652.74 -20593652.53 -20593652.32 0.0515 0.0237

Earth -61096-08-27 02:09 J -20593652.61 -20593652.41 -20593652.20 0.0515 0.0224 \*

Venus -61095-12-21 02:52 J -20593171.55 -20593171.38 -20593171.21 0.0504 0.0266

Mercury -61092-08-11 08:23 J -20592207.24 -20592207.15 -20592207.05 0.0498 0.0426

Mercury -61092-11-09 18:42 J -20592116.88 -20592116.72 -20592116.56 0.0498 0.0244

Mercury -61086-07-11 03:06 J -20590047.49 -20590047.37 -20590047.25 0.0528 0.0182

Mercury -61086-10-08 08:52 J -20589958.22 -20589958.13 -20589958.03 0.0527 0.0343

Mercury -61080-08-28 15:49 J -20587807.02 -20587806.84 -20587806.66 0.0498 0.0078

Venus -61076-02-20 16:33 J -20586535.01 -20586534.81 -20586534.61 0.0523 0.0112

Mercury -61074-04-29 07:25 J -20585737.30 -20585737.19 -20585737.09 0.0528 0.0313

Mercury -61074-07-27 13:25 J -20585648.06 -20585647.94 -20585647.83 0.0528 0.0216

Venus -61071-12-23 11:45 J -20584403.17 -20584403.01 -20584402.84 0.0502 0.0291

Mercury -61068-06-16 11:59 J -20583497.18 -20583497.00 -20583496.81 0.0497 0.0099

Venus -61065-10-26 04:18 J -20582269.48 -20582269.32 -20582269.15 0.0522 0.0311

Mercury -61062-02-15 11:30 J -20581427.09 -20581427.02 -20581426.95 0.0529 0.0446

Mercury -61062-05-15 17:45 J -20581337.89 -20581337.76 -20581337.64 0.0528 0.0088

Venus -61059-08-28 15:06 J -20580137.07 -20580136.87 -20580136.67 0.0503 0.0055

Mercury -61056-04-04 09:21 J -20579187.27 -20579187.11 -20579186.95 0.0497 0.0262

Mercury -61056-07-03 19:25 J -20579096.79 -20579096.69 -20579096.58 0.0498 0.0410

Moon -61054-02-17 14:52 J -20578503.03 -20578502.88 -20578502.72 0.0508 0.0389

Earth -61054-02-17 17:45 J -20578502.92 -20578502.76 -20578502.59 0.0508 0.0365 \*

Mercury -61050-03-03 22:04 J -20577027.71 -20577027.58 -20577027.46 0.0528 0.0044

Mercury -61050-06-01 03:49 J -20576938.39 -20576938.34 -20576938.29 0.0527 0.0481

Venus -61047-05-03 16:18 J -20575870.93 -20575870.82 -20575870.70 0.0504 0.0410

Mercury -61044-01-21 06:28 J -20574877.32 -20574877.23 -20574877.14 0.0497 0.0426

Mercury -61044-04-21 16:33 J -20574786.97 -20574786.81 -20574786.65 0.0498 0.0243

Earth -61042-02-22 16:33 J -20574115.05 -20574114.81 -20574114.57 0.0510 0.0023  
 Moon -61042-02-22 17:30 J -20574115.00 -20574114.77 -20574114.54 0.0510 0.0041 \*  
 Venus -61041-10-29 09:21 J -20573500.26 -20573500.11 -20573499.96 0.0524 0.0352  
 Mercury -61039-12-21 02:09 J -20572717.53 -20572717.41 -20572717.29 0.0528 0.0174  
 Mercury -61038-03-20 07:54 J -20572628.26 -20572628.17 -20572628.07 0.0527 0.0352  
 Earth -61037-08-17 03:49 J -20572112.41 -20572112.34 -20572112.25 0.0518 0.0481  
 Moon -61037-08-17 07:40 J -20572112.26 -20572112.18 -20572112.10 0.0518 0.0482 \*  
 Venus -61035-08-30 21:06 J -20571368.65 -20571368.62 -20571368.57 0.0502 0.0489  
 Mercury -61032-02-07 13:40 J -20570477.11 -20570476.93 -20570476.74 0.0498 0.0078  
 Earth -61030-02-27 14:37 J -20569727.07 -20569726.89 -20569726.70 0.0511 0.0321  
 Moon -61030-02-27 15:35 J -20569727.03 -20569726.85 -20569726.66 0.0511 0.0342 \*  
 Venus -61029-07-03 23:16 J -20569234.73 -20569234.53 -20569234.32 0.0522 0.0064  
 Mercury -61027-10-09 05:45 J -20568407.36 -20568407.26 -20568407.15 0.0528 0.0314  
 Mercury -61026-01-06 11:59 J -20568318.12 -20568318.00 -20568317.89 0.0527 0.0216  
 Moon -61025-08-21 13:40 J -20567725.15 -20567724.93 -20567724.70 0.0517 0.0121  
 Earth -61025-08-21 16:47 J -20567725.01 -20567724.80 -20567724.58 0.0517 0.0152 \*  
 Venus -61023-05-05 23:30 J -20567102.72 -20567102.52 -20567102.33 0.0503 0.0140  
 Mars -61023-09-29 11:45 J -20566956.02 -20566956.01 -20566956.00 0.0501 0.0500  
 Mercury -61021-11-26 10:47 J -20566167.23 -20566167.05 -20566166.86 0.0498 0.0088  
 Venus -61017-03-08 13:11 J -20564969.03 -20564968.95 -20564968.87 0.0521 0.0475  
 Mercury -61015-07-28 09:49 J -20564097.15 -20564097.09 -20564097.02 0.0529 0.0447  
 Mercury -61015-10-25 16:04 J -20564007.95 -20564007.83 -20564007.70 0.0528 0.0086  
 Earth -61013-08-26 08:37 J -20563337.35 -20563337.14 -20563336.92 0.0515 0.0186  
 Moon -61013-08-26 10:33 J -20563337.26 -20563337.06 -20563336.85 0.0515 0.0197 \*  
 Venus -61011-01-09 02:52 J -20562836.56 -20562836.38 -20562836.19 0.0504 0.0206  
 Mercury -61009-09-14 07:25 J -20561857.35 -20561857.19 -20561857.03 0.0497 0.0260  
 Mercury -61009-12-13 17:30 J -20561766.87 -20561766.77 -20561766.66 0.0498 0.0412  
 Mars -61005-10-03 21:49 J -20560376.81 -20560376.59 -20560376.38 0.0526 0.0333  
 Mercury -61003-08-13 20:09 J -20559697.78 -20559697.66 -20559697.53 0.0529 0.0050  
 Mercury -61003-11-11 02:09 J -20559608.46 -20559608.41 -20559608.36 0.0528 0.0478

Moon -61001-08-30 23:16 J -20558949.59 -20558949.53 -20558949.45 0.0514 0.0492

# 61ST MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 61st millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-60997-07-03 04:33 J	-20557547.40	-20557547.31	-20557547.22	0.0497	0.0424		
Mercury	-60997-10-01 14:23 J	-20557457.06	-20557456.90	-20557456.73	0.0498	0.0243		
Venus	-60993-03-11 13:40 J	-20556200.13	-20556199.93	-20556199.73	0.0523	0.0164		
Mercury	-60991-06-02 00:28 J	-20555387.60	-20555387.48	-20555387.36	0.0529	0.0177		
Mercury	-60991-08-30 06:28 J	-20555298.33	-20555298.23	-20555298.14	0.0528	0.0350		
Venus	-60987-01-11 09:35 J	-20554068.25	-20554068.10	-20554067.95	0.0502	0.0342		
Mars	-60987-07-04 06:13 J	-20553894.51	-20553894.24	-20553893.97	0.0499	0.0029		
Mercury	-60985-07-20 11:16 J	-20553147.22	-20553147.03	-20553146.85	0.0498	0.0074		
Venus	-60982-11-15 05:01 J	-20551934.47	-20551934.29	-20551934.11	0.0522	0.0242		
Mercury	-60979-03-21 04:33 J	-20551077.41	-20551077.31	-20551077.20	0.0529	0.0309		
Mercury	-60979-06-18 10:33 J	-20550988.17	-20550988.06	-20550987.94	0.0528	0.0220		
Venus	-60976-09-16 11:30 J	-20549802.22	-20549802.02	-20549801.81	0.0503	0.0013		
Mercury	-60973-05-08 08:23 J	-20548837.33	-20548837.15	-20548836.97	0.0498	0.0092		
Earth	-60971-02-16 22:18 J	-20548187.71	-20548187.57	-20548187.42	0.0508	0.0403		
Moon	-60971-02-16 23:30 J	-20548187.63	-20548187.52	-20548187.39	0.0508	0.0433	*	
Mars	-60969-07-10 18:13 J	-20547312.94	-20547312.74	-20547312.54	0.0527	0.0356		
Mercury	-60967-01-07 08:09 J	-20546767.22	-20546767.16	-20546767.09	0.0529	0.0450		



Mercury -60967-04-06 14:23 J -20546678.02 -20546677.90 -20546677.77 0.0528 0.0083

Venus -60964-05-22 13:25 J -20545536.07 -20545535.94 -20545535.80 0.0505 0.0362

Mercury -60961-02-25 05:30 J -20544527.43 -20544527.27 -20544527.11 0.0497 0.0257

Mercury -60961-05-25 15:49 J -20544436.94 -20544436.84 -20544436.74 0.0498 0.0416

Earth -60959-02-21 17:59 J -20543799.98 -20543799.75 -20543799.51 0.0509 0.0071

Moon -60959-02-21 18:28 J -20543799.97 -20543799.73 -20543799.49 0.0509 0.0087 \*

Venus -60958-11-18 06:13 J -20543165.37 -20543165.24 -20543165.11 0.0524 0.0401

Mercury -60955-01-23 18:28 J -20542367.86 -20542367.73 -20542367.60 0.0528 0.0051

Mercury -60955-04-23 00:13 J -20542278.54 -20542278.49 -20542278.43 0.0527 0.0473

Mercury -60950-12-14 02:09 J -20540217.50 -20540217.41 -20540217.31 0.0497 0.0426

Mercury -60949-03-13 12:13 J -20540127.16 -20540126.99 -20540126.83 0.0497 0.0241

Moon -60947-02-26 08:09 J -20539412.35 -20539412.16 -20539411.96 0.0510 0.0277

Earth -60947-02-26 10:18 J -20539412.27 -20539412.07 -20539411.86 0.0510 0.0253 \*

Venus -60946-07-23 17:45 J -20538899.97 -20538899.76 -20538899.55 0.0522 0.0024

Mercury -60944-11-11 22:18 J -20538057.68 -20538057.57 -20538057.45 0.0529 0.0188

Mercury -60943-02-09 04:18 J -20537968.41 -20537968.32 -20537968.22 0.0528 0.0343

Earth -60942-08-21 22:18 J -20537409.78 -20537409.57 -20537409.36 0.0517 0.0195

Moon -60942-08-22 00:13 J -20537409.70 -20537409.49 -20537409.28 0.0517 0.0164 \*

Venus -60940-05-24 22:33 J -20536767.75 -20536767.56 -20536767.38 0.0503 0.0197

Mercury -60938-12-31 08:52 J -20535817.31 -20535817.13 -20535816.94 0.0497 0.0073

Venus -60934-03-28 08:09 J -20534634.26 -20534634.16 -20534634.04 0.0521 0.0433

Mercury -60932-08-31 02:37 J -20533747.49 -20533747.39 -20533747.29 0.0529 0.0318

Mercury -60932-11-28 08:37 J -20533658.25 -20533658.14 -20533658.02 0.0528 0.0214

Moon -60930-08-26 10:33 J -20533022.28 -20533022.06 -20533021.82 0.0516 0.0143

Earth -60930-08-26 11:16 J -20533022.25 -20533022.03 -20533021.81 0.0516 0.0136 \*

Venus -60928-01-27 23:16 J -20532501.72 -20532501.53 -20532501.34 0.0504 0.0160

Mercury -60926-10-19 05:30 J -20531507.45 -20531507.27 -20531507.09 0.0497 0.0100

Mercury -60920-06-19 06:42 J -20529437.28 -20529437.22 -20529437.15 0.0529 0.0450

Mercury -60920-09-16 12:57 J -20529348.09 -20529347.96 -20529347.84 0.0528 0.0082

Moon -60918-08-30 22:18 J -20528634.67 -20528634.57 -20528634.44 0.0514 0.0437

Earth -60918-08-30 23:45 J -20528634.60 -20528634.51 -20528634.40 0.0514 0.0463 \*  
 Mercury -60914-08-07 02:37 J -20527197.55 -20527197.39 -20527197.24 0.0497 0.0266  
 Mercury -60914-11-05 12:57 J -20527107.07 -20527106.96 -20527106.86 0.0498 0.0407  
 Venus -60910-03-31 11:45 J -20525865.19 -20525865.01 -20525864.82 0.0523 0.0219  
 Mercury -60908-07-05 16:47 J -20525037.93 -20525037.80 -20525037.68 0.0528 0.0059  
 Mercury -60908-10-02 22:33 J -20524948.62 -20524948.56 -20524948.51 0.0527 0.0467  
 Venus -60904-01-30 05:30 J -20523733.39 -20523733.27 -20523733.14 0.0502 0.0385  
 Mercury -60902-05-25 23:45 J -20522887.60 -20522887.51 -20522887.42 0.0497 0.0430  
 Mercury -60902-08-24 09:35 J -20522797.25 -20522797.10 -20522796.93 0.0498 0.0239  
 Venus -60899-12-04 00:57 J -20521599.65 -20521599.46 -20521599.26 0.0522 0.0197  
 Mercury -60896-04-23 20:37 J -20520727.76 -20520727.64 -20520727.52 0.0528 0.0192  
 Mercury -60896-07-22 02:37 J -20520638.49 -20520638.39 -20520638.30 0.0528 0.0336  
 Venus -60893-10-05 08:52 J -20519467.33 -20519467.13 -20519466.93 0.0503 0.0041  
 Mercury -60890-06-12 06:28 J -20518487.42 -20518487.23 -20518487.05 0.0497 0.0067  
 Earth -60888-02-15 17:45 J -20517872.84 -20517872.76 -20517872.67 0.0507 0.0469  
 Moon -60888-02-15 17:30 J -20517872.81 -20517872.77 -20517872.72 0.0507 0.0497 \*  
 Mercury -60884-02-10 00:13 J -20516417.58 -20516417.49 -20516417.39 0.0529 0.0332  
 Mercury -60884-05-10 06:28 J -20516328.34 -20516328.23 -20516328.11 0.0528 0.0201  
 Venus -60881-06-10 11:30 J -20515201.18 -20515201.02 -20515200.86 0.0505 0.0308  
 Mercury -60878-03-31 03:06 J -20514177.55 -20514177.37 -20514177.18 0.0497 0.0103  
 Moon -60876-02-20 11:30 J -20513485.23 -20513485.02 -20513484.80 0.0509 0.0155  
 Earth -60876-02-20 13:11 J -20513485.18 -20513484.95 -20513484.72 0.0509 0.0139 \*  
 Venus -60875-12-07 00:28 J -20512830.59 -20512830.48 -20512830.37 0.0524 0.0440  
 Mercury -60873-11-29 04:33 J -20512107.37 -20512107.31 -20512107.25 0.0529 0.0463  
 Mercury -60872-02-26 10:47 J -20512018.18 -20512018.05 -20512017.92 0.0528 0.0071  
 Mars -60869-12-22 21:21 J -20510622.80 -20510622.61 -20510622.42 0.0500 0.0351  
 Mercury -60866-01-16 23:30 J -20509867.67 -20509867.52 -20509867.36 0.0497 0.0276  
 Mercury -60866-04-17 09:35 J -20509777.20 -20509777.10 -20509776.98 0.0498 0.0397  
 Earth -60864-02-25 10:33 J -20509097.28 -20509097.06 -20509096.84 0.0510 0.0203  
 Moon -60864-02-25 13:40 J -20509097.14 -20509096.93 -20509096.71 0.0510 0.0232 \*

Venus -60863-08-11 16:04 J -20508565.03 -20508564.83 -20508564.62 0.0523 0.0035  
 Mercury -60861-12-15 15:06 J -20507708.00 -20507707.87 -20507707.75 0.0528 0.0062  
 Mercury -60860-03-14 20:52 J -20507618.69 -20507618.63 -20507618.57 0.0527 0.0465  
 Moon -60859-08-20 20:09 J -20507094.87 -20507094.66 -20507094.44 0.0517 0.0227  
 Earth -60859-08-20 21:06 J -20507094.82 -20507094.62 -20507094.42 0.0517 0.0258 \*  
 Venus -60857-06-12 16:18 J -20506432.99 -20506432.82 -20506432.64 0.0502 0.0232  
 Mercury -60855-11-04 20:37 J -20505557.72 -20505557.64 -20505557.55 0.0497 0.0441  
 Mercury -60854-02-03 06:28 J -20505467.39 -20505467.23 -20505467.06 0.0498 0.0228  
 Venus -60851-04-16 05:59 J -20504299.38 -20504299.25 -20504299.10 0.0521 0.0379  
 Mars -60851-12-28 10:33 J -20504043.32 -20504043.06 -20504042.79 0.0526 0.0153  
 Mercury -60849-10-03 18:42 J -20503397.84 -20503397.72 -20503397.60 0.0528 0.0199  
 Mercury -60848-01-01 00:42 J -20503308.57 -20503308.47 -20503308.37 0.0527 0.0329  
 Moon -60847-08-25 08:09 J -20502707.38 -20502707.16 -20502706.94 0.0516 0.0072  
 Earth -60847-08-25 09:06 J -20502707.35 -20502707.12 -20502706.90 0.0516 0.0071 \*  
 Venus -60845-02-16 18:13 J -20502166.93 -20502166.74 -20502166.55 0.0504 0.0122  
 Mercury -60843-11-22 03:35 J -20501157.54 -20501157.35 -20501157.17 0.0498 0.0059  
 Mercury -60837-07-22 22:33 J -20499087.66 -20499087.56 -20499087.46 0.0529 0.0337  
 Mercury -60837-10-20 04:33 J -20498998.42 -20498998.31 -20498998.19 0.0528 0.0195  
 Earth -60835-08-29 23:01 J -20498319.68 -20498319.54 -20498319.40 0.0515 0.0403  
 Moon -60835-08-30 01:40 J -20498319.58 -20498319.43 -20498319.26 0.0515 0.0374 \*  
 Venus -60834-10-22 21:06 J -20497900.69 -20497900.62 -20497900.55 0.0505 0.0469  
 Mars -60833-09-26 15:35 J -20497561.10 -20497560.85 -20497560.59 0.0499 0.0178  
 Mercury -60831-09-10 00:28 J -20496847.66 -20496847.48 -20496847.30 0.0497 0.0109  
 Venus -60827-04-19 04:33 J -20495530.49 -20495530.31 -20495530.13 0.0523 0.0250  
 Mercury -60825-05-11 02:09 J -20494777.46 -20494777.41 -20494777.36 0.0529 0.0478  
 Mercury -60825-08-08 08:23 J -20494688.27 -20494688.15 -20494688.02 0.0529 0.0059  
 Venus -60821-02-19 02:37 J -20493398.49 -20493398.39 -20493398.29 0.0502 0.0433  
 Mercury -60819-06-28 21:21 J -20492537.76 -20492537.61 -20492537.46 0.0497 0.0277  
 Mercury -60819-09-27 07:25 J -20492447.30 -20492447.19 -20492447.08 0.0498 0.0394  
 Venus -60816-12-22 18:57 J -20491264.91 -20491264.71 -20491264.52 0.0522 0.0160

Mars -60815-10-03 13:40 J -20490980.03 -20490979.93 -20490979.82 0.0527 0.0487  
 Mercury -60813-05-27 12:42 J -20490378.10 -20490377.97 -20490377.84 0.0529 0.0073  
 Mercury -60813-08-24 18:28 J -20490288.79 -20490288.73 -20490288.66 0.0528 0.0454  
 Venus -60810-10-25 03:06 J -20489132.57 -20489132.37 -20489132.17 0.0503 0.0075  
 Mercury -60807-04-16 17:30 J -20488227.84 -20488227.77 -20488227.69 0.0497 0.0452  
 Mercury -60807-07-16 03:21 J -20488137.52 -20488137.36 -20488137.19 0.0498 0.0216  
 Mercury -60801-03-15 17:01 J -20486067.91 -20486067.79 -20486067.67 0.0529 0.0203  
 Mercury -60801-06-12 23:01 J -20485978.64 -20485978.54 -20485978.44 0.0528 0.0326  
 Venus -60798-06-30 05:01 J -20484866.45 -20484866.29 -20484866.12 0.0504 0.0276  
 Mercury -60795-05-04 00:13 J -20483827.67 -20483827.49 -20483827.30 0.0498 0.0048  
 Earth -60793-02-20 12:57 J -20483170.18 -20483169.96 -20483169.74 0.0509 0.0190  
 Moon -60793-02-20 15:49 J -20483170.06 -20483169.84 -20483169.61 0.0509 0.0197 \*  
 Venus -60792-12-25 22:04 J -20482495.64 -20482495.58 -20482495.51 0.0524 0.0491  
 Mercury -60789-01-02 20:37 J -20481757.73 -20481757.64 -20481757.54 0.0528 0.0343  
 Mercury -60789-04-01 02:52 J -20481668.50 -20481668.38 -20481668.26 0.0528 0.0189  
 Mercury -60783-02-19 21:21 J -20479517.79 -20479517.61 -20479517.43 0.0498 0.0120  
 Moon -60781-02-25 05:16 J -20478782.50 -20478782.28 -20478782.06 0.0510 0.0175  
 Earth -60781-02-25 09:06 J -20478782.34 -20478782.12 -20478781.89 0.0510 0.0147 \*  
 Venus -60780-08-30 11:45 J -20478230.22 -20478230.01 -20478229.81 0.0522 0.0077  
 Mercury -60778-10-22 00:28 J -20477447.53 -20477447.48 -20477447.43 0.0529 0.0481  
 Mercury -60777-01-19 06:42 J -20477358.35 -20477358.22 -20477358.09 0.0528 0.0053  
 Moon -60776-08-19 17:59 J -20476779.93 -20476779.75 -20476779.57 0.0518 0.0298  
 Earth -60776-08-19 18:42 J -20476779.90 -20476779.72 -20476779.55 0.0518 0.0325 \*  
 Venus -60774-07-02 12:13 J -20476098.15 -20476097.99 -20476097.82 0.0503 0.0274  
 Mercury -60772-12-08 18:28 J -20475207.87 -20475207.73 -20475207.57 0.0497 0.0284  
 Mercury -60771-03-09 04:33 J -20475117.42 -20475117.31 -20475117.19 0.0498 0.0388  
 Earth -60769-03-01 02:52 J -20474394.46 -20474394.38 -20474394.30 0.0511 0.0479  
 Moon -60769-03-01 06:42 J -20474394.28 -20474394.22 -20474394.16 0.0511 0.0490  
 Venus -60768-05-04 23:01 J -20473964.68 -20473964.54 -20473964.38 0.0521 0.0346  
 Mercury -60766-11-07 10:33 J -20473048.19 -20473048.06 -20473047.94 0.0529 0.0088

Mercury -60765-02-04 16:18 J -20472958.88 -20472958.82 -20472958.75 0.0528 0.0441  
 Earth -60764-08-24 09:06 J -20472392.35 -20472392.12 -20472391.89 0.0517 0.0015  
 Moon -60764-08-24 11:45 J -20472392.24 -20472392.01 -20472391.77 0.0517 0.0009 \*  
 Venus -60762-03-07 14:52 J -20471832.07 -20471831.88 -20471831.68 0.0504 0.0076  
 Mercury -60760-09-26 15:35 J -20470897.92 -20470897.85 -20470897.77 0.0497 0.0450  
 Mercury -60760-12-26 01:25 J -20470807.61 -20470807.44 -20470807.27 0.0497 0.0216  
 Mercury -60754-08-26 14:37 J -20468738.00 -20468737.89 -20468737.77 0.0529 0.0217  
 Mercury -60754-11-23 20:37 J -20468648.74 -20468648.64 -20468648.54 0.0528 0.0314  
 Moon -60752-08-28 18:42 J -20468004.89 -20468004.72 -20468004.54 0.0515 0.0316  
 Earth -60752-08-28 22:18 J -20468004.73 -20468004.57 -20468004.39 0.0515 0.0349 \*  
 Venus -60751-11-10 15:35 J -20467565.95 -20467565.85 -20467565.75 0.0505 0.0434  
 Mercury -60748-10-13 21:21 J -20466497.80 -20466497.61 -20466497.43 0.0498 0.0038  
 Venus -60744-05-08 02:23 J -20465195.56 -20465195.40 -20465195.22 0.0523 0.0306  
 Mercury -60742-06-14 18:57 J -20464427.80 -20464427.71 -20464427.61 0.0529 0.0346  
 Mercury -60742-09-12 01:11 J -20464338.57 -20464338.45 -20464338.33 0.0528 0.0187  
 Venus -60738-03-09 20:23 J -20463063.73 -20463063.65 -20463063.58 0.0502 0.0463  
 Mercury -60736-08-01 18:13 J -20462187.92 -20462187.74 -20462187.56 0.0497 0.0131  
 Venus -60732-01-10 17:01 J -20460929.99 -20460929.79 -20460929.58 0.0522 0.0106  
 Mercury -60730-04-02 22:47 J -20460117.60 -20460117.55 -20460117.50 0.0529 0.0485  
 Mercury -60730-07-01 05:01 J -20460028.42 -20460028.29 -20460028.16 0.0528 0.0050  
 Venus -60727-11-12 21:49 J -20458797.78 -20458797.59 -20458797.39 0.0503 0.0113  
 Mercury -60724-05-20 15:35 J -20457878.00 -20457877.85 -20457877.70 0.0497 0.0295  
 Mercury -60724-08-19 01:40 J -20457787.55 -20457787.43 -20457787.31 0.0498 0.0378  
 Venus -60721-09-15 06:42 J -20456664.24 -20456664.22 -20456664.20 0.0520 0.0516  
 Mercury -60718-04-19 08:52 J -20455718.25 -20455718.13 -20455718.00 0.0528 0.0087  
 Mercury -60718-07-17 14:37 J -20455628.95 -20455628.89 -20455628.82 0.0527 0.0440  
 Venus -60715-07-19 00:57 J -20454531.64 -20454531.46 -20454531.28 0.0505 0.0234  
 Mars -60714-03-18 02:23 J -20454289.64 -20454289.40 -20454289.15 0.0500 0.0213  
 Mercury -60712-03-08 12:57 J -20453568.03 -20453567.96 -20453567.89 0.0497 0.0456  
 Mercury -60712-06-06 22:47 J -20453477.72 -20453477.55 -20453477.38 0.0498 0.0212

Moon -60710-02-19 07:11 J -20452855.41 -20452855.20 -20452855.00 0.0508 0.0252  
 Earth -60710-02-19 10:47 J -20452855.25 -20452855.05 -20452854.84 0.0508 0.0248 \*  
 Mercury -60706-02-05 12:28 J -20451408.09 -20451407.98 -20451407.86 0.0529 0.0228  
 Mercury -60706-05-05 18:28 J -20451318.83 -20451318.73 -20451318.62 0.0528 0.0304  
 Mercury -60700-03-25 19:40 J -20449167.87 -20449167.68 -20449167.50 0.0497 0.0043  
 Earth -60698-02-24 06:13 J -20448467.48 -20448467.24 -20448467.01 0.0509 0.0086  
 Moon -60698-02-24 10:04 J -20448467.31 -20448467.08 -20448466.85 0.0509 0.0119 \*  
 Venus -60697-09-18 06:42 J -20447895.42 -20447895.22 -20447895.02 0.0522 0.0118  
 Mars -60696-03-22 06:42 J -20447710.49 -20447710.22 -20447709.94 0.0526 0.0017  
 Mercury -60695-11-24 16:47 J -20447097.89 -20447097.80 -20447097.71 0.0529 0.0358  
 Mercury -60694-02-21 23:01 J -20447008.66 -20447008.54 -20447008.42 0.0528 0.0176  
 Earth -60693-08-18 18:57 J -20446464.86 -20446464.71 -20446464.55 0.0518 0.0379  
 Moon -60693-08-18 21:06 J -20446464.79 -20446464.62 -20446464.44 0.0518 0.0352 \*  
 Venus -60691-07-21 07:11 J -20445763.35 -20445763.20 -20445763.04 0.0502 0.0309  
 Mercury -60688-01-11 15:21 J -20444858.03 -20444857.86 -20444857.68 0.0497 0.0139  
 Moon -60686-02-28 22:47 J -20444079.67 -20444079.55 -20444079.42 0.0511 0.0437  
 Earth -60686-03-01 01:54 J -20444079.54 -20444079.42 -20444079.29 0.0511 0.0428 \*  
 Venus -60685-05-23 21:49 J -20443629.77 -20443629.59 -20443629.42 0.0521 0.0290  
 Mercury -60683-09-12 21:06 J -20442787.66 -20442787.62 -20442787.57 0.0529 0.0486  
 Mercury -60683-12-11 03:21 J -20442698.48 -20442698.36 -20442698.23 0.0528 0.0054  
 Moon -60681-08-23 07:11 J -20442077.42 -20442077.20 -20442076.97 0.0517 0.0051  
 Earth -60681-08-23 10:47 J -20442077.28 -20442077.05 -20442076.82 0.0517 0.0038 \*  
 Venus -60679-03-26 09:35 J -20441497.30 -20441497.10 -20441496.90 0.0504 0.0040  
 Mars -60679-12-20 14:52 J -20441228.09 -20441227.88 -20441227.66 0.0499 0.0307  
 Mercury -60677-10-30 12:28 J -20440548.12 -20440547.98 -20440547.83 0.0497 0.0304  
 Mercury -60676-01-28 22:47 J -20440457.68 -20440457.55 -20440457.43 0.0498 0.0369  
 Mercury -60671-09-29 07:25 J -20438388.32 -20438388.19 -20438388.06 0.0528 0.0087  
 Mercury -60671-12-27 13:11 J -20438299.01 -20438298.95 -20438298.88 0.0527 0.0440  
 Earth -60669-08-27 22:47 J -20437689.73 -20437689.55 -20437689.36 0.0515 0.0293  
 Moon -60669-08-28 02:52 J -20437689.57 -20437689.38 -20437689.18 0.0515 0.0261 \*

Venus -60668-11-29 11:16 J -20437231.15 -20437231.03 -20437230.90 0.0505 0.0392  
 Mercury -60665-08-18 10:04 J -20436238.14 -20436238.08 -20436238.02 0.0497 0.0465  
 Mercury -60665-11-16 19:54 J -20436147.84 -20436147.67 -20436147.50 0.0498 0.0203  
 Venus -60661-05-27 00:13 J -20434860.63 -20434860.49 -20434860.34 0.0523 0.0358  
 Mercury -60659-07-18 11:16 J -20434078.14 -20434078.03 -20434077.91 0.0528 0.0224  
 Mercury -60659-10-15 17:16 J -20433988.88 -20433988.78 -20433988.68 0.0528 0.0306  
 Mercury -60653-09-04 17:16 J -20431837.97 -20431837.78 -20431837.60 0.0498 0.0040  
 Venus -60649-01-30 12:57 J -20430595.17 -20430594.96 -20430594.76 0.0522 0.0061  
 Mercury -60647-05-06 14:52 J -20429767.97 -20429767.88 -20429767.78 0.0529 0.0365  
 Mercury -60647-08-03 21:06 J -20429678.74 -20429678.62 -20429678.50 0.0528 0.0170  
 Venus -60644-12-01 19:54 J -20428462.86 -20428462.67 -20428462.48 0.0503 0.0164  
 Mercury -60641-06-23 14:09 J -20427528.08 -20427527.91 -20427527.73 0.0497 0.0128  
 Venus -60638-10-05 03:06 J -20426329.46 -20426329.37 -20426329.28 0.0520 0.0468  
 Mercury -60635-02-22 19:11 J -20425457.74 -20425457.70 -20425457.66 0.0529 0.0495  
 Mercury -60635-05-23 01:25 J -20425368.56 -20425368.44 -20425368.31 0.0528 0.0046  
 Venus -60632-08-06 21:21 J -20424196.80 -20424196.61 -20424196.43 0.0504 0.0192  
 Mercury -60629-04-11 10:04 J -20423218.22 -20423218.08 -20423217.93 0.0497 0.0308  
 Mercury -60629-07-10 20:09 J -20423127.78 -20423127.66 -20423127.53 0.0498 0.0365  
 Earth -60627-02-18 10:18 J -20422540.26 -20422540.07 -20422539.87 0.0508 0.0300  
 Moon -60627-02-18 14:23 J -20422540.09 -20422539.90 -20422539.71 0.0508 0.0295 \*  
 Mercury -60623-03-11 05:59 J -20421058.37 -20421058.25 -20421058.12 0.0528 0.0085  
 Mercury -60623-06-08 11:59 J -20420969.07 -20420969.00 -20420968.93 0.0527 0.0444  
 Mercury -60617-01-29 07:25 J -20418908.24 -20418908.19 -20418908.13 0.0497 0.0470  
 Mercury -60617-04-28 17:16 J -20418817.95 -20418817.78 -20418817.61 0.0498 0.0198  
 Moon -60615-02-23 04:47 J -20418152.54 -20418152.30 -20418152.05 0.0509 0.0075  
 Earth -60615-02-23 08:23 J -20418152.39 -20418152.15 -20418151.91 0.0509 0.0043 \*  
 Venus -60614-10-08 07:11 J -20417560.39 -20417560.20 -20417560.00 0.0523 0.0182  
 Mercury -60612-12-28 10:04 J -20416748.20 -20416748.08 -20416747.96 0.0528 0.0219  
 Mercury -60611-03-27 16:04 J -20416658.93 -20416658.83 -20416658.73 0.0527 0.0311  
 Moon -60610-08-18 18:42 J -20416149.85 -20416149.72 -20416149.58 0.0518 0.0407

Earth -60610-08-18 22:04 J -20416149.70 -20416149.58 -20416149.44 0.0518 0.0430 \*  
 Venus -60608-08-09 04:18 J -20415428.45 -20415428.32 -20415428.17 0.0502 0.0357  
 Mercury -60605-02-15 14:37 J -20414508.07 -20414507.89 -20414507.70 0.0498 0.0034  
 Earth -60603-02-28 06:13 J -20413764.39 -20413764.24 -20413764.08 0.0511 0.0389  
 Moon -60603-02-28 07:54 J -20413764.30 -20413764.17 -20413764.02 0.0511 0.0396 \*  
 Venus -60602-06-12 21:21 J -20413294.79 -20413294.61 -20413294.42 0.0521 0.0227  
 Mercury -60600-10-16 13:54 J -20412438.01 -20412437.92 -20412437.82 0.0528 0.0356  
 Mercury -60599-01-13 20:09 J -20412348.78 -20412348.66 -20412348.54 0.0528 0.0178  
 Earth -60598-08-23 12:42 J -20411762.19 -20411761.97 -20411761.74 0.0517 0.0090  
 Moon -60598-08-23 16:47 J -20411762.03 -20411761.80 -20411761.58 0.0517 0.0107 \*  
 Venus -60596-04-14 07:25 J -20411162.39 -20411162.19 -20411161.99 0.0504 0.0013  
 Mercury -60594-12-04 12:13 J -20410198.17 -20410197.99 -20410197.81 0.0497 0.0126  
 Mercury -60588-08-04 17:30 J -20408127.81 -20408127.77 -20408127.72 0.0529 0.0497  
 Mercury -60588-11-01 23:59 J -20408038.63 -20408038.50 -20408038.37 0.0528 0.0041  
 Moon -60586-08-27 23:30 J -20407374.73 -20407374.52 -20407374.31 0.0516 0.0217  
 Earth -60586-08-28 03:06 J -20407374.57 -20407374.37 -20407374.17 0.0516 0.0250 \*  
 Venus -60585-12-18 10:18 J -20406896.22 -20406896.07 -20406895.92 0.0505 0.0337  
 Mercury -60582-09-22 09:21 J -20405888.25 -20405888.11 -20405887.96 0.0497 0.0291  
 Mercury -60582-12-21 19:25 J -20405797.80 -20405797.69 -20405797.57 0.0498 0.0382  
 Venus -60578-06-15 22:33 J -20404525.68 -20404525.56 -20404525.43 0.0523 0.0413  
 Mars -60578-09-09 08:52 J -20404440.23 -20404440.13 -20404440.03 0.0525 0.0488  
 Mercury -60576-08-21 04:18 J -20403728.44 -20403728.32 -20403728.19 0.0529 0.0088  
 Mercury -60576-11-18 10:18 J -20403639.14 -20403639.07 -20403639.00 0.0528 0.0441  
 Mercury -60570-07-11 05:16 J -20401578.33 -20401578.28 -20401578.21 0.0497 0.0470  
 Mercury -60570-10-09 15:06 J -20401488.04 -20401487.87 -20401487.70 0.0498 0.0198  
 Venus -60566-02-18 13:40 J -20400260.14 -20400259.93 -20400259.73 0.0523 0.0012  
 Mercury -60564-06-09 08:52 J -20399418.24 -20399418.13 -20399418.01 0.0529 0.0213  
 Mercury -60564-09-06 14:52 J -20399328.98 -20399328.88 -20399328.78 0.0528 0.0320  
 Venus -60561-12-20 17:30 J -20398127.94 -20398127.77 -20398127.58 0.0503 0.0213  
 Mars -60560-06-10 16:47 J -20397956.06 -20397955.80 -20397955.53 0.0500 0.0047



Mercury -60558-07-28 12:28 J -20397178.17 -20397177.98 -20397177.80 0.0498 0.0034

Venus -60555-10-24 04:33 J -20395994.43 -20395994.31 -20395994.17 0.0521 0.0400

Mercury -60552-03-28 12:57 J -20395108.05 -20395107.96 -20395107.86 0.0529 0.0347

Mercury -60552-06-25 19:11 J -20395018.82 -20395018.70 -20395018.58 0.0528 0.0187

Venus -60549-08-25 19:54 J -20393861.86 -20393861.67 -20393861.47 0.0504 0.0137

Mercury -60546-05-16 10:04 J -20392868.26 -20392868.08 -20392867.90 0.0498 0.0128

Moon -60544-02-17 14:09 J -20392225.08 -20392224.91 -20392224.71 0.0508 0.0327

Earth -60544-02-17 17:59 J -20392224.93 -20392224.75 -20392224.57 0.0508 0.0332 \*

Mars -60542-06-16 15:49 J -20391376.09 -20391375.84 -20391375.59 0.0526 0.0224

Mercury -60540-01-14 16:47 J -20390797.84 -20390797.80 -20390797.74 0.0529 0.0483

Mercury -60540-04-13 23:16 J -20390708.66 -20390708.53 -20390708.40 0.0528 0.0054

Venus -60537-04-30 22:47 J -20389595.60 -20389595.55 -20389595.49 0.0506 0.0484

Mercury -60534-03-04 07:40 J -20388558.32 -20388558.18 -20388558.02 0.0497 0.0287

Mercury -60534-06-02 17:45 J -20388467.87 -20388467.76 -20388467.64 0.0498 0.0388

Earth -60532-02-22 14:23 J -20387837.13 -20387836.90 -20387836.66 0.0509 0.0014

Moon -60532-02-22 16:33 J -20387837.04 -20387836.81 -20387836.58 0.0509 0.0041 \*

Venus -60531-10-27 06:42 J -20387225.40 -20387225.22 -20387225.03 0.0523 0.0243

Mercury -60528-01-31 03:06 J -20386398.50 -20386398.37 -20386398.24 0.0528 0.0084

Mercury -60528-04-30 08:52 J -20386309.19 -20386309.13 -20386309.06 0.0527 0.0444

Earth -60527-08-18 03:49 J -20385834.43 -20385834.34 -20385834.24 0.0519 0.0472

Moon -60527-08-18 07:54 J -20385834.28 -20385834.17 -20385834.06 0.0519 0.0449 \*

Venus -60525-08-28 04:47 J -20385093.41 -20385093.30 -20385093.19 0.0503 0.0417

Mars -60524-03-15 16:18 J -20384893.83 -20384893.82 -20384893.81 0.0499 0.0499

Mercury -60523-12-21 05:16 J -20384248.36 -20384248.28 -20384248.20 0.0497 0.0448

Mercury -60522-03-21 14:52 J -20384158.04 -20384157.88 -20384157.71 0.0498 0.0221

Earth -60520-02-27 11:16 J -20383449.20 -20383449.03 -20383448.86 0.0510 0.0352

Moon -60520-02-27 11:16 J -20383449.20 -20383449.03 -20383448.84 0.0510 0.0348 \*

Venus -60519-07-01 21:21 J -20382959.81 -20382959.61 -20382959.41 0.0521 0.0165

Mercury -60517-11-19 07:25 J -20382088.30 -20382088.19 -20382088.07 0.0529 0.0212

Mercury -60516-02-16 13:25 J -20381999.03 -20381998.94 -20381998.84 0.0528 0.0321

Moon -60515-08-22 17:30 J -20381446.99 -20381446.77 -20381446.55 0.0517 0.0138  
 Earth -60515-08-22 21:21 J -20381446.84 -20381446.61 -20381446.39 0.0517 0.0120 \*  
 Venus -60513-05-03 06:57 J -20380827.41 -20380827.21 -20380827.01 0.0503 0.0067  
 Mercury -60510-01-07 10:47 J -20379848.24 -20379848.05 -20379847.87 0.0498 0.0038  
 Mercury -60505-09-07 11:59 J -20377778.09 -20377778.00 -20377777.90 0.0529 0.0338  
 Mercury -60505-12-05 18:13 J -20377688.86 -20377688.74 -20377688.62 0.0528 0.0198  
 Earth -60503-08-27 14:09 J -20377059.11 -20377058.91 -20377058.70 0.0516 0.0227  
 Moon -60503-08-27 16:33 J -20377059.01 -20377058.81 -20377058.60 0.0516 0.0202 \*  
 Venus -60501-01-07 10:18 J -20376561.23 -20376561.07 -20376560.90 0.0504 0.0277  
 Mercury -60499-10-26 08:09 J -20375538.34 -20375538.16 -20375537.98 0.0497 0.0125  
 Venus -60495-07-05 01:40 J -20374190.50 -20374190.43 -20374190.35 0.0524 0.0488  
 Mercury -60493-06-26 16:18 J -20373467.88 -20373467.82 -20373467.77 0.0529 0.0470  
 Mercury -60493-09-23 22:33 J -20373378.69 -20373378.56 -20373378.44 0.0528 0.0067  
 Mercury -60487-08-14 05:59 J -20371228.40 -20371228.25 -20371228.10 0.0497 0.0284  
 Mercury -60487-11-12 15:49 J -20371137.95 -20371137.84 -20371137.72 0.0498 0.0391  
 Venus -60483-03-09 16:47 J -20369925.00 -20369924.80 -20369924.60 0.0523 0.0082  
 Mercury -60481-07-13 02:37 J -20369068.52 -20369068.39 -20369068.26 0.0528 0.0066  
 Mercury -60481-10-10 08:23 J -20368979.21 -20368979.15 -20368979.09 0.0527 0.0461  
 Venus -60477-01-09 17:59 J -20367792.92 -20367792.75 -20367792.58 0.0503 0.0274  
 Mercury -60475-06-02 03:49 J -20366918.42 -20366918.34 -20366918.25 0.0497 0.0440  
 Mercury -60475-08-31 13:40 J -20366828.10 -20366827.93 -20366827.77 0.0498 0.0230  
 Venus -60472-11-12 06:13 J -20365659.40 -20365659.24 -20365659.08 0.0521 0.0330  
 Mercury -60469-05-01 06:28 J -20364758.35 -20364758.23 -20364758.11 0.0528 0.0204  
 Mercury -60469-07-29 12:28 J -20364669.08 -20364668.98 -20364668.88 0.0528 0.0327  
 Venus -60466-09-14 21:21 J -20363526.81 -20363526.61 -20363526.41 0.0504 0.0071  
 Mercury -60463-06-19 11:01 J -20362518.23 -20362518.04 -20362517.86 0.0498 0.0066  
 Earth -60461-02-18 01:40 J -20361909.59 -20361909.43 -20361909.26 0.0507 0.0362  
 Moon -60461-02-18 04:04 J -20361909.49 -20361909.33 -20361909.16 0.0507 0.0351 \*  
 Mercury -60457-02-18 10:47 J -20360448.15 -20360448.05 -20360447.95 0.0529 0.0333  
 Mercury -60457-05-17 17:01 J -20360358.91 -20360358.79 -20360358.67 0.0528 0.0202

Venus -60454-05-20 23:59 J -20359260.60 -20359260.50 -20359260.38 0.0505 0.0420  
 Mercury -60451-04-07 06:57 J -20358208.39 -20358208.21 -20358208.03 0.0497 0.0117  
 Moon -60449-02-22 17:59 J -20357522.00 -20357521.75 -20357521.50 0.0509 0.0004  
 Earth -60449-02-22 18:28 J -20357521.97 -20357521.73 -20357521.50 0.0509 0.0031 \*  
 Venus -60448-11-15 09:06 J -20356890.28 -20356890.12 -20356889.95 0.0524 0.0316  
 Mercury -60446-12-07 15:21 J -20356137.92 -20356137.86 -20356137.80 0.0529 0.0459  
 Mercury -60445-03-05 21:49 J -20356048.72 -20356048.59 -20356048.47 0.0528 0.0081  
 Moon -60444-08-17 14:09 J -20355518.99 -20355518.91 -20355518.80 0.0519 0.0469  
 Earth -60444-08-17 17:59 J -20355518.82 -20355518.75 -20355518.67 0.0519 0.0488 \*  
 Venus -60442-09-17 05:45 J -20354758.31 -20354758.26 -20354758.20 0.0502 0.0479  
 Mars -60442-12-01 11:16 J -20354683.22 -20354683.03 -20354682.85 0.0500 0.0359  
 Mercury -60439-01-24 04:18 J -20353898.47 -20353898.32 -20353898.16 0.0497 0.0278  
 Mercury -60439-04-24 14:23 J -20353808.01 -20353807.90 -20353807.79 0.0498 0.0397  
 Moon -60437-02-27 15:35 J -20353134.04 -20353133.85 -20353133.67 0.0510 0.0308  
 Earth -60437-02-27 17:30 J -20353133.95 -20353133.77 -20353133.58 0.0510 0.0321 \*  
 Venus -60436-07-21 00:57 J -20352624.66 -20352624.46 -20352624.25 0.0522 0.0087  
 Mercury -60434-12-24 02:09 J -20351738.54 -20351738.41 -20351738.29 0.0528 0.0055  
 Mercury -60433-03-22 07:54 J -20351649.22 -20351649.17 -20351649.12 0.0527 0.0477  
 Earth -60432-08-22 08:52 J -20351131.35 -20351131.13 -20351130.91 0.0517 0.0145  
 Moon -60432-08-22 11:16 J -20351131.24 -20351131.03 -20351130.82 0.0517 0.0167 \*  
 Venus -60430-05-23 08:23 J -20350492.35 -20350492.15 -20350491.96 0.0503 0.0134  
 Mercury -60428-11-12 02:09 J -20349588.49 -20349588.41 -20349588.32 0.0497 0.0435  
 Mercury -60427-02-10 11:59 J -20349498.16 -20349498.00 -20349497.83 0.0498 0.0236  
 Venus -60424-03-25 16:04 J -20348358.89 -20348358.83 -20348358.76 0.0521 0.0488  
 Mars -60424-12-04 12:13 J -20348105.24 -20348104.99 -20348104.72 0.0526 0.0201  
 Mercury -60422-10-12 06:13 J -20347428.36 -20347428.24 -20347428.12 0.0528 0.0185  
 Mercury -60421-01-09 11:59 J -20347339.09 -20347339.00 -20347338.90 0.0527 0.0348  
 Moon -60420-08-26 23:01 J -20346743.76 -20346743.54 -20346743.31 0.0516 0.0177  
 Earth -60420-08-26 23:30 J -20346743.73 -20346743.52 -20346743.31 0.0516 0.0196 \*  
 Venus -60418-01-26 11:30 J -20346226.20 -20346226.02 -20346225.84 0.0504 0.0211

Mercury -60416-11-29 09:49 J -20345188.27 -20345188.09 -20345187.91 0.0498 0.0076  
 Mercury -60410-07-31 10:04 J -20343118.18 -20343118.08 -20343117.98 0.0529 0.0323  
 Mercury -60410-10-28 16:04 J -20343028.94 -20343028.83 -20343028.71 0.0528 0.0212  
 Mars -60406-09-05 07:25 J -20341621.43 -20341621.19 -20341620.93 0.0500 0.0177  
 Mercury -60404-09-17 07:11 J -20340878.38 -20340878.20 -20340878.02 0.0497 0.0088  
 Venus -60400-03-28 18:57 J -20339589.90 -20339589.71 -20339589.51 0.0523 0.0156  
 Mercury -60398-05-19 14:09 J -20338807.97 -20338807.91 -20338807.84 0.0529 0.0452  
 Mercury -60398-08-16 20:37 J -20338718.76 -20338718.64 -20338718.51 0.0528 0.0086  
 Venus -60394-01-28 19:54 J -20337457.81 -20337457.67 -20337457.51 0.0502 0.0340  
 Mercury -60392-07-06 03:21 J -20336568.51 -20336568.36 -20336568.20 0.0497 0.0266  
 Mercury -60392-10-04 13:11 J -20336478.05 -20336477.95 -20336477.84 0.0498 0.0409  
 Venus -60389-12-01 08:23 J -20335324.33 -20335324.15 -20335323.97 0.0522 0.0258  
 Mars -60388-09-10 11:16 J -20335041.12 -20335041.03 -20335040.92 0.0527 0.0493  
 Mercury -60386-06-05 01:11 J -20334408.57 -20334408.45 -20334408.32 0.0529 0.0041  
 Mercury -60386-09-02 07:11 J -20334319.24 -20334319.20 -20334319.16 0.0528 0.0491  
 Venus -60383-10-03 23:59 J -20333191.70 -20333191.50 -20333191.30 0.0503 0.0004  
 Mercury -60380-04-24 00:57 J -20332258.55 -20332258.46 -20332258.36 0.0497 0.0425  
 Mercury -60380-07-23 10:47 J -20332168.21 -20332168.05 -20332167.89 0.0498 0.0245  
 Moon -60378-02-17 07:25 J -20331594.35 -20331594.19 -20331594.03 0.0508 0.0382  
 Earth -60378-02-17 08:09 J -20331594.30 -20331594.16 -20331594.01 0.0508 0.0397 \*  
 Mercury -60374-03-24 05:30 J -20330098.39 -20330098.27 -20330098.15 0.0529 0.0169  
 Mercury -60374-06-21 11:30 J -20330009.11 -20330009.02 -20330008.93 0.0528 0.0364  
 Venus -60371-06-09 02:23 J -20328925.54 -20328925.40 -20328925.25 0.0505 0.0348  
 Mercury -60368-05-11 08:23 J -20327858.33 -20327858.15 -20327857.97 0.0498 0.0084  
 Moon -60366-02-22 05:16 J -20327206.50 -20327206.28 -20327206.05 0.0509 0.0029  
 Earth -60366-02-22 07:11 J -20327206.43 -20327206.20 -20327205.96 0.0509 0.0049 \*  
 Venus -60365-12-04 14:23 J -20326555.02 -20326554.90 -20326554.76 0.0524 0.0404  
 Mercury -60362-01-10 09:49 J -20325788.20 -20325788.09 -20325787.99 0.0529 0.0302  
 Mercury -60362-04-09 15:49 J -20325698.95 -20325698.84 -20325698.73 0.0528 0.0233  
 Moon -60361-08-17 06:42 J -20325203.26 -20325203.22 -20325203.17 0.0519 0.0507

Mercury -60356-02-27 06:13 J -20323548.42 -20323548.24 -20323548.06 0.0498 0.0075  
 Earth -60354-02-27 05:30 J -20322818.46 -20322818.27 -20322818.08 0.0510 0.0304  
 Moon -60354-02-27 09:21 J -20322818.31 -20322818.11 -20322817.91 0.0510 0.0282 \*  
 Venus -60353-08-09 04:33 J -20322289.51 -20322289.31 -20322289.10 0.0522 0.0010  
 Mercury -60351-10-29 13:25 J -20321478.01 -20321477.94 -20321477.87 0.0529 0.0440  
 Mercury -60350-01-26 19:54 J -20321388.80 -20321388.67 -20321388.55 0.0528 0.0099  
 Moon -60349-08-21 18:42 J -20320815.94 -20320815.72 -20320815.50 0.0518 0.0198  
 Earth -60349-08-21 19:11 J -20320815.91 -20320815.70 -20320815.48 0.0518 0.0173 \*  
 Venus -60347-06-11 10:47 J -20320157.23 -20320157.05 -20320156.86 0.0503 0.0205  
 Mercury -60345-12-16 03:49 J -20319238.50 -20319238.34 -20319238.18 0.0497 0.0237  
 Mercury -60344-03-16 13:40 J -20319148.01 -20319147.93 -20319147.84 0.0498 0.0440  
 Venus -60341-04-13 18:57 J -20318023.83 -20318023.71 -20318023.58 0.0521 0.0413  
 Mercury -60339-11-15 00:13 J -20317078.62 -20317078.49 -20317078.36 0.0529 0.0030  
 Mercury -60338-02-12 06:13 J -20316989.28 -20316989.24 -20316989.21 0.0528 0.0499  
 Moon -60337-08-26 11:16 J -20316428.24 -20316428.03 -20316427.82 0.0516 0.0171  
 Earth -60337-08-26 12:57 J -20316428.17 -20316427.96 -20316427.75 0.0516 0.0180 \*  
 Venus -60335-02-14 14:23 J -20315891.09 -20315890.90 -20315890.70 0.0504 0.0140  
 Mercury -60333-10-03 23:59 J -20314928.59 -20314928.50 -20314928.39 0.0497 0.0413  
 Mercury -60332-01-02 09:35 J -20314838.25 -20314838.10 -20314837.94 0.0497 0.0258  
 Mercury -60327-09-03 04:47 J -20312768.42 -20312768.30 -20312768.18 0.0529 0.0156  
 Mercury -60327-12-01 10:47 J -20312679.13 -20312679.05 -20312678.96 0.0528 0.0377  
 Venus -60324-10-20 18:28 J -20311624.79 -20311624.73 -20311624.67 0.0505 0.0479  
 Mercury -60321-10-21 07:11 J -20310528.38 -20310528.20 -20310528.02 0.0497 0.0094  
 Venus -60317-04-16 22:33 J -20309254.74 -20309254.56 -20309254.37 0.0524 0.0235  
 Mercury -60315-06-22 09:06 J -20308458.23 -20308458.12 -20308458.01 0.0529 0.0286  
 Mercury -60315-09-19 15:21 J -20308368.97 -20308368.86 -20308368.75 0.0528 0.0249  
 Venus -60311-02-16 22:33 J -20307122.67 -20307122.56 -20307122.45 0.0502 0.0411  
 Mercury -60309-08-09 04:47 J -20306218.48 -20306218.30 -20306218.11 0.0497 0.0067  
 Venus -60306-12-21 14:09 J -20304989.11 -20304988.91 -20304988.72 0.0522 0.0168  
 Mercury -60303-04-10 13:11 J -20304148.02 -20304147.95 -20304147.87 0.0529 0.0420

Mercury -60303-07-08 19:25 J -20304058.81 -20304058.69 -20304058.56 0.0528 0.0119  
 Venus -60300-10-23 01:40 J -20302856.63 -20302856.43 -20302856.23 0.0503 0.0069  
 Mercury -60297-05-28 02:37 J -20301908.55 -20301908.39 -20301908.22 0.0497 0.0226  
 Mercury -60297-08-26 12:42 J -20301818.04 -20301817.97 -20301817.89 0.0498 0.0452  
 Moon -60295-02-16 19:25 J -20301278.83 -20301278.69 -20301278.54 0.0507 0.0392  
 Earth -60295-02-16 21:06 J -20301278.76 -20301278.62 -20301278.48 0.0507 0.0413 \*  
 Mercury -60291-04-26 23:30 J -20299748.65 -20299748.52 -20299748.40 0.0528 0.0024  
 Mercury -60291-07-25 05:16 J -20299659.31 -20299659.28 -20299659.25 0.0527 0.0509  
 Venus -60288-06-28 04:47 J -20298590.46 -20298590.30 -20298590.13 0.0505 0.0277  
 Mars -60287-02-25 06:13 J -20298348.49 -20298348.24 -20298347.98 0.0500 0.0129  
 Mercury -60285-03-16 00:13 J -20297598.60 -20297598.49 -20297598.37 0.0497 0.0386  
 Mercury -60285-06-14 10:04 J -20297508.23 -20297508.08 -20297507.93 0.0498 0.0286  
 Earth -60283-02-21 17:16 J -20296891.02 -20296890.78 -20296890.54 0.0508 0.0072  
 Moon -60283-02-21 20:52 J -20296890.87 -20296890.63 -20296890.39 0.0508 0.0055 \*  
 Venus -60282-12-24 17:01 J -20296219.87 -20296219.79 -20296219.70 0.0524 0.0477  
 Mercury -60279-02-13 03:49 J -20295438.46 -20295438.34 -20295438.22 0.0529 0.0148  
 Mercury -60279-05-13 09:49 J -20295349.18 -20295349.09 -20295349.00 0.0528 0.0385  
 Mercury -60273-04-02 06:13 J -20293198.42 -20293198.24 -20293198.06 0.0497 0.0106  
 Moon -60271-02-26 05:30 J -20292503.48 -20292503.27 -20292503.06 0.0510 0.0237  
 Earth -60271-02-26 09:35 J -20292503.30 -20292503.10 -20292502.89 0.0510 0.0261 \*  
 Venus -60270-08-29 05:59 J -20291954.46 -20291954.25 -20291954.05 0.0523 0.0062  
 Mars -60269-02-29 08:23 J -20291770.43 -20291770.15 -20291769.87 0.0527 0.0068  
 Mercury -60268-12-02 08:09 J -20291128.27 -20291128.16 -20291128.05 0.0529 0.0277  
 Mercury -60267-03-01 14:23 J -20291039.01 -20291038.90 -20291038.79 0.0529 0.0260  
 Moon -60266-08-22 09:35 J -20290500.30 -20290500.10 -20290499.90 0.0518 0.0215  
 Earth -60266-08-22 11:30 J -20290500.24 -20290500.02 -20290499.81 0.0518 0.0184 \*  
 Venus -60264-06-30 14:09 J -20289822.07 -20289821.91 -20289821.74 0.0502 0.0279  
 Mercury -60261-01-20 03:35 J -20288888.53 -20288888.35 -20288888.16 0.0497 0.0057  
 Venus -60258-05-03 21:21 J -20287688.77 -20287688.61 -20287688.46 0.0522 0.0340  
 Mercury -60256-09-20 12:28 J -20286818.06 -20286817.98 -20286817.90 0.0529 0.0408

Mercury -60256-12-18 18:42 J -20286728.84 -20286728.72 -20286728.59 0.0528 0.0132

Earth -60254-08-27 01:54 J -20286112.63 -20286112.42 -20286112.20 0.0516 0.0159

Moon -60254-08-27 05:16 J -20286112.50 -20286112.28 -20286112.06 0.0516 0.0158 \*

Venus -60252-03-05 16:47 J -20285556.00 -20285555.80 -20285555.60 0.0503 0.0068

Mars -60252-11-30 01:40 J -20285286.58 -20285286.43 -20285286.27 0.0499 0.0406

Mercury -60250-11-08 01:11 J -20284578.61 -20284578.45 -20284578.28 0.0497 0.0218

Mercury -60249-02-06 11:01 J -20284488.10 -20284488.04 -20284487.96 0.0498 0.0459

Mercury -60244-10-06 23:01 J -20282418.67 -20282418.54 -20282418.41 0.0528 0.0004

Earth -60242-08-31 15:49 J -20281724.89 -20281724.84 -20281724.78 0.0515 0.0497

Venus -60241-11-08 19:25 J -20281289.80 -20281289.69 -20281289.57 0.0505 0.0413

Mercury -60238-08-26 23:01 J -20280268.66 -20280268.54 -20280268.42 0.0497 0.0376

Mercury -60238-11-25 08:52 J -20280178.28 -20280178.13 -20280177.98 0.0498 0.0296

Venus -60234-05-07 01:54 J -20278919.58 -20278919.42 -20278919.25 0.0523 0.0312

Mercury -60232-07-26 02:52 J -20278108.50 -20278108.38 -20278108.26 0.0529 0.0139

Mercury -60232-10-23 08:52 J -20278019.21 -20278019.13 -20278019.05 0.0528 0.0393

Venus -60228-03-08 00:13 J -20276787.54 -20276787.49 -20276787.42 0.0502 0.0478

Mercury -60226-09-13 06:13 J -20275868.42 -20275868.24 -20275868.06 0.0497 0.0131

Venus -60222-01-09 16:04 J -20274654.03 -20274653.83 -20274653.62 0.0522 0.0096

Mercury -60220-05-14 06:57 J -20273798.31 -20273798.21 -20273798.09 0.0529 0.0271

Mercury -60220-08-11 13:11 J -20273709.06 -20273708.95 -20273708.84 0.0528 0.0267

Venus -60217-11-11 04:18 J -20272521.52 -20272521.32 -20272521.13 0.0503 0.0139

Mercury -60214-07-02 02:23 J -20271558.58 -20271558.40 -20271558.21 0.0497 0.0047

Earth -60212-02-15 23:59 J -20270963.59 -20270963.50 -20270963.40 0.0507 0.0461

Moon -60212-02-16 03:21 J -20270963.48 -20270963.36 -20270963.23 0.0507 0.0431 \*

Venus -60211-09-14 03:49 J -20270388.37 -20270388.34 -20270388.30 0.0521 0.0512

Mercury -60208-03-02 11:16 J -20269488.11 -20269488.03 -20269487.95 0.0530 0.0403

Mercury -60208-05-30 17:45 J -20269398.88 -20269398.76 -20269398.64 0.0529 0.0139

Venus -60205-07-17 08:09 J -20268255.34 -20268255.16 -20268254.98 0.0504 0.0201

Mercury -60202-04-19 23:59 J -20267248.67 -20267248.50 -20267248.33 0.0497 0.0209

Mercury -60202-07-19 09:49 J -20267158.15 -20267158.09 -20267158.03 0.0497 0.0466

Moon -60200-02-20 17:01 J -20266576.02 -20266575.79 -20266575.56 0.0508 0.0102  
 Earth -60200-02-20 21:06 J -20266575.85 -20266575.62 -20266575.38 0.0508 0.0117 \*  
 Mercury -60196-03-18 22:04 J -20265088.71 -20265088.58 -20265088.45 0.0529 0.0012  
 Mercury -60190-02-05 21:21 J -20262938.72 -20262938.61 -20262938.48 0.0497 0.0371  
 Mercury -60190-05-07 07:11 J -20262848.35 -20262848.20 -20262848.06 0.0498 0.0301  
 Earth -60188-02-25 20:09 J -20262187.86 -20262187.66 -20262187.44 0.0510 0.0238  
 Moon -60188-02-25 23:59 J -20262187.71 -20262187.50 -20262187.28 0.0510 0.0213 \*  
 Venus -60187-09-17 10:04 J -20261619.27 -20261619.08 -20261618.88 0.0523 0.0146  
 Mercury -60184-01-05 02:09 J -20260778.53 -20260778.41 -20260778.28 0.0529 0.0124  
 Mercury -60184-04-04 08:09 J -20260689.24 -20260689.16 -20260689.08 0.0528 0.0409  
 Earth -60183-08-21 19:40 J -20260184.89 -20260184.68 -20260184.48 0.0518 0.0221  
 Moon -60183-08-21 22:47 J -20260184.75 -20260184.55 -20260184.34 0.0518 0.0251 \*  
 Venus -60181-07-19 14:23 J -20259487.05 -20259486.90 -20259486.75 0.0502 0.0340  
 Mercury -60178-02-23 04:33 J -20258538.49 -20258538.31 -20258538.13 0.0497 0.0138  
 Venus -60175-05-22 23:59 J -20257353.68 -20257353.50 -20257353.32 0.0521 0.0264  
 Mercury -60173-10-24 05:59 J -20256468.36 -20256468.25 -20256468.14 0.0529 0.0264  
 Mercury -60172-01-21 11:59 J -20256379.10 -20256379.00 -20256378.89 0.0528 0.0273  
 Moon -60171-08-26 05:30 J -20255797.49 -20255797.27 -20255797.05 0.0517 0.0119  
 Earth -60171-08-26 09:06 J -20255797.34 -20255797.12 -20255796.89 0.0517 0.0122 \*  
 Venus -60169-03-24 17:16 J -20255220.98 -20255220.78 -20255220.58 0.0504 0.0005  
 Mars -60169-08-17 04:33 J -20255075.43 -20255075.31 -20255075.18 0.0501 0.0440  
 Mercury -60167-12-12 01:54 J -20254228.60 -20254228.42 -20254228.23 0.0497 0.0028  
 Mercury -60161-08-12 10:04 J -20252158.16 -20252158.08 -20252158.00 0.0529 0.0398  
 Mercury -60161-11-09 16:18 J -20252068.94 -20252068.82 -20252068.69 0.0529 0.0144  
 Earth -60159-08-31 01:25 J -20251409.52 -20251409.44 -20251409.34 0.0516 0.0471  
 Moon -60159-08-31 05:16 J -20251409.32 -20251409.28 -20251409.23 0.0516 0.0502  
 Venus -60158-11-28 21:06 J -20250954.76 -20250954.62 -20250954.47 0.0505 0.0345  
 Mercury -60155-09-29 22:33 J -20249918.73 -20249918.56 -20249918.39 0.0496 0.0201  
 Mercury -60155-12-29 08:23 J -20249828.20 -20249828.15 -20249828.10 0.0497 0.0474  
 Venus -60151-05-26 00:28 J -20248584.62 -20248584.48 -20248584.33 0.0524 0.0369



Mars -60151-08-18 12:42 J -20248500.15 -20248499.97 -20248499.78 0.0526 0.0398  
 Mercury -60149-08-28 20:37 J -20247758.77 -20247758.64 -20247758.51 0.0529 0.0012  
 Mercury -60143-07-18 19:54 J -20245608.79 -20245608.67 -20245608.54 0.0496 0.0364  
 Mercury -60143-10-17 05:30 J -20245518.41 -20245518.27 -20245518.12 0.0497 0.0306  
 Venus -60139-01-28 15:35 J -20244319.06 -20244318.85 -20244318.65 0.0523 0.0035  
 Mercury -60137-06-17 00:57 J -20243448.58 -20243448.46 -20243448.34 0.0529 0.0120  
 Mercury -60137-09-14 06:57 J -20243359.28 -20243359.21 -20243359.13 0.0528 0.0414  
 Venus -60134-12-01 04:18 J -20242186.51 -20242186.32 -20242186.14 0.0502 0.0201  
 Mars -60133-05-21 18:42 J -20242013.99 -20242013.72 -20242013.46 0.0499 0.0082  
 Mercury -60131-08-05 02:37 J -20241208.57 -20241208.39 -20241208.21 0.0497 0.0139  
 Moon -60129-02-16 04:33 J -20240648.40 -20240648.31 -20240648.21 0.0507 0.0462  
 Earth -60129-02-16 08:37 J -20240648.19 -20240648.14 -20240648.09 0.0507 0.0493  
 Venus -60128-10-03 06:42 J -20240053.33 -20240053.22 -20240053.10 0.0521 0.0434  
 Mercury -60125-04-05 05:01 J -20239138.40 -20239138.29 -20239138.18 0.0529 0.0254  
 Mercury -60125-07-03 11:16 J -20239049.14 -20239049.03 -20239048.92 0.0528 0.0283  
 Venus -60122-08-06 06:57 J -20237920.40 -20237920.21 -20237920.02 0.0504 0.0145  
 Mercury -60119-05-23 23:59 J -20236898.68 -20236898.50 -20236898.31 0.0497 0.0026  
 Earth -60117-02-21 05:16 J -20236260.50 -20236260.28 -20236260.05 0.0508 0.0147  
 Moon -60117-02-21 09:21 J -20236260.33 -20236260.11 -20236259.88 0.0508 0.0135 \*  
 Mars -60115-05-26 00:57 J -20235435.68 -20235435.46 -20235435.23 0.0526 0.0321  
 Mercury -60113-01-23 08:37 J -20234828.22 -20234828.14 -20234828.05 0.0529 0.0395  
 Mercury -60113-04-21 15:06 J -20234738.99 -20234738.87 -20234738.75 0.0528 0.0145  
 Venus -60110-04-11 09:21 J -20233654.15 -20233654.11 -20233654.07 0.0506 0.0493  
 Mercury -60107-03-11 21:21 J -20232588.78 -20232588.61 -20232588.44 0.0497 0.0190  
 Mercury -60107-06-10 07:11 J -20232498.23 -20232498.20 -20232498.16 0.0498 0.0488  
 Moon -60105-02-25 22:33 J -20231872.79 -20231872.56 -20231872.33 0.0509 0.0170  
 Earth -60105-02-26 01:25 J -20231872.66 -20231872.44 -20231872.22 0.0509 0.0198 \*  
 Venus -60104-10-06 09:21 J -20231284.29 -20231284.11 -20231283.91 0.0523 0.0206  
 Mercury -60101-02-08 19:11 J -20230428.83 -20230428.70 -20230428.57 0.0529 0.0014  
 Moon -60100-08-20 22:04 J -20229869.77 -20229869.58 -20229869.40 0.0519 0.0298

Earth -60100-08-21 01:40 J -20229869.62 -20229869.43 -20229869.23 0.0519 0.0265 \*  
 Venus -60098-08-08 14:52 J -20229152.00 -20229151.88 -20229151.76 0.0502 0.0401  
 Mercury -60096-12-28 18:13 J -20228278.86 -20228278.74 -20228278.61 0.0496 0.0359  
 Mercury -60095-03-29 03:35 J -20228188.49 -20228188.35 -20228188.20 0.0497 0.0311  
 Venus -60092-06-10 20:23 J -20227018.83 -20227018.65 -20227018.46 0.0522 0.0215  
 Mercury -60090-11-27 23:16 J -20226118.66 -20226118.53 -20226118.41 0.0530 0.0124  
 Mercury -60089-02-25 05:16 J -20226029.35 -20226029.28 -20226029.20 0.0529 0.0413  
 Earth -60088-08-25 18:42 J -20225481.95 -20225481.72 -20225481.50 0.0518 0.0090  
 Moon -60088-08-25 22:18 J -20225481.79 -20225481.57 -20225481.35 0.0518 0.0096 \*  
 Venus -60086-04-13 18:13 J -20224885.94 -20224885.74 -20224885.54 0.0503 0.0062  
 Mercury -60083-01-15 00:42 J -20223878.64 -20223878.47 -20223878.29 0.0497 0.0143  
 Mercury -60078-09-16 03:21 J -20221808.47 -20221808.36 -20221808.24 0.0530 0.0256  
 Mercury -60078-12-14 09:35 J -20221719.20 -20221719.10 -20221718.99 0.0529 0.0283  
 Moon -60076-08-30 05:30 J -20221094.37 -20221094.27 -20221094.16 0.0516 0.0459  
 Earth -60076-08-30 08:09 J -20221094.28 -20221094.16 -20221094.03 0.0516 0.0431 \*  
 Venus -60075-12-17 19:54 J -20220619.83 -20220619.67 -20220619.51 0.0504 0.0289  
 Mercury -60072-11-02 21:49 J -20219568.78 -20219568.59 -20219568.41 0.0497 0.0027  
 Venus -60068-06-14 01:54 J -20218249.53 -20218249.42 -20218249.31 0.0524 0.0440  
 Mercury -60066-07-05 07:25 J -20217498.27 -20217498.19 -20217498.10 0.0529 0.0390  
 Mercury -60066-10-02 13:54 J -20217409.04 -20217408.92 -20217408.80 0.0529 0.0151  
 Mercury -60060-08-21 18:57 J -20215258.87 -20215258.71 -20215258.53 0.0497 0.0192  
 Mercury -60060-11-20 05:01 J -20215168.33 -20215168.29 -20215168.25 0.0498 0.0485  
 Venus -60056-02-16 15:49 J -20213984.05 -20213983.84 -20213983.64 0.0522 0.0031  
 Mercury -60054-07-21 17:45 J -20213098.89 -20213098.76 -20213098.64 0.0529 0.0018  
 Venus -60051-12-20 01:54 J -20211851.59 -20211851.42 -20211851.25 0.0503 0.0251  
 Mercury -60048-06-09 16:18 J -20210948.94 -20210948.82 -20210948.68 0.0497 0.0356  
 Mercury -60048-09-08 01:54 J -20210858.56 -20210858.42 -20210858.27 0.0497 0.0317  
 Moon -60046-02-15 16:04 J -20210332.84 -20210332.83 -20210332.81 0.0506 0.0504  
 Venus -60045-10-22 04:47 J -20209718.44 -20209718.30 -20209718.16 0.0521 0.0379  
 Mercury -60042-05-09 21:35 J -20208788.72 -20208788.60 -20208788.47 0.0529 0.0126

Mercury -60042-08-07 03:49 J -20208699.42 -20208699.34 -20208699.27 0.0528 0.0410

Venus -60039-08-25 05:45 J -20207585.46 -20207585.26 -20207585.06 0.0504 0.0089

Mercury -60036-06-26 22:33 J -20206548.73 -20206548.56 -20206548.38 0.0497 0.0144

Moon -60034-02-19 23:45 J -20205945.73 -20205945.51 -20205945.28 0.0507 0.0200

Earth -60034-02-20 03:06 J -20205945.58 -20205945.37 -20205945.15 0.0507 0.0210 \*

Mercury -60030-02-26 01:25 J -20204478.55 -20204478.44 -20204478.33 0.0530 0.0265

Mercury -60030-05-26 07:40 J -20204389.28 -20204389.18 -20204389.07 0.0529 0.0276

Venus -60027-04-30 08:52 J -20203319.22 -20203319.13 -20203319.02 0.0505 0.0432

Mercury -60024-04-14 19:40 J -20202238.86 -20202238.68 -20202238.49 0.0496 0.0027

Earth -60022-02-24 22:33 J -20201557.78 -20201557.56 -20201557.32 0.0508 0.0134

Moon -60022-02-24 23:59 J -20201557.73 -20201557.50 -20201557.28 0.0508 0.0107 \*

Venus -60021-10-25 05:16 J -20200949.46 -20200949.28 -20200949.10 0.0523 0.0252

Mercury -60019-12-15 05:30 J -20200168.35 -20200168.27 -20200168.18 0.0530 0.0398

Mercury -60018-03-14 11:59 J -20200079.12 -20200079.00 -20200078.88 0.0529 0.0145

Earth -60017-08-20 05:16 J -20199554.46 -20199554.28 -20199554.10 0.0519 0.0315

Moon -60017-08-20 08:52 J -20199554.29 -20199554.13 -20199553.95 0.0519 0.0344 \*

Venus -60015-08-27 11:45 J -20198817.10 -20198817.01 -20198816.92 0.0502 0.0448

Mars -60015-11-11 02:09 J -20198741.63 -20198741.41 -20198741.18 0.0500 0.0268

Mercury -60012-01-31 16:33 J -20197928.98 -20197928.81 -20197928.64 0.0497 0.0197

Mercury -60012-05-02 02:23 J -20197838.45 -20197838.40 -20197838.36 0.0497 0.0479

Earth -60010-03-01 20:23 J -20197169.71 -20197169.65 -20197169.58 0.0510 0.0487

Moon -60010-03-01 21:35 J -20197169.67 -20197169.60 -20197169.52 0.0510 0.0483 \*

Venus -60009-06-29 20:23 J -20196683.85 -20196683.65 -20196683.45 0.0522 0.0151

Mercury -60007-12-31 16:18 J -20195768.95 -20195768.82 -20195768.70 0.0529 0.0020

Moon -60005-08-24 17:01 J -20195167.02 -20195166.79 -20195166.56 0.0518 0.0042

Earth -60005-08-24 19:54 J -20195166.89 -20195166.67 -20195166.44 0.0518 0.0034 \*

Venus -60003-05-02 13:54 J -20194551.12 -20194550.92 -20194550.72 0.0503 0.0104

Mercury -60001-11-19 13:40 J -20193619.05 -20193618.93 -20193618.80 0.0497 0.0362

# 60TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 60th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-60000-02-17 23:16 J	-20193528.67	-20193528.53	-20193528.38	0.0497	0.0310		
Mars	-59997-11-11 12:13 J	-20192166.25	-20192165.99	-20192165.72	0.0525	0.0186		
Mercury	-59995-10-19 19:54 J	-20191458.79	-20191458.67	-20191458.55	0.0529	0.0129		
Mercury	-59994-01-17 01:54 J	-20191369.50	-20191369.42	-20191369.34	0.0528	0.0406		
Earth	-59993-08-29 08:09 J	-20190779.31	-20190779.16	-20190779.00	0.0516	0.0371		
Moon	-59993-08-29 09:21 J	-20190779.25	-20190779.11	-20190778.97	0.0516	0.0400	*	
Venus	-59991-01-05 16:04 J	-20190285.01	-20190284.83	-20190284.66	0.0505	0.0246		
Mercury	-59989-12-06 20:23 J	-20189218.83	-20189218.65	-20189218.47	0.0497	0.0141		
Venus	-59985-07-02 22:18 J	-20187914.64	-20187914.57	-20187914.49	0.0524	0.0486		
Mercury	-59983-08-07 23:45 J	-20187148.62	-20187148.51	-20187148.40	0.0529	0.0268		
Mercury	-59983-11-05 05:59 J	-20187059.36	-20187059.25	-20187059.14	0.0529	0.0271		
Mars	-59979-08-15 12:42 J	-20185680.20	-20185679.97	-20185679.73	0.0500	0.0247		
Mercury	-59977-09-24 17:16 J	-20184908.96	-20184908.78	-20184908.59	0.0496	0.0029		
Venus	-59973-03-07 09:21 J	-20183649.32	-20183649.11	-20183648.91	0.0522	0.0066		
Mercury	-59971-05-27 03:21 J	-20182838.44	-20182838.36	-20182838.28	0.0530	0.0411		
Mercury	-59971-08-24 09:49 J	-20182749.21	-20182749.09	-20182748.97	0.0529	0.0133		
Venus	-59967-01-08 00:13 J	-20181516.65	-20181516.49	-20181516.33	0.0502	0.0304		
Mercury	-59965-07-13 14:23 J	-20180599.07	-20180598.90	-20180598.73	0.0496	0.0197		
Mercury	-59965-10-11 23:59 J	-20180508.55	-20180508.50	-20180508.45	0.0497	0.0477		

Venus -59962-11-10 23:01 J -20179383.69 -20179383.54 -20179383.38 0.0521 0.0340  
 Mars -59961-08-18 03:21 J -20179102.47 -20179102.36 -20179102.23 0.0527 0.0475  
 Mercury -59959-06-12 14:09 J -20178439.04 -20178438.91 -20178438.79 0.0529 0.0018  
 Venus -59956-09-13 01:25 J -20177250.64 -20177250.44 -20177250.24 0.0504 0.0048  
 Mercury -59953-05-01 11:01 J -20176289.16 -20176289.04 -20176288.92 0.0496 0.0369  
 Mercury -59953-07-30 20:23 J -20176198.80 -20176198.65 -20176198.50 0.0497 0.0301  
 Earth -59951-02-19 03:49 J -20175630.54 -20175630.34 -20175630.13 0.0507 0.0262  
 Moon -59951-02-19 05:30 J -20175630.46 -20175630.27 -20175630.07 0.0507 0.0261 \*  
 Mercury -59947-03-31 18:13 J -20174128.86 -20174128.74 -20174128.62 0.0529 0.0132  
 Mercury -59947-06-29 00:28 J -20174039.56 -20174039.48 -20174039.40 0.0528 0.0405  
 Venus -59944-05-19 03:35 J -20172984.47 -20172984.35 -20172984.23 0.0505 0.0395  
 Mercury -59941-05-18 17:16 J -20171888.95 -20171888.78 -20171888.60 0.0497 0.0132  
 Earth -59939-02-23 23:59 J -20171242.73 -20171242.50 -20171242.26 0.0508 0.0085  
 Moon -59939-02-24 00:42 J -20171242.72 -20171242.47 -20171242.23 0.0508 0.0057 \*  
 Venus -59938-11-14 03:21 J -20170614.53 -20170614.36 -20170614.19 0.0523 0.0305  
 Mercury -59935-01-17 21:49 J -20169818.70 -20169818.59 -20169818.48 0.0529 0.0274  
 Mercury -59935-04-17 04:04 J -20169729.44 -20169729.33 -20169729.22 0.0528 0.0266  
 Moon -59934-08-19 23:45 J -20169239.65 -20169239.51 -20169239.37 0.0519 0.0412  
 Earth -59934-08-20 02:52 J -20169239.52 -20169239.38 -20169239.22 0.0519 0.0386 \*  
 Venus -59932-09-15 06:57 J -20168482.25 -20168482.21 -20168482.16 0.0502 0.0486  
 Mercury -59929-03-06 14:37 J -20167579.08 -20167578.89 -20167578.71 0.0497 0.0037  
 Moon -59927-02-28 17:16 J -20166854.90 -20166854.78 -20166854.65 0.0509 0.0430  
 Earth -59927-02-28 19:40 J -20166854.80 -20166854.68 -20166854.55 0.0509 0.0431 \*  
 Venus -59926-07-19 16:18 J -20166349.02 -20166348.82 -20166348.62 0.0522 0.0106  
 Mercury -59924-11-06 01:40 J -20165508.51 -20165508.43 -20165508.35 0.0530 0.0414  
 Mercury -59923-02-03 08:09 J -20165419.29 -20165419.16 -20165419.04 0.0529 0.0129  
 Earth -59922-08-24 18:13 J -20164851.97 -20164851.74 -20164851.51 0.0518 0.0035  
 Moon -59922-08-24 19:54 J -20164851.90 -20164851.67 -20164851.45 0.0518 0.0020 \*  
 Venus -59920-05-21 10:18 J -20164216.26 -20164216.07 -20164215.88 0.0503 0.0147  
 Mercury -59918-12-24 11:45 J -20163269.18 -20163269.01 -20163268.84 0.0496 0.0202

Mercury -59917-03-23 21:06 J -20163178.67 -20163178.62 -20163178.55 0.0497 0.0472  
 Mercury -59912-11-22 11:45 J -20161109.14 -20161109.01 -20161108.88 0.0530 0.0013  
 Mercury -59911-02-19 17:45 J -20161019.77 -20161019.76 -20161019.74 0.0529 0.0522  
 Earth -59910-08-29 09:21 J -20160464.29 -20160464.11 -20160463.93 0.0517 0.0315  
 Moon -59910-08-29 09:35 J -20160464.28 -20160464.10 -20160463.92 0.0517 0.0341 \*  
 Venus -59908-01-24 13:11 J -20159950.13 -20159949.95 -20159949.76 0.0505 0.0197  
 Mercury -59906-10-12 08:52 J -20158959.25 -20158959.13 -20158959.01 0.0496 0.0369  
 Mercury -59905-01-10 17:59 J -20158868.89 -20158868.75 -20158868.60 0.0497 0.0300  
 Venus -59902-07-22 16:04 J -20157579.84 -20157579.83 -20157579.81 0.0524 0.0522  
 Mercury -59900-09-10 15:49 J -20156798.96 -20156798.84 -20156798.71 0.0530 0.0146  
 Mercury -59900-12-08 22:04 J -20156709.66 -20156709.58 -20156709.49 0.0529 0.0392  
 Mercury -59894-10-29 14:09 J -20154559.08 -20154558.91 -20154558.73 0.0497 0.0122  
 Venus -59890-03-27 07:11 J -20153314.40 -20153314.20 -20153314.00 0.0523 0.0119  
 Mercury -59888-06-29 20:09 J -20152488.77 -20152488.66 -20152488.55 0.0530 0.0278  
 Mercury -59888-09-27 02:23 J -20152399.51 -20152399.40 -20152399.29 0.0529 0.0262  
 Venus -59884-01-26 17:59 J -20151181.90 -20151181.75 -20151181.60 0.0502 0.0335  
 Mercury -59882-08-17 11:16 J -20150249.21 -20150249.03 -20150248.84 0.0497 0.0048  
 Venus -59879-11-29 20:52 J -20149048.80 -20149048.63 -20149048.45 0.0521 0.0288  
 Mercury -59876-04-17 23:45 J -20148178.59 -20148178.51 -20148178.43 0.0529 0.0421  
 Mercury -59876-07-16 06:13 J -20148089.36 -20148089.24 -20148089.12 0.0529 0.0122  
 Venus -59873-10-01 19:54 J -20146915.87 -20146915.67 -20146915.47 0.0504 0.0013  
 Mercury -59870-06-05 08:37 J -20145939.31 -20145939.14 -20145938.97 0.0497 0.0214  
 Mercury -59870-09-03 18:13 J -20145848.80 -20145848.74 -20145848.67 0.0497 0.0462  
 Moon -59868-02-18 03:06 J -20145315.55 -20145315.37 -20145315.17 0.0506 0.0324  
 Earth -59868-02-18 03:21 J -20145315.54 -20145315.36 -20145315.17 0.0506 0.0319 \*  
 Mercury -59864-05-04 10:04 J -20143779.21 -20143779.08 -20143778.95 0.0529 0.0017  
 Mercury -59864-08-01 16:04 J -20143689.85 -20143689.83 -20143689.81 0.0528 0.0516  
 Venus -59861-06-06 23:01 J -20142649.68 -20142649.54 -20142649.40 0.0505 0.0355  
 Mars -59860-02-03 07:40 J -20142408.44 -20142408.18 -20142407.93 0.0501 0.0134  
 Mercury -59858-03-24 05:59 J -20141629.36 -20141629.25 -20141629.13 0.0496 0.0376

Mercury -59858-06-22 15:21 J -20141539.01 -20141538.86 -20141538.71 0.0497 0.0293  
 Moon -59856-02-22 18:13 J -20140927.97 -20140927.74 -20140927.51 0.0507 0.0014  
 Earth -59856-02-22 20:09 J -20140927.90 -20140927.66 -20140927.42 0.0507 0.0019 \*  
 Venus -59855-12-02 20:09 J -20140279.82 -20140279.66 -20140279.50 0.0523 0.0336  
 Mercury -59852-02-20 13:40 J -20139469.05 -20139468.93 -20139468.81 0.0530 0.0160  
 Mercury -59852-05-20 19:54 J -20139379.76 -20139379.67 -20139379.59 0.0529 0.0379  
 Earth -59851-08-19 01:40 J -20138924.54 -20138924.43 -20138924.32 0.0520 0.0452  
 Moon -59851-08-19 03:35 J -20138924.44 -20138924.35 -20138924.26 0.0520 0.0473 \*  
 Mercury -59846-04-10 12:13 J -20137229.17 -20137228.99 -20137228.81 0.0497 0.0122  
 Earth -59844-02-27 14:52 J -20136540.04 -20136539.88 -20136539.71 0.0509 0.0363  
 Moon -59844-02-27 17:59 J -20136539.91 -20136539.75 -20136539.57 0.0509 0.0363 \*  
 Venus -59843-08-07 10:04 J -20136014.29 -20136014.08 -20136013.88 0.0522 0.0071  
 Mars -59842-02-04 03:35 J -20135833.64 -20135833.35 -20135833.07 0.0525 0.0058  
 Mercury -59841-12-09 17:45 J -20135158.87 -20135158.76 -20135158.65 0.0530 0.0293  
 Mercury -59840-03-08 23:59 J -20135069.61 -20135069.50 -20135069.38 0.0529 0.0249  
 Moon -59839-08-23 17:16 J -20134537.02 -20134536.78 -20134536.55 0.0519 0.0073  
 Earth -59839-08-23 17:16 J -20134537.00 -20134536.78 -20134536.55 0.0519 0.0096 \*  
 Venus -59837-06-09 04:47 J -20133881.49 -20133881.30 -20133881.12 0.0503 0.0181  
 Mercury -59834-01-27 08:09 J -20132919.34 -20132919.16 -20132918.97 0.0497 0.0059  
 Venus -59831-04-12 00:28 J -20131748.56 -20131748.48 -20131748.39 0.0521 0.0473  
 Mercury -59829-09-27 21:49 J -20130848.66 -20130848.59 -20130848.51 0.0530 0.0426  
 Mercury -59829-12-26 04:33 J -20130759.44 -20130759.31 -20130759.19 0.0529 0.0120  
 Moon -59827-08-28 07:11 J -20130149.38 -20130149.20 -20130149.01 0.0517 0.0283  
 Earth -59827-08-28 08:52 J -20130149.33 -20130149.13 -20130148.93 0.0517 0.0255 \*  
 Venus -59825-02-13 07:11 J -20129615.38 -20129615.20 -20129615.01 0.0504 0.0164  
 Mars -59825-11-07 11:45 J -20129347.19 -20129347.01 -20129346.83 0.0499 0.0368  
 Mercury -59823-11-15 05:30 J -20128609.44 -20128609.27 -20128609.11 0.0497 0.0225  
 Mercury -59822-02-13 15:06 J -20128518.95 -20128518.87 -20128518.79 0.0497 0.0450  
 Mercury -59817-10-14 08:09 J -20126449.28 -20126449.16 -20126449.03 0.0529 0.0028  
 Mercury -59816-01-11 14:09 J -20126359.93 -20126359.91 -20126359.88 0.0528 0.0513

Mercury -59811-09-03 02:52 J -20124299.49 -20124299.38 -20124299.26 0.0496 0.0389  
 Mercury -59811-12-02 12:13 J -20124209.14 -20124208.99 -20124208.84 0.0497 0.0282  
 Venus -59807-04-15 03:21 J -20122979.56 -20122979.36 -20122979.16 0.0522 0.0165  
 Mercury -59805-08-02 11:59 J -20122139.12 -20122139.00 -20122138.88 0.0529 0.0161  
 Mercury -59805-10-30 18:13 J -20122049.83 -20122049.74 -20122049.65 0.0528 0.0377  
 Venus -59801-02-15 13:40 J -20120847.06 -20120846.93 -20120846.80 0.0503 0.0376  
 Mercury -59799-09-20 09:35 J -20119899.28 -20119899.10 -20119898.92 0.0497 0.0116  
 Venus -59796-12-18 14:52 J -20118714.06 -20118713.88 -20118713.70 0.0521 0.0252  
 Mercury -59793-05-21 15:35 J -20117828.96 -20117828.85 -20117828.75 0.0530 0.0305  
 Mercury -59793-08-18 21:49 J -20117739.70 -20117739.59 -20117739.47 0.0529 0.0238  
 Venus -59790-10-21 16:33 J -20116581.01 -20116580.81 -20116580.61 0.0504 0.0035  
 Mercury -59787-07-09 06:28 J -20115589.41 -20115589.23 -20115589.04 0.0496 0.0054  
 Moon -59785-02-17 23:30 J -20115000.66 -20115000.52 -20115000.37 0.0506 0.0391  
 Earth -59785-02-18 00:57 J -20115000.61 -20115000.46 -20115000.30 0.0506 0.0379 \*  
 Mercury -59781-03-09 19:40 J -20113518.75 -20113518.68 -20113518.61 0.0530 0.0439  
 Mercury -59781-06-07 02:09 J -20113429.53 -20113429.41 -20113429.28 0.0529 0.0107  
 Venus -59778-06-26 17:59 J -20112314.90 -20112314.75 -20112314.59 0.0505 0.0319  
 Mercury -59775-04-27 02:37 J -20111279.55 -20111279.39 -20111279.23 0.0496 0.0234  
 Mercury -59775-07-26 11:59 J -20111189.08 -20111189.00 -20111188.91 0.0497 0.0442  
 Earth -59773-02-22 17:59 J -20110612.99 -20110612.75 -20110612.51 0.0507 0.0040  
 Moon -59773-02-22 20:52 J -20110612.87 -20110612.63 -20110612.38 0.0507 0.0071 \*  
 Venus -59772-12-21 18:13 J -20109944.87 -20109944.74 -20109944.59 0.0524 0.0390  
 Mercury -59769-03-26 06:42 J -20109119.35 -20109119.22 -20109119.10 0.0529 0.0027  
 Mercury -59769-06-23 12:42 J -20109030.00 -20109029.97 -20109029.94 0.0528 0.0512  
 Earth -59768-08-18 03:06 J -20108609.41 -20108609.37 -20108609.32 0.0520 0.0508  
 Mercury -59763-02-12 23:59 J -20106969.61 -20106969.50 -20106969.39 0.0496 0.0398  
 Mercury -59763-05-14 09:06 J -20106879.27 -20106879.12 -20106878.96 0.0497 0.0272  
 Moon -59761-02-27 11:16 J -20106225.21 -20106225.03 -20106224.84 0.0509 0.0312  
 Earth -59761-02-27 14:52 J -20106225.06 -20106224.88 -20106224.69 0.0509 0.0312 \*  
 Venus -59760-08-26 08:52 J -20105679.34 -20105679.13 -20105678.92 0.0522 0.0015



Mercury -59757-01-13 10:33 J -20104809.18 -20104809.06 -20104808.94 0.0529 0.0162

Mercury -59757-04-11 16:33 J -20104719.89 -20104719.81 -20104719.72 0.0528 0.0376

Moon -59756-08-22 15:49 J -20104222.05 -20104221.84 -20104221.62 0.0519 0.0136

Earth -59756-08-22 17:01 J -20104222.01 -20104221.79 -20104221.57 0.0519 0.0159 \*

Venus -59754-06-29 00:13 J -20103546.67 -20103546.49 -20103546.31 0.0503 0.0220

Mercury -59751-03-02 06:28 J -20102569.41 -20102569.23 -20102569.05 0.0497 0.0106

Venus -59748-04-30 22:04 J -20101413.69 -20101413.58 -20101413.45 0.0520 0.0421

Mercury -59746-11-01 14:09 J -20100499.01 -20100498.91 -20100498.80 0.0529 0.0302

Mercury -59745-01-29 20:37 J -20100409.75 -20100409.64 -20100409.53 0.0529 0.0240

Earth -59744-08-27 07:25 J -20099834.40 -20099834.19 -20099833.97 0.0518 0.0191

Moon -59744-08-27 10:04 J -20099834.29 -20099834.08 -20099833.86 0.0518 0.0214 \*

Venus -59742-03-04 03:21 J -20099280.56 -20099280.36 -20099280.17 0.0505 0.0122

Mars -59742-07-26 08:09 J -20099136.17 -20099136.16 -20099136.13 0.0502 0.0500

Mercury -59740-12-19 04:04 J -20098259.52 -20098259.33 -20098259.15 0.0497 0.0057

Mercury -59734-08-20 17:45 J -20096188.83 -20096188.76 -20096188.69 0.0530 0.0447

Mercury -59734-11-18 00:13 J -20096099.61 -20096099.49 -20096099.36 0.0529 0.0099

Venus -59731-11-07 06:13 J -20095014.32 -20095014.24 -20095014.17 0.0506 0.0468

Mercury -59728-10-07 01:11 J -20093949.61 -20093949.45 -20093949.28 0.0496 0.0224

Mercury -59727-01-05 10:33 J -20093859.13 -20093859.06 -20093858.97 0.0497 0.0451

Venus -59724-05-03 23:01 J -20092644.73 -20092644.54 -20092644.35 0.0522 0.0208

Mercury -59722-09-06 04:33 J -20091789.44 -20091789.31 -20091789.18 0.0529 0.0033

Mercury -59722-12-04 10:33 J -20091700.09 -20091700.06 -20091700.02 0.0528 0.0503

Venus -59718-03-06 09:21 J -20090512.21 -20090512.11 -20090511.99 0.0502 0.0414

Mercury -59716-07-25 21:21 J -20089639.71 -20089639.61 -20089639.50 0.0496 0.0403

Mercury -59716-10-24 06:28 J -20089549.38 -20089549.23 -20089549.07 0.0497 0.0266

Venus -59712-01-06 13:25 J -20088379.13 -20088378.94 -20088378.75 0.0522 0.0197

Mercury -59710-06-25 08:52 J -20087479.25 -20087479.13 -20087479.00 0.0529 0.0162

Mercury -59710-09-22 15:06 J -20087389.95 -20087389.87 -20087389.78 0.0529 0.0378

Venus -59707-11-09 12:28 J -20086246.17 -20086245.98 -20086245.78 0.0503 0.0073

Mars -59706-04-29 12:57 J -20086075.22 -20086074.96 -20086074.69 0.0500 0.0010

Mercury -59704-08-12 03:49 J -20085239.52 -20085239.34 -20085239.16 0.0497 0.0100  
 Earth -59702-02-17 01:40 J -20084685.55 -20084685.43 -20084685.31 0.0506 0.0432  
 Moon -59702-02-17 04:18 J -20084685.44 -20084685.32 -20084685.20 0.0506 0.0444 \*  
 Mercury -59698-04-13 12:57 J -20083169.07 -20083168.96 -20083168.86 0.0529 0.0299  
 Mercury -59698-07-11 19:11 J -20083079.81 -20083079.70 -20083079.59 0.0529 0.0243  
 Venus -59695-07-15 14:52 J -20081980.05 -20081979.88 -20081979.72 0.0505 0.0274  
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Mercury -59603-06-02 16:18 J -20048419.93 -20048419.82 -20048419.70 0.0529 0.0248

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Earth -59590-08-22 05:16 J -20043591.48 -20043591.28 -20043591.07 0.0519 0.0242 \*

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Moon -59578-08-26 23:59 J -20039203.72 -20039203.50 -20039203.28 0.0518 0.0121 \*

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Mercury -59384-09-10 13:11 J -19968330.08 -19968329.95 -19968329.81 0.0496 0.0328

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Venus -59380-03-24 22:47 J -19967038.75 -19967038.55 -19967038.34 0.0522 0.0094

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Venus -59369-11-27 12:28 J -19962773.14 -19962772.98 -19962772.81 0.0521 0.0309

Mercury -59366-05-30 06:13 J -19961859.36 -19961859.24 -19961859.13 0.0530 0.0234

Mercury -59366-08-27 12:28 J -19961770.08 -19961769.98 -19961769.87 0.0529 0.0311

Venus -59363-09-30 19:54 J -19960639.87 -19960639.67 -19960639.47 0.0504 0.0017

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Earth -59358-02-20 00:42 J -19959036.68 -19959036.47 -19959036.25 0.0506 0.0228 \*

Mercury -59354-03-18 10:18 J -19957549.16 -19957549.07 -19957548.97 0.0531 0.0367

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Venus -59351-06-06 00:13 J -19956373.63 -19956373.49 -19956373.34 0.0505 0.0349

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Moon -59346-02-24 20:09 J -19954648.88 -19954648.66 -19954648.44 0.0508 0.0156

Earth -59346-02-24 21:49 J -19954648.82 -19954648.59 -19954648.36 0.0508 0.0127 \*

Venus -59345-11-30 16:04 J -19954003.98 -19954003.83 -19954003.66 0.0524 0.0330

Mercury -59342-01-04 14:37 J -19953238.93 -19953238.89 -19953238.85 0.0530 0.0498

Mercury -59342-04-03 21:21 J -19953149.73 -19953149.61 -19953149.48 0.0530 0.0055

Earth -59341-08-20 15:21 J -19952645.03 -19952644.86 -19952644.67 0.0520 0.0327

Moon -59341-08-20 17:01 J -19952644.97 -19952644.79 -19952644.61 0.0520 0.0297 \*

Mercury -59336-02-20 11:59 J -19951000.14 -19951000.00 -19950999.86 0.0496 0.0318

Mercury -59336-05-21 21:06 J -19950909.75 -19950909.62 -19950909.49 0.0497 0.0355



Earth -59334-03-01 20:52 J -19950260.69 -19950260.63 -19950260.57 0.0509 0.0492  
 Moon -59334-03-02 00:13 J -19950260.52 -19950260.49 -19950260.45 0.0509 0.0501  
 Venus -59333-08-05 07:25 J -19949738.39 -19949738.19 -19949737.98 0.0522 0.0069  
 Mercury -59330-01-21 01:40 J -19948839.56 -19948839.43 -19948839.31 0.0530 0.0082  
 Mercury -59330-04-20 07:40 J -19948750.23 -19948750.18 -19948750.11 0.0529 0.0460  
 Moon -59329-08-25 07:40 J -19948257.42 -19948257.18 -19948256.94 0.0519 0.0025  
 Earth -59329-08-25 07:25 J -19948257.41 -19948257.19 -19948256.96 0.0519 0.0037 \*  
 Venus -59327-06-08 06:42 J -19947605.40 -19947605.22 -19947605.03 0.0503 0.0189  
 Mercury -59325-12-09 10:04 J -19946690.13 -19946690.08 -19946690.03 0.0496 0.0475  
 Mercury -59324-03-09 18:42 J -19946599.89 -19946599.72 -19946599.55 0.0497 0.0193  
 Venus -59321-04-09 21:21 J -19945472.69 -19945472.61 -19945472.52 0.0520 0.0468  
 Mercury -59319-11-09 05:16 J -19944529.39 -19944529.28 -19944529.16 0.0530 0.0222  
 Mercury -59318-02-06 11:45 J -19944440.11 -19944440.01 -19944439.91 0.0529 0.0322  
 Moon -59317-08-29 19:54 J -19943869.83 -19943869.67 -19943869.51 0.0518 0.0364  
 Earth -59317-08-29 21:49 J -19943869.73 -19943869.59 -19943869.44 0.0518 0.0392 \*  
 Venus -59315-02-11 10:04 J -19943339.27 -19943339.08 -19943338.89 0.0505 0.0151  
 Mars -59315-07-06 06:57 J -19943194.36 -19943194.21 -19943194.04 0.0502 0.0396  
 Mercury -59313-12-26 16:18 J -19942290.00 -19942289.82 -19942289.63 0.0497 0.0030  
 Mercury -59307-08-28 09:21 J -19940219.20 -19940219.11 -19940219.01 0.0530 0.0357  
 Mercury -59307-11-25 16:04 J -19940129.95 -19940129.83 -19940129.71 0.0529 0.0191  
 Venus -59304-10-17 14:23 J -19939072.95 -19939072.90 -19939072.85 0.0506 0.0487  
 Mercury -59301-10-14 12:57 J -19937980.13 -19937979.96 -19937979.78 0.0496 0.0146  
 Venus -59297-04-12 23:01 J -19936703.74 -19936703.54 -19936703.34 0.0523 0.0158  
 Mars -59297-06-30 18:13 J -19936624.80 -19936624.74 -19936624.65 0.0525 0.0506  
 Mercury -59295-06-16 13:25 J -19935908.98 -19935908.94 -19935908.89 0.0531 0.0493  
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 Mercury -59289-10-31 19:40 J -19933579.80 -19933579.68 -19933579.55 0.0496 0.0366  
 Venus -59286-12-17 13:54 J -19932438.11 -19932437.92 -19932437.74 0.0522 0.0240

Mercury -59283-07-03 00:42 J -19931509.60 -19931509.47 -19931509.35 0.0530 0.0071  
 Mercury -59283-09-30 06:57 J -19931420.27 -19931420.21 -19931420.16 0.0529 0.0470  
 Venus -59280-10-19 21:49 J -19930304.79 -19930304.59 -19930304.39 0.0503 0.0056  
 Mars -59279-04-09 17:16 J -19930133.03 -19930132.78 -19930132.52 0.0500 0.0120  
 Mercury -59277-05-21 08:37 J -19929360.20 -19929360.14 -19929360.08 0.0496 0.0467  
 Mercury -59277-08-19 17:16 J -19929269.95 -19929269.78 -19929269.61 0.0497 0.0200  
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 Earth -59275-02-19 12:13 J -19928721.19 -19928720.99 -19928720.78 0.0506 0.0251 \*  
 Mercury -59271-04-21 04:47 J -19927199.42 -19927199.30 -19927199.18 0.0530 0.0206  
 Mercury -59271-07-19 11:16 J -19927110.13 -19927110.03 -19927109.94 0.0529 0.0339  
 Venus -59268-06-25 00:57 J -19926038.62 -19926038.46 -19926038.30 0.0505 0.0285  
 Mercury -59265-06-07 15:06 J -19924960.06 -19924959.87 -19924959.69 0.0497 0.0039  
 Earth -59263-02-24 09:06 J -19924333.35 -19924333.12 -19924332.88 0.0507 0.0107  
 Moon -59263-02-24 12:28 J -19924333.21 -19924332.98 -19924332.74 0.0507 0.0138 \*  
 Venus -59262-12-20 19:25 J -19923668.81 -19923668.69 -19923668.55 0.0524 0.0406  
 Mars -59261-04-07 23:16 J -19923559.78 -19923559.53 -19923559.27 0.0526 0.0244  
 Mercury -59259-02-07 08:23 J -19922889.24 -19922889.15 -19922889.05 0.0530 0.0348  
 Mercury -59259-05-07 15:06 J -19922799.99 -19922799.87 -19922799.76 0.0529 0.0200  
 Moon -59258-08-20 23:01 J -19922329.72 -19922329.54 -19922329.36 0.0521 0.0341  
 Earth -59258-08-20 22:47 J -19922329.71 -19922329.55 -19922329.38 0.0521 0.0368 \*  
 Mercury -59253-03-26 12:42 J -19920650.15 -19920649.97 -19920649.79 0.0496 0.0126  
 Moon -59251-03-01 01:11 J -19919945.54 -19919945.45 -19919945.34 0.0508 0.0462  
 Earth -59251-03-01 05:16 J -19919945.37 -19919945.28 -19919945.18 0.0508 0.0462 \*  
 Venus -59250-08-25 09:06 J -19919403.33 -19919403.12 -19919402.91 0.0522 0.0004  
 Mercury -59248-11-26 12:28 J -19918579.03 -19918578.98 -19918578.93 0.0530 0.0485  
 Mercury -59247-02-23 19:11 J -19918489.83 -19918489.70 -19918489.57 0.0530 0.0067  
 Moon -59246-08-25 15:06 J -19917942.09 -19917941.87 -19917941.65 0.0519 0.0017  
 Earth -59246-08-25 17:01 J -19917942.01 -19917941.79 -19917941.56 0.0519 0.0011 \*  
 Venus -59244-06-27 08:52 J -19917270.30 -19917270.13 -19917269.96 0.0503 0.0258  
 Mercury -59241-01-13 09:35 J -19916340.24 -19916340.10 -19916339.95 0.0496 0.0296

Mercury -59241-04-12 18:28 J -19916249.85 -19916249.73 -19916249.61 0.0496 0.0376

Venus -59238-04-29 19:54 J -19915137.79 -19915137.67 -19915137.54 0.0521 0.0412

Mercury -59236-12-12 23:16 J -19914179.65 -19914179.53 -19914179.40 0.0530 0.0069

Mercury -59235-03-12 05:30 J -19914090.32 -19914090.27 -19914090.21 0.0529 0.0475

Earth -59234-08-30 11:01 J -19913554.20 -19913554.04 -19913553.88 0.0518 0.0371

Moon -59234-08-30 14:37 J -19913554.06 -19913553.89 -19913553.72 0.0518 0.0349 \*

Venus -59232-03-02 13:11 J -19913004.15 -19913003.95 -19913003.75 0.0504 0.0077

Mercury -59230-11-01 07:25 J -19912030.26 -19912030.19 -19912030.12 0.0495 0.0457

Mercury -59229-01-30 15:49 J -19911940.00 -19911939.84 -19911939.67 0.0496 0.0209

Mercury -59224-10-01 03:35 J -19909869.47 -19909869.35 -19909869.23 0.0530 0.0200

Mercury -59224-12-29 10:04 J -19909780.18 -19909780.08 -19909779.99 0.0529 0.0346

Venus -59221-11-05 15:21 J -19908737.96 -19908737.86 -19908737.75 0.0505 0.0421

Mercury -59218-11-18 13:11 J -19907630.13 -19907629.95 -19907629.76 0.0496 0.0044

Venus -59214-05-03 02:37 J -19906368.57 -19906368.39 -19906368.21 0.0523 0.0238

Mercury -59212-07-20 07:40 J -19905559.28 -19905559.18 -19905559.08 0.0530 0.0336

Mercury -59212-10-17 14:09 J -19905470.02 -19905469.91 -19905469.79 0.0529 0.0213

Venus -59208-03-04 18:42 J -19904235.80 -19904235.72 -19904235.64 0.0502 0.0453

Mercury -59206-09-06 11:01 J -19903320.22 -19903320.04 -19903319.86 0.0496 0.0121

Venus -59202-01-05 16:18 J -19902103.01 -19902102.82 -19902102.62 0.0521 0.0166

Mercury -59200-05-08 11:16 J -19901249.08 -19901249.03 -19901248.98 0.0530 0.0480

Mercury -59200-08-05 17:59 J -19901159.88 -19901159.75 -19901159.62 0.0530 0.0072

Venus -59197-11-07 21:35 J -19899969.80 -19899969.60 -19899969.41 0.0503 0.0114

Mercury -59194-06-25 08:37 J -19899010.29 -19899010.14 -19899009.99 0.0496 0.0283

Mercury -59194-09-23 17:30 J -19898919.88 -19898919.77 -19898919.65 0.0497 0.0391

Earth -59192-02-18 19:25 J -19898405.88 -19898405.69 -19898405.49 0.0505 0.0287

Moon -59192-02-18 22:33 J -19898405.76 -19898405.56 -19898405.35 0.0505 0.0281 \*

Mercury -59188-05-24 22:04 J -19896849.71 -19896849.58 -19896849.45 0.0530 0.0064

Mercury -59188-08-22 04:18 J -19896760.37 -19896760.32 -19896760.27 0.0529 0.0478

Venus -59185-07-14 01:54 J -19895703.60 -19895703.42 -19895703.24 0.0505 0.0221

Mercury -59182-04-13 05:45 J -19894700.33 -19894700.26 -19894700.18 0.0495 0.0450

Mercury -59182-07-12 14:23 J -19894610.07 -19894609.90 -19894609.73 0.0496 0.0216

Moon -59180-02-23 06:13 J -19894018.47 -19894018.24 -19894018.00 0.0506 0.0081

Earth -59180-02-23 10:04 J -19894018.31 -19894018.08 -19894017.84 0.0506 0.0051 \*

Venus -59178-01-08 16:47 J -19893333.90 -19893333.80 -19893333.70 0.0524 0.0457

Mercury -59176-03-13 01:54 J -19892539.54 -19892539.42 -19892539.30 0.0531 0.0203

Mercury -59176-06-10 08:23 J -19892450.24 -19892450.15 -19892450.05 0.0530 0.0345

Moon -59175-08-20 06:28 J -19892014.38 -19892014.23 -19892014.08 0.0521 0.0386

Earth -59175-08-20 08:09 J -19892014.30 -19892014.16 -19892014.01 0.0521 0.0404 \*

Mercury -59170-04-30 11:45 J -19890300.19 -19890300.01 -19890299.83 0.0496 0.0049

Earth -59168-02-28 05:45 J -19889630.39 -19889630.26 -19889630.11 0.0508 0.0406

Moon -59168-02-28 09:21 J -19889630.24 -19889630.11 -19889629.96 0.0508 0.0403 \*

Venus -59167-09-13 07:11 J -19889068.41 -19889068.20 -19889067.99 0.0523 0.0057

Mercury -59165-12-30 05:59 J -19888229.34 -19888229.25 -19888229.15 0.0531 0.0337

Mercury -59164-03-29 12:42 J -19888140.08 -19888139.97 -19888139.85 0.0530 0.0214

Earth -59163-08-25 00:42 J -19887626.70 -19887626.47 -19887626.24 0.0520 0.0035

Moon -59163-08-25 04:18 J -19887626.55 -19887626.32 -19887626.09 0.0520 0.0062 \*

Venus -59161-07-16 08:23 J -19886935.31 -19886935.15 -19886935.00 0.0502 0.0315

Mars -59161-09-29 17:45 J -19886859.99 -19886859.76 -19886859.52 0.0501 0.0199

Mercury -59158-02-16 08:52 J -19885990.31 -19885990.13 -19885989.95 0.0496 0.0119

Venus -59155-05-18 22:04 J -19884802.74 -19884802.58 -19884802.42 0.0521 0.0338

Mercury -59153-10-18 10:04 J -19883919.13 -19883919.08 -19883919.02 0.0531 0.0473

Mercury -59152-01-15 17:01 J -19883829.92 -19883829.79 -19883829.67 0.0530 0.0082

Moon -59151-08-29 12:13 J -19883239.17 -19883238.99 -19883238.80 0.0518 0.0302

Earth -59151-08-29 16:04 J -19883239.00 -19883238.83 -19883238.65 0.0518 0.0324 \*

Venus -59149-03-21 11:01 J -19882669.24 -19882669.04 -19882668.84 0.0504 0.0027

Mercury -59147-12-05 06:28 J -19881680.38 -19881680.23 -19881680.08 0.0496 0.0282

Mercury -59146-03-05 15:21 J -19881589.96 -19881589.86 -19881589.74 0.0497 0.0392

Mars -59143-09-25 10:33 J -19880290.31 -19880290.06 -19880289.81 0.0525 0.0253

Mercury -59141-11-03 20:37 J -19879519.77 -19879519.64 -19879519.51 0.0530 0.0062

Mercury -59140-02-01 02:52 J -19879430.43 -19879430.38 -19879430.33 0.0529 0.0479

Venus -59138-11-25 13:25 J -19878403.07 -19878402.94 -19878402.80 0.0506 0.0370  
 Mercury -59135-09-23 04:04 J -19877370.40 -19877370.33 -19877370.24 0.0496 0.0445  
 Mercury -59135-12-22 12:57 J -19877280.13 -19877279.96 -19877279.80 0.0496 0.0224  
 Venus -59131-05-22 01:25 J -19876033.61 -19876033.44 -19876033.27 0.0523 0.0294  
 Mercury -59129-08-23 00:28 J -19875209.60 -19875209.48 -19875209.36 0.0530 0.0202  
 Mercury -59129-11-20 06:57 J -19875120.30 -19875120.21 -19875120.11 0.0529 0.0345  
 Mars -59125-07-03 23:16 J -19873798.73 -19873798.53 -19873798.31 0.0500 0.0308  
 Mercury -59123-10-10 09:49 J -19872970.27 -19872970.09 -19872969.91 0.0496 0.0052  
 Venus -59119-01-24 11:45 J -19871768.21 -19871768.01 -19871767.80 0.0522 0.0123  
 Mercury -59117-06-11 04:04 J -19870899.42 -19870899.33 -19870899.23 0.0531 0.0345  
 Mercury -59117-09-08 10:47 J -19870810.16 -19870810.05 -19870809.93 0.0530 0.0208  
 Venus -59114-11-27 21:49 J -19869634.77 -19869634.59 -19869634.40 0.0503 0.0176  
 Mercury -59111-07-29 07:11 J -19868660.38 -19868660.20 -19868660.02 0.0495 0.0114  
 Moon -59109-02-18 15:21 J -19868091.03 -19868090.86 -19868090.69 0.0505 0.0337  
 Earth -59109-02-18 18:57 J -19868090.87 -19868090.71 -19868090.53 0.0505 0.0347 \*  
 Venus -59108-09-29 01:40 J -19867502.43 -19867502.43 -19867502.42 0.0520 0.0519  
 Mars -59107-07-02 16:04 J -19867225.98 -19867225.83 -19867225.66 0.0526 0.0435  
 Mercury -59105-03-30 08:09 J -19866589.21 -19866589.16 -19866589.10 0.0531 0.0480  
 Mercury -59105-06-27 15:06 J -19866500.00 -19866499.87 -19866499.74 0.0530 0.0075  
 Venus -59102-08-02 23:45 J -19865368.69 -19865368.51 -19865368.32 0.0504 0.0170  
 Mercury -59099-05-17 04:04 J -19864350.47 -19864350.33 -19864350.17 0.0496 0.0285  
 Mercury -59099-08-15 12:57 J -19864260.07 -19864259.96 -19864259.84 0.0496 0.0388  
 Earth -59097-02-23 14:09 J -19863703.14 -19863702.91 -19863702.67 0.0506 0.0010  
 Moon -59097-02-23 17:59 J -19863702.99 -19863702.75 -19863702.52 0.0506 0.0039 \*  
 Venus -59095-01-27 17:30 J -19862998.78 -19862998.77 -19862998.76 0.0524 0.0523  
 Mercury -59093-04-15 19:11 J -19862189.83 -19862189.70 -19862189.57 0.0530 0.0060  
 Mercury -59093-07-14 01:25 J -19862100.48 -19862100.44 -19862100.39 0.0529 0.0484  
 Earth -59092-08-19 11:01 J -19861699.15 -19861699.04 -19861698.94 0.0521 0.0459  
 Moon -59092-08-19 14:09 J -19861699.02 -19861698.91 -19861698.79 0.0521 0.0448 \*  
 Mercury -59087-03-05 01:40 J -19860040.50 -19860040.43 -19860040.35 0.0496 0.0448

Mercury -59087-06-03 10:18 J -19859950.23 -19859950.07 -19859949.90 0.0496 0.0220  
 Moon -59085-02-28 07:40 J -19859315.35 -19859315.18 -19859315.00 0.0508 0.0357  
 Earth -59085-02-28 10:18 J -19859315.23 -19859315.07 -19859314.90 0.0508 0.0365 \*  
 Venus -59084-10-02 06:57 J -19858733.41 -19858733.21 -19858733.01 0.0522 0.0119  
 Mercury -59081-02-02 22:47 J -19857879.66 -19857879.55 -19857879.43 0.0530 0.0204  
 Mercury -59081-05-02 05:16 J -19857790.37 -19857790.28 -19857790.18 0.0529 0.0343  
 Moon -59080-08-23 21:06 J -19857311.84 -19857311.62 -19857311.39 0.0520 0.0131  
 Earth -59080-08-24 01:11 J -19857311.68 -19857311.45 -19857311.23 0.0520 0.0099 \*  
 Venus -59078-08-05 05:01 J -19856600.42 -19856600.29 -19856600.15 0.0503 0.0360  
 Mercury -59075-03-22 07:40 J -19855640.36 -19855640.18 -19855640.00 0.0496 0.0052  
 Venus -59072-06-06 19:40 J -19854467.85 -19854467.68 -19854467.51 0.0521 0.0286  
 Mercury -59070-11-22 02:37 J -19853569.49 -19853569.39 -19853569.29 0.0530 0.0345  
 Mercury -59069-02-19 09:21 J -19853480.23 -19853480.11 -19853480.00 0.0530 0.0206  
 Earth -59068-08-28 17:16 J -19852923.98 -19852923.78 -19852923.58 0.0519 0.0265  
 Moon -59068-08-28 20:52 J -19852923.83 -19852923.63 -19852923.44 0.0519 0.0248 \*  
 Venus -59066-04-10 08:52 J -19852334.33 -19852334.13 -19852333.93 0.0504 0.0026  
 Mercury -59063-01-08 04:47 J -19851330.47 -19851330.30 -19851330.12 0.0495 0.0116  
 Mercury -59058-09-10 05:59 J -19849259.29 -19849259.25 -19849259.20 0.0531 0.0492  
 Mercury -59058-12-08 12:57 J -19849170.09 -19849169.96 -19849169.83 0.0530 0.0064  
 Venus -59055-12-14 12:13 J -19848068.14 -19848067.99 -19848067.83 0.0506 0.0314  
 Mercury -59052-10-27 02:09 J -19847020.55 -19847020.41 -19847020.25 0.0495 0.0282  
 Mercury -59051-01-25 11:01 J -19846930.15 -19846930.04 -19846929.93 0.0496 0.0389  
 Venus -59048-06-09 20:09 J -19845698.81 -19845698.66 -19845698.50 0.0523 0.0336  
 Mercury -59046-09-26 17:01 J -19844859.91 -19844859.79 -19844859.66 0.0531 0.0071  
 Mercury -59046-12-24 23:30 J -19844770.58 -19844770.52 -19844770.47 0.0530 0.0475  
 Mercury -59040-08-14 23:01 J -19842710.61 -19842710.54 -19842710.46 0.0495 0.0453  
 Mercury -59040-11-13 07:40 J -19842620.35 -19842620.18 -19842620.02 0.0496 0.0214  
 Venus -59036-02-12 11:01 J -19841433.25 -19841433.04 -19841432.83 0.0522 0.0063  
 Mercury -59034-07-15 21:21 J -19840549.73 -19840549.61 -19840549.50 0.0530 0.0206  
 Mercury -59034-10-13 03:35 J -19840460.44 -19840460.35 -19840460.25 0.0530 0.0344

Venus -59031-12-16 17:01 J -19839299.97 -19839299.79 -19839299.61 0.0503 0.0214

Mercury -59028-09-01 04:47 J -19838310.48 -19838310.30 -19838310.12 0.0496 0.0045

Earth -59026-02-17 21:06 J -19837775.76 -19837775.62 -19837775.47 0.0505 0.0396

Moon -59026-02-18 00:42 J -19837775.61 -19837775.47 -19837775.30 0.0505 0.0377 \*

Venus -59025-10-18 00:28 J -19837167.57 -19837167.48 -19837167.38 0.0520 0.0462

Mercury -59022-05-04 00:42 J -19836239.56 -19836239.47 -19836239.37 0.0530 0.0350

Mercury -59022-08-01 07:25 J -19836150.31 -19836150.19 -19836150.07 0.0530 0.0201

Venus -59019-08-21 19:11 J -19835033.89 -19835033.70 -19835033.51 0.0505 0.0130

Mercury -59016-06-20 02:09 J -19834000.58 -19834000.41 -19834000.23 0.0496 0.0122

Moon -59014-02-22 12:13 J -19833388.23 -19833387.99 -19833387.75 0.0506 0.0018

Earth -59014-02-22 15:21 J -19833388.10 -19833387.86 -19833387.62 0.0506 0.0048 \*

Mercury -59010-02-20 04:18 J -19831929.36 -19831929.32 -19831929.27 0.0531 0.0494

Mercury -59010-05-20 11:16 J -19831840.16 -19831840.03 -19831839.90 0.0530 0.0062

Venus -59007-04-26 22:33 J -19830767.63 -19830767.56 -19830767.49 0.0506 0.0469

Mars -59007-12-24 07:11 J -19830526.46 -19830526.20 -19830525.94 0.0501 0.0052

Mercury -59004-04-07 23:45 J -19829690.66 -19829690.51 -19829690.36 0.0495 0.0286

Mercury -59004-07-07 08:23 J -19829600.26 -19829600.15 -19829600.03 0.0496 0.0385

Earth -59002-02-27 06:42 J -19829000.40 -19829000.22 -19829000.02 0.0507 0.0298

Moon -59002-02-27 08:23 J -19829000.33 -19829000.15 -19828999.96 0.0507 0.0291 \*

Venus -59001-10-21 00:13 J -19828398.69 -19828398.49 -19828398.29 0.0522 0.0152

# 59TH MILLENNIUM BCE

This is a list of transits visible from Jupiter in the 59th millennium BCE.

PLANET	MAX- TRANSIT	C	START	MAX	END	SUNRAD	DEPTH	S
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TIME

Mercury -58998-03-08 14:52 J -19827530.01 -19827529.88 -19827529.75 0.0531 0.0084  
Mercury -58998-06-05 21:06 J -19827440.67 -19827440.62 -19827440.56 0.0530 0.0463  
Earth -58997-08-23 01:11 J -19826996.67 -19826996.45 -19826996.23 0.0521 0.0162  
Moon -58997-08-23 04:47 J -19826996.51 -19826996.30 -19826996.09 0.0521 0.0194 \*  
Venus -58995-08-24 02:37 J -19826265.50 -19826265.39 -19826265.27 0.0503 0.0409  
Mercury -58992-01-24 21:06 J -19825380.69 -19825380.62 -19825380.55 0.0495 0.0451  
Mercury -58992-04-25 05:30 J -19825290.44 -19825290.27 -19825290.11 0.0496 0.0214  
Venus -58989-06-25 13:25 J -19824133.12 -19824132.94 -19824132.76 0.0521 0.0250  
Mars -58989-12-18 06:42 J -19823957.50 -19823957.22 -19823956.93 0.0525 0.0109  
Mercury -58987-12-25 18:57 J -19823219.83 -19823219.71 -19823219.60 0.0531 0.0219  
Mercury -58986-03-25 01:25 J -19823130.54 -19823130.44 -19823130.34 0.0530 0.0330  
Moon -58985-08-27 14:23 J -19822609.12 -19822608.90 -19822608.68 0.0519 0.0187  
Earth -58985-08-27 17:16 J -19822608.99 -19822608.78 -19822608.57 0.0519 0.0206 \*  
Venus -58983-04-29 04:18 J -19821999.52 -19821999.32 -19821999.13 0.0504 0.0064  
Mercury -58980-02-11 01:54 J -19820980.61 -19820980.42 -19820980.24 0.0496 0.0036  
Mercury -58975-10-13 23:01 J -19818909.64 -19818909.54 -19818909.45 0.0531 0.0354  
Mercury -58974-01-11 05:45 J -19818820.38 -19818820.26 -19818820.14 0.0530 0.0198  
Venus -58971-01-02 06:42 J -19817733.38 -19817733.22 -19817733.05 0.0505 0.0279  
Mars -58971-09-27 05:30 J -19817465.38 -19817465.27 -19817465.14 0.0500 0.0439  
Mercury -58969-11-29 23:01 J -19816670.71 -19816670.54 -19816670.36 0.0496 0.0133  
Venus -58965-06-28 18:13 J -19815363.87 -19815363.74 -19815363.60 0.0523 0.0388  
Mercury -58963-08-02 02:23 J -19814599.43 -19814599.40 -19814599.35 0.0531 0.0500  
Mercury -58963-10-30 09:21 J -19814510.23 -19814510.11 -19814509.98 0.0530 0.0058  
Mercury -58957-09-17 20:37 J -19812360.78 -19812360.64 -19812360.49 0.0496 0.0297  
Mercury -58957-12-17 05:30 J -19812270.39 -19812270.27 -19812270.15 0.0496 0.0376  
Venus -58953-03-03 06:57 J -19811098.41 -19811098.21 -19811098.00 0.0522 0.0022  
Mercury -58951-08-18 13:11 J -19810200.08 -19810199.95 -19810199.82 0.0530 0.0086  
Mercury -58951-11-15 19:25 J -19810110.75 -19810110.69 -19810110.62 0.0529 0.0459  
Venus -58947-01-04 12:28 J -19808965.14 -19808964.98 -19808964.80 0.0503 0.0255



Mercury -58945-07-06 18:13 J -19808050.80 -19808050.74 -19808050.67 0.0495 0.0458  
 Mercury -58945-10-05 02:37 J -19807960.55 -19807960.39 -19807960.22 0.0496 0.0208  
 Moon -58943-02-16 15:35 J -19807460.96 -19807460.85 -19807460.73 0.0504 0.0439  
 Earth -58943-02-16 18:57 J -19807460.80 -19807460.71 -19807460.61 0.0504 0.0458 \*  
 Venus -58942-11-06 17:30 J -19806832.88 -19806832.77 -19806832.65 0.0520 0.0430  
 Mercury -58939-06-06 16:33 J -19805889.92 -19805889.81 -19805889.70 0.0531 0.0234  
 Mercury -58939-09-03 23:01 J -19805800.64 -19805800.54 -19805800.43 0.0530 0.0317  
 Venus -58936-09-09 15:49 J -19804699.03 -19804698.84 -19804698.64 0.0505 0.0085  
 Mercury -58933-07-23 23:45 J -19803650.69 -19803650.51 -19803650.32 0.0496 0.0039  
 Earth -58931-02-21 11:45 J -19803073.24 -19803073.01 -19803072.78 0.0505 0.0115  
 Moon -58931-02-21 13:40 J -19803073.16 -19803072.93 -19803072.70 0.0505 0.0087 \*  
 Mercury -58927-03-25 20:37 J -19801579.73 -19801579.64 -19801579.55 0.0531 0.0370  
 Mercury -58927-06-23 03:21 J -19801490.48 -19801490.36 -19801490.24 0.0530 0.0184  
 Venus -58924-05-15 17:30 J -19800432.87 -19800432.77 -19800432.67 0.0506 0.0433  
 Mercury -58921-05-11 20:09 J -19799340.84 -19799340.66 -19799340.48 0.0496 0.0142  
 Earth -58919-02-26 04:47 J -19798685.51 -19798685.30 -19798685.09 0.0507 0.0237  
 Moon -58919-02-26 05:01 J -19798685.51 -19798685.29 -19798685.06 0.0507 0.0223 \*  
 Venus -58918-11-09 21:35 J -19798063.79 -19798063.60 -19798063.40 0.0523 0.0203  
 Mercury -58915-01-12 00:42 J -19797269.51 -19797269.47 -19797269.43 0.0531 0.0505  
 Mercury -58915-04-11 07:40 J -19797180.31 -19797180.18 -19797180.05 0.0530 0.0052  
 Moon -58914-08-22 21:49 J -19796681.79 -19796681.59 -19796681.38 0.0521 0.0258  
 Earth -58914-08-23 00:57 J -19796681.66 -19796681.46 -19796681.25 0.0521 0.0226 \*  
 Venus -58912-09-11 20:37 J -19795930.73 -19795930.64 -19795930.54 0.0502 0.0439  
 Mercury -58909-02-28 17:30 J -19795030.91 -19795030.77 -19795030.63 0.0496 0.0308  
 Mercury -58909-05-29 02:09 J -19794940.53 -19794940.41 -19794940.28 0.0496 0.0364  
 Venus -58906-07-15 11:30 J -19793798.21 -19793798.02 -19793797.83 0.0521 0.0199  
 Mercury -58903-01-28 11:16 J -19792870.15 -19792870.03 -19792869.90 0.0530 0.0092  
 Mercury -58903-04-27 17:45 J -19792780.82 -19792780.76 -19792780.70 0.0529 0.0454  
 Earth -58902-08-27 14:52 J -19792294.10 -19792293.88 -19792293.66 0.0520 0.0134  
 Moon -58902-08-27 16:04 J -19792294.04 -19792293.83 -19792293.61 0.0520 0.0124 \*

Venus -58900-05-17 22:47 J -19791664.75 -19791664.55 -19791664.36 0.0504 0.0098

Mercury -58898-12-17 15:06 J -19790720.92 -19790720.87 -19790720.81 0.0496 0.0471

Mercury -58897-03-16 23:30 J -19790630.69 -19790630.52 -19790630.35 0.0496 0.0196

Mercury -58892-11-16 15:06 J -19788559.99 -19788559.87 -19788559.76 0.0530 0.0234

Mercury -58891-02-13 21:35 J -19788470.70 -19788470.60 -19788470.50 0.0529 0.0315

Earth -58890-09-01 05:30 J -19787906.33 -19787906.27 -19787906.19 0.0518 0.0493

Venus -58888-01-21 01:54 J -19787398.59 -19787398.42 -19787398.25 0.0506 0.0241

Mars -58888-06-14 12:28 J -19787254.12 -19787253.98 -19787253.84 0.0502 0.0417

Mercury -58885-01-03 21:06 J -19786320.80 -19786320.62 -19786320.44 0.0496 0.0031

Venus -58882-07-18 11:45 J -19785029.13 -19785029.01 -19785028.89 0.0523 0.0419

Mercury -58880-09-04 18:13 J -19784249.82 -19784249.74 -19784249.65 0.0531 0.0384

Mercury -58880-12-03 01:11 J -19784160.57 -19784160.45 -19784160.33 0.0530 0.0172

Mercury -58874-10-22 18:13 J -19782010.91 -19782010.74 -19782010.56 0.0495 0.0138

Venus -58870-03-23 00:57 J -19780763.66 -19780763.46 -19780763.25 0.0522 0.0021

Mercury -58868-06-23 22:18 J -19779939.59 -19779939.57 -19779939.55 0.0531 0.0521

Mercury -58868-09-21 05:16 J -19779850.41 -19779850.28 -19779850.15 0.0530 0.0037

Venus -58864-01-23 07:25 J -19778630.35 -19778630.19 -19778630.02 0.0503 0.0287

Mercury -58862-08-10 14:37 J -19777701.03 -19777700.89 -19777700.75 0.0495 0.0317

Mercury -58862-11-08 23:16 J -19777610.66 -19777610.53 -19777610.40 0.0496 0.0354

Moon -58860-02-15 18:28 J -19777145.73 -19777145.73 -19777145.72 0.0504 0.0504

Venus -58859-11-25 14:52 J -19776498.02 -19776497.88 -19776497.74 0.0520 0.0382

Mercury -58856-07-10 09:35 J -19775540.23 -19775540.10 -19775539.97 0.0530 0.0095

Mercury -58856-10-07 16:04 J -19775450.90 -19775450.83 -19775450.77 0.0529 0.0452

Venus -58853-09-28 10:33 J -19774364.26 -19774364.06 -19774363.86 0.0504 0.0051

Mars -58852-03-18 09:21 J -19774193.36 -19774193.11 -19774192.85 0.0501 0.0075

Mercury -58850-05-29 11:59 J -19773391.03 -19773391.00 -19773390.95 0.0495 0.0482

Mercury -58850-08-27 20:23 J -19773300.82 -19773300.65 -19773300.48 0.0496 0.0185

Moon -58848-02-20 10:33 J -19772758.29 -19772758.06 -19772757.82 0.0505 0.0150

Earth -58848-02-20 10:47 J -19772758.27 -19772758.05 -19772757.82 0.0505 0.0174 \*

Mercury -58844-04-28 13:25 J -19771230.06 -19771229.94 -19771229.83 0.0530 0.0237

Mercury -58844-07-26 19:54 J -19771140.77 -19771140.67 -19771140.57 0.0529 0.0313

Venus -58841-06-03 12:28 J -19770098.10 -19770097.98 -19770097.86 0.0506 0.0396

Mercury -58838-06-15 17:59 J -19768990.94 -19768990.75 -19768990.57 0.0496 0.0020

Moon -58836-02-25 03:49 J -19768370.56 -19768370.34 -19768370.12 0.0506 0.0162

Earth -58836-02-25 05:59 J -19768370.47 -19768370.25 -19768370.03 0.0506 0.0182 \*

Venus -58835-11-28 18:42 J -19767728.90 -19767728.72 -19767728.53 0.0523 0.0251

Mars -58834-03-13 15:49 J -19767624.13 -19767623.84 -19767623.56 0.0525 0.0077

Mercury -58832-02-14 17:01 J -19766919.88 -19766919.79 -19766919.70 0.0530 0.0380

Mercury -58832-05-14 23:45 J -19766830.63 -19766830.51 -19766830.39 0.0530 0.0173

Earth -58831-08-21 22:18 J -19766366.76 -19766366.57 -19766366.38 0.0521 0.0301

Moon -58831-08-21 23:59 J -19766366.67 -19766366.50 -19766366.33 0.0521 0.0331 \*

Venus -58829-09-30 16:18 J -19765595.88 -19765595.82 -19765595.76 0.0503 0.0479

Mercury -58826-04-03 15:35 J -19764681.02 -19764680.85 -19764680.67 0.0496 0.0144

Venus -58823-08-03 06:28 J -19763463.43 -19763463.23 -19763463.04 0.0521 0.0160

Mercury -58821-12-03 20:09 J -19762609.66 -19762609.66 -19762609.65 0.0531 0.0530

Mercury -58820-03-03 03:06 J -19762520.49 -19762520.37 -19762520.24 0.0530 0.0034

Earth -58819-08-26 13:25 J -19761979.16 -19761978.94 -19761978.71 0.0521 0.0068

Moon -58819-08-26 14:09 J -19761979.15 -19761978.91 -19761978.68 0.0521 0.0065 \*

Venus -58817-06-05 19:25 J -19761329.88 -19761329.69 -19761329.50 0.0504 0.0142

Mercury -58814-01-20 13:11 J -19760371.09 -19760370.95 -19760370.81 0.0495 0.0309

Mercury -58814-04-20 21:49 J -19760280.72 -19760280.59 -19760280.47 0.0496 0.0362

Mercury -58809-12-20 07:25 J -19758210.32 -19758210.19 -19758210.07 0.0530 0.0107

Mercury -58808-03-19 13:54 J -19758120.99 -19758120.92 -19758120.86 0.0530 0.0441

Moon -58807-08-31 03:49 J -19757591.43 -19757591.34 -19757591.24 0.0519 0.0470

Earth -58807-08-31 06:13 J -19757591.35 -19757591.24 -19757591.11 0.0519 0.0438 \*

Venus -58805-02-09 21:35 J -19757063.78 -19757063.60 -19757063.41 0.0505 0.0204

Mercury -58803-11-08 09:35 J -19756061.13 -19756061.10 -19756061.07 0.0495 0.0487

Mercury -58802-02-06 17:45 J -19755970.93 -19755970.76 -19755970.59 0.0496 0.0178

Venus -58799-08-06 09:49 J -19754694.17 -19754694.09 -19754694.00 0.0524 0.0472

Mercury -58797-10-08 11:45 J -19753900.13 -19753900.01 -19753899.90 0.0531 0.0239

Mercury -58796-01-05 18:13 J -19753810.84 -19753810.74 -19753810.63 0.0530 0.0313

Mercury -58791-11-25 15:06 J -19751661.05 -19751660.87 -19751660.69 0.0496 0.0011

Venus -58787-04-11 00:13 J -19750428.70 -19750428.49 -19750428.28 0.0522 0.0074

Mercury -58785-07-27 15:35 J -19749589.94 -19749589.85 -19749589.76 0.0530 0.0379

Mercury -58785-10-24 22:18 J -19749500.69 -19749500.57 -19749500.45 0.0530 0.0175

Venus -58781-02-12 03:35 J -19748295.50 -19748295.35 -19748295.20 0.0503 0.0329

Mercury -58779-09-13 12:42 J -19747351.14 -19747350.97 -19747350.79 0.0496 0.0153

Venus -58776-12-14 13:40 J -19746163.09 -19746162.93 -19746162.77 0.0520 0.0325

Mercury -58773-05-15 19:11 J -19745279.72 -19745279.70 -19745279.68 0.0531 0.0522

Mercury -58773-08-13 02:09 J -19745190.54 -19745190.41 -19745190.28 0.0530 0.0035

Venus -58770-10-18 06:57 J -19744029.41 -19744029.21 -19744029.02 0.0505 0.0014

Mercury -58767-07-02 10:47 J -19743041.19 -19743041.05 -19743040.91 0.0496 0.0312

Mercury -58767-09-30 19:25 J -19742950.82 -19742950.69 -19742950.57 0.0496 0.0360

Moon -58765-02-20 11:45 J -19742443.21 -19742443.01 -19742442.79 0.0504 0.0206

Earth -58765-02-20 13:40 J -19742443.15 -19742442.93 -19742442.72 0.0504 0.0221 \*

Mercury -58761-06-01 05:30 J -19740880.39 -19740880.27 -19740880.14 0.0530 0.0113

Mercury -58761-08-29 11:59 J -19740791.07 -19740791.00 -19740790.93 0.0529 0.0436

Venus -58758-06-23 09:49 J -19739763.23 -19739763.09 -19739762.94 0.0506 0.0349

Mercury -58755-04-20 08:23 J -19738731.19 -19738731.15 -19738731.10 0.0495 0.0475

Mercury -58755-07-19 16:33 J -19738640.98 -19738640.81 -19738640.64 0.0496 0.0191

Earth -58753-02-25 06:57 J -19738055.44 -19738055.21 -19738054.98 0.0506 0.0130

Moon -58753-02-25 10:33 J -19738055.29 -19738055.06 -19738054.82 0.0506 0.0104 \*

Venus -58752-12-17 15:21 J -19737394.03 -19737393.86 -19737393.69 0.0523 0.0297

Mercury -58749-03-20 09:35 J -19736570.21 -19736570.10 -19736569.98 0.0531 0.0248

Mercury -58749-06-17 16:18 J -19736480.92 -19736480.82 -19736480.72 0.0530 0.0305

Earth -58748-08-21 00:28 J -19736051.64 -19736051.48 -19736051.31 0.0522 0.0356

Moon -58748-08-21 00:42 J -19736051.63 -19736051.47 -19736051.30 0.0522 0.0383 \*

Mercury -58743-05-07 12:42 J -19734331.15 -19734330.97 -19734330.79 0.0496 0.0008

Moon -58741-02-29 18:57 J -19733667.82 -19733667.71 -19733667.61 0.0507 0.0453

Earth -58741-02-29 22:47 J -19733667.61 -19733667.55 -19733667.46 0.0507 0.0480 \*

Venus -58740-08-22 05:01 J -19733128.50 -19733128.29 -19733128.09 0.0522 0.0106  
 Mercury -58737-01-07 14:09 J -19732260.00 -19732259.91 -19732259.82 0.0531 0.0379  
 Mercury -58737-04-05 20:52 J -19732170.75 -19732170.63 -19732170.51 0.0530 0.0177  
 Moon -58736-08-25 17:30 J -19731664.00 -19731663.77 -19731663.55 0.0520 0.0031  
 Earth -58736-08-25 19:40 J -19731663.90 -19731663.68 -19731663.45 0.0520 0.0026 \*  
 Venus -58734-06-25 16:47 J -19730994.99 -19730994.80 -19730994.62 0.0503 0.0187  
 Mars -58734-09-07 23:45 J -19730920.72 -19730920.51 -19730920.28 0.0502 0.0266  
 Mercury -58731-02-23 10:18 J -19730021.24 -19730021.07 -19730020.90 0.0496 0.0157  
 Venus -58728-04-26 19:25 J -19728862.74 -19728862.69 -19728862.63 0.0520 0.0498  
 Mercury -58726-10-26 17:59 J -19727949.78 -19727949.75 -19727949.73 0.0531 0.0517  
 Mercury -58725-01-24 00:57 J -19727860.59 -19727860.46 -19727860.33 0.0530 0.0041  
 Earth -58724-08-30 10:33 J -19727276.20 -19727276.06 -19727275.90 0.0519 0.0388  
 Moon -58724-08-30 14:23 J -19727276.03 -19727275.90 -19727275.77 0.0519 0.0422 \*  
 Venus -58722-02-28 19:11 J -19726728.88 -19726728.70 -19726728.51 0.0505 0.0155  
 Mercury -58720-12-12 08:09 J -19725711.30 -19725711.16 -19725711.02 0.0496 0.0318  
 Mercury -58719-03-12 16:47 J -19725620.93 -19725620.80 -19725620.67 0.0496 0.0355  
 Mars -58716-08-29 14:37 J -19724355.05 -19724354.89 -19724354.72 0.0524 0.0433  
 Mercury -58714-11-12 04:47 J -19723550.43 -19723550.30 -19723550.18 0.0530 0.0100  
 Mercury -58713-02-09 11:01 J -19723461.10 -19723461.04 -19723460.97 0.0529 0.0448  
 Venus -58711-11-03 22:18 J -19722462.61 -19722462.57 -19722462.53 0.0507 0.0494  
 Mercury -58708-09-30 06:28 J -19721401.28 -19721401.23 -19721401.18 0.0496 0.0475  
 Mercury -58708-12-29 14:37 J -19721311.06 -19721310.89 -19721310.72 0.0496 0.0193  
 Venus -58704-04-29 22:33 J -19720093.76 -19720093.56 -19720093.35 0.0522 0.0128  
 Mercury -58702-08-31 08:09 J -19719240.27 -19719240.16 -19719240.04 0.0530 0.0247  
 Mercury -58702-11-28 14:52 J -19719150.98 -19719150.88 -19719150.78 0.0530 0.0305  
 Venus -58698-03-03 02:23 J -19717960.53 -19717960.40 -19717960.27 0.0503 0.0381  
 Mars -58698-06-12 01:54 J -19717859.65 -19717859.42 -19717859.19 0.0501 0.0235  
 Mercury -58696-10-17 11:59 J -19717001.18 -19717001.00 -19717000.81 0.0496 0.0027  
 Venus -58692-01-02 11:59 J -19715828.17 -19715828.00 -19715827.82 0.0520 0.0271  
 Mercury -58690-06-19 12:13 J -19714930.07 -19714929.99 -19714929.90 0.0531 0.0382

Mercury -58690-09-16 19:11 J -19714840.82 -19714840.70 -19714840.58 0.0530 0.0174  
 Venus -58687-11-06 05:16 J -19713694.48 -19713694.28 -19713694.08 0.0504 0.0041  
 Mercury -58684-08-05 08:23 J -19712691.33 -19712691.15 -19712690.98 0.0496 0.0156  
 Earth -58682-02-19 13:54 J -19712128.12 -19712127.92 -19712127.73 0.0505 0.0279  
 Moon -58682-02-19 17:01 J -19712127.99 -19712127.79 -19712127.58 0.0505 0.0267 \*  
 Mars -58680-06-06 09:06 J -19711290.36 -19711290.12 -19711289.88 0.0526 0.0288  
 Mercury -58678-04-07 16:33 J -19710619.83 -19710619.81 -19710619.78 0.0531 0.0514  
 Mercury -58678-07-05 23:45 J -19710530.64 -19710530.51 -19710530.39 0.0530 0.0047  
 Venus -58675-07-12 09:21 J -19709428.27 -19709428.11 -19709427.95 0.0505 0.0293  
 Mercury -58672-05-24 05:59 J -19708381.38 -19708381.25 -19708381.10 0.0495 0.0318  
 Mercury -58672-08-22 14:37 J -19708291.02 -19708290.89 -19708290.76 0.0496 0.0355  
 Moon -58670-02-24 05:30 J -19707740.50 -19707740.27 -19707740.03 0.0506 0.0051  
 Earth -58670-02-24 09:35 J -19707740.33 -19707740.10 -19707739.86 0.0506 0.0080 \*  
 Venus -58668-01-05 17:01 J -19707058.94 -19707058.79 -19707058.64 0.0523 0.0364  
 Mercury -58666-04-24 03:49 J -19706220.47 -19706220.34 -19706220.21 0.0530 0.0090  
 Mercury -58666-07-22 10:04 J -19706131.14 -19706131.08 -19706131.01 0.0529 0.0457  
 Moon -58665-08-20 05:59 J -19705736.37 -19705736.25 -19705736.12 0.0522 0.0428  
 Earth -58665-08-20 07:54 J -19705736.30 -19705736.17 -19705736.01 0.0522 0.0399 \*  
 Mercury -58660-03-12 04:04 J -19704071.37 -19704071.33 -19704071.28 0.0496 0.0476  
 Mercury -58660-06-10 12:28 J -19703981.15 -19703980.98 -19703980.81 0.0496 0.0191  
 Earth -58658-03-01 06:42 J -19703352.33 -19703352.22 -19703352.10 0.0507 0.0445  
 Moon -58658-03-01 10:33 J -19703352.18 -19703352.06 -19703351.93 0.0507 0.0426 \*  
 Venus -58657-09-10 07:11 J -19702793.41 -19702793.20 -19702792.99 0.0522 0.0033  
 Mercury -58654-02-10 07:40 J -19701910.29 -19701910.18 -19701910.06 0.0530 0.0230  
 Mercury -58654-05-10 14:09 J -19701821.01 -19701820.91 -19701820.80 0.0529 0.0322  
 Earth -58653-08-25 00:28 J -19701348.71 -19701348.48 -19701348.25 0.0520 0.0027  
 Moon -58653-08-25 04:04 J -19701348.56 -19701348.33 -19701348.09 0.0520 0.0015 \*  
 Venus -58651-07-14 15:35 J -19700660.02 -19700659.85 -19700659.67 0.0503 0.0240  
 Mercury -58648-03-29 10:18 J -19699671.25 -19699671.07 -19699670.88 0.0496 0.0032  
 Venus -58645-05-15 20:09 J -19698527.77 -19698527.66 -19698527.55 0.0520 0.0434

Mercury -58643-11-29 11:01 J -19697600.12 -19697600.04 -19697599.94 0.0531 0.0377

Mercury -58642-02-26 17:59 J -19697510.87 -19697510.75 -19697510.63 0.0530 0.0179

Moon -58641-08-29 11:59 J -19696961.16 -19696961.00 -19696960.85 0.0519 0.0375

Earth -58641-08-29 15:49 J -19696961.01 -19696960.84 -19696960.67 0.0519 0.0342 \*

Venus -58639-03-19 18:57 J -19696393.90 -19696393.71 -19696393.51 0.0505 0.0098

Mercury -58636-01-15 08:09 J -19695361.34 -19695361.16 -19695360.99 0.0496 0.0134

Mercury -58631-09-17 15:06 J -19693289.89 -19693289.87 -19693289.83 0.0531 0.0513

Mercury -58631-12-15 22:18 J -19693200.70 -19693200.57 -19693200.45 0.0530 0.0048

Venus -58628-11-22 22:33 J -19692127.66 -19692127.56 -19692127.46 0.0506 0.0436

Mercury -58625-11-03 04:33 J -19691051.45 -19691051.31 -19691051.17 0.0495 0.0311

Mercury -58624-02-01 12:57 J -19690961.08 -19690960.96 -19690960.83 0.0496 0.0361

Venus -58621-05-18 23:01 J -19689758.73 -19689758.54 -19689758.34 0.0523 0.0191

Mercury -58619-10-04 02:37 J -19688890.51 -19688890.39 -19688890.26 0.0531 0.0084

Mercury -58618-01-01 09:06 J -19688801.17 -19688801.12 -19688801.06 0.0530 0.0466

Venus -58615-03-22 02:52 J -19687625.47 -19687625.38 -19687625.28 0.0502 0.0439

Mercury -58613-08-22 02:37 J -19686741.44 -19686741.39 -19686741.34 0.0495 0.0470

Mercury -58613-11-20 10:47 J -19686651.22 -19686651.05 -19686650.89 0.0496 0.0196

Venus -58609-01-22 14:09 J -19685493.10 -19685492.91 -19685492.72 0.0521 0.0202

Mercury -58607-07-23 06:57 J -19684580.33 -19684580.21 -19684580.10 0.0531 0.0218

Mercury -58607-10-20 13:25 J -19684491.04 -19684490.94 -19684490.84 0.0530 0.0334

Venus -58604-11-25 05:45 J -19683359.45 -19683359.26 -19683359.06 0.0504 0.0104

Mercury -58601-09-08 08:37 J -19682341.33 -19682341.14 -19682340.96 0.0496 0.0035

Moon -58599-02-18 19:54 J -19681812.85 -19681812.67 -19681812.48 0.0505 0.0300

Earth -58599-02-18 23:59 J -19681812.68 -19681812.50 -19681812.31 0.0505 0.0308 \*

Mercury -58595-05-11 10:47 J -19680270.14 -19680270.05 -19680269.96 0.0531 0.0357

Mercury -58595-08-08 17:30 J -19680180.89 -19680180.77 -19680180.65 0.0530 0.0199

Venus -58592-07-31 09:21 J -19679093.29 -19679093.11 -19679092.93 0.0505 0.0233

Mercury -58589-06-27 06:42 J -19678031.40 -19678031.22 -19678031.04 0.0496 0.0125

Earth -58587-02-23 19:54 J -19677424.91 -19677424.67 -19677424.43 0.0506 0.0055

Moon -58587-02-23 23:45 J -19677424.74 -19677424.51 -19677424.27 0.0506 0.0028 \*

Venus -58585-01-25 18:57 J -19676723.82 -19676723.71 -19676723.59 0.0523 0.0433  
 Mercury -58583-02-27 14:23 J -19675959.94 -19675959.90 -19675959.87 0.0531 0.0503  
 Mercury -58583-05-27 21:21 J -19675870.74 -19675870.61 -19675870.49 0.0530 0.0058  
 Earth -58582-08-20 14:09 J -19675421.02 -19675420.91 -19675420.78 0.0522 0.0445  
 Moon -58582-08-20 17:45 J -19675420.85 -19675420.76 -19675420.65 0.0522 0.0470 \*  
 Mars -58580-12-02 05:16 J -19674586.53 -19674586.28 -19674586.02 0.0502 0.0076  
 Mercury -58577-04-15 04:33 J -19673721.46 -19673721.31 -19673721.16 0.0496 0.0286  
 Mercury -58577-07-14 13:11 J -19673631.07 -19673630.95 -19673630.84 0.0496 0.0388  
 Moon -58575-02-28 12:13 J -19673037.13 -19673036.99 -19673036.83 0.0507 0.0398  
 Earth -58575-02-28 14:52 J -19673037.00 -19673036.88 -19673036.73 0.0507 0.0414 \*  
 Venus -58574-09-30 08:37 J -19672458.35 -19672458.14 -19672457.93 0.0522 0.0034  
 Mercury -58571-03-16 01:25 J -19671560.56 -19671560.44 -19671560.31 0.0530 0.0078  
 Mercury -58571-06-13 07:54 J -19671471.22 -19671471.17 -19671471.11 0.0530 0.0471  
 Moon -58570-08-25 06:13 J -19671033.46 -19671033.24 -19671033.01 0.0521 0.0048  
 Earth -58570-08-25 10:18 J -19671033.30 -19671033.07 -19671032.84 0.0521 0.0059 \*  
 Venus -58568-08-02 17:01 J -19670324.95 -19670324.79 -19670324.63 0.0503 0.0302  
 Mercury -58565-02-02 01:25 J -19669411.51 -19669411.44 -19669411.38 0.0495 0.0460  
 Mercury -58565-05-02 09:21 J -19669321.28 -19669321.11 -19669320.94 0.0496 0.0206  
 Venus -58562-06-04 20:37 J -19668192.78 -19668192.64 -19668192.49 0.0521 0.0370  
 Mars -58562-11-24 00:28 J -19668020.75 -19668020.48 -19668020.20 0.0525 0.0184  
 Mercury -58559-01-02 05:59 J -19667250.37 -19667250.25 -19667250.14 0.0531 0.0209  
 Mercury -58559-04-01 12:28 J -19667161.07 -19667160.98 -19667160.88 0.0530 0.0345  
 Earth -58558-08-30 05:59 J -19666645.42 -19666645.25 -19666645.07 0.0520 0.0325  
 Moon -58558-08-30 09:21 J -19666645.27 -19666645.11 -19666644.94 0.0520 0.0355 \*  
 Venus -58556-04-07 21:35 J -19666058.80 -19666058.60 -19666058.40 0.0504 0.0030  
 Mercury -58553-02-19 07:11 J -19665011.38 -19665011.20 -19665011.02 0.0496 0.0043  
 Mercury -58548-10-21 10:04 J -19662940.18 -19662940.08 -19662939.98 0.0531 0.0343  
 Mercury -58547-01-18 16:47 J -19662850.91 -19662850.80 -19662850.68 0.0530 0.0214  
 Venus -58545-12-12 00:13 J -19661792.62 -19661792.49 -19661792.35 0.0506 0.0367  
 Mars -58544-09-05 11:30 J -19661525.15 -19661525.02 -19661524.89 0.0500 0.0433



Mercury -58542-12-08 05:01 J -19660701.46 -19660701.29 -19660701.11 0.0496 0.0119  
 Venus -58538-06-08 04:04 J -19659423.51 -19659423.33 -19659423.15 0.0523 0.0275  
 Mercury -58536-08-09 13:54 J -19658629.97 -19658629.92 -19658629.86 0.0531 0.0482  
 Mercury -58536-11-06 20:52 J -19658540.75 -19658540.63 -19658540.50 0.0530 0.0080  
 Venus -58532-04-10 03:49 J -19657290.34 -19657290.34 -19657290.33 0.0502 0.0502  
 Mercury -58530-09-26 03:21 J -19656391.51 -19656391.36 -19656391.21 0.0496 0.0275  
 Mercury -58530-12-25 11:59 J -19656301.11 -19656301.00 -19656300.89 0.0496 0.0400  
 Venus -58526-02-10 17:30 J -19655157.97 -19655157.77 -19655157.56 0.0521 0.0126  
 Mercury -58524-08-26 00:42 J -19654230.60 -19654230.47 -19654230.34 0.0530 0.0066  
 Mercury -58524-11-23 07:11 J -19654141.25 -19654141.20 -19654141.15 0.0529 0.0482  
 Venus -58521-12-14 07:25 J -19653024.38 -19653024.19 -19653024.00 0.0504 0.0169  
 Mercury -58518-07-15 01:25 J -19652081.52 -19652081.44 -19652081.35 0.0495 0.0435  
 Mercury -58518-10-13 09:35 J -19651991.26 -19651991.10 -19651990.94 0.0496 0.0234  
 Earth -58516-02-18 10:18 J -19651497.25 -19651497.07 -19651496.89 0.0504 0.0334  
 Moon -58516-02-18 14:09 J -19651497.08 -19651496.91 -19651496.73 0.0504 0.0331 \*  
 Venus -58515-10-16 07:11 J -19650892.20 -19650892.20 -19650892.19 0.0519 0.0519  
 Mercury -58512-06-14 04:47 J -19649920.42 -19649920.30 -19649920.18 0.0531 0.0200  
 Mercury -58512-09-11 11:30 J -19649831.11 -19649831.02 -19649830.93 0.0530 0.0353  
 Venus -58509-08-19 11:45 J -19648758.20 -19648758.01 -19648757.82 0.0505 0.0165  
 Mercury -58506-08-01 06:13 J -19647681.43 -19647681.24 -19647681.06 0.0495 0.0056  
 Moon -58504-02-22 21:06 J -19647109.86 -19647109.62 -19647109.37 0.0505 0.0023  
 Earth -58504-02-23 00:13 J -19647109.73 -19647109.49 -19647109.25 0.0505 0.0007 \*  
 Venus -58502-02-13 20:23 J -19646388.70 -19646388.65 -19646388.59 0.0524 0.0501  
 Mercury -58500-04-02 09:06 J -19645610.22 -19645610.12 -19645610.02 0.0531 0.0333  
 Mercury -58500-06-30 16:04 J -19645520.95 -19645520.83 -19645520.72 0.0530 0.0225  
 Moon -58499-08-20 01:54 J -19645105.50 -19645105.42 -19645105.34 0.0523 0.0488  
 Earth -58499-08-20 05:45 J -19645105.36 -19645105.26 -19645105.15 0.0523 0.0461 \*  
 Venus -58497-04-24 16:18 J -19644491.86 -19644491.82 -19644491.78 0.0506 0.0495  
 Mercury -58494-05-20 04:04 J -19643371.51 -19643371.33 -19643371.15 0.0495 0.0106  
 Earth -58492-02-27 20:37 J -19642721.79 -19642721.64 -19642721.47 0.0507 0.0372

Moon -58492-02-27 21:21 J -19642721.76 -19642721.61 -19642721.45 0.0507 0.0371 \*  
 Venus -58491-10-19 11:16 J -19642123.23 -19642123.03 -19642122.82 0.0523 0.0109  
 Mercury -58488-01-19 13:11 J -19641300.00 -19641299.95 -19641299.89 0.0531 0.0468  
 Mercury -58488-04-18 20:23 J -19641210.78 -19641210.65 -19641210.53 0.0530 0.0094  
 Earth -58487-08-24 23:59 J -19640717.73 -19640717.50 -19640717.28 0.0521 0.0081  
 Moon -58487-08-25 03:21 J -19640717.58 -19640717.36 -19640717.14 0.0521 0.0060 \*  
 Venus -58485-08-21 19:11 J -19639989.83 -19639989.70 -19639989.56 0.0502 0.0372  
 Mercury -58482-03-08 02:09 J -19639061.56 -19639061.41 -19639061.26 0.0495 0.0266  
 Mercury -58482-06-06 10:33 J -19638971.16 -19638971.06 -19638970.95 0.0496 0.0408  
 Venus -58479-06-24 02:09 J -19637857.58 -19637857.41 -19637857.23 0.0521 0.0283  
 Mercury -58476-02-05 00:28 J -19636900.61 -19636900.48 -19636900.35 0.0530 0.0044  
 Mercury -58476-05-05 06:42 J -19636811.25 -19636811.22 -19636811.18 0.0529 0.0505  
 Moon -58475-08-29 14:37 J -19636330.08 -19636329.89 -19636329.70 0.0520 0.0314  
 Earth -58475-08-29 16:33 J -19636330.00 -19636329.81 -19636329.62 0.0520 0.0293 \*  
 Venus -58473-04-26 22:47 J -19635723.75 -19635723.55 -19635723.35 0.0504 0.0038  
 Mercury -58471-12-25 00:13 J -19634751.58 -19634751.49 -19634751.39 0.0495 0.0423  
 Mercury -58470-03-25 08:23 J -19634661.30 -19634661.15 -19634660.98 0.0496 0.0248  
 Mercury -58465-11-24 04:04 J -19632590.45 -19632590.33 -19632590.21 0.0531 0.0187  
 Mercury -58464-02-21 10:47 J -19632501.14 -19632501.05 -19632500.96 0.0530 0.0366  
 Venus -58461-01-01 02:09 J -19631457.57 -19631457.41 -19631457.25 0.0506 0.0300  
 Mars -58461-05-24 19:25 J -19631312.86 -19631312.69 -19631312.51 0.0503 0.0365  
 Mercury -58458-01-11 06:13 J -19630351.42 -19630351.24 -19630351.05 0.0496 0.0084  
 Venus -58455-06-27 06:42 J -19629088.37 -19629088.22 -19629088.06 0.0523 0.0348  
 Mercury -58453-09-12 08:09 J -19628280.26 -19628280.16 -19628280.06 0.0531 0.0323  
 Mercury -58453-12-10 14:52 J -19628190.99 -19628190.88 -19628190.76 0.0530 0.0235  
 Mercury -58447-10-30 03:06 J -19626041.55 -19626041.37 -19626041.19 0.0495 0.0092  
 Venus -58443-03-01 18:13 J -19624822.94 -19624822.74 -19624822.53 0.0522 0.0061  
 Mercury -58441-07-01 12:13 J -19623970.05 -19623969.99 -19623969.92 0.0532 0.0460  
 Mercury -58441-09-28 19:25 J -19623880.82 -19623880.69 -19623880.57 0.0531 0.0103  
 Venus -58437-01-03 11:16 J -19622689.20 -19622689.03 -19622688.85 0.0503 0.0245

Mercury -58435-08-18 01:11 J -19621731.61 -19621731.45 -19621731.29 0.0495 0.0252

Mercury -58435-11-16 09:21 J -19621641.20 -19621641.11 -19621641.01 0.0496 0.0421

Moon -58433-02-18 13:11 J -19621182.11 -19621181.95 -19621181.79 0.0504 0.0378

Earth -58433-02-18 16:18 J -19621181.97 -19621181.82 -19621181.66 0.0504 0.0377 \*

Venus -58432-11-04 09:06 J -19620557.22 -19620557.12 -19620557.02 0.0520 0.0448

Mercury -58429-07-17 23:45 J -19619570.64 -19619570.51 -19619570.38 0.0531 0.0032

Mercury -58429-10-15 05:59 J -19619481.26 -19619481.25 -19619481.22 0.0530 0.0520

Venus -58426-09-08 14:23 J -19618423.09 -19618422.90 -19618422.70 0.0504 0.0092

Mars -58425-02-27 00:57 J -19618251.71 -19618251.46 -19618251.21 0.0501 0.0144

Mercury -58423-06-05 23:01 J -19617421.63 -19617421.54 -19617421.43 0.0495 0.0412

Mercury -58423-09-04 07:11 J -19617331.35 -19617331.20 -19617331.04 0.0496 0.0257

Earth -58421-02-23 12:57 J -19616794.20 -19616793.96 -19616793.72 0.0505 0.0014

Moon -58421-02-23 13:54 J -19616794.15 -19616793.92 -19616793.70 0.0505 0.0042 \*

Mercury -58417-05-06 03:49 J -19615260.47 -19615260.34 -19615260.22 0.0531 0.0166

Mercury -58417-08-03 10:18 J -19615171.15 -19615171.07 -19615170.98 0.0530 0.0387

Earth -58416-08-19 16:18 J -19614789.89 -19614789.82 -19614789.74 0.0523 0.0495

Moon -58416-08-19 19:54 J -19614789.71 -19614789.67 -19614789.63 0.0523 0.0512

Venus -58414-05-14 17:45 J -19614156.86 -19614156.76 -19614156.66 0.0506 0.0429

Mercury -58411-06-23 05:16 J -19613021.46 -19613021.28 -19613021.10 0.0496 0.0096

Earth -58409-02-28 09:35 J -19612406.27 -19612406.10 -19612405.93 0.0506 0.0354

Moon -58409-02-28 11:01 J -19612406.21 -19612406.04 -19612405.86 0.0506 0.0362 \*

Venus -58408-11-07 15:35 J -19611788.04 -19611787.85 -19611787.65 0.0522 0.0189

Mars -58407-02-18 11:30 J -19611685.30 -19611685.02 -19611684.73 0.0525 0.0119

Mercury -58405-02-23 07:25 J -19610950.30 -19610950.19 -19610950.09 0.0531 0.0310

Mercury -58405-05-22 14:09 J -19610861.02 -19610860.91 -19610860.80 0.0530 0.0246

Moon -58404-08-24 06:28 J -19610402.46 -19610402.23 -19610401.99 0.0521 0.0095

Earth -58404-08-24 08:37 J -19610402.36 -19610402.14 -19610401.92 0.0521 0.0119 \*

Venus -58402-09-10 21:06 J -19609654.72 -19609654.62 -19609654.52 0.0503 0.0438

Mercury -58399-04-11 03:06 J -19608711.55 -19608711.37 -19608711.19 0.0496 0.0067

Venus -58396-07-13 05:01 J -19607522.48 -19607522.29 -19607522.10 0.0521 0.0209

Mercury -58394-12-12 11:16 J -19606640.09 -19606640.03 -19606639.96 0.0531 0.0449

Mercury -58393-03-10 18:28 J -19606550.86 -19606550.73 -19606550.61 0.0530 0.0113

Earth -58392-08-29 03:35 J -19606014.55 -19606014.35 -19606014.15 0.0520 0.0265

Moon -58392-08-29 03:21 J -19606014.54 -19606014.36 -19606014.17 0.0520 0.0280 \*

Venus -58390-05-17 01:40 J -19605388.63 -19605388.43 -19605388.24 0.0504 0.0109

Mercury -58387-01-28 00:13 J -19604401.65 -19604401.49 -19604401.33 0.0495 0.0239

Mercury -58387-04-28 08:37 J -19604311.23 -19604311.14 -19604311.06 0.0496 0.0434

Mercury -58382-12-28 22:33 J -19602240.69 -19602240.56 -19602240.43 0.0531 0.0023

Mercury -58381-03-27 05:01 J -19602151.29 -19602151.29 -19602151.28 0.0530 0.0528

Venus -58378-01-20 06:13 J -19601122.41 -19601122.24 -19601122.06 0.0505 0.0221

Mercury -58376-11-15 22:18 J -19600091.68 -19600091.57 -19600091.47 0.0495 0.0398

Mercury -58375-02-14 06:13 J -19600001.40 -19600001.24 -19600001.09 0.0495 0.0269

Venus -58372-07-16 08:23 J -19598753.27 -19598753.15 -19598753.03 0.0524 0.0419

Mercury -58370-10-17 02:52 J -19597930.50 -19597930.38 -19597930.26 0.0531 0.0156

Mercury -58369-01-14 09:21 J -19597841.19 -19597841.11 -19597841.02 0.0530 0.0399

Mercury -58364-12-03 03:49 J -19595691.52 -19595691.34 -19595691.16 0.0496 0.0105

Venus -58360-03-20 23:30 J -19594487.73 -19594487.52 -19594487.31 0.0522 0.0027

Mercury -58358-08-05 06:57 J -19593620.32 -19593620.21 -19593620.11 0.0531 0.0293

Mercury -58358-11-02 13:40 J -19593531.04 -19593530.93 -19593530.82 0.0530 0.0265

Venus -58354-01-22 11:59 J -19592354.15 -19592354.00 -19592353.84 0.0503 0.0308

Mercury -58352-09-21 01:54 J -19591381.61 -19591381.42 -19591381.24 0.0495 0.0058

Earth -58350-02-18 04:33 J -19590866.45 -19590866.31 -19590866.16 0.0504 0.0398

Moon -58350-02-18 05:30 J -19590866.39 -19590866.27 -19590866.13 0.0504 0.0412 \*

Venus -58349-11-23 13:11 J -19590222.10 -19590221.95 -19590221.80 0.0520 0.0369

Mercury -58346-05-24 10:18 J -19589310.13 -19589310.07 -19589309.99 0.0531 0.0438

Mercury -58346-08-21 17:30 J -19589220.90 -19589220.77 -19589220.65 0.0530 0.0123

Venus -58343-09-27 15:21 J -19588088.05 -19588087.86 -19588087.66 0.0505 0.0031

Mercury -58340-07-09 23:45 J -19587071.67 -19587071.51 -19587071.35 0.0495 0.0218

Mercury -58340-10-08 08:09 J -19586981.23 -19586981.16 -19586981.09 0.0496 0.0457

Earth -58338-02-22 22:47 J -19586478.78 -19586478.55 -19586478.31 0.0505 0.0044

Moon -58338-02-23 00:13 J -19586478.73 -19586478.49 -19586478.25 0.0505 0.0068 \*  
 Mercury -58334-06-09 21:35 J -19584910.73 -19584910.60 -19584910.47 0.0531 0.0018  
 Venus -58331-06-02 19:54 J -19583821.81 -19583821.67 -19583821.53 0.0506 0.0359  
 Mercury -58328-04-27 21:06 J -19582761.73 -19582761.62 -19582761.51 0.0495 0.0386  
 Mercury -58328-07-27 05:01 J -19582671.44 -19582671.29 -19582671.14 0.0495 0.0281  
 Moon -58326-02-27 10:18 J -19582091.25 -19582091.07 -19582090.89 0.0506 0.0314  
 Earth -58326-02-27 12:57 J -19582091.15 -19582090.96 -19582090.77 0.0506 0.0304 \*  
 Venus -58325-11-26 14:23 J -19581453.08 -19581452.90 -19581452.71 0.0523 0.0248  
 Mercury -58322-03-29 01:25 J -19580600.56 -19580600.44 -19580600.31 0.0532 0.0153  
 Mercury -58322-06-26 08:09 J -19580511.24 -19580511.16 -19580511.08 0.0531 0.0403  
 Earth -58321-08-23 21:21 J -19580086.83 -19580086.61 -19580086.39 0.0522 0.0145  
 Moon -58321-08-23 21:21 J -19580086.83 -19580086.61 -19580086.40 0.0522 0.0115 \*  
 Mercury -58316-05-15 02:37 J -19578361.56 -19578361.39 -19578361.21 0.0495 0.0117  
 Venus -58313-08-01 04:47 J -19577187.49 -19577187.30 -19577187.09 0.0521 0.0147  
 Mercury -58310-01-15 05:45 J -19576290.37 -19576290.26 -19576290.15 0.0532 0.0287  
 Mercury -58310-04-14 12:28 J -19576201.08 -19576200.98 -19576200.87 0.0531 0.0273  
 Earth -58309-08-28 14:52 J -19575699.08 -19575698.88 -19575698.68 0.0520 0.0237  
 Moon -58309-08-28 16:47 J -19575699.01 -19575698.80 -19575698.59 0.0520 0.0245 \*  
 Venus -58307-06-05 03:06 J -19575053.56 -19575053.37 -19575053.19 0.0503 0.0175  
 Mars -58307-08-19 13:25 J -19574978.19 -19574977.94 -19574977.70 0.0502 0.0153  
 Mercury -58304-03-03 00:13 J -19574051.67 -19574051.49 -19574051.30 0.0495 0.0050  
 Mercury -58299-11-03 09:35 J -19571980.17 -19571980.10 -19571980.02 0.0531 0.0425  
 Mercury -58298-01-31 16:47 J -19571890.93 -19571890.80 -19571890.68 0.0531 0.0138  
 Venus -58295-02-08 06:13 J -19570787.43 -19570787.24 -19570787.05 0.0505 0.0161  
 Mercury -58293-12-19 22:18 J -19569741.74 -19569741.57 -19569741.41 0.0495 0.0211  
 Mercury -58292-03-20 06:42 J -19569651.28 -19569651.22 -19569651.16 0.0496 0.0464  
 Venus -58289-08-04 11:16 J -19568418.09 -19568418.03 -19568417.96 0.0524 0.0493  
 Mars -58289-08-06 21:06 J -19568415.81 -19568415.62 -19568415.40 0.0524 0.0369  
 Mercury -58287-11-19 20:23 J -19567580.78 -19567580.65 -19567580.52 0.0531 0.0009  
 Venus -58284-10-14 08:52 J -19566521.15 -19566521.13 -19566521.10 0.0507 0.0501

Mercury -58281-10-07 20:09 J -19565431.78 -19565431.66 -19565431.54 0.0495 0.0372

Mercury -58280-01-06 04:18 J -19565341.47 -19565341.32 -19565341.18 0.0496 0.0298

Venus -58277-04-09 00:13 J -19564152.69 -19564152.49 -19564152.28 0.0522 0.0094

Mercury -58275-09-08 00:28 J -19563270.61 -19563270.48 -19563270.36 0.0531 0.0146

Mercury -58275-12-06 06:57 J -19563181.29 -19563181.21 -19563181.13 0.0530 0.0409

Venus -58271-02-10 13:25 J -19562019.07 -19562018.94 -19562018.80 0.0503 0.0372

Mars -58271-05-23 15:06 J -19561917.05 -19561916.87 -19561916.68 0.0501 0.0348

Mercury -58269-10-25 01:11 J -19561031.62 -19561031.45 -19561031.27 0.0495 0.0126

Earth -58267-02-17 07:54 J -19560551.28 -19560551.17 -19560551.07 0.0503 0.0448

Moon -58267-02-17 08:37 J -19560551.22 -19560551.14 -19560551.04 0.0503 0.0467 \*

Venus -58266-12-13 10:33 J -19559887.22 -19559887.06 -19559886.89 0.0520 0.0317

Mercury -58263-06-27 04:04 J -19558960.44 -19558960.33 -19558960.22 0.0532 0.0288

Mercury -58263-09-24 11:01 J -19558871.15 -19558871.04 -19558870.93 0.0531 0.0272

Venus -58260-10-16 17:45 J -19557752.95 -19557752.76 -19557752.56 0.0504 0.0043

Mercury -58257-08-12 23:01 J -19556721.72 -19556721.54 -19556721.36 0.0495 0.0040

Moon -58255-02-21 23:01 J -19556163.76 -19556163.54 -19556163.32 0.0504 0.0122

Earth -58255-02-22 01:25 J -19556163.67 -19556163.44 -19556163.20 0.0504 0.0095 \*

Mars -58253-05-14 17:16 J -19555350.99 -19555350.78 -19555350.56 0.0526 0.0345

Mercury -58251-04-15 08:09 J -19554650.23 -19554650.16 -19554650.08 0.0532 0.0424

Mercury -58251-07-13 15:21 J -19554560.99 -19554560.86 -19554560.74 0.0531 0.0140

Venus -58248-06-21 20:23 J -19553486.81 -19553486.65 -19553486.49 0.0506 0.0298

Mercury -58245-05-31 20:23 J -19552411.81 -19552411.65 -19552411.48 0.0495 0.0207

Mercury -58245-08-30 04:33 J -19552321.36 -19552321.31 -19552321.24 0.0496 0.0468

Earth -58243-02-26 20:52 J -19551775.83 -19551775.63 -19551775.43 0.0506 0.0270

Moon -58243-02-27 00:28 J -19551775.67 -19551775.48 -19551775.28 0.0506 0.0286 \*

Venus -58242-12-16 17:30 J -19551117.94 -19551117.77 -19551117.61 0.0523 0.0323

Mercury -58239-05-01 19:25 J -19550250.82 -19550250.69 -19550250.56 0.0531 0.0004

Earth -58238-08-24 03:49 J -19549771.56 -19549771.34 -19549771.13 0.0522 0.0191

Moon -58238-08-24 05:30 J -19549771.49 -19549771.27 -19549771.04 0.0522 0.0156 \*

Mercury -58233-03-19 18:13 J -19548101.86 -19548101.74 -19548101.62 0.0495 0.0369

Mercury -58233-06-18 02:23 J -19548011.55 -19548011.40 -19548011.26 0.0496 0.0301  
 Venus -58230-08-21 06:57 J -19546852.41 -19546852.21 -19546852.00 0.0521 0.0075  
 Mercury -58227-02-17 23:01 J -19545940.66 -19545940.54 -19545940.42 0.0531 0.0142  
 Mercury -58227-05-18 05:45 J -19545851.34 -19545851.26 -19545851.18 0.0530 0.0412  
 Moon -58226-08-28 15:49 J -19545384.05 -19545383.84 -19545383.63 0.0521 0.0189  
 Earth -58226-08-28 18:42 J -19545383.93 -19545383.72 -19545383.51 0.0521 0.0183 \*  
 Venus -58224-06-24 01:40 J -19544718.60 -19544718.43 -19544718.25 0.0503 0.0228  
 Mercury -58221-04-05 23:59 J -19543701.68 -19543701.50 -19543701.33 0.0495 0.0135  
 Venus -58218-04-25 19:40 J -19542586.76 -19542586.68 -19542586.59 0.0519 0.0471  
 Mercury -58216-12-07 02:52 J -19541630.49 -19541630.38 -19541630.27 0.0531 0.0284  
 Mercury -58215-03-06 09:35 J -19541541.20 -19541541.10 -19541540.99 0.0531 0.0276  
 Venus -58212-02-27 05:59 J -19540452.44 -19540452.25 -19540452.05 0.0505 0.0103  
 Mercury -58209-01-23 21:06 J -19539391.80 -19539391.62 -19539391.43 0.0495 0.0037  
 Mercury -58204-09-25 06:13 J -19537320.31 -19537320.24 -19537320.16 0.0532 0.0431  
 Mercury -58204-12-23 13:25 J -19537231.06 -19537230.94 -19537230.81 0.0531 0.0134  
 Venus -58201-11-02 09:49 J -19536186.18 -19536186.09 -19536185.99 0.0507 0.0437  
 Mercury -58198-11-11 18:57 J -19535081.88 -19535081.71 -19535081.54 0.0494 0.0199  
 Mercury -58197-02-10 03:06 J -19534991.42 -19534991.37 -19534991.32 0.0495 0.0473  
 Venus -58194-04-28 21:06 J -19533817.82 -19533817.62 -19533817.42 0.0522 0.0142  
 Mercury -58192-10-11 17:45 J -19532920.89 -19532920.76 -19532920.64 0.0531 0.0019  
 Mars -58188-02-08 16:33 J -19531704.90 -19531704.81 -19531704.72 0.0503 0.0471  
 Venus -58188-03-01 11:59 J -19531684.10 -19531684.00 -19531683.89 0.0502 0.0424  
 Mercury -58186-08-30 16:04 J -19530771.94 -19530771.83 -19530771.70 0.0495 0.0368  
 Mercury -58186-11-28 23:59 J -19530681.64 -19530681.50 -19530681.35 0.0495 0.0301  
 Earth -58184-02-16 12:57 J -19530236.00 -19530235.96 -19530235.90 0.0503 0.0491  
 Venus -58182-01-01 11:45 J -19529552.19 -19529552.01 -19529551.82 0.0521 0.0249  
 Mercury -58180-07-30 21:49 J -19528610.72 -19528610.59 -19528610.47 0.0531 0.0138  
 Mercury -58180-10-28 04:18 J -19528521.39 -19528521.32 -19528521.24 0.0530 0.0418  
 Venus -58177-11-04 15:06 J -19527418.07 -19527417.87 -19527417.68 0.0504 0.0089  
 Mercury -58174-09-16 21:35 J -19526371.78 -19526371.60 -19526371.42 0.0495 0.0133

Earth -58172-02-21 07:11 J -19525848.43 -19525848.20 -19525847.97 0.0504 0.0135  
 Moon -58172-02-21 10:47 J -19525848.28 -19525848.05 -19525847.82 0.0504 0.0157 \*  
 Mercury -58168-05-19 01:11 J -19524300.55 -19524300.45 -19524300.34 0.0531 0.0284  
 Mercury -58168-08-16 08:09 J -19524211.27 -19524211.16 -19524211.05 0.0530 0.0275  
 Venus -58165-07-10 17:30 J -19523151.94 -19523151.77 -19523151.60 0.0506 0.0251  
 Mercury -58162-07-05 19:11 J -19522061.88 -19522061.70 -19522061.51 0.0495 0.0033  
 Moon -58160-02-25 21:06 J -19521460.83 -19521460.62 -19521460.41 0.0505 0.0240  
 Earth -58160-02-26 00:57 J -19521460.67 -19521460.46 -19521460.24 0.0505 0.0223 \*  
 Venus -58158-01-04 15:35 J -19520782.99 -19520782.85 -19520782.71 0.0523 0.0376  
 Mercury -58156-03-07 04:47 J -19519990.37 -19519990.30 -19519990.22 0.0532 0.0429  
 Mercury -58156-06-04 11:59 J -19519901.12 -19519901.00 -19519900.88 0.0531 0.0135  
 Moon -58155-08-23 01:54 J -19519456.62 -19519456.42 -19519456.21 0.0523 0.0224  
 Earth -58155-08-23 04:47 J -19519456.50 -19519456.30 -19519456.10 0.0523 0.0256 \*  
 Mars -58153-11-12 12:57 J -19518644.22 -19518643.96 -19518643.70 0.0502 0.0015  
 Mercury -58150-04-23 16:47 J -19517751.97 -19517751.80 -19517751.63 0.0494 0.0198  
 Mercury -58150-07-23 00:57 J -19517661.51 -19517661.46 -19517661.41 0.0495 0.0474  
 Venus -58147-09-09 01:40 J -19516517.64 -19516517.43 -19516517.22 0.0521 0.0036  
 Mercury -58144-03-23 15:35 J -19515590.98 -19515590.85 -19515590.72 0.0532 0.0011  
 Earth -58143-08-27 22:04 J -19515068.80 -19515068.58 -19515068.35 0.0522 0.0130  
 Moon -58143-08-28 01:40 J -19515068.65 -19515068.43 -19515068.20 0.0522 0.0130 \*  
 Venus -58141-07-13 01:11 J -19514383.61 -19514383.45 -19514383.29 0.0503 0.0285  
 Mercury -58138-02-09 14:23 J -19513442.02 -19513441.90 -19513441.77 0.0494 0.0362  
 Mercury -58138-05-10 22:18 J -19513351.72 -19513351.57 -19513351.43 0.0495 0.0304  
 Venus -58135-05-14 14:52 J -19512251.99 -19512251.88 -19512251.76 0.0520 0.0430  
 Mars -58135-10-31 04:33 J -19512082.58 -19512082.31 -19512082.04 0.0524 0.0194  
 Mercury -58132-01-09 19:40 J -19511280.80 -19511280.68 -19511280.56 0.0532 0.0147  
 Mercury -58132-04-09 02:23 J -19511191.48 -19511191.40 -19511191.32 0.0531 0.0410  
 Moon -58131-09-01 11:30 J -19510681.11 -19510681.02 -19510680.93 0.0520 0.0476  
 Earth -58131-09-01 14:52 J -19510680.91 -19510680.88 -19510680.83 0.0520 0.0510  
 Venus -58129-03-18 03:21 J -19510117.56 -19510117.36 -19510117.16 0.0505 0.0056



Mercury -58126-02-26 18:57 J -19509041.88 -19509041.71 -19509041.53 0.0495 0.0130

Mercury -58121-10-28 23:45 J -19506970.62 -19506970.51 -19506970.40 0.0532 0.0284

Mercury -58120-01-26 06:42 J -19506881.33 -19506881.22 -19506881.11 0.0531 0.0277

Venus -58118-11-22 05:59 J -19505851.37 -19505851.25 -19505851.13 0.0506 0.0394

Mars -58117-08-16 07:40 J -19505583.20 -19505583.18 -19505583.17 0.0500 0.0499

Mercury -58115-12-15 16:33 J -19504731.99 -19504731.81 -19504731.63 0.0495 0.0038

Venus -58111-05-17 20:37 J -19503482.83 -19503482.64 -19503482.45 0.0522 0.0200

Mercury -58109-08-17 03:06 J -19502660.44 -19502660.37 -19502660.29 0.0531 0.0431

Mercury -58109-11-14 10:18 J -19502571.19 -19502571.07 -19502570.95 0.0531 0.0132

Venus -58105-03-20 07:54 J -19501349.24 -19501349.17 -19501349.09 0.0503 0.0464

Mercury -58103-10-03 14:09 J -19500422.07 -19500421.91 -19500421.74 0.0495 0.0204

Mercury -58102-01-01 22:18 J -19500331.61 -19500331.57 -19500331.51 0.0496 0.0472

Venus -58099-01-20 09:06 J -19499217.31 -19499217.12 -19499216.93 0.0520 0.0199

Mercury -58097-09-02 13:54 J -19498261.04 -19498260.92 -19498260.79 0.0531 0.0020

Venus -58094-11-24 11:45 J -19497083.20 -19497083.01 -19497082.81 0.0504 0.0135

Mercury -58091-07-22 11:59 J -19496112.12 -19496112.00 -19496111.87 0.0494 0.0365

Mercury -58091-10-20 19:40 J -19496021.82 -19496021.68 -19496021.53 0.0495 0.0302

Moon -58089-02-21 02:23 J -19495533.61 -19495533.40 -19495533.18 0.0503 0.0219

Earth -58089-02-21 06:28 J -19495533.45 -19495533.23 -19495533.01 0.0503 0.0196 \*

Mercury -58085-06-21 17:16 J -19493950.90 -19493950.78 -19493950.65 0.0532 0.0161

Mercury -58085-09-19 00:13 J -19493861.57 -19493861.49 -19493861.41 0.0531 0.0398

Venus -58082-07-30 15:21 J -19492817.04 -19492816.86 -19492816.68 0.0506 0.0201

Mercury -58079-08-08 17:01 J -19491711.96 -19491711.79 -19491711.61 0.0495 0.0132

Earth -58077-02-25 22:33 J -19491145.78 -19491145.56 -19491145.33 0.0504 0.0157

Moon -58077-02-26 01:54 J -19491145.64 -19491145.42 -19491145.20 0.0504 0.0183 \*

Venus -58075-01-23 09:49 J -19490448.21 -19490448.09 -19490447.96 0.0523 0.0412

Mercury -58073-04-09 21:21 J -19489640.72 -19489640.61 -19489640.50 0.0532 0.0298

Mercury -58073-07-08 04:18 J -19489551.43 -19489551.32 -19489551.21 0.0531 0.0264

Earth -58072-08-22 04:33 J -19489141.49 -19489141.31 -19489141.13 0.0523 0.0320

Moon -58072-08-22 08:09 J -19489141.35 -19489141.16 -19489140.97 0.0523 0.0287 \*

Mercury -58067-05-27 13:54 J -19487402.11 -19487401.92 -19487401.74 0.0495 0.0046

Venus -58064-09-27 23:59 J -19486182.71 -19486182.50 -19486182.29 0.0522 0.0019

Mercury -58061-01-28 01:25 J -19485330.51 -19485330.44 -19485330.37 0.0532 0.0436

Mercury -58061-04-26 08:37 J -19485241.27 -19485241.14 -19485241.02 0.0531 0.0130

Moon -58060-08-26 19:11 J -19484753.93 -19484753.70 -19484753.47 0.0522 0.0059

Earth -58060-08-26 22:47 J -19484753.78 -19484753.55 -19484753.32 0.0522 0.0067 \*

Venus -58058-08-01 20:09 J -19484048.82 -19484048.66 -19484048.51 0.0503 0.0320

Mercury -58055-03-15 11:16 J -19483092.19 -19483092.03 -19483091.86 0.0495 0.0212

Mercury -58055-06-13 19:25 J -19483001.75 -19483001.69 -19483001.62 0.0496 0.0462

Venus -58052-06-02 13:25 J -19481917.08 -19481916.94 -19481916.79 0.0520 0.0375

Mercury -58049-02-13 12:13 J -19480931.12 -19480930.99 -19480930.86 0.0531 0.0016

Earth -58048-08-31 12:57 J -19480366.08 -19480365.96 -19480365.83 0.0520 0.0437

Moon -58048-08-31 15:35 J -19480365.98 -19480365.85 -19480365.71 0.0520 0.0407 \*

Venus -58046-04-06 22:18 J -19479782.77 -19479782.57 -19479782.37 0.0505 0.0022

Mercury -58043-01-01 09:06 J -19478782.24 -19478782.12 -19478782.00 0.0495 0.0375

Mercury -58043-04-01 16:47 J -19478691.94 -19478691.80 -19478691.65 0.0495 0.0293

Mercury -58038-12-02 15:49 J -19476620.96 -19476620.84 -19476620.72 0.0531 0.0161

Mercury -58037-02-29 22:33 J -19476531.64 -19476531.56 -19476531.48 0.0530 0.0396

Venus -58035-12-11 01:25 J -19475516.58 -19475516.44 -19475516.30 0.0507 0.0355

Mars -58034-05-05 01:40 J -19475371.61 -19475371.43 -19475371.23 0.0503 0.0340

Mercury -58031-01-18 14:23 J -19474382.07 -19474381.90 -19474381.72 0.0495 0.0127

Venus -58028-06-05 13:40 J -19473148.11 -19473147.93 -19473147.74 0.0522 0.0232

Mercury -58026-09-20 18:57 J -19472310.81 -19472310.71 -19472310.60 0.0532 0.0313

Mercury -58026-12-19 01:54 J -19472221.53 -19472221.42 -19472221.30 0.0531 0.0251

Mercury -58020-11-06 11:45 J -19470072.19 -19470072.01 -19470071.82 0.0495 0.0044

Venus -58016-02-08 02:52 J -19468882.58 -19468882.38 -19468882.18 0.0520 0.0165

Mercury -58014-07-09 22:47 J -19468000.61 -19468000.55 -19468000.48 0.0532 0.0453

Mercury -58014-10-07 06:13 J -19467911.37 -19467911.24 -19467911.12 0.0531 0.0115

Venus -58011-12-13 06:57 J -19466748.40 -19466748.21 -19466748.02 0.0504 0.0169

Mercury -58008-08-25 08:23 J -19465762.31 -19465762.15 -19465761.98 0.0495 0.0220

Mercury -58008-11-23 16:33 J -19465671.88 -19465671.81 -19465671.74 0.0495 0.0453

Earth -58006-02-20 04:33 J -19465218.51 -19465218.31 -19465218.11 0.0503 0.0260

Moon -58006-02-20 07:54 J -19465218.36 -19465218.17 -19465217.97 0.0503 0.0273 \*

Mercury -58002-07-26 10:18 J -19463601.20 -19463601.07 -19463600.94 0.0531 0.0021

# 58TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 58th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Venus	-57999-08-18 09:49 J		-19462482.27	-19462482.09	-19462481.90	0.0505	0.0168	
Mars	-57998-02-05 17:45 J		-19462311.01	-19462310.76	-19462310.52	0.0501	0.0143	
Mercury	-57996-06-13 05:59 J		-19461452.36	-19461452.25	-19461452.13	0.0495	0.0385	
Mercury	-57996-09-11 13:40 J		-19461362.07	-19461361.93	-19461361.77	0.0495	0.0283	
Moon	-57994-02-24 19:54 J		-19460830.91	-19460830.67	-19460830.43	0.0504	0.0125	
Earth	-57994-02-24 22:18 J		-19460830.80	-19460830.57	-19460830.34	0.0504	0.0098	*
Venus	-57992-02-11 08:09 J		-19460113.26	-19460113.16	-19460113.07	0.0523	0.0464	
Mercury	-57990-05-14 13:54 J		-19459291.04	-19459290.92	-19459290.79	0.0531	0.0166	
Mercury	-57990-08-11 20:37 J		-19459201.72	-19459201.64	-19459201.55	0.0530	0.0393	
Moon	-57989-08-20 22:33 J		-19458826.72	-19458826.56	-19458826.40	0.0523	0.0368	
Earth	-57989-08-21 02:09 J		-19458826.55	-19458826.41	-19458826.26	0.0523	0.0397	*
Mercury	-57984-06-30 11:16 J		-19457052.21	-19457052.03	-19457051.85	0.0495	0.0115	
Earth	-57982-03-01 16:18 J		-19456442.91	-19456442.82	-19456442.72	0.0506	0.0460	
Moon	-57982-03-01 16:47 J		-19456442.86	-19456442.80	-19456442.72	0.0506	0.0479	*

Venus -57981-10-16 20:37 J -19455847.85 -19455847.64 -19455847.44 0.0521 0.0064  
 Mars -57980-01-23 12:28 J -19455749.27 -19455748.98 -19455748.68 0.0524 0.0011  
 Mercury -57978-03-02 17:30 J -19454980.87 -19454980.77 -19454980.66 0.0531 0.0312  
 Mercury -57978-05-31 00:28 J -19454891.59 -19454891.48 -19454891.37 0.0531 0.0250  
 Earth -57977-08-25 18:42 J -19454438.94 -19454438.72 -19454438.49 0.0522 0.0017  
 Moon -57977-08-25 21:49 J -19454438.82 -19454438.59 -19454438.37 0.0522 0.0029 \*  
 Venus -57975-08-20 15:06 J -19453714.00 -19453713.87 -19453713.72 0.0503 0.0357  
 Mercury -57972-04-18 09:06 J -19452742.30 -19452742.12 -19452741.94 0.0495 0.0049  
 Venus -57969-06-21 07:11 J -19451582.35 -19451582.20 -19451582.04 0.0519 0.0342  
 Mercury -57967-12-19 20:37 J -19450670.70 -19450670.64 -19450670.58 0.0532 0.0465  
 Mercury -57966-03-19 03:49 J -19450581.46 -19450581.34 -19450581.21 0.0531 0.0102  
 Moon -57965-08-30 08:37 J -19450051.32 -19450051.14 -19450050.96 0.0521 0.0333  
 Earth -57965-08-30 10:18 J -19450051.23 -19450051.07 -19450050.90 0.0521 0.0367 \*  
 Venus -57963-04-25 18:28 J -19449447.93 -19449447.73 -19449447.53 0.0505 0.0022  
 Mercury -57960-02-04 06:28 J -19448432.39 -19448432.23 -19448432.06 0.0494 0.0217  
 Mercury -57960-05-05 14:37 J -19448341.96 -19448341.89 -19448341.82 0.0495 0.0456  
 Mercury -57954-01-05 07:54 J -19446271.30 -19446271.17 -19446271.04 0.0532 0.0036  
 Mercury -57954-04-04 14:37 J -19446181.91 -19446181.89 -19446181.87 0.0531 0.0519  
 Venus -57952-12-29 20:23 J -19445181.80 -19445181.65 -19445181.49 0.0506 0.0321  
 Mercury -57949-11-23 03:06 J -19444122.47 -19444122.37 -19444122.26 0.0494 0.0394  
 Mercury -57948-02-21 10:47 J -19444032.20 -19444032.05 -19444031.90 0.0495 0.0273  
 Venus -57945-06-24 11:01 J -19442813.21 -19442813.04 -19442812.86 0.0523 0.0280  
 Mercury -57943-10-24 12:13 J -19441961.12 -19441960.99 -19441960.87 0.0532 0.0172  
 Mercury -57942-01-21 18:57 J -19441871.80 -19441871.71 -19441871.62 0.0531 0.0388  
 Mercury -57937-12-10 08:09 J -19439722.34 -19439722.16 -19439721.98 0.0495 0.0105  
 Venus -57933-02-28 00:57 J -19438547.66 -19438547.46 -19438547.26 0.0521 0.0114  
 Mercury -57931-08-12 15:49 J -19437650.94 -19437650.84 -19437650.74 0.0531 0.0315  
 Mercury -57931-11-09 22:47 J -19437561.66 -19437561.55 -19437561.44 0.0531 0.0247  
 Venus -57927-01-01 01:40 J -19436413.61 -19436413.43 -19436413.24 0.0504 0.0205  
 Mercury -57925-09-28 05:59 J -19435412.43 -19435412.25 -19435412.07 0.0495 0.0062

Moon -57923-02-19 03:06 J -19434903.55 -19434903.37 -19434903.18 0.0503 0.0325  
 Earth -57923-02-19 05:45 J -19434903.44 -19434903.26 -19434903.07 0.0503 0.0317 \*  
 Venus -57922-11-02 13:54 J -19434281.96 -19434281.92 -19434281.88 0.0519 0.0506  
 Mercury -57919-05-31 19:11 J -19433340.76 -19433340.70 -19433340.63 0.0532 0.0463  
 Mercury -57919-08-29 02:23 J -19433251.52 -19433251.40 -19433251.27 0.0531 0.0106  
 Venus -57916-09-06 05:01 J -19432147.48 -19432147.29 -19432147.10 0.0506 0.0130  
 Mercury -57913-07-17 03:49 J -19431102.50 -19431102.34 -19431102.17 0.0495 0.0223  
 Mercury -57913-10-15 11:45 J -19431012.07 -19431012.01 -19431011.93 0.0495 0.0452  
 Earth -57911-02-23 22:33 J -19430515.80 -19430515.56 -19430515.33 0.0503 0.0041  
 Moon -57911-02-23 23:30 J -19430515.75 -19430515.52 -19430515.30 0.0503 0.0072 \*  
 Venus -57909-03-02 02:23 J -19429778.46 -19429778.40 -19429778.34 0.0523 0.0498  
 Mercury -57907-06-17 05:45 J -19428941.39 -19428941.26 -19428941.13 0.0531 0.0048  
 Mercury -57907-09-14 12:28 J -19428852.01 -19428851.98 -19428851.95 0.0530 0.0509  
 Earth -57906-08-20 22:33 J -19428511.65 -19428511.56 -19428511.46 0.0524 0.0476  
 Moon -57906-08-21 01:40 J -19428511.54 -19428511.43 -19428511.31 0.0524 0.0450 \*  
 Venus -57904-05-12 07:54 J -19427881.24 -19427881.17 -19427881.10 0.0508 0.0469  
 Mercury -57901-05-05 01:25 J -19426792.54 -19426792.44 -19426792.32 0.0494 0.0388  
 Mercury -57901-08-03 09:06 J -19426702.27 -19426702.12 -19426701.96 0.0495 0.0280  
 Earth -57899-02-28 14:52 J -19426128.02 -19426127.88 -19426127.73 0.0505 0.0398  
 Moon -57899-02-28 15:35 J -19426127.99 -19426127.85 -19426127.71 0.0505 0.0412 \*  
 Venus -57898-11-05 15:06 J -19425513.07 -19425512.87 -19425512.66 0.0521 0.0102  
 Mercury -57895-04-05 09:49 J -19424631.21 -19424631.09 -19424630.97 0.0532 0.0185  
 Mercury -57895-07-03 16:33 J -19424541.89 -19424541.81 -19424541.72 0.0531 0.0376  
 Moon -57894-08-25 15:49 J -19424124.07 -19424123.84 -19424123.60 0.0523 0.0098  
 Earth -57894-08-25 17:59 J -19424123.98 -19424123.75 -19424123.52 0.0523 0.0080 \*  
 Venus -57892-09-08 10:47 J -19423379.18 -19423379.05 -19423378.93 0.0503 0.0392  
 Mercury -57889-05-22 05:30 J -19422392.45 -19422392.27 -19422392.09 0.0495 0.0097  
 Venus -57886-07-11 04:18 J -19421247.49 -19421247.32 -19421247.15 0.0520 0.0295  
 Mercury -57883-01-22 13:54 J -19420321.02 -19420320.92 -19420320.81 0.0532 0.0320  
 Mercury -57883-04-21 21:06 J -19420231.73 -19420231.62 -19420231.51 0.0531 0.0244

Earth -57882-08-30 12:57 J -19419736.14 -19419735.96 -19419735.77 0.0521 0.0311  
 Moon -57882-08-30 13:25 J -19419736.12 -19419735.94 -19419735.75 0.0521 0.0282 \*  
 Venus -57880-05-14 14:09 J -19419113.11 -19419112.91 -19419112.71 0.0504 0.0060  
 Mars -57880-07-28 07:25 J -19419038.42 -19419038.19 -19419037.96 0.0503 0.0206  
 Mercury -57877-03-10 03:06 J -19418082.55 -19418082.37 -19418082.19 0.0495 0.0070  
 Mercury -57872-11-10 17:45 J -19416010.82 -19416010.76 -19416010.70 0.0532 0.0463  
 Mercury -57871-02-08 00:57 J -19415921.58 -19415921.46 -19415921.33 0.0531 0.0104  
 Venus -57868-01-17 16:18 J -19414846.98 -19414846.82 -19414846.65 0.0506 0.0280  
 Mercury -57866-12-28 00:57 J -19413772.62 -19413772.46 -19413772.30 0.0495 0.0233  
 Mercury -57865-03-27 08:52 J -19413682.21 -19413682.13 -19413682.04 0.0496 0.0440  
 Venus -57862-07-14 09:21 J -19412478.27 -19412478.11 -19412477.95 0.0522 0.0333  
 Mercury -57860-11-27 04:47 J -19411611.43 -19411611.30 -19411611.18 0.0531 0.0043  
 Mercury -57859-02-24 11:16 J -19411522.05 -19411522.03 -19411522.00 0.0530 0.0514  
 Mercury -57854-10-15 23:01 J -19409462.64 -19409462.54 -19409462.43 0.0495 0.0392  
 Mercury -57853-01-14 06:42 J -19409372.37 -19409372.22 -19409372.07 0.0495 0.0276  
 Venus -57850-03-18 21:06 J -19408212.82 -19408212.62 -19408212.41 0.0520 0.0070  
 Mercury -57848-09-15 07:54 J -19407301.29 -19407301.17 -19407301.05 0.0531 0.0191  
 Mercury -57848-12-13 14:52 J -19407211.97 -19407211.88 -19407211.79 0.0531 0.0369  
 Venus -57844-01-19 22:47 J -19406078.72 -19406078.55 -19406078.38 0.0504 0.0249  
 Mars -57844-05-01 02:09 J -19405977.62 -19405977.41 -19405977.19 0.0502 0.0280  
 Mercury -57842-11-02 04:18 J -19405062.50 -19405062.32 -19405062.15 0.0495 0.0108  
 Earth -57840-02-18 07:25 J -19404588.35 -19404588.19 -19404588.03 0.0502 0.0370  
 Moon -57840-02-18 08:23 J -19404588.29 -19404588.15 -19404587.99 0.0502 0.0374 \*  
 Venus -57839-11-21 09:49 J -19403947.17 -19403947.09 -19403946.99 0.0519 0.0463  
 Mercury -57836-07-04 11:45 J -19402991.10 -19402991.01 -19402990.90 0.0532 0.0331  
 Mercury -57836-10-01 18:57 J -19402901.82 -19402901.71 -19402901.59 0.0531 0.0235  
 Venus -57833-09-25 01:40 J -19401812.63 -19401812.43 -19401812.23 0.0505 0.0089  
 Mercury -57830-08-21 00:28 J -19400752.66 -19400752.48 -19400752.29 0.0495 0.0075  
 Earth -57828-02-22 20:37 J -19400200.88 -19400200.64 -19400200.41 0.0504 0.0027  
 Moon -57828-02-22 20:52 J -19400200.88 -19400200.63 -19400200.39 0.0504 0.0007 \*

Mars -57826-04-18 15:06 J -19399416.15 -19399415.87 -19399415.59 0.0524 0.0171  
 Mercury -57824-04-22 16:04 J -19398680.89 -19398680.83 -19398680.77 0.0532 0.0465  
 Mercury -57824-07-20 23:16 J -19398591.65 -19398591.53 -19398591.40 0.0531 0.0106  
 Moon -57823-08-20 01:54 J -19398196.49 -19398196.42 -19398196.36 0.0524 0.0502  
 Venus -57821-05-31 05:16 J -19397546.38 -19397546.28 -19397546.17 0.0507 0.0422  
 Mercury -57818-06-08 22:18 J -19396442.73 -19396442.57 -19396442.41 0.0495 0.0238  
 Mercury -57818-09-07 06:13 J -19396352.32 -19396352.24 -19396352.15 0.0495 0.0435  
 Moon -57816-02-27 12:57 J -19395813.12 -19395812.96 -19395812.79 0.0505 0.0350  
 Earth -57816-02-27 14:52 J -19395813.04 -19395812.88 -19395812.69 0.0505 0.0340 \*  
 Venus -57815-11-24 14:37 J -19395178.08 -19395177.89 -19395177.69 0.0522 0.0159  
 Mercury -57812-05-09 03:21 J -19394281.49 -19394281.36 -19394281.23 0.0531 0.0036  
 Mercury -57812-08-06 10:04 J -19394192.10 -19394192.08 -19394192.06 0.0530 0.0519  
 Earth -57811-08-24 21:35 J -19393808.82 -19393808.60 -19393808.38 0.0523 0.0138  
 Moon -57811-08-24 22:18 J -19393808.78 -19393808.57 -19393808.36 0.0523 0.0157 \*  
 Venus -57809-09-27 07:40 J -19393044.28 -19393044.18 -19393044.08 0.0503 0.0436  
 Mercury -57806-03-27 20:23 J -19392132.75 -19392132.65 -19392132.54 0.0495 0.0399  
 Mercury -57806-06-26 04:04 J -19392042.49 -19392042.33 -19392042.18 0.0495 0.0269  
 Venus -57803-07-30 04:18 J -19390912.50 -19390912.32 -19390912.13 0.0520 0.0234  
 Mercury -57800-02-25 06:57 J -19389971.33 -19389971.21 -19389971.08 0.0531 0.0180  
 Mercury -57800-05-25 13:54 J -19389882.01 -19389881.92 -19389881.83 0.0530 0.0380  
 Earth -57799-08-29 14:09 J -19389421.11 -19389420.91 -19389420.71 0.0522 0.0246  
 Moon -57799-08-29 15:21 J -19389421.08 -19389420.86 -19389420.65 0.0522 0.0220 \*  
 Venus -57797-06-02 11:01 J -19388778.24 -19388778.04 -19388777.85 0.0505 0.0105  
 Mercury -57794-04-14 01:54 J -19387732.59 -19387732.42 -19387732.24 0.0495 0.0108  
 Mercury -57789-12-14 10:18 J -19385661.17 -19385661.07 -19385660.97 0.0532 0.0330  
 Mercury -57788-03-13 17:30 J -19385571.89 -19385571.77 -19385571.66 0.0531 0.0234  
 Venus -57785-02-06 14:09 J -19384512.08 -19384511.91 -19384511.73 0.0507 0.0232  
 Mercury -57782-01-30 23:45 J -19383422.69 -19383422.51 -19383422.33 0.0495 0.0059  
 Venus -57779-08-02 06:57 J -19382143.35 -19382143.21 -19382143.06 0.0522 0.0382  
 Mercury -57777-10-02 14:09 J -19381350.96 -19381350.91 -19381350.85 0.0532 0.0471

Mercury -57777-12-30 21:35 J -19381261.73 -19381261.60 -19381261.47 0.0531 0.0098  
 Mercury -57771-11-18 20:09 J -19379112.81 -19379112.66 -19379112.49 0.0494 0.0238  
 Mercury -57770-02-17 04:04 J -19379022.41 -19379022.33 -19379022.24 0.0495 0.0435  
 Venus -57767-04-06 19:40 J -19377877.89 -19377877.68 -19377877.47 0.0521 0.0017  
 Mercury -57765-10-19 01:54 J -19376951.55 -19376951.42 -19376951.29 0.0532 0.0035  
 Mercury -57764-01-16 08:37 J -19376862.16 -19376862.14 -19376862.12 0.0531 0.0523  
 Venus -57761-02-08 21:21 J -19375743.76 -19375743.61 -19375743.44 0.0503 0.0300  
 Mercury -57759-09-06 18:28 J -19374802.84 -19374802.73 -19374802.63 0.0494 0.0399  
 Mercury -57759-12-06 01:54 J -19374712.58 -19374712.42 -19374712.27 0.0495 0.0268  
 Earth -57757-02-18 08:52 J -19374273.25 -19374273.13 -19374273.01 0.0502 0.0428  
 Moon -57757-02-18 08:52 J -19374273.25 -19374273.13 -19374273.00 0.0502 0.0427 \*  
 Venus -57756-12-10 10:04 J -19373612.21 -19373612.08 -19373611.95 0.0520 0.0403  
 Mercury -57753-08-07 05:59 J -19372641.37 -19372641.25 -19372641.13 0.0531 0.0172  
 Mercury -57753-11-04 12:42 J -19372552.05 -19372551.97 -19372551.88 0.0531 0.0389  
 Venus -57750-10-15 00:28 J -19371477.68 -19371477.48 -19371477.29 0.0505 0.0037  
 Mercury -57747-09-23 23:45 J -19370402.69 -19370402.51 -19370402.33 0.0495 0.0105  
 Moon -57745-02-23 01:40 J -19369885.65 -19369885.43 -19369885.20 0.0503 0.0037  
 Earth -57745-02-23 03:35 J -19369885.58 -19369885.35 -19369885.11 0.0503 0.0065 \*  
 Mercury -57741-05-26 09:35 J -19368331.20 -19368331.10 -19368330.99 0.0531 0.0316  
 Mercury -57741-08-23 16:47 J -19368241.91 -19368241.80 -19368241.69 0.0531 0.0249  
 Venus -57738-06-20 03:21 J -19367211.49 -19367211.36 -19367211.22 0.0507 0.0371  
 Mercury -57735-07-12 21:49 J -19366092.77 -19366092.59 -19366092.41 0.0495 0.0055  
 Earth -57733-02-27 22:18 J -19365497.76 -19365497.57 -19365497.38 0.0504 0.0304  
 Moon -57733-02-28 01:54 J -19365497.61 -19365497.42 -19365497.23 0.0504 0.0303 \*  
 Venus -57732-12-13 14:37 J -19364843.08 -19364842.89 -19364842.70 0.0522 0.0218  
 Mercury -57729-03-14 12:57 J -19364021.02 -19364020.96 -19364020.90 0.0532 0.0466  
 Mercury -57729-06-11 20:23 J -19363931.78 -19363931.65 -19363931.53 0.0531 0.0104  
 Earth -57728-08-24 00:13 J -19363493.70 -19363493.49 -19363493.27 0.0523 0.0197  
 Moon -57728-08-24 01:11 J -19363493.67 -19363493.45 -19363493.23 0.0523 0.0218 \*  
 Venus -57726-10-17 06:42 J -19362709.26 -19362709.22 -19362709.17 0.0503 0.0489



Mars -57726-10-22 02:52 J -19362704.63 -19362704.38 -19362704.12 0.0503 0.0044  
 Mercury -57723-04-30 19:40 J -19361782.84 -19361782.68 -19361782.51 0.0495 0.0219  
 Mercury -57723-07-30 03:35 J -19361692.41 -19361692.35 -19361692.27 0.0495 0.0456  
 Venus -57720-08-18 03:49 J -19360577.53 -19360577.34 -19360577.14 0.0520 0.0176  
 Mercury -57717-03-31 00:28 J -19359621.61 -19359621.48 -19359621.35 0.0531 0.0036  
 Mercury -57717-06-28 06:57 J -19359532.22 -19359532.21 -19359532.18 0.0530 0.0523  
 Moon -57716-08-28 17:16 J -19359105.98 -19359105.78 -19359105.56 0.0522 0.0182  
 Earth -57716-08-28 20:09 J -19359105.87 -19359105.66 -19359105.45 0.0522 0.0201 \*  
 Venus -57714-06-22 10:33 J -19358443.25 -19358443.06 -19358442.87 0.0504 0.0159  
 Mercury -57711-02-16 16:33 J -19357472.91 -19357472.81 -19357472.70 0.0494 0.0394  
 Mercury -57711-05-17 23:59 J -19357382.65 -19357382.50 -19357382.35 0.0495 0.0273  
 Mars -57708-10-04 09:49 J -19356147.31 -19356147.09 -19356146.86 0.0523 0.0339  
 Mercury -57705-01-18 04:47 J -19355311.42 -19355311.30 -19355311.18 0.0532 0.0167  
 Mercury -57705-04-16 11:30 J -19355222.10 -19355222.02 -19355221.93 0.0531 0.0396  
 Venus -57702-02-25 15:06 J -19354177.06 -19354176.87 -19354176.68 0.0506 0.0170  
 Mercury -57699-03-05 21:49 J -19353072.77 -19353072.59 -19353072.41 0.0495 0.0109  
 Venus -57696-08-21 08:52 J -19351808.24 -19351808.13 -19351808.03 0.0523 0.0450  
 Mercury -57694-11-06 08:52 J -19351001.24 -19351001.13 -19351001.03 0.0532 0.0305  
 Mercury -57693-02-03 15:49 J -19350911.95 -19350911.84 -19350911.73 0.0531 0.0261  
 Venus -57691-10-31 17:45 J -19349910.76 -19349910.76 -19349910.75 0.0507 0.0506  
 Mars -57690-07-26 01:54 J -19349643.52 -19349643.42 -19349643.30 0.0501 0.0451  
 Mercury -57688-12-22 19:54 J -19348762.85 -19348762.67 -19348762.49 0.0495 0.0053  
 Venus -57684-04-25 23:01 J -19347542.75 -19347542.54 -19347542.34 0.0522 0.0060  
 Mercury -57682-08-25 12:28 J -19346691.04 -19346690.98 -19346690.91 0.0532 0.0447  
 Mercury -57682-11-22 19:54 J -19346601.80 -19346601.67 -19346601.55 0.0531 0.0122  
 Venus -57678-02-27 20:52 J -19345408.76 -19345408.63 -19345408.48 0.0503 0.0355  
 Mercury -57676-10-10 18:13 J -19344452.90 -19344452.74 -19344452.57 0.0495 0.0211  
 Mercury -57675-01-09 02:09 J -19344362.47 -19344362.41 -19344362.35 0.0496 0.0464  
 Moon -57674-02-17 17:16 J -19343957.87 -19343957.78 -19343957.68 0.0502 0.0452  
 Earth -57674-02-17 18:57 J -19343957.80 -19343957.71 -19343957.61 0.0502 0.0457 \*

Venus -57673-12-29 11:59 J -19343277.15 -19343277.00 -19343276.83 0.0519 0.0334  
 Mars -57672-07-13 05:16 J -19343081.45 -19343081.28 -19343081.11 0.0524 0.0426  
 Mercury -57670-09-10 23:30 J -19342291.65 -19342291.52 -19342291.40 0.0531 0.0032  
 Venus -57667-11-03 00:28 J -19341142.68 -19341142.48 -19341142.28 0.0505 0.0023  
 Mercury -57664-07-29 16:18 J -19340142.93 -19340142.82 -19340142.70 0.0495 0.0372  
 Mercury -57664-10-27 23:59 J -19340052.65 -19340052.50 -19340052.36 0.0495 0.0298  
 Earth -57662-02-22 11:59 J -19339570.23 -19339570.00 -19339569.77 0.0503 0.0099  
 Moon -57662-02-22 15:21 J -19339570.10 -19339569.86 -19339569.62 0.0503 0.0070 \*  
 Mercury -57658-06-30 03:21 J -19337981.48 -19337981.36 -19337981.23 0.0532 0.0163  
 Mercury -57658-09-27 10:18 J -19337892.15 -19337892.07 -19337891.99 0.0531 0.0398  
 Venus -57655-07-09 04:33 J -19336876.46 -19336876.31 -19336876.15 0.0507 0.0309  
 Mercury -57652-08-15 20:23 J -19335742.82 -19335742.65 -19335742.47 0.0495 0.0118  
 Moon -57650-02-26 21:06 J -19335182.83 -19335182.62 -19335182.41 0.0504 0.0242  
 Earth -57650-02-27 00:57 J -19335182.66 -19335182.46 -19335182.25 0.0504 0.0250 \*  
 Venus -57648-01-01 14:52 J -19334508.05 -19334507.88 -19334507.70 0.0523 0.0281  
 Mercury -57646-04-18 07:40 J -19333671.29 -19333671.18 -19333671.07 0.0532 0.0298  
 Mercury -57646-07-16 14:52 J -19333581.99 -19333581.88 -19333581.77 0.0531 0.0269  
 Moon -57645-08-23 10:47 J -19333178.24 -19333178.05 -19333177.85 0.0524 0.0251  
 Earth -57645-08-23 13:25 J -19333178.14 -19333177.94 -19333177.73 0.0524 0.0222 \*  
 Mercury -57640-06-03 18:28 J -19331432.91 -19331432.73 -19331432.54 0.0495 0.0046  
 Venus -57637-09-06 05:45 J -19330242.47 -19330242.26 -19330242.06 0.0521 0.0107  
 Mercury -57634-02-04 11:45 J -19329361.08 -19329361.01 -19329360.94 0.0532 0.0434  
 Mercury -57634-05-04 19:11 J -19329271.83 -19329271.70 -19329271.58 0.0531 0.0136  
 Earth -57633-08-28 07:54 J -19328790.38 -19328790.17 -19328789.95 0.0522 0.0173  
 Moon -57633-08-28 11:59 J -19328790.22 -19328790.00 -19328789.78 0.0522 0.0164 \*  
 Venus -57631-07-11 11:59 J -19328108.18 -19328108.00 -19328107.82 0.0504 0.0224  
 Mercury -57628-03-22 16:47 J -19327122.97 -19327122.80 -19327122.64 0.0495 0.0205  
 Mercury -57628-06-21 00:28 J -19327032.53 -19327032.48 -19327032.42 0.0495 0.0470  
 Venus -57625-05-11 20:09 J -19325976.72 -19325976.66 -19325976.58 0.0519 0.0491  
 Mercury -57622-02-20 23:01 J -19324961.67 -19324961.54 -19324961.41 0.0531 0.0008

Venus -57619-03-16 15:35 J -19323842.04 -19323841.85 -19323841.66 0.0505 0.0108  
 Mercury -57616-01-08 15:06 J -19322812.99 -19322812.87 -19322812.75 0.0495 0.0361  
 Mercury -57616-04-08 22:33 J -19322722.70 -19322722.56 -19322722.41 0.0495 0.0308  
 Venus -57613-09-09 11:45 J -19321473.02 -19321473.01 -19321473.00 0.0523 0.0522  
 Mercury -57611-12-10 02:37 J -19320651.51 -19320651.39 -19320651.27 0.0531 0.0151  
 Mercury -57610-03-09 09:21 J -19320562.18 -19320562.11 -19320562.03 0.0531 0.0410  
 Venus -57608-11-19 18:28 J -19319575.82 -19319575.73 -19319575.63 0.0507 0.0445  
 Mars -57607-04-13 16:33 J -19319430.99 -19319430.81 -19319430.62 0.0504 0.0341  
 Mercury -57604-01-25 20:37 J -19318412.82 -19318412.64 -19318412.47 0.0495 0.0144  
 Venus -57601-05-15 00:57 J -19317207.66 -19317207.46 -19317207.26 0.0521 0.0128  
 Mercury -57599-09-28 06:42 J -19316341.33 -19316341.22 -19316341.12 0.0532 0.0290  
 Mercury -57599-12-26 13:40 J -19316252.04 -19316251.93 -19316251.82 0.0531 0.0276  
 Venus -57595-03-18 23:01 J -19315073.65 -19315073.54 -19315073.43 0.0503 0.0419  
 Mercury -57593-11-13 17:30 J -19314102.96 -19314102.77 -19314102.59 0.0494 0.0034  
 Moon -57591-02-17 02:37 J -19313642.43 -19313642.39 -19313642.34 0.0501 0.0490  
 Venus -57589-01-18 12:13 J -19312942.16 -19312941.99 -19312941.81 0.0520 0.0272  
 Mercury -57587-07-17 10:47 J -19312031.13 -19312031.05 -19312030.98 0.0533 0.0427  
 Mercury -57587-10-14 17:59 J -19311941.87 -19311941.75 -19311941.62 0.0532 0.0145  
 Venus -57584-11-22 03:49 J -19310807.53 -19310807.34 -19310807.14 0.0504 0.0096  
 Mercury -57581-09-01 15:35 J -19309793.02 -19309792.85 -19309792.68 0.0494 0.0193  
 Mercury -57581-11-30 23:16 J -19309702.57 -19309702.53 -19309702.48 0.0495 0.0480  
 Moon -57579-02-21 13:40 J -19309255.16 -19309254.93 -19309254.70 0.0503 0.0119  
 Earth -57579-02-21 17:30 J -19309254.99 -19309254.77 -19309254.54 0.0503 0.0146 \*  
 Mercury -57575-08-02 22:18 J -19307631.70 -19307631.57 -19307631.44 0.0532 0.0011  
 Venus -57572-07-28 06:57 J -19306541.38 -19306541.21 -19306541.03 0.0506 0.0238  
 Mars -57571-01-15 17:45 J -19306370.00 -19306369.76 -19306369.52 0.0502 0.0160  
 Mercury -57569-06-20 13:54 J -19305483.05 -19305482.92 -19305482.80 0.0494 0.0352  
 Mercury -57569-09-18 21:21 J -19305392.75 -19305392.61 -19305392.47 0.0495 0.0317  
 Earth -57567-02-26 13:11 J -19304867.16 -19304866.95 -19304866.73 0.0504 0.0228  
 Moon -57567-02-26 16:33 J -19304867.01 -19304866.81 -19304866.59 0.0504 0.0216 \*

Venus -57565-01-21 20:23 J -19304172.80 -19304172.65 -19304172.50 0.0523 0.0366

Mercury -57563-05-22 02:23 J -19303321.53 -19303321.40 -19303321.28 0.0532 0.0129

Mercury -57563-08-19 09:06 J -19303232.19 -19303232.12 -19303232.04 0.0531 0.0432

Earth -57562-08-23 23:30 J -19302862.72 -19302862.52 -19302862.32 0.0524 0.0258

Moon -57562-08-24 03:06 J -19302862.55 -19302862.37 -19302862.17 0.0524 0.0290 \*

Mercury -57557-07-07 19:25 J -19301082.86 -19301082.69 -19301082.52 0.0495 0.0156

Venus -57554-09-26 09:49 J -19299907.30 -19299907.09 -19299906.88 0.0521 0.0029

Mars -57554-12-30 19:11 J -19299812.00 -19299811.70 -19299811.41 0.0523 0.0042

Mercury -57551-03-10 05:45 J -19299011.37 -19299011.26 -19299011.15 0.0532 0.0276

Mercury -57551-06-07 12:57 J -19298922.07 -19298921.96 -19298921.85 0.0531 0.0290

Moon -57550-08-28 12:28 J -19298475.21 -19298474.98 -19298474.76 0.0523 0.0123

Earth -57550-08-28 16:18 J -19298475.05 -19298474.82 -19298474.60 0.0523 0.0132 \*

Venus -57548-07-30 13:25 J -19297773.10 -19297772.94 -19297772.77 0.0504 0.0288

Mercury -57545-04-25 17:30 J -19296772.95 -19296772.77 -19296772.59 0.0495 0.0007

Venus -57542-05-31 23:01 J -19295641.66 -19295641.54 -19295641.41 0.0519 0.0417

Mercury -57540-12-27 09:49 J -19294701.17 -19294701.09 -19294701.01 0.0532 0.0416

Mercury -57539-03-26 17:01 J -19294611.91 -19294611.79 -19294611.67 0.0531 0.0154

Venus -57536-04-04 18:13 J -19293506.94 -19293506.74 -19293506.54 0.0505 0.0038

Mercury -57533-02-12 14:37 J -19292463.06 -19292462.89 -19292462.72 0.0494 0.0179

Mercury -57533-05-12 22:18 J -19292372.57 -19292372.57 -19292372.56 0.0495 0.0494

Mercury -57527-01-12 21:21 J -19290301.74 -19290301.61 -19290301.48 0.0532 0.0021

Venus -57525-12-08 23:01 J -19289240.68 -19289240.54 -19289240.41 0.0507 0.0365

Mercury -57522-12-01 12:57 J -19288153.09 -19288152.96 -19288152.83 0.0494 0.0337

Mercury -57521-02-29 20:09 J -19288062.79 -19288062.66 -19288062.52 0.0495 0.0330

Venus -57518-06-04 02:52 J -19286872.57 -19286872.38 -19286872.18 0.0522 0.0201

Mercury -57516-11-01 01:25 J -19285991.56 -19285991.44 -19285991.31 0.0532 0.0117

Mercury -57515-01-29 08:23 J -19285902.21 -19285902.15 -19285902.08 0.0531 0.0447

Venus -57512-04-07 01:25 J -19284738.48 -19284738.44 -19284738.39 0.0502 0.0488

Mercury -57510-12-18 18:13 J -19283752.91 -19283752.74 -19283752.57 0.0495 0.0167

Venus -57506-02-06 17:59 J -19282606.94 -19282606.75 -19282606.55 0.0521 0.0185

Mercury -57504-08-20 05:30 J -19281681.38 -19281681.27 -19281681.16 0.0532 0.0254

Mercury -57504-11-17 12:28 J -19281592.08 -19281591.98 -19281591.87 0.0531 0.0312

Venus -57501-12-11 05:01 J -19280472.47 -19280472.29 -19280472.10 0.0504 0.0161

Mercury -57498-10-06 16:18 J -19279443.00 -19279442.82 -19279442.63 0.0495 0.0012

Earth -57496-02-21 06:42 J -19278939.45 -19278939.22 -19278939.00 0.0503 0.0164

Moon -57496-02-21 10:04 J -19278939.30 -19278939.08 -19278938.86 0.0503 0.0140 \*

Mercury -57492-06-08 09:06 J -19277371.21 -19277371.12 -19277371.04 0.0532 0.0402

Mercury -57492-09-05 16:18 J -19277281.94 -19277281.82 -19277281.70 0.0531 0.0168

Venus -57489-08-16 08:23 J -19276206.33 -19276206.15 -19276205.96 0.0506 0.0174

Mercury -57486-07-25 14:37 J -19275133.07 -19275132.89 -19275132.72 0.0495 0.0155

Moon -57484-02-25 22:04 J -19274551.81 -19274551.58 -19274551.35 0.0504 0.0184

Earth -57484-02-26 00:28 J -19274551.70 -19274551.48 -19274551.26 0.0504 0.0201 \*

Venus -57482-02-09 23:01 J -19273837.65 -19273837.54 -19273837.42 0.0523 0.0438

Mercury -57480-06-24 20:23 J -19272971.78 -19272971.65 -19272971.52 0.0532 0.0030

Moon -57479-08-23 05:16 J -19272547.45 -19272547.28 -19272547.09 0.0524 0.0331

Earth -57479-08-23 09:06 J -19272547.30 -19272547.12 -19272546.92 0.0524 0.0296 \*

Venus -57477-04-21 12:57 J -19271939.99 -19271939.96 -19271939.93 0.0508 0.0500

Mercury -57474-05-13 11:59 J -19270823.14 -19270823.00 -19270822.86 0.0494 0.0323

Mercury -57474-08-11 19:11 J -19270732.83 -19270732.70 -19270732.57 0.0495 0.0345

Venus -57471-10-15 09:49 J -19269572.30 -19269572.09 -19269571.88 0.0522 0.0035

Mercury -57468-04-13 00:28 J -19268661.61 -19268661.48 -19268661.36 0.0532 0.0109

Mercury -57468-07-11 07:25 J -19268572.26 -19268572.19 -19268572.13 0.0532 0.0455

Earth -57467-08-28 06:28 J -19268159.45 -19268159.23 -19268159.00 0.0523 0.0112

Moon -57467-08-28 09:21 J -19268159.33 -19268159.11 -19268158.89 0.0523 0.0112 \*

Venus -57465-08-18 17:45 J -19267437.90 -19267437.76 -19267437.63 0.0503 0.0364

Mercury -57462-03-01 10:18 J -19266513.10 -19266513.07 -19266513.03 0.0494 0.0480

Mercury -57462-05-30 17:16 J -19266422.95 -19266422.78 -19266422.61 0.0494 0.0181

Venus -57459-06-20 00:13 J -19265306.65 -19265306.49 -19265306.34 0.0520 0.0350

Mercury -57456-01-30 04:33 J -19264351.42 -19264351.31 -19264351.19 0.0532 0.0244

Mercury -57456-04-29 11:45 J -19264262.11 -19264262.01 -19264261.91 0.0532 0.0324

Earth -57455-09-02 01:11 J -19263771.50 -19263771.45 -19263771.39 0.0521 0.0506  
 Venus -57453-04-23 20:52 J -19263171.83 -19263171.63 -19263171.43 0.0505 0.0033  
 Mars -57453-07-08 14:09 J -19263096.16 -19263095.91 -19263095.67 0.0503 0.0125  
 Mercury -57450-03-18 15:06 J -19262113.05 -19262112.87 -19262112.69 0.0494 0.0018  
 Mercury -57445-11-18 08:37 J -19260041.23 -19260041.14 -19260041.05 0.0532 0.0383  
 Mercury -57444-02-15 15:49 J -19259951.96 -19259951.84 -19259951.72 0.0532 0.0187  
 Venus -57442-12-28 23:59 J -19258905.66 -19258905.50 -19258905.34 0.0506 0.0300  
 Mercury -57438-01-04 13:25 J -19257803.12 -19257802.94 -19257802.77 0.0494 0.0143  
 Venus -57435-06-23 07:25 J -19256537.37 -19256537.19 -19256537.02 0.0522 0.0280  
 Mercury -57433-09-06 11:59 J -19255731.00 -19255731.00 -19255731.00 0.0532 0.0531  
 Mercury -57433-12-04 19:25 J -19255641.81 -19255641.69 -19255641.56 0.0532 0.0045  
 Mercury -57427-10-23 11:30 J -19253493.16 -19253493.02 -19253492.87 0.0494 0.0303  
 Mercury -57426-01-21 18:57 J -19253402.83 -19253402.71 -19253402.59 0.0495 0.0367  
 Venus -57423-02-25 20:23 J -19252271.85 -19252271.65 -19252271.44 0.0520 0.0113  
 Mercury -57421-09-22 23:30 J -19251331.65 -19251331.52 -19251331.40 0.0532 0.0098  
 Mercury -57421-12-21 06:28 J -19251242.29 -19251242.23 -19251242.17 0.0531 0.0464  
 Venus -57418-12-31 07:25 J -19250137.37 -19250137.19 -19250137.01 0.0504 0.0229  
 Mars -57417-04-11 12:57 J -19250035.13 -19250034.96 -19250034.79 0.0502 0.0371  
 Mercury -57415-08-11 09:21 J -19249183.17 -19249183.11 -19249183.05 0.0494 0.0466  
 Mercury -57415-11-09 16:04 J -19249092.99 -19249092.83 -19249092.66 0.0494 0.0195  
 Moon -57413-02-21 09:06 J -19248624.34 -19248624.12 -19248623.89 0.0502 0.0189  
 Earth -57413-02-21 11:45 J -19248624.22 -19248624.01 -19248623.79 0.0502 0.0210 \*  
 Venus -57412-10-31 06:42 J -19248006.24 -19248006.22 -19248006.19 0.0519 0.0513  
 Mercury -57409-07-12 03:21 J -19247021.48 -19247021.36 -19247021.25 0.0533 0.0240  
 Mercury -57409-10-09 10:18 J -19246932.16 -19246932.07 -19246931.96 0.0532 0.0329  
 Venus -57406-09-05 12:13 J -19245871.18 -19245870.99 -19245870.79 0.0506 0.0097  
 Mercury -57403-08-28 14:09 J -19244783.09 -19244782.91 -19244782.73 0.0494 0.0032  
 Earth -57401-02-26 05:16 J -19244236.50 -19244236.28 -19244236.05 0.0503 0.0154  
 Moon -57401-02-26 05:59 J -19244236.47 -19244236.25 -19244236.03 0.0503 0.0135 \*  
 Venus -57399-02-28 23:30 J -19243502.57 -19243502.52 -19243502.46 0.0524 0.0502

Mars -57399-03-26 11:01 J -19243477.31 -19243477.04 -19243476.77 0.0524 0.0209  
 Mercury -57397-04-30 07:25 J -19242711.28 -19242711.19 -19242711.10 0.0533 0.0377  
 Mercury -57397-07-28 14:37 J -19242622.00 -19242621.89 -19242621.77 0.0532 0.0196  
 Earth -57396-08-22 20:37 J -19242231.81 -19242231.64 -19242231.46 0.0525 0.0324  
 Moon -57396-08-22 23:30 J -19242231.68 -19242231.52 -19242231.35 0.0525 0.0356 \*  
 Venus -57394-05-11 15:06 J -19241604.97 -19241604.87 -19241604.77 0.0507 0.0431  
 Mercury -57391-06-16 11:59 J -19240473.17 -19240473.00 -19240472.82 0.0494 0.0133  
 Venus -57388-11-03 14:09 J -19239237.11 -19239236.91 -19239236.70 0.0522 0.0117  
 Mercury -57385-02-17 11:16 J -19238401.06 -19238401.03 -19238401.00 0.0533 0.0517  
 Mercury -57385-05-16 18:57 J -19238311.84 -19238311.71 -19238311.59 0.0532 0.0061  
 Moon -57384-08-27 14:23 J -19237844.13 -19237843.90 -19237843.66 0.0523 0.0079  
 Earth -57384-08-27 15:49 J -19237844.07 -19237843.84 -19237843.61 0.0523 0.0074 \*  
 Venus -57382-09-07 17:45 J -19237102.86 -19237102.76 -19237102.65 0.0503 0.0423  
 Mercury -57379-04-04 10:04 J -19236163.22 -19236163.08 -19236162.93 0.0494 0.0293  
 Mercury -57379-07-03 17:30 J -19236072.88 -19236072.77 -19236072.65 0.0495 0.0377  
 Venus -57376-07-09 03:49 J -19234971.51 -19234971.34 -19234971.16 0.0520 0.0273  
 Mercury -57373-03-04 22:33 J -19234001.69 -19234001.56 -19234001.44 0.0532 0.0089  
 Mercury -57373-06-02 05:16 J -19233912.33 -19233912.28 -19233912.22 0.0531 0.0474  
 Moon -57372-09-01 06:28 J -19233456.30 -19233456.23 -19233456.15 0.0522 0.0489  
 Earth -57372-09-01 07:25 J -19233456.29 -19233456.19 -19233456.08 0.0522 0.0460 \*  
 Venus -57370-05-13 20:52 J -19232836.82 -19232836.63 -19232836.43 0.0505 0.0092  
 Mercury -57367-01-21 08:23 J -19231853.22 -19231853.15 -19231853.08 0.0494 0.0452  
 Mercury -57367-04-21 15:21 J -19231763.02 -19231762.86 -19231762.69 0.0495 0.0212  
 Mercury -57362-12-23 02:09 J -19229691.52 -19229691.41 -19229691.29 0.0532 0.0231  
 Mercury -57361-03-21 09:21 J -19229602.21 -19229602.11 -19229602.01 0.0531 0.0336  
 Venus -57358-01-17 01:25 J -19228570.62 -19228570.44 -19228570.26 0.0507 0.0235  
 Mercury -57355-02-07 12:57 J -19227453.15 -19227452.96 -19227452.78 0.0494 0.0043  
 Venus -57352-07-12 05:01 J -19226202.44 -19226202.29 -19226202.12 0.0523 0.0332  
 Mercury -57350-10-11 05:45 J -19225381.35 -19225381.26 -19225381.17 0.0533 0.0378  
 Mercury -57349-01-08 13:11 J -19225292.07 -19225291.95 -19225291.83 0.0532 0.0196

Mercury -57344-11-26 10:47 J -19223143.22 -19223143.05 -19223142.87 0.0494 0.0121  
 Venus -57340-03-16 19:11 J -19221936.91 -19221936.70 -19221936.50 0.0521 0.0056  
 Mercury -57338-07-30 09:49 J -19221071.12 -19221071.09 -19221071.06 0.0533 0.0516  
 Mercury -57338-10-27 17:30 J -19220981.90 -19220981.77 -19220981.65 0.0532 0.0063  
 Mars -57335-12-30 04:47 J -19219822.43 -19219822.30 -19219822.16 0.0504 0.0423  
 Venus -57334-01-19 08:09 J -19219802.32 -19219802.16 -19219801.99 0.0504 0.0290  
 Mercury -57332-09-14 08:37 J -19218833.29 -19218833.14 -19218832.99 0.0494 0.0286  
 Mercury -57332-12-13 15:49 J -19218742.95 -19218742.84 -19218742.72 0.0495 0.0383  
 Earth -57330-02-20 20:23 J -19218308.85 -19218308.65 -19218308.44 0.0502 0.0244  
 Moon -57330-02-20 21:06 J -19218308.82 -19218308.62 -19218308.41 0.0502 0.0230 \*  
 Venus -57329-11-19 09:49 J -19217671.20 -19217671.09 -19217670.98 0.0519 0.0438  
 Mercury -57326-08-15 21:35 J -19216671.73 -19216671.60 -19216671.48 0.0532 0.0079  
 Mercury -57326-11-13 04:18 J -19216582.36 -19216582.32 -19216582.27 0.0531 0.0486  
 Venus -57323-09-24 11:30 J -19215536.22 -19215536.02 -19215535.82 0.0505 0.0040  
 Mercury -57320-07-03 06:42 J -19214523.29 -19214523.22 -19214523.14 0.0494 0.0446  
 Mercury -57320-10-01 13:40 J -19214433.09 -19214432.93 -19214432.77 0.0494 0.0217  
 Earth -57318-02-25 14:23 J -19213921.13 -19213920.90 -19213920.67 0.0503 0.0124  
 Moon -57318-02-25 16:04 J -19213921.07 -19213920.83 -19213920.59 0.0503 0.0097 \*  
 Mercury -57314-06-04 00:57 J -19212361.57 -19212361.46 -19212361.34 0.0532 0.0225  
 Mercury -57314-09-01 08:09 J -19212272.26 -19212272.16 -19212272.06 0.0531 0.0342  
 Moon -57313-08-21 23:01 J -19211916.68 -19211916.54 -19211916.39 0.0525 0.0410  
 Earth -57313-08-22 00:42 J -19211916.62 -19211916.47 -19211916.31 0.0525 0.0382 \*  
 Venus -57311-05-30 13:54 J -19211270.05 -19211269.92 -19211269.78 0.0507 0.0378  
 Mercury -57308-07-20 11:30 J -19210123.20 -19210123.02 -19210122.84 0.0494 0.0053  
 Moon -57306-03-02 04:33 J -19209533.38 -19209533.31 -19209533.24 0.0504 0.0478  
 Earth -57306-03-02 07:54 J -19209533.22 -19209533.17 -19209533.11 0.0504 0.0490  
 Venus -57305-11-22 14:23 J -19208902.09 -19208901.90 -19208901.70 0.0522 0.0179  
 Mercury -57302-03-23 04:33 J -19208051.40 -19208051.31 -19208051.21 0.0532 0.0371  
 Mercury -57302-06-20 11:59 J -19207962.12 -19207962.00 -19207961.88 0.0532 0.0202  
 Moon -57301-08-26 19:25 J -19207528.91 -19207528.69 -19207528.47 0.0524 0.0034



Earth -57301-08-26 20:09 J -19207528.89 -19207528.66 -19207528.43 0.0524 0.0019 \*  
 Venus -57299-09-26 17:59 J -19206767.80 -19206767.75 -19206767.69 0.0503 0.0482  
 Mars -57299-10-02 23:45 J -19206761.76 -19206761.51 -19206761.25 0.0503 0.0062  
 Mercury -57296-05-08 09:21 J -19205813.29 -19205813.11 -19205812.94 0.0494 0.0114  
 Venus -57293-07-28 00:28 J -19204636.67 -19204636.48 -19204636.29 0.0520 0.0226  
 Mercury -57290-01-09 07:54 J -19203741.19 -19203741.17 -19203741.14 0.0533 0.0521  
 Mercury -57290-04-08 15:35 J -19203651.98 -19203651.85 -19203651.72 0.0533 0.0058  
 Earth -57289-08-31 14:37 J -19203141.02 -19203140.89 -19203140.74 0.0523 0.0419  
 Moon -57289-08-31 17:30 J -19203140.88 -19203140.77 -19203140.64 0.0523 0.0445 \*  
 Venus -57287-06-01 22:18 J -19202501.76 -19202501.57 -19202501.38 0.0505 0.0157  
 Mercury -57284-02-24 07:11 J -19201503.35 -19201503.20 -19201503.05 0.0493 0.0276  
 Mercury -57284-05-25 14:23 J -19201413.01 -19201412.90 -19201412.79 0.0494 0.0391  
 Mars -57281-09-10 23:45 J -19200208.75 -19200208.51 -19200208.27 0.0523 0.0317  
 Mercury -57278-01-25 19:40 J -19199341.80 -19199341.68 -19199341.55 0.0533 0.0081  
 Mercury -57278-04-25 02:37 J -19199252.43 -19199252.39 -19199252.33 0.0532 0.0485  
 Venus -57275-02-05 00:57 J -19198235.64 -19198235.46 -19198235.27 0.0506 0.0179  
 Mercury -57273-12-13 04:47 J -19197193.37 -19197193.30 -19197193.22 0.0494 0.0442  
 Mercury -57272-03-13 11:30 J -19197103.18 -19197103.02 -19197102.85 0.0494 0.0221  
 Venus -57269-07-31 06:57 J -19195867.34 -19195867.21 -19195867.08 0.0523 0.0401  
 Mercury -57267-11-13 23:45 J -19195031.63 -19195031.51 -19195031.39 0.0533 0.0219  
 Mercury -57266-02-11 06:57 J -19194942.31 -19194942.21 -19194942.12 0.0532 0.0349  
 Mercury -57261-12-30 09:21 J -19192793.29 -19192793.11 -19192792.92 0.0494 0.0055  
 Venus -57257-04-04 20:23 J -19191601.86 -19191601.65 -19191601.44 0.0521 0.0014  
 Mercury -57255-09-02 03:06 J -19190721.46 -19190721.37 -19190721.27 0.0532 0.0369  
 Mercury -57255-11-30 10:33 J -19190632.18 -19190632.06 -19190631.94 0.0532 0.0204  
 Venus -57251-02-07 05:59 J -19189467.40 -19189467.25 -19189467.11 0.0504 0.0338  
 Mercury -57249-10-18 07:25 J -19188483.37 -19188483.19 -19188483.01 0.0494 0.0110  
 Earth -57247-02-20 02:09 J -19187993.60 -19187993.41 -19187993.21 0.0501 0.0288  
 Moon -57247-02-20 03:35 J -19187993.55 -19187993.35 -19187993.15 0.0501 0.0282 \*  
 Venus -57246-12-09 09:06 J -19187336.26 -19187336.12 -19187335.98 0.0519 0.0380

Mars -57245-06-19 19:40 J -19187142.83 -19187142.68 -19187142.52 0.0524 0.0446  
 Mercury -57243-06-21 06:42 J -19186411.25 -19186411.22 -19186411.19 0.0533 0.0516  
 Mercury -57243-09-18 14:23 J -19186322.03 -19186321.90 -19186321.77 0.0532 0.0061  
 Venus -57240-10-13 10:04 J -19185201.28 -19185201.08 -19185200.88 0.0506 0.0013  
 Mercury -57237-08-06 05:16 J -19184173.43 -19184173.28 -19184173.13 0.0493 0.0273  
 Mercury -57237-11-04 12:28 J -19184083.09 -19184082.98 -19184082.87 0.0494 0.0395  
 Moon -57235-02-24 12:57 J -19183606.19 -19183605.96 -19183605.73 0.0502 0.0038  
 Earth -57235-02-24 15:49 J -19183606.07 -19183605.84 -19183605.60 0.0502 0.0069 \*  
 Mercury -57231-07-07 17:45 J -19182011.89 -19182011.76 -19182011.63 0.0533 0.0089  
 Mercury -57231-10-05 00:42 J -19181922.52 -19181922.47 -19181922.41 0.0532 0.0477  
 Earth -57230-08-22 03:06 J -19181601.48 -19181601.37 -19181601.24 0.0526 0.0443  
 Moon -57230-08-22 02:52 J -19181601.47 -19181601.38 -19181601.27 0.0526 0.0467 \*  
 Venus -57228-06-18 13:54 J -19180935.07 -19180934.92 -19180934.77 0.0507 0.0320  
 Mercury -57225-05-25 03:21 J -19179863.44 -19179863.36 -19179863.28 0.0493 0.0434  
 Mercury -57225-08-23 10:04 J -19179773.24 -19179773.08 -19179772.92 0.0494 0.0226  
 Earth -57223-03-01 07:54 J -19179218.28 -19179218.17 -19179218.04 0.0503 0.0430  
 Moon -57223-03-01 11:59 J -19179218.12 -19179218.00 -19179217.86 0.0503 0.0422 \*  
 Venus -57222-12-12 10:04 J -19178567.26 -19178567.08 -19178566.89 0.0522 0.0222  
 Mercury -57219-04-25 21:35 J -19177701.71 -19177701.60 -19177701.48 0.0533 0.0229  
 Mercury -57219-07-24 05:01 J -19177612.39 -19177612.29 -19177612.20 0.0532 0.0342  
 Earth -57218-08-26 23:16 J -19177213.76 -19177213.53 -19177213.30 0.0524 0.0036  
 Moon -57218-08-27 01:54 J -19177213.65 -19177213.42 -19177213.18 0.0524 0.0012 \*  
 Mercury -57213-06-11 07:11 J -19175463.38 -19175463.20 -19175463.02 0.0494 0.0053  
 Venus -57210-08-17 00:28 J -19174301.67 -19174301.48 -19174301.28 0.0520 0.0166  
 Mercury -57207-02-12 01:40 J -19173391.52 -19173391.43 -19173391.34 0.0533 0.0368  
 Mercury -57207-05-12 09:06 J -19173302.24 -19173302.12 -19173302.00 0.0532 0.0206  
 Moon -57206-08-31 14:09 J -19172826.05 -19172825.91 -19172825.75 0.0523 0.0389  
 Earth -57206-08-31 17:59 J -19172825.91 -19172825.75 -19172825.58 0.0523 0.0362 \*  
 Venus -57204-06-20 18:57 J -19172166.89 -19172166.71 -19172166.53 0.0504 0.0199  
 Mercury -57201-03-30 05:01 J -19171153.47 -19171153.29 -19171153.12 0.0494 0.0114

Mercury -57196-12-01 05:01 J -19169081.32 -19169081.29 -19169081.26 0.0533 0.0517

Mercury -57195-02-28 12:42 J -19168992.10 -19168991.97 -19168991.84 0.0532 0.0060

Venus -57192-02-23 21:21 J -19167900.80 -19167900.61 -19167900.42 0.0506 0.0137

Mercury -57189-01-17 02:52 J -19166843.53 -19166843.38 -19166843.23 0.0494 0.0277

Mercury -57189-04-16 10:04 J -19166753.19 -19166753.08 -19166752.97 0.0495 0.0392

Venus -57186-08-20 04:47 J -19165532.40 -19165532.30 -19165532.20 0.0523 0.0451

Mercury -57184-12-17 16:18 J -19164681.95 -19164681.82 -19164681.69 0.0532 0.0087

Mercury -57183-03-16 23:16 J -19164592.58 -19164592.53 -19164592.48 0.0531 0.0477

Venus -57181-10-30 00:28 J -19163634.54 -19163634.48 -19163634.40 0.0508 0.0470

Mars -57180-03-24 23:45 J -19163488.72 -19163488.51 -19163488.29 0.0504 0.0273

Mercury -57178-11-05 00:57 J -19162533.54 -19162533.46 -19162533.37 0.0493 0.0436

Mercury -57177-02-03 07:40 J -19162443.34 -19162443.18 -19162443.01 0.0494 0.0226

Venus -57174-04-24 14:37 J -19161267.10 -19161266.89 -19161266.68 0.0521 0.0046

Mercury -57172-10-05 19:25 J -19160371.80 -19160371.69 -19160371.57 0.0533 0.0240

Mercury -57171-01-03 02:37 J -19160282.48 -19160282.39 -19160282.29 0.0532 0.0331

Venus -57168-02-26 04:18 J -19159132.44 -19159132.32 -19159132.19 0.0504 0.0389

Mercury -57166-11-22 05:16 J -19158133.46 -19158133.28 -19158133.09 0.0494 0.0058

Moon -57164-02-18 23:16 J -19157678.68 -19157678.53 -19157678.36 0.0500 0.0350

Earth -57164-02-19 02:23 J -19157678.57 -19157678.40 -19157678.23 0.0500 0.0347 \*

Venus -57163-12-28 03:35 J -19157001.50 -19157001.35 -19157001.19 0.0519 0.0343

Mercury -57160-07-24 23:16 J -19156061.62 -19156061.53 -19156061.44 0.0533 0.0382

Mercury -57160-10-22 06:42 J -19155972.33 -19155972.22 -19155972.10 0.0532 0.0194

Venus -57157-11-01 06:42 J -19154866.42 -19154866.22 -19154866.02 0.0505 0.0053

Mercury -57154-09-10 02:23 J -19153823.58 -19153823.40 -19153823.22 0.0494 0.0118

Earth -57152-02-23 16:47 J -19153291.04 -19153290.80 -19153290.57 0.0502 0.0013

Moon -57152-02-23 20:37 J -19153290.88 -19153290.64 -19153290.40 0.0502 0.0023 \*

Mercury -57148-05-13 03:21 J -19151751.39 -19151751.36 -19151751.34 0.0533 0.0522

Mercury -57148-08-10 11:01 J -19151662.17 -19151662.04 -19151661.92 0.0532 0.0058

Earth -57147-08-21 04:33 J -19151286.36 -19151286.31 -19151286.24 0.0526 0.0507

Moon -57147-08-21 06:57 J -19151286.23 -19151286.21 -19151286.18 0.0526 0.0521

Venus -57145-07-07 09:35 J -19150600.26 -19150600.10 -19150599.93 0.0507 0.0280  
 Mars -57145-12-26 13:25 J -19150428.17 -19150427.94 -19150427.71 0.0502 0.0206  
 Mercury -57142-06-29 00:13 J -19149513.64 -19149513.49 -19149513.34 0.0494 0.0283  
 Mercury -57142-09-27 07:11 J -19149423.31 -19149423.20 -19149423.08 0.0494 0.0385  
 Moon -57140-02-28 05:45 J -19148903.42 -19148903.26 -19148903.10 0.0503 0.0365  
 Earth -57140-02-28 09:49 J -19148903.24 -19148903.09 -19148902.93 0.0503 0.0377 \*  
 Venus -57139-12-31 09:06 J -19148232.29 -19148232.12 -19148231.94 0.0522 0.0277  
 Mercury -57136-05-29 14:37 J -19147352.02 -19147351.89 -19147351.77 0.0532 0.0092  
 Mercury -57136-08-26 21:35 J -19147262.66 -19147262.60 -19147262.55 0.0531 0.0474  
 Moon -57135-08-25 18:13 J -19146898.96 -19146898.74 -19146898.51 0.0525 0.0087  
 Earth -57135-08-25 21:49 J -19146898.82 -19146898.59 -19146898.37 0.0525 0.0112 \*  
 Mercury -57130-04-16 22:18 J -19145203.65 -19145203.57 -19145203.50 0.0494 0.0445  
 Mercury -57130-07-16 04:47 J -19145113.46 -19145113.30 -19145113.13 0.0494 0.0218  
 Venus -57127-09-04 21:35 J -19143966.80 -19143966.60 -19143966.39 0.0520 0.0117  
 Mars -57127-12-05 15:35 J -19143875.14 -19143874.85 -19143874.55 0.0522 0.0114  
 Mercury -57124-03-17 17:59 J -19143041.86 -19143041.75 -19143041.63 0.0532 0.0239  
 Mercury -57124-06-15 01:11 J -19142952.55 -19142952.45 -19142952.35 0.0532 0.0331  
 Earth -57123-08-30 15:06 J -19142511.06 -19142510.87 -19142510.68 0.0523 0.0284  
 Moon -57123-08-30 19:11 J -19142510.89 -19142510.70 -19142510.52 0.0523 0.0311 \*  
 Venus -57121-07-09 14:52 J -19141832.05 -19141831.88 -19141831.70 0.0505 0.0240  
 Mercury -57118-05-04 02:52 J -19140803.56 -19140803.38 -19140803.20 0.0494 0.0054  
 Venus -57115-05-10 08:09 J -19139701.18 -19139701.16 -19139701.14 0.0518 0.0514  
 Mercury -57112-01-03 20:52 J -19138731.71 -19138731.63 -19138731.54 0.0533 0.0396  
 Mercury -57112-04-03 04:33 J -19138642.43 -19138642.31 -19138642.19 0.0532 0.0180  
 Venus -57109-03-14 18:13 J -19137565.93 -19137565.74 -19137565.54 0.0507 0.0093  
 Mercury -57106-02-20 00:28 J -19136493.66 -19136493.48 -19136493.30 0.0493 0.0114  
 Venus -57103-09-07 22:33 J -19135197.63 -19135197.56 -19135197.48 0.0523 0.0484  
 Mercury -57100-01-20 08:23 J -19134332.27 -19134332.15 -19134332.02 0.0533 0.0046  
 Venus -57098-11-18 20:23 J -19133299.75 -19133299.65 -19133299.55 0.0508 0.0432  
 Mercury -57095-12-08 21:21 J -19132183.75 -19132183.61 -19132183.46 0.0493 0.0290

Mercury -57094-03-09 04:18 J -19132093.43 -19132093.32 -19132093.20 0.0494 0.0377

Venus -57091-05-13 12:13 J -19130932.20 -19130931.99 -19130931.79 0.0521 0.0094

Mercury -57089-11-08 12:42 J -19130022.10 -19130021.97 -19130021.85 0.0533 0.0098

Mercury -57088-02-05 19:40 J -19129932.74 -19129932.68 -19129932.62 0.0532 0.0470

Venus -57085-03-16 23:01 J -19128797.64 -19128797.54 -19128797.43 0.0503 0.0422

Mercury -57083-09-26 19:11 J -19127873.76 -19127873.70 -19127873.62 0.0493 0.0454

Mercury -57083-12-26 01:54 J -19127783.58 -19127783.42 -19127783.25 0.0494 0.0208

Earth -57081-02-19 01:40 J -19127363.55 -19127363.43 -19127363.28 0.0500 0.0410

Moon -57081-02-19 05:45 J -19127363.39 -19127363.26 -19127363.12 0.0501 0.0415 \*

Venus -57079-01-16 01:54 J -19126666.59 -19126666.42 -19126666.25 0.0519 0.0292

Mercury -57077-08-27 16:04 J -19125711.94 -19125711.83 -19125711.71 0.0532 0.0244

Mercury -57077-11-24 23:30 J -19125622.62 -19125622.52 -19125622.42 0.0532 0.0327

Venus -57074-11-21 01:25 J -19124531.64 -19124531.44 -19124531.25 0.0505 0.0088

Mercury -57071-10-13 23:45 J -19123473.69 -19123473.51 -19123473.33 0.0494 0.0042

Moon -57069-02-23 13:54 J -19122976.15 -19122975.92 -19122975.68 0.0502 0.0083

Earth -57069-02-23 17:59 J -19122975.98 -19122975.75 -19122975.51 0.0502 0.0049 \*

Mercury -57065-06-15 19:40 J -19121401.77 -19121401.68 -19121401.60 0.0533 0.0394

Mercury -57065-09-13 03:06 J -19121312.49 -19121312.37 -19121312.25 0.0532 0.0181

Venus -57062-07-27 04:33 J -19120265.48 -19120265.31 -19120265.13 0.0507 0.0244

Mercury -57059-08-01 21:49 J -19119163.77 -19119163.59 -19119163.42 0.0494 0.0121

Earth -57057-02-28 09:06 J -19118588.30 -19118588.12 -19118587.93 0.0502 0.0316

Moon -57057-02-28 12:42 J -19118588.16 -19118587.97 -19118587.79 0.0502 0.0312 \*

Venus -57055-01-19 02:52 J -19117897.54 -19117897.38 -19117897.21 0.0521 0.0308

Mercury -57053-07-02 06:13 J -19117002.37 -19117002.24 -19117002.11 0.0532 0.0028

Earth -57052-08-24 17:16 J -19116583.99 -19116583.78 -19116583.56 0.0526 0.0196

Moon -57052-08-24 21:21 J -19116583.83 -19116583.61 -19116583.39 0.0526 0.0166 \*

Mercury -57047-05-20 19:25 J -19114853.83 -19114853.69 -19114853.54 0.0493 0.0287

Mercury -57047-08-19 02:23 J -19114763.51 -19114763.40 -19114763.28 0.0494 0.0381

Venus -57044-09-23 15:35 J -19113632.06 -19113631.85 -19113631.64 0.0520 0.0084

Mercury -57041-04-20 10:04 J -19112692.20 -19112692.08 -19112691.95 0.0533 0.0113

Mercury -57041-07-18 17:16 J -19112602.84 -19112602.78 -19112602.72 0.0532 0.0455

Moon -57040-08-29 09:21 J -19112196.32 -19112196.11 -19112195.90 0.0524 0.0236

Earth -57040-08-29 12:57 J -19112196.16 -19112195.96 -19112195.75 0.0524 0.0213 \*

Venus -57038-07-29 10:04 J -19111497.25 -19111497.08 -19111496.91 0.0504 0.0273

Mercury -57035-03-08 16:33 J -19110543.87 -19110543.81 -19110543.75 0.0493 0.0461

Mercury -57035-06-06 23:01 J -19110453.71 -19110453.54 -19110453.37 0.0494 0.0199

Venus -57032-05-29 04:47 J -19109366.38 -19109366.30 -19109366.21 0.0518 0.0470

Mercury -57029-02-07 14:09 J -19108382.02 -19108381.91 -19108381.79 0.0533 0.0252

Mercury -57029-05-06 21:35 J -19108292.70 -19108292.60 -19108292.50 0.0532 0.0321

Venus -57026-04-03 13:25 J -19107231.14 -19107230.94 -19107230.74 0.0506 0.0058

Mars -57026-06-18 05:59 J -19107155.49 -19107155.25 -19107155.01 0.0504 0.0144

Mercury -57023-03-25 20:37 J -19106143.82 -19106143.64 -19106143.46 0.0494 0.0031

Mercury -57018-11-26 17:45 J -19104071.84 -19104071.76 -19104071.67 0.0533 0.0398

Mercury -57017-02-24 01:11 J -19103982.57 -19103982.45 -19103982.32 0.0532 0.0179

Venus -57015-12-07 15:06 J -19102964.99 -19102964.87 -19102964.74 0.0508 0.0395

Mercury -57011-01-11 18:28 J -19101833.90 -19101833.73 -19101833.55 0.0494 0.0134

Venus -57008-06-01 09:21 J -19100597.31 -19100597.11 -19100596.91 0.0521 0.0143

Mercury -57006-12-13 04:47 J -19099672.43 -19099672.30 -19099672.17 0.0532 0.0034

Venus -57002-04-05 18:13 J -19098462.82 -19098462.74 -19098462.66 0.0504 0.0457

# 57TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 57th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
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Mercury -57000-10-30 16:47 J -19097523.94 -19097523.80 -19097523.65 0.0494 0.0293  
 Mercury -56999-01-28 23:45 J -19097433.62 -19097433.51 -19097433.39 0.0494 0.0375  
 Moon -56998-02-17 23:01 J -19097048.60 -19097048.54 -19097048.46 0.0500 0.0473  
 Earth -56998-02-18 03:21 J -19097048.44 -19097048.36 -19097048.27 0.0500 0.0465  
 Venus -56996-02-03 20:37 J -19096331.82 -19096331.64 -19096331.46 0.0519 0.0255  
 Mercury -56994-10-01 07:54 J -19095362.29 -19095362.17 -19095362.04 0.0533 0.0125  
 Mercury -56994-12-29 15:06 J -19095272.94 -19095272.87 -19095272.80 0.0532 0.0444  
 Venus -56991-12-09 21:21 J -19094196.80 -19094196.61 -19094196.42 0.0506 0.0128  
 Mars -56990-03-21 19:40 J -19094094.87 -19094094.68 -19094094.49 0.0503 0.0332  
 Mercury -56988-08-18 14:52 J -19093213.95 -19093213.88 -19093213.81 0.0493 0.0456  
 Mercury -56988-11-16 21:21 J -19093123.78 -19093123.61 -19093123.44 0.0494 0.0205  
 Earth -56986-02-22 17:45 J -19092661.00 -19092660.76 -19092660.53 0.0501 0.0110  
 Moon -56986-02-22 21:21 J -19092660.84 -19092660.61 -19092660.39 0.0501 0.0140 \*  
 Mercury -56982-07-20 11:45 J -19091052.12 -19091052.01 -19091051.90 0.0533 0.0267  
 Mercury -56982-10-17 19:11 J -19090962.80 -19090962.70 -19090962.60 0.0532 0.0307  
 Venus -56979-08-14 23:59 J -19089930.68 -19089930.50 -19089930.31 0.0507 0.0209  
 Mercury -56976-09-04 17:45 J -19088813.94 -19088813.76 -19088813.57 0.0494 0.0026  
 Moon -56974-02-27 03:49 J -19088273.55 -19088273.34 -19088273.12 0.0502 0.0243  
 Earth -56974-02-27 06:13 J -19088273.45 -19088273.24 -19088273.03 0.0502 0.0244 \*  
 Venus -56972-02-06 23:45 J -19087562.65 -19087562.51 -19087562.35 0.0522 0.0355  
 Mars -56972-02-27 09:49 J -19087542.38 -19087542.09 -19087541.79 0.0523 0.0048  
 Mercury -56970-05-08 15:49 J -19086741.92 -19086741.84 -19086741.75 0.0533 0.0405  
 Mercury -56970-08-05 23:30 J -19086652.64 -19086652.52 -19086652.40 0.0532 0.0173  
 Moon -56969-08-23 15:35 J -19086269.05 -19086268.85 -19086268.64 0.0526 0.0233  
 Earth -56969-08-23 19:25 J -19086268.88 -19086268.69 -19086268.48 0.0526 0.0259 \*  
 Mercury -56964-06-23 15:35 J -19084504.02 -19084503.85 -19084503.67 0.0494 0.0143  
 Venus -56961-10-12 13:40 J -19083297.14 -19083296.93 -19083296.72 0.0520 0.0033  
 Mercury -56958-05-25 03:21 J -19082342.49 -19082342.36 -19082342.24 0.0532 0.0034  
 Earth -56957-08-28 13:11 J -19081881.17 -19081880.95 -19081880.73 0.0524 0.0142

Moon -56957-08-28 15:49 J -19081881.05 -19081880.84 -19081880.63 0.0524 0.0159 \*  
 Venus -56955-08-17 05:30 J -19081162.42 -19081162.27 -19081162.11 0.0504 0.0311  
 Mercury -56952-04-11 13:40 J -19080194.07 -19080193.93 -19080193.79 0.0494 0.0305  
 Mercury -56952-07-10 20:37 J -19080103.76 -19080103.64 -19080103.51 0.0494 0.0363  
 Venus -56949-06-17 02:52 J -19079031.50 -19079031.38 -19079031.26 0.0518 0.0417  
 Mercury -56946-03-13 06:42 J -19078032.34 -19078032.22 -19078032.09 0.0532 0.0119  
 Mercury -56946-06-10 13:54 J -19077942.99 -19077942.92 -19077942.85 0.0531 0.0450  
 Moon -56945-09-02 05:16 J -19077493.33 -19077493.28 -19077493.22 0.0523 0.0508  
 Venus -56943-04-22 08:37 J -19076896.34 -19076896.14 -19076895.94 0.0506 0.0020  
 Mercury -56940-01-28 12:13 J -19075884.05 -19075883.99 -19075883.93 0.0494 0.0461  
 Mercury -56940-04-28 18:42 J -19075793.89 -19075793.72 -19075793.55 0.0494 0.0200  
 Mercury -56935-12-30 09:49 J -19073722.20 -19073722.09 -19073721.98 0.0533 0.0273  
 Mercury -56934-03-29 17:16 J -19073632.89 -19073632.78 -19073632.68 0.0532 0.0300  
 Venus -56932-12-26 11:16 J -19072630.17 -19072630.03 -19072629.89 0.0508 0.0356  
 Mercury -56928-02-14 16:33 J -19071484.00 -19071483.81 -19071483.63 0.0494 0.0034  
 Venus -56925-06-20 04:47 J -19070262.49 -19070262.30 -19070262.10 0.0521 0.0182  
 Mercury -56923-10-18 13:40 J -19069412.01 -19069411.93 -19069411.85 0.0533 0.0417  
 Mercury -56922-01-15 21:06 J -19069322.74 -19069322.62 -19069322.49 0.0532 0.0163  
 Venus -56919-04-24 14:09 J -19068127.94 -19068127.91 -19068127.87 0.0503 0.0494  
 Mercury -56917-12-03 13:11 J -19067174.13 -19067173.95 -19067173.78 0.0494 0.0147  
 Venus -56913-02-23 17:30 J -19065996.96 -19065996.77 -19065996.58 0.0520 0.0209  
 Mercury -56911-11-04 01:25 J -19065012.56 -19065012.44 -19065012.31 0.0533 0.0032  
 Mars -56908-12-08 02:23 J -19063882.46 -19063882.40 -19063882.31 0.0505 0.0484  
 Venus -56908-12-28 18:13 J -19063861.93 -19063861.74 -19063861.55 0.0505 0.0170  
 Mercury -56905-09-21 11:01 J -19062864.17 -19062864.04 -19062863.89 0.0493 0.0311  
 Mercury -56905-12-20 17:59 J -19062773.87 -19062773.75 -19062773.62 0.0494 0.0357  
 Moon -56903-02-21 14:23 J -19062346.12 -19062345.90 -19062345.68 0.0501 0.0204  
 Earth -56903-02-21 16:47 J -19062346.02 -19062345.80 -19062345.57 0.0501 0.0176 \*  
 Mercury -56899-08-23 05:16 J -19060702.40 -19060702.28 -19060702.15 0.0532 0.0117  
 Mercury -56899-11-20 12:28 J -19060613.04 -19060612.98 -19060612.91 0.0532 0.0452



Venus -56896-09-02 20:52 J -19059595.82 -19059595.63 -19059595.44 0.0507 0.0164  
 Mercury -56893-07-10 09:21 J -19058554.16 -19058554.11 -19058554.05 0.0494 0.0470  
 Mercury -56893-10-08 15:49 J -19058464.01 -19058463.84 -19058463.67 0.0494 0.0192  
 Earth -56891-02-26 10:18 J -19057958.29 -19057958.07 -19057957.85 0.0502 0.0193  
 Moon -56891-02-26 10:33 J -19057958.27 -19057958.06 -19057957.85 0.0502 0.0204 \*  
 Venus -56889-02-26 23:30 J -19057227.65 -19057227.52 -19057227.40 0.0522 0.0412  
 Mercury -56887-06-11 08:52 J -19056392.24 -19056392.13 -19056392.01 0.0532 0.0263  
 Mercury -56887-09-08 16:18 J -19056302.92 -19056302.82 -19056302.72 0.0532 0.0310  
 Earth -56886-08-23 19:11 J -19055953.88 -19055953.70 -19055953.52 0.0526 0.0332  
 Moon -56886-08-23 22:04 J -19055953.76 -19055953.58 -19055953.39 0.0526 0.0303 \*  
 Venus -56884-05-08 23:30 J -19055329.56 -19055329.52 -19055329.48 0.0509 0.0498  
 Mercury -56881-07-27 14:09 J -19054154.09 -19054153.91 -19054153.73 0.0494 0.0031  
 Venus -56878-11-01 11:16 J -19052962.24 -19052962.03 -19052961.82 0.0520 0.0017  
 Mercury -56875-03-30 11:59 J -19052082.08 -19052082.00 -19052081.92 0.0533 0.0418  
 Mercury -56875-06-27 19:40 J -19051992.80 -19051992.68 -19051992.56 0.0532 0.0159  
 Moon -56874-08-28 10:47 J -19051566.29 -19051566.05 -19051565.81 0.0525 0.0078  
 Earth -56874-08-28 11:59 J -19051566.23 -19051566.00 -19051565.77 0.0525 0.0068 \*  
 Venus -56872-09-05 02:52 J -19050827.52 -19050827.38 -19050827.24 0.0505 0.0355  
 Mars -56872-09-10 16:18 J -19050822.08 -19050821.82 -19050821.57 0.0504 0.0009  
 Mercury -56869-05-15 11:59 J -19049844.17 -19049844.00 -19049843.82 0.0494 0.0135  
 Venus -56866-07-06 23:59 J -19048696.64 -19048696.50 -19048696.35 0.0518 0.0371  
 Mercury -56863-04-15 23:30 J -19047682.65 -19047682.52 -19047682.39 0.0532 0.0023  
 Moon -56862-09-02 07:11 J -19047178.31 -19047178.20 -19047178.09 0.0523 0.0448  
 Earth -56862-09-02 07:54 J -19047178.26 -19047178.17 -19047178.07 0.0523 0.0477 \*  
 Venus -56860-05-11 06:13 J -19046561.44 -19046561.24 -19046561.04 0.0506 0.0027  
 Mercury -56857-03-03 08:52 J -19045534.26 -19045534.13 -19045533.99 0.0493 0.0311  
 Mercury -56857-06-01 15:49 J -19045443.97 -19045443.84 -19045443.72 0.0494 0.0355  
 Mars -56854-08-15 07:54 J -19044274.24 -19044274.17 -19044274.07 0.0521 0.0498  
 Mercury -56851-02-02 03:49 J -19043372.47 -19043372.34 -19043372.21 0.0533 0.0116  
 Mercury -56851-05-02 11:01 J -19043283.11 -19043283.04 -19043282.98 0.0532 0.0453

Venus -56848-01-14 10:18 J -19042295.23 -19042295.07 -19042294.91 0.0507 0.0302

Mercury -56846-12-21 07:11 J -19041224.25 -19041224.20 -19041224.14 0.0493 0.0471

Mercury -56845-03-20 13:40 J -19041134.10 -19041133.93 -19041133.76 0.0494 0.0190

Venus -56842-07-10 04:33 J -19039927.49 -19039927.31 -19039927.12 0.0522 0.0241

Mercury -56840-11-21 07:40 J -19039062.29 -19039062.18 -19039062.06 0.0533 0.0257

Mercury -56839-02-18 15:06 J -19038972.97 -19038972.87 -19038972.77 0.0532 0.0316

Mars -56836-06-14 09:06 J -19037761.19 -19037761.12 -19037761.03 0.0502 0.0476

Mercury -56833-01-07 11:45 J -19036824.20 -19036824.01 -19036823.83 0.0494 0.0028

Venus -56830-03-14 18:28 J -19035661.93 -19035661.73 -19035661.53 0.0520 0.0144

Mercury -56828-09-09 11:16 J -19034752.11 -19034752.03 -19034751.94 0.0533 0.0404

Mercury -56828-12-07 18:57 J -19034662.83 -19034662.71 -19034662.59 0.0532 0.0174

Venus -56824-01-16 15:49 J -19033527.02 -19033526.84 -19033526.66 0.0505 0.0217

Mercury -56822-10-26 10:04 J -19032514.25 -19032514.08 -19032513.91 0.0494 0.0133

Earth -56820-02-20 23:59 J -19032030.71 -19032030.50 -19032030.28 0.0501 0.0215

Moon -56820-02-21 00:28 J -19032030.68 -19032030.48 -19032030.28 0.0501 0.0239 \*

Mars -56818-05-24 08:23 J -19031208.40 -19031208.15 -19031207.89 0.0523 0.0269

Mercury -56816-09-25 22:18 J -19030352.70 -19030352.57 -19030352.44 0.0532 0.0026

Venus -56813-09-21 18:57 J -19029260.90 -19029260.71 -19029260.51 0.0507 0.0115

Mercury -56810-08-14 08:09 J -19028204.30 -19028204.16 -19028204.01 0.0494 0.0295

Mercury -56810-11-12 15:06 J -19028113.99 -19028113.87 -19028113.75 0.0494 0.0374

Earth -56808-02-25 15:35 J -19027643.07 -19027642.85 -19027642.62 0.0502 0.0149

Moon -56808-02-25 17:16 J -19027643.01 -19027642.78 -19027642.54 0.0502 0.0165 \*

Venus -56806-03-17 22:04 J -19026892.67 -19026892.58 -19026892.49 0.0522 0.0464

Mercury -56804-07-15 02:09 J -19026042.54 -19026042.41 -19026042.28 0.0533 0.0118

Mercury -56804-10-12 09:21 J -19025953.18 -19025953.11 -19025953.05 0.0532 0.0451

Moon -56803-08-22 21:06 J -19025638.78 -19025638.62 -19025638.44 0.0526 0.0362

Earth -56803-08-22 22:33 J -19025638.70 -19025638.56 -19025638.40 0.0526 0.0392 \*

Venus -56801-05-27 22:33 J -19024994.65 -19024994.56 -19024994.46 0.0508 0.0445

Mercury -56798-06-02 05:16 J -19023894.33 -19023894.28 -19023894.22 0.0493 0.0468

Mercury -56798-08-31 11:45 J -19023804.18 -19023804.01 -19023803.84 0.0494 0.0193

Venus -56795-11-20 09:49 J -19022627.30 -19022627.09 -19022626.89 0.0521 0.0070  
 Mercury -56792-05-03 06:13 J -19021732.35 -19021732.24 -19021732.12 0.0533 0.0256  
 Mercury -56792-07-31 13:40 J -19021643.03 -19021642.93 -19021642.82 0.0532 0.0320  
 Moon -56791-08-27 21:06 J -19021250.84 -19021250.62 -19021250.40 0.0525 0.0033  
 Earth -56791-08-27 21:49 J -19021250.82 -19021250.59 -19021250.36 0.0525 0.0031 \*  
 Venus -56789-09-24 02:52 J -19020492.49 -19020492.38 -19020492.27 0.0504 0.0411  
 Mercury -56786-06-19 09:49 J -19019494.27 -19019494.09 -19019493.91 0.0494 0.0029  
 Venus -56783-07-26 00:13 J -19018361.66 -19018361.49 -19018361.32 0.0519 0.0310  
 Mercury -56780-02-19 10:18 J -19017422.16 -19017422.07 -19017421.99 0.0533 0.0395  
 Mercury -56780-05-19 17:45 J -19017332.88 -19017332.76 -19017332.63 0.0532 0.0184  
 Earth -56779-09-01 16:33 J -19016862.93 -19016862.81 -19016862.68 0.0523 0.0437  
 Moon -56779-09-01 18:42 J -19016862.86 -19016862.72 -19016862.56 0.0523 0.0404 \*  
 Venus -56777-05-30 05:59 J -19016226.45 -19016226.25 -19016226.06 0.0505 0.0083  
 Mercury -56774-04-07 07:54 J -19015184.34 -19015184.17 -19015183.99 0.0494 0.0132  
 Mercury -56768-03-07 21:49 J -19013022.72 -19013022.59 -19013022.47 0.0532 0.0045  
 Venus -56765-02-03 09:06 J -19011960.29 -19011960.12 -19011959.94 0.0507 0.0248  
 Mercury -56762-01-24 06:28 J -19010874.37 -19010874.23 -19010874.08 0.0494 0.0289  
 Mercury -56762-04-24 13:25 J -19010784.05 -19010783.94 -19010783.82 0.0494 0.0380  
 Venus -56759-07-29 05:45 J -19009592.42 -19009592.26 -19009592.09 0.0521 0.0305  
 Mercury -56757-12-25 01:11 J -19008712.58 -19008712.45 -19008712.33 0.0532 0.0111  
 Mercury -56756-03-24 08:09 J -19008623.22 -19008623.16 -19008623.09 0.0532 0.0459  
 Mars -56753-03-03 01:11 J -19007548.63 -19007548.45 -19007548.25 0.0505 0.0321  
 Mercury -56751-11-12 05:01 J -19006564.36 -19006564.29 -19006564.22 0.0494 0.0447  
 Mercury -56750-02-10 11:16 J -19006474.19 -19006474.03 -19006473.86 0.0494 0.0215  
 Venus -56747-04-02 18:57 J -19005326.92 -19005326.71 -19005326.51 0.0520 0.0083  
 Mercury -56745-10-13 05:01 J -19004402.41 -19004402.29 -19004402.18 0.0533 0.0252  
 Mercury -56744-01-10 12:13 J -19004313.09 -19004312.99 -19004312.88 0.0532 0.0323  
 Venus -56741-02-05 16:18 J -19003191.99 -19003191.82 -19003191.66 0.0505 0.0275  
 Mercury -56739-11-29 08:23 J -19002164.34 -19002164.15 -19002163.97 0.0494 0.0038  
 Earth -56737-02-21 02:23 J -19001715.59 -19001715.40 -19001715.20 0.0500 0.0273

Moon -56737-02-21 03:49 J -19001715.54 -19001715.34 -19001715.14 0.0500 0.0292 \*  
 Venus -56736-12-06 06:13 J -19001061.32 -19001061.24 -19001061.16 0.0518 0.0474  
 Mercury -56733-08-01 08:52 J -19000092.21 -19000092.13 -19000092.04 0.0533 0.0392  
 Mercury -56733-10-29 16:47 J -19000002.92 -19000002.80 -19000002.68 0.0533 0.0190  
 Venus -56730-10-11 21:06 J -18998925.82 -18998925.62 -18998925.42 0.0506 0.0048  
 Mercury -56727-09-17 06:28 J -18997854.40 -18997854.23 -18997854.05 0.0493 0.0124  
 Moon -56725-02-25 16:47 J -18997328.02 -18997327.80 -18997327.57 0.0502 0.0115  
 Earth -56725-02-25 19:40 J -18997327.91 -18997327.68 -18997327.45 0.0502 0.0096 \*  
 Mercury -56721-05-20 12:57 J -18995781.97 -18995781.96 -18995781.95 0.0533 0.0530  
 Mercury -56721-08-17 20:52 J -18995692.76 -18995692.63 -18995692.50 0.0533 0.0053  
 Moon -56720-08-22 09:21 J -18995323.25 -18995323.11 -18995322.96 0.0526 0.0396  
 Earth -56720-08-22 10:04 J -18995323.21 -18995323.08 -18995322.95 0.0526 0.0426 \*  
 Venus -56718-06-16 23:59 J -18994659.63 -18994659.50 -18994659.37 0.0508 0.0380  
 Mars -56718-12-05 22:33 J -18994487.80 -18994487.56 -18994487.33 0.0503 0.0175  
 Mercury -56715-07-06 04:47 J -18993544.44 -18993544.30 -18993544.15 0.0494 0.0284  
 Mercury -56715-10-04 11:45 J -18993454.12 -18993454.01 -18993453.90 0.0494 0.0385  
 Earth -56713-03-01 14:09 J -18992939.98 -18992939.91 -18992939.83 0.0503 0.0474  
 Moon -56713-03-01 17:59 J -18992939.76 -18992939.75 -18992939.73 0.0503 0.0501  
 Venus -56712-12-09 13:40 J -18992292.12 -18992291.93 -18992291.72 0.0521 0.0150  
 Mercury -56709-06-06 00:42 J -18991382.60 -18991382.47 -18991382.34 0.0533 0.0089  
 Mercury -56709-09-03 07:54 J -18991293.22 -18991293.17 -18991293.12 0.0532 0.0480  
 Earth -56708-08-27 05:45 J -18990935.49 -18990935.26 -18990935.03 0.0525 0.0016  
 Moon -56708-08-27 07:54 J -18990935.41 -18990935.17 -18990934.93 0.0525 0.0017 \*  
 Venus -56706-10-14 02:52 J -18990157.45 -18990157.38 -18990157.31 0.0504 0.0468  
 Mercury -56703-04-24 03:35 J -18989234.43 -18989234.35 -18989234.27 0.0494 0.0438  
 Mercury -56703-07-23 10:04 J -18989144.25 -18989144.08 -18989143.92 0.0494 0.0225  
 Venus -56700-08-14 03:21 J -18988026.55 -18988026.36 -18988026.17 0.0519 0.0237  
 Mars -56700-11-09 06:28 J -18987939.49 -18987939.23 -18987938.95 0.0521 0.0225  
 Mercury -56697-03-25 04:04 J -18987072.44 -18987072.33 -18987072.21 0.0533 0.0240  
 Mercury -56697-06-22 11:30 J -18986983.12 -18986983.02 -18986982.92 0.0532 0.0334

Moon -56696-08-31 19:25 J -18986547.86 -18986547.69 -18986547.53 0.0524 0.0354  
 Earth -56696-08-31 22:33 J -18986547.71 -18986547.56 -18986547.40 0.0524 0.0387 \*  
 Venus -56694-06-19 06:13 J -18985891.43 -18985891.24 -18985891.04 0.0505 0.0142  
 Mercury -56691-05-11 08:09 J -18984834.34 -18984834.16 -18984833.98 0.0494 0.0061  
 Mercury -56685-01-12 07:54 J -18982762.26 -18982762.17 -18982762.08 0.0533 0.0383  
 Mercury -56685-04-10 15:35 J -18982672.97 -18982672.85 -18982672.73 0.0532 0.0196  
 Venus -56682-02-22 10:47 J -18981625.23 -18981625.05 -18981624.86 0.0507 0.0184  
 Mercury -56679-02-27 05:16 J -18980524.45 -18980524.28 -18980524.10 0.0493 0.0113  
 Venus -56676-08-17 05:45 J -18979257.40 -18979257.26 -18979257.11 0.0522 0.0366  
 Mercury -56674-10-31 11:45 J -18978452.03 -18978452.01 -18978451.99 0.0534 0.0524  
 Mercury -56673-01-28 19:40 J -18978362.81 -18978362.68 -18978362.55 0.0533 0.0061  
 Venus -56671-10-28 15:35 J -18977358.86 -18977358.85 -18977358.85 0.0509 0.0508  
 Mercury -56668-12-16 03:49 J -18976214.49 -18976214.34 -18976214.19 0.0493 0.0271  
 Mercury -56667-03-16 10:33 J -18976124.17 -18976124.06 -18976123.95 0.0494 0.0396  
 Venus -56664-04-21 20:23 J -18974991.86 -18974991.65 -18974991.44 0.0521 0.0017  
 Mercury -56662-11-16 23:59 J -18974052.63 -18974052.50 -18974052.38 0.0533 0.0078  
 Mercury -56661-02-14 06:57 J -18973963.25 -18973963.21 -18973963.16 0.0532 0.0494  
 Venus -56658-02-24 18:13 J -18972856.88 -18972856.74 -18972856.59 0.0504 0.0342  
 Mercury -56656-10-04 02:23 J -18971904.49 -18971904.40 -18971904.32 0.0493 0.0428  
 Mercury -56655-01-02 08:37 J -18971814.30 -18971814.14 -18971813.98 0.0494 0.0233  
 Moon -56654-02-20 11:30 J -18971400.19 -18971400.02 -18971399.84 0.0500 0.0319  
 Earth -56654-02-20 14:23 J -18971400.09 -18971399.90 -18971399.71 0.0500 0.0299 \*  
 Venus -56653-12-25 11:01 J -18970726.17 -18970726.04 -18970725.89 0.0519 0.0392  
 Mercury -56650-09-05 03:49 J -18969742.46 -18969742.34 -18969742.22 0.0533 0.0218  
 Mercury -56650-12-03 11:01 J -18969653.13 -18969653.04 -18969652.94 0.0532 0.0357  
 Venus -56647-10-30 22:04 J -18968590.78 -18968590.58 -18968590.38 0.0506 0.0017  
 Mercury -56644-10-21 06:57 J -18967504.39 -18967504.21 -18967504.03 0.0494 0.0074  
 Earth -56642-02-25 08:09 J -18967012.39 -18967012.16 -18967011.92 0.0501 0.0075  
 Moon -56642-02-25 11:59 J -18967012.24 -18967012.00 -18967011.76 0.0501 0.0099 \*  
 Mercury -56638-06-24 07:11 J -18965432.29 -18965432.20 -18965432.11 0.0533 0.0369

Mercury -56638-09-21 14:37 J -18965343.00 -18965342.89 -18965342.77 0.0532 0.0211  
 Earth -56637-08-21 16:33 J -18965007.90 -18965007.81 -18965007.70 0.0527 0.0476  
 Moon -56637-08-21 18:42 J -18965007.84 -18965007.72 -18965007.58 0.0527 0.0443 \*  
 Venus -56635-07-06 00:57 J -18964324.61 -18964324.46 -18964324.30 0.0508 0.0317  
 Mercury -56632-08-09 05:16 J -18963194.46 -18963194.28 -18963194.10 0.0494 0.0088  
 Moon -56630-03-01 21:21 J -18962624.69 -18962624.61 -18962624.51 0.0503 0.0465  
 Earth -56630-03-02 01:11 J -18962624.55 -18962624.45 -18962624.34 0.0503 0.0445 \*  
 Venus -56629-12-28 16:18 J -18961957.01 -18961956.82 -18961956.63 0.0521 0.0219  
 Mercury -56626-04-12 10:47 J -18961122.08 -18961122.05 -18961122.01 0.0533 0.0513  
 Mercury -56626-07-10 18:42 J -18961032.85 -18961032.72 -18961032.59 0.0533 0.0071  
 Moon -56625-08-26 11:30 J -18960620.25 -18960620.02 -18960619.80 0.0526 0.0064  
 Earth -56625-08-26 14:37 J -18960620.12 -18960619.89 -18960619.66 0.0526 0.0055 \*  
 Mercury -56620-05-28 02:52 J -18958884.53 -18958884.38 -18958884.23 0.0493 0.0257  
 Mercury -56620-08-26 09:21 J -18958794.20 -18958794.11 -18958794.00 0.0494 0.0410  
 Venus -56617-09-02 03:06 J -18957691.56 -18957691.37 -18957691.17 0.0520 0.0177  
 Mercury -56614-04-28 22:47 J -18956722.68 -18956722.55 -18956722.42 0.0533 0.0068  
 Mercury -56614-07-27 05:59 J -18956633.29 -18956633.25 -18956633.21 0.0533 0.0503  
 Earth -56613-08-31 12:57 J -18956232.12 -18956231.96 -18956231.79 0.0524 0.0367  
 Moon -56613-08-31 16:33 J -18956231.98 -18956231.81 -18956231.63 0.0524 0.0339 \*  
 Venus -56611-07-08 10:18 J -18955556.25 -18955556.07 -18955555.89 0.0505 0.0217  
 Mercury -56608-03-16 01:25 J -18954574.53 -18954574.44 -18954574.34 0.0493 0.0413  
 Mercury -56608-06-14 07:40 J -18954484.34 -18954484.18 -18954484.02 0.0493 0.0247  
 Mercury -56602-02-15 02:52 J -18952412.50 -18952412.38 -18952412.26 0.0533 0.0206  
 Mercury -56602-05-15 10:18 J -18952323.16 -18952323.07 -18952322.98 0.0533 0.0370  
 Venus -56599-03-13 13:40 J -18951290.12 -18951289.93 -18951289.73 0.0506 0.0112  
 Mars -56599-05-28 20:23 J -18951213.89 -18951213.65 -18951213.40 0.0504 0.0111  
 Mercury -56596-04-02 05:45 J -18950174.44 -18950174.26 -18950174.08 0.0494 0.0085  
 Venus -56593-09-05 11:16 J -18948922.12 -18948922.03 -18948921.92 0.0523 0.0452  
 Mercury -56591-12-04 06:42 J -18948102.31 -18948102.22 -18948102.12 0.0533 0.0347  
 Mercury -56590-03-03 14:23 J -18948013.01 -18948012.90 -18948012.78 0.0532 0.0232

Venus -56588-11-16 16:47 J -18947023.89 -18947023.80 -18947023.70 0.0508 0.0443  
 Mercury -56584-01-19 04:18 J -18945864.50 -18945864.32 -18945864.14 0.0494 0.0075  
 Venus -56581-05-11 00:57 J -18944656.66 -18944656.46 -18944656.25 0.0521 0.0065  
 Mercury -56579-09-22 10:04 J -18943792.12 -18943792.08 -18943792.03 0.0533 0.0498  
 Mercury -56579-12-20 17:59 J -18943702.88 -18943702.75 -18943702.62 0.0532 0.0085  
 Venus -56575-03-15 19:40 J -18942521.79 -18942521.68 -18942521.56 0.0504 0.0404  
 Mercury -56573-11-07 02:37 J -18941554.55 -18941554.39 -18941554.23 0.0493 0.0234  
 Mercury -56572-02-05 09:21 J -18941464.19 -18941464.11 -18941464.02 0.0494 0.0436  
 Earth -56571-02-20 02:09 J -18941084.58 -18941084.41 -18941084.23 0.0500 0.0325  
 Moon -56571-02-20 05:45 J -18941084.42 -18941084.26 -18941084.07 0.0500 0.0336 \*  
 Venus -56569-01-14 14:09 J -18940391.07 -18940390.91 -18940390.74 0.0519 0.0318  
 Mercury -56567-10-08 21:49 J -18939392.72 -18939392.59 -18939392.46 0.0533 0.0058  
 Mercury -56566-01-06 05:01 J -18939303.32 -18939303.29 -18939303.26 0.0532 0.0513  
 Venus -56564-11-19 00:28 J -18938255.67 -18938255.48 -18938255.28 0.0506 0.0085  
 Mars -56563-03-01 16:04 J -18938152.99 -18938152.83 -18938152.67 0.0503 0.0380  
 Mercury -56561-08-26 00:28 J -18937244.58 -18937244.48 -18937244.37 0.0493 0.0398  
 Mercury -56561-11-24 06:42 J -18937154.38 -18937154.22 -18937154.07 0.0493 0.0262  
 Moon -56559-02-24 10:18 J -18936697.30 -18936697.07 -18936696.83 0.0501 0.0054  
 Earth -56559-02-24 14:09 J -18936697.14 -18936696.91 -18936696.67 0.0501 0.0029 \*  
 Mercury -56555-07-28 01:40 J -18935082.55 -18935082.43 -18935082.31 0.0534 0.0199  
 Mercury -56555-10-25 09:06 J -18934993.20 -18934993.12 -18934993.03 0.0533 0.0378  
 Moon -56554-08-22 02:37 J -18934692.48 -18934692.39 -18934692.29 0.0528 0.0476  
 Earth -56554-08-22 05:45 J -18934692.32 -18934692.26 -18934692.19 0.0528 0.0504 \*  
 Venus -56552-07-25 05:30 J -18933989.44 -18933989.27 -18933989.09 0.0507 0.0238  
 Mercury -56549-09-12 05:01 J -18932844.47 -18932844.29 -18932844.12 0.0493 0.0101  
 Earth -56547-03-01 07:11 J -18932309.34 -18932309.20 -18932309.06 0.0502 0.0401  
 Moon -56547-03-01 09:49 J -18932309.21 -18932309.09 -18932308.96 0.0502 0.0414 \*  
 Venus -56545-01-17 17:30 J -18931621.94 -18931621.77 -18931621.59 0.0522 0.0287  
 Mars -56545-02-04 01:25 J -18931604.74 -18931604.44 -18931604.14 0.0522 0.0033  
 Mercury -56543-05-16 05:45 J -18930772.36 -18930772.26 -18930772.16 0.0534 0.0337

Mercury -56543-08-13 13:25 J -18930683.05 -18930682.94 -18930682.82 0.0533 0.0244

Earth -56542-08-27 03:49 J -18930304.57 -18930304.34 -18930304.11 0.0526 0.0079

Moon -56542-08-27 07:25 J -18930304.41 -18930304.19 -18930303.96 0.0526 0.0097 \*

Mercury -56537-07-01 03:06 J -18928534.55 -18928534.37 -18928534.19 0.0493 0.0062

Venus -56534-09-22 08:37 J -18927356.35 -18927356.14 -18927355.94 0.0520 0.0093

Mercury -56531-03-04 09:35 J -18926462.15 -18926462.10 -18926462.04 0.0533 0.0479

Mercury -56531-06-01 17:30 J -18926372.89 -18926372.77 -18926372.64 0.0533 0.0106

Moon -56530-08-31 20:52 J -18925916.82 -18925916.63 -18925916.44 0.0524 0.0307

Earth -56530-08-31 23:45 J -18925916.68 -18925916.51 -18925916.33 0.0524 0.0334 \*

Venus -56528-07-27 11:30 J -18925221.18 -18925221.02 -18925220.85 0.0504 0.0280

Mercury -56525-04-19 01:25 J -18924224.60 -18924224.44 -18924224.27 0.0493 0.0221

Mercury -56525-07-18 08:09 J -18924134.23 -18924134.16 -18924134.08 0.0494 0.0449

Venus -56522-05-27 22:33 J -18923090.64 -18923090.56 -18923090.47 0.0518 0.0470

Mercury -56519-03-20 21:06 J -18922062.75 -18922062.62 -18922062.49 0.0533 0.0043

Mercury -56519-06-18 04:18 J -18921973.33 -18921973.32 -18921973.31 0.0532 0.0527

Venus -56516-04-01 14:52 J -18920955.08 -18920954.88 -18920954.69 0.0506 0.0050

Mercury -56513-02-05 23:59 J -18919914.61 -18919914.50 -18919914.38 0.0493 0.0379

Mercury -56513-05-06 06:13 J -18919824.38 -18919824.24 -18919824.09 0.0494 0.0285

Venus -56510-09-25 13:54 J -18918586.92 -18918586.92 -18918586.90 0.0523 0.0522

Mercury -56507-01-07 00:57 J -18917752.58 -18917752.46 -18917752.34 0.0533 0.0187

Mercury -56507-04-06 08:09 J -18917663.24 -18917663.16 -18917663.07 0.0532 0.0390

Venus -56505-12-05 18:57 J -18916688.83 -18916688.71 -18916688.57 0.0508 0.0374

Mercury -56501-02-23 03:49 J -18915514.51 -18915514.34 -18915514.16 0.0493 0.0116

Venus -56498-05-31 00:13 J -18914321.70 -18914321.49 -18914321.29 0.0521 0.0123

Mercury -56496-10-26 04:33 J -18913442.41 -18913442.31 -18913442.21 0.0534 0.0333

Mercury -56495-01-23 12:13 J -18913353.10 -18913352.99 -18913352.88 0.0533 0.0249

Venus -56492-04-03 23:30 J -18912186.57 -18912186.52 -18912186.45 0.0504 0.0478

Mercury -56490-12-12 02:09 J -18911204.59 -18911204.41 -18911204.23 0.0493 0.0047

Moon -56488-02-19 05:01 J -18910769.44 -18910769.29 -18910769.13 0.0499 0.0375

Earth -56488-02-19 08:37 J -18910769.29 -18910769.14 -18910768.97 0.0499 0.0368 \*



Venus -56486-02-02 14:23 J -18910056.08 -18910055.90 -18910055.72 0.0519 0.0256  
 Mercury -56484-08-14 08:23 J -18909132.20 -18909132.15 -18909132.09 0.0534 0.0473  
 Mercury -56484-11-11 16:33 J -18909042.94 -18909042.81 -18909042.69 0.0533 0.0115  
 Mars -56481-11-18 18:13 J -18907939.89 -18907939.74 -18907939.59 0.0506 0.0397  
 Venus -56481-12-08 02:52 J -18907920.57 -18907920.38 -18907920.19 0.0505 0.0152  
 Mercury -56478-09-30 00:13 J -18906894.65 -18906894.49 -18906894.32 0.0493 0.0209  
 Mercury -56478-12-29 06:57 J -18906804.27 -18906804.21 -18906804.15 0.0494 0.0460  
 Earth -56476-02-24 01:25 J -18906381.68 -18906381.44 -18906381.21 0.0501 0.0007  
 Moon -56476-02-24 04:04 J -18906381.56 -18906381.33 -18906381.10 0.0501 0.0032 \*  
 Mercury -56472-08-30 20:23 J -18904732.78 -18904732.65 -18904732.52 0.0533 0.0028  
 Moon -56471-08-21 19:25 J -18904376.73 -18904376.69 -18904376.65 0.0527 0.0518  
 Venus -56469-08-13 06:13 J -18903654.42 -18903654.24 -18903654.05 0.0507 0.0177  
 Mercury -56466-07-18 22:47 J -18902584.67 -18902584.55 -18902584.43 0.0493 0.0367  
 Mercury -56466-10-17 05:01 J -18902494.43 -18902494.29 -18902494.14 0.0494 0.0296  
 Moon -56464-02-28 17:45 J -18901993.91 -18901993.76 -18901993.59 0.0502 0.0382  
 Earth -56464-02-28 18:57 J -18901993.86 -18901993.71 -18901993.55 0.0502 0.0378 \*  
 Venus -56462-02-05 21:49 J -18901286.73 -18901286.59 -18901286.44 0.0522 0.0364  
 Mercury -56460-06-18 23:59 J -18900422.62 -18900422.50 -18900422.38 0.0533 0.0175  
 Mercury -56460-09-16 07:25 J -18900333.28 -18900333.19 -18900333.11 0.0532 0.0400  
 Moon -56459-08-26 07:11 J -18899989.43 -18899989.20 -18899988.98 0.0526 0.0154  
 Earth -56459-08-26 10:18 J -18899989.29 -18899989.07 -18899988.85 0.0526 0.0129 \*  
 Mercury -56454-08-05 03:06 J -18898184.54 -18898184.37 -18898184.19 0.0494 0.0133  
 Venus -56451-10-11 10:33 J -18897021.27 -18897021.06 -18897020.85 0.0520 0.0024  
 Mercury -56448-04-07 03:35 J -18896112.45 -18896112.35 -18896112.25 0.0533 0.0321  
 Mercury -56448-07-05 11:16 J -18896023.14 -18896023.03 -18896022.92 0.0533 0.0260  
 Earth -56447-08-31 06:42 J -18895601.41 -18895601.22 -18895601.03 0.0525 0.0287  
 Moon -56447-08-31 08:09 J -18895601.34 -18895601.16 -18895600.96 0.0525 0.0267 \*  
 Venus -56445-08-15 13:11 J -18894886.09 -18894885.95 -18894885.80 0.0504 0.0344  
 Mars -56445-08-22 11:30 J -18894879.27 -18894879.02 -18894878.77 0.0504 0.0088  
 Mercury -56442-05-24 00:57 J -18893874.64 -18893874.46 -18893874.27 0.0493 0.0035

Venus -56439-06-15 20:37 J -18892755.76 -18892755.64 -18892755.51 0.0518 0.0417  
 Mercury -56436-01-24 06:57 J -18891802.27 -18891802.21 -18891802.15 0.0534 0.0472  
 Mercury -56436-04-23 14:52 J -18891713.00 -18891712.88 -18891712.75 0.0534 0.0116  
 Venus -56433-04-20 17:59 J -18890619.95 -18890619.75 -18890619.56 0.0506 0.0025  
 Mercury -56430-03-11 23:16 J -18889564.69 -18889564.53 -18889564.36 0.0493 0.0194  
 Mercury -56430-06-10 05:45 J -18889474.30 -18889474.26 -18889474.20 0.0493 0.0474  
 Mars -56427-07-22 16:04 J -18888335.95 -18888335.83 -18888335.71 0.0521 0.0476  
 Mercury -56424-02-09 18:57 J -18887402.83 -18887402.71 -18887402.58 0.0534 0.0030  
 Venus -56422-12-25 20:37 J -18886353.79 -18886353.64 -18886353.48 0.0508 0.0309  
 Mercury -56419-12-28 21:21 J -18885254.73 -18885254.61 -18885254.48 0.0493 0.0357  
 Mercury -56418-03-29 03:35 J -18885164.49 -18885164.35 -18885164.21 0.0493 0.0305  
 Venus -56415-06-19 03:49 J -18883986.53 -18883986.34 -18883986.15 0.0521 0.0200  
 Mercury -56413-11-28 23:01 J -18883092.66 -18883092.54 -18883092.42 0.0534 0.0163  
 Mercury -56412-02-26 06:28 J -18883003.31 -18883003.23 -18883003.15 0.0533 0.0414  
 Mercury -56406-01-15 01:40 J -18880854.60 -18880854.43 -18880854.26 0.0493 0.0141  
 Earth -56405-02-19 18:42 J -18880453.86 -18880453.72 -18880453.58 0.0499 0.0399  
 Moon -56405-02-19 21:21 J -18880453.74 -18880453.61 -18880453.46 0.0499 0.0393 \*  
 Venus -56403-02-21 17:45 J -18879720.96 -18879720.76 -18879720.56 0.0519 0.0182  
 Mercury -56401-09-17 02:23 J -18878782.50 -18878782.40 -18878782.29 0.0533 0.0313  
 Mercury -56401-12-15 10:04 J -18878693.19 -18878693.08 -18878692.97 0.0533 0.0268  
 Venus -56398-12-28 02:09 J -18877585.59 -18877585.41 -18877585.23 0.0505 0.0207  
 Mercury -56395-11-02 23:45 J -18876544.69 -18876544.51 -18876544.32 0.0493 0.0025  
 Moon -56393-02-24 09:06 J -18876066.37 -18876066.12 -18876065.87 0.0500 0.0003  
 Earth -56393-02-24 10:18 J -18876066.31 -18876066.07 -18876065.83 0.0500 0.0033 \*  
 Mars -56391-04-30 23:16 J -18875269.77 -18875269.53 -18875269.28 0.0522 0.0303  
 Mercury -56389-07-06 05:59 J -18874472.31 -18874472.25 -18874472.19 0.0534 0.0461  
 Mercury -56389-10-03 13:54 J -18874383.05 -18874382.92 -18874382.79 0.0533 0.0124  
 Venus -56386-09-02 06:42 J -18873319.42 -18873319.22 -18873319.03 0.0507 0.0117  
 Mercury -56383-08-21 22:04 J -18872234.75 -18872234.58 -18872234.42 0.0493 0.0185  
 Mercury -56383-11-20 04:33 J -18872144.35 -18872144.31 -18872144.28 0.0493 0.0483

Moon -56381-02-28 23:01 J -18871678.71 -18871678.54 -18871678.37 0.0501 0.0331  
 Earth -56381-02-28 23:01 J -18871678.71 -18871678.54 -18871678.35 0.0501 0.0329 \*  
 Venus -56379-02-24 18:42 J -18870951.84 -18870951.72 -18870951.58 0.0522 0.0412  
 Mercury -56377-07-22 17:16 J -18870072.91 -18870072.78 -18870072.65 0.0534 0.0030  
 Earth -56376-08-25 16:33 J -18869674.03 -18869673.81 -18869673.59 0.0527 0.0177  
 Moon -56376-08-25 18:13 J -18869673.94 -18869673.74 -18869673.53 0.0527 0.0208 \*  
 Venus -56374-05-08 10:18 J -18869053.15 -18869053.07 -18869052.97 0.0509 0.0445  
 Mercury -56371-06-09 20:23 J -18867924.78 -18867924.65 -18867924.53 0.0492 0.0344  
 Mercury -56371-09-08 02:23 J -18867834.54 -18867834.40 -18867834.26 0.0493 0.0316  
 Venus -56368-10-30 08:23 J -18866686.36 -18866686.15 -18866685.95 0.0520 0.0031  
 Mercury -56365-05-10 21:21 J -18865762.73 -18865762.61 -18865762.49 0.0534 0.0165  
 Mercury -56365-08-08 04:47 J -18865673.38 -18865673.30 -18865673.22 0.0533 0.0414  
 Moon -56364-08-30 13:40 J -18865286.15 -18865285.93 -18865285.72 0.0526 0.0227  
 Earth -56364-08-30 13:54 J -18865286.12 -18865285.92 -18865285.72 0.0526 0.0245 \*  
 Venus -56362-09-04 13:11 J -18864551.06 -18864550.95 -18864550.83 0.0504 0.0400  
 Mercury -56359-06-26 23:59 J -18863524.68 -18863524.50 -18863524.33 0.0493 0.0146  
 Venus -56356-07-04 22:47 J -18862420.70 -18862420.55 -18862420.39 0.0518 0.0349  
 Mercury -56353-02-28 01:11 J -18861452.55 -18861452.45 -18861452.34 0.0534 0.0307  
 Mercury -56353-05-27 08:52 J -18861363.23 -18861363.13 -18861363.02 0.0533 0.0276  
 Venus -56350-05-10 16:33 J -18860285.01 -18860284.81 -18860284.61 0.0506 0.0075  
 Mercury -56347-04-14 22:04 J -18859214.77 -18859214.58 -18859214.40 0.0493 0.0021  
 Mercury -56342-12-17 04:33 J -18857142.37 -18857142.31 -18857142.24 0.0534 0.0457  
 Mercury -56341-03-15 12:28 J -18857053.10 -18857052.98 -18857052.85 0.0533 0.0130  
 Venus -56338-01-13 18:42 J -18856018.89 -18856018.72 -18856018.55 0.0508 0.0259  
 Mercury -56335-01-31 20:09 J -18854904.83 -18854904.66 -18854904.49 0.0493 0.0180  
 Mercury -56335-05-02 02:52 J -18854814.40 -18854814.38 -18854814.36 0.0494 0.0489  
 Venus -56332-07-08 03:35 J -18853651.53 -18853651.35 -18853651.17 0.0521 0.0259  
 Mercury -56329-01-02 16:04 J -18852742.95 -18852742.83 -18852742.70 0.0533 0.0026  
 Mars -56326-02-12 21:49 J -18851605.82 -18851605.59 -18851605.37 0.0506 0.0227  
 Mercury -56324-11-19 18:28 J -18850594.86 -18850594.73 -18850594.60 0.0492 0.0339

Mercury -56323-02-18 00:28 J -18850504.61 -18850504.48 -18850504.34 0.0493 0.0322

Moon -56322-02-18 21:35 J -18850138.71 -18850138.60 -18850138.48 0.0498 0.0433

Earth -56322-02-18 23:01 J -18850138.64 -18850138.54 -18850138.43 0.0498 0.0446 \*

Venus -56320-03-12 13:40 J -18849386.13 -18849385.93 -18849385.73 0.0519 0.0139

Mercury -56318-10-21 19:25 J -18848432.81 -18848432.69 -18848432.57 0.0534 0.0172

Mercury -56317-01-19 02:52 J -18848343.46 -18848343.38 -18848343.30 0.0533 0.0407

Venus -56314-01-16 02:37 J -18847250.56 -18847250.39 -18847250.22 0.0505 0.0266

Mercury -56312-12-06 22:33 J -18846194.74 -18846194.56 -18846194.39 0.0493 0.0156

Moon -56310-02-23 12:57 J -18845751.19 -18845750.96 -18845750.74 0.0499 0.0056

Earth -56310-02-23 12:57 J -18845751.19 -18845750.96 -18845750.72 0.0499 0.0087 \*

Venus -56309-11-15 03:06 J -18845120.38 -18845120.37 -18845120.37 0.0517 0.0516

Mercury -56306-08-09 23:16 J -18844122.64 -18844122.53 -18844122.43 0.0534 0.0314

Mercury -56306-11-07 06:57 J -18844033.32 -18844033.21 -18844033.10 0.0533 0.0270

Venus -56303-09-21 05:16 J -18842984.47 -18842984.28 -18842984.08 0.0507 0.0066

Mercury -56300-09-24 19:54 J -18841884.85 -18841884.67 -18841884.49 0.0493 0.0016

Earth -56298-02-28 03:35 J -18841363.54 -18841363.35 -18841363.15 0.0501 0.0281

Moon -56298-02-28 05:30 J -18841363.47 -18841363.27 -18841363.06 0.0501 0.0277 \*

Venus -56296-03-15 19:40 J -18840616.76 -18840616.68 -18840616.59 0.0522 0.0474

Mercury -56294-05-29 03:06 J -18839812.43 -18839812.37 -18839812.30 0.0534 0.0456

Mercury -56294-08-26 11:01 J -18839723.16 -18839723.04 -18839722.91 0.0533 0.0132

Moon -56293-08-24 20:09 J -18839358.86 -18839358.66 -18839358.45 0.0527 0.0265

Earth -56293-08-24 20:52 J -18839358.84 -18839358.63 -18839358.42 0.0527 0.0233 \*

Venus -56291-05-27 08:09 J -18838718.28 -18838718.16 -18838718.04 0.0509 0.0397

Mars -56291-11-16 11:30 J -18838545.23 -18838545.02 -18838544.79 0.0504 0.0255

Mercury -56288-07-13 17:59 J -18837574.92 -18837574.75 -18837574.58 0.0493 0.0180

Mercury -56288-10-12 00:13 J -18837484.50 -18837484.49 -18837484.46 0.0493 0.0489

Venus -56285-11-18 08:52 J -18836351.33 -18836351.13 -18836350.92 0.0520 0.0092

Mercury -56282-06-14 14:37 J -18835413.02 -18835412.89 -18835412.76 0.0533 0.0018

Moon -56281-08-29 13:25 J -18834971.14 -18834970.94 -18834970.72 0.0526 0.0163

Earth -56281-08-29 14:52 J -18834971.10 -18834970.88 -18834970.67 0.0526 0.0176 \*

Venus -56279-09-23 10:04 J -18834216.17 -18834216.08 -18834215.99 0.0504 0.0444

Mercury -56276-05-01 16:04 J -18833264.95 -18833264.83 -18833264.69 0.0493 0.0342

Mercury -56276-07-30 22:18 J -18833174.71 -18833174.57 -18833174.43 0.0493 0.0321

Venus -56273-07-23 21:35 J -18832085.77 -18832085.60 -18832085.43 0.0518 0.0293

Mars -56273-10-15 20:37 J -18832001.90 -18832001.64 -18832001.36 0.0521 0.0243

Mercury -56270-04-02 18:13 J -18831102.87 -18831102.74 -18831102.62 0.0534 0.0168

Mercury -56270-07-01 01:40 J -18831013.51 -18831013.43 -18831013.35 0.0533 0.0410

Venus -56267-05-29 13:54 J -18829950.11 -18829949.92 -18829949.73 0.0506 0.0121

Mercury -56264-05-18 20:23 J -18828864.82 -18828864.65 -18828864.48 0.0493 0.0157

Mercury -56258-01-19 21:06 J -18826792.72 -18826792.62 -18826792.52 0.0534 0.0325

Mercury -56258-04-19 04:47 J -18826703.41 -18826703.30 -18826703.18 0.0534 0.0261

Venus -56255-02-01 17:30 J -18825683.95 -18825683.77 -18825683.59 0.0508 0.0208

Mercury -56252-03-06 18:13 J -18824554.92 -18824554.74 -18824554.56 0.0493 0.0011

Venus -56249-07-26 22:33 J -18823316.73 -18823316.56 -18823316.38 0.0521 0.0297

Mercury -56247-11-08 00:42 J -18822482.52 -18822482.47 -18822482.41 0.0534 0.0470

Mercury -56246-02-05 08:52 J -18822393.26 -18822393.13 -18822393.00 0.0534 0.0119

Mercury -56241-12-23 15:35 J -18820245.02 -18820244.85 -18820244.68 0.0493 0.0182

Mercury -56240-03-23 21:49 J -18820154.61 -18820154.59 -18820154.55 0.0493 0.0486

Moon -56239-02-18 00:57 J -18819823.49 -18819823.46 -18819823.42 0.0498 0.0489

Venus -56237-03-31 12:42 J -18819051.18 -18819050.97 -18819050.77 0.0519 0.0085

Mars -56237-07-24 09:06 J -18818936.22 -18818936.12 -18818936.02 0.0523 0.0494

Mercury -56235-11-24 12:57 J -18818083.09 -18818082.96 -18818082.83 0.0534 0.0020

Venus -56231-02-03 22:47 J -18816915.71 -18816915.55 -18816915.39 0.0505 0.0305

Mercury -56229-10-11 13:40 J -18815935.05 -18815934.93 -18815934.80 0.0493 0.0346

Mercury -56228-01-09 19:40 J -18815844.82 -18815844.68 -18815844.54 0.0493 0.0316

Earth -56227-02-22 15:35 J -18815436.08 -18815435.85 -18815435.62 0.0499 0.0141

Moon -56227-02-22 17:16 J -18815436.02 -18815435.78 -18815435.54 0.0499 0.0112 \*

Venus -56226-12-05 02:09 J -18814785.49 -18814785.41 -18814785.31 0.0517 0.0462

Mercury -56223-09-12 16:18 J -18813772.94 -18813772.82 -18813772.69 0.0533 0.0170

Mercury -56223-12-10 23:59 J -18813683.58 -18813683.50 -18813683.42 0.0533 0.0408

Venus -56220-10-10 01:11 J -18812649.65 -18812649.45 -18812649.26 0.0507 0.0028  
 Mercury -56217-10-28 17:30 J -18811534.94 -18811534.77 -18811534.59 0.0493 0.0150  
 Moon -56215-02-27 03:49 J -18811048.55 -18811048.34 -18811048.13 0.0501 0.0217  
 Earth -56215-02-27 06:57 J -18811048.42 -18811048.21 -18811048.00 0.0501 0.0228 \*  
 Mercury -56211-07-01 19:40 J -18809462.78 -18809462.68 -18809462.57 0.0534 0.0321  
 Mercury -56211-09-29 03:35 J -18809373.46 -18809373.35 -18809373.24 0.0533 0.0262  
 Moon -56210-08-24 17:16 J -18809043.95 -18809043.78 -18809043.62 0.0528 0.0351  
 Earth -56210-08-24 17:45 J -18809043.93 -18809043.76 -18809043.57 0.0528 0.0319 \*  
 Venus -56208-06-15 04:04 J -18808383.47 -18808383.33 -18808383.19 0.0509 0.0356  
 Mercury -56205-08-16 15:49 J -18807225.02 -18807224.84 -18807224.66 0.0493 0.0012  
 Venus -56202-12-08 03:06 J -18806016.57 -18806016.37 -18806016.16 0.0520 0.0125  
 Mercury -56199-04-19 22:33 J -18805152.61 -18805152.56 -18805152.51 0.0534 0.0482  
 Mercury -56199-07-18 06:42 J -18805063.35 -18805063.22 -18805063.10 0.0534 0.0108  
 Earth -56198-08-29 11:59 J -18804656.23 -18804656.00 -18804655.77 0.0527 0.0097  
 Moon -56198-08-29 14:37 J -18804656.12 -18804655.89 -18804655.66 0.0527 0.0092 \*  
 Venus -56196-10-12 07:25 J -18803881.23 -18803881.19 -18803881.14 0.0504 0.0489  
 Mercury -56193-06-04 13:54 J -18802915.09 -18802914.92 -18802914.75 0.0492 0.0177  
 Mercury -56193-09-02 20:09 J -18802824.67 -18802824.66 -18802824.64 0.0493 0.0490  
 Venus -56190-08-12 16:04 J -18801751.01 -18801750.83 -18801750.65 0.0518 0.0258  
 Mercury -56187-05-06 10:33 J -18800753.19 -18800753.06 -18800752.93 0.0534 0.0037  
 Earth -56186-09-03 08:23 J -18800268.19 -18800268.15 -18800268.11 0.0525 0.0516  
 Venus -56184-06-17 10:04 J -18799615.27 -18799615.08 -18799614.89 0.0506 0.0159  
 Mercury -56181-03-23 11:01 J -18798605.16 -18798605.04 -18798604.91 0.0492 0.0351  
 Mercury -56181-06-21 17:01 J -18798514.93 -18798514.79 -18798514.65 0.0493 0.0310  
 Mercury -56175-02-22 14:23 J -18796443.02 -18796442.90 -18796442.77 0.0534 0.0176  
 Mercury -56175-05-22 22:04 J -18796353.66 -18796353.58 -18796353.50 0.0533 0.0404  
 Venus -56172-02-20 13:11 J -18795349.13 -18795348.95 -18795348.76 0.0508 0.0170  
 Mars -56172-05-08 09:35 J -18795272.34 -18795272.10 -18795271.85 0.0505 0.0087  
 Mercury -56169-04-09 14:52 J -18794205.06 -18794204.88 -18794204.71 0.0493 0.0142  
 Venus -56166-08-15 21:06 J -18792981.76 -18792981.62 -18792981.46 0.0521 0.0350

Mercury -56164-12-11 17:59 J -18792132.85 -18792132.75 -18792132.65 0.0534 0.0325

Mercury -56163-03-11 01:40 J -18792043.54 -18792043.43 -18792043.32 0.0533 0.0258

Venus -56161-10-26 14:52 J -18791082.90 -18791082.88 -18791082.86 0.0510 0.0506

Mercury -56157-01-27 12:42 J -18789895.15 -18789894.97 -18789894.78 0.0493 0.0026

Venus -56154-04-20 09:49 J -18788716.30 -18788716.09 -18788715.88 0.0519 0.0037

Mercury -56152-09-29 21:06 J -18787822.67 -18787822.62 -18787822.56 0.0534 0.0479

Mercury -56152-12-28 05:16 J -18787733.41 -18787733.28 -18787733.15 0.0533 0.0110

Venus -56148-02-22 18:13 J -18786580.89 -18786580.74 -18786580.60 0.0505 0.0342

Mercury -56146-11-15 11:16 J -18785585.20 -18785585.03 -18785584.87 0.0493 0.0183

Mercury -56145-02-13 17:30 J -18785494.80 -18785494.77 -18785494.74 0.0493 0.0485

Moon -56144-02-21 14:09 J -18785121.12 -18785120.91 -18785120.69 0.0499 0.0174

Earth -56144-02-21 17:01 J -18785121.01 -18785120.79 -18785120.57 0.0499 0.0198 \*

Venus -56143-12-23 20:52 J -18784450.75 -18784450.63 -18784450.51 0.0517 0.0426

Mercury -56140-10-16 08:09 J -18783423.29 -18783423.16 -18783423.03 0.0534 0.0049

Mercury -56139-01-13 15:35 J -18783333.86 -18783333.85 -18783333.83 0.0533 0.0528

Venus -56137-10-28 21:21 J -18782314.81 -18782314.61 -18782314.41 0.0507 0.0014

Mars -56136-02-08 20:23 J -18782211.81 -18782211.65 -18782211.48 0.0504 0.0386

Mercury -56134-09-03 09:21 J -18781275.24 -18781275.11 -18781274.98 0.0492 0.0346

Mercury -56134-12-02 15:06 J -18781185.01 -18781184.87 -18781184.73 0.0493 0.0315

Earth -56132-02-26 06:28 J -18780733.45 -18780733.23 -18780733.00 0.0500 0.0165

Moon -56132-02-26 10:18 J -18780733.29 -18780733.07 -18780732.84 0.0500 0.0147 \*

Mercury -56128-08-04 11:59 J -18779113.12 -18779113.00 -18779112.88 0.0534 0.0193

Mercury -56128-11-01 19:40 J -18779023.77 -18779023.68 -18779023.60 0.0533 0.0388

Earth -56127-08-23 14:37 J -18778729.04 -18778728.89 -18778728.74 0.0528 0.0401

Moon -56127-08-23 16:47 J -18778728.93 -18778728.80 -18778728.66 0.0528 0.0430 \*

Venus -56125-07-03 23:45 J -18778048.66 -18778048.51 -18778048.36 0.0509 0.0320

Mercury -56122-09-20 11:59 J -18776875.17 -18776875.00 -18776874.82 0.0493 0.0135

Moon -56120-03-02 15:06 J -18776345.90 -18776345.87 -18776345.84 0.0501 0.0496

Venus -56119-12-26 23:59 J -18775681.69 -18775681.50 -18775681.30 0.0521 0.0170

Mars -56118-01-08 15:21 J -18775669.16 -18775668.86 -18775668.56 0.0521 0.0080

Mercury -56116-05-23 15:49 J -18774802.94 -18774802.84 -18774802.73 0.0534 0.0334  
 Mercury -56116-08-20 23:45 J -18774713.62 -18774713.51 -18774713.40 0.0533 0.0252  
 Moon -56115-08-28 09:35 J -18774341.33 -18774341.10 -18774340.88 0.0527 0.0028  
 Earth -56115-08-28 13:11 J -18774341.18 -18774340.95 -18774340.72 0.0527 0.0029 \*  
 Mercury -56110-07-09 09:49 J -18772565.27 -18772565.09 -18772564.91 0.0493 0.0034  
 Venus -56107-08-31 13:54 J -18771416.11 -18771415.92 -18771415.73 0.0519 0.0209  
 Mercury -56104-03-11 19:25 J -18770492.74 -18770492.69 -18770492.64 0.0534 0.0483  
 Mercury -56104-06-09 03:21 J -18770403.48 -18770403.36 -18770403.23 0.0533 0.0107  
 Earth -56103-09-02 06:57 J -18769953.33 -18769953.21 -18769953.08 0.0525 0.0439  
 Moon -56103-09-02 10:47 J -18769953.14 -18769953.05 -18769952.95 0.0525 0.0475 \*  
 Venus -56101-07-06 05:01 J -18769280.47 -18769280.29 -18769280.11 0.0506 0.0194  
 Mercury -56098-04-27 07:54 J -18768255.33 -18768255.17 -18768255.00 0.0493 0.0196  
 Mercury -56098-07-26 14:09 J -18768164.95 -18768164.91 -18768164.85 0.0493 0.0473  
 Mercury -56092-03-28 06:57 J -18766093.34 -18766093.21 -18766093.08 0.0533 0.0045  
 Mercury -56092-06-25 14:09 J -18766003.91 -18766003.91 -18766003.90 0.0533 0.0531  
 Venus -56089-03-11 08:09 J -18765014.35 -18765014.16 -18765013.97 0.0508 0.0135  
 Mercury -56086-02-13 06:28 J -18763945.35 -18763945.23 -18763945.10 0.0493 0.0353  
 Mercury -56086-05-14 12:28 J -18763855.12 -18763854.98 -18763854.84 0.0493 0.0309  
 Venus -56083-09-03 15:49 J -18762646.98 -18762646.84 -18762646.70 0.0521 0.0383  
 Mercury -56080-01-14 09:49 J -18761783.21 -18761783.09 -18761782.97 0.0534 0.0204  
 Mercury -56080-04-13 17:30 J -18761693.86 -18761693.77 -18761693.68 0.0533 0.0378  
 Venus -56078-11-15 10:18 J -18760748.14 -18760748.07 -18760747.99 0.0510 0.0470  
 Mercury -56074-03-02 10:18 J -18759545.25 -18759545.07 -18759544.90 0.0493 0.0140  
 Venus -56071-05-09 04:18 J -18758381.53 -18758381.32 -18758381.12 0.0519 0.0012  
 Mercury -56069-11-02 13:25 J -18757473.04 -18757472.94 -18757472.84 0.0534 0.0350  
 Mercury -56068-01-30 21:21 J -18757383.73 -18757383.61 -18757383.50 0.0533 0.0236  
 Venus -56065-03-13 13:25 J -18756246.06 -18756245.94 -18756245.80 0.0505 0.0376  
 Mercury -56063-12-19 07:11 J -18755235.38 -18755235.20 -18755235.02 0.0493 0.0040  
 Earth -56061-02-21 14:09 J -18754806.10 -18754805.91 -18754805.71 0.0498 0.0273  
 Moon -56061-02-21 17:59 J -18754805.95 -18754805.75 -18754805.54 0.0498 0.0252 \*



Venus -56059-01-11 16:47 J -18754115.93 -18754115.80 -18754115.65 0.0518 0.0385  
 Mercury -56057-08-21 17:16 J -18753162.82 -18753162.78 -18753162.73 0.0534 0.0492  
 Mercury -56057-11-19 01:25 J -18753073.56 -18753073.44 -18753073.31 0.0534 0.0099  
 Mars -56054-10-29 05:01 J -18751999.41 -18751999.29 -18751999.15 0.0507 0.0435  
 Venus -56054-11-17 17:16 J -18751979.98 -18751979.78 -18751979.58 0.0507 0.0052  
 Mercury -56051-10-07 05:16 J -18750925.44 -18750925.28 -18750925.12 0.0493 0.0204  
 Mercury -56050-01-05 11:16 J -18750835.08 -18750835.03 -18750834.96 0.0493 0.0464  
 Moon -56049-02-26 01:11 J -18750418.68 -18750418.45 -18750418.21 0.0500 0.0073  
 Earth -56049-02-26 05:16 J -18750418.52 -18750418.28 -18750418.05 0.0500 0.0095 \*  
 Mercury -56045-09-07 05:16 J -18748763.41 -18748763.28 -18748763.15 0.0533 0.0048  
 Mercury -56045-12-05 12:28 J -18748673.99 -18748673.98 -18748673.96 0.0533 0.0529  
 Moon -56044-08-22 11:16 J -18748414.08 -18748414.03 -18748413.97 0.0528 0.0509  
 Earth -56044-08-22 14:37 J -18748413.98 -18748413.89 -18748413.79 0.0528 0.0476 \*  
 Venus -56042-07-23 19:11 J -18747713.86 -18747713.70 -18747713.53 0.0508 0.0282  
 Mercury -56039-07-26 03:21 J -18746615.47 -18746615.36 -18746615.23 0.0493 0.0366  
 Mercury -56039-10-24 09:21 J -18746525.26 -18746525.11 -18746524.97 0.0493 0.0296  
 Earth -56037-03-01 21:06 J -18746030.70 -18746030.62 -18746030.54 0.0501 0.0470  
 Moon -56037-03-01 23:59 J -18746030.60 -18746030.50 -18746030.39 0.0501 0.0444 \*  
 Venus -56035-01-14 22:04 J -18745346.77 -18745346.58 -18745346.39 0.0520 0.0221  
 Mercury -56033-06-26 08:37 J -18744453.26 -18744453.14 -18744453.02 0.0534 0.0197  
 Mercury -56033-09-23 16:18 J -18744363.91 -18744363.82 -18744363.73 0.0533 0.0383  
 Earth -56032-08-27 09:49 J -18744026.31 -18744026.09 -18744025.86 0.0527 0.0058  
 Moon -56032-08-27 13:54 J -18744026.15 -18744025.92 -18744025.69 0.0527 0.0050 \*  
 Mercury -56027-08-12 07:40 J -18742215.36 -18742215.18 -18742215.01 0.0493 0.0135  
 Venus -56024-09-19 09:49 J -18741081.29 -18741081.09 -18741080.89 0.0518 0.0169  
 Mercury -56021-04-14 11:30 J -18740143.12 -18740143.02 -18740142.93 0.0534 0.0357  
 Mercury -56021-07-12 19:25 J -18740053.81 -18740053.69 -18740053.58 0.0533 0.0229  
 Moon -56020-08-31 23:16 J -18739638.69 -18739638.53 -18739638.37 0.0526 0.0387  
 Earth -56020-09-01 02:52 J -18739638.55 -18739638.38 -18739638.21 0.0526 0.0354 \*  
 Venus -56018-07-26 00:57 J -18738945.63 -18738945.46 -18738945.28 0.0506 0.0233

Mars -56018-08-01 14:37 J -18738939.14 -18738938.89 -18738938.64 0.0506 0.0035

Mercury -56015-05-31 05:30 J -18737905.45 -18737905.27 -18737905.09 0.0493 0.0034

Mercury -56009-02-01 14:52 J -18735832.91 -18735832.88 -18735832.83 0.0534 0.0506

Mercury -56009-04-30 23:16 J -18735743.66 -18735743.53 -18735743.41 0.0534 0.0087

Venus -56006-03-31 04:04 J -18734679.52 -18734679.33 -18734679.13 0.0508 0.0097

Mercury -56003-03-19 02:37 J -18733595.55 -18733595.39 -18733595.23 0.0493 0.0209

Mercury -56003-06-17 08:37 J -18733505.20 -18733505.14 -18733505.07 0.0493 0.0457

# 56TH MILLENNIUM BCE

This is a list of transits visible from Jupiter in the 56th millennium BCE.

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Venus	-56000-09-22 12:28 J	-18732312.09	-18732311.98	-18732311.86	0.0522	0.0428		
Mercury	-55997-02-18 03:21 J	-18731433.49	-18731433.36	-18731433.23	0.0534	0.0052		
Mercury	-55997-05-17 10:47 J	-18731344.07	-18731344.05	-18731344.03	0.0533	0.0525		
Venus	-55995-12-04 07:25 J	-18730413.29	-18730413.19	-18730413.08	0.0509	0.0424		
Mercury	-55991-01-05 00:57 J	-18729285.58	-18729285.46	-18729285.34	0.0492	0.0371		
Mercury	-55991-04-05 06:28 J	-18729195.37	-18729195.23	-18729195.08	0.0493	0.0290		
Venus	-55988-05-28 02:23 J	-18728046.61	-18728046.40	-18728046.19	0.0520	0.0049		
Mercury	-55986-12-07 06:57 J	-18727123.33	-18727123.21	-18727123.08	0.0534	0.0198		
Mercury	-55985-03-05 14:37 J	-18727033.97	-18727033.89	-18727033.80	0.0533	0.0384		
Venus	-55982-04-02 10:04 J	-18725911.19	-18725911.08	-18725910.97	0.0505	0.0416		
Mercury	-55979-01-22 04:47 J	-18724885.48	-18724885.30	-18724885.13	0.0493	0.0125		

Moon -55978-02-20 13:54 J -18724491.10 -18724490.92 -18724490.73 0.0498 0.0311  
 Earth -55978-02-20 17:45 J -18724490.93 -18724490.76 -18724490.57 0.0498 0.0328 \*  
 Venus -55976-01-30 16:04 J -18723780.99 -18723780.83 -18723780.67 0.0518 0.0328  
 Mercury -55974-09-25 10:33 J -18722813.16 -18722813.06 -18722812.96 0.0534 0.0348  
 Mercury -55974-12-23 18:13 J -18722723.85 -18722723.74 -18722723.62 0.0533 0.0239  
 Venus -55971-12-06 12:57 J -18721645.15 -18721644.96 -18721644.76 0.0507 0.0092  
 Mercury -55968-11-10 03:06 J -18720575.55 -18720575.37 -18720575.19 0.0493 0.0036  
 Earth -55966-02-25 09:21 J -18720103.34 -18720103.11 -18720102.87 0.0499 0.0046  
 Moon -55966-02-25 12:28 J -18720103.21 -18720102.98 -18720102.75 0.0499 0.0023 \*  
 Mars -55964-04-02 23:59 J -18719335.80 -18719335.50 -18719335.20 0.0520 0.0112  
 Mercury -55962-07-14 13:25 J -18718502.98 -18718502.94 -18718502.91 0.0534 0.0508  
 Mercury -55962-10-11 21:35 J -18718413.73 -18718413.60 -18718413.48 0.0533 0.0084  
 Venus -55959-08-11 15:35 J -18717379.02 -18717378.85 -18717378.67 0.0509 0.0242  
 Mercury -55956-08-29 01:25 J -18716265.61 -18716265.44 -18716265.28 0.0493 0.0199  
 Mercury -55956-11-27 07:25 J -18716175.24 -18716175.19 -18716175.13 0.0493 0.0469  
 Moon -55954-03-01 21:49 J -18715715.74 -18715715.59 -18715715.43 0.0500 0.0388  
 Earth -55954-03-01 23:45 J -18715715.64 -18715715.51 -18715715.38 0.0500 0.0414 \*  
 Venus -55952-02-02 18:42 J -18715011.90 -18715011.72 -18715011.54 0.0520 0.0263  
 Mercury -55950-07-31 01:11 J -18714103.58 -18714103.45 -18714103.32 0.0534 0.0062  
 Mercury -55950-10-28 08:52 J -18714014.16 -18714014.13 -18714014.11 0.0533 0.0516  
 Moon -55949-08-26 05:45 J -18713711.49 -18713711.26 -18713711.03 0.0528 0.0128  
 Earth -55949-08-26 09:21 J -18713711.33 -18713711.11 -18713710.88 0.0528 0.0133 \*  
 Mercury -55944-06-16 22:33 J -18711955.67 -18711955.56 -18711955.44 0.0492 0.0373  
 Mercury -55944-09-15 04:18 J -18711865.47 -18711865.32 -18711865.18 0.0493 0.0287  
 Venus -55941-10-08 06:28 J -18710746.43 -18710746.23 -18710746.02 0.0519 0.0123  
 Mercury -55938-05-19 05:16 J -18709793.40 -18709793.28 -18709793.16 0.0534 0.0201  
 Mercury -55938-08-16 12:57 J -18709704.04 -18709703.96 -18709703.87 0.0533 0.0383  
 Earth -55937-08-31 08:37 J -18709323.32 -18709323.14 -18709322.95 0.0526 0.0302  
 Moon -55937-08-31 10:47 J -18709323.21 -18709323.05 -18709322.87 0.0526 0.0336 \*  
 Venus -55935-08-13 23:16 J -18708610.69 -18708610.53 -18708610.36 0.0505 0.0280

Mercury -55932-07-04 02:23 J -18707555.58 -18707555.40 -18707555.23 0.0493 0.0122

Venus -55929-06-12 20:37 J -18706480.69 -18706480.64 -18706480.57 0.0517 0.0494

Mercury -55926-03-07 09:06 J -18705483.22 -18705483.12 -18705483.02 0.0534 0.0345

Mercury -55926-06-04 17:01 J -18705393.90 -18705393.79 -18705393.68 0.0533 0.0242

Venus -55923-04-19 01:54 J -18704344.62 -18704344.42 -18704344.22 0.0507 0.0048

Mercury -55920-04-22 00:28 J -18703245.65 -18703245.48 -18703245.29 0.0493 0.0043

Venus -55917-10-11 13:11 J -18701977.02 -18701976.95 -18701976.88 0.0522 0.0489

Mercury -55915-12-24 12:28 J -18701173.02 -18701172.98 -18701172.93 0.0534 0.0495

Mercury -55914-03-23 20:37 J -18701083.76 -18701083.64 -18701083.51 0.0533 0.0097

Venus -55912-12-23 04:33 J -18700078.44 -18700078.31 -18700078.18 0.0509 0.0378

Mercury -55908-02-07 23:16 J -18698935.70 -18698935.53 -18698935.37 0.0493 0.0199

Mercury -55908-05-09 05:30 J -18698845.33 -18698845.27 -18698845.22 0.0493 0.0470

Venus -55905-06-16 01:25 J -18697711.65 -18697711.44 -18697711.24 0.0519 0.0103

Mercury -55902-01-09 23:45 J -18696773.63 -18696773.51 -18696773.38 0.0533 0.0061

Mercury -55902-04-09 07:11 J -18696684.22 -18696684.20 -18696684.17 0.0533 0.0518

Mars -55899-01-21 17:30 J -18695665.97 -18695665.77 -18695665.56 0.0507 0.0297

Venus -55899-04-21 07:40 J -18695576.26 -18695576.18 -18695576.10 0.0505 0.0461

Mercury -55897-11-26 21:35 J -18694625.72 -18694625.60 -18694625.47 0.0493 0.0359

Mercury -55896-02-25 03:21 J -18694535.50 -18694535.36 -18694535.22 0.0493 0.0303

Earth -55895-02-19 23:16 J -18694175.67 -18694175.53 -18694175.37 0.0498 0.0375

Moon -55895-02-20 02:37 J -18694175.55 -18694175.39 -18694175.23 0.0498 0.0362 \*

Venus -55893-02-19 14:23 J -18693446.08 -18693445.90 -18693445.72 0.0517 0.0277

Mercury -55891-10-29 03:35 J -18692463.47 -18692463.35 -18692463.23 0.0534 0.0204

Mercury -55890-01-26 11:16 J -18692374.12 -18692374.03 -18692373.94 0.0533 0.0379

Venus -55888-12-25 11:16 J -18691310.22 -18691310.03 -18691309.84 0.0506 0.0140

Mercury -55885-12-14 00:13 J -18690225.66 -18690225.49 -18690225.31 0.0493 0.0124

Moon -55883-02-24 07:11 J -18689788.44 -18689788.20 -18689787.96 0.0499 0.0046

Earth -55883-02-24 09:21 J -18689788.35 -18689788.11 -18689787.87 0.0499 0.0022 \*

Mercury -55879-08-17 07:25 J -18688153.28 -18688153.19 -18688153.09 0.0534 0.0346

Mercury -55879-11-14 15:35 J -18688063.97 -18688063.85 -18688063.74 0.0534 0.0244

Venus -55876-08-30 15:49 J -18687044.02 -18687043.84 -18687043.65 0.0508 0.0182  
 Mercury -55873-10-01 22:33 J -18685915.73 -18685915.56 -18685915.37 0.0493 0.0041  
 Earth -55871-03-01 00:57 J -18685400.62 -18685400.46 -18685400.28 0.0500 0.0353  
 Moon -55871-03-01 01:11 J -18685400.62 -18685400.45 -18685400.28 0.0500 0.0336 \*  
 Venus -55869-02-22 18:28 J -18684676.89 -18684676.73 -18684676.57 0.0521 0.0322  
 Mercury -55867-06-05 11:16 J -18683843.08 -18683843.03 -18683842.98 0.0534 0.0489  
 Mercury -55867-09-02 19:25 J -18683753.81 -18683753.69 -18683753.56 0.0534 0.0106  
 Earth -55866-08-26 17:01 J -18683396.01 -18683395.79 -18683395.57 0.0528 0.0180  
 Moon -55866-08-26 19:40 J -18683395.89 -18683395.68 -18683395.47 0.0528 0.0169 \*  
 Mars -55864-10-25 11:30 J -18682605.25 -18682605.02 -18682604.78 0.0505 0.0192  
 Mercury -55861-07-20 21:06 J -18681605.78 -18681605.62 -18681605.46 0.0493 0.0199  
 Mercury -55861-10-19 03:06 J -18681515.42 -18681515.37 -18681515.31 0.0493 0.0469  
 Venus -55858-10-28 08:37 J -18680411.35 -18680411.14 -18680410.94 0.0519 0.0055  
 Mercury -55855-06-21 23:16 J -18679443.66 -18679443.53 -18679443.40 0.0534 0.0042  
 Moon -55854-08-31 12:28 J -18679008.18 -18679007.98 -18679007.77 0.0526 0.0270  
 Earth -55854-08-31 12:57 J -18679008.16 -18679007.96 -18679007.75 0.0526 0.0244 \*  
 Venus -55852-09-01 21:35 J -18678275.75 -18678275.60 -18678275.45 0.0505 0.0330  
 Mercury -55849-05-08 19:54 J -18677295.79 -18677295.67 -18677295.55 0.0493 0.0355  
 Mercury -55849-08-07 01:25 J -18677205.58 -18677205.44 -18677205.29 0.0493 0.0308  
 Venus -55846-07-02 21:49 J -18676145.70 -18676145.59 -18676145.47 0.0517 0.0431  
 Mars -55846-09-19 05:59 J -18676067.43 -18676067.25 -18676067.06 0.0519 0.0408  
 Mercury -55843-04-10 02:23 J -18675133.52 -18675133.40 -18675133.28 0.0534 0.0197  
 Mercury -55843-07-08 10:04 J -18675044.17 -18675044.08 -18675043.99 0.0533 0.0386  
 Venus -55840-05-08 00:28 J -18674009.68 -18674009.48 -18674009.28 0.0507 0.0004  
 Mercury -55837-05-25 23:45 J -18672895.68 -18672895.51 -18672895.34 0.0493 0.0143  
 Mercury -55831-01-27 05:59 J -18670823.35 -18670823.25 -18670823.15 0.0534 0.0344  
 Mercury -55831-04-26 13:54 J -18670734.03 -18670733.92 -18670733.80 0.0533 0.0246  
 Venus -55828-01-11 04:18 J -18669743.47 -18669743.32 -18669743.17 0.0509 0.0323  
 Mercury -55825-03-13 21:06 J -18668585.80 -18668585.62 -18668585.44 0.0492 0.0034  
 Venus -55822-07-05 23:45 J -18667376.71 -18667376.51 -18667376.31 0.0520 0.0156

Mercury -55820-11-15 09:49 J -18666513.14 -18666513.09 -18666513.03 0.0535 0.0487  
 Mercury -55819-02-12 18:13 J -18666423.87 -18666423.74 -18666423.62 0.0534 0.0108  
 Mercury -55814-12-31 19:25 J -18664275.85 -18664275.69 -18664275.52 0.0492 0.0192  
 Mercury -55813-03-31 01:25 J -18664185.48 -18664185.44 -18664185.39 0.0493 0.0475  
 Moon -55812-02-19 00:42 J -18663860.59 -18663860.47 -18663860.34 0.0498 0.0420  
 Earth -55812-02-19 02:52 J -18663860.49 -18663860.38 -18663860.26 0.0498 0.0432 \*  
 Venus -55810-03-10 14:23 J -18663111.09 -18663110.90 -18663110.71 0.0518 0.0217  
 Mars -55810-06-28 03:49 J -18663001.55 -18663001.34 -18663001.10 0.0522 0.0339  
 Mercury -55808-12-01 22:18 J -18662113.70 -18662113.57 -18662113.44 0.0534 0.0035  
 Venus -55804-01-13 11:59 J -18660975.18 -18660975.00 -18660974.81 0.0506 0.0200  
 Mercury -55802-10-19 17:59 J -18659965.87 -18659965.75 -18659965.62 0.0492 0.0350  
 Mercury -55801-01-17 23:45 J -18659875.65 -18659875.51 -18659875.37 0.0493 0.0311  
 Earth -55800-02-23 18:42 J -18659472.95 -18659472.72 -18659472.48 0.0499 0.0057  
 Moon -55800-02-23 18:57 J -18659472.94 -18659472.71 -18659472.49 0.0499 0.0083 \*  
 Mercury -55796-09-20 01:54 J -18657803.54 -18657803.42 -18657803.30 0.0534 0.0177  
 Mercury -55796-12-18 09:35 J -18657714.18 -18657714.10 -18657714.02 0.0533 0.0406  
 Venus -55793-09-18 15:21 J -18656709.05 -18656708.86 -18656708.66 0.0508 0.0126  
 Mercury -55790-11-05 22:18 J -18655565.75 -18655565.57 -18655565.40 0.0493 0.0151  
 Earth -55788-02-28 11:45 J -18655085.19 -18655085.01 -18655084.83 0.0500 0.0322  
 Moon -55788-02-28 13:54 J -18655085.10 -18655084.92 -18655084.72 0.0500 0.0316 \*  
 Venus -55786-03-13 20:52 J -18654341.77 -18654341.63 -18654341.49 0.0521 0.0391  
 Mercury -55784-07-09 05:16 J -18653493.39 -18653493.28 -18653493.18 0.0534 0.0332  
 Mercury -55784-10-06 13:11 J -18653404.07 -18653403.95 -18653403.84 0.0533 0.0256  
 Moon -55783-08-25 19:54 J -18653080.89 -18653080.67 -18653080.45 0.0528 0.0227  
 Earth -55783-08-25 20:52 J -18653080.83 -18653080.63 -18653080.42 0.0528 0.0242 \*  
 Venus -55781-05-24 17:45 J -18652442.84 -18652442.76 -18652442.67 0.0510 0.0458  
 Mercury -55778-08-24 20:37 J -18651255.82 -18651255.64 -18651255.46 0.0493 0.0011  
 Venus -55775-11-16 09:35 J -18650076.31 -18650076.10 -18650075.89 0.0519 0.0010  
 Mercury -55772-04-27 08:52 J -18649183.19 -18649183.13 -18649183.08 0.0534 0.0479  
 Mercury -55772-07-25 17:01 J -18649093.92 -18649093.79 -18649093.67 0.0534 0.0114

Moon -55771-08-30 17:45 J -18648692.96 -18648692.76 -18648692.56 0.0527 0.0215  
 Earth -55771-08-30 19:11 J -18648692.91 -18648692.70 -18648692.48 0.0527 0.0192 \*  
 Venus -55769-09-20 22:18 J -18647940.69 -18647940.57 -18647940.44 0.0505 0.0390  
 Mercury -55766-06-12 18:13 J -18646945.91 -18646945.74 -18646945.57 0.0492 0.0181  
 Mercury -55766-09-10 23:59 J -18646855.52 -18646855.50 -18646855.46 0.0493 0.0485  
 Venus -55763-07-21 20:23 J -18645810.78 -18645810.65 -18645810.50 0.0517 0.0377  
 Mercury -55760-05-13 20:52 J -18644783.76 -18644783.63 -18644783.50 0.0534 0.0031  
 Venus -55757-05-27 03:21 J -18643674.55 -18643674.36 -18643674.16 0.0507 0.0074  
 Mercury -55754-03-31 17:01 J -18642635.92 -18642635.79 -18642635.66 0.0492 0.0338  
 Mercury -55754-06-29 22:33 J -18642545.70 -18642545.56 -18642545.43 0.0493 0.0322  
 Mercury -55748-03-02 00:57 J -18640473.58 -18640473.46 -18640473.33 0.0534 0.0166  
 Mercury -55748-05-30 08:37 J -18640384.21 -18640384.14 -18640384.06 0.0533 0.0418  
 Venus -55745-01-31 06:28 J -18639408.40 -18639408.23 -18639408.06 0.0509 0.0255  
 Mars -55745-04-17 06:42 J -18639331.47 -18639331.22 -18639330.98 0.0506 0.0105  
 Mercury -55742-04-17 20:37 J -18638235.81 -18638235.64 -18638235.46 0.0493 0.0160  
 Venus -55739-07-25 04:18 J -18637041.51 -18637041.32 -18637041.13 0.0521 0.0236  
 Mercury -55737-12-19 04:47 J -18636163.41 -18636163.30 -18636163.20 0.0534 0.0311  
 Mercury -55736-03-18 12:42 J -18636074.08 -18636073.97 -18636073.86 0.0533 0.0277  
 Mercury -55730-02-03 19:25 J -18633925.87 -18633925.69 -18633925.51 0.0493 0.0007  
 Earth -55729-02-19 14:52 J -18633544.96 -18633544.88 -18633544.78 0.0498 0.0457  
 Moon -55729-02-19 15:06 J -18633544.95 -18633544.87 -18633544.78 0.0498 0.0456 \*  
 Venus -55727-03-29 18:13 J -18632775.94 -18632775.74 -18632775.54 0.0518 0.0141  
 Mercury -55725-10-07 07:54 J -18631853.23 -18631853.17 -18631853.11 0.0534 0.0465  
 Mercury -55724-01-04 16:04 J -18631763.95 -18631763.83 -18631763.70 0.0533 0.0128  
 Venus -55721-02-02 12:28 J -18630640.14 -18630639.98 -18630639.80 0.0506 0.0259  
 Mercury -55719-11-22 17:59 J -18629615.92 -18629615.75 -18629615.58 0.0493 0.0159  
 Earth -55717-02-24 05:45 J -18629157.49 -18629157.26 -18629157.03 0.0499 0.0088  
 Moon -55717-02-24 07:54 J -18629157.41 -18629157.17 -18629156.93 0.0499 0.0116 \*  
 Venus -55716-12-02 07:25 J -18628510.20 -18628510.19 -18628510.17 0.0516 0.0514  
 Mercury -55713-10-23 19:54 J -18627453.80 -18627453.67 -18627453.54 0.0534 0.0019

Venus -55710-10-08 17:16 J -18626373.98 -18626373.78 -18626373.59 0.0508 0.0061  
 Mars -55709-01-19 23:16 J -18626270.69 -18626270.53 -18626270.37 0.0505 0.0381  
 Mercury -55707-09-10 15:49 J -18625305.97 -18625305.84 -18625305.70 0.0492 0.0325  
 Mercury -55707-12-09 21:21 J -18625215.74 -18625215.61 -18625215.48 0.0493 0.0335  
 Moon -55705-02-28 13:11 J -18624770.15 -18624769.95 -18624769.75 0.0499 0.0269  
 Earth -55705-02-28 16:33 J -18624770.00 -18624769.81 -18624769.60 0.0499 0.0273 \*  
 Venus -55703-04-01 20:09 J -18624006.76 -18624006.66 -18624006.55 0.0522 0.0450  
 Mercury -55701-08-11 23:45 J -18623143.63 -18623143.51 -18623143.38 0.0535 0.0160  
 Mercury -55701-11-09 07:25 J -18623054.26 -18623054.19 -18623054.11 0.0534 0.0426  
 Moon -55700-08-25 08:09 J -18622765.36 -18622765.16 -18622764.97 0.0529 0.0249  
 Earth -55700-08-25 09:21 J -18622765.30 -18622765.11 -18622764.91 0.0529 0.0273 \*  
 Venus -55698-06-13 21:49 J -18622107.72 -18622107.59 -18622107.46 0.0510 0.0382  
 Mercury -55695-06-29 14:52 J -18620995.92 -18620995.88 -18620995.85 0.0492 0.0479  
 Mercury -55695-09-27 19:40 J -18620905.85 -18620905.68 -18620905.51 0.0492 0.0174  
 Venus -55692-12-05 10:33 J -18619741.27 -18619741.06 -18619740.86 0.0520 0.0075  
 Mars -55692-12-13 19:54 J -18619732.96 -18619732.67 -18619732.38 0.0520 0.0165  
 Mercury -55689-05-31 03:49 J -18618833.45 -18618833.34 -18618833.23 0.0535 0.0300  
 Mercury -55689-08-28 11:45 J -18618744.11 -18618744.01 -18618743.90 0.0534 0.0290  
 Earth -55688-08-30 08:23 J -18618377.37 -18618377.15 -18618376.93 0.0527 0.0167  
 Moon -55688-08-30 11:45 J -18618377.23 -18618377.01 -18618376.79 0.0527 0.0185 \*  
 Venus -55686-10-11 00:57 J -18617605.54 -18617605.46 -18617605.38 0.0504 0.0457  
 Mercury -55683-07-16 18:13 J -18616595.92 -18616595.74 -18616595.56 0.0492 0.0016  
 Venus -55680-08-10 01:40 J -18615475.60 -18615475.43 -18615475.26 0.0518 0.0295  
 Mercury -55677-03-19 07:25 J -18614523.26 -18614523.19 -18614523.11 0.0534 0.0445  
 Mercury -55677-06-16 15:49 J -18614433.97 -18614433.84 -18614433.72 0.0534 0.0149  
 Venus -55674-06-16 04:33 J -18613339.50 -18613339.31 -18613339.12 0.0506 0.0136  
 Mercury -55671-05-04 16:47 J -18612285.97 -18612285.80 -18612285.63 0.0493 0.0146  
 Mercury -55665-04-04 19:11 J -18610123.83 -18610123.70 -18610123.57 0.0534 0.0006  
 Venus -55662-02-19 07:25 J -18609073.37 -18609073.19 -18609073.01 0.0509 0.0193  
 Mercury -55659-02-20 15:35 J -18607975.99 -18607975.85 -18607975.71 0.0492 0.0304



Mercury -55659-05-21 21:06 J -18607885.74 -18607885.62 -18607885.50 0.0493 0.0359  
 Venus -55656-08-13 06:57 J -18606706.38 -18606706.21 -18606706.04 0.0521 0.0306  
 Mercury -55653-01-22 23:01 J -18605813.67 -18605813.54 -18605813.42 0.0534 0.0148  
 Mercury -55653-04-21 06:42 J -18605724.29 -18605724.22 -18605724.15 0.0533 0.0436  
 Mercury -55648-12-09 13:40 J -18603665.98 -18603665.93 -18603665.87 0.0492 0.0465  
 Mercury -55647-03-09 18:42 J -18603575.88 -18603575.72 -18603575.55 0.0492 0.0189  
 Venus -55644-04-17 17:16 J -18602440.98 -18602440.78 -18602440.57 0.0519 0.0085  
 Mercury -55642-11-11 02:37 J -18601503.50 -18601503.39 -18601503.28 0.0535 0.0295  
 Mercury -55641-02-08 10:33 J -18601414.16 -18601414.06 -18601413.95 0.0534 0.0297  
 Venus -55638-02-21 16:47 J -18600304.95 -18600304.80 -18600304.65 0.0505 0.0334  
 Mercury -55636-12-26 17:16 J -18599265.96 -18599265.78 -18599265.60 0.0492 0.0029  
 Moon -55634-02-23 09:06 J -18598842.33 -18598842.12 -18598841.90 0.0498 0.0162  
 Earth -55634-02-23 12:42 J -18598842.20 -18598841.97 -18598841.74 0.0498 0.0130 \*  
 Venus -55633-12-21 07:54 J -18598175.27 -18598175.17 -18598175.07 0.0517 0.0452  
 Mercury -55630-08-30 06:28 J -18597193.30 -18597193.23 -18597193.15 0.0535 0.0435  
 Mercury -55630-11-27 14:52 J -18597104.01 -18597103.88 -18597103.76 0.0534 0.0160  
 Mars -55627-10-09 06:57 J -18596057.37 -18596057.21 -18596057.05 0.0508 0.0391  
 Venus -55627-10-27 20:09 J -18596038.85 -18596038.66 -18596038.46 0.0507 0.0013  
 Mercury -55624-10-14 15:35 J -18594956.02 -18594955.85 -18594955.67 0.0492 0.0133  
 Earth -55622-02-28 04:33 J -18594454.51 -18594454.31 -18594454.10 0.0499 0.0248  
 Moon -55622-02-28 08:52 J -18594454.33 -18594454.13 -18594453.93 0.0499 0.0252 \*  
 Mercury -55618-09-15 18:42 J -18592793.85 -18592793.72 -18592793.59 0.0534 0.0021  
 Earth -55617-08-24 20:09 J -18592449.85 -18592449.66 -18592449.47 0.0529 0.0308  
 Moon -55617-08-24 23:16 J -18592449.73 -18592449.53 -18592449.32 0.0529 0.0274 \*  
 Venus -55615-07-02 23:16 J -18591772.68 -18591772.53 -18591772.37 0.0509 0.0317  
 Mercury -55612-08-02 14:23 J -18590646.04 -18590645.90 -18590645.75 0.0492 0.0290  
 Mercury -55612-10-31 19:54 J -18590555.78 -18590555.67 -18590555.55 0.0493 0.0372  
 Venus -55609-12-24 15:21 J -18589406.06 -18589405.86 -18589405.66 0.0520 0.0154  
 Mercury -55606-07-04 22:04 J -18588483.70 -18588483.58 -18588483.45 0.0534 0.0133  
 Mercury -55606-10-02 05:45 J -18588394.32 -18588394.26 -18588394.19 0.0533 0.0452

Moon -55605-08-29 11:30 J -18588062.24 -18588062.02 -18588061.79 0.0527 0.0134  
 Earth -55605-08-29 15:35 J -18588062.07 -18588061.85 -18588061.63 0.0527 0.0118 \*  
 Mercury -55600-05-21 13:11 J -18586336.02 -18586335.95 -18586335.87 0.0492 0.0446  
 Mercury -55600-08-19 18:28 J -18586245.90 -18586245.73 -18586245.57 0.0493 0.0210  
 Venus -55597-08-29 04:33 J -18585140.50 -18585140.31 -18585140.12 0.0518 0.0223  
 Mercury -55594-04-23 01:40 J -18584173.54 -18584173.43 -18584173.31 0.0534 0.0281  
 Mercury -55594-07-21 09:49 J -18584084.20 -18584084.09 -18584083.99 0.0534 0.0309  
 Moon -55593-09-03 16:18 J -18583673.83 -18583673.82 -18583673.78 0.0526 0.0523  
 Venus -55591-07-05 06:42 J -18583004.40 -18583004.22 -18583004.04 0.0506 0.0202  
 Mars -55591-07-12 23:16 J -18582996.78 -18582996.53 -18582996.29 0.0506 0.0094  
 Mercury -55588-06-07 16:18 J -18581936.00 -18581935.82 -18581935.64 0.0492 0.0043  
 Mercury -55582-02-09 05:01 J -18579863.36 -18579863.29 -18579863.21 0.0535 0.0432  
 Mercury -55582-05-09 13:25 J -18579774.06 -18579773.94 -18579773.81 0.0535 0.0165  
 Venus -55579-03-10 11:30 J -18578738.21 -18578738.02 -18578737.83 0.0508 0.0117  
 Mercury -55576-03-26 14:52 J -18577626.05 -18577625.88 -18577625.70 0.0492 0.0116  
 Venus -55573-09-01 07:11 J -18576371.34 -18576371.20 -18576371.05 0.0521 0.0368  
 Mercury -55570-02-25 17:30 J -18575463.90 -18575463.77 -18575463.64 0.0535 0.0030  
 Venus -55568-11-13 14:23 J -18574471.99 -18574471.90 -18574471.80 0.0510 0.0446  
 Mercury -55564-01-12 13:11 J -18573316.09 -18573315.95 -18573315.80 0.0492 0.0277  
 Mercury -55564-04-12 18:42 J -18573225.83 -18573225.72 -18573225.60 0.0493 0.0385  
 Venus -55561-05-06 22:04 J -18572105.79 -18572105.58 -18572105.37 0.0519 0.0007  
 Mercury -55559-12-14 21:35 J -18571153.73 -18571153.60 -18571153.48 0.0534 0.0116  
 Mercury -55558-03-14 05:16 J -18571064.34 -18571064.28 -18571064.22 0.0534 0.0469  
 Venus -55555-03-12 17:45 J -18569969.88 -18569969.76 -18569969.64 0.0505 0.0394  
 Mercury -55553-10-31 11:59 J -18569006.08 -18569006.00 -18569005.91 0.0492 0.0433  
 Mercury -55552-01-29 17:01 J -18568915.95 -18568915.79 -18568915.62 0.0493 0.0223  
 Earth -55551-02-23 00:42 J -18568526.70 -18568526.47 -18568526.25 0.0498 0.0155  
 Moon -55551-02-23 04:47 J -18568526.52 -18568526.30 -18568526.08 0.0498 0.0183 \*  
 Venus -55549-01-10 12:28 J -18567840.12 -18567839.98 -18567839.83 0.0517 0.0374  
 Mercury -55547-10-03 00:57 J -18566843.57 -18566843.46 -18566843.35 0.0534 0.0267

Mercury -55547-12-31 08:52 J -18566754.23 -18566754.13 -18566754.03 0.0534 0.0322  
 Venus -55544-11-15 20:37 J -18565703.84 -18565703.64 -18565703.44 0.0507 0.0069  
 Mercury -55541-11-17 15:35 J -18564606.03 -18564605.85 -18564605.67 0.0492 0.0061  
 Moon -55539-02-27 11:59 J -18564139.21 -18564139.00 -18564138.78 0.0499 0.0222  
 Earth -55539-02-27 15:49 J -18564139.05 -18564138.84 -18564138.63 0.0499 0.0218 \*  
 Mars -55537-03-10 02:23 J -18563397.69 -18563397.40 -18563397.10 0.0520 0.0122  
 Mercury -55535-07-22 04:18 J -18562533.40 -18562533.32 -18562533.24 0.0535 0.0417  
 Mercury -55535-10-19 12:42 J -18562444.09 -18562443.97 -18562443.85 0.0534 0.0178  
 Moon -55534-08-24 22:18 J -18562134.75 -18562134.57 -18562134.39 0.0529 0.0330  
 Earth -55534-08-25 02:09 J -18562134.57 -18562134.41 -18562134.24 0.0529 0.0363 \*  
 Venus -55532-07-22 00:42 J -18561437.64 -18561437.47 -18561437.29 0.0509 0.0253  
 Mercury -55529-09-05 13:54 J -18560296.10 -18560295.92 -18560295.75 0.0492 0.0102  
 Venus -55525-01-13 13:40 J -18559071.12 -18559070.93 -18559070.74 0.0520 0.0207  
 Mercury -55523-08-07 16:04 J -18558133.96 -18558133.83 -18558133.70 0.0535 0.0029  
 Earth -55522-08-30 00:28 J -18557746.70 -18557746.48 -18557746.25 0.0529 0.0079  
 Moon -55522-08-30 04:18 J -18557746.54 -18557746.32 -18557746.09 0.0529 0.0091 \*  
 Mercury -55517-06-24 12:28 J -18555986.13 -18555985.98 -18555985.83 0.0492 0.0260  
 Mercury -55517-09-22 17:45 J -18555895.86 -18555895.76 -18555895.65 0.0492 0.0400  
 Venus -55514-09-18 03:35 J -18554805.55 -18554805.35 -18554805.15 0.0518 0.0167  
 Mercury -55511-05-26 20:09 J -18553823.79 -18553823.66 -18553823.53 0.0535 0.0112  
 Mercury -55511-08-24 03:49 J -18553734.39 -18553734.34 -18553734.28 0.0534 0.0475  
 Moon -55510-09-03 20:23 J -18553358.73 -18553358.65 -18553358.55 0.0527 0.0487  
 Earth -55510-09-03 23:16 J -18553358.57 -18553358.53 -18553358.49 0.0527 0.0517 \*  
 Venus -55508-07-24 08:37 J -18552669.31 -18552669.14 -18552668.97 0.0506 0.0266  
 Mercury -55505-04-12 10:47 J -18551676.14 -18551676.05 -18551675.96 0.0492 0.0422  
 Mercury -55505-07-11 15:49 J -18551586.00 -18551585.84 -18551585.68 0.0492 0.0233  
 Mercury -55499-03-14 23:59 J -18549513.61 -18549513.50 -18549513.38 0.0535 0.0255  
 Mercury -55499-06-12 07:54 J -18549424.26 -18549424.17 -18549424.06 0.0534 0.0336  
 Venus -55496-03-29 11:59 J -18548403.20 -18548403.00 -18548402.81 0.0508 0.0059  
 Mercury -55493-04-29 14:09 J -18547276.09 -18547275.91 -18547275.73 0.0492 0.0071

Venus -55490-09-21 11:01 J -18546036.15 -18546036.04 -18546035.93 0.0521 0.0442

Mercury -55487-01-01 03:21 J -18545203.44 -18545203.36 -18545203.28 0.0535 0.0407

Mercury -55487-03-31 11:30 J -18545114.14 -18545114.02 -18545113.90 0.0534 0.0188

Venus -55485-12-02 13:54 J -18544137.05 -18544136.92 -18544136.79 0.0510 0.0390

Mercury -55481-02-16 12:42 J -18542966.15 -18542965.97 -18542965.79 0.0492 0.0090

Venus -55478-05-26 23:45 J -18541770.72 -18541770.51 -18541770.30 0.0519 0.0062

Mercury -55475-01-17 15:06 J -18540804.00 -18540803.87 -18540803.74 0.0534 0.0042

Mars -55472-01-02 17:30 J -18539722.99 -18539722.77 -18539722.54 0.0508 0.0207

Venus -55472-03-31 18:13 J -18539634.82 -18539634.74 -18539634.65 0.0505 0.0453

Mercury -55470-12-05 11:01 J -18538656.19 -18538656.04 -18538655.88 0.0492 0.0250

Mercury -55469-03-04 16:18 J -18538565.91 -18538565.82 -18538565.71 0.0492 0.0412

Moon -55468-02-22 03:21 J -18538211.58 -18538211.36 -18538211.15 0.0497 0.0226

Earth -55468-02-22 07:11 J -18538211.42 -18538211.20 -18538210.99 0.0497 0.0197 \*

Venus -55466-01-29 10:04 J -18537505.24 -18537505.08 -18537504.92 0.0517 0.0325

Mercury -55464-11-05 18:28 J -18536493.86 -18536493.73 -18536493.60 0.0535 0.0114

Mercury -55463-02-03 02:23 J -18536404.46 -18536404.40 -18536404.35 0.0534 0.0473

Venus -55461-12-04 22:47 J -18535368.74 -18535368.55 -18535368.36 0.0507 0.0135

Mercury -55458-09-23 09:49 J -18534346.19 -18534346.09 -18534345.99 0.0491 0.0407

Mercury -55458-12-22 14:37 J -18534256.04 -18534255.89 -18534255.73 0.0492 0.0247

Earth -55456-02-26 21:06 J -18533823.85 -18533823.62 -18533823.40 0.0498 0.0172

Moon -55456-02-26 23:30 J -18533823.74 -18533823.52 -18533823.31 0.0498 0.0186 \*

Mercury -55452-08-24 22:18 J -18532183.68 -18532183.57 -18532183.46 0.0535 0.0256

Mercury -55452-11-22 06:28 J -18532094.33 -18532094.23 -18532094.13 0.0535 0.0336

Earth -55451-08-24 08:37 J -18531819.28 -18531819.14 -18531818.99 0.0530 0.0410

Moon -55451-08-24 12:42 J -18531819.13 -18531818.97 -18531818.81 0.0530 0.0374 \*

Venus -55449-08-10 01:40 J -18531102.61 -18531102.43 -18531102.25 0.0509 0.0193

Mercury -55446-10-10 12:42 J -18529946.15 -18529945.97 -18529945.80 0.0492 0.0079

Venus -55442-02-01 16:18 J -18528736.00 -18528735.82 -18528735.64 0.0521 0.0276

Mercury -55440-06-13 02:09 J -18527873.50 -18527873.41 -18527873.32 0.0535 0.0400

Mercury -55440-09-10 10:33 J -18527784.18 -18527784.06 -18527783.94 0.0534 0.0197

Moon -55439-08-29 04:47 J -18527431.53 -18527431.30 -18527431.06 0.0529 0.0037  
 Earth -55439-08-29 07:54 J -18527431.40 -18527431.17 -18527430.94 0.0529 0.0033 \*  
 Mars -55437-10-06 09:49 J -18526662.30 -18526662.09 -18526661.88 0.0506 0.0281  
 Mercury -55434-07-29 11:01 J -18525636.22 -18525636.04 -18525635.87 0.0492 0.0084  
 Venus -55431-10-07 06:13 J -18524470.45 -18524470.24 -18524470.03 0.0518 0.0098  
 Mercury -55428-06-29 13:54 J -18523474.05 -18523473.92 -18523473.79 0.0534 0.0046  
 Earth -55427-09-03 02:37 J -18523043.50 -18523043.39 -18523043.28 0.0527 0.0456  
 Moon -55427-09-03 03:21 J -18523043.49 -18523043.36 -18523043.23 0.0527 0.0427 \*  
 Venus -55425-08-12 06:57 J -18522334.36 -18522334.21 -18522334.05 0.0506 0.0316  
 Mercury -55422-05-17 09:35 J -18521326.26 -18521326.10 -18521325.95 0.0492 0.0244  
 Mercury -55422-08-15 14:52 J -18521235.97 -18521235.88 -18521235.78 0.0493 0.0418  
 Venus -55419-06-11 19:25 J -18520204.78 -18520204.69 -18520204.61 0.0516 0.0469  
 Mars -55419-08-26 06:28 J -18520129.41 -18520129.23 -18520129.03 0.0518 0.0400  
 Mercury -55416-04-17 17:30 J -18519163.90 -18519163.77 -18519163.65 0.0535 0.0106  
 Mercury -55416-07-16 01:11 J -18519074.50 -18519074.45 -18519074.40 0.0534 0.0481  
 Venus -55413-04-17 11:01 J -18518068.24 -18518068.04 -18518067.84 0.0508 0.0007  
 Mercury -55410-03-05 08:09 J -18517016.26 -18517016.16 -18517016.06 0.0492 0.0400  
 Mercury -55410-06-03 12:57 J -18516926.11 -18516925.96 -18516925.80 0.0492 0.0254  
 Venus -55407-10-10 07:11 J -18515701.27 -18515701.20 -18515701.12 0.0521 0.0484  
 Mercury -55404-02-03 20:23 J -18514853.76 -18514853.65 -18514853.54 0.0535 0.0262  
 Mercury -55404-05-04 04:33 J -18514764.41 -18514764.31 -18514764.21 0.0535 0.0331  
 Venus -55402-12-22 14:23 J -18513802.05 -18513801.90 -18513801.75 0.0510 0.0331  
 Mercury -55398-03-22 11:16 J -18512616.20 -18512616.03 -18512615.85 0.0492 0.0091  
 Venus -55395-06-14 20:23 J -18511435.85 -18511435.65 -18511435.44 0.0519 0.0107  
 Mercury -55393-11-22 23:59 J -18510543.58 -18510543.50 -18510543.41 0.0535 0.0408  
 Mercury -55392-02-20 08:37 J -18510454.26 -18510454.14 -18510454.02 0.0535 0.0191  
 Venus -55389-04-19 17:30 J -18509299.78 -18509299.77 -18509299.76 0.0505 0.0503  
 Mercury -55386-01-08 09:06 J -18508306.30 -18508306.12 -18508305.94 0.0492 0.0080  
 Earth -55385-02-22 12:28 J -18507896.18 -18507895.98 -18507895.77 0.0497 0.0245  
 Moon -55385-02-22 15:06 J -18507896.06 -18507895.87 -18507895.68 0.0497 0.0266 \*

Venus -55383-02-17 10:47 J -18507170.22 -18507170.05 -18507169.87 0.0517 0.0265  
 Mars -55383-06-04 01:40 J -18507063.64 -18507063.43 -18507063.19 0.0521 0.0343  
 Mercury -55381-12-09 12:28 J -18506144.11 -18506143.98 -18506143.85 0.0535 0.0050  
 Venus -55378-12-24 20:52 J -18505033.82 -18505033.63 -18505033.45 0.0507 0.0183  
 Mercury -55375-10-27 07:25 J -18503996.34 -18503996.19 -18503996.03 0.0492 0.0242  
 Mercury -55374-01-25 12:42 J -18503906.06 -18503905.97 -18503905.87 0.0492 0.0420  
 Moon -55373-02-27 02:09 J -18503508.64 -18503508.41 -18503508.17 0.0498 0.0147  
 Earth -55373-02-27 02:52 J -18503508.61 -18503508.38 -18503508.15 0.0498 0.0127 \*  
 Mercury -55369-09-27 15:49 J -18501833.96 -18501833.84 -18501833.71 0.0535 0.0103  
 Mercury -55369-12-25 23:45 J -18501744.56 -18501744.51 -18501744.46 0.0534 0.0484  
 Moon -55368-08-23 06:57 J -18501504.33 -18501504.21 -18501504.08 0.0530 0.0449  
 Earth -55368-08-23 10:18 J -18501504.16 -18501504.07 -18501503.97 0.0530 0.0481 \*  
 Venus -55366-08-29 22:47 J -18500767.73 -18500767.55 -18500767.35 0.0509 0.0148  
 Mercury -55363-08-15 05:59 J -18499686.35 -18499686.25 -18499686.15 0.0492 0.0401  
 Mercury -55363-11-13 11:01 J -18499596.20 -18499596.04 -18499595.89 0.0492 0.0254  
 Venus -55359-02-20 15:35 J -18498401.01 -18498400.85 -18498400.69 0.0520 0.0332  
 Mercury -55357-07-16 19:11 J -18497523.81 -18497523.70 -18497523.58 0.0535 0.0255  
 Mercury -55357-10-14 03:21 J -18497434.46 -18497434.36 -18497434.26 0.0534 0.0337  
 Earth -55356-08-28 07:25 J -18497116.42 -18497116.19 -18497115.96 0.0529 0.0045  
 Moon -55356-08-28 08:37 J -18497116.36 -18497116.14 -18497115.92 0.0529 0.0051 \*  
 Venus -55354-05-05 01:40 J -18496501.49 -18496501.43 -18496501.35 0.0511 0.0475  
 Mercury -55351-09-01 09:21 J -18495286.29 -18495286.11 -18495285.93 0.0492 0.0093  
 Venus -55348-10-26 01:40 J -18494135.63 -18494135.43 -18494135.22 0.0518 0.0059  
 Mercury -55345-05-04 22:04 J -18493213.66 -18493213.58 -18493213.50 0.0535 0.0417  
 Mercury -55345-08-02 06:28 J -18493124.35 -18493124.23 -18493124.11 0.0535 0.0182  
 Earth -55344-09-02 02:37 J -18492728.54 -18492728.39 -18492728.23 0.0528 0.0387  
 Moon -55344-09-02 03:35 J -18492728.53 -18492728.35 -18492728.17 0.0528 0.0354 \*  
 Venus -55342-09-01 06:13 J -18491999.37 -18491999.24 -18491999.10 0.0506 0.0368  
 Mercury -55339-06-20 07:40 J -18490976.36 -18490976.18 -18490976.00 0.0492 0.0071  
 Venus -55336-06-30 14:52 J -18489869.99 -18489869.88 -18489869.76 0.0516 0.0430

Mercury -55333-05-21 10:18 J -18488814.20 -18488814.07 -18488813.94 0.0535 0.0038  
 Venus -55330-05-07 08:52 J -18487733.33 -18487733.13 -18487732.93 0.0508 0.0041  
 Mercury -55327-04-08 05:16 J -18486666.43 -18486666.28 -18486666.12 0.0492 0.0241  
 Mercury -55327-07-07 10:33 J -18486576.15 -18486576.06 -18486575.97 0.0492 0.0419  
 Mercury -55321-03-09 14:09 J -18484504.03 -18484503.91 -18484503.78 0.0535 0.0105  
 Mercury -55321-06-06 22:04 J -18484414.63 -18484414.58 -18484414.53 0.0534 0.0483  
 Venus -55318-01-10 11:45 J -18483467.18 -18483467.01 -18483466.85 0.0510 0.0287  
 Mars -55318-03-29 15:35 J -18483389.10 -18483388.85 -18483388.60 0.0507 0.0046  
 Mercury -55315-01-25 03:35 J -18482356.44 -18482356.35 -18482356.24 0.0492 0.0403  
 Mercury -55315-04-25 08:37 J -18482266.30 -18482266.14 -18482265.99 0.0492 0.0252  
 Venus -55312-07-03 20:23 J -18481100.85 -18481100.65 -18481100.45 0.0519 0.0165  
 Mercury -55310-12-27 17:30 J -18480193.88 -18480193.77 -18480193.65 0.0535 0.0256  
 Mercury -55309-03-26 01:40 J -18480104.53 -18480104.43 -18480104.33 0.0534 0.0336  
 Mercury -55303-02-11 06:42 J -18477956.40 -18477956.22 -18477956.04 0.0492 0.0087  
 Moon -55302-02-21 16:18 J -18477581.01 -18477580.82 -18477580.63 0.0497 0.0310  
 Earth -55302-02-21 17:01 J -18477580.98 -18477580.79 -18477580.60 0.0497 0.0297 \*  
 Venus -55300-03-08 09:21 J -18476835.30 -18476835.11 -18476834.92 0.0517 0.0211  
 Mercury -55298-10-15 20:52 J -18475883.71 -18475883.63 -18475883.55 0.0535 0.0411  
 Mercury -55297-01-13 05:01 J -18475794.41 -18475794.29 -18475794.16 0.0534 0.0188  
 Venus -55294-01-12 17:16 J -18474698.96 -18474698.78 -18474698.61 0.0507 0.0224  
 Mercury -55292-11-30 05:16 J -18473646.46 -18473646.28 -18473646.10 0.0492 0.0072  
 Moon -55290-02-26 04:18 J -18473193.54 -18473193.32 -18473193.09 0.0497 0.0099  
 Earth -55290-02-26 05:45 J -18473193.50 -18473193.26 -18473193.03 0.0497 0.0073 \*  
 Mercury -55286-11-01 08:09 J -18471484.29 -18471484.16 -18471484.03 0.0535 0.0028  
 Venus -55283-09-17 20:23 J -18470432.85 -18470432.65 -18470432.46 0.0509 0.0103  
 Mars -55283-12-31 01:54 J -18470328.54 -18470328.42 -18470328.27 0.0506 0.0429  
 Mercury -55280-09-18 03:35 J -18469336.50 -18469336.35 -18469336.19 0.0491 0.0235  
 Mercury -55280-12-17 08:52 J -18469246.22 -18469246.13 -18469246.04 0.0492 0.0425  
 Earth -55278-03-02 18:42 J -18468805.83 -18468805.72 -18468805.61 0.0498 0.0442  
 Moon -55278-03-02 21:21 J -18468805.69 -18468805.61 -18468805.51 0.0498 0.0462 \*

Venus -55276-03-11 10:18 J -18468066.22 -18468066.07 -18468065.92 0.0520 0.0366

Mercury -55274-08-20 11:45 J -18467174.13 -18467174.01 -18467173.88 0.0535 0.0119

Mercury -55274-11-17 19:40 J -18467084.73 -18467084.68 -18467084.62 0.0534 0.0470

Earth -55273-08-27 05:30 J -18466801.49 -18466801.27 -18466801.04 0.0530 0.0123

Moon -55273-08-27 05:59 J -18466801.48 -18466801.25 -18466801.02 0.0530 0.0134 \*

Venus -55271-05-23 22:33 J -18466166.66 -18466166.56 -18466166.46 0.0511 0.0435

Mercury -55268-07-07 01:11 J -18465026.54 -18465026.45 -18465026.35 0.0491 0.0406

Mercury -55268-10-05 05:59 J -18464936.40 -18464936.25 -18464936.09 0.0492 0.0248

Venus -55265-11-13 23:30 J -18463800.72 -18463800.52 -18463800.31 0.0518 0.0015

Mars -55265-11-18 09:49 J -18463796.36 -18463796.09 -18463795.80 0.0519 0.0220

Mercury -55262-06-08 15:35 J -18462863.96 -18462863.85 -18462863.73 0.0535 0.0263

Mercury -55262-09-05 23:45 J -18462774.61 -18462774.51 -18462774.41 0.0534 0.0332

Moon -55261-09-01 02:37 J -18462413.58 -18462413.39 -18462413.20 0.0528 0.0288

Earth -55261-09-01 04:33 J -18462413.49 -18462413.31 -18462413.12 0.0528 0.0321 \*

Venus -55259-09-20 02:09 J -18461664.52 -18461664.41 -18461664.29 0.0506 0.0405

Mercury -55256-07-24 04:04 J -18460626.50 -18460626.33 -18460626.15 0.0492 0.0082

Venus -55253-07-19 13:25 J -18459535.07 -18459534.94 -18459534.79 0.0516 0.0379

Mercury -55250-03-27 18:57 J -18458553.79 -18458553.71 -18458553.62 0.0535 0.0414

Mercury -55250-06-25 03:21 J -18458464.48 -18458464.36 -18458464.24 0.0534 0.0184

Venus -55247-05-26 04:18 J -18457398.52 -18457398.32 -18457398.13 0.0508 0.0078

Mercury -55244-05-12 02:23 J -18456316.58 -18456316.40 -18456316.22 0.0492 0.0082

Mercury -55238-04-13 06:42 J -18454154.35 -18454154.22 -18454154.09 0.0534 0.0035

Venus -55235-01-29 06:57 J -18453132.38 -18453132.21 -18453132.04 0.0510 0.0250

Mercury -55232-02-28 01:11 J -18452006.61 -18452006.45 -18452006.30 0.0492 0.0240

Mercury -55232-05-29 06:13 J -18451916.33 -18451916.24 -18451916.14 0.0492 0.0421

Venus -55229-07-22 14:52 J -18450766.07 -18450765.88 -18450765.68 0.0519 0.0198

Mars -55229-08-27 03:06 J -18450730.41 -18450730.37 -18450730.33 0.0520 0.0514

Mercury -55226-01-30 09:35 J -18449844.23 -18449844.10 -18449843.97 0.0535 0.0131

Mercury -55226-04-29 17:30 J -18449754.83 -18449754.77 -18449754.70 0.0534 0.0458

Mercury -55221-12-16 23:30 J -18447696.62 -18447696.52 -18447696.42 0.0492 0.0401



Mercury -55220-03-17 04:18 J -18447606.48 -18447606.32 -18447606.17 0.0492 0.0253

Moon -55219-02-20 17:45 J -18447265.92 -18447265.76 -18447265.61 0.0496 0.0364

Earth -55219-02-20 18:28 J -18447265.88 -18447265.73 -18447265.55 0.0496 0.0356 \*

Venus -55217-03-27 03:35 J -18446500.54 -18446500.35 -18446500.15 0.0517 0.0178

Mercury -55215-11-18 13:11 J -18445534.06 -18445533.95 -18445533.84 0.0535 0.0280

Mercury -55214-02-15 21:21 J -18445444.71 -18445444.61 -18445444.51 0.0535 0.0316

Venus -55211-01-31 12:57 J -18444364.13 -18444363.96 -18444363.79 0.0507 0.0259

Mercury -55208-01-03 01:25 J -18443296.62 -18443296.44 -18443296.26 0.0492 0.0075

Earth -55207-02-25 04:18 J -18442878.56 -18442878.32 -18442878.08 0.0497 0.0003

Moon -55207-02-25 06:57 J -18442878.45 -18442878.21 -18442877.97 0.0497 0.0031 \*

Mercury -55203-09-06 17:01 J -18441223.87 -18441223.79 -18441223.71 0.0535 0.0424

Mercury -55203-12-05 01:25 J -18441134.56 -18441134.44 -18441134.32 0.0535 0.0176

Mars -55200-09-18 13:40 J -18440116.08 -18440115.93 -18440115.77 0.0509 0.0392

Venus -55200-10-06 16:18 J -18440098.02 -18440097.82 -18440097.62 0.0509 0.0064

Mercury -55197-10-21 23:30 J -18438986.69 -18438986.52 -18438986.34 0.0492 0.0091

Moon -55195-03-01 14:37 J -18438491.02 -18438490.89 -18438490.74 0.0499 0.0395

Earth -55195-03-01 18:13 J -18438490.89 -18438490.74 -18438490.58 0.0499 0.0374 \*

Venus -55193-03-30 08:23 J -18437731.27 -18437731.15 -18437731.02 0.0521 0.0417

Mercury -55191-09-23 05:01 J -18436824.42 -18436824.29 -18436824.16 0.0535 0.0029

Moon -55190-08-27 02:52 J -18436486.57 -18436486.38 -18436486.17 0.0530 0.0220

Earth -55190-08-27 04:33 J -18436486.52 -18436486.31 -18436486.09 0.0530 0.0204 \*

Venus -55188-06-11 17:45 J -18435831.88 -18435831.76 -18435831.63 0.0511 0.0397

Mercury -55185-08-09 22:04 J -18434676.73 -18434676.58 -18434676.43 0.0492 0.0252

Mercury -55185-11-08 03:06 J -18434586.46 -18434586.37 -18434586.27 0.0492 0.0410

Venus -55182-12-03 21:06 J -18433465.83 -18433465.62 -18433465.41 0.0518 0.0040

Mercury -55179-07-12 08:23 J -18432514.28 -18432514.15 -18432514.03 0.0535 0.0127

Mercury -55179-10-09 16:04 J -18432424.89 -18432424.83 -18432424.76 0.0534 0.0463

Earth -55178-09-01 00:28 J -18432098.68 -18432098.48 -18432098.27 0.0528 0.0230

Moon -55178-09-01 03:35 J -18432098.56 -18432098.35 -18432098.13 0.0528 0.0199 \*

Venus -55176-10-08 21:06 J -18431329.71 -18431329.62 -18431329.52 0.0506 0.0440

Mercury -55173-05-28 20:52 J -18430366.73 -18430366.63 -18430366.53 0.0492 0.0407

Mercury -55173-08-27 01:40 J -18430276.59 -18430276.43 -18430276.28 0.0492 0.0247

Venus -55170-08-08 08:52 J -18429200.28 -18429200.13 -18429199.97 0.0516 0.0341

Mercury -55167-04-30 11:01 J -18428204.15 -18428204.04 -18428203.93 0.0535 0.0290

Mercury -55167-07-28 19:11 J -18428114.80 -18428114.70 -18428114.59 0.0534 0.0305

Venus -55164-06-13 23:59 J -18427063.69 -18427063.50 -18427063.31 0.0508 0.0114

Mars -55164-06-21 21:21 J -18427055.85 -18427055.61 -18427055.36 0.0508 0.0077

Mercury -55161-06-14 23:45 J -18425966.69 -18425966.51 -18425966.33 0.0492 0.0081

Mercury -55155-02-16 14:23 J -18423893.97 -18423893.90 -18423893.83 0.0535 0.0441

Mercury -55155-05-16 23:01 J -18423804.67 -18423804.54 -18423804.42 0.0535 0.0160

Venus -55152-02-17 02:37 J -18422797.57 -18422797.39 -18422797.21 0.0510 0.0214

Mercury -55149-04-02 20:52 J -18421656.80 -18421656.63 -18421656.45 0.0492 0.0097

Venus -55146-08-11 11:16 J -18420431.22 -18420431.03 -18420430.85 0.0520 0.0241

Mercury -55143-03-05 02:52 J -18419494.51 -18419494.38 -18419494.25 0.0535 0.0024

Mercury -55137-01-20 19:11 J -18417346.85 -18417346.70 -18417346.54 0.0492 0.0259

Mercury -55137-04-20 00:13 J -18417256.59 -18417256.49 -18417256.38 0.0492 0.0401

Earth -55136-02-19 17:16 J -18416950.89 -18416950.78 -18416950.66 0.0496 0.0429

Moon -55136-02-19 19:54 J -18416950.79 -18416950.67 -18416950.55 0.0496 0.0431 \*

Venus -55134-04-16 01:11 J -18416165.65 -18416165.45 -18416165.25 0.0518 0.0130

Mercury -55132-12-22 06:28 J -18415184.35 -18415184.23 -18415184.10 0.0535 0.0130

Mercury -55131-03-21 14:23 J -18415094.96 -18415094.90 -18415094.83 0.0534 0.0460

Venus -55128-02-19 08:23 J -18414029.31 -18414029.15 -18414028.98 0.0506 0.0296

Mercury -55126-11-08 17:45 J -18413036.85 -18413036.76 -18413036.67 0.0492 0.0419

Mercury -55125-02-06 22:33 J -18412946.72 -18412946.56 -18412946.40 0.0492 0.0235

Moon -55124-02-24 03:35 J -18412563.58 -18412563.35 -18412563.12 0.0497 0.0031

Earth -55124-02-24 06:57 J -18412563.45 -18412563.21 -18412562.98 0.0497 0.0059 \*

Venus -55123-12-19 14:37 J -18411899.93 -18411899.89 -18411899.83 0.0515 0.0498

Mercury -55120-10-10 09:49 J -18410874.20 -18410874.09 -18410873.98 0.0535 0.0283

Mercury -55119-01-07 17:59 J -18410784.85 -18410784.75 -18410784.64 0.0534 0.0311

Venus -55117-10-25 11:16 J -18409763.23 -18409763.03 -18409762.83 0.0509 0.0029

Mercury -55114-11-25 21:06 J -18408636.80 -18408636.62 -18408636.45 0.0492 0.0075

Earth -55112-02-28 20:52 J -18408175.80 -18408175.63 -18408175.44 0.0498 0.0319

Moon -55112-03-01 00:42 J -18408175.64 -18408175.47 -18408175.29 0.0498 0.0333 \*

Mars -55110-02-11 12:42 J -18407463.28 -18407462.97 -18407462.67 0.0518 0.0042

Venus -55110-04-19 03:49 J -18407396.43 -18407396.34 -18407396.23 0.0520 0.0454

Mercury -55108-07-29 12:28 J -18406564.05 -18406563.98 -18406563.91 0.0535 0.0448

Mercury -55108-10-26 20:52 J -18406474.75 -18406474.63 -18406474.50 0.0534 0.0153

Earth -55107-08-25 22:18 J -18406171.75 -18406171.57 -18406171.37 0.0530 0.0304

Moon -55107-08-26 01:11 J -18406171.64 -18406171.45 -18406171.26 0.0530 0.0317 \*

Venus -55105-06-30 13:11 J -18405497.09 -18405496.95 -18405496.81 0.0511 0.0362

Mercury -55102-09-13 19:11 J -18404326.87 -18404326.70 -18404326.52 0.0492 0.0091

Venus -55099-12-22 16:18 J -18403131.03 -18403130.82 -18403130.61 0.0518 0.0076

Mercury -55096-08-15 00:42 J -18402164.60 -18402164.47 -18402164.34 0.0535 0.0019

Moon -55095-08-30 17:45 J -18401783.98 -18401783.76 -18401783.53 0.0529 0.0113

Earth -55095-08-30 21:21 J -18401783.83 -18401783.61 -18401783.39 0.0529 0.0144 \*

Venus -55093-10-27 16:47 J -18400994.86 -18400994.80 -18400994.72 0.0506 0.0475

Mercury -55090-07-02 16:47 J -18400016.95 -18400016.80 -18400016.65 0.0492 0.0265

Mercury -55090-09-30 21:35 J -18399926.70 -18399926.60 -18399926.49 0.0492 0.0395

Venus -55087-08-27 04:33 J -18398865.47 -18398865.31 -18398865.13 0.0516 0.0300

Mercury -55084-06-03 04:33 J -18397854.44 -18397854.31 -18397854.18 0.0535 0.0137

Mercury -55084-08-31 12:28 J -18397765.04 -18397764.98 -18397764.91 0.0534 0.0455

Venus -55081-07-02 20:52 J -18396728.82 -18396728.63 -18396728.44 0.0507 0.0157

Mercury -55078-04-20 15:06 J -18395706.95 -18395706.87 -18395706.77 0.0491 0.0425

Mercury -55078-07-19 19:40 J -18395616.83 -18395616.68 -18395616.51 0.0492 0.0229

Mercury -55072-03-22 08:09 J -18393544.27 -18393544.16 -18393544.05 0.0535 0.0284

Mercury -55072-06-19 16:18 J -18393454.92 -18393454.82 -18393454.71 0.0534 0.0311

Venus -55069-03-07 23:01 J -18392462.72 -18392462.54 -18392462.35 0.0509 0.0172

Mercury -55066-05-07 17:59 J -18391306.92 -18391306.75 -18391306.57 0.0492 0.0065

Venus -55063-08-30 10:04 J -18390096.25 -18390096.08 -18390095.91 0.0520 0.0295

Mercury -55060-01-08 11:16 J -18389234.10 -18389234.03 -18389233.95 0.0535 0.0439

Mercury -55060-04-07 19:54 J -18389144.79 -18389144.67 -18389144.55 0.0534 0.0162  
 Venus -55058-11-12 01:11 J -18388196.48 -18388196.45 -18388196.42 0.0512 0.0502  
 Mercury -55054-02-23 16:47 J -18386996.98 -18386996.80 -18386996.62 0.0492 0.0094  
 Moon -55053-02-19 18:42 J -18386635.76 -18386635.72 -18386635.67 0.0496 0.0485  
 Earth -55053-02-19 22:04 J -18386635.64 -18386635.58 -18386635.52 0.0496 0.0480  
 Venus -55051-05-04 22:18 J -18385830.77 -18385830.57 -18385830.36 0.0517 0.0085  
 Mercury -55048-01-24 22:47 J -18384834.68 -18384834.55 -18384834.42 0.0534 0.0010  
 Mars -55046-12-12 19:11 J -18383782.91 -18383782.70 -18383782.49 0.0510 0.0273  
 Venus -55045-03-10 04:33 J -18383694.45 -18383694.31 -18383694.16 0.0507 0.0335  
 Mercury -55043-12-12 15:21 J -18382687.01 -18382686.86 -18382686.71 0.0492 0.0256  
 Mercury -55042-03-12 20:09 J -18382596.75 -18382596.66 -18382596.55 0.0492 0.0406  
 Earth -55041-02-24 10:04 J -18382248.31 -18382248.08 -18382247.85 0.0497 0.0115  
 Moon -55041-02-24 13:54 J -18382248.15 -18382247.92 -18382247.68 0.0497 0.0083 \*  
 Venus -55039-01-07 11:16 J -18381565.12 -18381565.03 -18381564.93 0.0515 0.0454  
 Mercury -55037-11-13 02:23 J -18380524.53 -18380524.40 -18380524.27 0.0535 0.0147  
 Mercury -55036-02-10 10:33 J -18380435.13 -18380435.06 -18380434.99 0.0534 0.0444  
 Venus -55034-11-14 07:54 J -18379428.36 -18379428.17 -18379427.97 0.0509 0.0014  
 Mercury -55031-09-30 12:42 J -18378377.05 -18378376.97 -18378376.88 0.0491 0.0428  
 Mercury -55031-12-29 17:16 J -18378286.94 -18378286.78 -18378286.62 0.0492 0.0226  
 Moon -55029-02-28 15:49 J -18377861.05 -18377860.84 -18377860.63 0.0498 0.0250  
 Earth -55029-02-28 19:11 J -18377860.90 -18377860.70 -18377860.49 0.0498 0.0244 \*  
 Venus -55027-05-08 00:28 J -18377061.53 -18377061.48 -18377061.42 0.0521 0.0498  
 Mercury -55025-09-01 06:13 J -18376214.35 -18376214.24 -18376214.13 0.0535 0.0290  
 Mercury -55025-11-29 14:37 J -18376125.00 -18376124.89 -18376124.79 0.0535 0.0307  
 Moon -55024-08-24 23:45 J -18375856.67 -18375856.51 -18375856.36 0.0531 0.0386  
 Earth -55024-08-25 02:52 J -18375856.54 -18375856.38 -18375856.20 0.0531 0.0366 \*  
 Venus -55022-07-20 11:45 J -18375162.16 -18375162.01 -18375161.85 0.0510 0.0310  
 Mercury -55019-10-17 15:49 J -18373977.02 -18373976.84 -18373976.67 0.0492 0.0063  
 Venus -55015-01-10 14:23 J -18372796.10 -18372795.90 -18372795.69 0.0519 0.0128  
 Mercury -55013-06-20 09:49 J -18371904.16 -18371904.09 -18371904.01 0.0535 0.0437

Mercury -55013-09-17 18:28 J -18371814.85 -18371814.73 -18371814.61 0.0535 0.0164

Earth -55012-08-30 01:25 J -18371468.66 -18371468.44 -18371468.21 0.0529 0.0082

Moon -55012-08-30 05:01 J -18371468.51 -18371468.29 -18371468.06 0.0529 0.0060 \*

Mars -55010-09-15 10:47 J -18370722.27 -18370722.05 -18370721.82 0.0507 0.0212

Mercury -55007-08-05 14:09 J -18369667.08 -18369666.91 -18369666.73 0.0492 0.0100

Venus -55004-09-15 04:47 J -18368530.49 -18368530.30 -18368530.12 0.0517 0.0241

Mercury -55001-07-06 22:04 J -18367504.71 -18367504.58 -18367504.45 0.0535 0.0021

# 55TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 55th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Earth	-55000-09-03 21:49 J	-18367080.63	-18367080.59	-18367080.54	0.0528	0.0516		
Venus	-54998-07-22 17:30 J	-18366393.95	-18366393.77	-18366393.58	0.0507	0.0200		
Mercury	-54995-05-24 12:57 J	-18365357.11	-18365356.96	-18365356.80	0.0492	0.0257		
Mercury	-54995-08-22 17:59 J	-18365266.85	-18365266.75	-18365266.65	0.0492	0.0404		
Mercury	-54989-04-25 00:57 J	-18363194.59	-18363194.46	-18363194.33	0.0535	0.0145		
Mercury	-54989-07-23 08:52 J	-18363105.19	-18363105.13	-18363105.06	0.0534	0.0446		
Venus	-54986-03-27 19:54 J	-18362127.86	-18362127.67	-18362127.48	0.0510	0.0129		
Mercury	-54983-03-12 11:45 J	-18361047.10	-18361047.01	-18361046.92	0.0492	0.0415		
Mercury	-54983-06-10 16:18 J	-18360956.98	-18360956.82	-18360956.66	0.0492	0.0239		
Venus	-54980-09-18 07:54 J	-18359761.33	-18359761.17	-18359761.02	0.0519	0.0342		
Mercury	-54977-02-12 04:18 J	-18358884.42	-18358884.32	-18358884.21	0.0535	0.0296		

Mercury -54977-05-11 12:42 J -18358795.07 -18358794.97 -18358794.86 0.0534 0.0302

Venus -54975-11-30 23:01 J -18357861.63 -18357861.54 -18357861.45 0.0512 0.0455

Mercury -54971-03-29 13:40 J -18356647.11 -18356646.93 -18356646.75 0.0492 0.0063

Venus -54968-05-23 19:11 J -18355495.91 -18355495.70 -18355495.49 0.0518 0.0040

Mercury -54966-12-01 08:09 J -18354574.23 -18354574.16 -18354574.09 0.0535 0.0441

Mercury -54965-02-28 16:47 J -18354484.92 -18354484.80 -18354484.68 0.0535 0.0162

Venus -54962-03-30 04:04 J -18353359.45 -18353359.33 -18353359.20 0.0506 0.0388

Mercury -54959-01-15 12:13 J -18352337.17 -18352336.99 -18352336.82 0.0492 0.0098

Moon -54958-02-23 07:54 J -18351933.40 -18351933.17 -18351932.94 0.0496 0.0151

Earth -54958-02-23 11:30 J -18351933.24 -18351933.02 -18351932.80 0.0496 0.0180 \*

Venus -54956-01-26 09:35 J -18351230.22 -18351230.10 -18351229.96 0.0516 0.0402

Mars -54956-05-07 03:35 J -18351129.64 -18351129.35 -18351129.06 0.0519 0.0154

Mercury -54954-12-17 20:37 J -18350174.77 -18350174.64 -18350174.51 0.0535 0.0022

Venus -54951-12-03 06:57 J -18349093.40 -18349093.21 -18349093.01 0.0508 0.0066

Mercury -54948-11-03 10:47 J -18348027.20 -18348027.05 -18348026.90 0.0492 0.0258

Mercury -54947-02-01 15:49 J -18347936.95 -18347936.84 -18347936.74 0.0492 0.0403

Earth -54946-02-28 01:54 J -18347545.63 -18347545.42 -18347545.20 0.0498 0.0199

Moon -54946-02-28 04:04 J -18347545.53 -18347545.33 -18347545.11 0.0498 0.0199 \*

Mercury -54942-10-06 00:13 J -18345864.62 -18345864.49 -18345864.36 0.0535 0.0129

Mercury -54941-01-03 08:09 J -18345775.22 -18345775.16 -18345775.09 0.0534 0.0462

Earth -54941-08-24 06:28 J -18345541.36 -18345541.23 -18345541.10 0.0531 0.0431

Moon -54941-08-24 10:04 J -18345541.19 -18345541.08 -18345540.96 0.0531 0.0456 \*

Venus -54939-08-08 09:49 J -18344827.26 -18344827.09 -18344826.92 0.0510 0.0261

Mercury -54936-08-22 09:49 J -18343717.18 -18343717.09 -18343716.99 0.0492 0.0412

Mercury -54936-11-20 14:23 J -18343627.06 -18343626.90 -18343626.75 0.0492 0.0242

Venus -54932-01-29 15:06 J -18342461.07 -18342460.87 -18342460.68 0.0519 0.0187

Mercury -54930-07-25 03:06 J -18341554.47 -18341554.37 -18341554.26 0.0535 0.0289

Mercury -54930-10-22 11:30 J -18341465.12 -18341465.02 -18341464.91 0.0534 0.0308

Moon -54929-08-28 22:47 J -18341153.78 -18341153.55 -18341153.31 0.0530 0.0017

Earth -54929-08-29 01:40 J -18341153.66 -18341153.43 -18341153.20 0.0530 0.0011 \*

Mercury -54924-09-08 12:42 J -18339317.14 -18339316.97 -18339316.79 0.0492 0.0080  
 Venus -54921-10-04 04:04 J -18338195.53 -18338195.33 -18338195.14 0.0517 0.0185  
 Mercury -54918-05-13 06:42 J -18337244.30 -18337244.22 -18337244.15 0.0535 0.0439  
 Mercury -54918-08-10 15:06 J -18337154.99 -18337154.87 -18337154.74 0.0535 0.0164  
 Earth -54917-09-03 00:13 J -18336765.60 -18336765.49 -18336765.36 0.0528 0.0451  
 Moon -54917-09-03 01:40 J -18336765.52 -18336765.43 -18336765.33 0.0528 0.0478 \*  
 Venus -54915-08-10 16:47 J -18336058.97 -18336058.80 -18336058.63 0.0507 0.0251  
 Mercury -54912-06-27 10:33 J -18335007.24 -18335007.06 -18335006.89 0.0491 0.0094  
 Mercury -54906-05-29 19:11 J -18332844.83 -18332844.70 -18332844.57 0.0535 0.0021  
 Venus -54903-04-15 21:21 J -18331792.81 -18331792.61 -18331792.42 0.0509 0.0066  
 Mercury -54900-04-15 09:21 J -18330697.27 -18330697.11 -18330696.96 0.0491 0.0251  
 Mercury -54900-07-14 14:09 J -18330607.01 -18330606.91 -18330606.81 0.0492 0.0408  
 Venus -54897-10-07 07:25 J -18329426.32 -18329426.19 -18329426.05 0.0520 0.0401  
 Mercury -54894-03-17 23:01 J -18328534.66 -18328534.54 -18328534.41 0.0535 0.0122  
 Mercury -54894-06-15 07:11 J -18328445.26 -18328445.20 -18328445.14 0.0534 0.0471  
 Venus -54892-12-19 23:45 J -18327526.63 -18327526.51 -18327526.38 0.0511 0.0393  
 Mars -54891-03-07 23:30 J -18327448.76 -18327448.52 -18327448.27 0.0509 0.0103  
 Mercury -54888-02-01 07:54 J -18326387.26 -18326387.17 -18326387.07 0.0492 0.0408  
 Mercury -54888-05-02 12:28 J -18326297.14 -18326296.98 -18326296.82 0.0492 0.0245  
 Venus -54885-06-11 22:04 J -18325160.79 -18325160.58 -18325160.38 0.0518 0.0035  
 Mercury -54882-01-04 02:37 J -18324224.50 -18324224.39 -18324224.28 0.0535 0.0270  
 Mercury -54882-04-03 11:01 J -18324135.14 -18324135.04 -18324134.94 0.0534 0.0327  
 Venus -54879-04-18 03:21 J -18323024.45 -18323024.36 -18323024.26 0.0506 0.0440  
 Mercury -54876-02-18 11:16 J -18321987.21 -18321987.03 -18321986.86 0.0492 0.0086  
 Earth -54875-02-22 21:21 J -18321617.82 -18321617.61 -18321617.40 0.0496 0.0214  
 Moon -54875-02-22 23:30 J -18321617.73 -18321617.52 -18321617.31 0.0496 0.0186 \*  
 Venus -54873-02-15 11:59 J -18320895.15 -18320895.00 -18320894.84 0.0516 0.0335  
 Mercury -54871-10-23 05:45 J -18319914.34 -18319914.26 -18319914.18 0.0535 0.0428  
 Mercury -54870-01-20 14:09 J -18319825.03 -18319824.91 -18319824.78 0.0534 0.0174  
 Venus -54868-12-22 05:59 J -18318758.44 -18318758.25 -18318758.06 0.0508 0.0118

Mercury -54865-12-07 09:49 J -18317677.27 -18317677.09 -18317676.91 0.0492 0.0074

Moon -54863-02-27 10:04 J -18317230.31 -18317230.08 -18317229.84 0.0497 0.0155

Earth -54863-02-27 11:01 J -18317230.26 -18317230.04 -18317229.82 0.0497 0.0161 \*

Mercury -54859-11-08 17:59 J -18315514.88 -18315514.75 -18315514.62 0.0535 0.0028

Moon -54858-08-24 07:11 J -18315226.22 -18315226.20 -18315226.17 0.0531 0.0527

Earth -54858-08-24 10:18 J -18315226.14 -18315226.07 -18315225.99 0.0531 0.0497

Venus -54856-08-27 10:04 J -18314492.26 -18314492.08 -18314491.90 0.0510 0.0202

Mars -54856-12-09 13:40 J -18314388.09 -18314387.93 -18314387.76 0.0507 0.0380

Mercury -54853-09-25 07:40 J -18313367.33 -18313367.18 -18313367.02 0.0491 0.0242

Mercury -54853-12-24 12:42 J -18313277.07 -18313276.97 -18313276.88 0.0492 0.0417

Moon -54851-03-03 20:09 J -18312842.67 -18312842.66 -18312842.64 0.0498 0.0497

Venus -54849-02-18 13:25 J -18312126.13 -18312125.94 -18312125.75 0.0519 0.0240

Mercury -54847-08-27 21:35 J -18311204.72 -18311204.60 -18311204.47 0.0536 0.0120

Mercury -54847-11-25 05:45 J -18311115.31 -18311115.26 -18311115.20 0.0535 0.0476

Earth -54846-08-29 11:59 J -18310838.23 -18310838.00 -18310837.77 0.0530 0.0034

Moon -54846-08-29 13:25 J -18310838.16 -18310837.94 -18310837.71 0.0530 0.0049 \*

Mercury -54841-07-14 06:57 J -18309057.32 -18309057.21 -18309057.11 0.0491 0.0396

Mercury -54841-10-12 11:16 J -18308967.19 -18308967.03 -18308966.88 0.0492 0.0256

Mars -54838-10-23 08:52 J -18307861.34 -18307861.13 -18307860.90 0.0517 0.0362

Venus -54838-10-24 03:49 J -18307860.54 -18307860.34 -18307860.13 0.0517 0.0126

Mercury -54835-06-16 01:40 J -18306894.55 -18306894.43 -18306894.32 0.0535 0.0261

Mercury -54835-09-13 10:04 J -18306805.18 -18306805.08 -18306804.98 0.0535 0.0338

Earth -54834-09-03 11:45 J -18306450.15 -18306450.01 -18306449.87 0.0529 0.0418

Moon -54834-09-03 11:45 J -18306450.13 -18306450.01 -18306449.87 0.0529 0.0445 \*

Venus -54832-08-29 18:13 J -18305723.89 -18305723.74 -18305723.58 0.0507 0.0315

Mercury -54829-07-31 09:35 J -18304657.27 -18304657.10 -18304656.92 0.0492 0.0095

Venus -54826-06-28 19:11 J -18303594.77 -18303594.70 -18303594.63 0.0515 0.0485

Mercury -54823-04-04 05:16 J -18302584.37 -18302584.28 -18302584.20 0.0535 0.0408

Mercury -54823-07-02 13:54 J -18302495.04 -18302494.92 -18302494.80 0.0535 0.0195

Venus -54820-05-04 21:35 J -18301457.80 -18301457.60 -18301457.40 0.0509 0.0008



Mercury -54817-05-19 08:23 J -18300347.32 -18300347.15 -18300346.97 0.0492 0.0065  
 Venus -54814-10-27 10:47 J -18299091.13 -18299091.05 -18299090.96 0.0520 0.0472  
 Mercury -54811-04-20 17:01 J -18298184.92 -18298184.79 -18298184.66 0.0535 0.0042  
 Venus -54808-01-07 23:30 J -18297191.66 -18297191.52 -18297191.37 0.0511 0.0336  
 Mercury -54805-03-07 07:25 J -18296037.35 -18296037.19 -18296037.03 0.0492 0.0222  
 Mercury -54805-06-05 12:13 J -18295947.07 -18295946.99 -18295946.91 0.0492 0.0440  
 Venus -54802-07-01 23:45 J -18294825.71 -18294825.51 -18294825.30 0.0518 0.0099  
 Mars -54802-08-01 22:47 J -18294794.73 -18294794.55 -18294794.36 0.0519 0.0414  
 Mercury -54799-02-06 20:37 J -18293874.77 -18293874.64 -18293874.51 0.0535 0.0108  
 Mercury -54799-05-07 04:47 J -18293785.35 -18293785.30 -18293785.25 0.0534 0.0484  
 Venus -54796-05-07 04:33 J -18292689.33 -18292689.31 -18292689.28 0.0506 0.0501  
 Mercury -54794-12-25 05:30 J -18291727.37 -18291727.27 -18291727.15 0.0491 0.0385  
 Mercury -54793-03-24 09:49 J -18291637.23 -18291637.09 -18291636.93 0.0491 0.0269  
 Moon -54792-02-22 02:23 J -18291302.61 -18291302.40 -18291302.18 0.0496 0.0235  
 Earth -54792-02-22 03:06 J -18291302.56 -18291302.37 -18291302.16 0.0496 0.0263 \*  
 Venus -54790-03-06 10:47 J -18290560.23 -18290560.05 -18290559.88 0.0516 0.0281  
 Mercury -54788-11-26 00:13 J -18289564.60 -18289564.49 -18289564.37 0.0536 0.0256  
 Mercury -54787-02-23 08:37 J -18289475.23 -18289475.14 -18289475.04 0.0535 0.0344  
 Venus -54784-01-10 09:35 J -18288423.28 -18288423.10 -18288422.92 0.0508 0.0190  
 Mercury -54781-01-11 08:37 J -18287327.31 -18287327.14 -18287326.96 0.0491 0.0109  
 Moon -54780-02-26 16:18 J -18286915.04 -18286914.82 -18286914.59 0.0497 0.0104  
 Earth -54780-02-26 17:01 J -18286915.02 -18286914.79 -18286914.56 0.0497 0.0114 \*  
 Mercury -54776-09-14 04:04 J -18285254.41 -18285254.33 -18285254.24 0.0536 0.0399  
 Mercury -54776-12-12 12:42 J -18285165.08 -18285164.97 -18285164.85 0.0535 0.0206  
 Earth -54775-08-23 22:18 J -18284910.59 -18284910.57 -18284910.55 0.0532 0.0528  
 Mars -54773-08-28 20:37 J -18284174.78 -18284174.64 -18284174.48 0.0510 0.0399  
 Venus -54773-09-15 12:57 J -18284157.15 -18284156.96 -18284156.77 0.0509 0.0133  
 Mercury -54770-10-30 07:11 J -18283017.37 -18283017.20 -18283017.02 0.0491 0.0053  
 Earth -54768-03-03 08:23 J -18282527.16 -18282527.15 -18282527.14 0.0498 0.0498  
 Moon -54768-03-03 10:47 J -18282527.12 -18282527.05 -18282526.96 0.0498 0.0470

Venus -54766-03-09 18:13 J -18281790.90 -18281790.74 -18281790.57 0.0520 0.0319  
 Mercury -54764-09-30 16:33 J -18280854.93 -18280854.81 -18280854.68 0.0535 0.0064  
 Moon -54763-08-28 22:04 J -18280522.82 -18280522.58 -18280522.34 0.0530 0.0082  
 Earth -54763-08-28 22:04 J -18280522.81 -18280522.58 -18280522.35 0.0530 0.0074 \*  
 Venus -54761-05-21 15:21 J -18279890.94 -18279890.86 -18279890.77 0.0512 0.0459  
 Mercury -54758-08-18 06:13 J -18278707.40 -18278707.24 -18278707.08 0.0492 0.0208  
 Mercury -54758-11-16 11:01 J -18278617.11 -18278617.04 -18278616.97 0.0492 0.0453  
 Venus -54755-11-12 08:23 J -18277525.36 -18277525.15 -18277524.95 0.0517 0.0051  
 Mercury -54752-07-19 19:54 J -18276544.80 -18276544.67 -18276544.54 0.0535 0.0093  
 Mercury -54752-10-17 04:04 J -18276455.37 -18276455.33 -18276455.29 0.0534 0.0499  
 Moon -54751-09-02 16:04 J -18276134.98 -18276134.83 -18276134.68 0.0529 0.0394  
 Earth -54751-09-02 17:59 J -18276134.91 -18276134.75 -18276134.58 0.0529 0.0364 \*  
 Venus -54749-09-17 18:57 J -18275388.84 -18275388.71 -18275388.58 0.0507 0.0373  
 Mercury -54746-06-06 05:01 J -18274397.40 -18274397.29 -18274397.16 0.0492 0.0365  
 Mercury -54746-09-04 09:35 J -18274307.24 -18274307.10 -18274306.95 0.0492 0.0291  
 Venus -54743-07-17 21:49 J -18273259.71 -18273259.59 -18273259.46 0.0515 0.0415  
 Mercury -54740-05-07 23:30 J -18272234.64 -18272234.52 -18272234.40 0.0535 0.0242  
 Mercury -54740-08-05 07:54 J -18272145.27 -18272145.17 -18272145.08 0.0535 0.0356  
 Venus -54737-05-23 23:16 J -18271122.73 -18271122.53 -18271122.33 0.0509 0.0058  
 Mars -54737-06-01 12:28 J -18271114.23 -18271113.98 -18271113.74 0.0508 0.0087  
 Mercury -54734-06-23 07:40 J -18269997.35 -18269997.18 -18269997.01 0.0491 0.0123  
 Mercury -54728-02-24 02:52 J -18267924.47 -18267924.38 -18267924.29 0.0536 0.0394  
 Mercury -54728-05-24 11:30 J -18267835.14 -18267835.02 -18267834.90 0.0536 0.0211  
 Venus -54725-01-28 03:49 J -18266856.51 -18266856.34 -18266856.17 0.0511 0.0260  
 Mercury -54722-04-11 06:28 J -18265687.41 -18265687.23 -18265687.05 0.0491 0.0035  
 Venus -54719-07-21 00:13 J -18264490.69 -18264490.49 -18264490.29 0.0519 0.0160  
 Mercury -54716-03-12 15:35 J -18263524.98 -18263524.85 -18263524.72 0.0536 0.0072  
 Mercury -54710-01-28 05:01 J -18261377.45 -18261377.29 -18261377.12 0.0491 0.0195  
 Mercury -54710-04-28 09:49 J -18261287.14 -18261287.09 -18261287.03 0.0492 0.0466  
 Moon -54709-02-22 14:09 J -18260987.09 -18260986.91 -18260986.71 0.0496 0.0268

Earth -54709-02-22 15:06 J -18260987.05 -18260986.87 -18260986.67 0.0496 0.0290 \*  
 Venus -54707-03-25 15:35 J -18260225.04 -18260224.85 -18260224.66 0.0517 0.0202  
 Mercury -54705-12-29 19:25 J -18259214.82 -18259214.69 -18259214.56 0.0535 0.0072  
 Mercury -54704-03-29 03:35 J -18259125.38 -18259125.35 -18259125.32 0.0535 0.0520  
 Venus -54701-01-30 11:01 J -18258088.22 -18258088.04 -18258087.87 0.0507 0.0252  
 Mercury -54699-11-16 04:04 J -18257067.45 -18257067.33 -18257067.20 0.0491 0.0350  
 Mercury -54698-02-14 08:23 J -18256977.29 -18256977.15 -18256977.00 0.0492 0.0305  
 Earth -54697-02-27 05:45 J -18256599.49 -18256599.26 -18256599.03 0.0497 0.0090  
 Moon -54697-02-27 08:23 J -18256599.39 -18256599.15 -18256598.91 0.0497 0.0072 \*  
 Mercury -54693-10-17 22:47 J -18254904.67 -18254904.55 -18254904.43 0.0535 0.0227  
 Mercury -54692-01-15 06:57 J -18254815.30 -18254815.21 -18254815.11 0.0535 0.0371  
 Venus -54690-10-05 13:25 J -18253822.13 -18253821.94 -18253821.74 0.0509 0.0073  
 Mercury -54687-12-03 07:11 J -18252667.37 -18252667.20 -18252667.03 0.0492 0.0144  
 Moon -54685-03-02 16:33 J -18252211.91 -18252211.81 -18252211.71 0.0498 0.0446  
 Earth -54685-03-02 20:09 J -18252211.73 -18252211.66 -18252211.58 0.0498 0.0470 \*  
 Mars -54683-01-17 16:04 J -18251526.13 -18251525.83 -18251525.53 0.0518 0.0077  
 Venus -54683-03-28 21:06 J -18251455.76 -18251455.62 -18251455.49 0.0520 0.0389  
 Mercury -54681-08-06 02:09 J -18250594.50 -18250594.41 -18250594.32 0.0535 0.0378  
 Mercury -54681-11-03 10:47 J -18250505.17 -18250505.05 -18250504.93 0.0535 0.0225  
 Moon -54680-08-28 02:52 J -18250207.59 -18250207.38 -18250207.16 0.0531 0.0130  
 Earth -54680-08-28 04:47 J -18250207.53 -18250207.30 -18250207.08 0.0531 0.0128 \*  
 Venus -54678-06-10 17:01 J -18249555.91 -18249555.79 -18249555.66 0.0512 0.0395  
 Mercury -54675-09-21 05:30 J -18248357.45 -18248357.27 -18248357.09 0.0491 0.0020  
 Venus -54672-12-01 07:11 J -18247190.41 -18247190.20 -18247189.99 0.0518 0.0006  
 Mercury -54669-05-25 05:16 J -18246284.29 -18246284.28 -18246284.27 0.0536 0.0534  
 Mercury -54669-08-22 14:09 J -18246195.03 -18246194.91 -18246194.78 0.0536 0.0079  
 Earth -54668-09-02 04:33 J -18245819.49 -18245819.31 -18245819.13 0.0530 0.0330  
 Moon -54668-09-02 08:09 J -18245819.33 -18245819.16 -18245818.99 0.0530 0.0363 \*  
 Venus -54666-10-07 22:47 J -18245053.64 -18245053.55 -18245053.45 0.0506 0.0446  
 Mercury -54663-07-10 04:33 J -18244047.48 -18244047.31 -18244047.15 0.0491 0.0176

Mercury -54663-10-08 09:06 J -18243957.15 -18243957.12 -18243957.09 0.0491 0.0483  
 Venus -54660-08-05 21:49 J -18242924.74 -18242924.59 -18242924.44 0.0516 0.0357  
 Mercury -54657-06-10 18:13 J -18241884.87 -18241884.74 -18241884.61 0.0536 0.0065  
 Mercury -54657-09-08 02:23 J -18241795.41 -18241795.40 -18241795.38 0.0535 0.0529  
 Venus -54654-06-13 02:09 J -18240787.60 -18240787.41 -18240787.21 0.0508 0.0126  
 Mercury -54651-04-28 03:06 J -18239737.50 -18239737.37 -18239737.24 0.0491 0.0335  
 Mercury -54651-07-27 07:11 J -18239647.33 -18239647.20 -18239647.05 0.0491 0.0319  
 Mercury -54645-03-29 22:04 J -18237574.70 -18237574.58 -18237574.46 0.0536 0.0209  
 Mercury -54645-06-27 06:28 J -18237485.32 -18237485.23 -18237485.14 0.0535 0.0389  
 Venus -54642-02-16 05:16 J -18236521.46 -18236521.28 -18236521.09 0.0510 0.0197  
 Mercury -54639-02-14 02:09 J -18235427.42 -18235427.41 -18235427.40 0.0491 0.0490  
 Mercury -54639-05-15 05:59 J -18235337.42 -18235337.25 -18235337.08 0.0491 0.0157  
 Venus -54636-08-09 04:47 J -18234155.48 -18234155.30 -18234155.11 0.0519 0.0238  
 Mercury -54633-01-17 01:11 J -18233264.54 -18233264.45 -18233264.35 0.0535 0.0365  
 Mercury -54633-04-15 09:49 J -18233175.20 -18233175.09 -18233174.97 0.0535 0.0240  
 Mercury -54627-03-03 04:47 J -18231027.48 -18231027.30 -18231027.12 0.0491 0.0005  
 Earth -54626-02-22 03:06 J -18230671.55 -18230671.37 -18230671.19 0.0495 0.0318  
 Moon -54626-02-22 05:45 J -18230671.45 -18230671.26 -18230671.07 0.0495 0.0301 \*  
 Venus -54624-04-13 18:13 J -18229889.94 -18229889.74 -18229889.54 0.0517 0.0132  
 Mercury -54622-11-05 04:33 J -18228954.34 -18228954.31 -18228954.28 0.0536 0.0518  
 Mercury -54621-02-02 13:25 J -18228865.06 -18228864.94 -18228864.81 0.0535 0.0092  
 Mars -54619-11-23 10:04 J -18227840.30 -18227840.08 -18227839.85 0.0510 0.0207  
 Venus -54618-02-18 12:28 J -18227753.13 -18227752.98 -18227752.82 0.0507 0.0315  
 Mercury -54616-12-20 03:21 J -18226717.53 -18226717.36 -18226717.19 0.0491 0.0162  
 Moon -54614-02-26 10:04 J -18226284.31 -18226284.08 -18226283.85 0.0496 0.0026  
 Earth -54614-02-26 13:40 J -18226284.16 -18226283.93 -18226283.69 0.0496 0.0051 \*  
 Venus -54613-12-17 05:01 J -18225624.32 -18225624.29 -18225624.25 0.0514 0.0507  
 Mercury -54610-11-21 16:47 J -18224554.93 -18224554.80 -18224554.67 0.0536 0.0063  
 Mercury -54609-02-19 00:57 J -18224465.47 -18224465.46 -18224465.45 0.0535 0.0532  
 Venus -54607-10-24 17:01 J -18223486.99 -18223486.79 -18223486.59 0.0509 0.0005

Mercury -54604-10-08 02:23 J -18222407.53 -18222407.40 -18222407.26 0.0491 0.0317

Mercury -54603-01-06 06:42 J -18222317.35 -18222317.22 -18222317.09 0.0491 0.0335

Earth -54602-03-03 03:06 J -18221896.48 -18221896.37 -18221896.24 0.0497 0.0429

Moon -54602-03-03 06:57 J -18221896.33 -18221896.21 -18221896.07 0.0497 0.0412 \*

Venus -54600-04-16 20:23 J -18221120.76 -18221120.65 -18221120.54 0.0520 0.0445

Mercury -54598-09-09 20:37 J -18220244.76 -18220244.64 -18220244.52 0.0536 0.0206

Mercury -54598-12-08 05:01 J -18220155.37 -18220155.29 -18220155.20 0.0536 0.0395

Earth -54597-08-27 14:09 J -18219892.12 -18219891.91 -18219891.69 0.0531 0.0165

Moon -54597-08-27 17:30 J -18219891.99 -18219891.77 -18219891.54 0.0531 0.0151 \*

Venus -54595-06-29 19:54 J -18219220.82 -18219220.67 -18219220.52 0.0511 0.0328

Mercury -54592-07-27 00:57 J -18218097.49 -18218097.46 -18218097.42 0.0491 0.0477

Mercury -54592-10-25 04:47 J -18218007.47 -18218007.30 -18218007.13 0.0491 0.0170

Venus -54589-12-20 11:01 J -18216855.24 -18216855.04 -18216854.83 0.0518 0.0080

Mercury -54586-06-29 00:28 J -18215934.58 -18215934.48 -18215934.38 0.0536 0.0351

Mercury -54586-09-26 09:06 J -18215845.23 -18215845.12 -18215845.01 0.0535 0.0253

Moon -54585-09-01 10:18 J -18215504.25 -18215504.07 -18215503.88 0.0530 0.0323

Earth -54585-09-01 14:09 J -18215504.09 -18215503.91 -18215503.71 0.0530 0.0292 \*

Mars -54583-08-27 04:33 J -18214779.50 -18214779.31 -18214779.10 0.0508 0.0289

Venus -54583-10-26 23:30 J -18214718.54 -18214718.52 -18214718.50 0.0506 0.0502

Mercury -54580-08-13 03:21 J -18213697.53 -18213697.36 -18213697.18 0.0491 0.0016

Venus -54577-08-25 01:40 J -18212589.60 -18212589.43 -18212589.25 0.0516 0.0283

Mercury -54574-04-17 03:35 J -18211624.39 -18211624.35 -18211624.31 0.0536 0.0506

Mercury -54574-07-15 12:28 J -18211535.11 -18211534.98 -18211534.85 0.0535 0.0103

Venus -54571-07-02 01:54 J -18210452.60 -18210452.42 -18210452.23 0.0508 0.0182

Mercury -54568-06-01 02:09 J -18209387.58 -18209387.41 -18209387.24 0.0491 0.0150

Mercury -54562-05-03 16:04 J -18207224.96 -18207224.83 -18207224.70 0.0535 0.0051

Venus -54559-03-07 05:45 J -18206186.45 -18206186.26 -18206186.06 0.0510 0.0138

Mercury -54556-03-20 01:11 J -18205077.59 -18205077.45 -18205077.31 0.0491 0.0306

Mercury -54556-06-18 05:16 J -18204987.40 -18204987.28 -18204987.15 0.0491 0.0347

Venus -54553-08-28 02:37 J -18203820.56 -18203820.39 -18203820.21 0.0519 0.0286

Mercury -54550-02-19 18:57 J -18202914.83 -18202914.71 -18202914.59 0.0536 0.0207

Mercury -54550-05-20 03:21 J -18202825.44 -18202825.36 -18202825.27 0.0536 0.0395

Venus -54548-11-10 09:21 J -18201920.19 -18201920.11 -18201920.03 0.0513 0.0462

Mercury -54544-01-06 00:13 J -18200767.55 -18200767.49 -18200767.43 0.0491 0.0460

Mercury -54544-04-06 03:49 J -18200677.50 -18200677.34 -18200677.17 0.0491 0.0186

Moon -54543-02-21 06:57 J -18200356.37 -18200356.21 -18200356.04 0.0494 0.0350

Earth -54543-02-21 10:47 J -18200356.22 -18200356.05 -18200355.89 0.0494 0.0357 \*

Venus -54541-05-02 16:33 J -18199555.02 -18199554.81 -18199554.60 0.0517 0.0081

Mercury -54539-12-08 22:47 J -18198604.65 -18198604.55 -18198604.45 0.0536 0.0353

Mercury -54538-03-08 07:25 J -18198515.30 -18198515.19 -18198515.07 0.0536 0.0254

Venus -54535-03-09 13:40 J -18197418.06 -18197417.93 -18197417.79 0.0507 0.0373

Mercury -54532-01-23 02:09 J -18196367.59 -18196367.41 -18196367.23 0.0491 0.0021

Earth -54531-02-25 22:18 J -18195968.81 -18195968.57 -18195968.33 0.0496 0.0015

Moon -54531-02-26 02:09 J -18195968.65 -18195968.41 -18195968.18 0.0496 0.0016 \*

Venus -54529-01-06 07:40 J -18195289.29 -18195289.18 -18195289.07 0.0515 0.0439

Mars -54529-04-13 02:09 J -18195191.70 -18195191.41 -18195191.12 0.0518 0.0166

Mercury -54527-09-27 02:23 J -18194294.44 -18194294.40 -18194294.35 0.0536 0.0499

Mercury -54527-12-25 11:30 J -18194205.15 -18194205.02 -18194204.90 0.0536 0.0113

Venus -54524-11-12 16:47 J -18193151.99 -18193151.80 -18193151.60 0.0509 0.0055

Mercury -54521-11-11 00:42 J -18192057.64 -18192057.47 -18192057.30 0.0491 0.0141

Moon -54519-03-02 09:06 J -18191581.27 -18191581.12 -18191580.96 0.0497 0.0375

Earth -54519-03-02 12:13 J -18191581.12 -18191580.99 -18191580.84 0.0497 0.0393 \*

Venus -54517-05-05 23:16 J -18190785.55 -18190785.53 -18190785.49 0.0520 0.0515

Mercury -54515-10-13 14:52 J -18189895.01 -18189894.88 -18189894.75 0.0535 0.0041

Moon -54514-08-27 14:37 J -18189577.10 -18189576.89 -18189576.68 0.0531 0.0211

Earth -54514-08-27 18:28 J -18189576.93 -18189576.73 -18189576.52 0.0531 0.0228 \*

Venus -54512-07-18 18:42 J -18188885.89 -18188885.72 -18188885.55 0.0511 0.0275

Mercury -54509-08-29 23:30 J -18187747.66 -18187747.52 -18187747.38 0.0491 0.0299

Mercury -54509-11-28 03:49 J -18187657.46 -18187657.34 -18187657.22 0.0491 0.0356

Venus -54505-01-09 12:13 J -18186520.19 -18186519.99 -18186519.79 0.0518 0.0143

Mercury -54503-08-01 18:13 J -18185584.87 -18185584.74 -18185584.62 0.0536 0.0195

Mercury -54503-10-30 02:37 J -18185495.48 -18185495.39 -18185495.31 0.0535 0.0405

Earth -54502-09-01 16:47 J -18185189.01 -18185188.80 -18185188.59 0.0530 0.0224

Moon -54502-09-01 20:09 J -18185188.85 -18185188.66 -18185188.46 0.0530 0.0257 \*

Mercury -54497-06-17 22:33 J -18183437.62 -18183437.56 -18183437.49 0.0491 0.0452

Mercury -54497-09-16 02:23 J -18183347.57 -18183347.40 -18183347.24 0.0491 0.0194

Venus -54494-09-13 23:01 J -18182254.73 -18182254.54 -18182254.35 0.0515 0.0237

Mercury -54491-05-20 20:52 J -18181274.73 -18181274.63 -18181274.53 0.0536 0.0357

Mercury -54491-08-18 05:30 J -18181185.38 -18181185.27 -18181185.15 0.0536 0.0251

Venus -54488-07-21 03:06 J -18180117.54 -18180117.37 -18180117.20 0.0508 0.0241

Mercury -54485-07-05 00:57 J -18179037.64 -18179037.46 -18179037.28 0.0491 0.0033

Mercury -54479-03-09 00:28 J -18176964.52 -18176964.48 -18176964.44 0.0536 0.0506

Mercury -54479-06-06 09:35 J -18176875.23 -18176875.10 -18176874.98 0.0536 0.0107

Venus -54476-03-26 05:59 J -18175851.45 -18175851.25 -18175851.06 0.0510 0.0084

Mercury -54473-04-22 23:01 J -18174727.71 -18174727.54 -18174727.37 0.0491 0.0135

Venus -54470-09-17 04:04 J -18173485.48 -18173485.33 -18173485.17 0.0519 0.0349

Mercury -54467-03-25 13:25 J -18172565.07 -18172564.94 -18172564.81 0.0536 0.0037

Venus -54465-11-29 08:23 J -18171585.27 -18171585.15 -18171585.03 0.0512 0.0409

Mars -54464-02-16 17:01 J -18171506.03 -18171505.79 -18171505.54 0.0509 0.0025

Mercury -54461-02-09 21:35 J -18170417.73 -18170417.60 -18170417.45 0.0491 0.0295

Mercury -54461-05-10 01:54 J -18170327.54 -18170327.42 -18170327.30 0.0491 0.0360

Earth -54460-02-20 17:16 J -18170040.92 -18170040.78 -18170040.65 0.0495 0.0403

Moon -54460-02-20 20:52 J -18170040.76 -18170040.63 -18170040.50 0.0495 0.0404 \*

Venus -54458-05-22 18:13 J -18169219.95 -18169219.74 -18169219.53 0.0517 0.0017

Mercury -54455-01-11 16:47 J -18168254.92 -18168254.80 -18168254.68 0.0536 0.0190

Mercury -54455-04-11 01:11 J -18168165.53 -18168165.45 -18168165.37 0.0535 0.0409

Venus -54452-03-28 11:30 J -18167083.13 -18167083.02 -18167082.91 0.0507 0.0419

Mercury -54450-11-28 20:37 J -18166107.71 -18166107.64 -18166107.57 0.0491 0.0452

Mercury -54449-02-27 00:28 J -18166017.65 -18166017.48 -18166017.32 0.0491 0.0196

Moon -54448-02-25 02:37 J -18165653.63 -18165653.39 -18165653.15 0.0496 0.0061

Earth -54448-02-25 05:45 J -18165653.50 -18165653.26 -18165653.02 0.0496 0.0029 \*  
 Venus -54446-01-25 07:54 J -18164954.31 -18164954.17 -18164954.03 0.0515 0.0380  
 Mercury -54444-10-30 19:54 J -18163944.77 -18163944.67 -18163944.57 0.0536 0.0346  
 Mercury -54443-01-28 04:33 J -18163855.42 -18163855.31 -18163855.19 0.0535 0.0259  
 Venus -54441-12-01 14:52 J -18162817.07 -18162816.88 -18162816.68 0.0509 0.0102  
 Mercury -54438-12-15 23:01 J -18161707.72 -18161707.54 -18161707.36 0.0491 0.0037  
 Earth -54436-03-01 17:30 J -18161265.93 -18161265.77 -18161265.60 0.0496 0.0346  
 Moon -54436-03-01 19:25 J -18161265.86 -18161265.69 -18161265.52 0.0496 0.0336 \*  
 Mercury -54432-08-18 22:18 J -18159634.60 -18159634.57 -18159634.53 0.0536 0.0513  
 Mercury -54432-11-16 07:25 J -18159545.31 -18159545.19 -18159545.06 0.0536 0.0100  
 Earth -54431-08-26 17:16 J -18159261.97 -18159261.78 -18159261.59 0.0532 0.0308  
 Moon -54431-08-26 20:52 J -18159261.81 -18159261.63 -18159261.43 0.0532 0.0286 \*  
 Venus -54429-08-06 17:59 J -18158550.93 -18158550.75 -18158550.57 0.0512 0.0224  
 Mars -54429-11-20 05:30 J -18158445.37 -18158445.27 -18158445.16 0.0508 0.0455  
 Mercury -54426-10-03 21:49 J -18157397.77 -18157397.59 -18157397.42 0.0491 0.0124  
 Venus -54422-01-28 08:23 J -18156185.34 -18156185.15 -18156184.95 0.0518 0.0183  
 Mercury -54420-09-04 11:16 J -18155235.16 -18155235.03 -18155234.90 0.0536 0.0049  
 Moon -54419-08-31 15:21 J -18154874.08 -18154873.86 -18154873.64 0.0531 0.0185  
 Earth -54419-08-31 17:59 J -18154873.97 -18154873.75 -18154873.53 0.0531 0.0156 \*  
 Mercury -54414-07-22 19:40 J -18153087.82 -18153087.68 -18153087.53 0.0491 0.0292  
 Mercury -54414-10-20 23:45 J -18152997.62 -18152997.51 -18152997.38 0.0491 0.0362  
 Mars -54411-09-28 18:42 J -18151923.94 -18151923.72 -18151923.51 0.0516 0.0366  
 Venus -54411-10-02 22:33 J -18151919.76 -18151919.56 -18151919.36 0.0516 0.0182  
 Mercury -54408-06-23 15:06 J -18150925.00 -18150924.87 -18150924.75 0.0536 0.0192  
 Mercury -54408-09-20 23:30 J -18150835.60 -18150835.52 -18150835.44 0.0536 0.0409  
 Venus -54405-08-09 00:42 J -18149782.63 -18149782.47 -18149782.30 0.0508 0.0286  
 Mercury -54402-05-10 18:28 J -18148777.79 -18148777.73 -18148777.66 0.0491 0.0451  
 Mercury -54402-08-08 22:04 J -18148687.74 -18148687.58 -18148687.41 0.0491 0.0197  
 Mercury -54396-04-11 18:13 J -18146614.84 -18146614.74 -18146614.64 0.0536 0.0346  
 Mercury -54396-07-10 03:06 J -18146525.49 -18146525.37 -18146525.26 0.0535 0.0260



Venus -54393-04-14 02:37 J -18145516.59 -18145516.39 -18145516.19 0.0510 0.0041  
 Mercury -54390-05-27 20:37 J -18144377.82 -18144377.64 -18144377.46 0.0491 0.0033  
 Venus -54387-10-06 03:06 J -18143150.50 -18143150.37 -18143150.23 0.0519 0.0402  
 Mercury -54384-01-28 21:21 J -18142304.65 -18142304.61 -18142304.57 0.0536 0.0504  
 Mercury -54384-04-28 06:28 J -18142215.36 -18142215.23 -18142215.11 0.0536 0.0108  
 Venus -54382-12-19 04:47 J -18141250.43 -18141250.30 -18141250.16 0.0512 0.0367  
 Mercury -54378-03-15 19:25 J -18140067.86 -18140067.69 -18140067.51 0.0491 0.0125  
 Moon -54377-02-20 18:57 J -18139725.80 -18139725.71 -18139725.61 0.0494 0.0454  
 Earth -54377-02-20 22:18 J -18139725.66 -18139725.57 -18139725.48 0.0494 0.0450 \*  
 Venus -54375-06-10 13:54 J -18138885.13 -18138884.92 -18138884.71 0.0517 0.0023  
 Mars -54375-07-07 12:57 J -18138858.17 -18138857.96 -18138857.73 0.0517 0.0361  
 Mercury -54372-02-14 09:06 J -18137905.25 -18137905.12 -18137904.99 0.0536 0.0057  
 Venus -54369-04-16 09:21 J -18136748.18 -18136748.11 -18136748.03 0.0507 0.0464  
 Mercury -54366-01-01 18:13 J -18135757.88 -18135757.74 -18135757.59 0.0491 0.0284  
 Mercury -54366-04-01 22:18 J -18135667.69 -18135667.57 -18135667.45 0.0491 0.0369  
 Earth -54365-02-25 09:06 J -18135338.35 -18135338.12 -18135337.88 0.0495 0.0084  
 Moon -54365-02-25 11:01 J -18135338.26 -18135338.04 -18135337.81 0.0495 0.0114 \*  
 Venus -54363-02-13 03:06 J -18134619.52 -18134619.37 -18134619.21 0.0514 0.0344  
 Mercury -54361-12-03 12:42 J -18133595.09 -18133594.97 -18133594.85 0.0536 0.0207  
 Mercury -54360-03-02 21:06 J -18133505.70 -18133505.62 -18133505.53 0.0536 0.0397  
 Venus -54358-12-21 11:59 J -18132482.19 -18132482.00 -18132481.81 0.0509 0.0143  
 Mercury -54355-10-20 16:18 J -18131447.89 -18131447.82 -18131447.75 0.0491 0.0452  
 Mercury -54354-01-18 19:40 J -18131357.84 -18131357.68 -18131357.51 0.0491 0.0195  
 Moon -54353-02-29 18:42 J -18130950.92 -18130950.72 -18130950.51 0.0496 0.0277  
 Earth -54353-02-29 18:57 J -18130950.90 -18130950.71 -18130950.51 0.0496 0.0283 \*  
 Mercury -54349-09-21 16:18 J -18129284.92 -18129284.82 -18129284.72 0.0536 0.0353  
 Mercury -54349-12-20 01:11 J -18129195.56 -18129195.45 -18129195.34 0.0536 0.0255  
 Moon -54348-08-25 16:47 J -18128946.98 -18128946.80 -18128946.63 0.0532 0.0357  
 Earth -54348-08-25 19:54 J -18128946.83 -18128946.67 -18128946.51 0.0532 0.0378 \*  
 Mars -54346-08-09 18:42 J -18128232.88 -18128232.72 -18128232.53 0.0511 0.0364

Venus -54346-08-26 14:52 J -18128216.06 -18128215.88 -18128215.69 0.0511 0.0181  
 Mercury -54343-11-06 18:13 J -18127047.92 -18127047.74 -18127047.56 0.0491 0.0030  
 Venus -54339-02-16 07:40 J -18125850.37 -18125850.18 -18125850.00 0.0518 0.0236  
 Mercury -54337-07-10 19:40 J -18124974.72 -18124974.68 -18124974.64 0.0536 0.0507  
 Mercury -54337-10-08 04:33 J -18124885.43 -18124885.31 -18124885.18 0.0536 0.0106  
 Earth -54336-08-30 17:45 J -18124558.99 -18124558.76 -18124558.53 0.0531 0.0077  
 Moon -54336-08-30 18:57 J -18124558.93 -18124558.71 -18124558.50 0.0531 0.0101 \*  
 Venus -54334-05-01 15:49 J -18123949.84 -18123949.84 -18123949.83 0.0513 0.0512  
 Mercury -54331-08-25 16:47 J -18122737.97 -18122737.80 -18122737.63 0.0491 0.0132  
 Venus -54328-10-21 20:52 J -18121584.83 -18121584.63 -18121584.43 0.0516 0.0131  
 Mercury -54325-07-27 07:54 J -18120575.30 -18120575.17 -18120575.04 0.0536 0.0051  
 Earth -54324-09-04 14:37 J -18120170.92 -18120170.89 -18120170.86 0.0530 0.0524  
 Moon -54324-09-04 16:04 J -18120170.90 -18120170.83 -18120170.75 0.0530 0.0500 \*  
 Venus -54322-08-28 20:23 J -18119447.80 -18119447.65 -18119447.49 0.0508 0.0323  
 Mercury -54319-06-13 15:49 J -18118427.98 -18118427.84 -18118427.70 0.0491 0.0288  
 Mercury -54319-09-11 19:54 J -18118337.79 -18118337.67 -18118337.55 0.0491 0.0366  
 Venus -54316-06-26 08:52 J -18117319.18 -18117319.13 -18117319.09 0.0513 0.0499  
 Mercury -54313-05-15 10:18 J -18116265.18 -18116265.07 -18116264.95 0.0536 0.0218  
 Mercury -54313-08-12 18:57 J -18116175.80 -18116175.71 -18116175.62 0.0536 0.0386  
 Venus -54310-05-03 23:01 J -18115181.74 -18115181.54 -18115181.35 0.0510 0.0007  
 Mars -54310-05-13 03:35 J -18115172.59 -18115172.35 -18115172.10 0.0510 0.0110  
 Mercury -54307-04-01 14:37 J -18114117.96 -18114117.89 -18114117.82 0.0491 0.0446  
 Mercury -54307-06-30 17:59 J -18114027.91 -18114027.75 -18114027.58 0.0491 0.0201  
 Venus -54304-10-24 21:35 J -18112815.71 -18112815.60 -18112815.48 0.0519 0.0435  
 Mercury -54301-03-03 13:40 J -18111955.02 -18111954.93 -18111954.83 0.0536 0.0370  
 Mercury -54301-05-31 22:33 J -18111865.67 -18111865.56 -18111865.44 0.0536 0.0240  
 Venus -54298-01-07 01:11 J -18110915.60 -18110915.45 -18110915.30 0.0512 0.0329  
 Mercury -54295-04-18 15:35 J -18109718.03 -18109717.85 -18109717.67 0.0491 0.0027  
 Venus -54292-06-29 10:33 J -18108550.26 -18108550.06 -18108549.85 0.0517 0.0066  
 Mercury -54290-12-21 17:30 J -18107644.80 -18107644.77 -18107644.74 0.0536 0.0517

Mercury -54289-03-20 02:37 J -18107555.52 -18107555.39 -18107555.26 0.0536 0.0097  
 Venus -54286-05-06 05:30 J -18106413.29 -18106413.27 -18106413.24 0.0507 0.0501  
 Mercury -54283-02-04 14:09 J -18105408.08 -18105407.91 -18105407.74 0.0491 0.0138  
 Moon -54282-02-24 09:06 J -18105023.35 -18105023.12 -18105022.89 0.0495 0.0181  
 Earth -54282-02-24 09:21 J -18105023.33 -18105023.11 -18105022.88 0.0495 0.0153 \*  
 Venus -54280-03-04 00:57 J -18104284.63 -18104284.46 -18104284.28 0.0515 0.0295  
 Mercury -54277-01-07 05:59 J -18103245.38 -18103245.25 -18103245.12 0.0536 0.0055  
 Venus -54274-01-09 07:25 J -18102147.37 -18102147.19 -18102147.00 0.0509 0.0180  
 Mercury -54272-11-23 12:42 J -18101098.11 -18101097.97 -18101097.83 0.0491 0.0299  
 Mercury -54271-02-21 16:47 J -18101007.92 -18101007.80 -18101007.68 0.0491 0.0355  
 Moon -54270-02-28 20:09 J -18100635.87 -18100635.66 -18100635.46 0.0496 0.0227  
 Earth -54270-02-28 21:49 J -18100635.80 -18100635.59 -18100635.38 0.0496 0.0223 \*  
 Mercury -54266-10-26 09:06 J -18098935.24 -18098935.12 -18098935.00 0.0536 0.0211  
 Mercury -54265-01-23 17:45 J -18098845.85 -18098845.76 -18098845.67 0.0535 0.0391  
 Earth -54265-08-24 15:35 J -18098631.95 -18098631.85 -18098631.74 0.0533 0.0474  
 Moon -54265-08-24 17:30 J -18098631.88 -18098631.77 -18098631.65 0.0533 0.0453 \*  
 Venus -54263-09-14 09:49 J -18097881.28 -18097881.09 -18097880.90 0.0511 0.0145  
 Mercury -54260-09-11 11:59 J -18096788.07 -18096788.00 -18096787.93 0.0491 0.0452  
 Mercury -54260-12-10 15:35 J -18096698.02 -18096697.85 -18096697.69 0.0491 0.0195  
 Mars -54257-12-21 22:18 J -18095590.85 -18095590.57 -18095590.28 0.0515 0.0187  
 Venus -54256-03-07 02:37 J -18095515.56 -18095515.39 -18095515.20 0.0518 0.0272  
 Mercury -54254-08-14 11:45 J -18094625.10 -18094625.01 -18094624.92 0.0536 0.0379  
 Mercury -54254-11-11 20:37 J -18094535.76 -18094535.64 -18094535.53 0.0536 0.0230  
 Earth -54253-08-29 10:47 J -18094244.28 -18094244.05 -18094243.82 0.0532 0.0027  
 Moon -54253-08-29 11:16 J -18094244.27 -18094244.03 -18094243.79 0.0532 0.0011 \*  
 Venus -54251-05-20 11:16 J -18093615.10 -18093615.03 -18093614.96 0.0514 0.0478  
 Mercury -54248-09-28 13:54 J -18092388.10 -18092387.92 -18092387.74 0.0491 0.0030  
 Venus -54245-11-09 15:35 J -18091250.06 -18091249.85 -18091249.65 0.0516 0.0097  
 Mercury -54242-06-02 14:52 J -18090314.88 -18090314.88 -18090314.87 0.0536 0.0534  
 Mercury -54242-08-30 23:59 J -18090225.62 -18090225.50 -18090225.37 0.0536 0.0082

Moon -54241-09-03 07:40 J -18089856.32 -18089856.18 -18089856.03 0.0531 0.0406  
 Earth -54241-09-03 10:18 J -18089856.20 -18089856.07 -18089855.93 0.0531 0.0433 \*  
 Venus -54239-09-16 16:04 J -18089112.96 -18089112.83 -18089112.69 0.0508 0.0358  
 Mercury -54236-07-17 11:30 J -18088078.19 -18088078.02 -18088077.85 0.0491 0.0144  
 Venus -54233-07-15 04:18 J -18086984.40 -18086984.32 -18086984.22 0.0514 0.0461  
 Mercury -54230-06-19 03:49 J -18085915.47 -18085915.34 -18085915.20 0.0536 0.0067  
 Mercury -54230-09-16 12:13 J -18085825.99 -18085825.99 -18085825.98 0.0536 0.0534  
 Venus -54227-05-22 19:25 J -18084846.89 -18084846.69 -18084846.49 0.0510 0.0039  
 Mercury -54224-05-05 10:04 J -18083768.21 -18083768.08 -18083767.94 0.0491 0.0305  
 Mercury -54224-08-03 14:09 J -18083678.04 -18083677.91 -18083677.79 0.0491 0.0348  
 Venus -54221-11-12 19:25 J -18082480.77 -18082480.69 -18082480.62 0.0520 0.0483  
 Mercury -54218-04-07 07:25 J -18081605.31 -18081605.19 -18081605.07 0.0536 0.0215  
 Mercury -54218-07-05 16:04 J -18081515.92 -18081515.83 -18081515.75 0.0535 0.0388  
 Venus -54215-01-25 20:52 J -18080580.79 -18080580.63 -18080580.47 0.0512 0.0290  
 Mercury -54212-02-21 08:52 J -18079458.18 -18079458.13 -18079458.07 0.0491 0.0463  
 Mercury -54212-05-22 12:28 J -18079368.15 -18079367.98 -18079367.82 0.0491 0.0183  
 Venus -54209-07-18 08:37 J -18078215.34 -18078215.14 -18078214.94 0.0517 0.0115  
 Mercury -54206-01-24 10:33 J -18077295.16 -18077295.06 -18077294.97 0.0536 0.0372  
 Mercury -54206-04-23 19:25 J -18077205.81 -18077205.69 -18077205.58 0.0535 0.0237  
 Mercury -54200-03-10 11:16 J -18075058.21 -18075058.03 -18075057.85 0.0491 0.0024  
 Moon -54199-02-23 11:16 J -18074708.22 -18074708.03 -18074707.82 0.0494 0.0236  
 Earth -54199-02-23 12:57 J -18074708.17 -18074707.96 -18074707.74 0.0494 0.0209 \*  
 Venus -54197-03-22 21:06 J -18073949.80 -18073949.62 -18073949.43 0.0515 0.0254  
 Mercury -54194-02-09 22:04 J -18072895.71 -18072895.58 -18072895.45 0.0536 0.0073  
 Mars -54192-11-01 22:04 J -18071899.80 -18071899.58 -18071899.37 0.0512 0.0249  
 Venus -54191-01-28 02:52 J -18071812.56 -18071812.38 -18071812.20 0.0509 0.0214  
 Mercury -54189-12-27 09:49 J -18070748.26 -18070748.09 -18070747.92 0.0491 0.0138  
 Earth -54187-02-27 23:59 J -18070320.72 -18070320.50 -18070320.27 0.0495 0.0162  
 Moon -54187-02-28 03:21 J -18070320.58 -18070320.36 -18070320.13 0.0495 0.0175 \*  
 Mercury -54183-11-29 01:25 J -18068585.57 -18068585.44 -18068585.31 0.0536 0.0080

Mercury -54182-02-26 09:49 J -18068496.11 -18068496.09 -18068496.06 0.0535 0.0520  
 Venus -54180-10-03 05:30 J -18067546.46 -18067546.27 -18067546.07 0.0511 0.0109  
 Mercury -54177-10-15 07:40 J -18066438.32 -18066438.18 -18066438.05 0.0491 0.0310  
 Mercury -54176-01-13 11:16 J -18066348.15 -18066348.03 -18066347.90 0.0491 0.0342  
 Venus -54173-03-25 22:33 J -18065180.73 -18065180.56 -18065180.39 0.0519 0.0312  
 Mercury -54171-09-17 05:16 J -18064275.40 -18064275.28 -18064275.16 0.0536 0.0225  
 Mercury -54171-12-15 13:54 J -18064186.01 -18064185.92 -18064185.83 0.0536 0.0381  
 Moon -54170-08-29 10:33 J -18063929.27 -18063929.06 -18063928.83 0.0532 0.0090  
 Earth -54170-08-29 12:57 J -18063929.19 -18063928.96 -18063928.73 0.0532 0.0100 \*  
 Venus -54168-06-08 08:23 J -18063280.25 -18063280.15 -18063280.04 0.0513 0.0432  
 Mercury -54165-08-03 06:28 J -18062128.28 -18062128.23 -18062128.18 0.0491 0.0468  
 Mercury -54165-11-01 09:49 J -18062038.26 -18062038.09 -18062037.92 0.0491 0.0177  
 Venus -54162-11-29 12:28 J -18060915.18 -18060914.98 -18060914.77 0.0516 0.0052  
 Mercury -54159-07-06 08:37 J -18059965.23 -18059965.14 -18059965.04 0.0536 0.0376  
 Mercury -54159-10-03 17:45 J -18059875.88 -18059875.76 -18059875.65 0.0536 0.0235  
 Earth -54158-09-03 11:45 J -18059541.18 -18059541.01 -18059540.84 0.0531 0.0360  
 Moon -54158-09-03 15:21 J -18059541.04 -18059540.86 -18059540.67 0.0531 0.0330 \*  
 Mars -54156-08-05 12:28 J -18058839.20 -18058838.98 -18058838.76 0.0509 0.0233  
 Venus -54156-10-05 12:13 J -18058778.11 -18058777.99 -18058777.86 0.0507 0.0397  
 Mercury -54153-08-20 08:23 J -18057728.33 -18057728.15 -18057727.98 0.0491 0.0017  
 Venus -54150-08-04 03:06 J -18056649.50 -18056649.37 -18056649.25 0.0514 0.0408  
 Mercury -54147-04-24 11:45 J -18055655.02 -18055655.01 -18055655.00 0.0536 0.0533  
 Mercury -54147-07-22 21:06 J -18055565.75 -18055565.62 -18055565.50 0.0536 0.0083  
 Venus -54144-06-10 14:52 J -18054512.08 -18054511.88 -18054511.69 0.0510 0.0076  
 Mercury -54141-06-08 07:11 J -18053418.37 -18053418.20 -18053418.03 0.0491 0.0143  
 Mercury -54135-05-10 23:45 J -18051255.64 -18051255.51 -18051255.38 0.0536 0.0082  
 Mercury -54135-08-08 08:09 J -18051166.19 -18051166.16 -18051166.13 0.0535 0.0516  
 Venus -54132-02-13 16:18 J -18050245.99 -18050245.82 -18050245.65 0.0512 0.0254  
 Mercury -54129-03-27 05:59 J -18049108.39 -18049108.25 -18049108.11 0.0491 0.0303  
 Mercury -54129-06-25 09:49 J -18049018.21 -18049018.09 -18049017.96 0.0491 0.0350

Venus -54126-08-07 04:33 J -18047880.51 -18047880.31 -18047880.11 0.0517 0.0155  
 Mercury -54123-02-27 03:06 J -18046945.49 -18046945.37 -18046945.25 0.0536 0.0236  
 Mercury -54123-05-27 11:45 J -18046856.10 -18046856.01 -18046855.92 0.0536 0.0369  
 Mercury -54117-01-14 03:49 J -18044798.37 -18044798.34 -18044798.28 0.0491 0.0472  
 Mercury -54117-04-13 07:11 J -18044708.36 -18044708.20 -18044708.03 0.0491 0.0174  
 Earth -54116-02-22 11:45 J -18044393.21 -18044393.01 -18044392.82 0.0494 0.0285  
 Moon -54116-02-22 14:52 J -18044393.07 -18044392.88 -18044392.69 0.0494 0.0307 \*  
 Venus -54114-04-11 16:33 J -18043615.00 -18043614.81 -18043614.61 0.0515 0.0215  
 Mercury -54112-12-16 06:42 J -18042635.31 -18042635.22 -18042635.13 0.0536 0.0383  
 Mercury -54111-03-15 15:35 J -18042545.96 -18042545.85 -18042545.73 0.0536 0.0229  
 Venus -54108-02-16 00:57 J -18041477.63 -18041477.46 -18041477.29 0.0508 0.0261  
 Mercury -54105-01-31 05:59 J -18040398.43 -18040398.25 -18040398.07 0.0491 0.0012  
 Moon -54104-02-26 19:40 J -18040005.91 -18040005.68 -18040005.45 0.0495 0.0100  
 Earth -54104-02-26 23:30 J -18040005.75 -18040005.52 -18040005.28 0.0495 0.0090 \*  
 Mars -54102-03-17 03:21 J -18039257.67 -18039257.36 -18039257.05 0.0516 0.0016  
 Mercury -54100-10-04 10:18 J -18038325.08 -18038325.07 -18038325.06 0.0536 0.0533  
 Mercury -54099-01-01 19:25 J -18038235.82 -18038235.69 -18038235.56 0.0536 0.0082  
 Venus -54097-10-22 03:06 J -18037211.57 -18037211.37 -18037211.17 0.0510 0.0063  
 Mercury -54094-11-19 04:33 J -18036088.48 -18036088.31 -18036088.14 0.0491 0.0150  
 Earth -54092-03-03 12:42 J -18035618.03 -18035617.97 -18035617.89 0.0496 0.0472  
 Venus -54090-04-14 22:04 J -18034845.72 -18034845.58 -18034845.43 0.0519 0.0369  
 Mercury -54088-10-20 22:47 J -18033925.68 -18033925.55 -18033925.42 0.0536 0.0071  
 Mercury -54087-01-18 07:11 J -18033836.22 -18033836.20 -18033836.18 0.0535 0.0527  
 Earth -54087-08-28 12:57 J -18033614.18 -18033613.96 -18033613.75 0.0532 0.0181  
 Moon -54087-08-28 16:18 J -18033614.04 -18033613.82 -18033613.59 0.0532 0.0170 \*  
 Venus -54085-06-27 05:01 J -18032945.42 -18032945.29 -18032945.16 0.0513 0.0390  
 Mercury -54082-09-07 03:49 J -18031778.48 -18031778.34 -18031778.21 0.0491 0.0305  
 Mercury -54082-12-06 07:25 J -18031688.31 -18031688.19 -18031688.06 0.0491 0.0349  
 Venus -54079-12-18 11:01 J -18030580.25 -18030580.04 -18030579.83 0.0516 0.0011  
 Mercury -54076-08-09 01:25 J -18029615.55 -18029615.44 -18029615.32 0.0536 0.0235

Mercury -54076-11-06 10:04 J -18029526.17 -18029526.08 -18029525.98 0.0535 0.0370  
 Moon -54075-09-02 04:18 J -18029226.52 -18029226.32 -18029226.11 0.0531 0.0236  
 Earth -54075-09-02 08:09 J -18029226.35 -18029226.16 -18029225.95 0.0531 0.0267 \*  
 Venus -54073-10-24 08:37 J -18028443.24 -18028443.14 -18028443.04 0.0508 0.0436  
 Mercury -54070-06-26 02:37 J -18027468.44 -18027468.39 -18027468.33 0.0491 0.0462  
 Mercury -54070-09-24 05:59 J -18027378.41 -18027378.25 -18027378.08 0.0491 0.0184  
 Venus -54067-08-23 00:28 J -18026314.62 -18026314.48 -18026314.33 0.0514 0.0361  
 Mercury -54064-05-28 04:47 J -18025305.39 -18025305.30 -18025305.21 0.0536 0.0389  
 Mercury -54064-08-25 13:40 J -18025216.04 -18025215.93 -18025215.81 0.0536 0.0222  
 Venus -54061-06-29 11:59 J -18024177.19 -18024177.00 -18024176.80 0.0510 0.0120  
 Mercury -54058-07-13 03:49 J -18023068.52 -18023068.34 -18023068.17 0.0491 0.0016  
 Mercury -54052-06-13 17:30 J -18020905.89 -18020905.77 -18020905.64 0.0536 0.0080  
 Venus -54049-03-04 16:04 J -18019911.01 -18019910.83 -18019910.65 0.0512 0.0198  
 Mercury -54046-05-01 02:37 J -18018758.56 -18018758.39 -18018758.22 0.0491 0.0148  
 Venus -54043-08-26 02:52 J -18017545.58 -18017545.38 -18017545.19 0.0518 0.0206  
 Mercury -54040-04-01 21:21 J -18016595.74 -18016595.61 -18016595.48 0.0536 0.0068  
 Mercury -54040-06-30 05:45 J -18016506.27 -18016506.26 -18016506.25 0.0536 0.0532  
 Mars -54037-01-26 17:30 J -18015566.01 -18015565.77 -18015565.53 0.0511 0.0101  
 Mercury -54034-02-17 01:25 J -18014448.58 -18014448.44 -18014448.30 0.0491 0.0307  
 Mercury -54034-05-18 05:01 J -18014358.41 -18014358.29 -18014358.16 0.0491 0.0346  
 Moon -54033-02-22 13:54 J -18014078.08 -18014077.92 -18014077.76 0.0494 0.0360  
 Earth -54033-02-22 17:45 J -18014077.93 -18014077.76 -18014077.58 0.0494 0.0335 \*  
 Venus -54031-04-30 17:16 J -18013279.97 -18013279.78 -18013279.57 0.0516 0.0154  
 Mercury -54028-01-19 00:42 J -18012285.59 -18012285.47 -18012285.35 0.0536 0.0220  
 Mercury -54028-04-18 09:21 J -18012196.20 -18012196.11 -18012196.02 0.0535 0.0385  
 Venus -54025-03-06 22:18 J -18011142.72 -18011142.57 -18011142.41 0.0508 0.0307  
 Mercury -54023-12-06 00:42 J -18010138.53 -18010138.47 -18010138.41 0.0491 0.0460  
 Mercury -54022-03-06 04:04 J -18010048.50 -18010048.33 -18010048.17 0.0491 0.0186  
 Earth -54021-02-27 06:57 J -18009690.44 -18009690.21 -18009689.97 0.0495 0.0045  
 Moon -54021-02-27 11:01 J -18009690.27 -18009690.04 -18009689.81 0.0495 0.0063 \*

Venus -54019-01-03 07:54 J -18009014.20 -18009014.17 -18009014.15 0.0513 0.0508

Mercury -54017-11-07 03:35 J -18007975.44 -18007975.35 -18007975.26 0.0536 0.0383

Mercury -54016-02-04 12:28 J -18007886.10 -18007885.98 -18007885.86 0.0535 0.0227

Venus -54014-11-11 00:13 J -18006876.68 -18006876.49 -18006876.29 0.0511 0.0022

Mercury -54011-12-23 02:37 J -18005738.57 -18005738.39 -18005738.21 0.0491 0.0026

Moon -54009-03-02 16:04 J -18005302.92 -18005302.83 -18005302.72 0.0496 0.0450

Earth -54009-03-02 19:25 J -18005302.81 -18005302.69 -18005302.57 0.0496 0.0423 \*

Venus -54007-05-03 20:52 J -18004510.75 -18004510.63 -18004510.51 0.0519 0.0419

Mercury -54005-11-23 16:04 J -18003575.96 -18003575.83 -18003575.70 0.0536 0.0078

Moon -54004-08-27 09:06 J -18003299.32 -18003299.12 -18003298.92 0.0533 0.0254

Earth -54004-08-27 12:57 J -18003299.15 -18003298.96 -18003298.75 0.0533 0.0263 \*

Venus -54002-07-17 03:21 J -18002610.50 -18002610.36 -18002610.21 0.0513 0.0340

Mars -54002-10-30 06:28 J -18002505.38 -18002505.23 -18002505.05 0.0509 0.0379

# 54TH MILLENNIUM BCE

This is a list of transits visible from Jupiter in the 54th millennium BCE.

PLANET	MAX-	C	START	MAX	END	SUNRAD	DEPTH	S
TRANSIT								
TIME								
Mercury	-53999-10-11 00:42 J	-18001428.64	-18001428.47	-18001428.30	0.0491	0.0145		
Venus	-53995-01-06 07:54 J	-18000245.38	-18000245.17	-18000244.96	0.0517	0.0046		
Mercury	-53993-09-11 19:40 J	-17999265.81	-17999265.68	-17999265.55	0.0536	0.0070		
Mercury	-53993-12-10 04:04 J	-17999176.34	-17999176.33	-17999176.31	0.0536	0.0532		
Earth	-53992-09-01 15:35 J	-17998911.06	-17998910.85	-17998910.64	0.0532	0.0215		



Moon -53992-09-01 19:11 J -17998910.92 -17998910.70 -17998910.49 0.0532 0.0185 \*  
 Venus -53990-11-13 09:21 J -17998108.15 -17998108.11 -17998108.07 0.0507 0.0493  
 Mercury -53987-07-29 23:45 J -17997118.65 -17997118.51 -17997118.37 0.0490 0.0300  
 Mercury -53987-10-28 03:21 J -17997028.48 -17997028.36 -17997028.23 0.0491 0.0351  
 Venus -53984-09-10 22:47 J -17995979.71 -17995979.55 -17995979.38 0.0515 0.0310  
 Mercury -53981-06-30 23:30 J -17994955.64 -17994955.52 -17994955.40 0.0536 0.0215  
 Mercury -53981-09-28 08:09 J -17994866.24 -17994866.16 -17994866.07 0.0536 0.0392  
 Venus -53978-07-19 12:13 J -17993842.17 -17993841.99 -17993841.80 0.0509 0.0177  
 Mercury -53975-05-17 22:47 J -17992808.61 -17992808.55 -17992808.49 0.0491 0.0457  
 Mercury -53975-08-16 01:54 J -17992718.58 -17992718.42 -17992718.25 0.0491 0.0189  
 Mercury -53969-04-19 02:52 J -17990645.47 -17990645.38 -17990645.28 0.0536 0.0366  
 Mercury -53969-07-17 11:45 J -17990556.12 -17990556.01 -17990555.89 0.0536 0.0245  
 Venus -53966-03-24 14:52 J -17989576.07 -17989575.88 -17989575.69 0.0511 0.0146  
 Mercury -53963-06-04 00:57 J -17988408.64 -17988408.46 -17988408.28 0.0491 0.0031  
 Venus -53960-09-14 04:33 J -17987210.49 -17987210.31 -17987210.13 0.0518 0.0270  
 Mercury -53957-02-06 05:45 J -17986335.28 -17986335.26 -17986335.24 0.0536 0.0528  
 Mercury -53957-05-05 14:52 J -17986246.01 -17986245.88 -17986245.75 0.0536 0.0088  
 Venus -53955-11-27 15:49 J -17985309.90 -17985309.84 -17985309.76 0.0514 0.0477  
 Mercury -53951-03-22 23:45 J -17984098.68 -17984098.51 -17984098.33 0.0491 0.0129  
 Earth -53950-02-22 02:37 J -17983762.54 -17983762.39 -17983762.24 0.0494 0.0376  
 Moon -53950-02-22 06:28 J -17983762.36 -17983762.23 -17983762.09 0.0494 0.0395 \*  
 Venus -53948-05-19 17:45 J -17982944.97 -17982944.76 -17982944.56 0.0515 0.0095  
 Mars -53948-06-10 09:21 J -17982923.38 -17982923.11 -17982922.82 0.0516 0.0213  
 Mercury -53945-02-22 18:28 J -17981935.86 -17981935.73 -17981935.60 0.0536 0.0066  
 Mercury -53945-05-22 02:52 J -17981846.38 -17981846.38 -17981846.38 0.0535 0.0535  
 Venus -53942-03-26 22:04 J -17980807.72 -17980807.58 -17980807.44 0.0508 0.0361  
 Mercury -53939-01-08 22:18 J -17979788.71 -17979788.57 -17979788.43 0.0490 0.0293  
 Mercury -53939-04-09 01:40 J -17979698.54 -17979698.43 -17979698.30 0.0491 0.0359  
 Moon -53938-02-26 07:25 J -17979375.43 -17979375.19 -17979374.95 0.0494 0.0007  
 Earth -53938-02-26 10:47 J -17979375.29 -17979375.05 -17979374.82 0.0494 0.0013 \*

Venus -53936-01-22 05:16 J -17978679.37 -17978679.28 -17978679.19 0.0513 0.0461  
 Mercury -53934-12-11 21:49 J -17977625.71 -17977625.59 -17977625.47 0.0537 0.0214  
 Mercury -53933-03-10 06:42 J -17977536.31 -17977536.22 -17977536.13 0.0536 0.0394  
 Venus -53931-11-30 02:37 J -17976541.59 -17976541.39 -17976541.19 0.0510 0.0048  
 Mercury -53928-10-27 21:35 J -17975478.67 -17975478.60 -17975478.53 0.0490 0.0445  
 Mercury -53927-01-26 00:42 J -17975388.63 -17975388.47 -17975388.31 0.0491 0.0198  
 Earth -53926-03-02 23:45 J -17974987.67 -17974987.51 -17974987.35 0.0495 0.0368  
 Moon -53926-03-03 00:57 J -17974987.59 -17974987.46 -17974987.31 0.0495 0.0391 \*  
 Venus -53924-05-22 20:23 J -17974175.73 -17974175.65 -17974175.57 0.0519 0.0477  
 Mercury -53922-09-30 01:40 J -17973315.53 -17973315.43 -17973315.33 0.0537 0.0359  
 Mercury -53922-12-28 10:33 J -17973226.17 -17973226.06 -17973225.94 0.0536 0.0255  
 Earth -53921-08-26 22:47 J -17972983.74 -17972983.55 -17972983.36 0.0533 0.0303  
 Moon -53921-08-27 02:37 J -17972983.58 -17972983.39 -17972983.20 0.0533 0.0299 \*  
 Mars -53919-07-19 07:54 J -17972292.30 -17972292.17 -17972292.02 0.0513 0.0417  
 Venus -53919-08-05 05:16 J -17972275.44 -17972275.28 -17972275.11 0.0512 0.0275  
 Mercury -53916-11-13 23:16 J -17971078.70 -17971078.53 -17971078.35 0.0491 0.0040  
 Venus -53912-01-25 11:16 J -17969910.23 -17969910.03 -17969909.82 0.0517 0.0118  
 Mercury -53910-07-19 05:01 J -17969005.32 -17969005.29 -17969005.25 0.0536 0.0510  
 Mercury -53910-10-16 14:23 J -17968916.03 -17968915.90 -17968915.77 0.0536 0.0106  
 Moon -53909-08-31 20:52 J -17968595.86 -17968595.63 -17968595.40 0.0532 0.0133  
 Earth -53909-08-31 23:01 J -17968595.75 -17968595.54 -17968595.32 0.0532 0.0166 \*  
 Mercury -53904-09-01 22:33 J -17966768.74 -17966768.56 -17966768.39 0.0491 0.0119  
 Venus -53901-09-30 01:54 J -17965644.60 -17965644.42 -17965644.23 0.0515 0.0240  
 Mercury -53898-08-04 17:30 J -17964605.90 -17964605.77 -17964605.64 0.0536 0.0051  
 Venus -53895-08-07 11:45 J -17963507.19 -17963507.01 -17963506.83 0.0509 0.0230  
 Mercury -53892-06-20 21:35 J -17962458.75 -17962458.60 -17962458.46 0.0491 0.0275  
 Mercury -53892-09-19 01:11 J -17962368.56 -17962368.45 -17962368.33 0.0491 0.0378  
 Mercury -53886-05-23 20:52 J -17960295.75 -17960295.63 -17960295.51 0.0536 0.0204  
 Mercury -53886-08-21 05:30 J -17960206.35 -17960206.27 -17960206.18 0.0536 0.0403  
 Venus -53883-04-12 15:35 J -17959241.05 -17959240.85 -17959240.66 0.0511 0.0086

Mars -53883-04-21 23:45 J -17959231.76 -17959231.51 -17959231.26 0.0511 0.0071  
 Mercury -53880-04-08 20:09 J -17958148.73 -17958148.66 -17958148.58 0.0490 0.0435  
 Mercury -53880-07-07 23:16 J -17958058.69 -17958058.53 -17958058.36 0.0490 0.0210  
 Venus -53877-10-03 02:37 J -17956875.55 -17956875.39 -17956875.22 0.0518 0.0321  
 Mercury -53874-03-12 00:13 J -17955985.59 -17955985.49 -17955985.39 0.0537 0.0357  
 Mercury -53874-06-09 09:21 J -17955896.22 -17955896.11 -17955896.00 0.0536 0.0257  
 Venus -53872-12-16 19:11 J -17954974.81 -17954974.70 -17954974.57 0.0513 0.0405  
 Mercury -53868-04-25 22:18 J -17953748.74 -17953748.57 -17953748.39 0.0490 0.0052  
 Moon -53867-02-21 05:45 J -17953447.36 -17953447.26 -17953447.14 0.0493 0.0439  
 Earth -53867-02-21 09:06 J -17953447.23 -17953447.12 -17953446.99 0.0493 0.0422 \*  
 Venus -53865-06-07 17:16 J -17952609.99 -17952609.78 -17952609.57 0.0516 0.0037  
 Mercury -53863-12-29 03:49 J -17951675.38 -17951675.34 -17951675.29 0.0537 0.0503  
 Mercury -53862-03-28 13:11 J -17951586.07 -17951585.95 -17951585.82 0.0536 0.0117  
 Venus -53859-04-15 00:13 J -17950472.59 -17950472.49 -17950472.37 0.0508 0.0425  
 Mercury -53856-02-11 21:06 J -17949438.79 -17949438.62 -17949438.44 0.0490 0.0108  
 Earth -53855-02-25 21:35 J -17949059.84 -17949059.60 -17949059.36 0.0494 0.0044  
 Moon -53855-02-25 23:01 J -17949059.77 -17949059.54 -17949059.31 0.0494 0.0020 \*  
 Venus -53853-02-11 09:06 J -17948344.25 -17948344.12 -17948343.98 0.0514 0.0388  
 Mercury -53850-01-14 17:01 J -17947275.92 -17947275.79 -17947275.66 0.0536 0.0031  
 Venus -53848-12-19 03:21 J -17946206.55 -17946206.36 -17946206.16 0.0510 0.0109  
 Mercury -53845-11-30 20:23 J -17945128.80 -17945128.65 -17945128.50 0.0491 0.0262  
 Mercury -53844-02-28 23:59 J -17945038.60 -17945038.50 -17945038.39 0.0491 0.0391  
 Earth -53843-03-02 11:30 J -17944672.19 -17944672.02 -17944671.85 0.0496 0.0341  
 Moon -53843-03-02 12:13 J -17944672.16 -17944671.99 -17944671.82 0.0496 0.0354 \*  
 Mercury -53839-11-02 20:09 J -17942965.78 -17942965.66 -17942965.54 0.0536 0.0188  
 Mercury -53838-01-31 04:47 J -17942876.38 -17942876.30 -17942876.22 0.0536 0.0417  
 Moon -53838-08-27 01:11 J -17942668.62 -17942668.45 -17942668.28 0.0533 0.0369  
 Earth -53838-08-27 04:04 J -17942668.50 -17942668.33 -17942668.16 0.0533 0.0365 \*  
 Venus -53836-08-24 05:16 J -17941940.46 -17941940.28 -17941940.10 0.0512 0.0218  
 Mercury -53833-09-18 19:25 J -17940818.77 -17940818.69 -17940818.59 0.0491 0.0417

Mercury -53833-12-17 22:47 J -17940728.71 -17940728.55 -17940728.39 0.0491 0.0230

Mars -53830-11-27 00:42 J -17939654.72 -17939654.47 -17939654.21 0.0515 0.0275

Venus -53829-02-14 13:40 J -17939575.13 -17939574.93 -17939574.73 0.0517 0.0185

Mercury -53827-08-21 23:30 J -17938655.62 -17938655.52 -17938655.42 0.0536 0.0342

Mercury -53827-11-19 08:23 J -17938566.26 -17938566.15 -17938566.04 0.0536 0.0270

Earth -53826-09-01 04:33 J -17938280.54 -17938280.31 -17938280.09 0.0532 0.0106

Moon -53826-09-01 05:01 J -17938280.51 -17938280.29 -17938280.07 0.0532 0.0077 \*

Mercury -53821-10-05 21:06 J -17936418.79 -17936418.62 -17936418.44 0.0490 0.0068

Venus -53818-10-20 00:28 J -17935309.67 -17935309.48 -17935309.28 0.0515 0.0188

Mercury -53815-06-10 02:37 J -17934345.44 -17934345.39 -17934345.35 0.0537 0.0499

Mercury -53815-09-07 11:59 J -17934256.13 -17934256.00 -17934255.88 0.0537 0.0121

Venus -53812-08-26 15:35 J -17933172.01 -17933171.85 -17933171.69 0.0509 0.0302

Mercury -53809-07-24 20:23 J -17932108.82 -17932108.65 -17932108.47 0.0490 0.0090

Mercury -53803-06-26 15:49 J -17929945.97 -17929945.84 -17929945.71 0.0537 0.0022

Venus -53800-05-01 18:42 J -17928905.92 -17928905.72 -17928905.53 0.0511 0.0021

Mercury -53797-05-12 19:11 J -17927798.85 -17927798.70 -17927798.54 0.0490 0.0249

Mercury -53797-08-10 22:47 J -17927708.65 -17927708.55 -17927708.45 0.0491 0.0404

Mars -53794-09-05 03:35 J -17926588.47 -17926588.35 -17926588.21 0.0517 0.0466

Venus -53794-10-23 07:25 J -17926540.32 -17926540.19 -17926540.06 0.0519 0.0398

Mercury -53791-04-14 19:25 J -17925635.81 -17925635.69 -17925635.56 0.0537 0.0170

Mercury -53791-07-13 04:18 J -17925546.39 -17925546.32 -17925546.25 0.0536 0.0438

Venus -53788-01-04 20:52 J -17924639.77 -17924639.63 -17924639.48 0.0513 0.0341

Mercury -53785-02-29 18:28 J -17923488.82 -17923488.73 -17923488.63 0.0490 0.0402

Mercury -53785-05-29 21:35 J -17923398.75 -17923398.60 -17923398.44 0.0491 0.0245

Earth -53784-02-20 21:21 J -17923131.70 -17923131.61 -17923131.51 0.0493 0.0449

Moon -53784-02-20 22:47 J -17923131.64 -17923131.55 -17923131.47 0.0493 0.0455 \*

Venus -53782-06-27 21:49 J -17922274.80 -17922274.59 -17922274.38 0.0516 0.0040

Mercury -53779-01-31 22:33 J -17921325.66 -17921325.56 -17921325.45 0.0536 0.0327

Mercury -53779-05-01 07:40 J -17921236.29 -17921236.18 -17921236.07 0.0536 0.0286

Venus -53776-05-04 00:42 J -17920137.52 -17920137.47 -17920137.41 0.0508 0.0482

Mercury -53773-03-17 20:37 J -17919088.82 -17919088.64 -17919088.46 0.0491 0.0085

Earth -53772-02-25 09:35 J -17918744.33 -17918744.10 -17918743.86 0.0494 0.0074

Moon -53772-02-25 10:33 J -17918744.31 -17918744.06 -17918743.82 0.0494 0.0044 \*

Venus -53770-03-02 11:59 J -17918009.16 -17918009.00 -17918008.83 0.0514 0.0318

Mercury -53768-11-20 01:54 J -17917015.48 -17917015.42 -17917015.37 0.0536 0.0482

Mercury -53767-02-17 11:16 J -17916926.16 -17916926.03 -17916925.91 0.0536 0.0136

Mars -53765-10-12 21:21 J -17915957.83 -17915957.61 -17915957.38 0.0513 0.0227

Venus -53764-01-07 04:47 J -17915871.48 -17915871.30 -17915871.11 0.0510 0.0171

Mercury -53761-01-04 19:25 J -17914778.87 -17914778.69 -17914778.52 0.0490 0.0075

Moon -53760-03-01 17:16 J -17914356.96 -17914356.78 -17914356.61 0.0495 0.0312

Earth -53760-03-01 19:25 J -17914356.88 -17914356.69 -17914356.50 0.0495 0.0301 \*

Mercury -53756-12-06 14:23 J -17912616.03 -17912615.90 -17912615.77 0.0537 0.0022

Earth -53755-08-26 11:59 J -17912353.13 -17912353.00 -17912352.84 0.0534 0.0412

Moon -53755-08-26 12:57 J -17912353.08 -17912352.96 -17912352.82 0.0534 0.0429 \*

Venus -53753-09-12 09:06 J -17911605.30 -17911605.12 -17911604.93 0.0512 0.0145

Mercury -53750-10-23 18:42 J -17910468.88 -17910468.72 -17910468.57 0.0490 0.0229

Mercury -53749-01-21 22:04 J -17910378.67 -17910378.58 -17910378.49 0.0490 0.0422

Venus -53746-03-05 13:25 J -17909240.12 -17909239.94 -17909239.75 0.0518 0.0242

Mercury -53744-09-24 18:13 J -17908305.86 -17908305.74 -17908305.61 0.0537 0.0163

Mercury -53744-12-23 03:06 J -17908216.44 -17908216.37 -17908216.30 0.0537 0.0446

Earth -53743-08-31 15:21 J -17907965.09 -17907964.86 -17907964.63 0.0533 0.0073

Moon -53743-08-31 16:47 J -17907965.04 -17907964.80 -17907964.57 0.0533 0.0046 \*

Venus -53741-05-18 11:30 J -17907339.09 -17907339.02 -17907338.94 0.0514 0.0469

Mercury -53738-08-11 17:30 J -17906158.87 -17906158.77 -17906158.66 0.0490 0.0387

Mercury -53738-11-09 20:37 J -17906068.79 -17906068.64 -17906068.49 0.0490 0.0258

Venus -53735-11-08 04:47 J -17904974.50 -17904974.30 -17904974.09 0.0516 0.0113

Mercury -53732-07-13 22:04 J -17903995.69 -17903995.58 -17903995.48 0.0537 0.0310

Mercury -53732-10-11 06:57 J -17903906.31 -17903906.21 -17903906.10 0.0536 0.0304

Mars -53729-07-16 18:42 J -17902896.92 -17902896.72 -17902896.51 0.0510 0.0277

Venus -53729-09-14 16:47 J -17902836.93 -17902836.80 -17902836.66 0.0508 0.0362

Mercury -53726-08-28 19:40 J -17901758.86 -17901758.68 -17901758.51 0.0490 0.0100

Venus -53723-07-13 20:23 J -17900708.74 -17900708.65 -17900708.56 0.0513 0.0462

Mercury -53720-05-02 00:57 J -17899685.52 -17899685.46 -17899685.39 0.0536 0.0467

Mercury -53720-07-30 10:18 J -17899596.19 -17899596.07 -17899595.94 0.0536 0.0151

Venus -53717-05-20 18:57 J -17898570.91 -17898570.71 -17898570.51 0.0511 0.0041

Mercury -53714-06-16 18:28 J -17897448.90 -17897448.73 -17897448.55 0.0491 0.0060

Venus -53711-11-11 10:04 J -17896205.16 -17896205.08 -17896204.99 0.0519 0.0466

Mercury -53708-05-18 13:40 J -17895286.06 -17895285.93 -17895285.79 0.0536 0.0018

Venus -53705-01-24 22:04 J -17894304.74 -17894304.58 -17894304.41 0.0513 0.0279

Mercury -53702-04-04 17:30 J -17893138.93 -17893138.77 -17893138.61 0.0490 0.0215

Mercury -53702-07-03 20:52 J -17893048.70 -17893048.63 -17893048.54 0.0490 0.0437

Earth -53701-02-21 06:57 J -17892816.25 -17892816.21 -17892816.17 0.0492 0.0483

Moon -53701-02-21 07:40 J -17892816.23 -17892816.18 -17892816.11 0.0492 0.0475 \*

Venus -53699-07-16 20:23 J -17891939.85 -17891939.65 -17891939.44 0.0516 0.0091

Mercury -53696-03-06 16:47 J -17890975.92 -17890975.80 -17890975.67 0.0537 0.0160

Mercury -53696-06-04 01:40 J -17890886.50 -17890886.43 -17890886.36 0.0537 0.0449

Mercury -53690-01-21 16:47 J -17888828.91 -17888828.80 -17888828.68 0.0490 0.0368

Mercury -53690-04-21 19:54 J -17888738.82 -17888738.67 -17888738.52 0.0490 0.0277

Moon -53689-02-25 16:18 J -17888429.05 -17888428.82 -17888428.59 0.0493 0.0079

Earth -53689-02-25 18:42 J -17888428.95 -17888428.72 -17888428.49 0.0493 0.0109 \*

Venus -53687-03-21 11:16 J -17887674.21 -17887674.03 -17887673.85 0.0514 0.0264

Mercury -53685-12-23 20:23 J -17886665.75 -17886665.65 -17886665.54 0.0537 0.0307

Mercury -53684-03-23 05:45 J -17886576.37 -17886576.26 -17886576.16 0.0537 0.0309

Venus -53681-01-27 07:25 J -17885536.36 -17885536.19 -17885536.01 0.0509 0.0236

Mercury -53678-02-07 18:28 J -17884428.90 -17884428.73 -17884428.56 0.0490 0.0113

Earth -53677-03-01 05:59 J -17884041.44 -17884041.25 -17884041.05 0.0495 0.0270

Moon -53677-03-01 09:21 J -17884041.30 -17884041.11 -17884040.90 0.0495 0.0276 \*

Mars -53675-02-20 17:16 J -17883320.09 -17883319.78 -17883319.47 0.0515 0.0024

Mercury -53673-10-12 00:13 J -17882355.56 -17882355.49 -17882355.42 0.0537 0.0454

Mercury -53672-01-09 09:35 J -17882266.23 -17882266.10 -17882265.98 0.0537 0.0165

Earth -53672-08-25 22:04 J -17882037.69 -17882037.58 -17882037.45 0.0534 0.0453  
 Moon -53672-08-25 23:16 J -17882037.63 -17882037.53 -17882037.42 0.0534 0.0474 \*  
 Venus -53670-10-02 10:33 J -17881270.26 -17881270.06 -17881269.87 0.0511 0.0084  
 Mercury -53667-11-26 17:30 J -17880118.95 -17880118.77 -17880118.60 0.0490 0.0047  
 Venus -53663-03-24 17:45 J -17878904.92 -17878904.76 -17878904.59 0.0518 0.0316  
 Mercury -53661-10-28 12:57 J -17877956.10 -17877955.96 -17877955.83 0.0536 0.0021  
 Moon -53660-08-30 18:57 J -17877649.94 -17877649.71 -17877649.49 0.0533 0.0016  
 Earth -53660-08-30 21:21 J -17877649.84 -17877649.61 -17877649.38 0.0533 0.0016 \*  
 Venus -53658-06-07 11:30 J -17877004.13 -17877004.02 -17877003.90 0.0514 0.0412  
 Mercury -53655-09-14 16:33 J -17875808.97 -17875808.81 -17875808.65 0.0490 0.0203  
 Mercury -53655-12-13 19:54 J -17875718.73 -17875718.67 -17875718.60 0.0491 0.0451  
 Venus -53652-11-27 07:11 J -17874639.41 -17874639.20 -17874638.99 0.0515 0.0046  
 Mercury -53649-08-16 16:04 J -17873645.95 -17873645.83 -17873645.70 0.0537 0.0144  
 Mercury -53649-11-14 00:57 J -17873556.52 -17873556.46 -17873556.40 0.0536 0.0464  
 Earth -53648-09-04 20:52 J -17873261.72 -17873261.63 -17873261.54 0.0532 0.0482  
 Moon -53648-09-05 00:28 J -17873261.55 -17873261.48 -17873261.41 0.0532 0.0504 \*  
 Venus -53646-10-04 17:16 J -17872501.88 -17872501.78 -17872501.66 0.0508 0.0421  
 Mercury -53643-07-03 15:35 J -17871498.96 -17871498.85 -17871498.72 0.0490 0.0356  
 Mercury -53643-10-01 18:42 J -17871408.86 -17871408.72 -17871408.58 0.0490 0.0290  
 Venus -53640-08-01 18:42 J -17870373.84 -17870373.72 -17870373.60 0.0513 0.0412  
 Mercury -53637-06-04 18:57 J -17869335.82 -17869335.71 -17869335.60 0.0537 0.0306  
 Mercury -53637-09-02 04:04 J -17869246.44 -17869246.33 -17869246.22 0.0537 0.0309  
 Venus -53634-06-09 21:21 J -17868235.80 -17868235.61 -17868235.41 0.0511 0.0106  
 Mercury -53631-07-20 17:45 J -17867098.94 -17867098.76 -17867098.59 0.0490 0.0131  
 Venus -53628-11-30 08:37 J -17865870.15 -17865870.14 -17865870.12 0.0519 0.0516  
 Mercury -53625-03-23 22:33 J -17865025.63 -17865025.56 -17865025.49 0.0537 0.0456  
 Mercury -53625-06-21 07:54 J -17864936.29 -17864936.17 -17864936.05 0.0537 0.0166  
 Venus -53622-02-13 00:13 J -17863969.67 -17863969.49 -17863969.32 0.0513 0.0217  
 Mercury -53619-05-08 16:04 J -17862789.00 -17862788.83 -17862788.65 0.0490 0.0035  
 Venus -53616-08-04 23:30 J -17861604.72 -17861604.52 -17861604.32 0.0517 0.0158

Mercury -53613-04-09 11:45 J -17860626.14 -17860626.01 -17860625.88 0.0537 0.0021

Mars -53610-01-07 12:28 J -17859623.23 -17859622.98 -17859622.73 0.0512 0.0026

Mercury -53607-02-24 15:06 J -17858479.03 -17858478.87 -17858478.71 0.0490 0.0192

Mercury -53607-05-25 18:28 J -17858388.78 -17858388.73 -17858388.66 0.0490 0.0461

Earth -53606-02-25 03:49 J -17858113.56 -17858113.34 -17858113.11 0.0493 0.0147

Moon -53606-02-25 07:25 J -17858113.42 -17858113.19 -17858112.95 0.0493 0.0114 \*

Venus -53604-04-09 14:23 J -17857339.09 -17857338.90 -17857338.70 0.0515 0.0195

Mercury -53601-01-27 15:06 J -17856316.00 -17856315.87 -17856315.75 0.0537 0.0134

Mercury -53601-04-25 23:45 J -17856226.56 -17856226.51 -17856226.45 0.0536 0.0474

Venus -53598-02-15 06:42 J -17855201.38 -17855201.22 -17855201.06 0.0509 0.0287

Mercury -53596-12-13 14:09 J -17854169.03 -17854168.91 -17854168.78 0.0490 0.0348

Mercury -53595-03-13 17:16 J -17854078.92 -17854078.78 -17854078.64 0.0490 0.0299

Moon -53594-03-01 12:13 J -17853726.20 -17853725.99 -17853725.78 0.0494 0.0234

Earth -53594-03-01 16:04 J -17853726.04 -17853725.83 -17853725.62 0.0494 0.0234 \*

Mercury -53590-11-15 18:13 J -17852005.85 -17852005.74 -17852005.63 0.0537 0.0291

Mercury -53589-02-13 03:06 J -17851916.47 -17851916.37 -17851916.26 0.0536 0.0324

Earth -53589-08-25 00:42 J -17851722.51 -17851722.47 -17851722.42 0.0534 0.0524

Venus -53587-10-21 10:04 J -17850935.28 -17850935.08 -17850934.89 0.0512 0.0032

Mercury -53584-12-30 16:04 J -17849768.99 -17849768.83 -17849768.65 0.0490 0.0141

Venus -53580-04-12 15:06 J -17848570.01 -17848569.87 -17848569.72 0.0518 0.0361

Mercury -53578-09-03 20:37 J -17847695.70 -17847695.64 -17847695.57 0.0537 0.0458

Mercury -53578-12-02 06:13 J -17847606.37 -17847606.24 -17847606.12 0.0537 0.0164

Earth -53577-08-29 23:16 J -17847334.76 -17847334.53 -17847334.30 0.0534 0.0053

Moon -53577-08-30 02:37 J -17847334.62 -17847334.39 -17847334.15 0.0534 0.0075 \*

Venus -53575-06-26 12:42 J -17846669.11 -17846668.97 -17846668.83 0.0514 0.0354

Mars -53575-10-11 04:33 J -17846562.40 -17846562.31 -17846562.20 0.0511 0.0462

Mercury -53572-10-18 15:06 J -17845459.04 -17845458.87 -17845458.69 0.0490 0.0019

Venus -53569-12-16 05:01 J -17844304.50 -17844304.29 -17844304.08 0.0515 0.0011

Mercury -53566-09-20 09:49 J -17843296.22 -17843296.09 -17843295.96 0.0537 0.0017

Moon -53565-09-03 21:49 J -17842946.71 -17842946.59 -17842946.47 0.0533 0.0451



Earth -53565-09-04 01:25 J -17842946.57 -17842946.44 -17842946.30 0.0533 0.0427 \*  
 Venus -53563-10-23 17:59 J -17842166.82 -17842166.75 -17842166.68 0.0508 0.0473  
 Mercury -53560-08-06 13:40 J -17841149.10 -17841148.93 -17841148.77 0.0490 0.0183  
 Mercury -53560-11-04 17:01 J -17841058.84 -17841058.79 -17841058.74 0.0490 0.0469  
 Venus -53557-08-20 20:09 J -17840038.81 -17840038.66 -17840038.51 0.0513 0.0351  
 Mercury -53554-07-09 13:40 J -17838986.06 -17838985.93 -17838985.80 0.0537 0.0130  
 Mercury -53554-10-06 22:33 J -17838896.62 -17838896.56 -17838896.51 0.0537 0.0479  
 Venus -53551-06-28 20:52 J -17837900.81 -17837900.63 -17837900.44 0.0510 0.0159  
 Mercury -53548-05-25 12:28 J -17836839.10 -17836838.98 -17836838.85 0.0490 0.0341  
 Mercury -53548-08-23 15:35 J -17836748.99 -17836748.85 -17836748.71 0.0490 0.0305  
 Mercury -53542-04-27 16:47 J -17834675.91 -17834675.80 -17834675.69 0.0537 0.0285  
 Mercury -53542-07-26 01:54 J -17834586.52 -17834586.42 -17834586.32 0.0536 0.0329  
 Venus -53539-03-03 22:18 J -17833634.75 -17833634.57 -17833634.38 0.0512 0.0168  
 Mercury -53536-06-11 14:23 J -17832439.07 -17832438.90 -17832438.73 0.0490 0.0144  
 Venus -53533-08-24 00:13 J -17831269.68 -17831269.49 -17831269.30 0.0517 0.0218  
 Mercury -53530-02-13 19:54 J -17830365.74 -17830365.67 -17830365.60 0.0537 0.0444  
 Mercury -53530-05-14 05:16 J -17830276.40 -17830276.28 -17830276.16 0.0537 0.0175  
 Venus -53528-11-07 00:13 J -17829368.54 -17829368.49 -17829368.43 0.0515 0.0493  
 Mercury -53524-03-30 13:25 J -17828129.12 -17828128.94 -17828128.76 0.0490 0.0013  
 Moon -53523-02-24 07:40 J -17827798.40 -17827798.18 -17827797.96 0.0493 0.0159  
 Earth -53523-02-24 11:30 J -17827798.24 -17827798.02 -17827797.80 0.0493 0.0187 \*  
 Venus -53521-04-28 11:30 J -17827004.22 -17827004.02 -17827003.82 0.0514 0.0152  
 Mars -53521-05-16 17:16 J -17826986.06 -17826985.78 -17826985.50 0.0515 0.0195  
 Mercury -53518-03-02 07:54 J -17825966.30 -17825966.17 -17825966.04 0.0537 0.0012  
 Venus -53515-03-06 06:28 J -17824866.37 -17824866.23 -17824866.08 0.0510 0.0340  
 Mercury -53512-01-16 12:28 J -17823819.15 -17823818.98 -17823818.82 0.0490 0.0171  
 Mercury -53512-04-16 15:49 J -17823728.87 -17823728.84 -17823728.81 0.0490 0.0481  
 Earth -53511-02-28 22:04 J -17823410.80 -17823410.58 -17823410.36 0.0493 0.0189  
 Moon -53511-03-01 01:25 J -17823410.66 -17823410.44 -17823410.22 0.0493 0.0179 \*  
 Venus -53509-01-02 01:54 J -17822738.46 -17822738.42 -17822738.38 0.0512 0.0502

Mercury -53507-12-19 11:30 J -17821656.15 -17821656.02 -17821655.89 0.0537 0.0139  
 Mercury -53506-03-18 20:23 J -17821566.71 -17821566.65 -17821566.59 0.0537 0.0471  
 Venus -53504-11-09 09:06 J -17820600.32 -17820600.12 -17820599.92 0.0511 0.0020  
 Mercury -53501-11-04 10:47 J -17819509.17 -17819509.05 -17819508.92 0.0490 0.0336  
 Mercury -53500-02-02 13:40 J -17819419.06 -17819418.93 -17819418.79 0.0490 0.0310  
 Venus -53497-05-01 15:21 J -17818234.98 -17818234.86 -17818234.74 0.0518 0.0417  
 Mercury -53495-10-07 15:06 J -17817345.98 -17817345.87 -17817345.76 0.0537 0.0287  
 Mercury -53494-01-05 00:13 J -17817256.59 -17817256.49 -17817256.38 0.0537 0.0330  
 Moon -53494-08-30 00:42 J -17817019.69 -17817019.47 -17817019.25 0.0534 0.0132  
 Earth -53494-08-30 04:18 J -17817019.54 -17817019.32 -17817019.09 0.0534 0.0115 \*  
 Mars -53492-06-29 19:25 J -17816349.86 -17816349.69 -17816349.50 0.0514 0.0355  
 Venus -53492-07-15 11:30 J -17816334.18 -17816334.02 -17816333.86 0.0514 0.0303  
 Mercury -53489-11-21 12:13 J -17815109.15 -17815108.99 -17815108.81 0.0490 0.0147  
 Venus -53485-01-05 05:45 J -17813969.47 -17813969.26 -17813969.05 0.0516 0.0061  
 Mercury -53483-07-26 18:13 J -17813035.81 -17813035.74 -17813035.66 0.0537 0.0443  
 Mercury -53483-10-24 03:49 J -17812946.47 -17812946.34 -17812946.22 0.0537 0.0178  
 Earth -53482-09-04 03:21 J -17812631.53 -17812631.36 -17812631.19 0.0532 0.0354  
 Moon -53482-09-04 06:13 J -17812631.39 -17812631.24 -17812631.09 0.0532 0.0387 \*  
 Mercury -53477-09-09 11:01 J -17810799.21 -17810799.04 -17810798.86 0.0490 0.0019  
 Venus -53474-09-09 19:54 J -17809703.84 -17809703.67 -17809703.50 0.0513 0.0295  
 Mercury -53471-08-12 06:57 J -17808636.34 -17808636.21 -17808636.08 0.0537 0.0021  
 Venus -53468-07-17 17:59 J -17807565.93 -17807565.75 -17807565.56 0.0510 0.0202  
 Mercury -53465-06-28 10:18 J -17806489.23 -17806489.07 -17806488.90 0.0490 0.0169  
 Mercury -53465-09-26 13:40 J -17806398.95 -17806398.93 -17806398.90 0.0490 0.0484  
 Mercury -53459-05-31 09:21 J -17804326.23 -17804326.11 -17804325.98 0.0537 0.0148  
 Mercury -53459-08-28 18:13 J -17804236.80 -17804236.74 -17804236.67 0.0537 0.0464  
 Venus -53456-03-22 20:23 J -17803299.84 -17803299.65 -17803299.46 0.0513 0.0123  
 Mars -53456-04-02 07:54 J -17803289.41 -17803289.17 -17803288.93 0.0513 0.0128  
 Mercury -53453-04-16 09:21 J -17802179.24 -17802179.11 -17802178.98 0.0490 0.0327  
 Mercury -53453-07-15 12:13 J -17802089.12 -17802088.99 -17802088.85 0.0490 0.0319

Venus -53450-09-12 19:54 J -17800934.85 -17800934.67 -17800934.48 0.0516 0.0256

Mercury -53447-03-19 12:42 J -17800016.08 -17800015.97 -17800015.86 0.0537 0.0301

Mercury -53447-06-16 22:04 J -17799926.69 -17799926.58 -17799926.48 0.0537 0.0317

Venus -53445-11-25 22:04 J -17799033.67 -17799033.58 -17799033.48 0.0515 0.0449

Mercury -53441-05-03 10:18 J -17797779.24 -17797779.07 -17797778.90 0.0490 0.0147

Earth -53440-02-23 14:09 J -17797483.11 -17797482.91 -17797482.71 0.0493 0.0249

Moon -53440-02-23 17:30 J -17797482.98 -17797482.77 -17797482.56 0.0493 0.0225 \*

Venus -53438-05-18 09:49 J -17796669.30 -17796669.09 -17796668.88 0.0515 0.0103

Mercury -53435-01-05 16:18 J -17795705.89 -17795705.82 -17795705.75 0.0537 0.0449

Mercury -53435-04-05 01:54 J -17795616.55 -17795616.42 -17795616.30 0.0537 0.0173

Venus -53432-03-25 04:04 J -17794531.46 -17794531.33 -17794531.20 0.0509 0.0382

Mercury -53429-02-20 08:52 J -17793469.31 -17793469.13 -17793468.95 0.0490 0.0016

Moon -53428-02-27 22:47 J -17793095.79 -17793095.55 -17793095.31 0.0494 0.0110

Earth -53428-02-28 00:57 J -17793095.69 -17793095.46 -17793095.23 0.0494 0.0127 \*

Venus -53426-01-21 00:57 J -17792403.56 -17792403.46 -17792403.36 0.0512 0.0450

Mercury -53423-01-22 05:16 J -17791306.41 -17791306.28 -17791306.15 0.0537 0.0021

Venus -53421-11-28 05:30 J -17790265.47 -17790265.27 -17790265.07 0.0511 0.0060

Mercury -53418-12-09 07:40 J -17789159.34 -17789159.18 -17789159.01 0.0490 0.0176

Mercury -53417-03-08 11:01 J -17789069.07 -17789069.04 -17789069.00 0.0490 0.0477

Moon -53416-03-04 13:11 J -17788707.99 -17788707.95 -17788707.89 0.0495 0.0483

Venus -53414-05-21 14:09 J -17787900.00 -17787899.91 -17787899.82 0.0518 0.0468

Mercury -53412-11-10 08:23 J -17786996.28 -17786996.15 -17786996.03 0.0537 0.0138

Mercury -53411-02-07 17:16 J -17786906.84 -17786906.78 -17786906.72 0.0536 0.0471

Earth -53411-08-29 01:25 J -17786704.65 -17786704.44 -17786704.23 0.0534 0.0208

Moon -53411-08-29 04:33 J -17786704.51 -17786704.31 -17786704.10 0.0534 0.0216 \*

Venus -53409-08-03 07:25 J -17785999.36 -17785999.19 -17785999.02 0.0514 0.0264

Mercury -53406-09-27 06:57 J -17784849.33 -17784849.21 -17784849.08 0.0490 0.0329

Mercury -53406-12-26 09:49 J -17784759.22 -17784759.09 -17784758.95 0.0490 0.0318

Mars -53403-11-01 12:28 J -17783718.22 -17783717.98 -17783717.74 0.0512 0.0323

Venus -53402-01-24 01:40 J -17783634.64 -17783634.43 -17783634.22 0.0515 0.0098

Mercury -53400-08-29 10:33 J -17782686.16 -17782686.06 -17782685.95 0.0537 0.0310

Mercury -53400-11-26 19:54 J -17782596.78 -17782596.67 -17782596.56 0.0537 0.0308

Moon -53399-09-02 19:25 J -17782316.89 -17782316.69 -17782316.49 0.0533 0.0283

Earth -53399-09-02 21:35 J -17782316.80 -17782316.60 -17782316.40 0.0533 0.0253 \*

Mercury -53394-07-16 06:13 J -17780539.26 -17780539.24 -17780539.22 0.0490 0.0485

Mercury -53394-10-14 08:37 J -17780449.31 -17780449.14 -17780448.97 0.0490 0.0154

Venus -53391-09-28 15:06 J -17779369.05 -17779368.87 -17779368.68 0.0513 0.0258

Mercury -53388-06-17 13:54 J -17778375.99 -17778375.92 -17778375.86 0.0537 0.0466

Mercury -53388-09-14 23:30 J -17778286.65 -17778286.52 -17778286.40 0.0537 0.0158

Venus -53385-08-05 14:37 J -17777231.06 -17777230.89 -17777230.71 0.0510 0.0241

Mercury -53382-08-02 06:28 J -17776139.40 -17776139.23 -17776139.05 0.0490 0.0019

Mercury -53376-07-04 03:06 J -17773976.50 -17773976.37 -17773976.23 0.0537 0.0020

Venus -53373-04-10 17:30 J -17772964.96 -17772964.77 -17772964.57 0.0512 0.0079

Mercury -53370-05-21 05:16 J -17771829.44 -17771829.28 -17771829.11 0.0490 0.0179

Mercury -53370-08-19 08:37 J -17771739.19 -17771739.14 -17771739.10 0.0490 0.0472

Mars -53367-08-10 08:23 J -17770652.33 -17770652.15 -17770651.94 0.0515 0.0393

Venus -53367-10-01 18:28 J -17770599.90 -17770599.73 -17770599.56 0.0517 0.0305

Mercury -53364-04-22 06:28 J -17769666.35 -17769666.23 -17769666.10 0.0537 0.0142

Mercury -53364-07-20 15:21 J -17769576.92 -17769576.86 -17769576.79 0.0536 0.0469

Venus -53362-12-15 17:59 J -17768698.86 -17768698.75 -17768698.62 0.0515 0.0409

Mercury -53358-03-09 04:18 J -17767519.45 -17767519.32 -17767519.20 0.0490 0.0338

Mercury -53358-06-07 06:57 J -17767429.34 -17767429.21 -17767429.07 0.0490 0.0308

Moon -53357-02-23 15:21 J -17767168.05 -17767167.86 -17767167.65 0.0493 0.0290

Earth -53357-02-23 17:45 J -17767167.94 -17767167.76 -17767167.58 0.0493 0.0308 \*

Venus -53355-06-06 08:09 J -17766334.37 -17766334.16 -17766333.95 0.0515 0.0052

Mercury -53352-02-08 09:35 J -17765356.21 -17765356.10 -17765355.99 0.0537 0.0301

Mercury -53352-05-08 18:42 J -17765266.82 -17765266.72 -17765266.61 0.0536 0.0315

Venus -53349-04-12 23:16 J -17764196.64 -17764196.53 -17764196.42 0.0509 0.0417

Mercury -53347-12-26 03:35 J -17763209.35 -17763209.35 -17763209.34 0.0490 0.0490

Mercury -53346-03-26 05:59 J -17763119.42 -17763119.25 -17763119.08 0.0490 0.0149

Earth -53345-02-28 05:01 J -17762780.52 -17762780.29 -17762780.05 0.0493 0.0073  
 Moon -53345-02-28 05:45 J -17762780.49 -17762780.26 -17762780.03 0.0493 0.0052 \*  
 Venus -53343-02-08 21:06 J -17762068.74 -17762068.62 -17762068.49 0.0512 0.0410  
 Mercury -53341-11-27 11:45 J -17761046.07 -17761046.01 -17761045.95 0.0537 0.0474  
 Mercury -53340-02-24 21:21 J -17760956.74 -17760956.61 -17760956.49 0.0537 0.0149  
 Mars -53338-09-23 02:23 J -17760016.62 -17760016.40 -17760016.18 0.0515 0.0233  
 Venus -53338-12-18 01:11 J -17759930.65 -17759930.45 -17759930.26 0.0512 0.0096  
 Mercury -53334-01-12 04:47 J -17758809.48 -17758809.30 -17758809.12 0.0490 0.0013  
 Earth -53333-03-03 15:21 J -17758392.95 -17758392.86 -17758392.76 0.0494 0.0449  
 Moon -53333-03-03 16:04 J -17758392.95 -17758392.83 -17758392.70 0.0494 0.0422 \*  
 Venus -53331-06-09 08:52 J -17757565.18 -17757565.13 -17757565.08 0.0518 0.0501  
 Mercury -53329-12-14 00:42 J -17756646.60 -17756646.47 -17756646.34 0.0537 0.0009  
 Moon -53328-08-27 17:16 J -17756389.97 -17756389.78 -17756389.59 0.0535 0.0321  
 Earth -53328-08-27 19:40 J -17756389.86 -17756389.68 -17756389.49 0.0535 0.0313 \*  
 Venus -53326-08-23 03:21 J -17755664.54 -17755664.36 -17755664.18 0.0514 0.0228  
 Mercury -53323-10-31 02:52 J -17754499.55 -17754499.38 -17754499.22 0.0490 0.0184  
 Mercury -53322-01-29 05:59 J -17754409.30 -17754409.25 -17754409.20 0.0490 0.0467  
 Venus -53319-02-11 21:35 J -17753299.80 -17753299.60 -17753299.39 0.0516 0.0140  
 Mercury -53317-10-02 04:18 J -17752336.44 -17752336.32 -17752336.19 0.0537 0.0152  
 Mercury -53317-12-30 13:25 J -17752247.01 -17752246.94 -17752246.88 0.0537 0.0460  
 Earth -53316-09-01 23:01 J -17752001.76 -17752001.54 -17752001.32 0.0534 0.0177  
 Moon -53316-09-01 23:45 J -17752001.71 -17752001.51 -17752001.31 0.0534 0.0209 \*  
 Mercury -53311-08-19 01:40 J -17750189.55 -17750189.43 -17750189.30 0.0490 0.0343  
 Mercury -53311-11-17 04:33 J -17750099.45 -17750099.31 -17750099.17 0.0490 0.0302  
 Venus -53308-10-17 12:13 J -17749034.18 -17749033.99 -17749033.79 0.0514 0.0213  
 Mercury -53305-07-21 07:40 J -17748026.29 -17748026.18 -17748026.07 0.0537 0.0306  
 Mercury -53305-10-18 17:01 J -17747936.90 -17747936.79 -17747936.69 0.0537 0.0312  
 Mars -53302-06-26 17:45 J -17746955.97 -17746955.76 -17746955.54 0.0512 0.0254  
 Venus -53302-08-25 10:33 J -17746896.22 -17746896.06 -17746895.89 0.0510 0.0277  
 Mercury -53299-09-05 03:06 J -17745789.54 -17745789.37 -17745789.20 0.0490 0.0139

Mercury -53293-05-09 10:33 J -17743716.12 -17743716.06 -17743715.99 0.0537 0.0466

Mercury -53293-08-06 20:09 J -17743626.79 -17743626.66 -17743626.53 0.0537 0.0156

Venus -53290-04-30 12:28 J -17742630.18 -17742629.98 -17742629.78 0.0512 0.0044

Mercury -53287-06-24 02:09 J -17741479.59 -17741479.41 -17741479.23 0.0490 0.0019

Venus -53284-10-20 14:23 J -17740265.05 -17740264.90 -17740264.74 0.0517 0.0344

Mercury -53281-05-25 22:33 J -17739316.69 -17739316.56 -17739316.42 0.0537 0.0023

Venus -53278-01-03 12:57 J -17738364.09 -17738363.96 -17738363.82 0.0515 0.0375

Mercury -53275-04-12 00:57 J -17737169.62 -17737169.46 -17737169.29 0.0490 0.0179

Mercury -53275-07-11 04:18 J -17737079.36 -17737079.32 -17737079.28 0.0490 0.0473

Earth -53274-02-22 21:06 J -17736852.77 -17736852.62 -17736852.46 0.0492 0.0368

Moon -53274-02-22 21:49 J -17736852.74 -17736852.59 -17736852.43 0.0492 0.0354 \*

Venus -53272-06-25 03:21 J -17735999.57 -17735999.36 -17735999.15 0.0514 0.0016

Mercury -53269-03-14 01:54 J -17735006.55 -17735006.42 -17735006.29 0.0537 0.0167

Mercury -53269-06-11 10:47 J -17734917.11 -17734917.05 -17734916.97 0.0537 0.0446

Venus -53266-05-02 18:57 J -17733861.79 -17733861.71 -17733861.62 0.0509 0.0452

Mercury -53263-01-28 23:16 J -17732859.65 -17732859.53 -17732859.41 0.0490 0.0348

Mercury -53263-04-29 01:40 J -17732769.56 -17732769.43 -17732769.28 0.0490 0.0297

Earth -53262-02-27 03:49 J -17732465.58 -17732465.34 -17732465.11 0.0493 0.0011

Moon -53262-02-27 04:18 J -17732465.57 -17732465.32 -17732465.08 0.0493 0.0028 \*

Venus -53260-02-27 16:18 J -17731733.96 -17731733.82 -17731733.68 0.0512 0.0373

Mercury -53257-01-01 05:30 J -17730696.38 -17730696.27 -17730696.17 0.0537 0.0317

Mercury -53257-03-30 14:52 J -17730606.99 -17730606.88 -17730606.77 0.0537 0.0302

Venus -53254-01-05 22:18 J -17729595.76 -17729595.57 -17729595.38 0.0511 0.0140

Mercury -53251-02-15 00:28 J -17728459.65 -17728459.48 -17728459.31 0.0490 0.0134

Moon -53250-03-03 12:28 J -17728078.14 -17728077.98 -17728077.82 0.0494 0.0351

Earth -53250-03-03 14:37 J -17728078.04 -17728077.89 -17728077.74 0.0494 0.0373 \*

Mars -53248-01-24 15:35 J -17727385.13 -17727384.85 -17727384.55 0.0513 0.0160

Mercury -53246-10-20 08:52 J -17726386.20 -17726386.13 -17726386.07 0.0537 0.0470

Mercury -53245-01-17 18:28 J -17726296.86 -17726296.73 -17726296.61 0.0537 0.0154

Earth -53245-08-26 20:52 J -17726074.78 -17726074.63 -17726074.47 0.0535 0.0391

Moon -53245-08-26 22:18 J -17726074.72 -17726074.57 -17726074.42 0.0535 0.0396 \*  
 Venus -53243-09-10 23:45 J -17725329.69 -17725329.51 -17725329.32 0.0513 0.0185  
 Mercury -53240-12-03 23:16 J -17724149.71 -17724149.53 -17724149.35 0.0490 0.0028  
 Venus -53236-03-02 20:09 J -17722964.85 -17722964.66 -17722964.46 0.0516 0.0190  
 Mercury -53234-11-05 21:35 J -17721986.73 -17721986.60 -17721986.47 0.0537 0.0003  
 Earth -53233-08-31 20:23 J -17721686.87 -17721686.65 -17721686.42 0.0534 0.0085  
 Moon -53233-08-31 21:06 J -17721686.85 -17721686.62 -17721686.38 0.0534 0.0116 \*  
 Venus -53231-05-17 00:28 J -17721063.48 -17721063.48 -17721063.45 0.0516 0.0514  
 Mercury -53228-09-21 22:33 J -17719839.73 -17719839.56 -17719839.40 0.0490 0.0184  
 Mercury -53228-12-21 01:40 J -17719749.48 -17719749.43 -17719749.38 0.0490 0.0468  
 Venus -53225-11-05 09:35 J -17718699.30 -17718699.10 -17718698.90 0.0513 0.0168  
 Mercury -53222-08-24 23:59 J -17717676.62 -17717676.50 -17717676.37 0.0537 0.0172  
 Mercury -53222-11-22 09:06 J -17717587.19 -17717587.12 -17717587.05 0.0536 0.0441  
 Venus -53219-09-13 05:45 J -17716561.41 -17716561.26 -17716561.10 0.0510 0.0312  
 Mercury -53216-07-10 21:35 J -17715529.73 -17715529.60 -17715529.48 0.0490 0.0342  
 Mercury -53216-10-09 00:13 J -17715439.63 -17715439.49 -17715439.35 0.0490 0.0304  
 Mercury -53210-06-13 03:06 J -17713366.47 -17713366.37 -17713366.26 0.0537 0.0329  
 Mercury -53210-09-10 12:28 J -17713277.09 -17713276.98 -17713276.87 0.0537 0.0290  
 Venus -53207-05-19 08:23 J -17712295.35 -17712295.15 -17712294.95 0.0512 0.0008  
 Mercury -53204-07-27 22:04 J -17711129.75 -17711129.58 -17711129.41 0.0490 0.0129  
 Venus -53201-11-08 09:49 J -17709930.23 -17709930.09 -17709929.95 0.0517 0.0383  
 Mercury -53198-04-01 06:42 J -17709056.28 -17709056.22 -17709056.17 0.0537 0.0481  
 Mercury -53198-06-29 16:18 J -17708966.95 -17708966.82 -17708966.69 0.0537 0.0145  
 Venus -53195-01-22 11:16 J -17708029.18 -17708029.03 -17708028.87 0.0514 0.0325  
 Mercury -53192-05-15 20:52 J -17706819.80 -17706819.63 -17706819.45 0.0490 0.0032  
 Earth -53191-02-21 21:06 J -17706537.72 -17706537.62 -17706537.52 0.0492 0.0442  
 Moon -53191-02-21 21:35 J -17706537.72 -17706537.60 -17706537.48 0.0492 0.0428 \*  
 Venus -53189-07-14 00:13 J -17705664.70 -17705664.49 -17705664.28 0.0515 0.0030  
 Mercury -53186-04-17 19:54 J -17704656.80 -17704656.67 -17704656.54 0.0537 0.0004  
 Mars -53184-12-16 15:49 J -17703683.08 -17703682.84 -17703682.59 0.0514 0.0099

Venus -53183-05-21 16:04 J -17703526.87 -17703526.83 -17703526.79 0.0509 0.0494  
 Mercury -53180-03-03 19:40 J -17702509.84 -17702509.68 -17702509.51 0.0490 0.0191  
 Mercury -53180-06-01 22:47 J -17702419.60 -17702419.55 -17702419.49 0.0490 0.0461  
 Moon -53179-02-26 05:45 J -17702150.48 -17702150.26 -17702150.03 0.0493 0.0089  
 Earth -53179-02-26 07:40 J -17702150.41 -17702150.18 -17702149.94 0.0493 0.0065 \*  
 Venus -53177-03-18 15:21 J -17701399.02 -17701398.86 -17701398.69 0.0513 0.0319  
 Mercury -53174-02-03 23:01 J -17700346.66 -17700346.54 -17700346.41 0.0537 0.0160  
 Mercury -53174-05-04 08:09 J -17700257.23 -17700257.16 -17700257.09 0.0536 0.0453  
 Venus -53171-01-24 18:13 J -17699260.92 -17699260.74 -17699260.55 0.0511 0.0179  
 Mercury -53169-12-20 19:11 J -17698199.82 -17698199.70 -17698199.58 0.0490 0.0345  
 Mercury -53168-03-20 21:49 J -17698109.73 -17698109.59 -17698109.45 0.0490 0.0301  
 Earth -53167-03-02 19:40 J -17697762.85 -17697762.68 -17697762.49 0.0494 0.0322  
 Moon -53167-03-02 23:16 J -17697762.71 -17697762.53 -17697762.34 0.0494 0.0308 \*  
 Mercury -53163-11-23 01:40 J -17696036.54 -17696036.43 -17696036.33 0.0537 0.0328  
 Mercury -53162-02-20 11:01 J -17695947.15 -17695947.04 -17695946.93 0.0536 0.0291  
 Moon -53162-08-26 15:49 J -17695759.93 -17695759.84 -17695759.76 0.0535 0.0497  
 Earth -53162-08-26 15:49 J -17695759.92 -17695759.84 -17695759.75 0.0535 0.0496 \*  
 Venus -53160-09-29 19:25 J -17694994.88 -17694994.69 -17694994.50 0.0514 0.0148  
 Mercury -53156-01-06 20:37 J -17693799.81 -17693799.64 -17693799.47 0.0490 0.0138  
 Venus -53153-03-21 17:16 J -17692629.97 -17692629.78 -17692629.59 0.0516 0.0234  
 Mercury -53151-09-11 04:33 J -17691726.36 -17691726.31 -17691726.25 0.0537 0.0487  
 Mercury -53151-12-09 14:23 J -17691637.03 -17691636.90 -17691636.78 0.0537 0.0138  
 Moon -53150-08-31 14:52 J -17691372.11 -17691371.88 -17691371.66 0.0534 0.0019  
 Earth -53150-08-31 17:01 J -17691372.02 -17691371.79 -17691371.56 0.0534 0.0014 \*  
 Venus -53148-06-04 21:21 J -17690728.68 -17690728.61 -17690728.53 0.0516 0.0471  
 Mars -53148-09-19 05:01 J -17690622.45 -17690622.29 -17690622.12 0.0512 0.0381  
 Mercury -53145-10-25 18:42 J -17689489.90 -17689489.72 -17689489.55 0.0490 0.0033  
 Venus -53142-11-25 04:47 J -17688364.50 -17688364.30 -17688364.09 0.0514 0.0129  
 Mercury -53139-09-27 17:59 J -17687326.88 -17687326.75 -17687326.62 0.0537 0.0013  
 Earth -53138-09-05 20:09 J -17686983.75 -17686983.66 -17686983.55 0.0533 0.0479



Moon -53138-09-05 23:59 J -17686983.60 -17686983.50 -17686983.39 0.0533 0.0472 \*  
 Venus -53136-10-02 04:47 J -17686226.43 -17686226.30 -17686226.15 0.0510 0.0364  
 Mercury -53133-08-13 17:45 J -17685179.92 -17685179.76 -17685179.60 0.0490 0.0189  
 Mercury -53133-11-11 20:37 J -17685089.69 -17685089.64 -17685089.58 0.0490 0.0461  
 Venus -53130-07-30 20:09 J -17684098.73 -17684098.66 -17684098.57 0.0512 0.0473  
 Mercury -53127-07-16 21:35 J -17683016.73 -17683016.60 -17683016.48 0.0537 0.0159  
 Mercury -53127-10-14 06:42 J -17682927.29 -17682927.22 -17682927.16 0.0537 0.0455  
 Venus -53124-06-07 06:57 J -17681960.40 -17681960.21 -17681960.01 0.0512 0.0046  
 Mercury -53121-06-01 16:47 J -17680869.92 -17680869.80 -17680869.67 0.0490 0.0347  
 Mercury -53121-08-30 19:25 J -17680779.83 -17680779.69 -17680779.55 0.0490 0.0298  
 Venus -53118-11-28 10:18 J -17679595.18 -17679595.07 -17679594.96 0.0518 0.0442  
 Mercury -53115-05-05 00:42 J -17678706.57 -17678706.47 -17678706.36 0.0537 0.0315  
 Mercury -53115-08-02 10:04 J -17678617.18 -17678617.08 -17678616.97 0.0537 0.0305  
 Venus -53112-02-10 08:37 J -17677694.30 -17677694.14 -17677693.97 0.0514 0.0280  
 Mercury -53109-06-18 18:28 J -17676469.90 -17676469.73 -17676469.56 0.0490 0.0139  
 Moon -53108-02-21 01:40 J -17676222.46 -17676222.43 -17676222.39 0.0492 0.0485  
 Earth -53108-02-21 03:35 J -17676222.35 -17676222.35 -17676222.32 0.0492 0.0491  
 Venus -53106-08-02 23:59 J -17675329.70 -17675329.50 -17675329.29 0.0515 0.0086  
 Mercury -53103-02-21 03:21 J -17674396.42 -17674396.36 -17674396.31 0.0536 0.0482  
 Mercury -53103-05-21 12:57 J -17674307.09 -17674306.96 -17674306.83 0.0537 0.0143  
 Mercury -53097-04-06 17:30 J -17672159.95 -17672159.77 -17672159.60 0.0490 0.0024  
 Earth -53096-02-25 14:09 J -17671835.13 -17671834.91 -17671834.67 0.0493 0.0115  
 Moon -53096-02-25 17:45 J -17671834.99 -17671834.76 -17671834.53 0.0493 0.0142 \*  
 Venus -53094-04-07 13:54 J -17671064.10 -17671063.92 -17671063.74 0.0513 0.0268  
 Mars -53094-04-20 08:52 J -17671051.43 -17671051.13 -17671050.82 0.0513 0.0039  
 Mercury -53091-03-09 16:18 J -17669996.95 -17669996.82 -17669996.69 0.0537 0.0015  
 Venus -53088-02-12 16:18 J -17668926.00 -17668925.82 -17668925.64 0.0511 0.0225  
 Mercury -53085-01-24 15:49 J -17667850.00 -17667849.84 -17667849.68 0.0490 0.0187  
 Mercury -53085-04-23 18:42 J -17667759.77 -17667759.72 -17667759.66 0.0490 0.0463  
 Moon -53084-03-01 17:30 J -17667447.98 -17667447.77 -17667447.57 0.0493 0.0241

Earth -53084-03-01 21:21 J -17667447.81 -17667447.61 -17667447.40 0.0493 0.0253 \*  
 Mercury -53080-12-26 19:40 J -17665686.80 -17665686.68 -17665686.55 0.0537 0.0163  
 Mercury -53079-03-26 04:47 J -17665597.36 -17665597.30 -17665597.23 0.0537 0.0453  
 Venus -53077-10-18 20:09 J -17664659.86 -17664659.66 -17664659.47 0.0513 0.0088  
 Mercury -53074-11-12 15:06 J -17663539.99 -17663539.87 -17663539.74 0.0490 0.0341  
 Mercury -53073-02-10 17:30 J -17663449.91 -17663449.77 -17663449.63 0.0490 0.0302  
 Venus -53070-04-10 15:06 J -17662295.04 -17662294.87 -17662294.69 0.0517 0.0285  
 Mercury -53068-10-14 23:16 J -17661376.64 -17661376.53 -17661376.42 0.0537 0.0312  
 Mercury -53067-01-12 08:37 J -17661287.24 -17661287.14 -17661287.03 0.0537 0.0310  
 Earth -53067-08-30 23:59 J -17661056.73 -17661056.50 -17661056.27 0.0534 0.0066  
 Moon -53067-08-31 03:35 J -17661056.58 -17661056.35 -17661056.11 0.0534 0.0036 \*  
 Mars -53065-06-07 20:52 J -17660409.75 -17660409.63 -17660409.49 0.0516 0.0438  
 Venus -53065-06-23 21:35 J -17660393.71 -17660393.60 -17660393.47 0.0515 0.0413  
 Mercury -53062-11-29 16:18 J -17659139.99 -17659139.82 -17659139.65 0.0490 0.0141  
 Venus -53059-12-14 06:28 J -17658029.44 -17658029.23 -17658029.03 0.0514 0.0066  
 Mercury -53056-08-03 02:23 J -17657066.46 -17657066.40 -17657066.33 0.0537 0.0467  
 Mercury -53056-10-31 12:13 J -17656977.12 -17656976.99 -17656976.87 0.0537 0.0159  
 Moon -53055-09-04 20:52 J -17656668.78 -17656668.63 -17656668.48 0.0533 0.0404  
 Earth -53055-09-05 00:42 J -17656668.61 -17656668.47 -17656668.32 0.0533 0.0415 \*  
 Venus -53053-10-21 03:06 J -17655891.48 -17655891.37 -17655891.25 0.0509 0.0411  
 Mercury -53050-09-17 15:35 J -17654830.03 -17654829.85 -17654829.67 0.0490 0.0016  
 Venus -53047-08-18 21:35 J -17653763.72 -17653763.60 -17653763.47 0.0512 0.0411  
 Mercury -53044-08-19 15:06 J -17652667.00 -17652666.87 -17652666.74 0.0537 0.0005  
 Venus -53041-06-26 04:47 J -17651625.49 -17651625.30 -17651625.11 0.0512 0.0091  
 Mercury -53038-07-06 14:37 J -17650520.05 -17650519.89 -17650519.72 0.0490 0.0174  
 Mercury -53038-10-04 17:45 J -17650429.79 -17650429.76 -17650429.72 0.0490 0.0479  
 Venus -53035-12-17 09:49 J -17649260.14 -17649260.09 -17649260.03 0.0517 0.0496  
 Mercury -53032-06-07 18:13 J -17648356.86 -17648356.74 -17648356.61 0.0537 0.0160  
 Mercury -53032-09-05 03:21 J -17648267.42 -17648267.36 -17648267.29 0.0537 0.0456  
 Venus -53029-03-01 07:40 J -17647359.35 -17647359.18 -17647359.00 0.0514 0.0227

Mars -53029-03-11 13:11 J -17647349.20 -17647348.95 -17647348.70 0.0514 0.0052  
 Mercury -53026-04-24 13:25 J -17646210.06 -17646209.94 -17646209.81 0.0490 0.0335  
 Mercury -53026-07-23 15:49 J -17646119.97 -17646119.84 -17646119.70 0.0490 0.0309  
 Venus -53023-08-21 20:52 J -17644994.83 -17644994.63 -17644994.42 0.0515 0.0131  
 Mercury -53020-03-26 21:35 J -17644046.71 -17644046.60 -17644046.49 0.0537 0.0313  
 Mercury -53020-06-24 07:11 J -17643957.31 -17643957.20 -17643957.10 0.0537 0.0310  
 Mercury -53014-02-10 12:57 J -17641899.97 -17641899.96 -17641899.93 0.0490 0.0486  
 Mercury -53014-05-11 15:06 J -17641810.04 -17641809.87 -17641809.71 0.0490 0.0151  
 Moon -53013-02-25 15:06 J -17641520.08 -17641519.87 -17641519.65 0.0492 0.0201  
 Earth -53013-02-25 18:57 J -17641519.93 -17641519.71 -17641519.48 0.0492 0.0170 \*  
 Venus -53011-04-26 12:13 J -17640729.18 -17640728.99 -17640728.80 0.0513 0.0217  
 Mercury -53008-01-13 01:11 J -17639736.52 -17639736.45 -17639736.38 0.0537 0.0462  
 Mercury -53008-04-12 11:01 J -17639647.17 -17639647.04 -17639646.92 0.0537 0.0166  
 Venus -53005-03-03 17:30 J -17638590.93 -17638590.77 -17638590.61 0.0510 0.0285  
 Mercury -53002-02-27 13:54 J -17637500.09 -17637499.92 -17637499.74 0.0490 0.0011  
 Earth -53001-03-01 06:13 J -17637132.45 -17637132.24 -17637132.03 0.0493 0.0214  
 Moon -53001-03-01 09:35 J -17637132.30 -17637132.10 -17637131.88 0.0493 0.0211 \*

# 53RD MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 53rd millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
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Mercury -52996-01-29 14:23 J -17635337.03 -17635336.90 -17635336.76 0.0537 0.0024

Venus -52994-11-07 19:54 J -17634324.87 -17634324.67 -17634324.47 0.0513 0.0034  
 Mercury -52991-12-16 13:11 J -17633190.11 -17633189.95 -17633189.78 0.0490 0.0165  
 Mercury -52990-03-16 16:04 J -17633099.84 -17633099.83 -17633099.81 0.0490 0.0487  
 Venus -52987-04-29 17:45 J -17631959.91 -17631959.76 -17631959.60 0.0517 0.0351  
 Mercury -52985-11-17 17:30 J -17631026.90 -17631026.77 -17631026.65 0.0537 0.0146  
 Mercury -52984-02-15 02:37 J -17630937.46 -17630937.39 -17630937.33 0.0536 0.0468  
 Moon -52984-08-29 22:33 J -17630741.78 -17630741.56 -17630741.33 0.0534 0.0111  
 Earth -52984-08-30 02:37 J -17630741.61 -17630741.39 -17630741.17 0.0534 0.0140 \*  
 Venus -52982-07-13 20:37 J -17630058.78 -17630058.64 -17630058.50 0.0515 0.0361  
 Mercury -52979-10-04 12:42 J -17628880.10 -17628879.97 -17628879.84 0.0490 0.0320  
 Mercury -52978-01-02 15:06 J -17628790.00 -17628789.87 -17628789.74 0.0490 0.0326  
 Mars -52976-10-05 21:06 J -17627782.76 -17627782.62 -17627782.48 0.0511 0.0448  
 Venus -52975-01-02 07:25 J -17627694.40 -17627694.19 -17627693.98 0.0514 0.0005  
 Mercury -52973-09-05 20:37 J -17626716.75 -17626716.64 -17626716.53 0.0537 0.0303  
 Mercury -52973-12-04 05:59 J -17626627.35 -17626627.25 -17626627.15 0.0537 0.0317  
 Earth -52972-09-04 03:35 J -17626353.52 -17626353.35 -17626353.17 0.0534 0.0344  
 Moon -52972-09-04 06:57 J -17626353.38 -17626353.21 -17626353.03 0.0534 0.0333 \*  
 Venus -52970-11-10 03:06 J -17625556.44 -17625556.37 -17625556.28 0.0509 0.0467  
 Mercury -52967-07-23 11:45 J -17624570.05 -17624570.01 -17624569.97 0.0490 0.0476  
 Mercury -52967-10-21 13:40 J -17624480.10 -17624479.93 -17624479.77 0.0490 0.0161  
 Venus -52964-09-06 19:11 J -17623428.84 -17623428.70 -17623428.55 0.0512 0.0363  
 Mercury -52961-06-24 23:30 J -17622406.58 -17622406.52 -17622406.45 0.0538 0.0461  
 Mercury -52961-09-22 09:21 J -17622317.23 -17622317.11 -17622316.98 0.0538 0.0168  
 Venus -52958-07-16 07:40 J -17621290.37 -17621290.18 -17621289.99 0.0512 0.0159  
 Mercury -52955-08-09 12:57 J -17620170.14 -17620169.96 -17620169.79 0.0489 0.0009  
 Mercury -52949-07-11 13:11 J -17618007.08 -17618006.95 -17618006.82 0.0538 0.0024  
 Venus -52946-03-21 10:18 J -17617024.26 -17617024.07 -17617023.88 0.0514 0.0161  
 Mercury -52943-05-28 11:59 J -17615860.17 -17615860.00 -17615859.83 0.0490 0.0154  
 Mars -52940-07-14 17:16 J -17614717.04 -17614716.78 -17614716.51 0.0514 0.0265  
 Venus -52940-09-10 00:42 J -17614659.67 -17614659.47 -17614659.28 0.0516 0.0201

Mercury -52937-04-29 16:47 J -17613696.93 -17613696.80 -17613696.67 0.0537 0.0127  
 Mercury -52937-07-28 01:54 J -17613607.47 -17613607.42 -17613607.37 0.0537 0.0487  
 Venus -52935-11-24 11:45 J -17612758.07 -17612758.01 -17612757.94 0.0516 0.0485  
 Mercury -52931-03-16 11:16 J -17611550.16 -17611550.03 -17611549.89 0.0490 0.0308  
 Mercury -52931-06-14 13:40 J -17611460.05 -17611459.93 -17611459.80 0.0490 0.0338  
 Earth -52930-02-25 05:59 J -17611204.46 -17611204.25 -17611204.03 0.0492 0.0202  
 Moon -52930-02-25 09:21 J -17611204.31 -17611204.11 -17611203.91 0.0492 0.0232 \*  
 Venus -52928-05-15 15:49 J -17610394.04 -17610393.84 -17610393.64 0.0513 0.0147  
 Mercury -52925-02-16 19:40 J -17609386.79 -17609386.68 -17609386.56 0.0537 0.0288  
 Mercury -52925-05-16 05:01 J -17609297.39 -17609297.29 -17609297.18 0.0537 0.0333  
 Venus -52922-03-23 17:01 J -17608255.93 -17608255.79 -17608255.64 0.0510 0.0339  
 Mercury -52919-01-02 10:47 J -17607240.10 -17607240.05 -17607239.99 0.0490 0.0460  
 Mercury -52919-04-02 12:42 J -17607150.13 -17607149.97 -17607149.80 0.0490 0.0179  
 Moon -52918-03-01 14:37 J -17606817.11 -17606816.89 -17606816.65 0.0493 0.0178  
 Earth -52918-03-01 17:16 J -17606817.00 -17606816.78 -17606816.56 0.0493 0.0181 \*  
 Venus -52916-01-18 06:28 J -17606128.28 -17606128.23 -17606128.16 0.0511 0.0490  
 Mercury -52914-12-05 22:47 J -17605076.62 -17605076.55 -17605076.48 0.0537 0.0446  
 Mercury -52913-03-04 08:37 J -17604987.27 -17604987.14 -17604987.02 0.0537 0.0181  
 Mars -52911-09-02 04:47 J -17604075.51 -17604075.30 -17604075.09 0.0516 0.0262  
 Venus -52911-11-26 20:37 J -17603989.84 -17603989.64 -17603989.45 0.0513 0.0027  
 Mercury -52907-01-19 11:45 J -17602840.19 -17602840.01 -17602839.84 0.0489 0.0020  
 Venus -52904-05-18 15:49 J -17601624.96 -17601624.84 -17601624.70 0.0517 0.0400  
 Mercury -52902-12-22 11:45 J -17600677.14 -17600677.01 -17600676.88 0.0538 0.0026  
 Earth -52901-08-29 09:49 J -17600426.30 -17600426.09 -17600425.87 0.0536 0.0192  
 Moon -52901-08-29 13:40 J -17600426.15 -17600425.93 -17600425.72 0.0536 0.0162 \*  
 Venus -52899-08-02 00:13 J -17599723.65 -17599723.49 -17599723.33 0.0515 0.0290  
 Mercury -52896-11-07 11:01 J -17598530.20 -17598530.04 -17598529.87 0.0489 0.0137  
 Venus -52892-01-21 06:57 J -17597359.42 -17597359.21 -17597359.00 0.0515 0.0051  
 Mercury -52890-10-10 15:35 J -17596366.98 -17596366.85 -17596366.72 0.0538 0.0120  
 Mercury -52889-01-08 00:42 J -17596277.51 -17596277.47 -17596277.42 0.0537 0.0496

Moon -52889-09-03 11:59 J -17596038.19 -17596038.00 -17596037.80 0.0534 0.0291  
 Earth -52889-09-03 14:09 J -17596038.09 -17596037.91 -17596037.72 0.0534 0.0309 \*  
 Mercury -52884-08-26 10:18 J -17594220.21 -17594220.07 -17594219.93 0.0490 0.0293  
 Mercury -52884-11-24 12:42 J -17594130.09 -17594129.97 -17594129.85 0.0490 0.0351  
 Venus -52881-09-25 23:01 J -17593093.71 -17593093.54 -17593093.37 0.0513 0.0293  
 Mercury -52878-07-29 18:57 J -17592056.82 -17592056.71 -17592056.59 0.0537 0.0271  
 Mercury -52878-10-27 04:33 J -17591967.41 -17591967.31 -17591967.21 0.0537 0.0351  
 Mars -52875-06-06 05:30 J -17591014.49 -17591014.27 -17591014.05 0.0513 0.0252  
 Venus -52875-08-04 09:06 J -17590955.30 -17590955.12 -17590954.94 0.0511 0.0218  
 Mercury -52872-06-14 09:49 J -17589910.16 -17589910.09 -17589910.02 0.0490 0.0445  
 Mercury -52872-09-12 11:45 J -17589820.17 -17589820.01 -17589819.85 0.0490 0.0192  
 Mercury -52866-05-17 22:04 J -17587746.66 -17587746.58 -17587746.50 0.0537 0.0430  
 Mercury -52866-08-15 07:40 J -17587657.30 -17587657.18 -17587657.05 0.0537 0.0197  
 Venus -52863-04-09 10:18 J -17586689.26 -17586689.07 -17586688.87 0.0513 0.0105  
 Mercury -52860-07-01 11:01 J -17585510.22 -17585510.04 -17585509.87 0.0490 0.0037  
 Venus -52857-09-29 03:21 J -17584324.54 -17584324.36 -17584324.18 0.0516 0.0268  
 Mercury -52854-06-03 11:01 J -17583347.17 -17583347.04 -17583346.91 0.0537 0.0044  
 Venus -52852-12-13 12:42 J -17582423.08 -17582422.97 -17582422.86 0.0516 0.0424  
 Mercury -52848-04-19 10:04 J -17581200.25 -17581200.08 -17581199.91 0.0489 0.0122  
 Moon -52847-02-24 12:42 J -17580889.17 -17580888.97 -17580888.76 0.0491 0.0268  
 Earth -52847-02-24 15:06 J -17580889.07 -17580888.87 -17580888.66 0.0491 0.0238 \*  
 Venus -52845-06-03 14:23 J -17580059.11 -17580058.90 -17580058.69 0.0513 0.0096  
 Mercury -52842-03-22 14:09 J -17579037.04 -17579036.91 -17579036.78 0.0538 0.0117  
 Mercury -52842-06-19 23:16 J -17578947.57 -17578947.53 -17578947.48 0.0538 0.0501  
 Venus -52839-04-11 20:52 J -17577920.75 -17577920.63 -17577920.51 0.0510 0.0407  
 Mercury -52836-02-05 09:35 J -17576890.24 -17576890.10 -17576889.95 0.0489 0.0274  
 Mercury -52836-05-06 11:59 J -17576800.12 -17576800.00 -17576799.89 0.0489 0.0369  
 Earth -52835-03-01 02:09 J -17576501.63 -17576501.41 -17576501.18 0.0492 0.0143  
 Moon -52835-03-01 02:52 J -17576501.60 -17576501.38 -17576501.16 0.0492 0.0149 \*  
 Venus -52833-02-07 05:59 J -17575793.35 -17575793.25 -17575793.14 0.0511 0.0437

Mercury -52830-01-08 17:45 J -17574726.88 -17574726.76 -17574726.64 0.0538 0.0264

Mercury -52830-04-08 03:21 J -17574637.46 -17574637.36 -17574637.27 0.0538 0.0359

Venus -52828-12-15 23:45 J -17573654.71 -17573654.51 -17573654.32 0.0512 0.0093

Mercury -52825-11-24 08:52 J -17572580.21 -17572580.13 -17572580.05 0.0489 0.0430

Mercury -52824-02-22 10:33 J -17572490.21 -17572490.06 -17572489.89 0.0489 0.0208

Mars -52822-12-31 11:30 J -17571448.30 -17571448.02 -17571447.74 0.0512 0.0207

Venus -52821-06-06 20:23 J -17571289.73 -17571289.65 -17571289.57 0.0517 0.0473

Mercury -52819-10-27 21:21 J -17570416.70 -17570416.61 -17570416.53 0.0538 0.0415

Mercury -52818-01-25 06:57 J -17570327.33 -17570327.21 -17570327.09 0.0538 0.0214

Moon -52818-08-29 17:59 J -17570110.97 -17570110.75 -17570110.53 0.0535 0.0207

Earth -52818-08-29 20:37 J -17570110.85 -17570110.64 -17570110.43 0.0535 0.0231 \*

Venus -52816-08-21 01:54 J -17569388.59 -17569388.42 -17569388.24 0.0514 0.0227

Mercury -52813-12-11 09:49 J -17568180.26 -17568180.09 -17568179.91 0.0490 0.0050

Venus -52809-02-10 11:30 J -17567024.23 -17567024.02 -17567023.82 0.0515 0.0124

Mercury -52807-11-13 10:18 J -17566017.20 -17566017.07 -17566016.94 0.0537 0.0058

Earth -52806-09-03 20:23 J -17565722.85 -17565722.65 -17565722.44 0.0534 0.0252

Moon -52806-09-03 20:23 J -17565722.84 -17565722.65 -17565722.45 0.0534 0.0229 \*

Mercury -52801-09-29 09:06 J -17563870.29 -17563870.12 -17563869.95 0.0490 0.0107

Venus -52798-10-16 01:54 J -17562758.61 -17562758.42 -17562758.23 0.0513 0.0225

Mercury -52795-09-01 13:25 J -17561707.07 -17561706.94 -17561706.81 0.0537 0.0099

Mercury -52795-11-29 22:33 J -17561617.59 -17561617.56 -17561617.52 0.0537 0.0516

Venus -52792-08-23 10:04 J -17560620.24 -17560620.08 -17560619.91 0.0511 0.0278

Mercury -52789-07-18 08:23 J -17559560.29 -17559560.15 -17559560.00 0.0489 0.0260

Mercury -52789-10-16 10:47 J -17559470.16 -17559470.05 -17559469.94 0.0489 0.0384

Mars -52786-10-09 03:06 J -17558382.42 -17558382.37 -17558382.29 0.0514 0.0500

Mercury -52783-06-20 16:18 J -17557396.94 -17557396.82 -17557396.71 0.0538 0.0262

Mercury -52783-09-18 01:54 J -17557307.52 -17557307.42 -17557307.33 0.0538 0.0362

Venus -52780-04-28 13:40 J -17556354.13 -17556353.93 -17556353.73 0.0514 0.0036

Mercury -52777-05-06 08:09 J -17555250.25 -17555250.16 -17555250.06 0.0489 0.0410

Mercury -52777-08-04 10:04 J -17555160.24 -17555160.08 -17555159.92 0.0489 0.0227

Venus -52774-10-19 02:37 J -17553989.56 -17553989.39 -17553989.23 0.0516 0.0320  
 Mercury -52771-04-08 19:40 J -17553086.76 -17553086.68 -17553086.59 0.0538 0.0412  
 Mercury -52771-07-07 05:45 J -17552997.38 -17552997.26 -17552997.14 0.0538 0.0218  
 Venus -52768-01-01 15:49 J -17552087.98 -17552087.84 -17552087.70 0.0516 0.0358  
 Mercury -52765-05-23 08:52 J -17550850.31 -17550850.13 -17550849.96 0.0489 0.0064  
 Earth -52764-02-24 02:09 J -17550573.60 -17550573.41 -17550573.21 0.0491 0.0271  
 Moon -52764-02-24 02:37 J -17550573.57 -17550573.39 -17550573.21 0.0491 0.0295 \*  
 Venus -52762-06-23 17:59 J -17549723.96 -17549723.75 -17549723.54 0.0514 0.0027  
 Mercury -52759-04-25 09:21 J -17548687.24 -17548687.11 -17548686.98 0.0538 0.0072  
 Mars -52757-11-26 23:01 J -17547740.79 -17547740.54 -17547740.29 0.0515 0.0050  
 Venus -52756-04-30 22:04 J -17547585.66 -17547585.58 -17547585.50 0.0510 0.0465  
 Mercury -52753-03-11 08:09 J -17546540.34 -17546540.16 -17546539.99 0.0489 0.0093  
 Earth -52752-02-28 13:11 J -17546186.18 -17546185.95 -17546185.71 0.0492 0.0111  
 Moon -52752-02-28 15:06 J -17546186.11 -17546185.87 -17546185.64 0.0492 0.0128 \*  
 Venus -52750-02-26 10:04 J -17545458.22 -17545458.08 -17545457.93 0.0512 0.0366  
 Mercury -52747-02-11 12:42 J -17544377.11 -17544376.97 -17544376.84 0.0537 0.0086  
 Mercury -52747-05-11 21:49 J -17544287.61 -17544287.59 -17544287.58 0.0537 0.0530  
 Venus -52744-01-03 23:30 J -17543319.70 -17543319.52 -17543319.32 0.0512 0.0149  
 Mercury -52742-12-29 07:25 J -17542230.34 -17542230.19 -17542230.04 0.0490 0.0248  
 Mercury -52741-03-28 09:49 J -17542140.19 -17542140.09 -17542139.99 0.0490 0.0398  
 Mercury -52736-11-30 15:35 J -17540066.96 -17540066.85 -17540066.73 0.0537 0.0244  
 Mercury -52735-02-28 01:11 J -17539977.54 -17539977.45 -17539977.36 0.0537 0.0378  
 Earth -52735-08-29 00:28 J -17539795.67 -17539795.48 -17539795.28 0.0536 0.0299  
 Moon -52735-08-29 01:11 J -17539795.64 -17539795.45 -17539795.27 0.0536 0.0285 \*  
 Venus -52733-09-09 02:23 J -17539053.59 -17539053.40 -17539053.21 0.0514 0.0169  
 Mercury -52730-10-17 06:57 J -17537920.31 -17537920.21 -17537920.11 0.0489 0.0398  
 Mercury -52729-01-15 08:52 J -17537830.29 -17537830.13 -17537829.98 0.0489 0.0240  
 Venus -52726-03-01 09:49 J -17536689.29 -17536689.09 -17536688.89 0.0515 0.0172  
 Mercury -52724-09-18 18:13 J -17535756.83 -17535756.74 -17535756.66 0.0538 0.0411  
 Mercury -52724-12-17 04:04 J -17535667.45 -17535667.33 -17535667.21 0.0538 0.0219



Earth -52723-09-03 00:28 J -17535407.69 -17535407.48 -17535407.26 0.0535 0.0191  
 Moon -52723-09-03 02:37 J -17535407.62 -17535407.39 -17535407.16 0.0535 0.0161 \*  
 Venus -52721-05-15 04:33 J -17534787.37 -17534787.31 -17534787.25 0.0517 0.0492  
 Mars -52721-08-30 18:57 J -17534679.82 -17534679.71 -17534679.58 0.0513 0.0447  
 Mercury -52718-11-03 08:09 J -17533520.34 -17533520.16 -17533519.99 0.0489 0.0083  
 Venus -52715-11-04 00:42 J -17532423.67 -17532423.47 -17532423.27 0.0512 0.0174  
 Mercury -52712-10-05 07:40 J -17531357.31 -17531357.18 -17531357.05 0.0538 0.0073  
 Venus -52709-09-11 12:13 J -17530285.14 -17530284.99 -17530284.85 0.0511 0.0338  
 Mercury -52706-08-22 06:57 J -17529210.38 -17529210.21 -17529210.04 0.0489 0.0079  
 Mercury -52700-07-24 11:30 J -17527047.15 -17527047.02 -17527046.89 0.0538 0.0076  
 Venus -52697-05-17 14:37 J -17526019.09 -17526018.89 -17526018.69 0.0513 0.0023  
 Mercury -52694-06-10 06:13 J -17524900.39 -17524900.24 -17524900.09 0.0489 0.0235  
 Mercury -52694-09-08 08:23 J -17524810.24 -17524810.15 -17524810.05 0.0489 0.0410  
 Venus -52691-11-07 05:59 J -17523654.38 -17523654.25 -17523654.11 0.0516 0.0390  
 Mercury -52688-05-12 14:37 J -17522737.01 -17522736.89 -17522736.77 0.0537 0.0232  
 Mercury -52688-08-09 23:59 J -17522647.58 -17522647.50 -17522647.41 0.0537 0.0390  
 Venus -52685-01-21 15:21 J -17521753.02 -17521752.86 -17521752.70 0.0515 0.0304  
 Mercury -52682-03-29 05:30 J -17520590.37 -17520590.27 -17520590.16 0.0490 0.0390  
 Mercury -52682-06-27 07:25 J -17520500.34 -17520500.19 -17520500.04 0.0490 0.0249  
 Earth -52681-02-24 12:42 J -17520258.15 -17520257.97 -17520257.79 0.0491 0.0306  
 Moon -52681-02-24 14:23 J -17520258.08 -17520257.90 -17520257.71 0.0491 0.0320 \*  
 Venus -52679-07-12 20:09 J -17519388.87 -17519388.66 -17519388.45 0.0514 0.0039  
 Mercury -52676-02-28 17:30 J -17518426.86 -17518426.77 -17518426.68 0.0537 0.0393  
 Mercury -52676-05-29 03:21 J -17518337.48 -17518337.36 -17518337.24 0.0537 0.0235  
 Mercury -52670-04-15 06:42 J -17516190.39 -17516190.22 -17516190.05 0.0489 0.0093  
 Moon -52669-02-28 19:25 J -17515870.92 -17515870.69 -17515870.47 0.0491 0.0099  
 Earth -52669-02-28 22:47 J -17515870.79 -17515870.55 -17515870.32 0.0491 0.0076 \*  
 Venus -52667-03-17 08:23 J -17515123.31 -17515123.15 -17515122.99 0.0511 0.0318  
 Mars -52667-03-26 19:11 J -17515114.01 -17515113.70 -17515113.39 0.0511 0.0027  
 Mercury -52664-03-17 05:59 J -17514027.38 -17514027.25 -17514027.12 0.0538 0.0071

Venus -52661-01-24 00:57 J -17512984.64 -17512984.46 -17512984.28 0.0512 0.0207  
 Mercury -52658-02-01 05:59 J -17511880.42 -17511880.25 -17511880.07 0.0489 0.0063  
 Earth -52657-03-04 09:06 J -17511483.20 -17511483.12 -17511483.04 0.0492 0.0457  
 Moon -52657-03-04 12:57 J -17511482.99 -17511482.96 -17511482.91 0.0492 0.0483  
 Mercury -52652-01-03 09:35 J -17509717.23 -17509717.10 -17509716.97 0.0538 0.0080  
 Earth -52652-08-28 03:49 J -17509480.50 -17509480.34 -17509480.17 0.0536 0.0365  
 Moon -52652-08-28 05:30 J -17509480.45 -17509480.27 -17509480.09 0.0536 0.0359 \*  
 Venus -52650-09-29 03:21 J -17508718.55 -17508718.36 -17508718.17 0.0514 0.0112  
 Mercury -52647-11-20 04:47 J -17507570.45 -17507570.30 -17507570.14 0.0489 0.0225  
 Mercury -52646-02-18 06:57 J -17507480.29 -17507480.21 -17507480.12 0.0489 0.0419  
 Venus -52643-03-20 11:30 J -17506354.20 -17506354.02 -17506353.83 0.0515 0.0235  
 Mercury -52641-10-22 13:11 J -17505407.07 -17505406.95 -17505406.83 0.0538 0.0228  
 Mercury -52640-01-19 22:47 J -17505317.64 -17505317.55 -17505317.46 0.0538 0.0395  
 Moon -52640-09-02 05:01 J -17505092.51 -17505092.29 -17505092.07 0.0535 0.0104  
 Earth -52640-09-02 08:09 J -17505092.38 -17505092.16 -17505091.93 0.0535 0.0140 \*  
 Mars -52638-05-20 08:23 J -17504467.32 -17504467.15 -17504466.98 0.0517 0.0372  
 Venus -52638-06-04 05:01 J -17504452.39 -17504452.29 -17504452.18 0.0517 0.0435  
 Mercury -52635-09-08 04:04 J -17503260.43 -17503260.33 -17503260.22 0.0489 0.0380  
 Mercury -52635-12-07 05:59 J -17503170.40 -17503170.25 -17503170.10 0.0489 0.0258  
 Venus -52632-11-23 02:52 J -17502088.58 -17502088.38 -17502088.17 0.0513 0.0110  
 Mercury -52629-08-10 16:18 J -17501096.91 -17501096.82 -17501096.73 0.0538 0.0386  
 Mercury -52629-11-08 02:09 J -17501007.53 -17501007.41 -17501007.29 0.0537 0.0242  
 Venus -52626-10-01 10:33 J -17499950.18 -17499950.06 -17499949.93 0.0511 0.0386  
 Mercury -52623-09-25 05:01 J -17498860.47 -17498860.29 -17498860.12 0.0489 0.0098  
 Venus -52620-07-28 17:59 J -17497822.85 -17497822.75 -17497822.65 0.0510 0.0452  
 Mercury -52617-08-27 05:16 J -17496697.41 -17496697.28 -17496697.15 0.0538 0.0085  
 Venus -52614-06-06 13:11 J -17495684.15 -17495683.95 -17495683.76 0.0513 0.0072  
 Mercury -52611-07-14 04:18 J -17494550.49 -17494550.32 -17494550.14 0.0489 0.0056  
 Venus -52608-11-26 03:21 J -17493319.47 -17493319.36 -17493319.25 0.0516 0.0432  
 Mercury -52605-06-15 07:40 J -17492387.31 -17492387.18 -17492387.05 0.0538 0.0084

Mercury -52605-09-12 17:01 J -17492297.80 -17492297.79 -17492297.78 0.0538 0.0534  
 Venus -52602-02-09 14:52 J -17491418.05 -17491417.88 -17491417.71 0.0516 0.0252  
 Mars -52602-02-21 01:25 J -17491406.68 -17491406.44 -17491406.20 0.0515 0.0123  
 Mercury -52599-05-02 03:49 J -17490240.50 -17490240.34 -17490240.19 0.0489 0.0211  
 Mercury -52599-07-31 05:59 J -17490150.33 -17490150.25 -17490150.17 0.0489 0.0433  
 Moon -52598-02-23 17:45 J -17489942.92 -17489942.76 -17489942.60 0.0490 0.0356  
 Earth -52598-02-23 20:52 J -17489942.79 -17489942.63 -17489942.45 0.0490 0.0347 \*  
 Venus -52596-07-31 17:16 J -17489053.99 -17489053.78 -17489053.57 0.0514 0.0081  
 Mercury -52593-04-03 11:01 J -17488077.16 -17488077.04 -17488076.92 0.0538 0.0238  
 Mercury -52593-07-01 20:37 J -17487987.73 -17487987.64 -17487987.55 0.0538 0.0388  
 Mercury -52587-02-18 02:23 J -17485930.50 -17485930.40 -17485930.28 0.0489 0.0374  
 Mercury -52587-05-19 04:04 J -17485840.47 -17485840.33 -17485840.17 0.0489 0.0264  
 Earth -52586-02-28 04:33 J -17485555.54 -17485555.31 -17485555.07 0.0491 0.0025  
 Moon -52586-02-28 08:37 J -17485555.37 -17485555.14 -17485554.90 0.0491 0.0054 \*  
 Venus -52584-04-05 08:23 J -17484788.33 -17484788.15 -17484787.97 0.0512 0.0263  
 Mercury -52581-01-21 14:37 J -17483766.98 -17483766.89 -17483766.80 0.0538 0.0387  
 Mercury -52581-04-20 00:28 J -17483677.59 -17483677.48 -17483677.36 0.0538 0.0243  
 Venus -52578-02-11 23:59 J -17482649.66 -17482649.50 -17482649.32 0.0512 0.0257  
 Mercury -52575-03-07 03:06 J -17481530.54 -17481530.37 -17481530.20 0.0489 0.0103  
 Moon -52574-03-04 11:01 J -17481168.16 -17481168.04 -17481167.92 0.0492 0.0428  
 Earth -52574-03-04 14:52 J -17481168.01 -17481167.88 -17481167.74 0.0492 0.0406 \*  
 Mercury -52569-02-07 03:49 J -17479367.47 -17479367.34 -17479367.21 0.0538 0.0089  
 Moon -52569-08-27 04:04 J -17479165.45 -17479165.33 -17479165.20 0.0536 0.0439  
 Earth -52569-08-27 06:57 J -17479165.34 -17479165.21 -17479165.07 0.0536 0.0437 \*  
 Venus -52567-10-18 01:11 J -17478383.65 -17478383.45 -17478383.26 0.0514 0.0066  
 Mercury -52564-12-24 02:09 J -17477220.58 -17477220.41 -17477220.23 0.0489 0.0057  
 Venus -52560-04-08 11:45 J -17476019.18 -17476019.01 -17476018.83 0.0515 0.0291  
 Mercury -52558-11-26 06:57 J -17475057.35 -17475057.21 -17475057.08 0.0538 0.0073  
 Earth -52557-09-01 07:40 J -17474777.41 -17474777.18 -17474776.95 0.0535 0.0053  
 Moon -52557-09-01 11:30 J -17474777.25 -17474777.02 -17474776.79 0.0535 0.0019 \*

Venus -52555-06-23 02:09 J -17474117.53 -17474117.41 -17474117.27 0.0517 0.0391  
 Mercury -52552-10-12 01:40 J -17472910.58 -17472910.43 -17472910.27 0.0489 0.0209  
 Mercury -52551-01-10 03:49 J -17472820.41 -17472820.34 -17472820.26 0.0489 0.0437  
 Mars -52549-09-11 04:18 J -17471845.44 -17471845.32 -17471845.17 0.0509 0.0452  
 Venus -52549-12-11 23:59 J -17471753.71 -17471753.50 -17471753.29 0.0512 0.0069  
 Mercury -52546-09-14 09:06 J -17470747.24 -17470747.12 -17470747.00 0.0538 0.0243  
 Mercury -52546-12-12 18:42 J -17470657.81 -17470657.72 -17470657.63 0.0538 0.0381  
 Moon -52545-09-06 00:57 J -17470389.50 -17470389.46 -17470389.40 0.0535 0.0520  
 Earth -52545-09-06 04:47 J -17470389.32 -17470389.30 -17470389.26 0.0535 0.0530  
 Venus -52543-10-20 08:52 J -17469615.23 -17469615.13 -17469615.02 0.0511 0.0432  
 Mercury -52540-07-31 01:11 J -17468600.56 -17468600.45 -17468600.33 0.0489 0.0363  
 Mercury -52540-10-29 02:52 J -17468510.52 -17468510.38 -17468510.23 0.0489 0.0275  
 Venus -52537-08-16 14:23 J -17467488.01 -17467487.90 -17467487.77 0.0510 0.0411  
 Mercury -52534-07-03 12:13 J -17466437.08 -17466436.99 -17466436.90 0.0538 0.0400  
 Mercury -52534-09-30 22:18 J -17466347.69 -17466347.57 -17466347.46 0.0538 0.0231  
 Venus -52531-06-25 11:16 J -17465349.22 -17465349.03 -17465348.84 0.0513 0.0117  
 Mercury -52528-08-17 01:11 J -17464200.62 -17464200.45 -17464200.28 0.0489 0.0105  
 Venus -52525-12-15 02:09 J -17462984.48 -17462984.41 -17462984.34 0.0517 0.0482  
 Mercury -52522-07-20 01:54 J -17462037.55 -17462037.42 -17462037.29 0.0538 0.0084  
 Venus -52519-02-28 13:25 J -17461083.12 -17461082.94 -17461082.75 0.0515 0.0203  
 Mercury -52516-06-05 00:13 J -17459890.67 -17459890.49 -17459890.32 0.0489 0.0055  
 Earth -52515-02-23 00:28 J -17459627.60 -17459627.48 -17459627.34 0.0491 0.0409  
 Moon -52515-02-23 04:47 J -17459627.43 -17459627.30 -17459627.17 0.0491 0.0411 \*  
 Mars -52513-06-19 21:06 J -17458779.89 -17458779.62 -17458779.35 0.0512 0.0243  
 Venus -52513-08-19 17:01 J -17458719.00 -17458718.79 -17458718.59 0.0514 0.0135  
 Mercury -52510-05-08 05:16 J -17457727.41 -17457727.28 -17457727.15 0.0538 0.0071  
 Mercury -52504-03-23 23:16 J -17455580.69 -17455580.53 -17455580.37 0.0489 0.0214  
 Mercury -52504-06-22 01:25 J -17455490.52 -17455490.44 -17455490.36 0.0489 0.0432  
 Moon -52503-02-27 06:13 J -17455240.47 -17455240.24 -17455240.00 0.0491 0.0010  
 Earth -52503-02-27 10:18 J -17455240.30 -17455240.07 -17455239.83 0.0491 0.0030 \*

Venus -52501-04-24 07:40 J -17454453.37 -17454453.18 -17454452.99 0.0512 0.0210

Mercury -52498-02-24 08:09 J -17453417.28 -17453417.16 -17453417.04 0.0538 0.0232

Mercury -52498-05-24 17:45 J -17453327.85 -17453327.76 -17453327.67 0.0537 0.0392

Venus -52495-03-02 20:23 J -17452314.81 -17452314.65 -17452314.48 0.0512 0.0296

Mercury -52492-01-09 23:01 J -17451270.66 -17451270.54 -17451270.43 0.0489 0.0365

Mercury -52492-04-10 00:28 J -17451180.62 -17451180.48 -17451180.33 0.0489 0.0275

Earth -52491-03-03 20:37 J -17450852.79 -17450852.64 -17450852.47 0.0492 0.0357

Moon -52491-03-03 23:45 J -17450852.66 -17450852.51 -17450852.36 0.0492 0.0374 \*

Mercury -52487-12-13 10:18 J -17449107.16 -17449107.07 -17449106.99 0.0538 0.0408

Mercury -52486-03-12 20:09 J -17449017.78 -17449017.66 -17449017.54 0.0538 0.0223

Mars -52484-08-12 20:37 J -17448133.85 -17448133.64 -17448133.41 0.0518 0.0235

Venus -52484-11-05 21:49 J -17448048.79 -17448048.59 -17448048.39 0.0515 0.0027

Mercury -52480-01-26 23:30 J -17446870.69 -17446870.52 -17446870.34 0.0489 0.0114

Venus -52477-04-27 07:25 J -17445684.35 -17445684.19 -17445684.03 0.0515 0.0326

Mercury -52475-12-29 23:30 J -17444707.65 -17444707.52 -17444707.39 0.0538 0.0069

Moon -52474-08-31 23:16 J -17444462.75 -17444462.53 -17444462.30 0.0536 0.0084

Earth -52474-09-01 03:21 J -17444462.59 -17444462.36 -17444462.13 0.0536 0.0048 \*

Venus -52472-07-11 23:16 J -17443782.67 -17443782.53 -17443782.38 0.0517 0.0350

Mercury -52469-11-14 21:49 J -17442560.76 -17442560.59 -17442560.41 0.0489 0.0057

Venus -52466-12-31 21:06 J -17441418.83 -17441418.62 -17441418.41 0.0513 0.0024

Mercury -52463-10-18 03:06 J -17440397.50 -17440397.37 -17440397.24 0.0538 0.0079

Earth -52462-09-06 07:25 J -17440074.31 -17440074.19 -17440074.07 0.0535 0.0456

Moon -52462-09-06 10:04 J -17440074.19 -17440074.08 -17440073.97 0.0535 0.0460 \*

Venus -52460-11-08 06:28 J -17439280.30 -17439280.23 -17439280.16 0.0510 0.0474

Mercury -52457-09-02 21:06 J -17438250.78 -17438250.62 -17438250.47 0.0489 0.0215

Mercury -52457-12-01 23:01 J -17438160.62 -17438160.54 -17438160.45 0.0489 0.0429

Venus -52454-09-05 12:42 J -17437153.12 -17437152.97 -17437152.82 0.0511 0.0363

Mercury -52451-08-06 06:13 J -17436087.36 -17436087.24 -17436087.12 0.0538 0.0235

Mercury -52451-11-03 16:04 J -17435997.92 -17435997.83 -17435997.75 0.0538 0.0390

Mars -52448-05-16 15:49 J -17435073.05 -17435072.84 -17435072.62 0.0515 0.0262

Venus -52448-07-14 07:40 J -17435014.36 -17435014.18 -17435013.99 0.0513 0.0156  
 Mercury -52445-06-21 20:09 J -17433940.77 -17433940.66 -17433940.54 0.0489 0.0372  
 Mercury -52445-09-19 21:49 J -17433850.74 -17433850.59 -17433850.44 0.0489 0.0266  
 Mercury -52439-05-25 09:06 J -17431777.21 -17431777.12 -17431777.03 0.0537 0.0398  
 Mercury -52439-08-22 18:57 J -17431687.82 -17431687.71 -17431687.59 0.0538 0.0233  
 Venus -52436-03-19 09:06 J -17430748.31 -17430748.12 -17430747.94 0.0515 0.0166  
 Mercury -52433-07-08 21:06 J -17429540.79 -17429540.62 -17429540.45 0.0489 0.0109  
 Moon -52432-02-22 01:40 J -17429312.49 -17429312.43 -17429312.35 0.0490 0.0467  
 Earth -52432-02-22 05:45 J -17429312.33 -17429312.26 -17429312.17 0.0490 0.0462  
 Venus -52430-09-08 13:11 J -17428384.14 -17428383.95 -17428383.75 0.0514 0.0175  
 Mercury -52427-06-10 21:21 J -17427377.74 -17427377.61 -17427377.47 0.0538 0.0064  
 Venus -52425-11-22 08:37 J -17426482.18 -17426482.14 -17426482.08 0.0518 0.0498  
 Mercury -52421-04-26 20:09 J -17425230.83 -17425230.66 -17425230.48 0.0489 0.0051  
 Earth -52420-02-26 14:37 J -17424925.12 -17424924.89 -17424924.65 0.0491 0.0087  
 Moon -52420-02-26 17:45 J -17424924.99 -17424924.76 -17424924.53 0.0491 0.0058 \*  
 Venus -52418-05-14 03:06 J -17424118.57 -17424118.37 -17424118.17 0.0511 0.0174  
 Mercury -52415-03-30 00:28 J -17423067.61 -17423067.48 -17423067.34 0.0538 0.0098  
 Mercury -52415-06-27 10:04 J -17422978.11 -17422978.08 -17422978.06 0.0538 0.0524  
 Venus -52412-03-21 16:47 J -17421979.95 -17421979.80 -17421979.66 0.0512 0.0332  
 Mercury -52409-02-13 18:28 J -17420920.88 -17420920.73 -17420920.57 0.0489 0.0219  
 Mercury -52409-05-13 20:37 J -17420830.72 -17420830.64 -17420830.55 0.0489 0.0425  
 Moon -52408-03-02 19:25 J -17420537.89 -17420537.69 -17420537.49 0.0492 0.0290  
 Earth -52408-03-02 20:52 J -17420537.82 -17420537.63 -17420537.43 0.0492 0.0282 \*  
 Mercury -52403-01-16 04:04 J -17418757.45 -17418757.33 -17418757.21 0.0538 0.0247  
 Mercury -52403-04-15 13:54 J -17418668.02 -17418667.92 -17418667.83 0.0538 0.0380  
 Venus -52401-11-24 19:11 J -17417713.89 -17417713.70 -17417713.50 0.0514 0.0020  
 Mercury -52398-12-02 17:45 J -17416610.86 -17416610.76 -17416610.64 0.0489 0.0375  
 Mercury -52397-03-01 19:25 J -17416520.84 -17416520.69 -17416520.54 0.0489 0.0262  
 Mars -52395-12-05 12:28 J -17415512.23 -17415511.98 -17415511.72 0.0510 0.0282  
 Venus -52394-05-17 04:47 J -17415349.44 -17415349.30 -17415349.15 0.0516 0.0373

Mercury -52392-11-04 07:11 J -17414447.28 -17414447.20 -17414447.11 0.0538 0.0403

Mercury -52391-02-01 17:16 J -17414357.90 -17414357.78 -17414357.66 0.0538 0.0229

Earth -52391-08-31 03:49 J -17414147.56 -17414147.34 -17414147.11 0.0536 0.0130

Moon -52391-08-31 07:11 J -17414147.42 -17414147.20 -17414146.99 0.0536 0.0160 \*

Venus -52389-07-30 19:40 J -17413447.83 -17413447.68 -17413447.52 0.0516 0.0309

Mercury -52386-12-19 18:13 J -17412210.91 -17412210.74 -17412210.57 0.0489 0.0100

Venus -52382-01-19 19:25 J -17411083.90 -17411083.69 -17411083.48 0.0513 0.0026

Mercury -52380-11-20 20:23 J -17410047.78 -17410047.65 -17410047.52 0.0538 0.0071

Moon -52379-09-05 02:52 J -17409759.55 -17409759.38 -17409759.21 0.0535 0.0365

Earth -52379-09-05 04:18 J -17409759.49 -17409759.32 -17409759.15 0.0535 0.0358 \*

Venus -52377-11-27 01:25 J -17408945.45 -17408945.44 -17408945.41 0.0510 0.0508

Mercury -52374-10-07 17:45 J -17407900.94 -17407900.76 -17407900.59 0.0489 0.0057

Venus -52371-09-24 09:35 J -17406818.26 -17406818.10 -17406817.94 0.0510 0.0320

Mercury -52368-09-08 22:33 J -17405737.69 -17405737.56 -17405737.43 0.0537 0.0103

Mercury -52368-12-07 07:54 J -17405648.20 -17405648.17 -17405648.13 0.0537 0.0518

Venus -52365-08-02 02:37 J -17404679.57 -17404679.39 -17404679.20 0.0513 0.0190

Mercury -52362-07-26 16:47 J -17403590.95 -17403590.80 -17403590.64 0.0489 0.0214

Mercury -52362-10-24 18:57 J -17403500.79 -17403500.71 -17403500.63 0.0489 0.0431

Mars -52359-09-12 22:47 J -17402446.72 -17402446.55 -17402446.35 0.0511 0.0409

Mercury -52356-06-28 01:40 J -17401427.55 -17401427.43 -17401427.31 0.0538 0.0262

Mercury -52356-09-25 11:16 J -17401338.12 -17401338.03 -17401337.93 0.0538 0.0365

Venus -52353-04-07 04:33 J -17400413.50 -17400413.31 -17400413.11 0.0515 0.0130

Mercury -52350-05-14 15:21 J -17399280.96 -17399280.86 -17399280.75 0.0489 0.0380

Mercury -52350-08-12 16:47 J -17399190.95 -17399190.80 -17399190.65 0.0489 0.0257

Venus -52347-09-27 08:37 J -17398049.33 -17398049.14 -17398048.95 0.0514 0.0212

Mercury -52344-04-16 05:01 J -17397117.38 -17397117.29 -17397117.21 0.0538 0.0415

Mercury -52344-07-14 15:06 J -17397027.99 -17397027.87 -17397027.75 0.0538 0.0218

Venus -52342-12-12 06:28 J -17396147.32 -17396147.23 -17396147.13 0.0518 0.0450

Mercury -52338-05-31 15:49 J -17394881.01 -17394880.84 -17394880.67 0.0489 0.0096

Moon -52337-02-26 12:57 J -17394610.20 -17394609.96 -17394609.73 0.0491 0.0136

Earth -52337-02-26 14:23 J -17394610.12 -17394609.90 -17394609.67 0.0491 0.0164 \*  
 Venus -52335-06-01 23:45 J -17393783.72 -17393783.51 -17393783.31 0.0512 0.0131  
 Mercury -52332-05-02 18:28 J -17392717.86 -17392717.73 -17392717.60 0.0538 0.0067  
 Mars -52330-11-06 08:23 J -17391800.39 -17391800.15 -17391799.90 0.0517 0.0103  
 Venus -52329-04-09 12:57 J -17391645.09 -17391644.96 -17391644.82 0.0511 0.0371  
 Mercury -52326-03-19 14:52 J -17390571.06 -17390570.88 -17390570.71 0.0489 0.0065  
 Moon -52325-03-01 23:30 J -17390222.72 -17390222.52 -17390222.31 0.0492 0.0222  
 Earth -52325-03-01 23:59 J -17390222.71 -17390222.50 -17390222.28 0.0492 0.0220 \*  
 Venus -52323-02-04 15:21 J -17389517.93 -17389517.86 -17389517.77 0.0510 0.0467  
 Mercury -52320-02-18 21:35 J -17388407.73 -17388407.60 -17388407.47 0.0538 0.0093  
 Mercury -52320-05-19 06:57 J -17388318.23 -17388318.21 -17388318.19 0.0537 0.0527  
 Venus -52318-12-14 14:37 J -17387379.09 -17387378.89 -17387378.70 0.0514 0.0054  
 Mercury -52314-01-05 14:09 J -17386261.06 -17386260.91 -17386260.75 0.0489 0.0220  
 Mercury -52314-04-05 16:18 J -17386170.91 -17386170.82 -17386170.74 0.0489 0.0426  
 Venus -52311-06-05 01:54 J -17385014.54 -17385014.42 -17385014.29 0.0515 0.0415  
 Mercury -52309-12-07 23:45 J -17384097.62 -17384097.51 -17384097.39 0.0537 0.0265  
 Mercury -52308-03-07 09:35 J -17384008.20 -17384008.10 -17384008.01 0.0537 0.0361  
 Moon -52308-08-29 18:13 J -17383832.94 -17383832.74 -17383832.54 0.0536 0.0278  
 Earth -52308-08-29 20:23 J -17383832.86 -17383832.65 -17383832.45 0.0536 0.0248 \*  
 Venus -52306-08-19 14:23 J -17383113.06 -17383112.90 -17383112.73 0.0517 0.0276  
 Mercury -52303-10-24 13:40 J -17381951.04 -17381950.93 -17381950.82 0.0490 0.0375  
 Mercury -52302-01-22 15:06 J -17381861.02 -17381860.87 -17381860.72 0.0489 0.0263  
 Venus -52299-02-07 15:35 J -17380749.06 -17380748.85 -17380748.65 0.0513 0.0066  
 Mercury -52297-09-26 02:37 J -17379787.47 -17379787.39 -17379787.31 0.0537 0.0427  
 Mercury -52297-12-24 12:42 J -17379698.09 -17379697.97 -17379697.85 0.0538 0.0206  
 Earth -52296-09-03 22:04 J -17379444.78 -17379444.58 -17379444.37 0.0536 0.0249  
 Moon -52296-09-03 22:04 J -17379444.77 -17379444.58 -17379444.38 0.0536 0.0262 \*  
 Mars -52294-08-09 23:01 J -17378739.70 -17378739.54 -17378739.36 0.0515 0.0381  
 Mercury -52291-11-10 13:25 J -17377551.12 -17377550.94 -17377550.77 0.0489 0.0092  
 Venus -52288-10-13 04:18 J -17376483.50 -17376483.32 -17376483.15 0.0511 0.0285



Mercury -52285-10-12 16:18 J -17375387.95 -17375387.82 -17375387.69 0.0538 0.0056  
 Venus -52282-08-22 00:57 J -17374344.64 -17374344.46 -17374344.29 0.0513 0.0237  
 Mercury -52279-08-29 12:28 J -17373241.15 -17373240.98 -17373240.80 0.0489 0.0067  
 Mercury -52273-07-31 19:40 J -17371077.81 -17371077.68 -17371077.55 0.0538 0.0096  
 Mercury -52273-10-29 05:16 J -17370988.31 -17370988.28 -17370988.26 0.0538 0.0525  
 Venus -52270-04-27 02:09 J -17370078.61 -17370078.41 -17370078.22 0.0515 0.0084  
 Mercury -52267-06-17 11:45 J -17368931.17 -17368931.01 -17368930.86 0.0489 0.0226  
 Mercury -52267-09-15 13:25 J -17368841.02 -17368840.94 -17368840.85 0.0489 0.0418  
 Venus -52264-10-16 07:40 J -17367714.36 -17367714.18 -17367714.00 0.0515 0.0264  
 Mercury -52261-05-19 22:47 J -17366767.67 -17366767.55 -17366767.43 0.0538 0.0255  
 Mercury -52261-08-17 08:23 J -17366678.24 -17366678.15 -17366678.05 0.0538 0.0372  
 Venus -52259-12-31 02:37 J -17365812.51 -17365812.39 -17365812.27 0.0517 0.0410  
 Mercury -52255-04-05 11:16 J -17364621.14 -17364621.03 -17364620.92 0.0490 0.0378  
 Mercury -52255-07-04 12:42 J -17364531.12 -17364530.97 -17364530.82 0.0489 0.0259  
 Moon -52254-02-25 18:57 J -17364294.91 -17364294.71 -17364294.50 0.0491 0.0193  
 Earth -52254-02-25 19:25 J -17364294.89 -17364294.69 -17364294.47 0.0491 0.0219 \*  
 Venus -52252-06-20 22:04 J -17363448.79 -17363448.58 -17363448.37 0.0512 0.0082  
 Mercury -52249-03-08 01:11 J -17362457.53 -17362457.45 -17362457.37 0.0537 0.0427  
 Mercury -52249-06-05 11:01 J -17362368.16 -17362368.04 -17362367.91 0.0537 0.0207  
 Venus -52246-04-29 08:23 J -17361310.26 -17361310.15 -17361310.03 0.0512 0.0407  
 Mercury -52243-04-22 11:45 J -17360221.18 -17360221.01 -17360220.84 0.0489 0.0099  
 Earth -52242-03-02 04:47 J -17359907.52 -17359907.30 -17359907.07 0.0491 0.0163  
 Moon -52242-03-02 06:57 J -17359907.44 -17359907.21 -17359906.97 0.0491 0.0158 \*  
 Venus -52240-02-23 12:42 J -17359183.09 -17359182.97 -17359182.86 0.0509 0.0422  
 Mars -52240-02-27 21:06 J -17359178.92 -17359178.62 -17359178.32 0.0510 0.0108  
 Mercury -52237-03-24 14:23 J -17358058.04 -17358057.90 -17358057.77 0.0538 0.0052  
 Venus -52234-01-02 10:47 J -17357044.24 -17357044.05 -17357043.85 0.0514 0.0094  
 Mercury -52231-02-08 10:04 J -17355911.25 -17355911.08 -17355910.90 0.0489 0.0070  
 Venus -52228-06-23 21:06 J -17354679.71 -17354679.62 -17354679.52 0.0516 0.0453  
 Mercury -52225-01-11 17:45 J -17353747.89 -17353747.76 -17353747.63 0.0538 0.0105

Mercury -52225-04-10 03:06 J -17353658.40 -17353658.37 -17353658.33 0.0538 0.0519  
 Earth -52225-08-28 22:18 J -17353517.75 -17353517.57 -17353517.38 0.0537 0.0326  
 Moon -52225-08-28 23:01 J -17353517.71 -17353517.54 -17353517.38 0.0537 0.0355 \*  
 Venus -52223-09-07 13:54 J -17352778.10 -17352777.92 -17352777.75 0.0516 0.0222  
 Mercury -52220-11-27 09:35 J -17351601.25 -17351601.10 -17351600.94 0.0489 0.0224  
 Mercury -52219-02-25 11:30 J -17351511.11 -17351511.02 -17351510.93 0.0489 0.0418  
 Venus -52216-02-26 12:13 J -17350414.20 -17350413.99 -17350413.78 0.0513 0.0109  
 Mercury -52214-10-30 21:06 J -17349437.74 -17349437.62 -17349437.50 0.0538 0.0256  
 Mercury -52213-01-28 06:57 J -17349348.31 -17349348.21 -17349348.12 0.0538 0.0373  
 Earth -52213-09-03 02:09 J -17349129.62 -17349129.41 -17349129.19 0.0536 0.0184  
 Moon -52213-09-03 03:35 J -17349129.56 -17349129.35 -17349129.12 0.0536 0.0200 \*  
 Mars -52211-04-28 03:21 J -17348527.46 -17348527.36 -17348527.25 0.0519 0.0466  
 Mercury -52208-09-15 08:52 J -17347291.23 -17347291.13 -17347291.02 0.0489 0.0380  
 Mercury -52208-12-14 10:18 J -17347201.22 -17347201.07 -17347200.92 0.0489 0.0256  
 Venus -52205-11-01 03:49 J -17346148.52 -17346148.34 -17346148.15 0.0511 0.0230  
 Mercury -52202-08-18 23:59 J -17345127.58 -17345127.50 -17345127.41 0.0538 0.0415  
 Mercury -52202-11-16 10:04 J -17345038.19 -17345038.08 -17345037.95 0.0538 0.0220  
 Venus -52199-09-09 21:49 J -17344009.76 -17344009.59 -17344009.43 0.0512 0.0278  
 Mercury -52196-10-02 09:35 J -17342891.27 -17342891.10 -17342890.93 0.0489 0.0099  
 Mercury -52190-09-04 12:57 J -17340728.10 -17340727.96 -17340727.83 0.0537 0.0055  
 Venus -52187-05-15 22:04 J -17339743.77 -17339743.58 -17339743.38 0.0515 0.0045  
 Mercury -52184-07-21 08:52 J -17338581.31 -17338581.13 -17338580.96 0.0489 0.0060  
 Venus -52181-11-04 05:30 J -17337379.43 -17337379.27 -17337379.09 0.0514 0.0313  
 Mercury -52178-06-23 15:49 J -17336417.97 -17336417.84 -17336417.71 0.0538 0.0107  
 Mercury -52178-09-21 01:25 J -17336328.47 -17336328.44 -17336328.41 0.0538 0.0515  
 Venus -52175-01-18 23:45 J -17335477.65 -17335477.51 -17335477.37 0.0517 0.0365  
 Mars -52175-01-29 21:21 J -17335466.86 -17335466.61 -17335466.36 0.0517 0.0029  
 Mercury -52172-05-09 07:25 J -17334271.34 -17334271.19 -17334271.03 0.0489 0.0223  
 Mercury -52172-08-07 09:21 J -17334181.20 -17334181.11 -17334181.02 0.0489 0.0420  
 Earth -52171-02-24 21:35 J -17333979.79 -17333979.60 -17333979.41 0.0490 0.0285

Moon -52171-02-24 23:45 J -17333979.71 -17333979.51 -17333979.30 0.0490 0.0256 \*  
 Venus -52169-07-09 17:30 J -17333113.98 -17333113.77 -17333113.56 0.0512 0.0043  
 Mercury -52166-04-11 19:11 J -17332107.82 -17332107.70 -17332107.59 0.0538 0.0262  
 Mercury -52166-07-10 05:01 J -17332018.39 -17332018.29 -17332018.20 0.0538 0.0368  
 Venus -52163-05-18 08:37 J -17330975.22 -17330975.14 -17330975.06 0.0511 0.0461  
 Mercury -52160-02-25 07:11 J -17329961.31 -17329961.20 -17329961.09 0.0489 0.0375  
 Mercury -52160-05-26 08:23 J -17329871.30 -17329871.15 -17329871.00 0.0489 0.0260  
 Moon -52159-03-01 04:33 J -17329592.54 -17329592.31 -17329592.09 0.0491 0.0091  
 Earth -52159-03-01 07:25 J -17329592.42 -17329592.19 -17329591.95 0.0491 0.0098 \*  
 Venus -52157-03-14 09:35 J -17328848.24 -17328848.10 -17328847.96 0.0510 0.0377  
 Mercury -52154-01-28 22:33 J -17327797.65 -17327797.56 -17327797.48 0.0538 0.0414  
 Mercury -52154-04-28 08:37 J -17327708.26 -17327708.14 -17327708.02 0.0538 0.0222  
 Venus -52151-01-21 10:33 J -17326709.24 -17326709.06 -17326708.87 0.0513 0.0148  
 Mercury -52148-03-14 07:25 J -17325561.36 -17325561.19 -17325561.02 0.0489 0.0100  
 Earth -52147-03-05 17:30 J -17325204.80 -17325204.77 -17325204.73 0.0492 0.0485  
 Moon -52147-03-05 21:06 J -17325204.70 -17325204.62 -17325204.52 0.0492 0.0456  
 Venus -52145-07-12 22:18 J -17324344.59 -17324344.57 -17324344.55 0.0516 0.0513  
 Mercury -52142-02-14 11:59 J -17323398.13 -17323398.00 -17323397.87 0.0538 0.0068  
 Earth -52142-08-29 02:09 J -17323202.56 -17323202.41 -17323202.25 0.0537 0.0395  
 Moon -52142-08-29 03:06 J -17323202.51 -17323202.37 -17323202.22 0.0537 0.0421 \*  
 Venus -52140-09-26 11:59 J -17322443.18 -17322443.00 -17322442.81 0.0516 0.0173  
 Mercury -52137-12-31 06:57 J -17321251.39 -17321251.21 -17321251.04 0.0489 0.0056  
 Venus -52133-03-17 12:57 J -17320079.15 -17320078.96 -17320078.75 0.0513 0.0169  
 Mercury -52131-12-03 14:37 J -17319088.02 -17319087.89 -17319087.75 0.0537 0.0099  
 Mercury -52130-03-03 00:13 J -17318998.52 -17318998.49 -17318998.46 0.0537 0.0523  
 Moon -52130-09-02 22:47 J -17318814.77 -17318814.55 -17318814.33 0.0536 0.0110  
 Earth -52130-09-03 01:11 J -17318814.67 -17318814.45 -17318814.22 0.0536 0.0093 \*  
 Venus -52128-06-01 11:30 J -17318177.07 -17318177.02 -17318176.98 0.0518 0.0503  
 Mercury -52125-10-19 06:13 J -17316941.39 -17316941.24 -17316941.08 0.0489 0.0212  
 Mercury -52124-01-17 08:09 J -17316851.24 -17316851.16 -17316851.08 0.0489 0.0433

Venus -52122-11-21 03:21 J -17315813.56 -17315813.36 -17315813.16 0.0511 0.0175  
 Mercury -52119-09-21 17:45 J -17314777.88 -17314777.76 -17314777.64 0.0538 0.0258  
 Mercury -52119-12-20 03:35 J -17314688.45 -17314688.35 -17314688.26 0.0538 0.0370  
 Venus -52116-09-28 20:09 J -17313674.81 -17313674.66 -17313674.51 0.0512 0.0327  
 Mercury -52113-08-07 05:16 J -17312631.38 -17312631.28 -17312631.16 0.0489 0.0370  
 Mercury -52113-11-05 06:28 J -17312541.37 -17312541.23 -17312541.08 0.0489 0.0266  
 Mercury -52107-07-10 20:37 J -17310467.72 -17310467.64 -17310467.55 0.0538 0.0417  
 Mercury -52107-10-08 06:57 J -17310378.33 -17310378.21 -17310378.09 0.0538 0.0219  
 Venus -52104-06-03 23:30 J -17309408.71 -17309408.52 -17309408.32 0.0515 0.0020  
 Mercury -52101-08-24 05:59 J -17308231.42 -17308231.25 -17308231.08 0.0489 0.0109  
 Venus -52098-11-24 03:35 J -17307044.50 -17307044.35 -17307044.20 0.0515 0.0361  
 Mercury -52095-07-27 10:33 J -17306068.19 -17306068.06 -17306067.93 0.0538 0.0073  
 Venus -52092-02-07 01:11 J -17305142.61 -17305142.45 -17305142.29 0.0517 0.0304  
 Mercury -52089-06-12 05:16 J -17303921.46 -17303921.28 -17303921.11 0.0489 0.0050  
 Moon -52088-02-24 02:52 J -17303664.56 -17303664.38 -17303664.20 0.0490 0.0304  
 Earth -52088-02-24 05:59 J -17303664.42 -17303664.25 -17303664.07 0.0490 0.0329 \*  
 Mars -52086-05-24 18:28 J -17302845.03 -17302844.73 -17302844.43 0.0510 0.0090  
 Venus -52086-07-29 19:25 J -17302778.90 -17302778.69 -17302778.48 0.0513 0.0020  
 Mercury -52083-05-15 13:54 J -17301758.05 -17301757.92 -17301757.79 0.0538 0.0082  
 Mercury -52077-03-31 04:47 J -17299611.46 -17299611.30 -17299611.14 0.0489 0.0203  
 Mercury -52077-06-29 06:28 J -17299521.30 -17299521.23 -17299521.15 0.0489 0.0440  
 Earth -52076-02-28 16:33 J -17299277.04 -17299276.81 -17299276.57 0.0491 0.0058  
 Moon -52076-02-28 20:23 J -17299276.88 -17299276.65 -17299276.41 0.0491 0.0046 \*  
 Venus -52074-04-03 11:30 J -17298513.18 -17298513.02 -17298512.85 0.0510 0.0314  
 Mercury -52071-03-03 16:47 J -17297447.92 -17297447.80 -17297447.68 0.0538 0.0245  
 Mercury -52071-06-01 02:37 J -17297358.48 -17297358.39 -17297358.30 0.0538 0.0383  
 Venus -52068-02-09 08:52 J -17296374.31 -17296374.13 -17296373.95 0.0513 0.0196  
 Mercury -52065-01-18 04:18 J -17295301.43 -17295301.32 -17295301.20 0.0489 0.0357  
 Mercury -52065-04-17 05:45 J -17295211.41 -17295211.26 -17295211.12 0.0489 0.0281  
 Moon -52064-03-04 23:30 J -17294889.65 -17294889.52 -17294889.40 0.0492 0.0415

Earth -52064-03-05 02:52 J -17294889.47 -17294889.38 -17294889.27 0.0492 0.0444 \*  
 Mercury -52060-12-20 19:40 J -17293137.77 -17293137.68 -17293137.60 0.0538 0.0407  
 Mercury -52059-03-20 05:45 J -17293048.38 -17293048.26 -17293048.14 0.0538 0.0228  
 Moon -52059-08-28 01:11 J -17292887.52 -17292887.45 -17292887.38 0.0537 0.0505  
 Earth -52059-08-28 03:06 J -17292887.46 -17292887.37 -17292887.26 0.0537 0.0478 \*  
 Mars -52057-07-22 03:35 J -17292193.55 -17292193.35 -17292193.15 0.0519 0.0308  
 Venus -52057-10-15 11:16 J -17292108.22 -17292108.03 -17292107.83 0.0516 0.0119  
 Mercury -52053-02-04 04:33 J -17290901.48 -17290901.31 -17290901.14 0.0489 0.0118  
 Venus -52050-04-06 10:04 J -17289744.26 -17289744.08 -17289743.88 0.0514 0.0213  
 Mercury -52047-01-06 08:52 J -17288738.26 -17288738.13 -17288737.99 0.0538 0.0074  
 Earth -52047-09-02 06:57 J -17288499.44 -17288499.21 -17288498.98 0.0537 0.0034  
 Moon -52047-09-02 10:33 J -17288499.29 -17288499.06 -17288498.83 0.0537 0.0060 \*  
 Venus -52045-06-20 13:54 J -17287842.02 -17287841.92 -17287841.81 0.0518 0.0437  
 Mercury -52042-11-23 04:04 J -17286591.50 -17286591.33 -17286591.15 0.0489 0.0036  
 Venus -52039-12-10 01:40 J -17285478.63 -17285478.43 -17285478.22 0.0511 0.0126  
 Mercury -52036-10-25 12:28 J -17284428.11 -17284427.98 -17284427.84 0.0538 0.0078  
 Venus -52033-10-17 22:04 J -17283339.70 -17283339.58 -17283339.45 0.0512 0.0388  
 Mercury -52030-09-11 03:21 J -17282281.52 -17282281.36 -17282281.20 0.0489 0.0193  
 Mercury -52030-12-10 05:01 J -17282191.35 -17282191.29 -17282191.22 0.0489 0.0450  
 Venus -52027-08-14 18:42 J -17281212.81 -17281212.72 -17281212.63 0.0509 0.0456  
 Mercury -52024-08-13 16:04 J -17280117.95 -17280117.83 -17280117.71 0.0538 0.0229  
 Mercury -52024-11-11 01:54 J -17280028.51 -17280028.42 -17280028.34 0.0538 0.0401  
 Mars -52021-04-25 08:52 J -17279132.35 -17279132.13 -17279131.90 0.0516 0.0216  
 Venus -52021-06-23 00:13 J -17279073.69 -17279073.49 -17279073.30 0.0514 0.0074  
 Mercury -52018-06-30 03:06 J -17277971.49 -17277971.37 -17277971.25 0.0489 0.0345  
 Mercury -52018-09-28 04:18 J -17277881.46 -17277881.32 -17277881.18 0.0489 0.0292  
 Venus -52015-12-13 06:57 J -17276709.32 -17276709.21 -17276709.09 0.0515 0.0428  
 Mercury -52012-06-01 18:42 J -17275807.81 -17275807.72 -17275807.63 0.0538 0.0392  
 Mercury -52012-08-30 05:01 J -17275718.41 -17275718.29 -17275718.18 0.0538 0.0243  
 Venus -52009-02-27 00:28 J -17274807.65 -17274807.48 -17274807.31 0.0517 0.0251

Mercury -52006-07-17 03:35 J -17273571.52 -17273571.35 -17273571.18 0.0489 0.0134

Earth -52005-02-24 16:47 J -17273348.96 -17273348.80 -17273348.64 0.0490 0.0365

Moon -52005-02-24 20:23 J -17273348.81 -17273348.65 -17273348.47 0.0490 0.0342 \*

Venus -52003-08-17 21:06 J -17272443.82 -17272443.62 -17272443.41 0.0513 0.0084

# 52ND MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 52nd millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-52000-06-18 08:09 J	-17271408.29	-17271408.16	-17271408.03	0.0538	0.0086		
Mercury	-51994-05-05 02:52 J	-17269261.56	-17269261.38	-17269261.21	0.0489	0.0026		
Moon	-51993-02-28 20:52 J	-17268961.87	-17268961.63	-17268961.39	0.0490	0.0005		
Earth	-51993-02-29 00:28 J	-17268961.71	-17268961.48	-17268961.24	0.0490	0.0015	*	
Venus	-51991-04-22 09:21 J	-17268178.28	-17268178.11	-17268177.93	0.0510	0.0267		
Mercury	-51988-04-06 11:01 J	-17267098.17	-17267098.04	-17267097.91	0.0539	0.0074		
Venus	-51985-02-29 11:59 J	-17266039.16	-17266039.00	-17266038.83	0.0513	0.0263		
Mercury	-51982-02-21 02:37 J	-17264951.55	-17264951.39	-17264951.23	0.0489	0.0176		
Mercury	-51982-05-22 04:04 J	-17264861.37	-17264861.33	-17264861.28	0.0489	0.0466		
Earth	-51981-03-04 10:47 J	-17264574.18	-17264574.05	-17264573.91	0.0491	0.0401		
Moon	-51981-03-04 13:11 J	-17264574.09	-17264573.95	-17264573.80	0.0491	0.0380	*	
Mercury	-51976-01-23 14:37 J	-17262788.01	-17262787.89	-17262787.77	0.0539	0.0223		
Mercury	-51976-04-23 00:28 J	-17262698.56	-17262698.48	-17262698.39	0.0539	0.0408		
Earth	-51976-08-27 11:45 J	-17262572.05	-17262572.01	-17262571.96	0.0538	0.0525		

Venus -51974-11-04 14:23 J -17261773.10 -17261772.90 -17261772.70 0.0515 0.0053

Mercury -51971-12-10 01:54 J -17260641.54 -17260641.42 -17260641.29 0.0489 0.0331

Mercury -51970-03-10 03:06 J -17260551.51 -17260551.37 -17260551.23 0.0489 0.0305

Mars -51968-11-09 17:01 J -17259575.99 -17259575.79 -17259575.57 0.0508 0.0367

Venus -51967-04-25 13:54 J -17259409.10 -17259408.92 -17259408.75 0.0514 0.0282

Mercury -51965-11-11 17:59 J -17258477.84 -17258477.75 -17258477.65 0.0538 0.0376

Mercury -51964-02-09 04:18 J -17258388.44 -17258388.32 -17258388.21 0.0538 0.0260

Moon -51964-09-01 12:57 J -17258184.19 -17258183.96 -17258183.72 0.0537 0.0021

Earth -51964-09-01 16:47 J -17258184.03 -17258183.80 -17258183.57 0.0537 0.0011 \*

Venus -51962-07-10 15:49 J -17257506.98 -17257506.84 -17257506.71 0.0518 0.0374

Mercury -51959-09-28 01:54 J -17256331.45 -17256331.42 -17256331.40 0.0489 0.0482

Mercury -51959-12-27 02:37 J -17256241.56 -17256241.39 -17256241.23 0.0489 0.0148

Venus -51956-12-29 05:45 J -17255143.47 -17255143.26 -17255143.05 0.0512 0.0056

Mercury -51953-11-28 07:11 J -17254078.32 -17254078.20 -17254078.06 0.0538 0.0104

Earth -51952-09-06 17:01 J -17253795.88 -17253795.79 -17253795.69 0.0536 0.0485

Moon -51952-09-06 19:40 J -17253795.75 -17253795.68 -17253795.59 0.0536 0.0500 \*

Venus -51950-11-06 21:49 J -17253004.68 -17253004.59 -17253004.48 0.0512 0.0441

Mercury -51947-10-15 01:54 J -17251931.59 -17251931.42 -17251931.24 0.0489 0.0008

Venus -51944-09-02 21:06 J -17250877.75 -17250877.62 -17250877.48 0.0509 0.0390

Mercury -51941-09-16 10:18 J -17249768.20 -17249768.07 -17249767.93 0.0538 0.0058

Venus -51938-07-13 00:57 J -17248738.65 -17248738.46 -17248738.27 0.0514 0.0132

Mercury -51935-08-03 01:25 J -17247621.61 -17247621.44 -17247621.28 0.0489 0.0162

Mercury -51935-11-01 03:06 J -17247531.40 -17247531.37 -17247531.34 0.0489 0.0480

Mars -51932-08-18 01:25 J -17246510.69 -17246510.44 -17246510.20 0.0510 0.0311

Venus -51931-01-01 05:16 J -17246374.36 -17246374.28 -17246374.20 0.0515 0.0476

Mercury -51929-07-05 13:11 J -17245458.07 -17245457.95 -17245457.83 0.0539 0.0220

Mercury -51929-10-02 23:01 J -17245368.62 -17245368.54 -17245368.45 0.0539 0.0411

Venus -51926-03-18 03:49 J -17244472.52 -17244472.34 -17244472.15 0.0517 0.0183

Mercury -51923-05-22 01:11 J -17243311.58 -17243311.45 -17243311.31 0.0489 0.0312

Mercury -51923-08-20 02:23 J -17243221.53 -17243221.40 -17243221.27 0.0489 0.0324

Moon -51922-02-23 23:30 J -17243033.67 -17243033.52 -17243033.37 0.0489 0.0384  
 Earth -51922-02-24 02:52 J -17243033.51 -17243033.38 -17243033.24 0.0489 0.0398 \*  
 Venus -51920-09-05 20:37 J -17242108.85 -17242108.64 -17242108.44 0.0513 0.0135  
 Mercury -51917-04-23 16:33 J -17241147.90 -17241147.81 -17241147.71 0.0539 0.0372  
 Mercury -51917-07-22 02:52 J -17241058.49 -17241058.38 -17241058.27 0.0539 0.0266  
 Venus -51915-11-21 05:16 J -17240206.32 -17240206.28 -17240206.23 0.0519 0.0504  
 Mercury -51911-03-10 00:42 J -17239001.51 -17239001.47 -17239001.42 0.0489 0.0466  
 Mercury -51911-06-08 01:25 J -17238911.60 -17238911.44 -17238911.27 0.0489 0.0163  
 Earth -51910-02-28 11:45 J -17238646.24 -17238646.01 -17238645.77 0.0490 0.0018  
 Moon -51910-02-28 13:54 J -17238646.14 -17238645.92 -17238645.69 0.0490 0.0044 \*  
 Venus -51908-05-11 12:57 J -17237843.15 -17237842.96 -17237842.77 0.0511 0.0199  
 Mercury -51905-02-10 19:54 J -17236837.70 -17236837.67 -17236837.64 0.0538 0.0524  
 Mercury -51905-05-10 06:28 J -17236748.36 -17236748.23 -17236748.10 0.0538 0.0118  
 Mars -51903-10-16 23:30 J -17235858.77 -17235858.52 -17235858.28 0.0518 0.0094  
 Venus -51902-03-20 13:40 J -17235704.08 -17235703.93 -17235703.77 0.0513 0.0323  
 Mercury -51899-03-27 00:57 J -17234601.64 -17234601.46 -17234601.29 0.0489 0.0008  
 Moon -51898-03-04 21:21 J -17234258.77 -17234258.61 -17234258.43 0.0491 0.0350  
 Earth -51898-03-04 22:18 J -17234258.72 -17234258.57 -17234258.41 0.0491 0.0371 \*  
 Mercury -51893-02-27 09:35 J -17232438.23 -17232438.10 -17232437.97 0.0538 0.0040  
 Venus -51891-11-23 14:37 J -17231438.09 -17231437.89 -17231437.69 0.0515 0.0003  
 Mercury -51887-01-13 00:28 J -17230291.65 -17230291.48 -17230291.32 0.0489 0.0147  
 Venus -51884-05-14 16:33 J -17229073.96 -17229073.81 -17229073.65 0.0514 0.0348  
 Mercury -51882-12-16 12:28 J -17228128.10 -17228127.98 -17228127.85 0.0538 0.0201  
 Mercury -51881-03-14 22:33 J -17228038.64 -17228038.56 -17228038.48 0.0538 0.0429  
 Earth -51881-08-31 21:06 J -17227868.85 -17227868.62 -17227868.40 0.0537 0.0079  
 Moon -51881-08-31 23:59 J -17227868.73 -17227868.50 -17227868.28 0.0537 0.0044 \*  
 Venus -51879-07-29 16:18 J -17227171.97 -17227171.82 -17227171.66 0.0518 0.0315  
 Mercury -51876-11-01 00:13 J -17225981.63 -17225981.49 -17225981.36 0.0489 0.0298  
 Mercury -51875-01-30 01:11 J -17225891.57 -17225891.45 -17225891.32 0.0489 0.0338  
 Venus -51872-01-17 04:33 J -17224808.52 -17224808.31 -17224808.10 0.0512 0.0009



Mercury -51870-10-04 15:06 J -17223817.97 -17223817.87 -17223817.77 0.0539 0.0369  
 Mercury -51869-01-02 01:25 J -17223728.55 -17223728.44 -17223728.33 0.0539 0.0269  
 Moon -51869-09-05 20:52 J -17223480.76 -17223480.63 -17223480.49 0.0537 0.0436  
 Earth -51869-09-05 22:33 J -17223480.70 -17223480.56 -17223480.42 0.0537 0.0427 \*  
 Mars -51867-07-20 23:59 J -17222797.64 -17222797.50 -17222797.35 0.0516 0.0415  
 Venus -51867-11-26 01:11 J -17222669.47 -17222669.45 -17222669.42 0.0512 0.0506  
 Mercury -51864-08-20 00:13 J -17221671.56 -17221671.49 -17221671.42 0.0489 0.0446  
 Mercury -51864-11-18 00:42 J -17221581.63 -17221581.47 -17221581.30 0.0488 0.0184  
 Venus -51861-09-21 20:23 J -17220542.80 -17220542.65 -17220542.49 0.0509 0.0340  
 Mercury -51858-07-23 18:13 J -17219507.76 -17219507.74 -17219507.70 0.0539 0.0523  
 Mercury -51858-10-21 05:01 J -17219418.42 -17219418.29 -17219418.16 0.0539 0.0122  
 Venus -51855-08-01 03:49 J -17218403.52 -17218403.34 -17218403.15 0.0514 0.0197  
 Mercury -51852-09-05 23:59 J -17217271.68 -17217271.50 -17217271.33 0.0489 0.0023  
 Mercury -51846-08-09 08:37 J -17215108.27 -17215108.14 -17215108.01 0.0539 0.0028  
 Venus -51843-04-06 05:45 J -17214137.45 -17214137.26 -17214137.06 0.0516 0.0121  
 Mercury -51840-06-24 23:30 J -17212961.69 -17212961.52 -17212961.35 0.0489 0.0132  
 Earth -51839-02-23 13:54 J -17212718.02 -17212717.92 -17212717.81 0.0490 0.0433  
 Moon -51839-02-23 15:49 J -17212717.94 -17212717.84 -17212717.73 0.0490 0.0430 \*  
 Venus -51837-09-25 00:42 J -17211773.66 -17211773.47 -17211773.28 0.0513 0.0206  
 Mercury -51834-05-28 11:45 J -17210798.14 -17210798.01 -17210797.89 0.0538 0.0185  
 Mercury -51834-08-25 21:35 J -17210708.67 -17210708.60 -17210708.53 0.0538 0.0443  
 Venus -51832-12-10 05:30 J -17209871.36 -17209871.27 -17209871.17 0.0519 0.0447  
 Mercury -51828-04-12 23:01 J -17208651.68 -17208651.54 -17208651.40 0.0489 0.0286  
 Mercury -51828-07-12 00:13 J -17208561.61 -17208561.49 -17208561.37 0.0489 0.0352  
 Moon -51827-02-27 23:01 J -17208330.78 -17208330.54 -17208330.30 0.0490 0.0078  
 Earth -51827-02-27 23:30 J -17208330.75 -17208330.52 -17208330.28 0.0490 0.0049 \*  
 Venus -51825-05-30 15:49 J -17207508.05 -17207507.84 -17207507.64 0.0511 0.0133  
 Mercury -51822-03-16 14:37 J -17206487.99 -17206487.89 -17206487.79 0.0538 0.0347  
 Mercury -51822-06-14 00:57 J -17206398.57 -17206398.46 -17206398.35 0.0538 0.0289  
 Venus -51819-04-08 14:09 J -17205369.04 -17205368.91 -17205368.77 0.0513 0.0378

Mercury -51816-01-29 23:01 J -17204341.62 -17204341.54 -17204341.46 0.0489 0.0433

Mercury -51816-04-29 23:30 J -17204251.67 -17204251.52 -17204251.35 0.0489 0.0197

Moon -51815-03-04 07:54 J -17203943.34 -17203943.17 -17203943.00 0.0490 0.0324

Earth -51815-03-04 08:37 J -17203943.31 -17203943.14 -17203942.97 0.0490 0.0338 \*

Venus -51813-02-03 05:01 J -17203242.36 -17203242.29 -17203242.21 0.0508 0.0475

Mars -51813-02-04 05:45 J -17203241.55 -17203241.26 -17203240.96 0.0508 0.0130

Mercury -51810-01-02 16:47 J -17202177.83 -17202177.80 -17202177.77 0.0538 0.0520

Mercury -51810-04-02 03:35 J -17202088.48 -17202088.35 -17202088.23 0.0539 0.0124

Venus -51808-12-12 17:01 J -17201102.99 -17201102.79 -17201102.59 0.0515 0.0066

Mercury -51804-02-15 23:16 J -17199941.70 -17199941.53 -17199941.36 0.0488 0.0042

Venus -51801-06-02 15:21 J -17198738.98 -17198738.86 -17198738.72 0.0514 0.0396

Mercury -51798-01-19 06:57 J -17197778.34 -17197778.21 -17197778.07 0.0539 0.0028

Moon -51798-09-01 00:42 J -17197553.70 -17197553.47 -17197553.23 0.0538 0.0103

Earth -51798-09-01 02:37 J -17197553.61 -17197553.39 -17197553.16 0.0538 0.0137 \*

Venus -51796-08-17 18:57 J -17196836.88 -17196836.71 -17196836.54 0.0518 0.0253

Mercury -51793-12-04 22:18 J -17195631.74 -17195631.57 -17195631.40 0.0489 0.0118

Venus -51789-02-06 07:25 J -17194473.40 -17194473.19 -17194472.98 0.0512 0.0059

Mercury -51787-11-07 10:33 J -17193468.19 -17193468.06 -17193467.93 0.0539 0.0177

Mercury -51786-02-04 20:23 J -17193378.71 -17193378.65 -17193378.58 0.0539 0.0455

Moon -51786-09-06 07:40 J -17193165.33 -17193165.18 -17193165.02 0.0537 0.0386

Earth -51786-09-06 07:54 J -17193165.32 -17193165.17 -17193165.00 0.0537 0.0383 \*

Mars -51784-04-08 08:52 J -17192585.27 -17192585.13 -17192584.98 0.0520 0.0416

Mercury -51781-09-22 22:04 J -17191321.73 -17191321.58 -17191321.44 0.0489 0.0272

Mercury -51781-12-21 23:01 J -17191231.65 -17191231.54 -17191231.42 0.0489 0.0365

Venus -51778-10-11 23:45 J -17190207.68 -17190207.51 -17190207.33 0.0510 0.0273

Mercury -51775-08-26 13:25 J -17189158.04 -17189157.94 -17189157.83 0.0538 0.0336

Mercury -51775-11-23 23:45 J -17189068.61 -17189068.51 -17189068.40 0.0538 0.0301

Venus -51772-08-20 03:35 J -17188068.52 -17188068.35 -17188068.17 0.0514 0.0249

Mercury -51769-07-11 21:35 J -17187011.68 -17187011.60 -17187011.51 0.0489 0.0424

Mercury -51769-10-09 22:18 J -17186921.73 -17186921.57 -17186921.41 0.0489 0.0207

Mercury -51763-06-14 16:18 J -17184847.87 -17184847.82 -17184847.77 0.0538 0.0499

Mercury -51763-09-12 02:52 J -17184758.51 -17184758.38 -17184758.25 0.0538 0.0143

Venus -51760-04-25 05:30 J -17183802.46 -17183802.27 -17183802.07 0.0516 0.0066

Mercury -51757-07-28 21:49 J -17182611.76 -17182611.59 -17182611.41 0.0489 0.0054

Moon -51756-02-23 00:13 J -17182402.55 -17182402.49 -17182402.41 0.0489 0.0467

Earth -51756-02-23 00:42 J -17182402.54 -17182402.47 -17182402.40 0.0489 0.0465 \*

Venus -51754-10-14 23:01 J -17181438.72 -17181438.54 -17181438.35 0.0513 0.0252

Mercury -51751-07-01 05:16 J -17180448.41 -17180448.28 -17180448.14 0.0539 0.0031

Venus -51749-12-29 06:28 J -17179536.35 -17179536.23 -17179536.09 0.0519 0.0390

Mars -51748-01-10 08:37 J -17179524.39 -17179524.14 -17179523.90 0.0519 0.0095

Mercury -51745-05-16 21:35 J -17178301.77 -17178301.60 -17178301.43 0.0488 0.0100

Moon -51744-02-27 08:52 J -17178015.35 -17178015.13 -17178014.91 0.0489 0.0113

Earth -51744-02-27 09:49 J -17178015.32 -17178015.09 -17178014.86 0.0489 0.0083 \*

Venus -51742-06-19 14:09 J -17177173.11 -17177172.91 -17177172.70 0.0511 0.0087

Mercury -51739-04-19 08:37 J -17176138.26 -17176138.14 -17176138.01 0.0539 0.0181

Mercury -51739-07-17 18:42 J -17176048.79 -17176048.72 -17176048.65 0.0539 0.0452

Venus -51736-04-27 15:35 J -17175033.95 -17175033.85 -17175033.74 0.0513 0.0434

Mercury -51733-03-04 20:37 J -17173991.78 -17173991.64 -17173991.49 0.0489 0.0260

Mercury -51733-06-02 21:49 J -17173901.70 -17173901.59 -17173901.48 0.0488 0.0376

Earth -51732-03-03 17:30 J -17173627.96 -17173627.77 -17173627.58 0.0490 0.0295

Moon -51732-03-03 19:54 J -17173627.86 -17173627.67 -17173627.47 0.0490 0.0289 \*

Venus -51730-02-22 06:28 J -17172907.34 -17172907.23 -17172907.10 0.0509 0.0416

Mercury -51727-02-05 12:13 J -17171828.10 -17171827.99 -17171827.89 0.0539 0.0332

Mercury -51727-05-05 22:33 J -17171738.67 -17171738.56 -17171738.45 0.0539 0.0306

Venus -51725-12-31 17:45 J -17170767.95 -17170767.76 -17170767.57 0.0515 0.0123

Mercury -51722-12-22 20:23 J -17169681.74 -17169681.65 -17169681.56 0.0489 0.0413

Mercury -51721-03-21 20:52 J -17169591.78 -17169591.63 -17169591.47 0.0489 0.0217

Venus -51718-06-22 18:13 J -17168403.83 -17168403.74 -17168403.65 0.0515 0.0461

Mercury -51716-11-24 15:06 J -17167517.92 -17167517.87 -17167517.82 0.0538 0.0491

Mercury -51715-02-22 01:40 J -17167428.55 -17167428.43 -17167428.30 0.0538 0.0152

Earth -51715-08-31 07:40 J -17167238.39 -17167238.18 -17167237.96 0.0537 0.0202  
 Moon -51715-08-31 08:09 J -17167238.37 -17167238.16 -17167237.95 0.0537 0.0170 \*  
 Venus -51713-09-05 17:59 J -17166501.93 -17166501.75 -17166501.56 0.0517 0.0201  
 Mercury -51709-01-08 20:09 J -17165281.83 -17165281.66 -17165281.48 0.0489 0.0060  
 Venus -51706-02-25 09:06 J -17164138.33 -17164138.12 -17164137.92 0.0512 0.0120  
 Mercury -51704-12-11 04:47 J -17163118.44 -17163118.30 -17163118.17 0.0538 0.0014  
 Earth -51703-09-05 09:35 J -17162850.29 -17162850.10 -17162849.91 0.0537 0.0305  
 Moon -51703-09-05 11:59 J -17162850.20 -17162850.00 -17162849.80 0.0537 0.0297 \*  
 Mercury -51698-10-27 19:54 J -17160971.84 -17160971.67 -17160971.49 0.0489 0.0093  
 Venus -51695-10-30 22:04 J -17159872.76 -17159872.58 -17159872.39 0.0509 0.0226  
 Mercury -51692-09-29 06:57 J -17158808.34 -17158808.21 -17158808.09 0.0539 0.0183  
 Mercury -51692-12-27 17:01 J -17158718.86 -17158718.79 -17158718.72 0.0539 0.0449  
 Venus -51689-09-08 03:35 J -17157733.50 -17157733.35 -17157733.19 0.0514 0.0301  
 Mercury -51686-08-15 19:40 J -17156661.83 -17156661.68 -17156661.53 0.0489 0.0245  
 Mercury -51686-11-13 20:52 J -17156571.74 -17156571.63 -17156571.53 0.0488 0.0392  
 Mercury -51680-07-18 10:04 J -17154498.18 -17154498.08 -17154497.98 0.0539 0.0340  
 Mercury -51680-10-15 20:23 J -17154408.76 -17154408.65 -17154408.54 0.0539 0.0299  
 Venus -51677-05-14 05:30 J -17153467.46 -17153467.27 -17153467.07 0.0516 0.0016  
 Mercury -51674-06-03 18:57 J -17152351.81 -17152351.71 -17152351.62 0.0489 0.0405  
 Mercury -51674-09-01 19:25 J -17152261.85 -17152261.69 -17152261.54 0.0488 0.0225  
 Venus -51671-11-02 23:45 J -17151103.68 -17151103.51 -17151103.34 0.0514 0.0308  
 Mercury -51668-05-06 13:25 J -17150187.99 -17150187.94 -17150187.89 0.0539 0.0493  
 Mercury -51668-08-04 00:13 J -17150098.62 -17150098.49 -17150098.37 0.0539 0.0153  
 Venus -51665-01-18 06:57 J -17149201.36 -17149201.21 -17149201.06 0.0518 0.0334  
 Mercury -51662-06-20 18:42 J -17147951.89 -17147951.72 -17147951.55 0.0488 0.0066  
 Earth -51661-02-27 16:18 J -17147700.05 -17147699.82 -17147699.59 0.0490 0.0135  
 Moon -51661-02-27 18:57 J -17147699.94 -17147699.71 -17147699.48 0.0490 0.0163 \*  
 Mars -51659-04-30 19:25 J -17146906.99 -17146906.69 -17146906.39 0.0509 0.0103  
 Venus -51659-07-08 15:21 J -17146838.07 -17146837.86 -17146837.65 0.0511 0.0028  
 Mercury -51656-05-23 03:21 J -17145788.49 -17145788.36 -17145788.23 0.0538 0.0007

Venus -51653-05-16 13:40 J -17144698.99 -17144698.93 -17144698.86 0.0512 0.0479  
 Mercury -51650-04-08 17:59 J -17143641.92 -17143641.75 -17143641.58 0.0489 0.0091  
 Moon -51649-03-02 22:04 J -17143312.78 -17143312.58 -17143312.38 0.0490 0.0251  
 Earth -51649-03-03 01:40 J -17143312.63 -17143312.43 -17143312.23 0.0490 0.0251 \*  
 Venus -51647-03-13 07:11 J -17142572.34 -17142572.20 -17142572.04 0.0509 0.0359  
 Mercury -51644-03-11 06:13 J -17141478.37 -17141478.24 -17141478.12 0.0538 0.0167  
 Mercury -51644-06-08 16:04 J -17141388.89 -17141388.83 -17141388.76 0.0538 0.0464  
 Venus -51641-01-20 15:21 J -17140433.04 -17140432.86 -17140432.67 0.0515 0.0168  
 Mercury -51638-01-25 17:45 J -17139331.90 -17139331.76 -17139331.60 0.0489 0.0242  
 Mercury -51638-04-25 18:42 J -17139241.81 -17139241.72 -17139241.61 0.0489 0.0397  
 Venus -51635-07-11 15:35 J -17138068.89 -17138068.85 -17138068.80 0.0514 0.0502  
 Mercury -51633-12-28 08:09 J -17137168.26 -17137168.16 -17137168.06 0.0538 0.0344  
 Mercury -51632-03-27 18:28 J -17137078.84 -17137078.73 -17137078.62 0.0539 0.0295  
 Earth -51632-08-30 03:21 J -17136923.55 -17136923.36 -17136923.17 0.0538 0.0306  
 Moon -51632-08-30 04:47 J -17136923.51 -17136923.30 -17136923.10 0.0538 0.0274 \*  
 Mars -51630-07-03 05:59 J -17136251.47 -17136251.25 -17136251.03 0.0521 0.0256  
 Venus -51630-09-25 16:18 J -17136167.01 -17136166.82 -17136166.63 0.0518 0.0155  
 Mercury -51627-11-13 17:45 J -17135021.86 -17135021.76 -17135021.66 0.0489 0.0393  
 Mercury -51626-02-11 18:13 J -17134931.89 -17134931.74 -17134931.59 0.0488 0.0237  
 Venus -51623-03-16 05:59 J -17133803.45 -17133803.25 -17133803.05 0.0512 0.0160  
 Mercury -51621-10-16 11:01 J -17132858.08 -17132858.04 -17132857.99 0.0538 0.0505  
 Mercury -51620-01-13 21:49 J -17132768.72 -17132768.59 -17132768.46 0.0539 0.0141  
 Moon -51620-09-04 04:18 J -17132535.53 -17132535.32 -17132535.11 0.0538 0.0199  
 Earth -51620-09-04 07:40 J -17132535.39 -17132535.18 -17132534.96 0.0538 0.0213 \*  
 Venus -51618-05-31 17:01 J -17131900.86 -17131900.79 -17131900.71 0.0520 0.0478  
 Mercury -51615-11-30 16:47 J -17130621.97 -17130621.80 -17130621.62 0.0488 0.0071  
 Venus -51612-11-18 20:52 J -17129537.83 -17129537.63 -17129537.43 0.0510 0.0176  
 Mercury -51609-11-02 01:25 J -17128458.57 -17128458.44 -17128458.31 0.0539 0.0009  
 Venus -51606-09-28 02:37 J -17127398.53 -17127398.39 -17127398.25 0.0513 0.0350  
 Mercury -51603-09-18 16:04 J -17126312.00 -17126311.83 -17126311.65 0.0488 0.0089

Venus -51600-07-24 13:25 J -17125271.96 -17125271.94 -17125271.91 0.0508 0.0501

Mercury -51597-08-21 04:33 J -17124148.44 -17124148.31 -17124148.18 0.0538 0.0166

Mercury -51597-11-18 14:37 J -17124058.95 -17124058.89 -17124058.83 0.0538 0.0466

Mars -51594-04-06 07:25 J -17123190.40 -17123190.19 -17123189.96 0.0518 0.0255

Venus -51594-06-03 03:06 J -17123132.57 -17123132.37 -17123132.17 0.0516 0.0031

Mercury -51591-07-07 15:35 J -17122002.00 -17122001.85 -17122001.70 0.0489 0.0244

Mercury -51591-10-05 16:33 J -17121911.91 -17121911.81 -17121911.71 0.0489 0.0393

Venus -51588-11-21 23:30 J -17120768.67 -17120768.52 -17120768.37 0.0514 0.0362

Mercury -51585-06-09 07:11 J -17119838.30 -17119838.20 -17119838.09 0.0538 0.0331

Mercury -51585-09-06 17:45 J -17119748.87 -17119748.76 -17119748.66 0.0538 0.0308

Venus -51582-02-06 03:35 J -17118866.51 -17118866.35 -17118866.19 0.0518 0.0292

Mercury -51579-04-25 15:35 J -17117691.95 -17117691.85 -17117691.75 0.0489 0.0393

Mercury -51579-07-24 16:04 J -17117601.98 -17117601.83 -17117601.68 0.0489 0.0238

Moon -51578-02-26 19:54 J -17117384.88 -17117384.67 -17117384.46 0.0489 0.0210

Earth -51578-02-26 23:30 J -17117384.74 -17117384.52 -17117384.30 0.0489 0.0182 \*

Venus -51576-07-27 12:42 J -17116503.18 -17116502.97 -17116502.76 0.0511 0.0015

Mercury -51573-03-28 09:06 J -17115528.16 -17115528.12 -17115528.08 0.0538 0.0510

Mercury -51573-06-25 19:54 J -17115438.80 -17115438.67 -17115438.54 0.0539 0.0135

Mercury -51567-05-12 15:21 J -17113292.03 -17113291.86 -17113291.69 0.0489 0.0080

Earth -51566-03-03 07:54 J -17112997.38 -17112997.17 -17112996.95 0.0490 0.0200

Moon -51566-03-03 11:45 J -17112997.22 -17112997.01 -17112996.80 0.0490 0.0213 \*

Venus -51564-04-01 03:49 J -17112237.50 -17112237.34 -17112237.17 0.0508 0.0318

Mercury -51561-04-13 23:01 J -17111128.67 -17111128.54 -17111128.41 0.0539 0.0023

Venus -51558-02-08 12:57 J -17110098.14 -17110097.96 -17110097.78 0.0515 0.0209

Mercury -51555-02-28 14:09 J -17108982.08 -17108981.91 -17108981.74 0.0488 0.0087

Mercury -51549-02-01 02:23 J -17106818.52 -17106818.40 -17106818.27 0.0539 0.0175

Mercury -51549-04-30 12:28 J -17106729.04 -17106728.98 -17106728.91 0.0539 0.0459

Moon -51549-08-29 03:06 J -17106608.54 -17106608.37 -17106608.20 0.0538 0.0358

Earth -51549-08-29 05:59 J -17106608.41 -17106608.25 -17106608.08 0.0538 0.0384 \*

Venus -51547-10-14 14:37 J -17105832.08 -17105831.89 -17105831.69 0.0517 0.0107

Mercury -51544-12-17 13:25 J -17104672.08 -17104671.94 -17104671.79 0.0489 0.0243  
 Mercury -51543-03-17 14:23 J -17104582.00 -17104581.90 -17104581.80 0.0488 0.0393  
 Mars -51541-10-16 03:35 J -17103638.54 -17103638.35 -17103638.14 0.0506 0.0379  
 Venus -51540-04-04 04:33 J -17103468.50 -17103468.31 -17103468.12 0.0513 0.0210  
 Mercury -51538-11-20 05:30 J -17102508.37 -17102508.27 -17102508.16 0.0538 0.0332  
 Mercury -51537-02-17 15:49 J -17102418.94 -17102418.84 -17102418.73 0.0539 0.0307  
 Earth -51537-09-03 09:21 J -17102220.33 -17102220.11 -17102219.88 0.0537 0.0134  
 Moon -51537-09-03 13:25 J -17102220.17 -17102219.94 -17102219.71 0.0537 0.0115 \*  
 Venus -51535-06-19 14:09 J -17101566.01 -17101565.91 -17101565.80 0.0519 0.0434  
 Mercury -51532-10-05 12:57 J -17100362.06 -17100361.96 -17100361.86 0.0489 0.0399  
 Mercury -51531-01-03 13:25 J -17100272.09 -17100271.94 -17100271.79 0.0489 0.0232  
 Venus -51529-12-07 19:54 J -17099202.87 -17099202.67 -17099202.47 0.0510 0.0125  
 Mercury -51526-09-08 08:09 J -17098198.21 -17098198.16 -17098198.11 0.0538 0.0498  
 Mercury -51526-12-06 18:57 J -17098108.84 -17098108.71 -17098108.58 0.0538 0.0146  
 Venus -51523-10-16 22:18 J -17097063.69 -17097063.57 -17097063.44 0.0513 0.0386  
 Mercury -51520-10-22 12:57 J -17095962.13 -17095961.96 -17095961.79 0.0489 0.0077  
 Venus -51517-08-12 11:01 J -17094937.13 -17094937.04 -17094936.95 0.0507 0.0458  
 Mercury -51514-09-24 21:06 J -17093798.76 -17093798.62 -17093798.49 0.0538 0.0030  
 Venus -51511-06-21 22:47 J -17092797.75 -17092797.55 -17092797.36 0.0516 0.0066  
 Mercury -51508-08-10 12:28 J -17091652.15 -17091651.98 -17091651.81 0.0489 0.0081  
 Mars -51505-07-24 05:16 J -17090573.53 -17090573.28 -17090573.02 0.0508 0.0280  
 Venus -51505-12-10 18:57 J -17090433.83 -17090433.71 -17090433.57 0.0513 0.0399  
 Mercury -51502-07-13 23:59 J -17089488.63 -17089488.50 -17089488.38 0.0538 0.0190  
 Mercury -51502-10-11 10:04 J -17089399.15 -17089399.08 -17089399.01 0.0539 0.0444  
 Venus -51499-02-24 23:45 J -17088531.68 -17088531.51 -17088531.33 0.0519 0.0254  
 Mercury -51496-05-29 11:16 J -17087342.18 -17087342.03 -17087341.88 0.0489 0.0246  
 Mercury -51496-08-27 11:59 J -17087252.10 -17087252.00 -17087251.89 0.0488 0.0391  
 Earth -51495-02-26 00:57 J -17087069.66 -17087069.46 -17087069.26 0.0489 0.0254  
 Moon -51495-02-26 04:33 J -17087069.49 -17087069.31 -17087069.11 0.0489 0.0278 \*  
 Venus -51493-08-15 08:52 J -17086168.34 -17086168.13 -17086167.92 0.0511 0.0056

Mercury -51490-05-02 03:21 J -17085178.47 -17085178.36 -17085178.26 0.0539 0.0344  
 Mercury -51490-07-30 13:40 J -17085089.04 -17085088.93 -17085088.82 0.0539 0.0296  
 Mercury -51484-03-17 10:47 J -17083032.15 -17083032.05 -17083031.95 0.0489 0.0400  
 Mercury -51484-06-15 11:01 J -17082942.19 -17082942.04 -17082941.88 0.0488 0.0230  
 Moon -51483-03-02 05:45 J -17082682.49 -17082682.26 -17082682.03 0.0490 0.0138  
 Earth -51483-03-02 09:06 J -17082682.34 -17082682.12 -17082681.89 0.0490 0.0127 \*  
 Venus -51481-04-20 00:57 J -17081902.64 -17081902.46 -17081902.28 0.0509 0.0274  
 Mercury -51478-02-18 06:13 J -17080868.28 -17080868.24 -17080868.19 0.0538 0.0503  
 Mercury -51478-05-18 17:01 J -17080778.92 -17080778.79 -17080778.66 0.0539 0.0143  
 Mars -51476-09-25 21:49 J -17079917.83 -17079917.59 -17079917.34 0.0520 0.0115  
 Venus -51475-02-27 09:21 J -17079763.27 -17079763.11 -17079762.93 0.0514 0.0250  
 Mercury -51472-04-03 10:18 J -17078632.25 -17078632.07 -17078631.90 0.0489 0.0069  
 Mercury -51466-03-06 19:54 J -17076468.80 -17076468.67 -17076468.53 0.0538 0.0021  
 Earth -51466-08-29 03:06 J -17076293.46 -17076293.37 -17076293.27 0.0538 0.0483  
 Moon -51466-08-29 06:57 J -17076293.33 -17076293.21 -17076293.08 0.0538 0.0456 \*  
 Venus -51464-11-02 10:04 J -17075497.27 -17075497.08 -17075496.88 0.0517 0.0071  
 Mercury -51460-01-20 09:49 J -17074322.26 -17074322.09 -17074321.92 0.0489 0.0086  
 Venus -51457-04-23 01:25 J -17073133.62 -17073133.44 -17073133.25 0.0512 0.0251  
 Mercury -51455-12-23 22:04 J -17072158.71 -17072158.58 -17072158.46 0.0538 0.0195  
 Mercury -51454-03-23 08:09 J -17072069.23 -17072069.16 -17072069.08 0.0538 0.0438  
 Moon -51454-09-02 21:06 J -17071905.85 -17071905.62 -17071905.39 0.0537 0.0009  
 Earth -51454-09-03 01:11 J -17071905.68 -17071905.45 -17071905.22 0.0537 0.0013 \*  
 Venus -51452-07-08 08:52 J -17071231.25 -17071231.13 -17071231.00 0.0520 0.0401  
 Mercury -51449-11-08 09:21 J -17070012.26 -17070012.11 -17070011.96 0.0489 0.0242  
 Mercury -51448-02-06 10:18 J -17069922.17 -17069922.07 -17069921.97 0.0489 0.0396  
 Venus -51446-12-27 15:49 J -17068868.05 -17068867.84 -17068867.63 0.0510 0.0087  
 Mercury -51443-10-12 00:42 J -17067848.56 -17067848.47 -17067848.37 0.0538 0.0359  
 Mercury -51442-01-09 11:16 J -17067759.14 -17067759.03 -17067758.92 0.0539 0.0281  
 Earth -51442-09-08 03:35 J -17067517.40 -17067517.35 -17067517.29 0.0537 0.0522  
 Moon -51442-09-08 06:28 J -17067517.31 -17067517.23 -17067517.14 0.0537 0.0495 \*



Mars -51440-06-29 16:18 J -17066856.99 -17066856.82 -17066856.65 0.0518 0.0378  
 Venus -51440-11-04 18:13 J -17066728.85 -17066728.74 -17066728.63 0.0514 0.0422  
 Mercury -51437-08-27 08:23 J -17065702.25 -17065702.15 -17065702.06 0.0489 0.0404  
 Mercury -51437-11-25 08:37 J -17065612.29 -17065612.14 -17065611.98 0.0488 0.0225  
 Venus -51434-09-01 05:59 J -17064602.36 -17064602.25 -17064602.13 0.0508 0.0421  
 Mercury -51431-07-31 03:49 J -17063538.37 -17063538.34 -17063538.30 0.0538 0.0516  
 Mercury -51431-10-28 14:52 J -17063449.01 -17063448.88 -17063448.75 0.0539 0.0132  
 Venus -51428-07-10 20:37 J -17062462.83 -17062462.64 -17062462.45 0.0516 0.0112  
 Mercury -51425-09-13 07:54 J -17061302.34 -17061302.17 -17061302.00 0.0488 0.0066  
 Venus -51422-12-30 16:04 J -17060098.94 -17060098.83 -17060098.72 0.0514 0.0441  
 Mercury -51419-08-16 17:59 J -17059138.88 -17059138.75 -17059138.61 0.0539 0.0026  
 Venus -51416-03-15 20:52 J -17058196.81 -17058196.63 -17058196.45 0.0518 0.0210  
 Mercury -51413-07-02 07:11 J -17056992.37 -17056992.20 -17056992.03 0.0489 0.0093  
 Moon -51412-02-25 01:11 J -17056754.62 -17056754.45 -17056754.28 0.0489 0.0342  
 Earth -51412-02-25 04:18 J -17056754.49 -17056754.32 -17056754.14 0.0489 0.0318 \*  
 Venus -51410-09-04 07:25 J -17055833.40 -17055833.19 -17055832.99 0.0511 0.0105  
 Mercury -51407-06-04 20:52 J -17054828.75 -17054828.63 -17054828.50 0.0538 0.0186  
 Mercury -51407-09-02 06:57 J -17054739.28 -17054739.21 -17054739.13 0.0538 0.0448  
 Mercury -51401-04-20 06:57 J -17052682.36 -17052682.21 -17052682.06 0.0489 0.0246  
 Mercury -51401-07-19 07:40 J -17052592.28 -17052592.18 -17052592.07 0.0489 0.0391  
 Earth -51400-03-01 13:54 J -17052367.16 -17052366.92 -17052366.69 0.0490 0.0069  
 Moon -51400-03-01 16:04 J -17052367.06 -17052366.83 -17052366.60 0.0490 0.0085 \*  
 Venus -51398-05-09 22:33 J -17051567.75 -17051567.56 -17051567.37 0.0509 0.0229  
 Mercury -51395-03-23 23:01 J -17050518.64 -17050518.54 -17050518.44 0.0538 0.0362  
 Mercury -51395-06-21 09:21 J -17050429.22 -17050429.11 -17050428.99 0.0538 0.0279  
 Venus -51392-03-18 04:04 J -17049428.49 -17049428.33 -17049428.16 0.0515 0.0282  
 Mercury -51389-02-07 06:28 J -17048372.32 -17048372.23 -17048372.13 0.0489 0.0400  
 Mercury -51389-05-07 06:42 J -17048282.37 -17048282.22 -17048282.06 0.0489 0.0231  
 Earth -51388-03-05 22:04 J -17047979.66 -17047979.58 -17047979.48 0.0490 0.0454  
 Moon -51388-03-05 21:21 J -17047979.65 -17047979.61 -17047979.55 0.0490 0.0478 \*

Mars -51386-01-09 11:01 J -17047305.32 -17047305.04 -17047304.77 0.0506 0.0214  
 Mercury -51383-01-10 01:40 J -17046208.45 -17046208.43 -17046208.41 0.0538 0.0528  
 Mercury -51383-04-09 12:28 J -17046119.11 -17046118.98 -17046118.85 0.0538 0.0118  
 Venus -51381-11-21 05:45 J -17045162.46 -17045162.26 -17045162.06 0.0517 0.0034  
 Mercury -51377-02-24 05:30 J -17043972.45 -17043972.27 -17043972.10 0.0488 0.0062  
 Venus -51374-05-12 20:23 J -17042798.83 -17042798.65 -17042798.48 0.0512 0.0287  
 Mercury -51371-01-26 15:49 J -17041808.97 -17041808.84 -17041808.71 0.0539 0.0035  
 Earth -51371-09-02 01:40 J -17041590.66 -17041590.43 -17041590.20 0.0538 0.0075  
 Moon -51371-09-02 05:01 J -17041590.51 -17041590.29 -17041590.07 0.0538 0.0093 \*  
 Venus -51369-07-27 07:25 J -17040896.33 -17040896.19 -17040896.04 0.0519 0.0350  
 Mercury -51366-12-13 04:47 J -17039662.46 -17039662.30 -17039662.12 0.0488 0.0096  
 Venus -51362-01-15 11:59 J -17038533.21 -17038533.00 -17038532.79 0.0510 0.0047  
 Mercury -51360-11-14 18:57 J -17037498.83 -17037498.71 -17037498.58 0.0539 0.0190  
 Mercury -51359-02-12 05:16 J -17037409.35 -17037409.28 -17037409.21 0.0539 0.0445  
 Moon -51359-09-07 04:33 J -17037202.45 -17037202.31 -17037202.16 0.0537 0.0421  
 Earth -51359-09-07 05:45 J -17037202.38 -17037202.26 -17037202.12 0.0537 0.0447 \*  
 Mars -51357-03-17 07:25 J -17036645.26 -17036645.19 -17036645.12 0.0522 0.0498  
 Venus -51357-11-23 15:21 J -17036393.94 -17036393.86 -17036393.77 0.0513 0.0463  
 Mercury -51354-10-01 04:18 J -17035352.47 -17035352.32 -17035352.17 0.0489 0.0252  
 Mercury -51354-12-30 05:01 J -17035262.40 -17035262.29 -17035262.18 0.0489 0.0384  
 Venus -51351-09-20 04:33 J -17034267.45 -17034267.31 -17034267.17 0.0508 0.0372  
 Mars -51351-10-17 12:42 J -17034240.11 -17034239.97 -17034239.82 0.0509 0.0444  
 Mercury -51348-09-02 21:49 J -17033188.69 -17033188.59 -17033188.49 0.0538 0.0352  
 Mercury -51348-12-01 08:23 J -17033099.26 -17033099.15 -17033099.04 0.0538 0.0288  
 Venus -51345-07-29 16:33 J -17032128.00 -17032127.81 -17032127.62 0.0515 0.0150  
 Mercury -51342-07-20 04:04 J -17031042.42 -17031042.33 -17031042.23 0.0489 0.0404  
 Mercury -51342-10-18 04:18 J -17030952.47 -17030952.32 -17030952.16 0.0489 0.0227  
 Venus -51338-01-18 14:09 J -17029763.97 -17029763.91 -17029763.84 0.0514 0.0487  
 Mercury -51336-06-21 23:59 J -17028878.52 -17028878.50 -17028878.48 0.0538 0.0527  
 Mercury -51336-09-19 10:47 J -17028789.18 -17028789.05 -17028788.92 0.0538 0.0119

Venus -51333-04-03 15:49 J -17027862.03 -17027861.84 -17027861.66 0.0518 0.0177  
 Mercury -51330-08-06 03:35 J -17026642.52 -17026642.35 -17026642.17 0.0489 0.0069  
 Earth -51329-02-25 09:21 J -17026439.26 -17026439.11 -17026438.96 0.0489 0.0378  
 Moon -51329-02-25 11:30 J -17026439.15 -17026439.02 -17026438.89 0.0489 0.0397 \*  
 Venus -51327-09-23 04:18 J -17025498.53 -17025498.32 -17025498.12 0.0511 0.0147  
 Mercury -51324-07-08 13:40 J -17024479.06 -17024478.93 -17024478.79 0.0538 0.0044  
 Venus -51322-12-08 16:04 J -17023595.88 -17023595.83 -17023595.77 0.0521 0.0498  
 Mars -51322-12-20 04:33 J -17023584.56 -17023584.31 -17023584.06 0.0520 0.0004  
 Mercury -51318-05-25 02:37 J -17022332.56 -17022332.39 -17022332.22 0.0489 0.0097  
 Moon -51317-02-29 13:40 J -17022052.18 -17022051.93 -17022051.69 0.0489 0.0012  
 Earth -51317-02-29 14:23 J -17022052.13 -17022051.90 -17022051.66 0.0489 0.0011 \*  
 Venus -51315-05-28 17:01 J -17021232.98 -17021232.79 -17021232.59 0.0509 0.0194  
 Mercury -51312-04-26 16:47 J -17020168.92 -17020168.80 -17020168.67 0.0539 0.0200  
 Mercury -51312-07-25 03:06 J -17020079.44 -17020079.37 -17020079.29 0.0539 0.0436  
 Venus -51309-04-06 03:06 J -17019093.52 -17019093.37 -17019093.22 0.0514 0.0331  
 Mercury -51306-03-13 02:09 J -17018022.55 -17018022.41 -17018022.26 0.0489 0.0251  
 Mercury -51306-06-11 02:52 J -17017932.49 -17017932.38 -17017932.27 0.0488 0.0384  
 Moon -51305-03-04 22:04 J -17017664.71 -17017664.58 -17017664.46 0.0490 0.0403  
 Earth -51305-03-04 23:16 J -17017664.68 -17017664.53 -17017664.38 0.0490 0.0381 \*  
 Mercury -51300-02-12 19:54 J -17015858.76 -17015858.67 -17015858.56 0.0539 0.0356  
 Mercury -51300-05-13 06:42 J -17015769.33 -17015769.22 -17015769.11 0.0539 0.0287  
 Venus -51298-12-11 04:18 J -17014827.52 -17014827.32 -17014827.13 0.0517 0.0016  
 Mercury -51295-12-30 01:40 J -17013712.52 -17013712.43 -17013712.33 0.0489 0.0406  
 Mercury -51294-03-30 01:54 J -17013622.57 -17013622.42 -17013622.26 0.0489 0.0223  
 Venus -51291-05-31 19:40 J -17012463.83 -17012463.68 -17012463.52 0.0513 0.0340  
 Mercury -51289-12-01 22:47 J -17011548.58 -17011548.55 -17011548.51 0.0538 0.0517  
 Mercury -51288-03-01 09:49 J -17011459.22 -17011459.09 -17011458.96 0.0539 0.0130  
 Moon -51288-09-01 00:13 J -17011275.72 -17011275.49 -17011275.27 0.0538 0.0181  
 Earth -51288-09-01 02:23 J -17011275.62 -17011275.40 -17011275.18 0.0538 0.0160 \*  
 Venus -51286-08-16 04:33 J -17010561.47 -17010561.31 -17010561.15 0.0519 0.0307

Mars -51286-09-23 08:09 J -17010523.17 -17010523.16 -17010523.13 0.0518 0.0515  
 Mercury -51282-01-16 01:25 J -17009312.61 -17009312.44 -17009312.26 0.0489 0.0067  
 Venus -51279-02-03 11:16 J -17008198.24 -17008198.03 -17008197.82 0.0510 0.0006  
 Mercury -51277-12-18 12:13 J -17007149.12 -17007148.99 -17007148.86 0.0538 0.0039  
 Moon -51276-09-06 00:57 J -17006887.64 -17006887.46 -17006887.29 0.0537 0.0321  
 Earth -51276-09-06 01:11 J -17006887.62 -17006887.45 -17006887.26 0.0537 0.0339 \*  
 Venus -51274-12-13 11:01 J -17006059.08 -17006059.04 -17006058.99 0.0513 0.0499  
 Mercury -51271-11-04 00:57 J -17005002.63 -17005002.46 -17005002.29 0.0489 0.0090  
 Venus -51268-10-09 02:23 J -17003932.56 -17003932.40 -17003932.23 0.0508 0.0325  
 Mercury -51265-10-06 15:06 J -17002839.00 -17002838.87 -17002838.75 0.0538 0.0203  
 Mercury -51264-01-04 01:11 J -17002749.52 -17002749.45 -17002749.37 0.0538 0.0433  
 Venus -51262-08-18 13:25 J -17001793.13 -17001792.94 -17001792.76 0.0516 0.0192  
 Mercury -51259-08-22 23:59 J -17000692.64 -17000692.50 -17000692.35 0.0489 0.0251  
 Mercury -51259-11-21 00:42 J -17000602.58 -17000602.47 -17000602.36 0.0488 0.0384  
 Mercury -51253-07-25 17:59 J -16998528.85 -16998528.75 -16998528.65 0.0539 0.0363  
 Mercury -51253-10-23 04:33 J -16998439.42 -16998439.31 -16998439.19 0.0539 0.0281  
 Venus -51250-04-23 15:49 J -16997527.03 -16997526.84 -16997526.65 0.0518 0.0120  
 Mercury -51247-06-10 23:59 J -16996382.59 -16996382.50 -16996382.40 0.0489 0.0400  
 Mercury -51247-09-08 23:59 J -16996292.65 -16996292.50 -16996292.34 0.0488 0.0228  
 Moon -51246-02-24 11:30 J -16996124.10 -16996124.02 -16996123.93 0.0489 0.0456  
 Earth -51246-02-24 12:13 J -16996124.08 -16996123.99 -16996123.88 0.0489 0.0442 \*  
 Venus -51244-10-12 00:42 J -16995163.66 -16995163.47 -16995163.27 0.0512 0.0190  
 Mercury -51241-05-13 21:06 J -16994218.65 -16994218.62 -16994218.58 0.0538 0.0518  
 Mercury -51241-08-11 08:09 J -16994129.29 -16994129.16 -16994129.03 0.0539 0.0130  
 Venus -51239-12-27 16:04 J -16993260.93 -16993260.83 -16993260.72 0.0520 0.0443  
 Mercury -51235-06-27 23:30 J -16991982.70 -16991982.52 -16991982.35 0.0488 0.0069  
 Moon -51234-02-28 19:11 J -16991736.93 -16991736.70 -16991736.47 0.0489 0.0037  
 Earth -51234-02-28 20:23 J -16991736.88 -16991736.65 -16991736.41 0.0489 0.0059 \*  
 Mars -51232-04-03 21:49 J -16990971.89 -16990971.59 -16990971.28 0.0507 0.0045  
 Venus -51232-06-16 17:16 J -16990897.98 -16990897.78 -16990897.58 0.0509 0.0139

Mercury -51229-05-30 11:16 J -16989819.16 -16989819.03 -16989818.89 0.0539 0.0027

Venus -51226-04-26 00:57 J -16988758.59 -16988758.46 -16988758.32 0.0514 0.0375

Mercury -51223-04-15 23:01 J -16987672.71 -16987672.54 -16987672.37 0.0489 0.0087

Earth -51222-03-05 05:59 J -16987349.42 -16987349.25 -16987349.07 0.0490 0.0332

Moon -51222-03-05 09:06 J -16987349.28 -16987349.12 -16987348.94 0.0490 0.0348 \*

Venus -51220-02-19 10:18 J -16986632.15 -16986632.07 -16986631.98 0.0507 0.0460

Mercury -51217-03-18 13:54 J -16985509.05 -16985508.92 -16985508.80 0.0538 0.0195

Mercury -51217-06-15 23:59 J -16985419.57 -16985419.50 -16985419.42 0.0538 0.0440

Venus -51215-12-30 00:42 J -16984492.66 -16984492.47 -16984492.27 0.0517 0.0057

Mercury -51211-02-01 22:33 J -16983362.70 -16983362.56 -16983362.40 0.0489 0.0242

Mercury -51211-05-02 23:16 J -16983272.63 -16983272.53 -16983272.42 0.0489 0.0395

Venus -51208-06-19 18:42 J -16982128.85 -16982128.72 -16982128.58 0.0513 0.0390

Mercury -51205-01-05 16:33 J -16981198.91 -16981198.81 -16981198.71 0.0538 0.0359

Mercury -51205-04-04 03:06 J -16981109.48 -16981109.37 -16981109.26 0.0538 0.0282

Earth -51205-08-30 23:59 J -16980960.71 -16980960.50 -16980960.30 0.0538 0.0259

Moon -51205-08-31 00:13 J -16980960.68 -16980960.49 -16980960.30 0.0538 0.0286 \*

Mars -51203-06-10 22:18 J -16980311.75 -16980311.57 -16980311.39 0.0522 0.0361

Venus -51203-09-04 01:54 J -16980226.58 -16980226.42 -16980226.24 0.0519 0.0262

Mercury -51200-11-20 22:04 J -16979052.67 -16979052.58 -16979052.48 0.0489 0.0397

Mercury -51199-02-18 22:04 J -16978962.73 -16978962.58 -16978962.42 0.0488 0.0231

Venus -51196-02-22 06:57 J -16977863.42 -16977863.21 -16977863.00 0.0510 0.0045

Mercury -51194-10-24 19:11 J -16976888.73 -16976888.70 -16976888.67 0.0539 0.0524

Mercury -51193-01-22 06:13 J -16976799.37 -16976799.24 -16976799.11 0.0539 0.0126

Earth -51193-09-05 04:33 J -16976572.51 -16976572.31 -16976572.11 0.0538 0.0268

Moon -51193-09-05 06:42 J -16976572.43 -16976572.22 -16976572.01 0.0538 0.0255 \*

Mercury -51188-12-07 21:49 J -16974652.76 -16974652.59 -16974652.42 0.0488 0.0076

Venus -51185-10-27 23:30 J -16973597.70 -16973597.52 -16973597.35 0.0508 0.0281

Mercury -51182-11-10 09:49 J -16972489.23 -16972489.09 -16972488.96 0.0539 0.0029

Venus -51179-09-06 14:09 J -16971458.08 -16971457.91 -16971457.74 0.0515 0.0248

Mercury -51176-09-25 21:21 J -16970342.78 -16970342.61 -16970342.44 0.0488 0.0082

Mercury -51170-08-29 12:57 J -16968179.09 -16968178.96 -16968178.83 0.0539 0.0181

Mercury -51170-11-26 23:16 J -16968089.60 -16968089.53 -16968089.46 0.0539 0.0456

Mars -51167-03-15 08:37 J -16967250.37 -16967250.14 -16967249.90 0.0520 0.0175

Venus -51167-05-12 15:06 J -16967192.07 -16967191.87 -16967191.68 0.0517 0.0069

Mercury -51164-07-14 21:06 J -16966032.77 -16966032.62 -16966032.47 0.0489 0.0234

Mercury -51164-10-12 21:35 J -16965942.69 -16965942.60 -16965942.50 0.0489 0.0402

Earth -51163-02-23 20:37 J -16965808.65 -16965808.64 -16965808.63 0.0489 0.0488

Venus -51161-10-31 02:23 J -16964828.58 -16964828.40 -16964828.21 0.0512 0.0251

Mercury -51158-06-17 15:21 J -16963868.96 -16963868.86 -16963868.75 0.0538 0.0348

Mercury -51158-09-15 01:54 J -16963779.52 -16963779.42 -16963779.30 0.0538 0.0295

Venus -51155-01-15 13:40 J -16962926.05 -16962925.93 -16962925.80 0.0520 0.0396

Mercury -51152-05-02 20:52 J -16961722.73 -16961722.63 -16961722.53 0.0489 0.0386

Mercury -51152-07-31 20:52 J -16961632.77 -16961632.63 -16961632.47 0.0489 0.0244

Earth -51151-02-28 05:01 J -16961421.52 -16961421.29 -16961421.06 0.0489 0.0103

Moon -51151-02-28 08:23 J -16961421.39 -16961421.15 -16961420.91 0.0489 0.0073 \*

Venus -51149-07-05 17:30 J -16960562.98 -16960562.77 -16960562.56 0.0509 0.0082

Mercury -51146-04-05 18:13 J -16959558.78 -16959558.74 -16959558.71 0.0538 0.0513

Mercury -51146-07-04 05:01 J -16959469.42 -16959469.29 -16959469.16 0.0538 0.0135

Venus -51143-05-14 23:30 J -16958423.62 -16958423.52 -16958423.40 0.0514 0.0425

Mercury -51140-05-19 20:09 J -16957322.83 -16957322.66 -16957322.49 0.0488 0.0084

Moon -51139-03-04 07:54 J -16957034.35 -16957034.17 -16957033.98 0.0489 0.0294

Earth -51139-03-04 11:45 J -16957034.20 -16957034.01 -16957033.81 0.0489 0.0280 \*

Venus -51137-03-10 06:57 J -16956297.33 -16956297.21 -16956297.09 0.0507 0.0418

Mercury -51134-04-22 07:54 J -16955159.30 -16955159.17 -16955159.03 0.0539 0.0028

Venus -51131-01-18 02:37 J -16954157.58 -16954157.39 -16954157.19 0.0517 0.0119

Mercury -51128-03-07 20:09 J -16953012.83 -16953012.66 -16953012.49 0.0488 0.0069

Venus -51125-07-08 16:47 J -16951793.91 -16951793.80 -16951793.70 0.0513 0.0437

Mercury -51122-02-08 11:16 J -16950849.15 -16950849.03 -16950848.90 0.0539 0.0179

Mercury -51122-05-08 21:49 J -16950759.66 -16950759.59 -16950759.53 0.0539 0.0460

Earth -51122-08-31 06:42 J -16950645.40 -16950645.22 -16950645.03 0.0539 0.0314

Moon -51122-08-31 08:23 J -16950645.33 -16950645.15 -16950644.96 0.0539 0.0345 \*  
 Venus -51120-09-23 04:04 J -16949891.51 -16949891.33 -16949891.14 0.0519 0.0199  
 Mercury -51117-12-24 19:40 J -16948702.83 -16948702.68 -16948702.53 0.0488 0.0224  
 Mercury -51116-03-24 20:09 J -16948612.75 -16948612.66 -16948612.57 0.0488 0.0411  
 Mars -51114-09-20 23:01 J -16947702.59 -16947702.54 -16947702.45 0.0505 0.0489  
 Venus -51113-03-13 09:06 J -16947528.32 -16947528.12 -16947527.91 0.0511 0.0107  
 Mercury -51111-11-27 14:37 J -16946539.00 -16946538.89 -16946538.79 0.0539 0.0333  
 Mercury -51110-02-25 01:11 J -16946449.55 -16946449.45 -16946449.34 0.0539 0.0310  
 Moon -51110-09-05 08:37 J -16946257.34 -16946257.14 -16946256.93 0.0538 0.0201  
 Earth -51110-09-05 11:59 J -16946257.21 -16946257.00 -16946256.79 0.0538 0.0213 \*  
 Venus -51108-05-29 04:18 J -16945625.32 -16945625.32 -16945625.32 0.0521 0.0521  
 Mercury -51105-10-12 19:40 J -16944392.79 -16944392.68 -16944392.57 0.0489 0.0375  
 Mercury -51104-01-10 19:40 J -16944302.83 -16944302.68 -16944302.53 0.0488 0.0254  
 Venus -51102-11-17 01:54 J -16943262.61 -16943262.42 -16943262.22 0.0508 0.0217  
 Mercury -51099-09-15 17:16 J -16942228.83 -16942228.78 -16942228.73 0.0538 0.0499  
 Mercury -51099-12-14 04:04 J -16942139.45 -16942139.33 -16942139.20 0.0538 0.0150  
 Venus -51096-09-25 12:42 J -16941123.13 -16941122.97 -16941122.81 0.0515 0.0297  
 Mercury -51093-10-29 19:11 J -16939992.87 -16939992.70 -16939992.53 0.0489 0.0097  
 Mercury -51087-10-02 07:11 J -16937829.34 -16937829.20 -16937829.07 0.0539 0.0018  
 Venus -51084-05-31 14:23 J -16936857.09 -16936856.90 -16936856.70 0.0518 0.0019  
 Mercury -51081-08-17 18:42 J -16935682.89 -16935682.72 -16935682.55 0.0488 0.0058  
 Mars -51078-06-28 19:40 J -16934637.97 -16934637.68 -16934637.39 0.0507 0.0152  
 Venus -51078-11-19 23:59 J -16934493.67 -16934493.50 -16934493.33 0.0512 0.0294  
 Mercury -51075-07-21 09:49 J -16933519.22 -16933519.09 -16933518.97 0.0539 0.0177  
 Mercury -51075-10-18 20:09 J -16933429.72 -16933429.66 -16933429.59 0.0539 0.0462  
 Venus -51072-02-03 16:33 J -16932590.96 -16932590.81 -16932590.66 0.0520 0.0332  
 Mercury -51069-06-05 18:42 J -16931372.87 -16931372.72 -16931372.56 0.0488 0.0208  
 Mercury -51069-09-03 19:11 J -16931282.78 -16931282.70 -16931282.62 0.0488 0.0426  
 Moon -51068-02-27 10:04 J -16931106.31 -16931106.08 -16931105.85 0.0489 0.0113  
 Earth -51068-02-27 13:54 J -16931106.14 -16931105.92 -16931105.69 0.0489 0.0144 \*

Venus -51066-07-25 15:49 J -16930228.05 -16930227.84 -16930227.63 0.0510 0.0037  
 Mercury -51063-05-09 13:11 J -16929209.06 -16929208.95 -16929208.85 0.0539 0.0330  
 Mercury -51063-08-06 23:45 J -16929119.61 -16929119.51 -16929119.40 0.0539 0.0315  
 Venus -51060-06-03 02:09 J -16928088.47 -16928088.41 -16928088.34 0.0514 0.0486  
 Mercury -51057-03-24 18:28 J -16927062.84 -16927062.73 -16927062.62 0.0488 0.0362  
 Mercury -51057-06-22 18:28 J -16926972.88 -16926972.73 -16926972.59 0.0488 0.0266  
 Earth -51056-03-03 22:18 J -16926718.78 -16926718.57 -16926718.37 0.0489 0.0243  
 Moon -51056-03-04 02:09 J -16926718.61 -16926718.41 -16926718.21 0.0489 0.0254 \*  
 Venus -51054-03-30 09:21 J -16925962.25 -16925962.11 -16925961.95 0.0507 0.0356  
 Mercury -51051-02-25 16:18 J -16924898.88 -16924898.82 -16924898.76 0.0539 0.0485  
 Mercury -51051-05-26 03:21 J -16924809.49 -16924809.36 -16924809.23 0.0539 0.0164  
 Mars -51049-09-04 14:23 J -16923977.14 -16923976.90 -16923976.66 0.0522 0.0155  
 Venus -51048-02-06 03:49 J -16923822.52 -16923822.34 -16923822.15 0.0516 0.0177  
 Mercury -51045-04-10 17:59 J -16922662.92 -16922662.75 -16922662.58 0.0488 0.0111  
 Venus -51042-07-28 20:23 J -16921458.69 -16921458.65 -16921458.61 0.0514 0.0504  
 Mercury -51039-03-14 06:13 J -16920499.37 -16920499.24 -16920499.10 0.0539 0.0007  
 Moon -51039-08-30 08:52 J -16920330.27 -16920330.13 -16920329.99 0.0538 0.0418  
 Earth -51039-08-30 11:45 J -16920330.17 -16920330.01 -16920329.85 0.0538 0.0381 \*  
 Venus -51037-10-12 03:35 J -16919556.53 -16919556.35 -16919556.16 0.0518 0.0146  
 Mercury -51033-01-28 17:45 J -16918352.94 -16918352.76 -16918352.59 0.0489 0.0045  
 Venus -51030-04-02 11:16 J -16917193.22 -16917193.03 -16917192.83 0.0511 0.0170  
 Mercury -51028-12-31 09:06 J -16916189.25 -16916189.12 -16916188.99 0.0539 0.0159  
 Mercury -51027-03-30 19:25 J -16916099.75 -16916099.69 -16916099.63 0.0539 0.0477  
 Earth -51027-09-04 14:52 J -16915942.10 -16915941.88 -16915941.65 0.0538 0.0139  
 Moon -51027-09-04 18:42 J -16915941.94 -16915941.72 -16915941.49 0.0538 0.0134 \*  
 Venus -51025-06-17 04:18 J -16915290.41 -16915290.32 -16915290.23 0.0521 0.0465  
 Mercury -51022-11-16 17:30 J -16914042.93 -16914042.77 -16914042.61 0.0488 0.0195  
 Mercury -51021-02-14 17:59 J -16913952.83 -16913952.75 -16913952.68 0.0488 0.0439  
 Venus -51019-12-06 00:13 J -16912927.69 -16912927.49 -16912927.29 0.0508 0.0171  
 Mercury -51016-10-19 11:30 J -16911879.12 -16911879.02 -16911878.91 0.0539 0.0328



Mercury -51015-01-16 22:18 J -16911789.68 -16911789.57 -16911789.46 0.0539 0.0318

Mars -51013-06-08 19:40 J -16910915.85 -16910915.68 -16910915.49 0.0520 0.0366

Venus -51013-10-14 15:49 J -16910787.98 -16910787.84 -16910787.70 0.0515 0.0361

Mercury -51010-09-04 17:45 J -16909732.88 -16909732.76 -16909732.64 0.0488 0.0343

Mercury -51010-12-03 17:45 J -16909642.90 -16909642.76 -16909642.62 0.0488 0.0285

Venus -51007-08-10 17:16 J -16908661.82 -16908661.78 -16908661.72 0.0506 0.0489

Mercury -51004-08-07 14:37 J -16907568.94 -16907568.89 -16907568.83 0.0539 0.0483

Mercury -51004-11-05 01:54 J -16907479.55 -16907479.42 -16907479.29 0.0539 0.0169

Venus -51001-06-19 17:45 J -16906521.96 -16906521.76 -16906521.57 0.0517 0.0050

# 51ST MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 51st millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-50998-09-21 17:01 J	-16905332.96	-16905332.79	-16905332.62	0.0488	0.0126		
Venus	-50995-12-09 03:06 J	-16904158.51	-16904158.37	-16904158.21	0.0513	0.0361		
Mercury	-50992-08-24 05:30 J	-16903169.41	-16903169.27	-16903169.14	0.0539	0.0025		
Venus	-50989-02-23 18:42 J	-16902255.89	-16902255.72	-16902255.55	0.0519	0.0268		
Mercury	-50986-07-10 16:47 J	-16901022.98	-16901022.80	-16901022.63	0.0488	0.0030		
Earth	-50985-02-28 00:57 J	-16900790.68	-16900790.46	-16900790.24	0.0489	0.0179		
Moon	-50985-02-28 04:47 J	-16900790.52	-16900790.30	-16900790.07	0.0489	0.0147	*	
Venus	-50983-08-13 19:54 J	-16899892.88	-16899892.67	-16899892.46	0.0510	0.0034		
Mercury	-50980-06-12 08:23 J	-16898859.28	-16898859.15	-16898859.02	0.0539	0.0143		

Mercury -50980-09-09 18:42 J -16898769.77 -16898769.72 -16898769.67 0.0539 0.0493

Mercury -50974-04-28 16:33 J -16896712.97 -16896712.81 -16896712.65 0.0489 0.0182

Mercury -50974-07-27 17:01 J -16896622.85 -16896622.79 -16896622.73 0.0488 0.0455

Moon -50973-03-03 06:42 J -16896403.43 -16896403.22 -16896403.00 0.0489 0.0216

Earth -50973-03-03 10:04 J -16896403.29 -16896403.08 -16896402.87 0.0489 0.0211 \*

Venus -50971-04-18 11:59 J -16895627.16 -16895627.00 -16895626.82 0.0508 0.0292

Mercury -50968-03-31 11:01 J -16894549.15 -16894549.04 -16894548.93 0.0539 0.0306

Mercury -50968-06-28 21:49 J -16894459.70 -16894459.59 -16894459.49 0.0539 0.0337

Venus -50965-02-26 04:18 J -16893487.49 -16893487.32 -16893487.14 0.0516 0.0233

Mercury -50962-02-14 16:33 J -16892402.94 -16892402.81 -16892402.69 0.0488 0.0330

Mercury -50962-05-15 16:18 J -16892312.95 -16892312.82 -16892312.67 0.0488 0.0299

Mars -50960-12-15 08:37 J -16891368.39 -16891368.14 -16891367.87 0.0505 0.0266

Mercury -50956-01-17 13:11 J -16890239.01 -16890238.95 -16890238.89 0.0539 0.0480

Mercury -50956-04-17 00:28 J -16890149.61 -16890149.48 -16890149.36 0.0539 0.0172

Earth -50956-08-29 14:23 J -16890015.02 -16890014.90 -16890014.77 0.0539 0.0455

Moon -50956-08-29 18:13 J -16890014.83 -16890014.74 -16890014.64 0.0539 0.0488 \*

Venus -50954-11-01 06:28 J -16889221.42 -16889221.23 -16889221.03 0.0519 0.0081

Mercury -50951-12-03 16:47 J -16888092.83 -16888092.80 -16888092.76 0.0488 0.0475

Mercury -50950-03-03 16:18 J -16888002.98 -16888002.82 -16888002.65 0.0488 0.0146

Venus -50947-04-21 10:18 J -16886858.25 -16886858.07 -16886857.87 0.0511 0.0219

Mercury -50944-02-03 03:49 J -16885839.47 -16885839.34 -16885839.21 0.0540 0.0020

Moon -50944-09-03 17:59 J -16885626.98 -16885626.75 -16885626.52 0.0539 0.0082

Earth -50944-09-03 21:49 J -16885626.82 -16885626.59 -16885626.36 0.0539 0.0084 \*

Venus -50942-07-07 07:25 J -16884955.31 -16884955.19 -16884955.06 0.0521 0.0400

Mercury -50939-12-20 15:49 J -16883693.02 -16883692.84 -16883692.67 0.0488 0.0017

Venus -50936-12-25 03:21 J -16882592.57 -16882592.36 -16882592.16 0.0509 0.0107

Mercury -50933-11-22 07:11 J -16881529.33 -16881529.20 -16881529.07 0.0539 0.0132

Mercury -50932-02-19 17:45 J -16881439.80 -16881439.76 -16881439.72 0.0539 0.0507

Mars -50930-02-25 18:13 J -16880703.82 -16880703.74 -16880703.64 0.0524 0.0487

Venus -50930-11-03 17:30 J -16880452.88 -16880452.77 -16880452.65 0.0514 0.0420

Mercury -50927-10-08 15:35 J -16879383.01 -16879382.85 -16879382.69 0.0488 0.0166

Mercury -50926-01-06 15:49 J -16879292.88 -16879292.84 -16879292.79 0.0488 0.0470

Venus -50924-08-29 21:06 J -16878326.74 -16878326.62 -16878326.51 0.0507 0.0423

Mars -50924-09-22 21:49 J -16878302.76 -16878302.59 -16878302.41 0.0507 0.0409

Mercury -50921-09-10 10:18 J -16877219.19 -16877219.07 -16877218.96 0.0539 0.0292

Mercury -50921-12-08 20:52 J -16877129.73 -16877129.63 -16877129.53 0.0539 0.0352

Venus -50918-07-09 17:59 J -16876186.95 -16876186.75 -16876186.56 0.0517 0.0105

Mercury -50915-07-27 15:21 J -16875072.99 -16875072.86 -16875072.73 0.0489 0.0318

Mercury -50915-10-25 15:21 J -16874982.99 -16874982.86 -16874982.73 0.0488 0.0312

Venus -50912-12-28 05:59 J -16873823.36 -16873823.25 -16873823.13 0.0513 0.0424

Mercury -50909-06-29 12:57 J -16872909.03 -16872908.96 -16872908.89 0.0538 0.0457

Mercury -50909-09-26 23:59 J -16872819.63 -16872819.50 -16872819.38 0.0539 0.0193

Venus -50906-03-14 18:57 J -16871920.89 -16871920.71 -16871920.53 0.0520 0.0212

Mercury -50903-05-15 15:35 J -16870762.90 -16870762.85 -16870762.80 0.0488 0.0463

Mercury -50903-08-13 15:06 J -16870673.03 -16870672.87 -16870672.70 0.0488 0.0159

Moon -50902-02-27 09:06 J -16870475.34 -16870475.12 -16870474.89 0.0488 0.0182

Earth -50902-02-27 12:13 J -16870475.20 -16870474.99 -16870474.77 0.0488 0.0210 \*

Venus -50900-09-01 18:57 J -16869557.92 -16869557.71 -16869557.51 0.0510 0.0082

Mercury -50897-07-16 02:23 J -16868509.54 -16868509.40 -16868509.27 0.0539 0.0028

Mars -50895-11-30 01:11 J -16867642.71 -16867642.45 -16867642.20 0.0522 0.0043

Mercury -50891-06-01 15:06 J -16866363.04 -16866362.87 -16866362.70 0.0488 0.0008

Earth -50890-03-03 21:21 J -16866087.83 -16866087.61 -16866087.39 0.0489 0.0180

Moon -50890-03-03 22:33 J -16866087.78 -16866087.56 -16866087.35 0.0489 0.0174 \*

Venus -50888-05-07 11:16 J -16865292.21 -16865292.03 -16865291.84 0.0507 0.0243

Mercury -50885-05-04 05:30 J -16864199.40 -16864199.27 -16864199.14 0.0539 0.0132

Mercury -50885-08-01 16:04 J -16864109.87 -16864109.83 -16864109.79 0.0540 0.0508

Venus -50882-03-17 06:57 J -16863152.37 -16863152.21 -16863152.05 0.0516 0.0293

Mercury -50879-03-20 14:37 J -16862053.06 -16862052.89 -16862052.73 0.0488 0.0151

Mercury -50879-06-18 14:52 J -16861962.90 -16861962.88 -16861962.86 0.0488 0.0484

Mercury -50873-02-21 08:52 J -16859889.24 -16859889.13 -16859889.01 0.0539 0.0284

Mercury -50873-05-20 19:40 J -16859799.77 -16859799.68 -16859799.58 0.0540 0.0362  
 Moon -50873-08-28 20:23 J -16859699.65 -16859699.65 -16859699.64 0.0539 0.0539  
 Earth -50873-08-29 00:13 J -16859699.57 -16859699.49 -16859699.41 0.0539 0.0504  
 Venus -50871-11-20 08:23 J -16858886.34 -16858886.15 -16858885.95 0.0518 0.0022  
 Mercury -50867-01-06 14:23 J -16857743.03 -16857742.90 -16857742.77 0.0488 0.0303  
 Mercury -50867-04-06 14:23 J -16857653.03 -16857652.90 -16857652.77 0.0488 0.0326  
 Venus -50864-05-10 13:54 J -16856523.09 -16856522.92 -16856522.74 0.0512 0.0285  
 Mercury -50862-12-10 11:45 J -16855579.08 -16855579.01 -16855578.93 0.0539 0.0445  
 Mercury -50861-03-08 23:01 J -16855489.67 -16855489.54 -16855489.42 0.0539 0.0206  
 Earth -50861-09-03 04:18 J -16855311.55 -16855311.32 -16855311.09 0.0538 0.0025  
 Moon -50861-09-03 06:42 J -16855311.44 -16855311.22 -16855310.99 0.0538 0.0039 \*  
 Venus -50859-07-26 07:40 J -16854620.32 -16854620.18 -16854620.03 0.0520 0.0344  
 Mercury -50856-10-25 14:23 J -16853432.96 -16853432.90 -16853432.84 0.0489 0.0454  
 Mercury -50855-01-23 13:54 J -16853343.09 -16853342.92 -16853342.76 0.0488 0.0169  
 Venus -50852-01-13 05:45 J -16852257.47 -16852257.26 -16852257.05 0.0509 0.0043  
 Mercury -50850-12-27 01:54 J -16851179.56 -16851179.42 -16851179.29 0.0539 0.0046  
 Venus -50847-11-22 17:16 J -16850117.85 -16850117.78 -16850117.70 0.0514 0.0472  
 Mercury -50844-11-11 13:40 J -16849033.10 -16849032.93 -16849032.75 0.0488 0.0021  
 Venus -50841-09-17 20:09 J -16847991.79 -16847991.66 -16847991.51 0.0506 0.0374  
 Mercury -50838-10-15 04:04 J -16846869.46 -16846869.33 -16846869.20 0.0539 0.0130  
 Mercury -50837-01-12 14:23 J -16846779.94 -16846779.90 -16846779.86 0.0540 0.0509  
 Venus -50835-07-28 19:11 J -16845851.88 -16845851.70 -16845851.51 0.0517 0.0162  
 Mercury -50832-08-30 13:40 J -16844723.09 -16844722.93 -16844722.76 0.0488 0.0133  
 Venus -50828-01-16 04:33 J -16843488.38 -16843488.31 -16843488.22 0.0512 0.0470  
 Mercury -50826-08-03 07:11 J -16842559.32 -16842559.20 -16842559.09 0.0539 0.0287  
 Mercury -50826-10-31 17:59 J -16842469.85 -16842469.75 -16842469.65 0.0540 0.0359  
 Venus -50823-04-02 20:37 J -16841585.83 -16841585.64 -16841585.45 0.0520 0.0154  
 Mercury -50820-06-18 13:11 J -16840413.08 -16840412.95 -16840412.81 0.0488 0.0290  
 Mercury -50820-09-16 13:11 J -16840323.08 -16840322.95 -16840322.83 0.0488 0.0339  
 Earth -50819-02-26 22:04 J -16840159.79 -16840159.58 -16840159.38 0.0488 0.0251

Moon -50819-02-26 22:47 J -16840159.74 -16840159.55 -16840159.34 0.0488 0.0231 \*  
 Venus -50817-09-20 20:37 J -16839222.84 -16839222.64 -16839222.44 0.0510 0.0141  
 Mercury -50814-05-22 10:18 J -16838249.14 -16838249.07 -16838248.99 0.0539 0.0441  
 Mercury -50814-08-19 21:35 J -16838159.72 -16838159.60 -16838159.48 0.0540 0.0211  
 Venus -50812-12-06 20:52 J -16837319.70 -16837319.63 -16837319.54 0.0522 0.0474  
 Mercury -50808-04-06 13:11 J -16836103.02 -16836102.95 -16836102.88 0.0488 0.0441  
 Mercury -50808-07-05 12:28 J -16836013.13 -16836012.98 -16836012.81 0.0488 0.0182  
 Earth -50807-03-03 06:13 J -16835772.47 -16835772.24 -16835772.01 0.0489 0.0135  
 Moon -50807-03-03 07:11 J -16835772.44 -16835772.20 -16835771.96 0.0489 0.0119 \*  
 Mars -50805-03-11 04:33 J -16835033.61 -16835033.31 -16835033.01 0.0505 0.0026  
 Venus -50805-05-26 13:40 J -16834957.13 -16834956.93 -16834956.74 0.0508 0.0181  
 Mercury -50802-06-08 00:42 J -16833849.60 -16833849.47 -16833849.34 0.0539 0.0054  
 Venus -50799-04-05 06:28 J -16832817.38 -16832817.23 -16832817.08 0.0515 0.0343  
 Mercury -50796-04-23 12:13 J -16831703.17 -16831702.99 -16831702.82 0.0488 0.0026  
 Venus -50793-01-30 06:42 J -16830691.25 -16830691.22 -16830691.18 0.0506 0.0497  
 Mercury -50790-03-27 03:21 J -16829539.49 -16829539.36 -16829539.22 0.0539 0.0111  
 Mercury -50790-06-24 13:54 J -16829449.94 -16829449.92 -16829449.90 0.0539 0.0528  
 Venus -50788-12-09 07:25 J -16828551.39 -16828551.19 -16828550.99 0.0518 0.0030  
 Mercury -50784-02-09 12:13 J -16827393.16 -16827392.99 -16827392.82 0.0488 0.0124  
 Venus -50781-05-29 12:28 J -16826188.14 -16826187.98 -16826187.82 0.0511 0.0330  
 Mercury -50778-01-13 05:30 J -16825229.39 -16825229.27 -16825229.16 0.0539 0.0288  
 Mercury -50778-04-12 16:18 J -16825139.92 -16825139.82 -16825139.73 0.0540 0.0358  
 Moon -50778-09-03 01:11 J -16824996.69 -16824996.45 -16824996.21 0.0539 0.0056  
 Earth -50778-09-03 02:23 J -16824996.63 -16824996.40 -16824996.17 0.0539 0.0072 \*  
 Mars -50776-05-21 21:21 J -16824369.81 -16824369.61 -16824369.40 0.0524 0.0307  
 Venus -50776-08-14 07:25 J -16824285.35 -16824285.19 -16824285.02 0.0521 0.0293  
 Mercury -50773-11-28 12:13 J -16823083.13 -16823082.99 -16823082.85 0.0488 0.0275  
 Mercury -50772-02-26 12:13 J -16822993.11 -16822992.99 -16822992.87 0.0488 0.0355  
 Venus -50769-02-02 04:04 J -16821922.54 -16821922.33 -16821922.12 0.0509 0.0007  
 Mercury -50767-11-01 08:23 J -16820919.22 -16820919.15 -16820919.08 0.0539 0.0448

Mercury -50766-01-29 19:25 J -16820829.81 -16820829.69 -16820829.56 0.0540 0.0205

Moon -50766-09-08 06:57 J -16820608.29 -16820608.21 -16820608.11 0.0539 0.0494

Earth -50766-09-08 07:54 J -16820608.28 -16820608.17 -16820608.05 0.0539 0.0462 \*

Mercury -50761-09-16 11:45 J -16818773.08 -16818773.01 -16818772.93 0.0488 0.0431

Mercury -50761-12-15 11:16 J -16818683.19 -16818683.03 -16818682.87 0.0488 0.0191

Venus -50758-10-07 20:37 J -16817656.80 -16817656.64 -16817656.48 0.0507 0.0320

Mercury -50755-11-17 23:01 J -16816519.67 -16816519.54 -16816519.41 0.0540 0.0055

Venus -50752-08-16 19:54 J -16815516.85 -16815516.67 -16815516.49 0.0517 0.0217

Mercury -50749-10-03 10:47 J -16814373.22 -16814373.05 -16814372.88 0.0488 0.0034

Mercury -50743-09-06 02:09 J -16812209.54 -16812209.41 -16812209.28 0.0539 0.0104

Mercury -50743-12-04 12:28 J -16812119.99 -16812119.98 -16812119.96 0.0539 0.0534

Mars -50740-02-23 07:11 J -16811308.43 -16811308.20 -16811307.97 0.0521 0.0222

Venus -50740-04-21 19:25 J -16811250.88 -16811250.69 -16811250.49 0.0519 0.0105

Mercury -50737-07-22 10:18 J -16810063.23 -16810063.07 -16810062.90 0.0488 0.0122

Earth -50736-02-26 06:28 J -16809844.41 -16809844.23 -16809844.04 0.0488 0.0297

Moon -50736-02-26 07:40 J -16809844.38 -16809844.18 -16809843.98 0.0488 0.0280 \*

Venus -50734-10-10 21:49 J -16808887.78 -16808887.59 -16808887.40 0.0510 0.0199

Mercury -50731-06-25 04:47 J -16807899.42 -16807899.30 -16807899.18 0.0539 0.0269

Mercury -50731-09-22 15:35 J -16807809.94 -16807809.85 -16807809.76 0.0539 0.0376

Venus -50729-12-25 18:57 J -16806984.82 -16806984.71 -16806984.59 0.0522 0.0427

Mercury -50725-05-10 10:33 J -16805753.20 -16805753.06 -16805752.92 0.0488 0.0270

Mercury -50725-08-08 10:18 J -16805663.18 -16805663.07 -16805662.95 0.0488 0.0361

Moon -50724-03-02 12:57 J -16805457.19 -16805456.96 -16805456.73 0.0488 0.0074

Earth -50724-03-02 15:21 J -16805457.09 -16805456.86 -16805456.62 0.0488 0.0096 \*

Venus -50722-06-15 11:59 J -16804622.20 -16804622.00 -16804621.79 0.0507 0.0135

Mercury -50719-04-13 06:28 J -16803589.30 -16803589.23 -16803589.15 0.0539 0.0450

Mercury -50719-07-11 17:45 J -16803499.88 -16803499.76 -16803499.64 0.0539 0.0202

Venus -50716-04-24 05:01 J -16802482.41 -16802482.29 -16802482.16 0.0516 0.0389

Mercury -50713-02-27 10:33 J -16801443.14 -16801443.06 -16801442.97 0.0488 0.0419

Mercury -50713-05-27 10:04 J -16801353.24 -16801353.08 -16801352.92 0.0488 0.0204

Earth -50712-03-06 23:45 J -16801069.54 -16801069.51 -16801069.49 0.0489 0.0484  
 Moon -50712-03-07 03:06 J -16801069.45 -16801069.37 -16801069.29 0.0489 0.0458  
 Venus -50710-02-18 04:47 J -16800356.39 -16800356.30 -16800356.21 0.0505 0.0452  
 Mercury -50707-04-29 20:52 J -16799189.76 -16799189.63 -16799189.50 0.0539 0.0044  
 Venus -50705-12-28 06:28 J -16798216.43 -16798216.23 -16798216.04 0.0518 0.0078  
 Mercury -50701-03-15 09:06 J -16797043.29 -16797043.12 -16797042.95 0.0488 0.0040  
 Venus -50698-06-18 11:45 J -16795853.15 -16795853.01 -16795852.87 0.0512 0.0381  
 Mercury -50695-02-16 00:13 J -16794879.62 -16794879.49 -16794879.36 0.0539 0.0108  
 Mercury -50695-05-16 10:47 J -16794790.07 -16794790.05 -16794790.03 0.0540 0.0532  
 Moon -50695-09-02 06:57 J -16794681.43 -16794681.21 -16794680.99 0.0539 0.0122  
 Earth -50695-09-02 07:11 J -16794681.42 -16794681.20 -16794680.97 0.0539 0.0142 \*  
 Venus -50693-09-02 07:25 J -16793950.36 -16793950.19 -16793950.01 0.0520 0.0238  
 Mercury -50689-01-02 08:37 J -16792733.30 -16792733.14 -16792732.97 0.0488 0.0116  
 Mars -50687-08-28 07:11 J -16791764.30 -16791764.20 -16791764.07 0.0503 0.0462  
 Venus -50686-02-21 04:04 J -16791587.54 -16791587.33 -16791587.12 0.0509 0.0056  
 Mercury -50684-12-05 03:06 J -16790569.48 -16790569.37 -16790569.25 0.0539 0.0268  
 Mercury -50683-03-04 14:09 J -16790480.01 -16790479.91 -16790479.82 0.0539 0.0379  
 Earth -50683-09-07 11:30 J -16790293.17 -16790293.02 -16790292.86 0.0538 0.0390  
 Moon -50683-09-07 13:54 J -16790293.07 -16790292.92 -16790292.77 0.0538 0.0416 \*  
 Mercury -50678-10-21 08:23 J -16788423.29 -16788423.15 -16788423.01 0.0488 0.0271  
 Mercury -50677-01-19 08:09 J -16788333.27 -16788333.16 -16788333.04 0.0488 0.0359  
 Venus -50675-10-26 20:37 J -16787321.81 -16787321.64 -16787321.46 0.0507 0.0266  
 Mercury -50672-09-23 05:45 J -16786259.34 -16786259.26 -16786259.18 0.0539 0.0434  
 Mercury -50672-12-21 16:47 J -16786169.92 -16786169.80 -16786169.67 0.0539 0.0219  
 Venus -50669-09-04 16:47 J -16785181.97 -16785181.80 -16785181.62 0.0517 0.0258  
 Mercury -50666-08-09 08:37 J -16784113.23 -16784113.14 -16784113.05 0.0489 0.0418  
 Mercury -50666-11-07 07:54 J -16784023.32 -16784023.17 -16784023.01 0.0488 0.0206  
 Mercury -50660-10-09 18:57 J -16781859.84 -16781859.71 -16781859.58 0.0539 0.0040  
 Venus -50657-05-10 16:18 J -16780916.01 -16780915.82 -16780915.62 0.0520 0.0064  
 Mercury -50654-08-26 07:40 J -16779713.35 -16779713.18 -16779713.01 0.0488 0.0050

Moon -50653-02-26 11:59 J -16779529.17 -16779529.00 -16779528.84 0.0488 0.0334  
 Earth -50653-02-26 14:23 J -16779529.05 -16779528.90 -16779528.72 0.0488 0.0345 \*  
 Mars -50651-06-04 23:16 J -16778699.81 -16778699.53 -16778699.24 0.0505 0.0167  
 Venus -50651-10-29 18:28 J -16778552.91 -16778552.73 -16778552.54 0.0510 0.0239  
 Mercury -50648-07-28 21:49 J -16777549.72 -16777549.59 -16777549.46 0.0539 0.0121  
 Mercury -50648-10-26 08:23 J -16777460.18 -16777460.15 -16777460.12 0.0540 0.0519  
 Venus -50645-01-14 16:33 J -16776649.94 -16776649.81 -16776649.68 0.0522 0.0384  
 Mercury -50642-06-14 06:42 J -16775403.39 -16775403.22 -16775403.05 0.0488 0.0113  
 Earth -50641-03-01 19:25 J -16775141.92 -16775141.69 -16775141.45 0.0488 0.0032  
 Moon -50641-03-01 23:01 J -16775141.78 -16775141.54 -16775141.30 0.0488 0.0008 \*  
 Venus -50639-07-04 09:35 J -16774287.30 -16774287.10 -16774286.89 0.0508 0.0090  
 Mercury -50636-05-17 01:11 J -16773239.57 -16773239.45 -16773239.34 0.0539 0.0276  
 Mercury -50636-08-14 11:59 J -16773150.09 -16773150.00 -16773149.90 0.0540 0.0371  
 Venus -50633-05-13 03:49 J -16772147.44 -16772147.34 -16772147.24 0.0515 0.0437  
 Mercury -50630-04-02 06:28 J -16771093.37 -16771093.23 -16771093.09 0.0488 0.0267  
 Mercury -50630-07-01 06:13 J -16771003.35 -16771003.24 -16771003.12 0.0488 0.0362  
 Moon -50629-03-05 23:30 J -16770754.66 -16770754.52 -16770754.38 0.0489 0.0394  
 Earth -50629-03-06 03:06 J -16770754.48 -16770754.37 -16770754.24 0.0489 0.0419 \*  
 Venus -50627-03-09 03:06 J -16770021.50 -16770021.37 -16770021.25 0.0506 0.0405  
 Mercury -50624-03-05 04:04 J -16768929.41 -16768929.33 -16768929.25 0.0539 0.0436  
 Mercury -50624-06-02 15:06 J -16768839.99 -16768839.87 -16768839.74 0.0539 0.0217  
 Mars -50622-08-15 19:25 J -16768035.93 -16768035.69 -16768035.45 0.0523 0.0147  
 Venus -50621-01-17 03:49 J -16767881.53 -16767881.34 -16767881.15 0.0518 0.0122  
 Mercury -50618-01-19 06:13 J -16766783.32 -16766783.24 -16766783.16 0.0489 0.0421  
 Mercury -50618-04-19 05:30 J -16766693.43 -16766693.27 -16766693.11 0.0488 0.0201  
 Venus -50615-07-07 11:16 J -16765518.14 -16765518.03 -16765517.92 0.0512 0.0432  
 Mercury -50612-03-21 17:59 J -16764529.88 -16764529.75 -16764529.61 0.0539 0.0055  
 Earth -50612-09-01 05:30 J -16764366.47 -16764366.27 -16764366.06 0.0539 0.0239  
 Moon -50612-09-01 07:11 J -16764366.42 -16764366.20 -16764365.98 0.0539 0.0214 \*  
 Venus -50610-09-22 03:49 J -16763615.52 -16763615.34 -16763615.16 0.0520 0.0199



Mercury -50606-02-05 05:16 J -16762383.45 -16762383.28 -16762383.10 0.0488 0.0050  
 Venus -50603-03-12 01:40 J -16761252.63 -16761252.43 -16761252.22 0.0509 0.0100  
 Mercury -50600-01-07 19:54 J -16760219.80 -16760219.67 -16760219.54 0.0539 0.0126  
 Mercury -50600-04-07 06:28 J -16760130.26 -16760130.23 -16760130.19 0.0539 0.0514  
 Moon -50600-09-06 00:42 J -16759978.65 -16759978.47 -16759978.27 0.0539 0.0291  
 Earth -50600-09-06 03:49 J -16759978.53 -16759978.34 -16759978.13 0.0539 0.0268 \*  
 Mercury -50595-11-24 05:01 J -16758073.45 -16758073.29 -16758073.12 0.0488 0.0107  
 Venus -50592-11-14 17:16 J -16756986.96 -16756986.78 -16756986.59 0.0506 0.0225  
 Mercury -50589-10-26 22:33 J -16755909.67 -16755909.56 -16755909.44 0.0539 0.0291  
 Mercury -50588-01-24 09:35 J -16755820.20 -16755820.10 -16755820.00 0.0539 0.0357  
 Mars -50586-05-19 20:09 J -16754974.83 -16754974.66 -16754974.47 0.0522 0.0361  
 Venus -50586-09-24 13:25 J -16754847.10 -16754846.94 -16754846.78 0.0517 0.0297  
 Mercury -50583-09-12 04:18 J -16753763.46 -16753763.32 -16753763.18 0.0488 0.0268  
 Mercury -50583-12-11 03:49 J -16753673.45 -16753673.34 -16753673.22 0.0488 0.0361  
 Mercury -50577-08-15 01:40 J -16751599.50 -16751599.43 -16751599.35 0.0539 0.0448  
 Mercury -50577-11-12 12:57 J -16751510.08 -16751509.96 -16751509.83 0.0540 0.0207  
 Venus -50574-05-30 14:52 J -16750581.08 -16750580.88 -16750580.68 0.0519 0.0015  
 Mercury -50571-07-01 04:04 J -16749453.41 -16749453.33 -16749453.24 0.0488 0.0421  
 Mercury -50571-09-29 03:21 J -16749363.52 -16749363.36 -16749363.20 0.0488 0.0201  
 Earth -50570-02-25 16:47 J -16749213.92 -16749213.80 -16749213.68 0.0488 0.0416  
 Moon -50570-02-25 20:23 J -16749213.78 -16749213.65 -16749213.51 0.0488 0.0405 \*  
 Venus -50568-11-17 16:04 J -16748218.00 -16748217.83 -16748217.65 0.0511 0.0285  
 Mercury -50565-08-31 16:18 J -16747199.96 -16747199.82 -16747199.69 0.0539 0.0054  
 Venus -50562-02-02 13:54 J -16746315.06 -16746314.92 -16746314.77 0.0521 0.0339  
 Mercury -50559-07-18 02:52 J -16745053.56 -16745053.38 -16745053.21 0.0488 0.0044  
 Moon -50558-03-01 19:54 J -16744826.90 -16744826.67 -16744826.43 0.0488 0.0057  
 Earth -50558-03-01 23:45 J -16744826.74 -16744826.51 -16744826.27 0.0488 0.0031 \*  
 Venus -50556-07-23 08:23 J -16743952.36 -16743952.15 -16743951.94 0.0508 0.0040  
 Mercury -50553-06-19 18:57 J -16742889.84 -16742889.71 -16742889.58 0.0539 0.0114  
 Mercury -50553-09-17 05:30 J -16742800.30 -16742800.27 -16742800.25 0.0539 0.0525

Venus -50550-06-01 23:16 J -16741812.60 -16741812.53 -16741812.44 0.0515 0.0472  
 Mercury -50547-05-06 02:37 J -16740743.55 -16740743.39 -16740743.22 0.0488 0.0111  
 Earth -50546-03-06 08:37 J -16740439.29 -16740439.14 -16740438.98 0.0489 0.0363  
 Moon -50546-03-06 11:59 J -16740439.16 -16740439.00 -16740438.84 0.0489 0.0349 \*  
 Venus -50544-03-28 00:42 J -16739686.61 -16739686.47 -16739686.32 0.0505 0.0360  
 Mercury -50541-04-07 20:37 J -16738579.75 -16738579.64 -16738579.52 0.0538 0.0295  
 Mercury -50541-07-06 07:40 J -16738490.28 -16738490.18 -16738490.08 0.0539 0.0352  
 Venus -50538-02-04 22:47 J -16737546.74 -16737546.55 -16737546.36 0.0518 0.0155  
 Mercury -50535-02-22 02:23 J -16736433.54 -16736433.40 -16736433.25 0.0489 0.0265  
 Mercury -50535-05-23 02:09 J -16736343.52 -16736343.41 -16736343.29 0.0488 0.0366  
 Mars -50533-11-20 18:57 J -16735430.96 -16735430.71 -16735430.47 0.0503 0.0292  
 Venus -50532-07-26 07:11 J -16735183.28 -16735183.20 -16735183.11 0.0511 0.0469  
 Mercury -50529-01-25 23:16 J -16734269.60 -16734269.53 -16734269.46 0.0538 0.0461  
 Mercury -50529-04-24 10:33 J -16734180.18 -16734180.06 -16734179.93 0.0539 0.0192  
 Moon -50529-08-30 19:11 J -16734051.87 -16734051.70 -16734051.52 0.0539 0.0342  
 Earth -50529-08-30 21:35 J -16734051.76 -16734051.60 -16734051.42 0.0539 0.0365 \*  
 Venus -50527-10-10 23:16 J -16733280.71 -16733280.53 -16733280.34 0.0521 0.0162  
 Mercury -50524-12-11 01:40 J -16732123.50 -16732123.43 -16732123.34 0.0488 0.0424  
 Mercury -50523-03-11 00:57 J -16732033.62 -16732033.46 -16732033.30 0.0488 0.0198  
 Venus -50520-03-30 21:06 J -16730917.82 -16730917.62 -16730917.42 0.0509 0.0136  
 Mercury -50517-02-11 13:54 J -16729870.06 -16729869.92 -16729869.79 0.0539 0.0039  
 Earth -50517-09-05 04:18 J -16729663.53 -16729663.32 -16729663.10 0.0539 0.0180  
 Moon -50517-09-05 08:09 J -16729663.37 -16729663.16 -16729662.94 0.0539 0.0197 \*  
 Venus -50515-06-15 23:45 J -16729014.58 -16729014.51 -16729014.43 0.0523 0.0480  
 Mercury -50512-12-28 00:28 J -16727723.65 -16727723.48 -16727723.30 0.0488 0.0043  
 Venus -50509-12-03 13:40 J -16726652.13 -16726651.93 -16726651.74 0.0507 0.0184  
 Mercury -50506-11-30 17:01 J -16725559.92 -16725559.79 -16725559.66 0.0539 0.0119  
 Mercury -50505-02-28 03:35 J -16725470.38 -16725470.35 -16725470.32 0.0539 0.0522  
 Venus -50503-10-13 10:33 J -16724512.21 -16724512.06 -16724511.91 0.0516 0.0338  
 Mercury -50500-10-15 23:59 J -16723413.66 -16723413.50 -16723413.33 0.0488 0.0117

Venus -50497-08-08 07:11 J -16722386.23 -16722386.20 -16722386.17 0.0505 0.0497  
 Mars -50497-08-28 08:37 J -16722366.36 -16722366.14 -16722365.91 0.0505 0.0330  
 Mercury -50494-09-18 19:40 J -16721249.79 -16721249.68 -16721249.57 0.0539 0.0284  
 Mercury -50494-12-17 06:42 J -16721160.32 -16721160.22 -16721160.13 0.0539 0.0363  
 Venus -50491-06-18 10:33 J -16720246.26 -16720246.06 -16720245.87 0.0519 0.0023  
 Mercury -50488-08-03 23:59 J -16719103.64 -16719103.50 -16719103.36 0.0489 0.0269  
 Mercury -50488-11-01 23:45 J -16719013.63 -16719013.51 -16719013.39 0.0488 0.0361  
 Moon -50487-02-24 17:45 J -16718898.82 -16718898.76 -16718898.70 0.0488 0.0470  
 Earth -50487-02-24 21:35 J -16718898.65 -16718898.60 -16718898.55 0.0488 0.0476  
 Venus -50485-12-06 13:54 J -16717883.08 -16717882.92 -16717882.76 0.0510 0.0328  
 Mercury -50482-07-07 21:35 J -16716939.67 -16716939.60 -16716939.54 0.0538 0.0463  
 Mercury -50482-10-05 08:52 J -16716850.26 -16716850.13 -16716850.01 0.0539 0.0190  
 Venus -50479-02-21 08:23 J -16715980.31 -16715980.15 -16715979.99 0.0522 0.0307  
 Mercury -50476-05-22 23:59 J -16714793.58 -16714793.50 -16714793.42 0.0489 0.0421  
 Mercury -50476-08-20 23:16 J -16714703.69 -16714703.53 -16714703.38 0.0488 0.0203  
 Earth -50475-03-01 04:47 J -16714511.53 -16714511.30 -16714511.07 0.0488 0.0091  
 Moon -50475-03-01 07:54 J -16714511.39 -16714511.17 -16714510.94 0.0488 0.0118 \*  
 Venus -50473-08-11 04:47 J -16713617.51 -16713617.30 -16713617.09 0.0508 0.0004  
 Mercury -50470-07-24 11:30 J -16712540.15 -16712540.02 -16712539.88 0.0539 0.0027  
 Mars -50468-11-08 00:13 J -16711702.74 -16711702.49 -16711702.24 0.0524 0.0032  
 Venus -50467-06-20 18:57 J -16711477.74 -16711477.71 -16711477.68 0.0515 0.0507  
 Mercury -50464-06-08 22:04 J -16710393.75 -16710393.58 -16710393.41 0.0488 0.0038  
 Moon -50463-03-05 06:57 J -16710124.40 -16710124.21 -16710124.00 0.0488 0.0276  
 Earth -50463-03-05 09:21 J -16710124.30 -16710124.11 -16710123.92 0.0488 0.0288 \*  
 Venus -50461-04-15 19:11 J -16709351.86 -16709351.70 -16709351.54 0.0506 0.0326  
 Mercury -50458-05-12 14:37 J -16708230.02 -16708229.89 -16708229.76 0.0539 0.0132  
 Mercury -50458-08-10 01:11 J -16708140.48 -16708140.45 -16708140.40 0.0540 0.0511  
 Venus -50455-02-23 21:06 J -16707211.80 -16707211.62 -16707211.44 0.0518 0.0203  
 Mercury -50452-03-27 21:49 J -16706083.75 -16706083.59 -16706083.42 0.0488 0.0117  
 Venus -50449-08-14 03:35 J -16704848.37 -16704848.35 -16704848.33 0.0512 0.0509

Mercury -50446-02-28 17:45 J -16703919.88 -16703919.76 -16703919.65 0.0539 0.0289  
 Mercury -50446-05-29 04:47 J -16703830.40 -16703830.30 -16703830.21 0.0539 0.0360  
 Earth -50446-08-30 23:30 J -16703736.65 -16703736.52 -16703736.39 0.0539 0.0445  
 Moon -50446-08-31 03:06 J -16703736.51 -16703736.37 -16703736.22 0.0539 0.0413 \*  
 Venus -50444-10-29 21:06 J -16702945.81 -16702945.62 -16702945.42 0.0520 0.0116  
 Mercury -50440-01-13 21:35 J -16701773.74 -16701773.60 -16701773.46 0.0488 0.0274  
 Mercury -50440-04-13 21:06 J -16701683.74 -16701683.62 -16701683.50 0.0488 0.0355  
 Venus -50437-04-18 19:40 J -16700582.88 -16700582.68 -16700582.48 0.0510 0.0185  
 Mercury -50435-12-17 20:23 J -16699609.72 -16699609.65 -16699609.58 0.0539 0.0454  
 Mercury -50434-03-17 07:40 J -16699520.30 -16699520.18 -16699520.06 0.0539 0.0200  
 Moon -50434-09-04 23:45 J -16699348.74 -16699348.51 -16699348.28 0.0539 0.0098  
 Earth -50434-09-05 03:21 J -16699348.58 -16699348.36 -16699348.13 0.0539 0.0086 \*  
 Venus -50432-07-04 19:54 J -16698679.77 -16698679.67 -16698679.56 0.0522 0.0441  
 Mars -50432-08-12 09:06 J -16698641.19 -16698641.12 -16698641.03 0.0521 0.0492  
 Mercury -50429-11-01 21:35 J -16697463.68 -16697463.60 -16697463.52 0.0489 0.0424  
 Mercury -50428-01-30 20:37 J -16697373.79 -16697373.64 -16697373.48 0.0488 0.0199  
 Venus -50426-12-23 11:59 J -16696317.21 -16696317.00 -16696316.80 0.0507 0.0137  
 Mercury -50422-01-03 09:49 J -16695210.22 -16695210.09 -16695209.95 0.0539 0.0028  
 Venus -50420-11-01 05:01 J -16694177.42 -16694177.29 -16694177.15 0.0517 0.0370  
 Mercury -50417-11-18 20:23 J -16693063.83 -16693063.65 -16693063.48 0.0488 0.0043  
 Venus -50414-08-28 04:04 J -16692051.41 -16692051.33 -16692051.23 0.0504 0.0454  
 Mercury -50411-10-22 12:28 J -16690900.11 -16690899.98 -16690899.85 0.0539 0.0140  
 Mercury -50410-01-19 23:01 J -16690810.58 -16690810.54 -16690810.49 0.0539 0.0502  
 Venus -50408-07-07 05:59 J -16689911.44 -16689911.25 -16689911.05 0.0519 0.0060  
 Mercury -50405-09-06 19:25 J -16688753.85 -16688753.69 -16688753.52 0.0488 0.0120  
 Venus -50402-12-26 08:09 J -16687548.30 -16687548.16 -16687548.00 0.0511 0.0362  
 Mercury -50399-08-10 15:21 J -16686589.97 -16686589.86 -16686589.75 0.0539 0.0301  
 Mercury -50399-11-08 02:23 J -16686500.50 -16686500.40 -16686500.30 0.0540 0.0349  
 Venus -50396-03-12 07:25 J -16685645.36 -16685645.19 -16685645.02 0.0521 0.0255  
 Mercury -50393-06-25 19:25 J -16684443.83 -16684443.69 -16684443.55 0.0488 0.0272

Mercury -50393-09-23 18:57 J -16684353.83 -16684353.71 -16684353.59 0.0488 0.0356

Moon -50392-02-28 04:18 J -16684196.54 -16684196.32 -16684196.10 0.0488 0.0191

Earth -50392-02-28 06:28 J -16684196.45 -16684196.23 -16684196.00 0.0488 0.0162 \*

Venus -50390-08-31 00:42 J -16683282.68 -16683282.47 -16683282.26 0.0508 0.0039

Mercury -50387-05-29 18:28 J -16682279.80 -16682279.73 -16682279.66 0.0539 0.0459

Mercury -50387-08-27 05:45 J -16682190.38 -16682190.26 -16682190.13 0.0539 0.0197

Mercury -50381-04-13 19:11 J -16680133.78 -16680133.70 -16680133.62 0.0489 0.0426

Mercury -50381-07-12 18:13 J -16680043.89 -16680043.74 -16680043.58 0.0488 0.0196

Earth -50380-03-04 13:40 J -16679809.13 -16679808.93 -16679808.72 0.0488 0.0226

Moon -50380-03-04 14:37 J -16679809.09 -16679808.89 -16679808.69 0.0488 0.0222 \*

Mars -50378-02-14 00:42 J -16679097.76 -16679097.47 -16679097.18 0.0503 0.0140

Venus -50378-05-05 17:59 J -16679016.92 -16679016.75 -16679016.57 0.0506 0.0277

Mercury -50375-06-15 08:52 J -16677880.27 -16677880.13 -16677880.00 0.0539 0.0039

Venus -50372-03-14 17:59 J -16676876.92 -16676876.75 -16676876.58 0.0517 0.0242

Mercury -50369-04-30 17:59 J -16675733.92 -16675733.75 -16675733.57 0.0488 0.0042

Mercury -50363-04-03 11:01 J -16673570.17 -16673570.04 -16673569.91 0.0539 0.0136

Mercury -50363-07-01 21:35 J -16673480.64 -16673480.60 -16673480.55 0.0539 0.0505

Moon -50363-08-29 14:37 J -16673421.93 -16673421.89 -16673421.84 0.0539 0.0527

Venus -50361-11-17 16:18 J -16672611.01 -16672610.82 -16672610.62 0.0520 0.0081

Mercury -50357-02-17 17:45 J -16671423.92 -16671423.76 -16671423.59 0.0489 0.0115

Venus -50354-05-08 17:16 J -16670247.97 -16670247.78 -16670247.59 0.0509 0.0229

Mercury -50351-01-20 13:40 J -16669260.04 -16669259.93 -16669259.82 0.0538 0.0303

Mercury -50351-04-20 00:42 J -16669170.57 -16669170.47 -16669170.37 0.0539 0.0345

Earth -50351-09-03 21:49 J -16669033.82 -16669033.59 -16669033.36 0.0539 0.0030

Moon -50351-09-04 00:57 J -16669033.68 -16669033.46 -16669033.23 0.0539 0.0017 \*

Mars -50349-04-29 04:47 J -16668430.44 -16668430.30 -16668430.14 0.0526 0.0425

Venus -50349-07-23 16:18 J -16668344.95 -16668344.82 -16668344.70 0.0523 0.0400

Mercury -50346-12-06 17:16 J -16667113.92 -16667113.78 -16667113.64 0.0488 0.0272

Mercury -50345-03-05 16:47 J -16667023.92 -16667023.80 -16667023.68 0.0488 0.0355

Mars -50343-11-21 08:52 J -16666033.23 -16666033.13 -16666033.02 0.0505 0.0472

Venus -50342-01-11 06:42 J -16665982.43 -16665982.22 -16665982.02 0.0507 0.0103  
 Mercury -50340-11-08 16:04 J -16664949.89 -16664949.83 -16664949.76 0.0539 0.0469  
 Mercury -50339-02-06 03:35 J -16664860.47 -16664860.35 -16664860.22 0.0540 0.0189  
 Moon -50339-09-09 01:40 J -16664645.52 -16664645.43 -16664645.31 0.0539 0.0481  
 Earth -50339-09-09 03:21 J -16664645.43 -16664645.36 -16664645.29 0.0539 0.0512 \*  
 Venus -50337-11-20 04:47 J -16663842.41 -16663842.30 -16663842.19 0.0516 0.0421  
 Mercury -50334-09-24 17:30 J -16662803.85 -16662803.77 -16662803.69 0.0488 0.0421  
 Mercury -50334-12-23 16:18 J -16662713.97 -16662713.82 -16662713.66 0.0488 0.0200  
 Venus -50331-09-15 23:59 J -16661716.61 -16661716.50 -16661716.37 0.0505 0.0415  
 Mercury -50328-11-25 06:57 J -16660550.34 -16660550.21 -16660550.07 0.0539 0.0036  
 Venus -50325-07-26 05:45 J -16659576.45 -16659576.26 -16659576.07 0.0518 0.0110  
 Mercury -50322-10-11 16:04 J -16658404.01 -16658403.83 -16658403.66 0.0488 0.0043  
 Venus -50318-01-14 08:23 J -16657213.27 -16657213.15 -16657213.03 0.0511 0.0414  
 Mercury -50316-09-13 10:04 J -16656240.21 -16656240.08 -16656239.95 0.0539 0.0125  
 Mercury -50316-12-11 20:37 J -16656150.67 -16656150.64 -16656150.60 0.0539 0.0518  
 Mars -50313-02-01 21:21 J -16655368.85 -16655368.61 -16655368.36 0.0523 0.0126  
 Venus -50313-03-31 05:30 J -16655310.45 -16655310.27 -16655310.09 0.0521 0.0209  
 Mercury -50310-07-30 15:49 J -16654094.01 -16654093.84 -16654093.67 0.0488 0.0112  
 Earth -50309-02-28 12:42 J -16653881.18 -16653880.97 -16653880.76 0.0488 0.0216  
 Moon -50309-02-28 13:25 J -16653881.14 -16653880.94 -16653880.74 0.0488 0.0246 \*  
 Venus -50307-09-19 00:57 J -16652947.67 -16652947.46 -16652947.26 0.0508 0.0094  
 Mercury -50304-07-02 12:13 J -16651930.10 -16651929.99 -16651929.87 0.0538 0.0296  
 Mercury -50304-09-29 23:16 J -16651840.63 -16651840.53 -16651840.43 0.0539 0.0352  
 Mercury -50298-05-18 15:35 J -16649783.99 -16649783.85 -16649783.70 0.0489 0.0266  
 Mercury -50298-08-16 15:06 J -16649693.98 -16649693.87 -16649693.75 0.0488 0.0364  
 Earth -50297-03-03 20:37 J -16649493.86 -16649493.64 -16649493.42 0.0488 0.0174  
 Moon -50297-03-03 21:06 J -16649493.85 -16649493.62 -16649493.39 0.0488 0.0172 \*  
 Venus -50295-05-24 16:47 J -16648681.99 -16648681.80 -16648681.61 0.0506 0.0227  
 Mercury -50292-04-20 14:37 J -16647619.95 -16647619.89 -16647619.82 0.0538 0.0465  
 Mercury -50292-07-19 02:09 J -16647530.53 -16647530.41 -16647530.28 0.0539 0.0190

Venus -50289-04-02 15:06 J -16646542.03 -16646541.87 -16646541.71 0.0517 0.0285  
 Mercury -50286-03-06 15:21 J -16645473.94 -16645473.86 -16645473.77 0.0488 0.0419  
 Mercury -50286-06-04 14:23 J -16645384.05 -16645383.90 -16645383.74 0.0488 0.0202  
 Mercury -50280-05-07 05:01 J -16643220.43 -16643220.29 -16643220.16 0.0540 0.0030  
 Venus -50278-12-07 17:01 J -16642275.99 -16642275.79 -16642275.59 0.0520 0.0024  
 Mercury -50274-03-23 14:23 J -16641074.07 -16641073.90 -16641073.73 0.0488 0.0049  
 Venus -50271-05-27 13:54 J -16639913.09 -16639912.92 -16639912.74 0.0510 0.0270  
 Mercury -50268-02-23 08:09 J -16638910.29 -16638910.16 -16638910.02 0.0539 0.0126  
 Mercury -50268-05-23 18:57 J -16638820.74 -16638820.71 -16638820.67 0.0540 0.0520  
 Moon -50268-09-03 00:28 J -16638718.71 -16638718.48 -16638718.24 0.0540 0.0086  
 Earth -50268-09-03 02:37 J -16638718.62 -16638718.39 -16638718.16 0.0540 0.0095 \*  
 Venus -50266-08-12 17:16 J -16638009.93 -16638009.78 -16638009.63 0.0522 0.0342  
 Mercury -50262-01-09 13:54 J -16636764.08 -16636763.92 -16636763.75 0.0488 0.0108  
 Venus -50259-01-30 07:11 J -16635647.41 -16635647.20 -16635646.99 0.0508 0.0048  
 Mercury -50257-12-12 11:16 J -16634600.15 -16634600.03 -16634599.92 0.0539 0.0284  
 Mercury -50256-03-11 22:18 J -16634510.66 -16634510.57 -16634510.47 0.0540 0.0366  
 Moon -50256-09-08 07:25 J -16634330.33 -16634330.19 -16634330.05 0.0539 0.0415  
 Earth -50256-09-08 07:54 J -16634330.29 -16634330.17 -16634330.03 0.0539 0.0444 \*  
 Venus -50254-12-10 03:49 J -16633507.42 -16633507.34 -16633507.26 0.0516 0.0468  
 Mercury -50251-10-28 14:09 J -16632454.06 -16632453.91 -16632453.77 0.0488 0.0259  
 Mercury -50250-01-26 13:25 J -16632364.05 -16632363.94 -16632363.82 0.0488 0.0370  
 Venus -50248-10-05 01:11 J -16631381.60 -16631381.45 -16631381.30 0.0505 0.0358  
 Mercury -50245-09-30 13:40 J -16630290.00 -16630289.93 -16630289.86 0.0538 0.0453  
 Mercury -50245-12-29 00:57 J -16630200.58 -16630200.46 -16630200.33 0.0539 0.0202  
 Venus -50242-08-15 02:52 J -16629241.56 -16629241.38 -16629241.19 0.0518 0.0155  
 Mercury -50239-08-16 14:09 J -16628144.00 -16628143.91 -16628143.82 0.0489 0.0410  
 Mercury -50239-11-14 13:11 J -16628054.11 -16628053.95 -16628053.80 0.0488 0.0213  
 Venus -50235-02-02 08:09 J -16626878.24 -16626878.16 -16626878.07 0.0511 0.0467  
 Mercury -50233-10-17 03:49 J -16625890.47 -16625890.34 -16625890.21 0.0539 0.0038  
 Venus -50230-04-20 03:21 J -16624975.54 -16624975.36 -16624975.17 0.0521 0.0162

Mercury -50227-09-02 12:42 J -16623744.14 -16623743.97 -16623743.80 0.0488 0.0056

Earth -50226-02-27 18:42 J -16623565.91 -16623565.72 -16623565.52 0.0488 0.0268

Moon -50226-02-27 19:40 J -16623565.87 -16623565.68 -16623565.49 0.0488 0.0295 \*

Mars -50224-05-09 13:25 J -16622764.24 -16622763.94 -16622763.64 0.0503 0.0030

Venus -50224-10-07 21:06 J -16622612.83 -16622612.62 -16622612.42 0.0508 0.0131

Mercury -50221-08-05 06:28 J -16621580.36 -16621580.23 -16621580.10 0.0540 0.0128

Mercury -50221-11-02 17:16 J -16621490.81 -16621490.78 -16621490.74 0.0540 0.0517

Venus -50219-12-24 04:04 J -16620709.40 -16620709.33 -16620709.25 0.0524 0.0479

Mercury -50215-06-21 12:42 J -16619434.13 -16619433.97 -16619433.80 0.0488 0.0096

Moon -50214-03-04 00:57 J -16619178.67 -16619178.46 -16619178.23 0.0488 0.0128

Earth -50214-03-04 03:21 J -16619178.59 -16619178.36 -16619178.14 0.0488 0.0124 \*

Venus -50212-06-12 13:54 J -16618347.11 -16618346.92 -16618346.72 0.0506 0.0186

Mercury -50209-05-24 09:35 J -16617270.21 -16617270.10 -16617269.98 0.0539 0.0283

Mercury -50209-08-21 20:37 J -16617180.73 -16617180.64 -16617180.54 0.0540 0.0369

Venus -50206-04-22 16:47 J -16616206.95 -16616206.80 -16616206.65 0.0517 0.0343

Mercury -50203-04-09 12:42 J -16615124.12 -16615123.97 -16615123.83 0.0488 0.0249

Mercury -50203-07-08 11:59 J -16615034.11 -16615034.00 -16615033.89 0.0488 0.0378

Venus -50200-02-15 08:37 J -16614081.18 -16614081.14 -16614081.10 0.0504 0.0491

Mercury -50197-03-12 12:28 J -16612960.05 -16612959.98 -16612959.90 0.0539 0.0442

Mercury -50197-06-10 00:13 J -16612870.62 -16612870.49 -16612870.37 0.0540 0.0216

Mars -50195-07-24 15:21 J -16612096.08 -16612095.86 -16612095.63 0.0525 0.0231

Venus -50195-12-26 17:16 J -16611940.97 -16611940.78 -16611940.58 0.0519 0.0032

Mercury -50191-01-26 12:42 J -16610814.06 -16610813.97 -16610813.87 0.0488 0.0399

Mercury -50191-04-26 11:45 J -16610724.17 -16610724.01 -16610723.86 0.0488 0.0222

Venus -50188-06-15 16:18 J -16609577.98 -16609577.82 -16609577.66 0.0510 0.0332

Mercury -50185-03-29 02:52 J -16608560.51 -16608560.38 -16608560.25 0.0539 0.0051

Earth -50185-09-02 05:01 J -16608403.51 -16608403.29 -16608403.07 0.0539 0.0174

Moon -50185-09-02 05:16 J -16608403.49 -16608403.28 -16608403.07 0.0539 0.0172 \*

Venus -50183-08-31 15:35 J -16607675.01 -16607674.85 -16607674.68 0.0522 0.0294

Mercury -50179-02-12 11:30 J -16606414.19 -16606414.02 -16606413.85 0.0488 0.0068



Venus -50176-02-18 08:23 J -16605312.36 -16605312.15 -16605311.94 0.0508 0.0013  
 Mercury -50173-01-16 05:30 J -16604250.40 -16604250.27 -16604250.14 0.0539 0.0113  
 Mercury -50173-04-14 16:18 J -16604160.84 -16604160.82 -16604160.80 0.0539 0.0529  
 Earth -50173-09-07 08:37 J -16604015.31 -16604015.14 -16604014.97 0.0539 0.0358  
 Moon -50173-09-07 11:01 J -16604015.23 -16604015.04 -16604014.85 0.0539 0.0327 \*  
 Mercury -50168-12-01 11:16 J -16602104.20 -16602104.03 -16602103.86 0.0488 0.0086  
 Venus -50165-10-23 22:18 J -16601046.73 -16601046.57 -16601046.40 0.0505 0.0317  
 Mercury -50162-11-04 07:54 J -16599940.29 -16599940.17 -16599940.06 0.0539 0.0284  
 Mercury -50161-02-01 18:57 J -16599850.80 -16599850.71 -16599850.61 0.0540 0.0369  
 Mars -50159-04-28 02:52 J -16599034.58 -16599034.38 -16599034.17 0.0523 0.0304  
 Venus -50159-09-03 05:16 J -16598906.46 -16598906.28 -16598906.10 0.0519 0.0215  
 Mercury -50156-09-19 11:30 J -16597794.16 -16597794.02 -16597793.87 0.0488 0.0234  
 Mercury -50156-12-18 10:47 J -16597704.14 -16597704.05 -16597703.94 0.0488 0.0394  
 Mercury -50150-08-23 11:01 J -16595630.12 -16595630.04 -16595629.96 0.0539 0.0440  
 Mercury -50150-11-20 22:33 J -16595540.68 -16595540.56 -16595540.44 0.0540 0.0218  
 Venus -50147-05-09 06:13 J -16594640.44 -16594640.24 -16594640.05 0.0521 0.0099  
 Mercury -50144-07-08 11:30 J -16593484.12 -16593484.02 -16593483.91 0.0488 0.0386  
 Mercury -50144-10-06 10:18 J -16593394.22 -16593394.07 -16593393.91 0.0488 0.0235  
 Moon -50143-02-27 02:37 J -16593250.55 -16593250.39 -16593250.22 0.0488 0.0335  
 Earth -50143-02-27 05:01 J -16593250.47 -16593250.29 -16593250.11 0.0488 0.0308 \*  
 Venus -50141-10-26 23:16 J -16592277.72 -16592277.53 -16592277.33 0.0509 0.0192  
 Mercury -50138-09-09 01:54 J -16591230.55 -16591230.42 -16591230.29 0.0540 0.0065  
 Venus -50135-01-12 05:45 J -16590374.38 -16590374.26 -16590374.14 0.0523 0.0418  
 Mercury -50132-07-25 10:18 J -16589084.24 -16589084.07 -16589083.90 0.0488 0.0080  
 Earth -50131-03-03 12:57 J -16588863.19 -16588862.96 -16588862.72 0.0488 0.0084  
 Moon -50131-03-03 16:33 J -16588863.04 -16588862.81 -16588862.57 0.0488 0.0100 \*  
 Venus -50129-07-01 17:01 J -16588012.00 -16588011.79 -16588011.59 0.0507 0.0121  
 Mercury -50126-06-28 04:33 J -16586920.44 -16586920.31 -16586920.17 0.0539 0.0100  
 Venus -50123-05-11 15:49 J -16585871.96 -16585871.84 -16585871.71 0.0517 0.0393  
 Mercury -50120-05-13 10:04 J -16584774.25 -16584774.08 -16584773.91 0.0488 0.0074

Earth -50119-03-07 21:21 J -16584475.65 -16584475.61 -16584475.56 0.0488 0.0478  
 Venus -50117-03-06 10:33 J -16583746.17 -16583746.06 -16583745.96 0.0504 0.0432  
 Mercury -50114-04-16 07:11 J -16582610.31 -16582610.20 -16582610.08 0.0539 0.0265  
 Mercury -50114-07-14 18:28 J -16582520.82 -16582520.73 -16582520.64 0.0539 0.0385  
 Venus -50111-01-14 17:01 J -16581605.99 -16581605.79 -16581605.60 0.0519 0.0085  
 Mercury -50108-03-01 10:18 J -16580464.22 -16580464.07 -16580463.92 0.0488 0.0222  
 Mercury -50108-05-30 09:35 J -16580374.19 -16580374.10 -16580374.00 0.0488 0.0405  
 Mars -50106-10-27 10:33 J -16579494.26 -16579494.06 -16579493.86 0.0501 0.0368  
 Venus -50105-07-04 14:09 J -16579243.05 -16579242.91 -16579242.77 0.0510 0.0375  
 Mercury -50102-02-02 09:21 J -16578300.19 -16578300.11 -16578300.03 0.0539 0.0439  
 Mercury -50102-05-02 20:52 J -16578210.75 -16578210.63 -16578210.50 0.0540 0.0221  
 Earth -50102-09-02 07:11 J -16578088.41 -16578088.20 -16578088.00 0.0540 0.0252  
 Moon -50102-09-02 08:52 J -16578088.34 -16578088.13 -16578087.92 0.0540 0.0259 \*  
 Venus -50100-09-19 17:59 J -16577339.92 -16577339.75 -16577339.57 0.0522 0.0232  
 Mercury -50097-12-18 10:47 J -16576154.16 -16576154.05 -16576153.94 0.0488 0.0368  
 Mercury -50096-03-18 09:35 J -16576064.25 -16576064.10 -16576063.95 0.0488 0.0253  
 Venus -50093-03-09 06:57 J -16574977.42 -16574977.21 -16574977.00 0.0508 0.0056  
 Mercury -50090-02-19 00:13 J -16573900.62 -16573900.49 -16573900.35 0.0540 0.0070  
 Moon -50090-09-07 11:16 J -16573700.22 -16573700.03 -16573699.83 0.0540 0.0268  
 Earth -50090-09-07 14:52 J -16573700.06 -16573699.88 -16573699.68 0.0540 0.0302 \*  
 Mercury -50084-01-04 09:06 J -16571754.28 -16571754.12 -16571753.95 0.0488 0.0096  
 Venus -50082-11-13 00:42 J -16570711.64 -16570711.47 -16570711.28 0.0505 0.0256  
 Mercury -50079-12-08 03:35 J -16569590.48 -16569590.35 -16569590.21 0.0540 0.0087  
 Venus -50076-09-22 06:57 J -16568571.37 -16568571.21 -16568571.04 0.0518 0.0274  
 Mercury -50073-10-23 09:06 J -16567444.29 -16567444.12 -16567443.95 0.0488 0.0059  
 Mars -50070-08-04 10:33 J -16566429.31 -16566429.06 -16566428.80 0.0504 0.0268  
 Mercury -50067-09-26 06:28 J -16565280.35 -16565280.23 -16565280.11 0.0539 0.0248  
 Mercury -50067-12-24 17:30 J -16565190.85 -16565190.77 -16565190.68 0.0540 0.0402  
 Venus -50064-05-28 05:59 J -16564305.44 -16564305.25 -16564305.05 0.0520 0.0045  
 Mercury -50061-08-11 09:06 J -16563134.27 -16563134.12 -16563133.96 0.0488 0.0210

Mercury -50061-11-09 08:37 J -16563044.23 -16563044.14 -16563044.06 0.0488 0.0419  
 Earth -50060-02-26 16:18 J -16562934.99 -16562934.82 -16562934.65 0.0488 0.0343  
 Moon -50060-02-26 19:40 J -16562934.83 -16562934.68 -16562934.51 0.0488 0.0360 \*  
 Venus -50058-11-16 01:40 J -16561942.60 -16561942.43 -16561942.24 0.0509 0.0255  
 Mercury -50055-07-15 08:52 J -16560970.21 -16560970.13 -16560970.04 0.0539 0.0416  
 Mercury -50055-10-12 20:23 J -16560880.77 -16560880.65 -16560880.53 0.0539 0.0241  
 Venus -50052-01-31 05:45 J -16560039.40 -16560039.26 -16560039.12 0.0523 0.0363  
 Mercury -50049-05-30 09:35 J -16558824.22 -16558824.10 -16558823.99 0.0488 0.0356  
 Mercury -50049-08-28 08:23 J -16558734.29 -16558734.15 -16558734.01 0.0488 0.0265  
 Moon -50048-03-02 20:09 J -16558547.90 -16558547.66 -16558547.43 0.0488 0.0071  
 Earth -50048-03-02 23:59 J -16558547.74 -16558547.50 -16558547.27 0.0488 0.0051 \*  
 Venus -50046-07-21 15:49 J -16557677.05 -16557676.84 -16557676.64 0.0506 0.0076  
 Mercury -50043-07-31 22:47 J -16556570.68 -16556570.55 -16556570.42 0.0540 0.0071  
 Mars -50041-10-18 01:54 J -16555761.67 -16555761.42 -16555761.17 0.0526 0.0034  
 Venus -50040-05-30 18:28 J -16555536.82 -16555536.73 -16555536.64 0.0517 0.0453  
 Mercury -50037-06-16 08:23 J -16554424.31 -16554424.15 -16554423.98 0.0488 0.0116  
 Earth -50036-03-07 08:23 J -16554160.24 -16554160.15 -16554160.05 0.0488 0.0445  
 Moon -50036-03-07 11:45 J -16554160.06 -16554160.01 -16554159.95 0.0488 0.0472 \*  
 Venus -50034-03-26 09:35 J -16553411.23 -16553411.10 -16553410.96 0.0504 0.0384  
 Mercury -50031-05-20 02:09 J -16552260.55 -16552260.41 -16552260.28 0.0540 0.0086  
 Venus -50028-02-02 19:54 J -16551270.85 -16551270.67 -16551270.48 0.0519 0.0147  
 Mercury -50025-04-04 08:09 J -16550114.33 -16550114.16 -16550113.99 0.0488 0.0043  
 Venus -50022-07-24 17:16 J -16548907.89 -16548907.78 -16548907.68 0.0511 0.0438  
 Mercury -50019-03-08 05:16 J -16547950.40 -16547950.28 -16547950.16 0.0540 0.0238  
 Mercury -50019-06-05 16:33 J -16547860.89 -16547860.81 -16547860.73 0.0540 0.0413  
 Moon -50019-09-01 13:40 J -16547773.10 -16547772.93 -16547772.74 0.0540 0.0320  
 Earth -50019-09-01 17:01 J -16547772.97 -16547772.79 -16547772.59 0.0540 0.0300 \*  
 Venus -50017-10-08 20:37 J -16547004.83 -16547004.64 -16547004.46 0.0522 0.0168  
 Mercury -50013-01-22 08:23 J -16545804.31 -16545804.15 -16545804.00 0.0488 0.0193  
 Mercury -50013-04-21 07:40 J -16545714.26 -16545714.18 -16545714.11 0.0488 0.0435

Venus -50010-03-29 10:33 J -16544642.26 -16544642.06 -16544641.86 0.0508 0.0122

Mercury -50008-12-25 08:09 J -16543640.25 -16543640.16 -16543640.07 0.0539 0.0401

Mercury -50007-03-24 19:40 J -16543550.80 -16543550.68 -16543550.57 0.0540 0.0256

Earth -50007-09-06 21:49 J -16543384.80 -16543384.59 -16543384.38 0.0539 0.0242

Moon -50007-09-07 01:54 J -16543384.63 -16543384.42 -16543384.21 0.0539 0.0211 \*

Venus -50005-06-13 18:28 J -16542738.79 -16542738.73 -16542738.67 0.0524 0.0493

Mars -50005-07-22 16:04 J -16542699.90 -16542699.83 -16542699.75 0.0523 0.0498

Mercury -50002-11-10 08:23 J -16541494.27 -16541494.15 -16541494.03 0.0488 0.0344

Mercury -50001-02-08 07:11 J -16541404.34 -16541404.20 -16541404.06 0.0488 0.0278

# 50TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 50th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Venus	-49999-12-02 03:35 J	-16540376.55	-16540376.35	-16540376.16	0.0506	0.0193		
Mercury	-49995-01-10 22:18 J	-16539240.70	-16539240.57	-16539240.43	0.0539	0.0095		
Venus	-49993-10-11 07:11 J	-16538236.35	-16538236.20	-16538236.05	0.0518	0.0327		
Mercury	-49990-08-29 08:52 J	-16537184.13	-16537184.13	-16537184.12	0.0488	0.0488		
Mercury	-49990-11-27 07:25 J	-16537094.36	-16537094.19	-16537094.03	0.0488	0.0128		
Mercury	-49984-10-30 00:28 J	-16534930.61	-16534930.48	-16534930.34	0.0540	0.0082		
Venus	-49981-06-16 07:54 J	-16533970.36	-16533970.17	-16533969.97	0.0521	0.0018		
Mercury	-49978-09-15 07:40 J	-16532784.35	-16532784.18	-16532784.01	0.0488	0.0024		
Moon	-49977-02-27 00:57 J	-16532619.59	-16532619.46	-16532619.30	0.0487	0.0384		

Earth -49977-02-27 04:47 J -16532619.44 -16532619.30 -16532619.14 0.0487 0.0372 \*  
 Venus -49975-12-05 00:57 J -16531607.63 -16531607.46 -16531607.29 0.0509 0.0301  
 Mercury -49972-08-18 03:35 J -16530620.47 -16530620.35 -16530620.23 0.0540 0.0239  
 Mercury -49972-11-15 14:52 J -16530530.96 -16530530.88 -16530530.80 0.0540 0.0414  
 Venus -49969-02-20 08:23 J -16529704.30 -16529704.15 -16529703.98 0.0523 0.0301  
 Mercury -49966-07-04 07:25 J -16528474.35 -16528474.19 -16528474.04 0.0488 0.0178  
 Mercury -49966-10-02 06:28 J -16528384.29 -16528384.23 -16528384.16 0.0487 0.0450  
 Earth -49965-03-02 11:01 J -16528232.28 -16528232.04 -16528231.81 0.0487 0.0014  
 Moon -49965-03-02 13:54 J -16528232.14 -16528231.92 -16528231.69 0.0487 0.0042 \*  
 Venus -49963-08-09 17:59 J -16527341.96 -16527341.75 -16527341.54 0.0507 0.0017  
 Mercury -49960-06-06 06:42 J -16526310.31 -16526310.22 -16526310.12 0.0539 0.0394  
 Mercury -49960-09-03 18:28 J -16526220.85 -16526220.73 -16526220.62 0.0540 0.0265  
 Venus -49957-06-18 20:23 J -16525201.67 -16525201.65 -16525201.62 0.0516 0.0511  
 Mercury -49954-04-22 07:25 J -16524164.31 -16524164.19 -16524164.06 0.0488 0.0328  
 Mercury -49954-07-21 06:13 J -16524074.37 -16524074.24 -16524074.10 0.0488 0.0294  
 Moon -49953-03-06 16:33 J -16523844.92 -16523844.81 -16523844.68 0.0488 0.0427  
 Earth -49953-03-06 18:42 J -16523844.84 -16523844.72 -16523844.58 0.0488 0.0406 \*  
 Mars -49951-01-21 08:37 J -16523159.42 -16523159.14 -16523158.85 0.0502 0.0133  
 Venus -49951-04-14 12:28 J -16523076.14 -16523075.98 -16523075.82 0.0505 0.0321  
 Mercury -49948-06-22 21:21 J -16521910.74 -16521910.61 -16521910.47 0.0540 0.0108  
 Venus -49945-02-22 20:09 J -16520935.84 -16520935.66 -16520935.48 0.0519 0.0200  
 Mercury -49942-02-08 07:40 J -16519854.21 -16519854.18 -16519854.15 0.0489 0.0477  
 Mercury -49942-05-09 05:59 J -16519764.41 -16519764.25 -16519764.08 0.0488 0.0138  
 Venus -49939-08-12 19:40 J -16518572.71 -16518572.68 -16518572.63 0.0511 0.0500  
 Mercury -49936-04-11 00:13 J -16517600.63 -16517600.49 -16517600.36 0.0539 0.0059  
 Earth -49936-08-31 20:37 J -16517457.80 -16517457.64 -16517457.47 0.0540 0.0375  
 Moon -49936-09-01 00:42 J -16517457.63 -16517457.47 -16517457.31 0.0540 0.0395 \*  
 Venus -49934-10-28 20:23 J -16516669.85 -16516669.65 -16516669.46 0.0522 0.0115  
 Mercury -49930-02-25 06:13 J -16515454.41 -16515454.24 -16515454.07 0.0488 0.0011  
 Venus -49927-04-17 09:49 J -16514307.29 -16514307.09 -16514306.89 0.0508 0.0169

Mercury -49924-01-28 01:54 J -16513290.54 -16513290.42 -16513290.29 0.0539 0.0237

Mercury -49924-04-27 13:11 J -16513201.03 -16513200.95 -16513200.86 0.0540 0.0417

Moon -49924-09-05 17:45 J -16513069.99 -16513069.76 -16513069.53 0.0540 0.0119

Earth -49924-09-05 21:35 J -16513069.82 -16513069.60 -16513069.38 0.0540 0.0152 \*

Mars -49922-04-09 18:57 J -16512488.88 -16512488.71 -16512488.54 0.0528 0.0389

Venus -49922-07-03 19:11 J -16512403.80 -16512403.70 -16512403.59 0.0525 0.0439

Mercury -49919-12-14 06:28 J -16511144.39 -16511144.23 -16511144.06 0.0488 0.0160

Mercury -49918-03-14 05:45 J -16511054.30 -16511054.26 -16511054.21 0.0487 0.0469

Mars -49916-10-28 18:57 J -16510094.77 -16510094.71 -16510094.62 0.0503 0.0485

Venus -49916-12-21 02:37 J -16510041.59 -16510041.39 -16510041.19 0.0505 0.0145

Mercury -49913-11-16 04:47 J -16508980.39 -16508980.30 -16508980.20 0.0539 0.0398

Mercury -49912-02-13 16:33 J -16508890.93 -16508890.81 -16508890.69 0.0540 0.0262

Venus -49910-10-31 08:52 J -16507901.26 -16507901.13 -16507901.00 0.0518 0.0384

Mercury -49907-10-02 06:28 J -16506834.36 -16506834.23 -16506834.10 0.0488 0.0314

Mercury -49907-12-31 05:01 J -16506744.42 -16506744.29 -16506744.15 0.0487 0.0308

Venus -49904-08-25 20:37 J -16505775.73 -16505775.64 -16505775.55 0.0503 0.0451

Mercury -49901-12-02 19:54 J -16504580.80 -16504580.67 -16504580.53 0.0540 0.0113

Venus -49898-07-06 09:49 J -16503635.28 -16503635.09 -16503634.89 0.0520 0.0076

Mercury -49895-07-21 06:28 J -16502524.27 -16502524.23 -16502524.17 0.0488 0.0464

Mercury -49895-10-19 05:01 J -16502434.46 -16502434.29 -16502434.13 0.0488 0.0152

Earth -49894-02-26 14:09 J -16502304.03 -16502303.91 -16502303.79 0.0487 0.0417

Moon -49894-02-26 17:01 J -16502303.90 -16502303.79 -16502303.68 0.0487 0.0422 \*

Venus -49892-12-24 03:35 J -16501272.50 -16501272.35 -16501272.20 0.0510 0.0364

Mercury -49889-09-20 23:01 J -16500270.67 -16500270.54 -16500270.41 0.0539 0.0047

Mars -49886-01-12 14:37 J -16499427.13 -16499426.89 -16499426.65 0.0525 0.0164

Venus -49886-03-11 08:37 J -16499369.31 -16499369.14 -16499368.96 0.0523 0.0246

Mercury -49883-08-07 04:47 J -16498124.47 -16498124.30 -16498124.13 0.0488 0.0006

Moon -49882-03-02 19:25 J -16497916.93 -16497916.69 -16497916.45 0.0488 0.0000

Earth -49882-03-02 21:21 J -16497916.84 -16497916.61 -16497916.37 0.0488 0.0026 \*

Venus -49880-08-28 20:23 J -16497006.86 -16497006.65 -16497006.44 0.0507 0.0047

Mercury -49877-07-10 01:40 J -16495960.56 -16495960.43 -16495960.31 0.0539 0.0214

Mercury -49877-10-07 12:42 J -16495871.04 -16495870.97 -16495870.89 0.0540 0.0438

Mercury -49871-05-26 05:01 J -16493814.45 -16493814.29 -16493814.12 0.0488 0.0151

Mercury -49871-08-24 04:18 J -16493724.35 -16493724.32 -16493724.29 0.0487 0.0478

Earth -49870-03-07 05:45 J -16493529.41 -16493529.26 -16493529.11 0.0488 0.0371

Moon -49870-03-07 05:45 J -16493529.39 -16493529.26 -16493529.11 0.0488 0.0388 \*

Venus -49868-05-03 11:59 J -16492741.18 -16492741.00 -16492740.82 0.0504 0.0273

Mercury -49865-04-28 03:21 J -16491650.45 -16491650.36 -16491650.27 0.0539 0.0396

Mercury -49865-07-26 14:52 J -16491560.99 -16491560.88 -16491560.76 0.0540 0.0263

Venus -49862-03-13 20:23 J -16490600.83 -16490600.65 -16490600.48 0.0519 0.0252

Mercury -49859-03-14 05:30 J -16489504.40 -16489504.27 -16489504.14 0.0488 0.0298

Mercury -49859-06-12 04:18 J -16489414.45 -16489414.32 -16489414.19 0.0487 0.0324

Mercury -49853-05-14 17:59 J -16487250.88 -16487250.75 -16487250.62 0.0540 0.0106

Moon -49853-08-30 16:18 J -16487142.92 -16487142.82 -16487142.73 0.0540 0.0491

Earth -49853-08-30 20:09 J -16487142.77 -16487142.66 -16487142.54 0.0540 0.0469 \*

Venus -49851-11-16 20:52 J -16486334.82 -16486334.63 -16486334.43 0.0522 0.0062

Mercury -49848-12-31 05:16 J -16485194.34 -16485194.28 -16485194.21 0.0488 0.0452

Mercury -49847-03-31 03:35 J -16485104.51 -16485104.35 -16485104.19 0.0487 0.0163

Venus -49844-05-06 10:18 J -16483972.25 -16483972.07 -16483971.88 0.0508 0.0224

Mercury -49841-03-02 21:21 J -16482940.74 -16482940.61 -16482940.47 0.0540 0.0047

Earth -49841-09-05 04:47 J -16482754.53 -16482754.30 -16482754.07 0.0540 0.0091

Moon -49841-09-05 07:25 J -16482754.42 -16482754.19 -16482753.97 0.0540 0.0069 \*

Venus -49839-07-22 20:52 J -16482068.76 -16482068.63 -16482068.49 0.0524 0.0377

Mercury -49835-01-17 03:35 J -16480794.52 -16480794.35 -16480794.18 0.0488 0.0012

Venus -49832-01-09 04:04 J -16479706.54 -16479706.33 -16479706.13 0.0506 0.0088

Mercury -49830-12-21 00:13 J -16478630.61 -16478630.49 -16478630.36 0.0539 0.0207

Mercury -49829-03-19 11:30 J -16478541.09 -16478541.02 -16478540.94 0.0540 0.0445

Venus -49827-11-19 07:54 J -16477566.27 -16477566.17 -16477566.05 0.0517 0.0433

Mercury -49824-11-05 03:21 J -16476484.52 -16476484.36 -16476484.20 0.0488 0.0146

Mercury -49823-02-03 02:37 J -16476394.41 -16476394.39 -16476394.37 0.0488 0.0483

Venus -49821-09-13 21:49 J -16475440.71 -16475440.59 -16475440.45 0.0504 0.0395  
 Mercury -49818-10-09 02:52 J -16474320.48 -16474320.38 -16474320.29 0.0539 0.0375  
 Mercury -49817-01-06 14:23 J -16474231.01 -16474230.90 -16474230.79 0.0540 0.0283  
 Venus -49815-07-25 08:23 J -16473300.34 -16473300.15 -16473299.96 0.0520 0.0122  
 Mercury -49812-08-24 03:49 J -16472174.48 -16472174.34 -16472174.21 0.0488 0.0293  
 Mercury -49812-11-22 02:23 J -16472084.52 -16472084.40 -16472084.27 0.0488 0.0331  
 Moon -49811-02-25 22:33 J -16471988.64 -16471988.56 -16471988.48 0.0487 0.0458  
 Earth -49811-02-25 23:45 J -16471988.57 -16471988.51 -16471988.42 0.0487 0.0459 \*  
 Venus -49808-01-12 02:09 J -16470937.53 -16470937.41 -16470937.28 0.0509 0.0408  
 Mercury -49806-10-25 16:18 J -16469920.95 -16469920.82 -16469920.69 0.0540 0.0105  
 Venus -49803-03-30 06:57 J -16469034.39 -16469034.21 -16469034.03 0.0523 0.0201  
 Mercury -49800-06-12 04:18 J -16467864.39 -16467864.32 -16467864.25 0.0488 0.0440  
 Mercury -49800-09-10 02:23 J -16467774.55 -16467774.40 -16467774.23 0.0488 0.0177  
 Earth -49799-03-02 07:25 J -16467601.42 -16467601.19 -16467600.95 0.0487 0.0067  
 Moon -49799-03-02 07:25 J -16467601.41 -16467601.19 -16467600.96 0.0487 0.0040 \*  
 Mars -49797-04-16 12:57 J -16466825.25 -16466824.96 -16466824.66 0.0501 0.0073  
 Venus -49797-09-16 18:28 J -16466671.94 -16466671.73 -16466671.52 0.0507 0.0090  
 Mercury -49794-08-13 19:11 J -16465610.83 -16465610.70 -16465610.57 0.0540 0.0056  
 Venus -49792-12-03 06:13 J -16464768.26 -16464768.24 -16464768.21 0.0526 0.0521  
 Mercury -49788-06-29 01:54 J -16463464.59 -16463464.42 -16463464.25 0.0488 0.0016  
 Earth -49787-03-06 12:28 J -16463214.15 -16463213.98 -16463213.79 0.0487 0.0318  
 Moon -49787-03-06 14:37 J -16463214.07 -16463213.89 -16463213.70 0.0487 0.0321 \*  
 Venus -49785-05-22 11:01 J -16462406.23 -16462406.04 -16462405.85 0.0505 0.0223  
 Mercury -49782-06-01 22:18 J -16461300.69 -16461300.57 -16461300.44 0.0540 0.0212  
 Mercury -49782-08-30 09:35 J -16461211.17 -16461211.10 -16461211.02 0.0540 0.0442  
 Venus -49779-04-01 20:37 J -16460265.80 -16460265.64 -16460265.48 0.0519 0.0305  
 Mercury -49776-04-17 01:54 J -16459154.58 -16459154.42 -16459154.26 0.0488 0.0138  
 Mercury -49770-03-21 01:11 J -16456990.55 -16456990.45 -16456990.35 0.0539 0.0372  
 Mercury -49770-06-18 12:57 J -16456901.07 -16456900.96 -16456900.85 0.0540 0.0287  
 Earth -49770-08-31 00:42 J -16456827.47 -16456827.47 -16456827.45 0.0540 0.0539



Mars -49768-07-04 01:40 J -16456154.67 -16456154.43 -16456154.20 0.0527 0.0206  
 Venus -49768-12-05 19:40 J -16455999.87 -16455999.68 -16455999.48 0.0521 0.0016  
 Mercury -49764-02-03 01:40 J -16454844.56 -16454844.43 -16454844.29 0.0488 0.0292  
 Mercury -49764-05-04 00:28 J -16454754.60 -16454754.48 -16454754.35 0.0488 0.0331  
 Venus -49761-05-25 11:01 J -16453637.21 -16453637.04 -16453636.86 0.0508 0.0278  
 Mercury -49758-04-06 15:35 J -16452590.98 -16452590.85 -16452590.72 0.0540 0.0123  
 Moon -49758-09-05 04:04 J -16452439.57 -16452439.33 -16452439.08 0.0540 0.0019  
 Earth -49758-09-05 05:01 J -16452439.52 -16452439.29 -16452439.05 0.0540 0.0009 \*  
 Venus -49756-08-10 18:28 J -16451733.88 -16451733.73 -16451733.58 0.0524 0.0333  
 Mercury -49753-11-22 02:09 J -16450534.48 -16450534.41 -16450534.33 0.0488 0.0438  
 Mercury -49752-02-20 00:28 J -16450444.64 -16450444.48 -16450444.32 0.0488 0.0180  
 Venus -49749-01-29 02:37 J -16449371.60 -16449371.39 -16449371.18 0.0505 0.0042  
 Mercury -49746-01-23 17:30 J -16448280.91 -16448280.77 -16448280.64 0.0539 0.0060  
 Earth -49746-09-10 04:04 J -16448051.38 -16448051.33 -16448051.26 0.0540 0.0519  
 Venus -49744-12-08 05:16 J -16447231.35 -16447231.28 -16447231.19 0.0518 0.0473  
 Mercury -49741-12-09 00:28 J -16446134.65 -16446134.48 -16446134.31 0.0488 0.0028  
 Venus -49738-10-03 19:40 J -16445105.82 -16445105.68 -16445105.52 0.0503 0.0351  
 Mercury -49735-11-11 20:09 J -16443970.79 -16443970.66 -16443970.54 0.0539 0.0223  
 Mercury -49734-02-09 07:25 J -16443881.27 -16443881.19 -16443881.11 0.0540 0.0430  
 Mars -49732-04-07 11:45 J -16443093.20 -16443093.01 -16443092.80 0.0525 0.0324  
 Venus -49732-08-13 06:13 J -16442965.42 -16442965.24 -16442965.05 0.0520 0.0167  
 Mercury -49729-09-26 23:59 J -16441824.66 -16441824.50 -16441824.33 0.0488 0.0134  
 Venus -49725-02-01 00:28 J -16440602.57 -16440602.48 -16440602.39 0.0510 0.0454  
 Mercury -49723-08-30 23:01 J -16439660.63 -16439660.54 -16439660.44 0.0539 0.0381  
 Mercury -49723-11-28 10:47 J -16439571.16 -16439571.05 -16439570.93 0.0540 0.0280  
 Venus -49720-04-18 06:42 J -16438699.41 -16438699.22 -16438699.03 0.0523 0.0147  
 Mercury -49717-07-15 23:59 J -16437514.63 -16437514.50 -16437514.36 0.0488 0.0287  
 Mercury -49717-10-13 22:47 J -16437424.68 -16437424.55 -16437424.43 0.0487 0.0335  
 Earth -49716-03-01 11:59 J -16437286.23 -16437286.00 -16437285.77 0.0487 0.0130  
 Moon -49716-03-01 14:09 J -16437286.15 -16437285.91 -16437285.67 0.0487 0.0103 \*

Venus -49714-10-06 17:16 J -16436336.98 -16436336.78 -16436336.58 0.0507 0.0139  
 Mercury -49711-09-16 13:54 J -16435261.05 -16435260.92 -16435260.79 0.0540 0.0123  
 Venus -49709-12-22 04:47 J -16434433.38 -16434433.30 -16434433.22 0.0525 0.0471  
 Mercury -49705-05-03 23:59 J -16433204.57 -16433204.50 -16433204.43 0.0488 0.0439  
 Mercury -49705-08-01 22:18 J -16433114.73 -16433114.57 -16433114.41 0.0488 0.0177  
 Moon -49704-03-05 15:21 J -16432899.06 -16432898.86 -16432898.67 0.0488 0.0259  
 Earth -49704-03-05 18:42 J -16432898.92 -16432898.72 -16432898.52 0.0488 0.0261 \*  
 Venus -49702-06-11 10:33 J -16432071.25 -16432071.06 -16432070.86 0.0505 0.0172  
 Mercury -49699-07-05 16:33 J -16430950.94 -16430950.81 -16430950.67 0.0539 0.0043  
 Venus -49696-04-20 17:16 J -16429930.93 -16429930.78 -16429930.63 0.0519 0.0344  
 Mercury -49693-05-20 22:18 J -16428804.74 -16428804.57 -16428804.40 0.0488 0.0027  
 Venus -49690-02-14 04:18 J -16427805.38 -16427805.32 -16427805.26 0.0502 0.0477  
 Mercury -49687-04-23 18:13 J -16426640.86 -16426640.74 -16426640.62 0.0539 0.0225  
 Mercury -49687-07-22 05:30 J -16426551.35 -16426551.27 -16426551.19 0.0540 0.0427  
 Venus -49685-12-24 15:35 J -16425665.05 -16425664.85 -16425664.66 0.0522 0.0027  
 Mercury -49681-03-08 22:18 J -16424494.73 -16424494.57 -16424494.40 0.0488 0.0129  
 Mars -49679-10-04 03:35 J -16423555.56 -16423555.35 -16423555.14 0.0499 0.0346  
 Venus -49678-06-14 07:40 J -16423302.33 -16423302.18 -16423302.01 0.0508 0.0318  
 Mercury -49675-02-09 20:37 J -16422330.73 -16422330.64 -16422330.54 0.0539 0.0394  
 Mercury -49675-05-10 08:23 J -16422241.26 -16422241.15 -16422241.03 0.0540 0.0267  
 Moon -49675-09-03 21:35 J -16422124.81 -16422124.60 -16422124.38 0.0540 0.0135  
 Earth -49675-09-03 22:18 J -16422124.80 -16422124.57 -16422124.34 0.0540 0.0122 \*  
 Venus -49673-08-29 15:06 J -16421399.04 -16421398.87 -16421398.71 0.0524 0.0293  
 Mercury -49670-12-26 22:04 J -16420184.72 -16420184.58 -16420184.45 0.0488 0.0286  
 Mercury -49669-03-25 20:37 J -16420094.77 -16420094.64 -16420094.52 0.0487 0.0336  
 Venus -49666-02-16 23:16 J -16419036.74 -16419036.53 -16419036.32 0.0506 0.0006  
 Mercury -49663-02-26 11:45 J -16417931.14 -16417931.01 -16417930.88 0.0540 0.0113  
 Earth -49663-09-09 05:45 J -16417736.39 -16417736.26 -16417736.12 0.0540 0.0436  
 Moon -49663-09-09 08:23 J -16417736.26 -16417736.15 -16417736.02 0.0540 0.0469 \*  
 Mercury -49658-10-14 22:04 J -16415874.65 -16415874.58 -16415874.50 0.0488 0.0436

Mercury -49657-01-12 20:23 J -16415784.81 -16415784.65 -16415784.49 0.0488 0.0179  
 Venus -49655-10-22 17:01 J -16414770.96 -16414770.79 -16414770.62 0.0504 0.0307  
 Mercury -49652-12-15 14:37 J -16413621.02 -16413620.89 -16413620.75 0.0540 0.0047  
 Venus -49649-09-01 04:04 J -16412630.51 -16412630.33 -16412630.15 0.0520 0.0210  
 Mercury -49646-10-31 19:54 J -16411474.84 -16411474.67 -16411474.50 0.0488 0.0021  
 Mars -49643-07-11 06:13 J -16410491.50 -16410491.24 -16410490.98 0.0502 0.0244  
 Venus -49642-02-19 23:30 J -16410267.55 -16410267.52 -16410267.48 0.0510 0.0503  
 Mercury -49640-10-03 17:16 J -16409310.91 -16409310.78 -16409310.66 0.0539 0.0213  
 Mercury -49639-01-01 04:33 J -16409221.38 -16409221.31 -16409221.23 0.0540 0.0440  
 Venus -49637-05-07 02:52 J -16408364.57 -16408364.38 -16408364.19 0.0522 0.0108  
 Mercury -49634-08-19 20:09 J -16407164.83 -16407164.66 -16407164.50 0.0488 0.0131  
 Moon -49633-02-29 14:23 J -16406971.12 -16406970.90 -16406970.68 0.0487 0.0163  
 Earth -49633-02-29 17:45 J -16406970.97 -16406970.76 -16406970.54 0.0487 0.0188 \*  
 Venus -49631-10-25 15:21 J -16406002.06 -16406001.86 -16406001.67 0.0507 0.0183  
 Mercury -49628-07-22 18:57 J -16405000.80 -16405000.71 -16405000.62 0.0539 0.0396  
 Mercury -49628-10-20 06:42 J -16404911.34 -16404911.22 -16404911.11 0.0539 0.0264  
 Venus -49625-01-10 23:16 J -16404098.63 -16404098.53 -16404098.42 0.0525 0.0439  
 Mercury -49622-06-07 20:09 J -16402854.80 -16402854.66 -16402854.52 0.0488 0.0282  
 Mercury -49622-09-05 18:42 J -16402764.84 -16402764.72 -16402764.59 0.0488 0.0341  
 Earth -49621-03-05 00:28 J -16402583.69 -16402583.48 -16402583.26 0.0487 0.0204  
 Moon -49621-03-05 04:33 J -16402583.52 -16402583.31 -16402583.09 0.0487 0.0198 \*  
 Venus -49619-06-30 07:25 J -16401736.39 -16401736.19 -16401735.99 0.0504 0.0131  
 Mercury -49616-08-08 09:21 J -16400601.24 -16400601.11 -16400600.98 0.0539 0.0099  
 Mars -49614-09-27 10:04 J -16399821.33 -16399821.08 -16399820.83 0.0527 0.0080  
 Venus -49613-05-09 12:57 J -16399596.09 -16399595.96 -16399595.82 0.0519 0.0381  
 Mercury -49610-03-26 19:54 J -16398544.74 -16398544.67 -16398544.60 0.0488 0.0438  
 Mercury -49610-06-24 17:59 J -16398454.91 -16398454.75 -16398454.59 0.0488 0.0176  
 Venus -49607-03-04 23:16 J -16397470.62 -16397470.53 -16397470.42 0.0502 0.0442  
 Mercury -49604-05-27 12:13 J -16396291.12 -16396290.99 -16396290.85 0.0540 0.0061  
 Venus -49601-01-13 13:54 J -16395330.11 -16395329.92 -16395329.72 0.0521 0.0074

Mercury -49598-04-12 17:45 J -16394144.93 -16394144.76 -16394144.58 0.0488 0.0025

Venus -49595-07-03 04:18 J -16392967.46 -16392967.32 -16392967.16 0.0509 0.0360

Mercury -49592-03-15 15:21 J -16391980.99 -16391980.86 -16391980.74 0.0539 0.0218

Mercury -49592-06-13 02:37 J -16391891.46 -16391891.39 -16391891.31 0.0540 0.0436

Earth -49592-09-02 23:59 J -16391809.71 -16391809.50 -16391809.29 0.0540 0.0205

Moon -49592-09-03 02:09 J -16391809.63 -16391809.41 -16391809.19 0.0540 0.0212 \*

Venus -49590-09-18 12:57 J -16391064.13 -16391063.96 -16391063.79 0.0523 0.0247

Mercury -49586-01-29 17:30 J -16389834.93 -16389834.77 -16389834.60 0.0488 0.0136

Venus -49583-03-07 21:49 J -16388701.80 -16388701.59 -16388701.38 0.0506 0.0047

Mercury -49580-01-01 17:45 J -16387670.85 -16387670.76 -16387670.66 0.0539 0.0385

Mercury -49580-04-01 05:30 J -16387581.38 -16387581.27 -16387581.15 0.0540 0.0275

Moon -49580-09-08 00:42 J -16387421.63 -16387421.47 -16387421.30 0.0540 0.0369

Earth -49580-09-08 04:04 J -16387421.50 -16387421.33 -16387421.14 0.0540 0.0337 \*

Mars -49578-07-02 02:09 J -16386759.52 -16386759.41 -16386759.28 0.0525 0.0461

Mercury -49575-11-17 17:45 J -16385524.89 -16385524.76 -16385524.62 0.0488 0.0286

Mercury -49574-02-15 16:18 J -16385434.94 -16385434.82 -16385434.69 0.0488 0.0337

Venus -49572-11-10 15:06 J -16384436.05 -16384435.87 -16384435.69 0.0503 0.0262

Mercury -49568-01-18 07:25 J -16383271.32 -16383271.19 -16383271.05 0.0539 0.0099

Venus -49566-09-20 22:18 J -16382295.74 -16382295.57 -16382295.39 0.0520 0.0241

Mercury -49563-09-05 17:59 J -16381214.82 -16381214.75 -16381214.68 0.0489 0.0437

Mercury -49563-12-04 16:04 J -16381124.99 -16381124.83 -16381124.67 0.0488 0.0180

Mercury -49557-11-06 10:04 J -16378961.22 -16378961.08 -16378960.95 0.0539 0.0070

Venus -49554-05-26 22:04 J -16378029.78 -16378029.58 -16378029.39 0.0523 0.0072

Mercury -49551-09-22 15:21 J -16376815.03 -16376814.86 -16376814.69 0.0488 0.0020

Earth -49550-02-28 19:25 J -16376655.88 -16376655.69 -16376655.49 0.0487 0.0261

Moon -49550-02-28 23:30 J -16376655.72 -16376655.52 -16376655.31 0.0487 0.0233 \*

Venus -49548-11-13 09:49 J -16375667.28 -16375667.09 -16375666.90 0.0507 0.0217

Mercury -49545-08-25 12:42 J -16374651.09 -16374650.97 -16374650.84 0.0539 0.0233

Mercury -49545-11-23 00:13 J -16374561.57 -16374561.49 -16374561.40 0.0540 0.0424

Venus -49542-01-29 21:49 J -16373763.71 -16373763.59 -16373763.45 0.0525 0.0389

Mercury -49539-07-11 15:35 J -16372505.02 -16372504.85 -16372504.69 0.0488 0.0135  
 Moon -49538-03-04 22:18 J -16372268.80 -16372268.57 -16372268.34 0.0487 0.0123  
 Earth -49538-03-05 02:09 J -16372268.63 -16372268.41 -16372268.18 0.0487 0.0131 \*  
 Venus -49536-07-19 03:06 J -16371401.58 -16371401.37 -16371401.16 0.0505 0.0093  
 Mercury -49533-06-13 15:35 J -16370340.94 -16370340.85 -16370340.75 0.0539 0.0392  
 Mercury -49533-09-11 03:35 J -16370251.47 -16370251.35 -16370251.24 0.0540 0.0270  
 Venus -49530-05-29 10:47 J -16369261.16 -16369261.05 -16369260.94 0.0518 0.0423  
 Mercury -49527-04-29 15:21 J -16368194.99 -16368194.86 -16368194.73 0.0488 0.0290  
 Mercury -49527-07-28 13:40 J -16368105.05 -16368104.93 -16368104.80 0.0488 0.0332  
 Mars -49525-12-27 10:04 J -16367222.35 -16367222.08 -16367221.80 0.0500 0.0199  
 Venus -49524-03-23 21:35 J -16367135.73 -16367135.60 -16367135.47 0.0503 0.0396  
 Mercury -49521-06-30 06:28 J -16365941.37 -16365941.23 -16365941.10 0.0540 0.0109  
 Venus -49518-02-01 10:04 J -16364995.27 -16364995.08 -16364994.88 0.0521 0.0111  
 Mercury -49515-02-15 15:35 J -16363884.92 -16363884.85 -16363884.78 0.0489 0.0439  
 Mercury -49515-05-16 13:40 J -16363795.09 -16363794.93 -16363794.77 0.0488 0.0177  
 Venus -49512-07-22 02:52 J -16362632.51 -16362632.38 -16362632.26 0.0508 0.0405  
 Mercury -49509-04-18 08:23 J -16361631.29 -16361631.15 -16361631.02 0.0539 0.0069  
 Moon -49509-09-01 13:54 J -16361495.09 -16361494.92 -16361494.74 0.0540 0.0343  
 Earth -49509-09-01 16:47 J -16361494.98 -16361494.80 -16361494.61 0.0540 0.0330 \*  
 Venus -49507-10-07 07:11 J -16360729.38 -16360729.20 -16360729.02 0.0524 0.0215  
 Mercury -49503-03-04 13:25 J -16359485.11 -16359484.94 -16359484.77 0.0488 0.0024  
 Venus -49500-03-26 18:42 J -16358366.93 -16358366.72 -16358366.51 0.0506 0.0088  
 Mercury -49497-02-05 10:47 J -16357321.17 -16357321.05 -16357320.93 0.0539 0.0239  
 Mercury -49497-05-04 22:18 J -16357231.66 -16357231.57 -16357231.49 0.0540 0.0415  
 Earth -49497-09-06 20:23 J -16357106.86 -16357106.65 -16357106.43 0.0540 0.0211  
 Moon -49497-09-07 00:13 J -16357106.69 -16357106.49 -16357106.28 0.0540 0.0245 \*  
 Mars -49495-03-18 02:23 J -16356549.48 -16356549.40 -16356549.31 0.0529 0.0499  
 Mercury -49492-12-21 13:11 J -16355175.12 -16355174.95 -16355174.79 0.0488 0.0138  
 Mars -49489-10-03 05:01 J -16354158.47 -16354158.29 -16354158.08 0.0502 0.0378  
 Venus -49489-11-29 09:21 J -16354101.30 -16354101.11 -16354100.92 0.0504 0.0229

Mercury -49486-11-24 13:11 J -16353011.03 -16353010.95 -16353010.86 0.0539 0.0405

Mercury -49485-02-22 01:11 J -16352921.57 -16352921.45 -16352921.33 0.0540 0.0258

Venus -49483-10-09 21:06 J -16351960.78 -16351960.62 -16351960.45 0.0520 0.0290

Mercury -49480-10-09 13:11 J -16350865.08 -16350864.95 -16350864.81 0.0488 0.0288

Mercury -49479-01-07 11:45 J -16350775.13 -16350775.01 -16350774.88 0.0487 0.0333

Mercury -49474-12-11 04:18 J -16348611.45 -16348611.32 -16348611.18 0.0540 0.0104

Venus -49471-06-14 20:37 J -16347694.83 -16347694.64 -16347694.44 0.0522 0.0028

Mercury -49468-07-28 13:25 J -16346555.01 -16346554.94 -16346554.87 0.0488 0.0441

Mercury -49468-10-26 11:16 J -16346465.19 -16346465.03 -16346464.87 0.0488 0.0174

Moon -49467-02-27 19:54 J -16346340.86 -16346340.67 -16346340.49 0.0487 0.0300

Earth -49467-02-27 23:45 J -16346340.68 -16346340.51 -16346340.33 0.0487 0.0325 \*

Venus -49465-12-02 08:37 J -16345332.32 -16345332.14 -16345331.96 0.0508 0.0265

Mercury -49462-09-29 07:11 J -16344301.33 -16344301.20 -16344301.06 0.0539 0.0060

Mars -49460-12-21 02:37 J -16343487.64 -16343487.39 -16343487.14 0.0527 0.0069

Venus -49459-02-17 19:11 J -16343428.85 -16343428.70 -16343428.56 0.0525 0.0346

Mercury -49456-08-14 11:16 J -16342155.20 -16342155.03 -16342154.86 0.0488 0.0021

Earth -49455-03-04 06:57 J -16341953.44 -16341953.21 -16341952.97 0.0487 0.0070

Moon -49455-03-04 10:04 J -16341953.31 -16341953.08 -16341952.85 0.0487 0.0059 \*

Venus -49453-08-07 01:54 J -16341066.62 -16341066.42 -16341066.20 0.0505 0.0046

Mercury -49450-07-18 09:06 J -16339991.24 -16339991.12 -16339990.99 0.0539 0.0236

Mercury -49450-10-15 20:37 J -16339901.72 -16339901.64 -16339901.55 0.0539 0.0419

Venus -49447-06-17 05:45 J -16338926.36 -16338926.26 -16338926.17 0.0518 0.0456

Mercury -49444-06-02 11:16 J -16337845.19 -16337845.03 -16337844.87 0.0488 0.0134

Moon -49443-03-08 12:42 J -16337566.07 -16337565.97 -16337565.86 0.0488 0.0437

Earth -49443-03-08 14:09 J -16337565.98 -16337565.91 -16337565.84 0.0488 0.0464 \*

Venus -49441-04-11 19:11 J -16336800.84 -16336800.70 -16336800.54 0.0503 0.0350

Mercury -49438-05-06 11:30 J -16335681.11 -16335681.02 -16335680.93 0.0539 0.0406

Mercury -49438-08-03 23:16 J -16335591.64 -16335591.53 -16335591.41 0.0539 0.0255

Venus -49435-02-20 05:45 J -16334660.44 -16334660.26 -16334660.06 0.0521 0.0150

Mercury -49432-03-21 11:01 J -16333535.17 -16333535.04 -16333534.90 0.0488 0.0289

Mercury -49432-06-19 09:21 J -16333445.23 -16333445.11 -16333444.98 0.0488 0.0332

Venus -49429-08-09 21:21 J -16332297.72 -16332297.61 -16332297.51 0.0509 0.0437

Mercury -49426-05-23 02:09 J -16331281.54 -16331281.41 -16331281.28 0.0540 0.0093

Earth -49426-09-01 15:21 J -16331179.99 -16331179.86 -16331179.71 0.0541 0.0427

Moon -49426-09-01 18:57 J -16331179.84 -16331179.71 -16331179.56 0.0541 0.0430 \*

Venus -49424-10-26 06:42 J -16330394.41 -16330394.22 -16330394.03 0.0524 0.0163

Mercury -49420-01-07 11:30 J -16329225.09 -16329225.02 -16329224.94 0.0488 0.0436

Mercury -49420-04-07 09:21 J -16329135.27 -16329135.11 -16329134.95 0.0488 0.0178

Venus -49417-04-14 14:23 J -16328032.11 -16328031.90 -16328031.70 0.0506 0.0125

Mercury -49414-03-11 05:16 J -16326971.42 -16326971.28 -16326971.15 0.0540 0.0064

Moon -49414-09-06 19:40 J -16326791.90 -16326791.68 -16326791.45 0.0540 0.0166

Earth -49414-09-06 23:16 J -16326791.75 -16326791.53 -16326791.30 0.0540 0.0134 \*

Venus -49412-07-01 05:30 J -16326128.35 -16326128.27 -16326128.20 0.0526 0.0483

Mercury -49408-01-24 09:06 J -16324825.29 -16324825.12 -16324824.95 0.0488 0.0021

Venus -49406-12-19 08:23 J -16323766.35 -16323766.15 -16323765.95 0.0504 0.0181

Mercury -49403-12-28 08:09 J -16322661.29 -16322661.16 -16322661.04 0.0539 0.0226

Mercury -49402-03-27 19:40 J -16322571.76 -16322571.68 -16322571.60 0.0540 0.0430

Venus -49400-10-28 18:42 J -16321625.87 -16321625.72 -16321625.57 0.0519 0.0332

Mercury -49397-11-12 09:21 J -16320515.28 -16320515.11 -16320514.95 0.0488 0.0132

Venus -49394-08-24 03:35 J -16319500.42 -16319500.35 -16319500.29 0.0502 0.0477

Mercury -49391-10-16 10:04 J -16318351.17 -16318351.08 -16318350.99 0.0538 0.0400

Mercury -49390-01-13 22:04 J -16318261.70 -16318261.58 -16318261.46 0.0539 0.0261

Venus -49388-07-03 16:33 J -16317360.01 -16317359.81 -16317359.62 0.0522 0.0015

Mercury -49385-08-31 09:21 J -16316205.24 -16316205.11 -16316204.97 0.0489 0.0284

Mercury -49385-11-29 07:40 J -16316115.30 -16316115.18 -16316115.05 0.0488 0.0338

Earth -49384-02-27 05:45 J -16316025.40 -16316025.26 -16316025.11 0.0488 0.0382

Moon -49384-02-27 08:37 J -16316025.29 -16316025.14 -16316024.98 0.0488 0.0361 \*

Venus -49382-12-22 06:57 J -16314997.37 -16314997.21 -16314997.04 0.0507 0.0312

Mercury -49379-11-02 00:42 J -16313951.61 -16313951.47 -16313951.34 0.0539 0.0097

Venus -49376-03-08 15:35 J -16313094.01 -16313093.85 -16313093.69 0.0525 0.0305

Mercury -49373-06-19 09:35 J -16311895.18 -16311895.10 -16311895.03 0.0488 0.0435

Mercury -49373-09-17 07:11 J -16311805.35 -16311805.20 -16311805.03 0.0488 0.0180

Moon -49372-03-03 09:49 J -16311638.34 -16311638.09 -16311637.85 0.0487 0.0009

Earth -49372-03-03 11:16 J -16311638.27 -16311638.03 -16311637.80 0.0487 0.0011 \*

Mars -49370-03-22 15:35 J -16310889.14 -16310888.85 -16310888.55 0.0500 0.0052

Venus -49370-08-26 21:06 J -16310731.83 -16310731.62 -16310731.41 0.0505 0.0011

Mercury -49367-08-21 03:06 J -16309641.50 -16309641.37 -16309641.23 0.0540 0.0071

Venus -49364-07-06 05:45 J -16308591.29 -16308591.26 -16308591.22 0.0518 0.0508

Mercury -49361-07-06 07:40 J -16307495.35 -16307495.18 -16307495.01 0.0488 0.0030

Moon -49360-03-07 17:59 J -16307250.88 -16307250.75 -16307250.60 0.0487 0.0384

Earth -49360-03-07 18:42 J -16307250.84 -16307250.72 -16307250.59 0.0487 0.0405 \*

Venus -49358-05-01 15:21 J -16306466.02 -16306465.86 -16306465.70 0.0503 0.0313

Mercury -49355-06-09 06:13 J -16305331.37 -16305331.24 -16305331.12 0.0540 0.0229

Mercury -49355-09-06 17:45 J -16305241.84 -16305241.76 -16305241.68 0.0540 0.0429

Venus -49352-03-11 06:28 J -16304325.41 -16304325.23 -16304325.05 0.0521 0.0202

Mercury -49349-04-24 07:25 J -16303185.35 -16303185.19 -16303185.02 0.0488 0.0127

Venus -49346-08-29 21:35 J -16301962.65 -16301962.60 -16301962.54 0.0509 0.0489

Mercury -49343-03-28 09:06 J -16301021.22 -16301021.12 -16301021.03 0.0539 0.0391

Mercury -49343-06-25 20:52 J -16300931.74 -16300931.63 -16300931.51 0.0540 0.0273

Moon -49343-08-31 15:49 J -16300864.92 -16300864.84 -16300864.75 0.0540 0.0500

Earth -49343-08-31 19:40 J -16300864.76 -16300864.68 -16300864.59 0.0540 0.0500 \*

Mars -49341-06-11 05:45 J -16300215.46 -16300215.26 -16300215.05 0.0529 0.0320

Venus -49341-11-14 05:45 J -16300059.45 -16300059.26 -16300059.07 0.0523 0.0113

Mercury -49337-02-11 07:40 J -16298875.31 -16298875.18 -16298875.04 0.0488 0.0278

Mercury -49337-05-11 05:59 J -16298785.37 -16298785.25 -16298785.13 0.0488 0.0343

Venus -49334-05-04 15:06 J -16297697.07 -16297696.87 -16297696.67 0.0507 0.0180

Mercury -49331-04-13 23:30 J -16296621.66 -16296621.52 -16296621.39 0.0539 0.0106

Earth -49331-09-05 22:33 J -16296476.79 -16296476.56 -16296476.33 0.0540 0.0041

Moon -49331-09-06 01:11 J -16296476.67 -16296476.45 -16296476.23 0.0540 0.0074 \*

Venus -49329-07-20 02:23 J -16295793.50 -16295793.40 -16295793.29 0.0526 0.0440



Mercury -49326-11-30 07:54 J -16294565.25 -16294565.17 -16294565.09 0.0489 0.0428

Mercury -49325-02-28 05:45 J -16294475.41 -16294475.26 -16294475.10 0.0488 0.0187

Venus -49322-01-07 07:54 J -16293431.37 -16293431.17 -16293430.96 0.0504 0.0130

Mercury -49319-01-31 01:54 J -16292311.55 -16292311.42 -16292311.28 0.0539 0.0063

Venus -49317-11-16 16:04 J -16291290.96 -16291290.83 -16291290.69 0.0519 0.0376

Mercury -49314-12-17 05:45 J -16290165.43 -16290165.26 -16290165.09 0.0488 0.0033

Venus -49311-09-11 23:30 J -16289165.62 -16289165.52 -16289165.42 0.0502 0.0441

Mercury -49308-11-19 04:18 J -16288001.45 -16288001.32 -16288001.20 0.0540 0.0233

Mercury -49307-02-16 15:49 J -16287911.92 -16287911.84 -16287911.76 0.0540 0.0425

Mars -49305-03-15 23:59 J -16287153.72 -16287153.50 -16287153.27 0.0527 0.0230

Venus -49305-07-22 17:30 J -16287024.96 -16287024.77 -16287024.57 0.0522 0.0070

Mercury -49302-10-05 06:13 J -16285855.41 -16285855.24 -16285855.08 0.0488 0.0116

Moon -49301-02-27 11:59 J -16285710.12 -16285710.00 -16285709.87 0.0487 0.0417

Earth -49301-02-27 13:11 J -16285710.05 -16285709.95 -16285709.84 0.0487 0.0431 \*

Venus -49298-01-10 03:49 J -16284662.48 -16284662.34 -16284662.18 0.0508 0.0352

Mercury -49296-09-07 07:11 J -16283691.29 -16283691.20 -16283691.11 0.0539 0.0392

Mercury -49296-12-05 19:11 J -16283601.81 -16283601.70 -16283601.58 0.0540 0.0273

Venus -49293-03-27 17:16 J -16282758.95 -16282758.78 -16282758.60 0.0524 0.0246

Mercury -49290-07-24 06:13 J -16281545.38 -16281545.24 -16281545.10 0.0488 0.0269

Mercury -49290-10-22 04:18 J -16281455.43 -16281455.32 -16281455.20 0.0487 0.0351

Moon -49289-03-02 18:28 J -16281322.95 -16281322.73 -16281322.50 0.0487 0.0065

Earth -49289-03-02 19:25 J -16281322.93 -16281322.69 -16281322.46 0.0487 0.0040 \*

Venus -49287-09-14 22:04 J -16280396.79 -16280396.58 -16280396.37 0.0506 0.0044

Mercury -49284-09-23 22:18 J -16279291.70 -16279291.57 -16279291.44 0.0540 0.0117

Mercury -49278-05-12 06:28 J -16277235.31 -16277235.23 -16277235.14 0.0488 0.0418

Mercury -49278-08-10 04:18 J -16277145.47 -16277145.32 -16277145.16 0.0488 0.0197

Earth -49277-03-07 02:52 J -16276935.53 -16276935.38 -16276935.22 0.0487 0.0357

Moon -49277-03-07 05:16 J -16276935.45 -16276935.28 -16276935.10 0.0487 0.0337 \*

Venus -49275-05-20 16:47 J -16276130.98 -16276130.80 -16276130.62 0.0503 0.0256

Mercury -49272-07-13 00:57 J -16274981.60 -16274981.46 -16274981.33 0.0539 0.0050

Venus -49269-03-30 04:33 J -16273990.48 -16273990.31 -16273990.14 0.0520 0.0247  
 Mercury -49266-05-29 04:18 J -16272835.49 -16272835.32 -16272835.15 0.0488 0.0043  
 Mercury -49260-05-01 03:21 J -16270671.48 -16270671.36 -16270671.24 0.0539 0.0218  
 Mercury -49260-07-29 14:52 J -16270581.95 -16270581.88 -16270581.80 0.0540 0.0437  
 Venus -49258-12-04 04:04 J -16269724.52 -16269724.33 -16269724.13 0.0523 0.0066  
 Mercury -49254-03-17 04:33 J -16268525.48 -16268525.31 -16268525.15 0.0488 0.0109  
 Mars -49252-09-08 17:59 J -16267618.88 -16267618.75 -16267618.60 0.0498 0.0437  
 Venus -49251-05-23 11:45 J -16267362.19 -16267362.01 -16267361.82 0.0506 0.0218  
 Mercury -49248-02-17 05:16 J -16266361.37 -16266361.28 -16266361.18 0.0539 0.0394  
 Mercury -49248-05-17 17:30 J -16266271.89 -16266271.77 -16266271.66 0.0540 0.0272  
 Moon -49248-09-04 21:49 J -16266161.83 -16266161.59 -16266161.35 0.0541 0.0014  
 Earth -49248-09-04 23:16 J -16266161.76 -16266161.53 -16266161.30 0.0541 0.0047 \*  
 Venus -49246-08-09 03:49 J -16265458.47 -16265458.34 -16265458.20 0.0526 0.0382  
 Mercury -49242-01-03 05:01 J -16264215.43 -16264215.29 -16264215.14 0.0488 0.0255  
 Mercury -49242-04-03 03:21 J -16264125.47 -16264125.36 -16264125.25 0.0487 0.0365  
 Venus -49239-01-26 05:45 J -16263096.47 -16263096.26 -16263096.05 0.0504 0.0087  
 Mercury -49236-03-05 20:37 J -16261961.77 -16261961.64 -16261961.50 0.0540 0.0118  
 Moon -49236-09-10 07:11 J -16261773.28 -16261773.20 -16261773.13 0.0541 0.0510  
 Earth -49236-09-10 07:40 J -16261773.24 -16261773.18 -16261773.12 0.0541 0.0519 \*  
 Venus -49234-12-06 18:28 J -16260955.83 -16260955.73 -16260955.62 0.0519 0.0433  
 Mercury -49231-10-22 05:16 J -16259905.37 -16259905.28 -16259905.18 0.0488 0.0405  
 Mercury -49230-01-20 03:06 J -16259815.52 -16259815.37 -16259815.22 0.0487 0.0208  
 Venus -49228-10-01 00:42 J -16258830.60 -16258830.47 -16258830.33 0.0502 0.0385  
 Mercury -49225-12-22 23:45 J -16257651.64 -16257651.51 -16257651.37 0.0540 0.0041  
 Venus -49222-08-11 18:42 J -16256689.91 -16256689.72 -16256689.52 0.0521 0.0127  
 Mercury -49219-11-08 03:06 J -16255505.53 -16255505.37 -16255505.20 0.0488 0.0057  
 Moon -49218-02-26 21:21 J -16255394.65 -16255394.61 -16255394.56 0.0487 0.0475  
 Earth -49218-02-26 22:18 J -16255394.61 -16255394.57 -16255394.52 0.0487 0.0476 \*  
 Mars -49216-06-16 03:21 J -16254554.64 -16254554.36 -16254554.08 0.0500 0.0158  
 Venus -49215-01-29 06:42 J -16254327.34 -16254327.22 -16254327.10 0.0508 0.0413

Mercury -49213-10-11 02:23 J -16253341.52 -16253341.40 -16253341.27 0.0539 0.0204

Mercury -49212-01-08 14:09 J -16253251.99 -16253251.91 -16253251.84 0.0540 0.0452

Venus -49210-04-16 16:33 J -16252424.00 -16252423.81 -16252423.63 0.0524 0.0195

Mercury -49207-08-27 03:21 J -16251195.53 -16251195.36 -16251195.20 0.0488 0.0098

Earth -49206-03-03 05:16 J -16251007.51 -16251007.28 -16251007.05 0.0487 0.0080

Moon -49206-03-03 07:54 J -16251007.41 -16251007.17 -16251006.93 0.0487 0.0109 \*

Venus -49204-10-03 23:30 J -16250061.72 -16250061.52 -16250061.31 0.0506 0.0102

Mercury -49201-07-30 04:47 J -16249031.40 -16249031.30 -16249031.20 0.0539 0.0373

Mercury -49201-10-27 16:47 J -16248941.91 -16248941.80 -16248941.69 0.0540 0.0289

Venus -49199-12-20 14:37 J -16248157.92 -16248157.89 -16248157.85 0.0527 0.0516

Mercury -49195-06-15 03:35 J -16246885.49 -16246885.35 -16246885.20 0.0488 0.0245

Mercury -49195-09-13 01:54 J -16246795.53 -16246795.42 -16246795.31 0.0487 0.0376

Moon -49194-03-07 08:52 J -16246620.30 -16246620.13 -16246619.94 0.0487 0.0299

Earth -49194-03-07 12:13 J -16246620.16 -16246619.99 -16246619.81 0.0487 0.0317 \*

Venus -49192-06-08 14:37 J -16245796.08 -16245795.89 -16245795.69 0.0503 0.0214

Mercury -49189-08-15 18:57 J -16244631.84 -16244631.71 -16244631.57 0.0540 0.0120

Mars -49187-09-05 11:16 J -16243881.27 -16243881.03 -16243880.78 0.0529 0.0133

Venus -49186-04-19 06:28 J -16243655.38 -16243655.23 -16243655.06 0.0521 0.0306

Mercury -49183-04-03 04:33 J -16242575.41 -16242575.31 -16242575.21 0.0488 0.0388

Mercury -49183-07-02 02:09 J -16242485.56 -16242485.41 -16242485.25 0.0487 0.0226

Mercury -49177-06-03 22:04 J -16240321.71 -16240321.58 -16240321.44 0.0540 0.0041

Venus -49175-12-23 06:57 J -16239389.40 -16239389.21 -16239389.01 0.0523 0.0013

Mercury -49171-04-20 02:09 J -16238175.58 -16238175.41 -16238175.24 0.0487 0.0070

Venus -49168-06-11 14:09 J -16237027.09 -16237026.91 -16237026.74 0.0507 0.0277

Mercury -49165-03-23 01:25 J -16236011.57 -16236011.44 -16236011.32 0.0540 0.0194

Mercury -49165-06-20 12:57 J -16235922.02 -16235921.96 -16235921.89 0.0541 0.0465

Earth -49165-09-04 08:23 J -16235846.38 -16235846.15 -16235845.92 0.0541 0.0099

Moon -49165-09-04 08:09 J -16235846.38 -16235846.16 -16235845.93 0.0541 0.0071 \*

Venus -49163-08-28 06:13 J -16235123.39 -16235123.24 -16235123.08 0.0525 0.0319

Mercury -49159-02-06 02:23 J -16233865.57 -16233865.40 -16233865.23 0.0488 0.0082

Venus -49156-02-14 08:37 J -16232761.35 -16232761.14 -16232760.93 0.0505 0.0025

Mercury -49153-01-10 03:49 J -16231701.44 -16231701.34 -16231701.24 0.0539 0.0358

Mercury -49153-04-08 15:49 J -16231611.95 -16231611.84 -16231611.73 0.0540 0.0305

Earth -49153-09-09 13:25 J -16231458.06 -16231457.94 -16231457.82 0.0540 0.0454

Moon -49153-09-09 15:49 J -16231457.98 -16231457.84 -16231457.70 0.0540 0.0435 \*

Mars -49151-06-10 09:49 J -16230819.24 -16230819.09 -16230818.94 0.0526 0.0420

Venus -49151-12-25 18:13 J -16230620.81 -16230620.74 -16230620.67 0.0519 0.0483

Mercury -49148-11-25 02:23 J -16229555.54 -16229555.40 -16229555.25 0.0488 0.0234

Mercury -49147-02-23 00:42 J -16229465.57 -16229465.47 -16229465.36 0.0488 0.0389

Venus -49145-10-20 02:52 J -16228495.53 -16228495.38 -16228495.22 0.0502 0.0326

Mercury -49142-10-29 06:13 J -16227391.26 -16227391.24 -16227391.22 0.0539 0.0528

Mercury -49141-01-26 18:28 J -16227301.86 -16227301.73 -16227301.60 0.0540 0.0142

Venus -49139-08-30 18:28 J -16226354.91 -16226354.73 -16226354.54 0.0521 0.0178

Mercury -49136-09-13 03:06 J -16225245.47 -16225245.37 -16225245.26 0.0488 0.0377

Mercury -49136-12-12 00:57 J -16225155.61 -16225155.46 -16225155.31 0.0487 0.0237

Venus -49132-02-17 05:16 J -16223992.37 -16223992.28 -16223992.19 0.0508 0.0455

Mercury -49130-11-14 20:37 J -16222991.78 -16222991.64 -16222991.50 0.0540 0.0034

Venus -49127-05-05 18:28 J -16222088.92 -16222088.73 -16222088.54 0.0525 0.0137

Mercury -49124-09-30 01:25 J -16220845.61 -16220845.44 -16220845.27 0.0487 0.0089

Moon -49123-03-02 13:54 J -16220692.14 -16220691.92 -16220691.70 0.0487 0.0144

Earth -49123-03-02 17:30 J -16220692.00 -16220691.77 -16220691.54 0.0487 0.0112 \*

Venus -49121-10-22 22:33 J -16219726.76 -16219726.56 -16219726.36 0.0505 0.0147

Mercury -49118-09-02 23:30 J -16218681.64 -16218681.52 -16218681.39 0.0540 0.0194

Mercury -49118-12-01 11:16 J -16218592.09 -16218592.03 -16218591.96 0.0541 0.0467

Venus -49115-01-08 17:30 J -16217822.86 -16217822.77 -16217822.66 0.0527 0.0453

Mercury -49112-07-19 01:25 J -16216535.61 -16216535.44 -16216535.27 0.0488 0.0066

Earth -49111-03-06 23:30 J -16216304.71 -16216304.52 -16216304.33 0.0487 0.0280

Moon -49111-03-07 03:21 J -16216304.56 -16216304.36 -16216304.17 0.0487 0.0271 \*

Venus -49109-06-27 16:47 J -16215461.00 -16215460.80 -16215460.60 0.0503 0.0155

Mercury -49106-06-22 02:37 J -16214371.49 -16214371.39 -16214371.28 0.0540 0.0350

Mercury -49106-09-19 14:52 J -16214281.99 -16214281.88 -16214281.77 0.0540 0.0316

Venus -49103-05-08 08:52 J -16213320.27 -16213320.13 -16213319.99 0.0520 0.0365

Mercury -49100-05-07 01:40 J -16212225.58 -16212225.43 -16212225.28 0.0488 0.0216

Mercury -49100-08-04 23:45 J -16212135.60 -16212135.51 -16212135.41 0.0487 0.0405

Mars -49098-12-04 12:28 J -16211284.24 -16211283.98 -16211283.71 0.0498 0.0216

Venus -49097-03-02 12:42 J -16211195.06 -16211194.97 -16211194.88 0.0501 0.0447

Mercury -49094-04-10 05:16 J -16210061.32 -16210061.28 -16210061.24 0.0539 0.0514

Mercury -49094-07-08 17:45 J -16209971.89 -16209971.76 -16209971.63 0.0540 0.0156

Venus -49091-01-11 07:25 J -16209054.39 -16209054.19 -16209054.00 0.0522 0.0052

Mercury -49088-02-23 01:54 J -16207915.52 -16207915.42 -16207915.31 0.0488 0.0366

Mercury -49088-05-23 23:45 J -16207825.66 -16207825.51 -16207825.36 0.0488 0.0250

Venus -49085-06-30 16:47 J -16206691.96 -16206691.80 -16206691.64 0.0507 0.0338

Mercury -49082-04-26 20:23 J -16205661.79 -16205661.65 -16205661.52 0.0540 0.0018

Earth -49082-09-04 11:59 J -16205531.22 -16205531.00 -16205530.78 0.0540 0.0175

Moon -49082-09-04 13:54 J -16205531.15 -16205530.92 -16205530.69 0.0540 0.0150 \*

Venus -49080-09-16 06:13 J -16204788.41 -16204788.24 -16204788.07 0.0525 0.0266

Mercury -49076-03-11 23:59 J -16203515.66 -16203515.50 -16203515.33 0.0488 0.0102

Venus -49073-03-05 07:54 J -16202426.38 -16202426.17 -16202425.95 0.0504 0.0024

Mercury -49070-02-12 22:04 J -16201351.71 -16201351.58 -16201351.45 0.0540 0.0189

Mercury -49070-05-13 09:49 J -16201262.15 -16201262.09 -16201262.02 0.0541 0.0470

Moon -49070-09-09 10:18 J -16201143.24 -16201143.07 -16201142.89 0.0541 0.0341

Earth -49070-09-09 13:54 J -16201143.09 -16201142.92 -16201142.75 0.0541 0.0366 \*

Mars -49068-02-24 19:25 J -16200608.76 -16200608.69 -16200608.60 0.0531 0.0502

Mercury -49065-12-29 00:42 J -16199205.64 -16199205.47 -16199205.30 0.0488 0.0047

Mars -49062-09-10 10:04 J -16198220.27 -16198220.08 -16198219.87 0.0500 0.0368

Venus -49062-11-09 02:23 J -16198160.57 -16198160.40 -16198160.22 0.0502 0.0278

Mercury -49059-12-02 00:57 J -16197041.56 -16197041.46 -16197041.36 0.0540 0.0350

Mercury -49058-03-01 13:11 J -16196952.06 -16196951.95 -16196951.85 0.0541 0.0316

Venus -49056-09-18 21:06 J -16196019.79 -16196019.62 -16196019.44 0.0522 0.0239

Mercury -49053-10-17 00:42 J -16194895.62 -16194895.47 -16194895.31 0.0488 0.0200

Mercury -49052-01-14 22:47 J -16194805.63 -16194805.55 -16194805.46 0.0487 0.0420

Mercury -49047-09-20 03:49 J -16192731.38 -16192731.34 -16192731.29 0.0539 0.0508

Mercury -49047-12-18 16:33 J -16192641.94 -16192641.81 -16192641.69 0.0540 0.0165

Venus -49044-05-24 21:06 J -16191753.82 -16191753.62 -16191753.43 0.0524 0.0072

Mercury -49041-08-05 01:11 J -16190585.56 -16190585.45 -16190585.33 0.0488 0.0348

Mercury -49041-11-02 22:47 J -16190495.69 -16190495.55 -16190495.40 0.0487 0.0266

Earth -49040-03-02 03:49 J -16190376.56 -16190376.34 -16190376.11 0.0487 0.0154

Moon -49040-03-02 07:40 J -16190376.40 -16190376.18 -16190375.96 0.0487 0.0183 \*

Venus -49038-11-12 01:25 J -16189391.63 -16189391.44 -16189391.24 0.0506 0.0210

Mercury -49035-10-06 19:25 J -16188331.83 -16188331.69 -16188331.56 0.0540 0.0019

Mars -49033-11-30 01:54 J -16187546.67 -16187546.42 -16187546.16 0.0528 0.0076

Venus -49032-01-27 18:28 J -16187487.86 -16187487.73 -16187487.60 0.0526 0.0396

Mercury -49029-08-21 22:47 J -16186185.71 -16186185.55 -16186185.38 0.0488 0.0112

Moon -49028-03-06 07:25 J -16185989.40 -16185989.19 -16185988.98 0.0487 0.0241

Earth -49028-03-06 10:33 J -16185989.26 -16185989.06 -16185988.85 0.0487 0.0244 \*

Venus -49026-07-17 19:25 J -16185125.89 -16185125.69 -16185125.48 0.0504 0.0094

Mercury -49023-07-25 21:49 J -16184021.72 -16184021.59 -16184021.46 0.0539 0.0164

Mercury -49023-10-23 09:21 J -16183932.16 -16183932.11 -16183932.05 0.0540 0.0493

Venus -49020-05-27 08:37 J -16182985.25 -16182985.14 -16182985.02 0.0520 0.0416

Mercury -49017-06-09 23:16 J -16181875.69 -16181875.53 -16181875.36 0.0488 0.0037

Venus -49014-03-22 12:42 J -16180860.10 -16180859.97 -16180859.85 0.0501 0.0398

Mercury -49011-05-13 23:16 J -16179711.63 -16179711.53 -16179711.42 0.0539 0.0348

Mercury -49011-08-11 11:30 J -16179622.13 -16179622.02 -16179621.91 0.0540 0.0319

Venus -49008-01-30 08:09 J -16178719.35 -16178719.16 -16178718.96 0.0523 0.0106

Mercury -49005-03-28 23:59 J -16177565.65 -16177565.50 -16177565.34 0.0488 0.0182

Mercury -49005-06-26 22:04 J -16177475.65 -16177475.58 -16177475.50 0.0487 0.0440

Venus -49002-07-20 15:49 J -16176356.97 -16176356.84 -16176356.70 0.0507 0.0384

# 49TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 49th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-48999-03-02 01:54 J	-16175401.45	-16175401.42	-16175401.37	0.0539	0.0511		
Mercury	-48999-05-30 14:37 J	-16175312.02	-16175311.89	-16175311.76	0.0540	0.0161		
Moon	-48999-09-03 10:18 J	-16175216.27	-16175216.07	-16175215.87	0.0541	0.0245		
Earth	-48999-09-03 13:25 J	-16175216.14	-16175215.94	-16175215.74	0.0541	0.0262	*	
Venus	-48997-10-05 08:09 J	-16174453.34	-16174453.16	-16174452.98	0.0525	0.0207		
Mercury	-48993-01-16 00:13 J	-16173255.61	-16173255.49	-16173255.37	0.0488	0.0334		
Mercury	-48993-04-14 21:49 J	-16173165.73	-16173165.59	-16173165.45	0.0487	0.0280		
Venus	-48990-03-25 09:35 J	-16172091.31	-16172091.10	-16172090.89	0.0505	0.0078		
Mercury	-48987-03-18 17:59 J	-16171001.89	-16171001.75	-16171001.62	0.0540	0.0020		
Earth	-48987-09-08 22:33 J	-16170827.74	-16170827.56	-16170827.37	0.0541	0.0312		
Moon	-48987-09-09 02:23 J	-16170827.59	-16170827.40	-16170827.20	0.0541	0.0282	*	
Venus	-48985-06-10 06:42 J	-16170187.23	-16170187.22	-16170187.20	0.0528	0.0524		
Mercury	-48982-11-04 00:42 J	-16168945.49	-16168945.47	-16168945.44	0.0488	0.0481		
Mercury	-48981-02-01 21:49 J	-16168855.75	-16168855.59	-16168855.42	0.0487	0.0127		
Venus	-48979-11-28 04:18 J	-16167825.50	-16167825.32	-16167825.12	0.0503	0.0220		
Mercury	-48975-01-04 20:37 J	-16166691.77	-16166691.64	-16166691.50	0.0540	0.0153		
Mercury	-48975-04-04 08:23 J	-16166602.19	-16166602.15	-16166602.10	0.0540	0.0504		
Venus	-48973-10-07 21:21 J	-16165684.77	-16165684.61	-16165684.44	0.0521	0.0291		
Mercury	-48970-11-20 21:49 J	-16164545.75	-16164545.59	-16164545.42	0.0488	0.0030		
Mercury	-48964-10-23 23:01 J	-16162381.65	-16162381.54	-16162381.43	0.0539	0.0322		
Mercury	-48963-01-21 11:16 J	-16162292.14	-16162292.03	-16162291.93	0.0540	0.0342		

Venus -48961-06-12 20:23 J -16161418.84 -16161418.65 -16161418.45 0.0524 0.0023  
 Mercury -48958-09-08 22:33 J -16160235.72 -16160235.56 -16160235.40 0.0488 0.0173  
 Mercury -48958-12-07 20:37 J -16160145.70 -16160145.64 -16160145.57 0.0487 0.0450  
 Moon -48957-03-01 12:13 J -16160061.20 -16160060.99 -16160060.77 0.0487 0.0216  
 Earth -48957-03-01 15:21 J -16160061.08 -16160060.86 -16160060.64 0.0487 0.0189 \*  
 Venus -48955-12-01 01:11 J -16159056.63 -16159056.45 -16159056.27 0.0506 0.0257  
 Mercury -48952-08-12 00:28 J -16158071.52 -16158071.48 -16158071.43 0.0539 0.0508  
 Mercury -48952-11-09 12:57 J -16157982.09 -16157981.96 -16157981.83 0.0540 0.0164  
 Venus -48949-02-16 17:59 J -16157152.90 -16157152.75 -16157152.60 0.0527 0.0346  
 Mercury -48946-06-27 23:16 J -16155925.66 -16155925.53 -16155925.40 0.0488 0.0318  
 Mercury -48946-09-25 20:52 J -16155835.76 -16155835.63 -16155835.49 0.0487 0.0298  
 Earth -48945-03-05 22:47 J -16155673.76 -16155673.55 -16155673.34 0.0487 0.0210  
 Moon -48945-03-06 00:28 J -16155673.69 -16155673.48 -16155673.28 0.0487 0.0221 \*  
 Mars -48943-02-27 21:35 J -16154949.90 -16154949.60 -16154949.31 0.0498 0.0008  
 Venus -48943-08-05 18:42 J -16154790.93 -16154790.72 -16154790.51 0.0503 0.0048  
 Mercury -48940-08-28 15:49 J -16153671.97 -16153671.84 -16153671.70 0.0540 0.0013  
 Venus -48937-06-15 09:35 J -16152650.18 -16152650.10 -16152650.02 0.0520 0.0469  
 Mercury -48934-04-15 23:30 J -16151615.56 -16151615.52 -16151615.48 0.0488 0.0469  
 Mercury -48934-07-14 20:37 J -16151525.80 -16151525.64 -16151525.48 0.0487 0.0139  
 Venus -48931-04-10 12:57 J -16150525.11 -16150524.96 -16150524.80 0.0501 0.0345  
 Mercury -48928-06-16 18:57 J -16149361.84 -16149361.71 -16149361.58 0.0540 0.0153  
 Mercury -48928-09-14 06:42 J -16149272.26 -16149272.22 -16149272.17 0.0541 0.0507  
 Venus -48925-02-19 10:04 J -16148384.27 -16148384.08 -16148383.89 0.0522 0.0165  
 Mercury -48922-05-02 20:52 J -16147215.80 -16147215.63 -16147215.46 0.0488 0.0014  
 Venus -48919-08-08 17:30 J -16146021.87 -16146021.77 -16146021.66 0.0507 0.0442  
 Mercury -48916-04-04 21:49 J -16145051.70 -16145051.59 -16145051.48 0.0539 0.0314  
 Mercury -48916-07-03 09:49 J -16144962.19 -16144962.09 -16144961.98 0.0540 0.0351  
 Earth -48916-09-02 20:09 J -16144900.84 -16144900.66 -16144900.47 0.0541 0.0324  
 Moon -48916-09-02 23:59 J -16144900.68 -16144900.50 -16144900.30 0.0541 0.0313 \*  
 Mars -48914-05-22 08:52 J -16144274.34 -16144274.13 -16144273.92 0.0530 0.0297



Venus -48914-10-25 08:09 J -16144118.35 -16144118.16 -16144117.97 0.0525 0.0153  
 Mercury -48910-02-18 20:52 J -16142905.79 -16142905.63 -16142905.47 0.0488 0.0167  
 Mercury -48910-05-19 18:57 J -16142815.76 -16142815.71 -16142815.65 0.0487 0.0456  
 Venus -48907-04-13 11:16 J -16141756.23 -16141756.03 -16141755.83 0.0505 0.0136  
 Mercury -48904-01-21 23:59 J -16140741.55 -16140741.50 -16140741.44 0.0539 0.0485  
 Mercury -48904-04-21 12:28 J -16140652.10 -16140651.98 -16140651.85 0.0540 0.0187  
 Moon -48904-09-07 21:21 J -16140512.82 -16140512.61 -16140512.38 0.0541 0.0196  
 Earth -48904-09-08 01:11 J -16140512.66 -16140512.45 -16140512.24 0.0541 0.0230 \*  
 Venus -48902-06-30 05:30 J -16139852.34 -16139852.27 -16139852.18 0.0527 0.0476  
 Mercury -48899-12-07 21:35 J -16138595.73 -16138595.60 -16138595.47 0.0488 0.0312  
 Mercury -48898-03-07 19:11 J -16138505.83 -16138505.70 -16138505.56 0.0487 0.0305  
 Venus -48896-12-17 04:04 J -16137490.52 -16137490.33 -16137490.13 0.0502 0.0171  
 Mercury -48892-02-07 14:09 J -16136342.04 -16136341.91 -16136341.77 0.0540 0.0019  
 Venus -48890-10-27 20:09 J -16135349.81 -16135349.66 -16135349.51 0.0522 0.0337  
 Mercury -48887-09-25 22:18 J -16134285.62 -16134285.57 -16134285.51 0.0489 0.0457  
 Mercury -48887-12-24 19:40 J -16134195.84 -16134195.68 -16134195.52 0.0488 0.0153  
 Venus -48884-08-21 22:47 J -16133224.62 -16133224.55 -16133224.47 0.0500 0.0464  
 Mercury -48881-11-26 16:47 J -16132031.93 -16132031.80 -16132031.66 0.0540 0.0162  
 Mercury -48880-02-24 04:47 J -16131942.35 -16131942.30 -16131942.25 0.0541 0.0499  
 Mars -48878-02-24 06:13 J -16131212.46 -16131212.24 -16131212.01 0.0529 0.0257  
 Venus -48878-07-02 19:54 J -16131083.87 -16131083.67 -16131083.47 0.0524 0.0029  
 Mercury -48875-10-12 19:25 J -16129885.86 -16129885.69 -16129885.52 0.0488 0.0010  
 Earth -48874-03-01 23:30 J -16129745.72 -16129745.52 -16129745.32 0.0487 0.0240  
 Moon -48874-03-02 00:57 J -16129745.65 -16129745.46 -16129745.27 0.0487 0.0262 \*  
 Venus -48872-12-20 00:28 J -16128721.64 -16128721.48 -16128721.31 0.0506 0.0307  
 Mercury -48869-09-14 19:54 J -16127721.78 -16127721.67 -16127721.56 0.0540 0.0318  
 Mercury -48869-12-13 08:09 J -16127632.26 -16127632.16 -16127632.06 0.0541 0.0348  
 Venus -48866-03-07 19:25 J -16126817.86 -16126817.69 -16126817.53 0.0526 0.0286  
 Mercury -48863-07-31 19:40 J -16125575.84 -16125575.68 -16125575.52 0.0488 0.0156  
 Mercury -48863-10-29 17:30 J -16125485.81 -16125485.77 -16125485.71 0.0487 0.0465

Moon -48862-03-06 05:45 J -16125358.49 -16125358.26 -16125358.03 0.0487 0.0168  
 Earth -48862-03-06 05:45 J -16125358.48 -16125358.26 -16125358.03 0.0487 0.0155 \*  
 Venus -48860-08-24 18:57 J -16124455.92 -16124455.71 -16124455.50 0.0504 0.0008  
 Mercury -48857-07-03 22:33 J -16123411.62 -16123411.56 -16123411.50 0.0539 0.0481  
 Mercury -48857-10-01 11:01 J -16123322.16 -16123322.04 -16123321.91 0.0540 0.0191  
 Venus -48854-07-05 08:37 J -16122315.16 -16122315.14 -16122315.12 0.0519 0.0516  
 Mercury -48851-05-19 19:40 J -16121265.80 -16121265.68 -16121265.55 0.0488 0.0309  
 Mercury -48851-08-17 17:16 J -16121175.91 -16121175.78 -16121175.64 0.0487 0.0308  
 Venus -48848-04-29 13:40 J -16120190.10 -16120189.93 -16120189.75 0.0502 0.0291  
 Mercury -48845-07-20 13:40 J -16119012.07 -16119011.93 -16119011.79 0.0540 0.0024  
 Venus -48842-03-10 07:54 J -16118049.35 -16118049.17 -16118048.98 0.0522 0.0210  
 Mercury -48839-03-07 20:23 J -16116955.70 -16116955.65 -16116955.58 0.0489 0.0454  
 Mercury -48839-06-05 17:45 J -16116865.92 -16116865.76 -16116865.60 0.0488 0.0157  
 Venus -48836-08-27 16:33 J -16115686.86 -16115686.81 -16115686.75 0.0507 0.0486  
 Mercury -48833-05-08 15:06 J -16114702.00 -16114701.87 -16114701.73 0.0539 0.0161  
 Mercury -48833-08-06 02:52 J -16114612.42 -16114612.38 -16114612.32 0.0540 0.0499  
 Moon -48833-09-01 10:33 J -16114586.20 -16114586.06 -16114585.92 0.0541 0.0435  
 Earth -48833-09-01 14:23 J -16114586.02 -16114585.90 -16114585.76 0.0541 0.0446 \*  
 Venus -48831-11-13 05:16 J -16113783.47 -16113783.28 -16113783.09 0.0525 0.0112  
 Mercury -48827-03-24 17:59 J -16112555.92 -16112555.75 -16112555.58 0.0488 0.0008  
 Mars -48825-08-17 06:42 J -16111679.39 -16111679.22 -16111679.02 0.0496 0.0384  
 Venus -48824-05-02 09:21 J -16111421.31 -16111421.11 -16111420.91 0.0504 0.0179  
 Mercury -48821-02-25 17:45 J -16110391.87 -16110391.76 -16110391.65 0.0539 0.0328  
 Mercury -48821-05-25 05:45 J -16110302.36 -16110302.26 -16110302.15 0.0540 0.0338  
 Earth -48821-09-06 20:23 J -16110197.87 -16110197.65 -16110197.42 0.0541 0.0114  
 Moon -48821-09-06 23:16 J -16110197.76 -16110197.53 -16110197.31 0.0541 0.0084 \*  
 Venus -48819-07-19 03:35 J -16109517.46 -16109517.35 -16109517.23 0.0528 0.0430  
 Mercury -48815-01-10 17:45 J -16108245.91 -16108245.76 -16108245.60 0.0488 0.0152  
 Mercury -48815-04-10 15:49 J -16108155.88 -16108155.84 -16108155.79 0.0487 0.0470  
 Venus -48812-01-05 02:09 J -16107155.61 -16107155.41 -16107155.20 0.0502 0.0125

Mercury -48810-12-14 20:23 J -16106081.70 -16106081.65 -16106081.59 0.0539 0.0489

Mercury -48809-03-13 09:06 J -16105992.25 -16105992.12 -16105992.00 0.0540 0.0184

Venus -48807-11-15 20:09 J -16105014.79 -16105014.66 -16105014.53 0.0521 0.0389

Mercury -48804-10-29 18:13 J -16103935.87 -16103935.74 -16103935.61 0.0488 0.0301

Mercury -48803-01-27 15:49 J -16103845.97 -16103845.84 -16103845.71 0.0487 0.0314

Venus -48801-09-09 21:21 J -16102889.72 -16102889.61 -16102889.49 0.0500 0.0417

Mercury -48798-12-31 11:59 J -16101682.14 -16101682.00 -16101681.86 0.0540 0.0025

Venus -48795-07-21 18:42 J -16100748.91 -16100748.72 -16100748.52 0.0523 0.0077

Mercury -48792-08-17 18:28 J -16099625.79 -16099625.73 -16099625.67 0.0489 0.0453

Mercury -48792-11-15 15:35 J -16099536.01 -16099535.85 -16099535.69 0.0488 0.0156

Earth -48791-03-01 05:45 J -16099430.44 -16099430.26 -16099430.07 0.0487 0.0298

Moon -48791-03-01 05:45 J -16099430.43 -16099430.26 -16099430.06 0.0487 0.0316 \*

Mars -48789-05-23 22:47 J -16098615.83 -16098615.55 -16098615.27 0.0499 0.0175

Venus -48788-01-08 00:42 J -16098386.62 -16098386.47 -16098386.32 0.0506 0.0358

Mercury -48786-10-19 14:23 J -16097372.03 -16097371.90 -16097371.77 0.0539 0.0144

Mercury -48785-01-17 02:09 J -16097282.44 -16097282.41 -16097282.37 0.0540 0.0515

Venus -48783-03-26 16:33 J -16096482.98 -16096482.81 -16096482.63 0.0526 0.0243

Mercury -48780-09-03 16:04 J -16095226.00 -16095225.83 -16095225.67 0.0488 0.0013

Moon -48779-03-05 12:13 J -16095043.21 -16095042.99 -16095042.77 0.0487 0.0121

Earth -48779-03-05 13:25 J -16095043.17 -16095042.94 -16095042.71 0.0487 0.0103 \*

Venus -48777-09-12 17:45 J -16094120.97 -16094120.76 -16094120.55 0.0503 0.0052

Mercury -48774-08-07 15:49 J -16093061.95 -16093061.84 -16093061.73 0.0539 0.0329

Mercury -48774-11-05 04:04 J -16092972.43 -16092972.33 -16092972.22 0.0540 0.0336

Mercury -48768-06-22 16:18 J -16090915.98 -16090915.82 -16090915.66 0.0488 0.0145

Mercury -48768-09-20 14:23 J -16090825.93 -16090825.90 -16090825.87 0.0487 0.0478

Venus -48765-05-18 11:30 J -16089855.20 -16089855.02 -16089854.84 0.0501 0.0248

Mercury -48762-05-26 18:13 J -16088751.79 -16088751.74 -16088751.69 0.0539 0.0500

Mercury -48762-08-24 06:42 J -16088662.35 -16088662.22 -16088662.09 0.0540 0.0172

Mars -48760-08-14 23:01 J -16087940.79 -16087940.54 -16087940.30 0.0531 0.0154

Venus -48759-03-29 04:47 J -16087714.47 -16087714.30 -16087714.12 0.0523 0.0250

Mercury -48756-04-10 16:04 J -16086605.95 -16086605.83 -16086605.69 0.0488 0.0300

Mercury -48756-07-09 13:40 J -16086516.05 -16086515.93 -16086515.80 0.0487 0.0316

Mercury -48750-06-12 09:49 J -16084352.23 -16084352.09 -16084351.96 0.0540 0.0020

Earth -48750-09-01 15:49 J -16084270.87 -16084270.84 -16084270.80 0.0541 0.0534

Moon -48750-09-01 19:11 J -16084270.75 -16084270.70 -16084270.65 0.0541 0.0525

Venus -48748-12-02 04:47 J -16083448.49 -16083448.30 -16083448.10 0.0525 0.0060

Mercury -48744-01-27 16:33 J -16082295.86 -16082295.81 -16082295.74 0.0488 0.0449

Mercury -48744-04-27 13:40 J -16082206.09 -16082205.93 -16082205.76 0.0487 0.0161

Venus -48741-05-21 06:57 J -16081086.39 -16081086.21 -16081086.02 0.0505 0.0223

Mercury -48738-03-31 12:28 J -16080042.11 -16080041.98 -16080041.84 0.0540 0.0147

Mercury -48738-06-29 00:28 J -16079952.52 -16079952.48 -16079952.44 0.0541 0.0513

Moon -48738-09-06 22:18 J -16079882.81 -16079882.57 -16079882.33 0.0541 0.0005

Earth -48738-09-06 23:30 J -16079882.75 -16079882.52 -16079882.29 0.0541 0.0036 \*

Venus -48736-08-07 02:23 J -16079182.53 -16079182.40 -16079182.26 0.0527 0.0380

Mercury -48732-02-13 13:40 J -16077896.10 -16077895.93 -16077895.76 0.0488 0.0004

Venus -48729-01-25 01:25 J -16076820.65 -16076820.44 -16076820.23 0.0503 0.0077

Mercury -48726-01-17 14:52 J -16075731.99 -16075731.88 -16075731.76 0.0539 0.0315

Mercury -48726-04-17 03:06 J -16075642.47 -16075642.37 -16075642.27 0.0540 0.0351

Mars -48724-05-20 00:57 J -16074878.61 -16074878.46 -16074878.29 0.0528 0.0409

Venus -48724-12-04 16:33 J -16074679.92 -16074679.81 -16074679.69 0.0521 0.0426

Mercury -48721-12-02 14:09 J -16073586.07 -16073585.91 -16073585.75 0.0488 0.0146

Mercury -48720-03-02 11:59 J -16073496.03 -16073496.00 -16073495.96 0.0487 0.0477

Venus -48718-09-29 20:09 J -16072554.80 -16072554.66 -16072554.52 0.0500 0.0371

Mercury -48715-11-05 16:18 J -16071421.86 -16071421.82 -16071421.77 0.0538 0.0500

Mercury -48714-02-03 05:01 J -16071332.42 -16071332.29 -16071332.16 0.0540 0.0171

Venus -48712-08-09 13:40 J -16070414.12 -16070413.93 -16070413.73 0.0524 0.0111

Mercury -48709-09-20 14:23 J -16069276.03 -16069275.90 -16069275.77 0.0489 0.0296

Mercury -48709-12-19 11:59 J -16069186.13 -16069186.00 -16069185.87 0.0488 0.0320

Moon -48708-02-28 11:01 J -16069115.19 -16069115.04 -16069114.90 0.0487 0.0373

Earth -48708-02-28 12:28 J -16069115.14 -16069114.98 -16069114.82 0.0487 0.0355 \*

Venus -48705-01-27 21:49 J -16068051.72 -16068051.59 -16068051.46 0.0506 0.0398

Mercury -48703-11-22 07:25 J -16067022.33 -16067022.19 -16067022.05 0.0540 0.0003

Venus -48700-04-14 12:28 J -16066148.17 -16066147.98 -16066147.80 0.0526 0.0206

Mercury -48697-07-09 14:23 J -16064965.96 -16064965.90 -16064965.83 0.0489 0.0450

Mercury -48697-10-07 11:30 J -16064876.18 -16064876.02 -16064875.86 0.0488 0.0159

Earth -48696-03-04 16:33 J -16064728.04 -16064727.81 -16064727.57 0.0487 0.0034

Moon -48696-03-04 19:25 J -16064727.93 -16064727.69 -16064727.45 0.0487 0.0057 \*

Venus -48694-10-02 13:25 J -16063786.15 -16063785.94 -16063785.73 0.0504 0.0089

Mercury -48691-09-10 10:04 J -16062712.21 -16062712.08 -16062711.94 0.0540 0.0160

Mercury -48691-12-08 22:04 J -16062622.62 -16062622.58 -16062622.53 0.0541 0.0502

Venus -48689-12-18 11:01 J -16061882.07 -16061882.04 -16061882.01 0.0529 0.0522

Mercury -48685-07-26 11:45 J -16060566.18 -16060566.01 -16060565.84 0.0488 0.0007

Moon -48684-03-08 19:25 J -16060340.78 -16060340.69 -16060340.60 0.0487 0.0450

Earth -48684-03-08 23:01 J -16060340.65 -16060340.54 -16060340.43 0.0487 0.0430 \*

Venus -48682-06-07 07:54 J -16059520.36 -16059520.17 -16059519.98 0.0502 0.0208

Mercury -48679-06-29 12:57 J -16058402.07 -16058401.96 -16058401.85 0.0539 0.0320

Mercury -48679-09-27 01:11 J -16058312.55 -16058312.45 -16058312.35 0.0540 0.0346

Venus -48676-04-17 02:52 J -16057379.54 -16057379.38 -16057379.21 0.0522 0.0294

Mercury -48673-05-14 11:45 J -16056256.17 -16056256.01 -16056255.85 0.0488 0.0150

Mercury -48673-08-12 09:35 J -16056166.14 -16056166.10 -16056166.06 0.0487 0.0472

Mars -48671-11-10 18:28 J -16055345.99 -16055345.73 -16055345.47 0.0497 0.0233

Venus -48670-02-10 03:35 J -16055254.37 -16055254.35 -16055254.33 0.0500 0.0497

Mercury -48667-04-17 15:21 J -16054091.92 -16054091.86 -16054091.81 0.0539 0.0490

Mercury -48667-07-16 03:49 J -16054002.46 -16054002.34 -16054002.21 0.0540 0.0183

Venus -48665-12-21 01:11 J -16053113.65 -16053113.45 -16053113.25 0.0524 0.0021

Mercury -48661-03-02 12:13 J -16051946.12 -16051945.99 -16051945.86 0.0489 0.0299

Mercury -48661-05-31 09:35 J -16051856.22 -16051856.10 -16051855.97 0.0488 0.0318

Venus -48658-06-10 05:16 J -16050751.46 -16050751.28 -16050751.10 0.0505 0.0268

Mercury -48655-05-04 05:45 J -16049692.40 -16049692.26 -16049692.13 0.0539 0.0014

Moon -48655-09-05 15:06 J -16049568.08 -16049567.87 -16049567.65 0.0540 0.0127

Earth -48655-09-05 15:35 J -16049568.08 -16049567.85 -16049567.62 0.0540 0.0095 \*  
 Venus -48653-08-25 20:37 J -16048847.79 -16048847.64 -16048847.49 0.0527 0.0349  
 Mercury -48650-12-20 12:28 J -16047636.04 -16047635.98 -16047635.91 0.0489 0.0448  
 Mercury -48649-03-19 09:35 J -16047546.26 -16047546.10 -16047545.94 0.0488 0.0162  
 Venus -48646-02-12 22:33 J -16046485.77 -16046485.56 -16046485.35 0.0502 0.0036  
 Mercury -48643-02-20 07:54 J -16045382.30 -16045382.17 -16045382.04 0.0539 0.0168  
 Mercury -48643-05-20 19:54 J -16045292.73 -16045292.67 -16045292.62 0.0540 0.0491  
 Earth -48643-09-10 19:54 J -16045179.79 -16045179.67 -16045179.55 0.0541 0.0457  
 Moon -48643-09-10 22:47 J -16045179.67 -16045179.55 -16045179.43 0.0541 0.0463 \*  
 Venus -48641-12-23 11:45 J -16044345.09 -16044345.01 -16044344.91 0.0521 0.0461  
 Mercury -48637-01-06 09:21 J -16043236.28 -16043236.11 -16043235.94 0.0488 0.0004  
 Mars -48635-08-17 01:25 J -16042282.66 -16042282.44 -16042282.20 0.0498 0.0312  
 Venus -48635-10-18 14:52 J -16042220.04 -16042219.88 -16042219.73 0.0500 0.0337  
 Mercury -48632-12-09 10:33 J -16041072.17 -16041072.06 -16041071.96 0.0539 0.0334  
 Mercury -48631-03-08 22:47 J -16040982.65 -16040982.55 -16040982.44 0.0540 0.0334  
 Venus -48629-08-28 12:28 J -16040079.16 -16040078.98 -16040078.79 0.0524 0.0158  
 Mercury -48626-10-25 09:35 J -16038926.26 -16038926.10 -16038925.94 0.0488 0.0148  
 Mercury -48625-01-23 07:25 J -16038836.22 -16038836.19 -16038836.15 0.0487 0.0473  
 Earth -48625-02-28 14:52 J -16038799.98 -16038799.88 -16038799.76 0.0487 0.0426  
 Moon -48625-02-28 17:45 J -16038799.86 -16038799.76 -16038799.64 0.0487 0.0434 \*  
 Venus -48622-02-15 17:45 J -16037716.86 -16037716.76 -16037716.65 0.0506 0.0436  
 Mercury -48620-09-27 13:11 J -16036762.00 -16036761.95 -16036761.90 0.0539 0.0497  
 Mercury -48620-12-26 01:54 J -16036672.55 -16036672.42 -16036672.29 0.0540 0.0177  
 Venus -48617-05-03 10:47 J -16035813.23 -16035813.05 -16035812.86 0.0526 0.0158  
 Mercury -48614-08-13 09:49 J -16034616.22 -16034616.09 -16034615.96 0.0488 0.0302  
 Mercury -48614-11-11 07:11 J -16034526.33 -16034526.20 -16034526.07 0.0487 0.0313  
 Moon -48613-03-03 16:47 J -16034413.03 -16034412.80 -16034412.57 0.0487 0.0008  
 Earth -48613-03-03 20:23 J -16034412.88 -16034412.65 -16034412.41 0.0487 0.0033 \*  
 Venus -48611-10-21 11:45 J -16033451.21 -16033451.01 -16033450.81 0.0504 0.0134  
 Mercury -48608-10-14 04:33 J -16032362.45 -16032362.31 -16032362.18 0.0540 0.0015

Mars -48606-11-08 14:23 J -16031607.16 -16031606.90 -16031606.64 0.0530 0.0004  
 Venus -48605-01-07 07:40 J -16031547.26 -16031547.18 -16031547.10 0.0528 0.0480  
 Mercury -48602-06-01 10:18 J -16030306.13 -16030306.07 -16030306.01 0.0489 0.0449  
 Mercury -48602-08-30 07:25 J -16030216.35 -16030216.19 -16030216.03 0.0488 0.0160  
 Earth -48601-03-08 03:21 J -16030025.51 -16030025.36 -16030025.20 0.0487 0.0367  
 Moon -48601-03-08 06:57 J -16030025.34 -16030025.21 -16030025.06 0.0487 0.0384 \*  
 Venus -48599-06-26 06:13 J -16029185.44 -16029185.24 -16029185.04 0.0502 0.0162  
 Mercury -48596-08-02 06:13 J -16028052.37 -16028052.24 -16028052.11 0.0539 0.0167  
 Mercury -48596-10-30 18:13 J -16027962.79 -16027962.74 -16027962.69 0.0540 0.0491  
 Venus -48593-05-05 21:21 J -16027044.77 -16027044.61 -16027044.46 0.0522 0.0324  
 Mercury -48590-06-18 07:25 J -16025906.36 -16025906.19 -16025906.02 0.0488 0.0007  
 Venus -48587-03-01 00:42 J -16024919.55 -16024919.47 -16024919.38 0.0499 0.0454  
 Mercury -48584-05-21 08:23 J -16023742.25 -16023742.15 -16023742.04 0.0539 0.0340  
 Mercury -48584-08-18 20:37 J -16023652.74 -16023652.64 -16023652.53 0.0540 0.0326  
 Venus -48581-01-09 20:09 J -16022778.86 -16022778.66 -16022778.47 0.0525 0.0016  
 Mercury -48578-04-06 07:11 J -16021596.35 -16021596.20 -16021596.04 0.0488 0.0151  
 Mercury -48578-07-05 05:01 J -16021506.33 -16021506.29 -16021506.24 0.0487 0.0470  
 Venus -48575-06-28 23:45 J -16020416.68 -16020416.51 -16020416.34 0.0505 0.0299  
 Mercury -48572-03-09 10:33 J -16019432.10 -16019432.06 -16019432.01 0.0539 0.0511  
 Mercury -48572-06-06 23:30 J -16019342.65 -16019342.52 -16019342.39 0.0540 0.0165  
 Earth -48572-09-04 13:25 J -16019253.15 -16019252.94 -16019252.72 0.0541 0.0197  
 Moon -48572-09-04 15:35 J -16019253.06 -16019252.85 -16019252.63 0.0541 0.0228 \*  
 Venus -48570-09-14 19:25 J -16018512.85 -16018512.69 -16018512.52 0.0527 0.0299  
 Mercury -48566-01-23 07:40 J -16017286.30 -16017286.18 -16017286.04 0.0488 0.0300  
 Mercury -48566-04-23 05:01 J -16017196.41 -16017196.29 -16017196.16 0.0487 0.0315  
 Venus -48563-03-03 17:45 J -16016150.97 -16016150.76 -16016150.55 0.0503 0.0005  
 Mercury -48560-03-26 02:23 J -16015032.54 -16015032.40 -16015032.26 0.0540 0.0009  
 Moon -48560-09-09 17:45 J -16014864.92 -16014864.76 -16014864.60 0.0541 0.0380  
 Earth -48560-09-09 21:35 J -16014864.77 -16014864.60 -16014864.44 0.0541 0.0374 \*  
 Venus -48557-01-12 10:33 J -16014010.11 -16014010.06 -16014010.02 0.0520 0.0505

Mercury -48555-11-11 08:09 J -16012976.22 -16012976.16 -16012976.10 0.0489 0.0451

Mercury -48554-02-09 05:01 J -16012886.45 -16012886.29 -16012886.13 0.0488 0.0157

Venus -48552-11-06 12:57 J -16011885.13 -16011884.96 -16011884.79 0.0501 0.0293

Mercury -48548-01-12 05:01 J -16010722.42 -16010722.29 -16010722.16 0.0539 0.0159

Mercury -48548-04-11 17:01 J -16010632.84 -16010632.79 -16010632.74 0.0540 0.0502

Venus -48546-09-17 09:21 J -16009744.29 -16009744.11 -16009743.92 0.0523 0.0198

Mercury -48543-11-28 05:16 J -16008576.45 -16008576.28 -16008576.11 0.0488 0.0009

Venus -48539-03-06 16:33 J -16007381.87 -16007381.81 -16007381.74 0.0506 0.0482

Mercury -48537-10-31 06:57 J -16006412.32 -16006412.21 -16006412.11 0.0539 0.0337

Mercury -48536-01-28 19:11 J -16006322.81 -16006322.70 -16006322.59 0.0540 0.0329

Venus -48534-05-23 05:16 J -16005478.47 -16005478.28 -16005478.08 0.0526 0.0125

Mercury -48531-09-16 05:16 J -16004266.44 -16004266.28 -16004266.12 0.0488 0.0149

Mercury -48531-12-15 03:06 J -16004176.40 -16004176.37 -16004176.33 0.0488 0.0473

Earth -48530-03-04 01:25 J -16004097.67 -16004097.44 -16004097.21 0.0487 0.0095

Moon -48530-03-04 05:01 J -16004097.52 -16004097.29 -16004097.05 0.0487 0.0065 \*

Venus -48528-11-09 09:21 J -16003116.31 -16003116.11 -16003115.92 0.0504 0.0177

Mercury -48525-08-19 08:52 J -16002102.17 -16002102.13 -16002102.09 0.0538 0.0511

Mercury -48525-11-16 21:35 J -16002012.73 -16002012.60 -16002012.47 0.0540 0.0161

Venus -48522-01-26 02:37 J -16001212.49 -16001212.39 -16001212.28 0.0528 0.0445

Mercury -48519-07-05 05:30 J -15999956.40 -15999956.27 -15999956.14 0.0488 0.0301

Mercury -48519-10-03 02:37 J -15999866.51 -15999866.39 -15999866.25 0.0487 0.0314

Moon -48518-03-08 02:37 J -15999710.56 -15999710.39 -15999710.20 0.0487 0.0313

Earth -48518-03-08 05:59 J -15999710.43 -15999710.25 -15999710.06 0.0487 0.0300 \*

Mars -48516-02-02 21:06 J -15999012.90 -15999012.62 -15999012.33 0.0496 0.0099

Venus -48516-07-15 00:28 J -15998850.68 -15998850.48 -15998850.27 0.0502 0.0132

Mercury -48513-09-04 23:59 J -15997702.63 -15997702.50 -15997702.36 0.0540 0.0014

Venus -48510-05-25 20:23 J -15996709.78 -15996709.65 -15996709.51 0.0522 0.0373

Mercury -48507-04-23 06:13 J -15995646.30 -15995646.24 -15995646.17 0.0489 0.0446

Mercury -48507-07-22 03:06 J -15995556.53 -15995556.37 -15995556.21 0.0487 0.0161

Venus -48504-03-19 20:09 J -15994584.77 -15994584.66 -15994584.55 0.0499 0.0420



Mercury -48501-06-24 02:52 J -15993392.51 -15993392.38 -15993392.25 0.0540 0.0165

Mercury -48501-09-21 14:52 J -15993302.92 -15993302.88 -15993302.82 0.0541 0.0498

Venus -48498-01-28 19:40 J -15992443.88 -15992443.68 -15992443.49 0.0524 0.0064

Mercury -48495-05-10 03:06 J -15991246.54 -15991246.37 -15991246.20 0.0488 0.0008

Venus -48492-07-17 22:33 J -15990081.71 -15990081.56 -15990081.41 0.0506 0.0346

Mercury -48489-04-12 05:30 J -15989082.38 -15989082.27 -15989082.16 0.0539 0.0329

Mercury -48489-07-10 17:59 J -15988992.85 -15988992.75 -15988992.65 0.0540 0.0339

Moon -48489-09-03 11:59 J -15988938.18 -15988938.00 -15988937.81 0.0541 0.0318

Earth -48489-09-03 15:21 J -15988938.06 -15988937.86 -15988937.66 0.0541 0.0283 \*

Mars -48487-04-29 02:09 J -15988335.56 -15988335.41 -15988335.25 0.0532 0.0424

Venus -48487-10-03 17:30 J -15988177.94 -15988177.77 -15988177.60 0.0527 0.0253

Mercury -48483-02-26 03:21 J -15986936.52 -15986936.36 -15986936.20 0.0488 0.0147

Mercury -48483-05-27 01:11 J -15986846.49 -15986846.45 -15986846.41 0.0487 0.0474

Mars -48481-11-09 19:40 J -15985948.76 -15985948.68 -15985948.59 0.0499 0.0477

Venus -48480-03-22 17:16 J -15985815.99 -15985815.78 -15985815.57 0.0503 0.0050

Mercury -48477-01-30 07:25 J -15984772.23 -15984772.19 -15984772.14 0.0538 0.0505

Mercury -48477-04-28 20:09 J -15984682.79 -15984682.66 -15984682.53 0.0539 0.0168

Earth -48477-09-08 17:45 J -15984549.96 -15984549.76 -15984549.56 0.0540 0.0264

Moon -48477-09-08 21:49 J -15984549.79 -15984549.59 -15984549.39 0.0540 0.0275 \*

Mercury -48472-12-15 03:35 J -15982626.48 -15982626.35 -15982626.21 0.0489 0.0298

Mercury -48471-03-15 00:57 J -15982536.58 -15982536.46 -15982536.33 0.0488 0.0318

Venus -48469-11-25 11:16 J -15981550.21 -15981550.03 -15981549.85 0.0501 0.0247

Mercury -48465-02-15 22:33 J -15980372.70 -15980372.56 -15980372.42 0.0539 0.0003

Venus -48463-10-06 05:16 J -15979409.45 -15979409.28 -15979409.10 0.0523 0.0236

Mercury -48460-10-03 04:04 J -15978316.39 -15978316.33 -15978316.26 0.0489 0.0446

Mercury -48459-01-01 00:57 J -15978226.62 -15978226.46 -15978226.30 0.0488 0.0161

Mercury -48454-12-05 00:42 J -15976062.60 -15976062.47 -15976062.34 0.0540 0.0173

Mercury -48453-03-03 12:57 J -15975973.02 -15975972.96 -15975972.91 0.0541 0.0490

Mars -48451-02-01 04:33 J -15975273.56 -15975273.31 -15975273.06 0.0531 0.0142

Venus -48451-06-11 05:16 J -15975143.48 -15975143.28 -15975143.09 0.0526 0.0074

Mercury -48448-10-20 01:25 J -15973916.61 -15973916.44 -15973916.27 0.0488 0.0012

Moon -48447-03-03 03:49 J -15973782.57 -15973782.34 -15973782.11 0.0487 0.0123

Earth -48447-03-03 06:57 J -15973782.43 -15973782.21 -15973781.99 0.0487 0.0154 \*

Venus -48445-11-28 05:01 J -15972781.48 -15972781.29 -15972781.10 0.0504 0.0212

Mercury -48442-09-23 03:35 J -15971752.46 -15971752.35 -15971752.24 0.0539 0.0334

Mercury -48442-12-21 16:04 J -15971662.94 -15971662.83 -15971662.73 0.0541 0.0336

Venus -48439-02-14 03:21 J -15970877.48 -15970877.36 -15970877.22 0.0528 0.0390

Mercury -48436-08-08 01:25 J -15969606.59 -15969606.44 -15969606.27 0.0488 0.0143

Mercury -48436-11-05 23:16 J -15969516.56 -15969516.53 -15969516.50 0.0487 0.0477

Earth -48435-03-07 12:13 J -15969395.19 -15969394.99 -15969394.78 0.0487 0.0242

Moon -48435-03-07 14:23 J -15969395.09 -15969394.90 -15969394.71 0.0487 0.0253 \*

Venus -48433-08-02 23:59 J -15968515.71 -15968515.50 -15968515.29 0.0502 0.0083

Mercury -48430-07-12 06:13 J -15967442.29 -15967442.24 -15967442.19 0.0539 0.0498

Mercury -48430-10-09 18:57 J -15967352.84 -15967352.71 -15967352.58 0.0540 0.0177

Venus -48427-06-13 18:57 J -15966374.82 -15966374.71 -15966374.59 0.0521 0.0418

Mercury -48424-05-27 02:09 J -15965296.55 -15965296.41 -15965296.28 0.0488 0.0292

Mercury -48424-08-24 23:16 J -15965206.66 -15965206.53 -15965206.40 0.0488 0.0323

Venus -48421-04-07 19:54 J -15964249.80 -15964249.67 -15964249.52 0.0500 0.0369

Mercury -48418-07-28 21:21 J -15963042.75 -15963042.61 -15963042.48 0.0539 0.0011

Venus -48415-02-16 16:04 J -15962109.02 -15962108.83 -15962108.63 0.0524 0.0103

Mercury -48412-03-15 02:23 J -15960986.47 -15960986.40 -15960986.33 0.0489 0.0441

Mercury -48412-06-12 23:16 J -15960896.69 -15960896.53 -15960896.37 0.0488 0.0167

Venus -48409-08-05 21:35 J -15959746.72 -15959746.60 -15959746.46 0.0506 0.0395

Mercury -48406-05-16 23:30 J -15958732.65 -15958732.52 -15958732.39 0.0539 0.0164

Mercury -48406-08-14 11:30 J -15958643.07 -15958643.02 -15958642.97 0.0540 0.0497

Earth -48406-09-03 11:59 J -15958623.15 -15958623.00 -15958622.83 0.0540 0.0391

Moon -48406-09-03 16:04 J -15958622.97 -15958622.83 -15958622.68 0.0540 0.0421 \*

Venus -48404-10-22 14:09 J -15957843.09 -15957842.91 -15957842.72 0.0527 0.0212

Mercury -48400-03-31 23:30 J -15956586.69 -15956586.52 -15956586.35 0.0488 0.0016

Mars -48398-07-24 05:45 J -15955742.33 -15955742.26 -15955742.16 0.0495 0.0472

Venus -48397-04-10 12:42 J -15955481.17 -15955480.97 -15955480.76 0.0503 0.0084

Mercury -48394-03-05 01:25 J -15954422.54 -15954422.44 -15954422.33 0.0539 0.0340

Mercury -48394-06-02 13:54 J -15954333.02 -15954332.92 -15954332.81 0.0541 0.0331

Moon -48394-09-08 12:42 J -15954235.19 -15954234.97 -15954234.74 0.0541 0.0176

Earth -48394-09-08 16:33 J -15954235.03 -15954234.81 -15954234.59 0.0541 0.0168 \*

Mercury -48388-01-18 00:13 J -15952276.65 -15952276.49 -15952276.33 0.0488 0.0132

Venus -48386-12-15 07:40 J -15951215.37 -15951215.18 -15951214.99 0.0501 0.0210

Mercury -48383-12-22 04:04 J -15950112.37 -15950112.33 -15950112.28 0.0539 0.0502

Mercury -48382-03-21 17:01 J -15950022.91 -15950022.79 -15950022.66 0.0540 0.0176

Venus -48380-10-25 06:28 J -15949074.38 -15949074.23 -15949074.06 0.0523 0.0291

Mercury -48377-11-06 00:28 J -15947966.61 -15947966.48 -15947966.35 0.0488 0.0284

Mercury -48376-02-03 21:35 J -15947876.72 -15947876.60 -15947876.47 0.0487 0.0330

Venus -48374-08-20 03:49 J -15946949.36 -15946949.34 -15946949.31 0.0499 0.0494

Mercury -48370-01-07 20:09 J -15945712.80 -15945712.66 -15945712.53 0.0540 0.0018

Venus -48368-06-30 05:16 J -15944808.47 -15944808.28 -15944808.08 0.0525 0.0021

Mercury -48365-08-25 01:11 J -15943656.53 -15943656.45 -15943656.38 0.0489 0.0431

Mercury -48365-11-22 21:49 J -15943566.75 -15943566.59 -15943566.43 0.0488 0.0176

Earth -48364-03-02 14:09 J -15943467.12 -15943466.91 -15943466.70 0.0487 0.0207

Moon -48364-03-02 15:49 J -15943467.05 -15943466.84 -15943466.62 0.0487 0.0178 \*

Mars -48362-04-29 23:30 J -15942678.80 -15942678.52 -15942678.23 0.0497 0.0084

Venus -48362-12-18 06:13 J -15942446.42 -15942446.24 -15942446.06 0.0505 0.0267

Mercury -48359-10-26 22:18 J -15941402.70 -15941402.57 -15941402.43 0.0539 0.0154

Mercury -48358-01-24 10:33 J -15941313.10 -15941313.06 -15941313.02 0.0540 0.0508

Venus -48356-03-05 01:11 J -15940542.59 -15940542.45 -15940542.30 0.0528 0.0345

Mercury -48353-09-10 22:04 J -15939256.75 -15939256.58 -15939256.42 0.0488 0.0025

Moon -48352-03-06 20:09 J -15939079.88 -15939079.66 -15939079.43 0.0487 0.0196

Earth -48352-03-06 20:23 J -15939079.86 -15939079.65 -15939079.43 0.0487 0.0194 \*

Venus -48350-08-23 00:13 J -15938180.70 -15938180.49 -15938180.28 0.0502 0.0031

Mercury -48347-08-15 00:28 J -15937092.58 -15937092.48 -15937092.36 0.0539 0.0325

Mercury -48347-11-12 12:57 J -15937003.06 -15937002.96 -15937002.85 0.0540 0.0344

Venus -48344-07-02 16:47 J -15936039.88 -15936039.80 -15936039.70 0.0522 0.0462  
 Mercury -48341-06-29 22:18 J -15934946.73 -15934946.57 -15934946.40 0.0488 0.0127  
 Venus -48338-04-27 16:47 J -15933914.95 -15933914.80 -15933914.64 0.0500 0.0332  
 Mercury -48335-06-03 02:23 J -15932782.45 -15932782.40 -15932782.36 0.0539 0.0504  
 Mercury -48335-08-31 15:21 J -15932692.99 -15932692.86 -15932692.73 0.0540 0.0173  
 Mars -48333-07-23 00:42 J -15932001.69 -15932001.47 -15932001.24 0.0533 0.0252  
 Venus -48332-03-07 17:16 J -15931773.97 -15931773.78 -15931773.59 0.0524 0.0158  
 Mercury -48329-04-17 23:16 J -15930636.67 -15930636.53 -15930636.39 0.0488 0.0270  
 Mercury -48329-07-16 20:23 J -15930546.77 -15930546.65 -15930546.53 0.0487 0.0343  
 Venus -48326-08-25 19:11 J -15929411.81 -15929411.70 -15929411.60 0.0506 0.0433  
 Mercury -48323-06-19 18:13 J -15928382.87 -15928382.74 -15928382.60 0.0540 0.0017  
 Moon -48323-09-02 11:01 J -15928308.12 -15928308.04 -15928307.95 0.0541 0.0504  
 Earth -48323-09-02 15:06 J -15928307.99 -15928307.87 -15928307.76 0.0541 0.0470 \*  
 Venus -48321-11-10 16:33 J -15927508.00 -15927507.81 -15927507.62 0.0527 0.0153  
 Mercury -48317-02-04 23:45 J -15926326.59 -15926326.51 -15926326.42 0.0488 0.0420  
 Mercury -48317-05-04 20:23 J -15926236.80 -15926236.65 -15926236.49 0.0487 0.0187  
 Venus -48314-04-30 13:40 J -15925146.13 -15925145.93 -15925145.72 0.0503 0.0137  
 Mercury -48311-04-07 21:06 J -15924072.75 -15924072.62 -15924072.48 0.0540 0.0145  
 Mercury -48311-07-06 09:21 J -15923983.14 -15923983.11 -15923983.07 0.0541 0.0520  
 Earth -48311-09-07 23:45 J -15923919.74 -15923919.51 -15923919.28 0.0541 0.0106  
 Moon -48311-09-08 02:09 J -15923919.63 -15923919.41 -15923919.19 0.0541 0.0127 \*  
 Venus -48309-07-16 14:09 J -15923241.99 -15923241.91 -15923241.82 0.0529 0.0470  
 Mercury -48305-02-21 20:52 J -15921926.80 -15921926.63 -15921926.46 0.0488 0.0036  
 Venus -48302-01-03 09:21 J -15920880.31 -15920880.11 -15920879.91 0.0501 0.0153  
 Mercury -48299-01-24 23:30 J -15919762.63 -15919762.52 -15919762.40 0.0539 0.0311  
 Mercury -48299-04-24 11:59 J -15919673.10 -15919673.00 -15919672.89 0.0540 0.0358  
 Mars -48297-04-27 08:52 J -15918939.33 -15918939.13 -15918938.92 0.0530 0.0321  
 Venus -48297-11-13 05:16 J -15918739.43 -15918739.28 -15918739.13 0.0522 0.0336  
 Mercury -48294-12-10 21:06 J -15917616.78 -15917616.62 -15917616.46 0.0488 0.0117  
 Venus -48291-09-08 05:01 J -15916614.38 -15916614.29 -15916614.19 0.0499 0.0440

Mercury -48288-11-13 01:40 J -15915452.49 -15915452.43 -15915452.37 0.0538 0.0484  
 Mercury -48287-02-10 14:37 J -15915363.02 -15915362.89 -15915362.76 0.0540 0.0191  
 Venus -48285-07-19 04:04 J -15914473.53 -15914473.33 -15914473.13 0.0525 0.0027  
 Mercury -48282-09-28 21:49 J -15913306.73 -15913306.59 -15913306.45 0.0488 0.0262  
 Mercury -48282-12-27 18:57 J -15913216.83 -15913216.71 -15913216.59 0.0487 0.0352  
 Moon -48281-03-01 23:30 J -15913151.74 -15913151.52 -15913151.30 0.0487 0.0222  
 Earth -48281-03-01 23:30 J -15913151.72 -15913151.52 -15913151.32 0.0487 0.0249 \*  
 Venus -48278-01-06 03:35 J -15912111.51 -15912111.35 -15912111.18 0.0504 0.0307  
 Mercury -48276-11-29 16:33 J -15911052.95 -15911052.81 -15911052.67 0.0540 0.0016  
 Venus -48273-03-24 02:37 J -15910207.55 -15910207.39 -15910207.22 0.0528 0.0289  
 Mercury -48270-07-17 22:47 J -15908996.64 -15908996.55 -15908996.46 0.0488 0.0404  
 Mercury -48270-10-15 19:25 J -15908906.84 -15908906.69 -15908906.53 0.0487 0.0204  
 Moon -48269-03-06 05:01 J -15908764.50 -15908764.29 -15908764.07 0.0486 0.0148  
 Earth -48269-03-06 07:11 J -15908764.42 -15908764.20 -15908763.98 0.0486 0.0156 \*  
 Venus -48267-09-10 22:33 J -15907845.78 -15907845.56 -15907845.35 0.0502 0.0016  
 Mercury -48264-09-17 19:25 J -15906742.82 -15906742.69 -15906742.56 0.0540 0.0144  
 Mercury -48264-12-16 07:40 J -15906653.21 -15906653.18 -15906653.15 0.0541 0.0520  
 Venus -48261-07-21 19:25 J -15905704.70 -15905704.69 -15905704.67 0.0521 0.0519  
 Mercury -48258-08-03 19:40 J -15904596.85 -15904596.68 -15904596.51 0.0488 0.0049  
 Venus -48255-05-16 17:59 J -15903579.92 -15903579.75 -15903579.57 0.0500 0.0277  
 Mercury -48252-07-06 22:18 J -15902432.68 -15902432.57 -15902432.45 0.0539 0.0303  
 Mercury -48252-10-04 11:01 J -15902343.14 -15902343.04 -15902342.95 0.0541 0.0368  
 Venus -48249-03-26 19:11 J -15901438.87 -15901438.70 -15901438.52 0.0524 0.0218  
 Mercury -48246-05-22 20:09 J -15900286.82 -15900286.66 -15900286.50 0.0488 0.0101  
 Mars -48244-10-17 17:30 J -15899408.00 -15899407.77 -15899407.52 0.0495 0.0274  
 Venus -48243-09-13 21:49 J -15899076.63 -15899076.59 -15899076.54 0.0506 0.0493  
 Mercury -48240-04-25 00:42 J -15898122.53 -15898122.47 -15898122.40 0.0539 0.0469  
 Mercury -48240-07-23 13:40 J -15898033.05 -15898032.93 -15898032.80 0.0540 0.0206  
 Earth -48240-09-01 20:52 J -15897992.65 -15897992.63 -15897992.60 0.0540 0.0536  
 Venus -48238-11-30 16:18 J -15897173.01 -15897172.82 -15897172.63 0.0526 0.0101

Mercury -48234-03-10 20:38 J -15895976.79 -15895976.64 -15895976.50 0.0488 0.0251

Mercury -48234-06-08 17:45 J -15895886.87 -15895886.76 -15895886.65 0.0487 0.0364

Venus -48231-05-19 15:35 J -15894811.04 -15894810.85 -15894810.65 0.0504 0.0194

Mercury -48228-05-11 16:04 J -15893722.96 -15893722.83 -15893722.69 0.0540 0.0040

Moon -48228-09-07 01:26 J -15893604.68 -15893604.44 -15893604.20 0.0541 0.0050

Earth -48228-09-07 02:23 J -15893604.63 -15893604.40 -15893604.17 0.0541 0.0025 \*

Venus -48226-08-05 13:40 J -15892907.05 -15892906.93 -15892906.81 0.0529 0.0419

Mercury -48223-12-27 21:21 J -15891666.70 -15891666.61 -15891666.51 0.0489 0.0394

Mercury -48222-03-27 17:59 J -15891576.89 -15891576.75 -15891576.59 0.0487 0.0215

Venus -48219-01-22 08:09 J -15890545.36 -15890545.16 -15890544.95 0.0501 0.0109

Mercury -48216-02-27 17:45 J -15889412.89 -15889412.76 -15889412.62 0.0540 0.0143

Mercury -48216-05-28 05:59 J -15889323.28 -15889323.25 -15889323.21 0.0541 0.0523

Venus -48214-12-03 06:57 J -15888404.34 -15888404.21 -15888404.08 0.0523 0.0392

Mercury -48210-01-13 18:57 J -15887266.88 -15887266.71 -15887266.55 0.0488 0.0068

Mars -48208-07-24 02:38 J -15886344.63 -15886344.39 -15886344.15 0.0497 0.0276

Venus -48208-09-27 04:04 J -15886279.45 -15886279.33 -15886279.20 0.0499 0.0395

Mercury -48205-12-16 20:38 J -15885102.76 -15885102.64 -15885102.53 0.0540 0.0304

Mercury -48204-03-16 09:06 J -15885013.21 -15885013.12 -15885013.02 0.0541 0.0368

Venus -48202-08-08 06:57 J -15884138.41 -15884138.21 -15884138.02 0.0525 0.0089

Mercury -48199-11-01 19:11 J -15882956.87 -15882956.70 -15882956.54 0.0488 0.0086

Moon -48198-03-02 08:23 J -15882836.33 -15882836.15 -15882835.95 0.0487 0.0270

Earth -48198-03-02 10:47 J -15882836.24 -15882836.05 -15882835.86 0.0487 0.0289 \*

Venus -48195-01-25 05:45 J -15881776.40 -15881776.26 -15881776.11 0.0505 0.0363

Mercury -48193-10-04 23:30 J -15880792.59 -15880792.52 -15880792.45 0.0539 0.0463

Mercury -48192-01-02 12:28 J -15880703.10 -15880702.98 -15880702.86 0.0541 0.0215

Venus -48190-04-13 05:30 J -15879872.45 -15879872.27 -15879872.09 0.0528 0.0224

Mercury -48187-08-20 19:40 J -15878646.82 -15878646.68 -15878646.53 0.0488 0.0234

Mercury -48187-11-18 16:47 J -15878556.90 -15878556.80 -15878556.69 0.0487 0.0380

Earth -48186-03-06 17:16 J -15878449.00 -15878448.78 -15878448.55 0.0486 0.0113

Moon -48186-03-06 20:52 J -15878448.86 -15878448.63 -15878448.39 0.0486 0.0096 \*

Venus -48184-09-30 01:11 J -15877510.66 -15877510.45 -15877510.24 0.0503 0.0071  
 Mercury -48181-10-21 15:06 J -15876393.00 -15876392.87 -15876392.73 0.0540 0.0056  
 Mars -48179-10-17 15:35 J -15875667.11 -15875666.85 -15875666.60 0.0532 0.0043  
 Mercury -48175-06-08 20:09 J -15874336.76 -15874336.66 -15874336.55 0.0489 0.0383  
 Mercury -48175-09-06 16:47 J -15874246.94 -15874246.80 -15874246.65 0.0488 0.0226  
 Moon -48174-03-10 19:54 J -15874061.69 -15874061.67 -15874061.65 0.0487 0.0484  
 Venus -48172-06-04 20:23 J -15873244.84 -15873244.65 -15873244.46 0.0500 0.0219  
 Mercury -48169-08-09 17:30 J -15872082.90 -15872082.77 -15872082.63 0.0539 0.0116  
 Venus -48166-04-15 18:57 J -15871103.87 -15871103.71 -15871103.54 0.0524 0.0268  
 Mercury -48163-06-25 17:30 J -15869936.93 -15869936.77 -15869936.60 0.0488 0.0079  
 Mercury -48157-05-28 18:57 J -15867772.82 -15867772.71 -15867772.59 0.0539 0.0300  
 Mercury -48157-08-26 07:40 J -15867683.28 -15867683.18 -15867683.08 0.0541 0.0371  
 Venus -48155-12-19 17:30 J -15866837.97 -15866837.77 -15866837.57 0.0527 0.0045  
 Mercury -48151-04-13 18:28 J -15865626.90 -15865626.73 -15865626.57 0.0488 0.0068  
 Venus -48148-06-07 14:52 J -15864476.06 -15864475.88 -15864475.69 0.0503 0.0239  
 Mercury -48145-03-16 21:35 J -15863462.67 -15863462.60 -15863462.53 0.0539 0.0464  
 Mercury -48145-06-14 10:47 J -15863373.18 -15863373.05 -15863372.93 0.0541 0.0214  
 Moon -48145-09-06 03:35 J -15863289.57 -15863289.35 -15863289.13 0.0541 0.0032  
 Earth -48145-09-06 04:18 J -15863289.55 -15863289.32 -15863289.09 0.0541 0.0061 \*  
 Venus -48143-08-24 16:04 J -15862571.97 -15862571.83 -15862571.68 0.0529 0.0359  
 Mercury -48139-01-30 18:42 J -15861316.87 -15861316.72 -15861316.57 0.0488 0.0218  
 Mercury -48139-04-30 15:50 J -15861226.94 -15861226.84 -15861226.74 0.0487 0.0396  
 Venus -48136-02-10 09:50 J -15860210.30 -15860210.09 -15860209.88 0.0501 0.0054  
 Mercury -48133-04-02 13:54 J -15859063.06 -15859062.92 -15859062.79 0.0540 0.0060  
 Earth -48133-09-11 13:54 J -15858900.97 -15858900.92 -15858900.86 0.0542 0.0524  
 Moon -48133-09-11 16:33 J -15858900.82 -15858900.81 -15858900.78 0.0542 0.0540  
 Venus -48131-12-22 09:35 J -15858069.19 -15858069.10 -15858069.00 0.0522 0.0452  
 Mercury -48128-11-18 19:26 J -15857006.79 -15857006.69 -15857006.58 0.0488 0.0365  
 Mercury -48127-02-16 16:04 J -15856916.97 -15856916.83 -15856916.68 0.0487 0.0243  
 Venus -48125-10-16 06:14 J -15855944.39 -15855944.24 -15855944.08 0.0499 0.0337

Mercury -48121-01-20 16:33 J -15854752.94 -15854752.81 -15854752.67 0.0540 0.0102

Venus -48119-08-27 07:40 J -15853803.37 -15853803.18 -15853802.99 0.0525 0.0143

Mercury -48116-12-05 16:18 J -15852606.99 -15852606.82 -15852606.66 0.0488 0.0089

Earth -48115-03-01 21:21 J -15852520.78 -15852520.61 -15852520.43 0.0487 0.0329

Moon -48115-03-02 01:11 J -15852520.63 -15852520.45 -15852520.27 0.0487 0.0313 \*

Venus -48112-02-13 08:23 J -15851441.26 -15851441.15 -15851441.03 0.0505 0.0422

Mercury -48110-11-08 18:42 J -15850442.83 -15850442.72 -15850442.59 0.0539 0.0274

Mercury -48109-02-06 07:26 J -15850353.28 -15850353.19 -15850353.10 0.0540 0.0397

Venus -48107-05-02 05:30 J -15849537.46 -15849537.27 -15849537.09 0.0527 0.0172

Mercury -48104-09-23 17:02 J -15848296.95 -15848296.79 -15848296.62 0.0488 0.0057

Moon -48103-03-06 01:11 J -15848133.69 -15848133.45 -15848133.22 0.0487 0.0057

Earth -48103-03-06 05:02 J -15848133.52 -15848133.29 -15848133.05 0.0487 0.0080 \*

Venus -48101-10-19 00:57 J -15847175.66 -15847175.46 -15847175.26 0.0502 0.0118

Mercury -48098-08-27 20:09 J -15846132.73 -15846132.66 -15846132.59 0.0539 0.0459

Mercury -48098-11-25 09:06 J -15846043.24 -15846043.12 -15846042.99 0.0540 0.0219

Venus -48095-01-05 01:26 J -15845271.50 -15845271.44 -15845271.36 0.0530 0.0497

Mercury -48092-07-12 17:59 J -15843986.90 -15843986.75 -15843986.60 0.0488 0.0201

Mercury -48092-10-10 15:06 J -15843896.96 -15843896.87 -15843896.78 0.0487 0.0414

Earth -48091-03-10 12:28 J -15843745.99 -15843745.98 -15843745.95 0.0486 0.0485

Moon -48091-03-10 16:18 J -15843745.89 -15843745.82 -15843745.74 0.0486 0.0459

Mars -48089-01-12 04:33 J -15843073.59 -15843073.31 -15843073.02 0.0495 0.0070

Venus -48089-06-23 19:54 J -15842909.86 -15842909.67 -15842909.47 0.0500 0.0172

Mercury -48086-09-13 11:59 J -15841733.14 -15841733.00 -15841732.86 0.0540 0.0057

Venus -48083-05-04 20:52 J -15840768.78 -15840768.63 -15840768.47 0.0524 0.0325

Mercury -48080-04-30 18:28 J -15839676.84 -15839676.73 -15839676.62 0.0488 0.0351

Mercury -48080-07-29 15:06 J -15839587.01 -15839586.87 -15839586.73 0.0487 0.0258

Venus -48077-02-27 15:50 J -15838643.92 -15838643.84 -15838643.75 0.0498 0.0454

Mercury -48074-07-02 15:06 J -15837423.01 -15837422.87 -15837422.74 0.0540 0.0099

Venus -48071-01-07 20:09 J -15836502.85 -15836502.66 -15836502.46 0.0526 0.0020

Mercury -48068-05-17 15:21 J -15835277.02 -15835276.86 -15835276.69 0.0487 0.0106



Venus -48065-06-26 17:16 J -15834140.95 -15834140.78 -15834140.61 0.0504 0.0297

Mercury -48062-04-20 17:45 J -15833112.88 -15833112.76 -15833112.64 0.0539 0.0261

Mercury -48062-07-19 06:14 J -15833023.32 -15833023.24 -15833023.15 0.0541 0.0409

Earth -48062-09-06 12:14 J -15832974.21 -15832973.99 -15832973.76 0.0541 0.0119

Moon -48062-09-06 14:23 J -15832974.13 -15832973.90 -15832973.66 0.0541 0.0086 \*

Mars -48060-04-07 15:35 J -15832395.00 -15832394.85 -15832394.69 0.0534 0.0427

Venus -48060-09-12 17:02 J -15832236.95 -15832236.79 -15832236.62 0.0528 0.0302

Mercury -48056-03-05 15:35 J -15830967.01 -15830966.85 -15830966.68 0.0488 0.0048

Mars -48054-10-18 19:54 J -15830009.70 -15830009.67 -15830009.61 0.0497 0.0491

Venus -48053-03-01 12:14 J -15829875.20 -15829874.99 -15829874.78 0.0502 0.0005

Mercury -48050-02-06 19:54 J -15828802.75 -15828802.67 -15828802.59 0.0539 0.0433

Mercury -48050-05-07 08:52 J -15828713.25 -15828713.13 -15828713.01 0.0540 0.0243

Moon -48050-09-11 14:09 J -15828586.03 -15828585.91 -15828585.78 0.0541 0.0456

Earth -48050-09-11 17:30 J -15828585.89 -15828585.77 -15828585.63 0.0541 0.0447 \*

Venus -48047-01-10 09:06 J -15827734.17 -15827734.12 -15827734.07 0.0522 0.0500

Mercury -48045-12-22 16:33 J -15826656.96 -15826656.81 -15826656.66 0.0488 0.0191

Mercury -48044-03-22 13:40 J -15826567.01 -15826566.93 -15826566.85 0.0487 0.0424

Venus -48042-11-05 06:28 J -15825609.40 -15825609.23 -15825609.05 0.0499 0.0287

Mercury -48038-02-23 10:33 J -15824403.20 -15824403.06 -15824402.93 0.0540 0.0061

Venus -48036-09-15 07:26 J -15823468.38 -15823468.19 -15823468.01 0.0525 0.0193

Mercury -48033-10-10 17:30 J -15822346.89 -15822346.77 -15822346.65 0.0489 0.0335

Mercury -48032-01-08 14:09 J -15822257.05 -15822256.91 -15822256.77 0.0487 0.0275

Moon -48032-03-01 06:14 J -15822205.40 -15822205.24 -15822205.08 0.0487 0.0351

Earth -48032-03-01 10:18 J -15822205.23 -15822205.07 -15822204.91 0.0487 0.0362 \*

Venus -48029-03-04 07:40 J -15821106.25 -15821106.18 -15821106.10 0.0505 0.0467

Mercury -48027-12-12 13:11 J -15820093.09 -15820092.95 -15820092.82 0.0540 0.0104

Mars -48024-01-11 01:54 J -15819332.66 -15819332.42 -15819332.17 0.0532 0.0156

Venus -48024-05-21 06:14 J -15819202.44 -15819202.24 -15819202.05 0.0528 0.0117

Mercury -48021-07-29 17:59 J -15818036.76 -15818036.75 -15818036.72 0.0489 0.0484

Mercury -48021-10-27 14:09 J -15817947.07 -15817946.91 -15817946.74 0.0487 0.0119

Earth -48020-03-05 15:21 J -15817818.09 -15817817.86 -15817817.63 0.0486 0.0035  
 Moon -48020-03-05 18:57 J -15817817.94 -15817817.71 -15817817.48 0.0486 0.0012 \*  
 Venus -48018-11-08 01:26 J -15816840.63 -15816840.44 -15816840.24 0.0503 0.0172  
 Mercury -48015-09-30 16:04 J -15815782.95 -15815782.83 -15815782.71 0.0540 0.0262  
 Mercury -48015-12-29 04:47 J -15815693.39 -15815693.30 -15815693.22 0.0541 0.0410  
 Venus -48012-01-24 04:04 J -15814936.44 -15814936.33 -15814936.21 0.0530 0.0432  
 Mercury -48009-08-15 14:38 J -15813637.05 -15813636.89 -15813636.72 0.0488 0.0033  
 Moon -48008-03-09 18:57 J -15813430.83 -15813430.71 -15813430.58 0.0486 0.0413  
 Earth -48008-03-09 21:35 J -15813430.70 -15813430.60 -15813430.49 0.0486 0.0436 \*  
 Venus -48006-07-13 21:06 J -15812574.82 -15812574.62 -15812574.41 0.0500 0.0116  
 Mercury -48003-07-19 18:42 J -15811472.81 -15811472.72 -15811472.64 0.0539 0.0425  
 Mercury -48003-10-17 07:40 J -15811383.30 -15811383.18 -15811383.06 0.0540 0.0252

# 48TH MILLENNIUM BCE

This is a list of transits visible from Jupiter in the 48th millennium BCE.

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Venus	-48000-05-23 21:06 J	-15810433.75	-15810433.62	-15810433.48	0.0523	0.0376		
Mercury	-47997-06-03 15:06 J	-15809327.03	-15809326.87	-15809326.72	0.0488	0.0184		
Mercury	-47997-09-01 11:59 J	-15809237.07	-15809237.00	-15809236.92	0.0487	0.0432		
Venus	-47994-03-18 17:30 J	-15808308.89	-15808308.77	-15808308.64	0.0498	0.0399		
Mercury	-47991-08-05 10:04 J	-15807073.21	-15807073.08	-15807072.94	0.0540	0.0086		
Venus	-47988-01-26 19:11 J	-15806167.89	-15806167.70	-15806167.50	0.0526	0.0067		

Mercury -47985-03-22 16:04 J -15805016.95 -15805016.83 -15805016.71 0.0489 0.0328

Mercury -47985-06-20 12:28 J -15804927.11 -15804926.98 -15804926.84 0.0487 0.0283

Venus -47982-07-16 17:02 J -15803805.94 -15803805.79 -15803805.64 0.0503 0.0345

Mercury -47979-05-24 11:30 J -15802763.15 -15802763.02 -15802762.88 0.0540 0.0101

Moon -47979-09-05 05:16 J -15802659.49 -15802659.28 -15802659.07 0.0541 0.0204

Earth -47979-09-05 08:09 J -15802659.36 -15802659.16 -15802658.95 0.0541 0.0235 \*

Venus -47977-10-01 15:21 J -15801902.03 -15801901.86 -15801901.69 0.0529 0.0256

Mercury -47973-01-09 17:02 J -15800706.83 -15800706.79 -15800706.75 0.0489 0.0471

Mercury -47973-04-08 13:11 J -15800617.11 -15800616.95 -15800616.79 0.0488 0.0133

Mars -47971-07-02 08:52 J -15799802.29 -15799802.13 -15799801.97 0.0493 0.0410

Venus -47970-03-21 11:30 J -15799540.23 -15799540.02 -15799539.81 0.0501 0.0052

Mercury -47967-03-12 13:54 J -15798453.04 -15798452.92 -15798452.80 0.0539 0.0268

Mercury -47967-06-10 02:38 J -15798363.48 -15798363.39 -15798363.30 0.0541 0.0403

Earth -47967-09-10 15:06 J -15798271.05 -15798270.87 -15798270.69 0.0542 0.0338

Moon -47967-09-10 18:42 J -15798270.89 -15798270.72 -15798270.54 0.0542 0.0342 \*

Mercury -47961-01-26 13:11 J -15796307.11 -15796306.95 -15796306.78 0.0488 0.0026

Venus -47959-11-24 05:45 J -15795274.44 -15795274.26 -15795274.07 0.0499 0.0239

Mercury -47956-12-29 16:47 J -15794142.88 -15794142.80 -15794142.72 0.0539 0.0429

Mercury -47955-03-29 05:45 J -15794053.38 -15794053.26 -15794053.14 0.0541 0.0249

Venus -47953-10-04 08:52 J -15793133.30 -15793133.13 -15793132.96 0.0525 0.0250

Mercury -47950-11-14 13:54 J -15791997.08 -15791996.92 -15791996.77 0.0488 0.0172

Mercury -47949-02-12 10:47 J -15791907.11 -15791907.05 -15791906.98 0.0487 0.0443

Earth -47949-02-29 17:59 J -15791889.87 -15791889.75 -15791889.63 0.0487 0.0416

Moon -47949-02-29 21:21 J -15791889.72 -15791889.61 -15791889.48 0.0487 0.0409 \*

Mercury -47943-01-15 08:38 J -15789743.27 -15789743.14 -15789743.00 0.0540 0.0091

Venus -47941-06-09 06:14 J -15788867.44 -15788867.24 -15788867.05 0.0527 0.0064

Mercury -47938-09-02 14:09 J -15787687.03 -15787686.91 -15787686.78 0.0489 0.0323

Mercury -47938-12-01 10:47 J -15787597.18 -15787597.05 -15787596.91 0.0487 0.0286

Moon -47937-03-04 21:06 J -15787502.86 -15787502.62 -15787502.37 0.0487 0.0042

Earth -47937-03-04 23:45 J -15787502.75 -15787502.51 -15787502.28 0.0487 0.0017 \*

Mars -47935-04-07 13:40 J -15786739.21 -15786738.93 -15786738.65 0.0495 0.0121  
 Venus -47935-11-27 02:38 J -15786505.58 -15786505.39 -15786505.20 0.0503 0.0225  
 Mercury -47932-11-03 11:02 J -15785433.18 -15785433.04 -15785432.90 0.0540 0.0079  
 Venus -47929-02-13 02:38 J -15784601.52 -15784601.39 -15784601.25 0.0530 0.0385  
 Mercury -47926-06-21 15:06 J -15783376.91 -15783376.87 -15783376.82 0.0489 0.0467  
 Mercury -47926-09-19 11:30 J -15783287.18 -15783287.02 -15783286.86 0.0488 0.0138  
 Earth -47925-03-09 06:57 J -15783115.34 -15783115.21 -15783115.07 0.0486 0.0391  
 Moon -47925-03-09 07:11 J -15783115.33 -15783115.20 -15783115.05 0.0486 0.0382 \*  
 Venus -47923-08-01 20:52 J -15782239.84 -15782239.63 -15782239.42 0.0500 0.0068  
 Mercury -47920-08-22 12:14 J -15781123.10 -15781122.99 -15781122.86 0.0539 0.0266  
 Mercury -47920-11-20 00:57 J -15781033.54 -15781033.46 -15781033.37 0.0540 0.0405  
 Venus -47917-06-11 18:28 J -15780098.84 -15780098.73 -15780098.61 0.0524 0.0417  
 Mercury -47914-07-08 11:59 J -15778977.17 -15778977.00 -15778976.83 0.0488 0.0012  
 Venus -47911-04-06 16:18 J -15777973.96 -15777973.82 -15777973.66 0.0498 0.0352  
 Mercury -47908-06-10 14:38 J -15776812.97 -15776812.89 -15776812.81 0.0539 0.0437  
 Mercury -47908-09-08 03:35 J -15776723.47 -15776723.35 -15776723.23 0.0540 0.0241  
 Mars -47906-07-02 13:54 J -15776061.15 -15776060.92 -15776060.69 0.0534 0.0261  
 Venus -47905-02-15 17:30 J -15775832.96 -15775832.77 -15775832.58 0.0526 0.0112  
 Mercury -47902-04-26 12:14 J -15774667.15 -15774666.99 -15774666.84 0.0488 0.0166  
 Mercury -47902-07-25 09:06 J -15774577.18 -15774577.12 -15774577.05 0.0487 0.0449  
 Venus -47899-08-04 15:21 J -15773470.99 -15773470.86 -15773470.72 0.0504 0.0390  
 Mercury -47896-06-27 06:28 J -15772413.36 -15772413.23 -15772413.09 0.0540 0.0086  
 Earth -47896-09-04 11:59 J -15772344.19 -15772344.00 -15772343.81 0.0541 0.0314  
 Moon -47896-09-04 15:35 J -15772344.04 -15772343.85 -15772343.65 0.0541 0.0280 \*  
 Venus -47894-10-21 16:18 J -15771567.00 -15771566.82 -15771566.64 0.0529 0.0198  
 Mercury -47890-02-12 12:42 J -15770357.09 -15770356.97 -15770356.84 0.0488 0.0314  
 Mercury -47890-05-13 09:21 J -15770267.24 -15770267.11 -15770266.98 0.0487 0.0295  
 Venus -47887-04-09 10:18 J -15769205.27 -15769205.07 -15769204.86 0.0502 0.0100  
 Mercury -47884-04-15 09:21 J -15768103.24 -15768103.11 -15768102.97 0.0540 0.0077  
 Moon -47884-09-09 16:47 J -15767956.00 -15767955.80 -15767955.59 0.0541 0.0261

Earth -47884-09-09 19:54 J -15767955.86 -15767955.67 -15767955.46 0.0541 0.0268 \*  
 Venus -47882-06-26 12:28 J -15767301.01 -15767300.98 -15767300.94 0.0531 0.0519  
 Mercury -47879-12-01 13:26 J -15766046.99 -15766046.94 -15766046.90 0.0489 0.0464  
 Mercury -47878-03-01 09:21 J -15765957.27 -15765957.11 -15765956.95 0.0488 0.0139  
 Venus -47876-12-13 05:59 J -15764939.44 -15764939.25 -15764939.05 0.0500 0.0188  
 Mercury -47872-02-01 11:45 J -15763793.14 -15763793.01 -15763792.89 0.0539 0.0247  
 Mercury -47872-05-02 00:14 J -15763703.57 -15763703.49 -15763703.40 0.0540 0.0423  
 Mars -47870-04-07 04:47 J -15762998.50 -15762998.30 -15762998.10 0.0532 0.0330  
 Venus -47870-10-24 06:14 J -15762798.40 -15762798.24 -15762798.07 0.0524 0.0293  
 Mercury -47867-12-18 10:04 J -15761647.25 -15761647.08 -15761646.91 0.0488 0.0011  
 Moon -47866-02-28 23:30 J -15761574.59 -15761574.52 -15761574.46 0.0487 0.0468  
 Earth -47866-03-01 01:40 J -15761574.49 -15761574.43 -15761574.37 0.0487 0.0470 \*  
 Venus -47864-08-18 02:09 J -15760673.48 -15760673.41 -15760673.34 0.0497 0.0467  
 Mercury -47861-11-20 12:42 J -15759483.04 -15759482.97 -15759482.88 0.0538 0.0436  
 Mercury -47860-02-18 01:54 J -15759393.54 -15759393.42 -15759393.30 0.0540 0.0242  
 Venus -47858-06-29 02:09 J -15758532.61 -15758532.41 -15758532.21 0.0528 0.0027  
 Mercury -47855-10-06 10:33 J -15757337.21 -15757337.06 -15757336.90 0.0488 0.0159  
 Mercury -47854-01-04 07:40 J -15757247.23 -15757247.18 -15757247.12 0.0487 0.0458  
 Earth -47854-03-05 08:23 J -15757187.39 -15757187.15 -15757186.92 0.0487 0.0066  
 Moon -47854-03-05 08:23 J -15757187.37 -15757187.15 -15757186.92 0.0487 0.0093 \*  
 Venus -47852-12-16 00:42 J -15756170.65 -15756170.47 -15756170.29 0.0502 0.0268  
 Mercury -47849-12-07 04:18 J -15755083.45 -15755083.32 -15755083.18 0.0540 0.0074  
 Venus -47846-03-03 23:30 J -15754266.67 -15754266.52 -15754266.37 0.0530 0.0343  
 Mercury -47843-07-25 10:47 J -15753027.17 -15753027.05 -15753026.92 0.0489 0.0312  
 Mercury -47843-10-23 07:26 J -15752937.32 -15752937.19 -15752937.06 0.0487 0.0298  
 Earth -47842-03-09 12:14 J -15752800.15 -15752799.99 -15752799.81 0.0486 0.0331  
 Moon -47842-03-09 14:09 J -15752800.09 -15752799.91 -15752799.73 0.0486 0.0326 \*  
 Venus -47840-08-20 17:59 J -15751904.96 -15751904.75 -15751904.54 0.0500 0.0027  
 Mercury -47837-09-25 07:11 J -15750773.34 -15750773.20 -15750773.07 0.0540 0.0088  
 Venus -47834-07-01 18:14 J -15749763.82 -15749763.74 -15749763.65 0.0523 0.0467

Mercury -47831-05-13 11:45 J -15748717.07 -15748717.01 -15748716.96 0.0489 0.0458

Mercury -47831-08-11 07:40 J -15748627.34 -15748627.18 -15748627.02 0.0488 0.0145

Venus -47828-04-25 13:54 J -15747639.08 -15747638.92 -15747638.75 0.0498 0.0309

Mercury -47825-07-14 09:50 J -15746463.21 -15746463.09 -15746462.97 0.0539 0.0250

Mercury -47825-10-11 22:33 J -15746373.64 -15746373.56 -15746373.48 0.0541 0.0422

Venus -47822-03-06 16:33 J -15745498.00 -15745497.81 -15745497.62 0.0526 0.0160

Mercury -47819-05-30 07:54 J -15744317.34 -15744317.17 -15744317.00 0.0488 0.0012

Mars -47817-09-25 03:50 J -15743468.58 -15743468.34 -15743468.08 0.0494 0.0251

Venus -47816-08-23 14:52 J -15743135.98 -15743135.88 -15743135.77 0.0504 0.0438

Mercury -47813-05-02 11:59 J -15742153.09 -15742153.00 -15742152.91 0.0539 0.0420

Mercury -47813-07-31 00:57 J -15742063.57 -15742063.46 -15742063.34 0.0540 0.0257

Moon -47813-09-03 08:52 J -15742029.30 -15742029.13 -15742028.96 0.0541 0.0375

Earth -47813-09-03 12:28 J -15742029.13 -15742028.98 -15742028.83 0.0541 0.0408 \*

Venus -47811-11-09 13:26 J -15741232.13 -15741231.94 -15741231.75 0.0528 0.0156

Mercury -47807-03-18 08:38 J -15740007.30 -15740007.14 -15740006.99 0.0488 0.0160

Mercury -47807-06-16 05:30 J -15739917.32 -15739917.27 -15739917.21 0.0487 0.0457

Venus -47804-04-28 09:21 J -15738870.31 -15738870.11 -15738869.91 0.0501 0.0146

Mercury -47801-05-19 02:38 J -15737753.52 -15737753.39 -15737753.25 0.0539 0.0075

Earth -47801-09-08 12:42 J -15737641.19 -15737640.97 -15737640.74 0.0541 0.0138

Moon -47801-09-08 15:06 J -15737641.09 -15737640.87 -15737640.65 0.0541 0.0132 \*

Venus -47799-07-15 07:26 J -15736966.27 -15736966.19 -15736966.12 0.0531 0.0485

Mercury -47795-01-04 09:06 J -15735697.25 -15735697.12 -15735696.99 0.0489 0.0308

Mercury -47795-04-04 05:45 J -15735607.39 -15735607.26 -15735607.13 0.0488 0.0303

Venus -47792-01-01 03:50 J -15734604.54 -15734604.34 -15734604.14 0.0499 0.0144

Mercury -47789-03-07 04:47 J -15733443.43 -15733443.30 -15733443.16 0.0539 0.0097

Venus -47787-11-12 02:09 J -15732463.56 -15732463.41 -15732463.25 0.0525 0.0330

Mercury -47784-10-23 09:35 J -15731387.15 -15731387.10 -15731387.05 0.0489 0.0458

Mercury -47783-01-21 05:30 J -15731297.43 -15731297.27 -15731297.11 0.0488 0.0145

Mars -47781-07-01 01:11 J -15730405.69 -15730405.45 -15730405.20 0.0495 0.0266

Venus -47781-09-05 22:04 J -15730338.68 -15730338.58 -15730338.48 0.0497 0.0430

Mercury -47778-12-25 07:26 J -15729133.31 -15729133.19 -15729133.07 0.0539 0.0262

Mercury -47777-03-23 20:09 J -15729043.75 -15729043.66 -15729043.57 0.0541 0.0410

Venus -47775-07-18 01:26 J -15728197.63 -15728197.44 -15728197.24 0.0527 0.0025

Mercury -47772-11-09 05:59 J -15726987.42 -15726987.25 -15726987.08 0.0488 0.0008

Earth -47771-03-04 11:59 J -15726872.22 -15726872.00 -15726871.77 0.0487 0.0134

Moon -47771-03-04 13:54 J -15726872.15 -15726871.92 -15726871.69 0.0487 0.0161 \*

Venus -47768-01-03 21:21 J -15725835.77 -15725835.61 -15725835.44 0.0503 0.0308

Mercury -47766-10-13 09:50 J -15724823.17 -15724823.09 -15724823.00 0.0539 0.0426

Mercury -47765-01-10 23:02 J -15724733.66 -15724733.54 -15724733.42 0.0540 0.0253

Venus -47763-03-22 22:33 J -15723931.72 -15723931.56 -15723931.39 0.0529 0.0293

Mercury -47760-08-28 06:14 J -15722677.40 -15722677.24 -15722677.08 0.0488 0.0161

Mercury -47760-11-26 03:06 J -15722587.43 -15722587.37 -15722587.31 0.0487 0.0454

Moon -47759-03-08 14:09 J -15722485.09 -15722484.91 -15722484.71 0.0486 0.0264

Earth -47759-03-08 17:02 J -15722484.98 -15722484.79 -15722484.59 0.0486 0.0265 \*

Venus -47757-09-08 16:33 J -15721570.02 -15721569.81 -15721569.60 0.0501 0.0020

Mercury -47754-10-30 01:40 J -15720423.57 -15720423.43 -15720423.30 0.0540 0.0087

Mars -47752-09-25 09:50 J -15719727.35 -15719727.09 -15719726.83 0.0533 0.0099

Venus -47751-07-20 14:52 J -15719428.93 -15719428.88 -15719428.83 0.0523 0.0504

Mercury -47748-06-16 06:57 J -15718367.34 -15718367.21 -15718367.08 0.0489 0.0309

Mercury -47748-09-14 03:21 J -15718277.49 -15718277.36 -15718277.22 0.0488 0.0301

Venus -47745-05-14 12:28 J -15717304.15 -15717303.98 -15717303.80 0.0498 0.0264

Mercury -47742-08-18 03:06 J -15716113.50 -15716113.37 -15716113.23 0.0539 0.0096

Venus -47739-03-25 10:47 J -15715163.23 -15715163.05 -15715162.86 0.0526 0.0192

Mercury -47736-04-04 07:26 J -15714057.24 -15714057.19 -15714057.13 0.0489 0.0458

Mercury -47736-07-03 03:35 J -15713967.51 -15713967.35 -15713967.19 0.0488 0.0147

Venus -47733-09-11 12:14 J -15712801.05 -15712800.99 -15712800.93 0.0504 0.0478

Mercury -47730-06-06 05:16 J -15711803.40 -15711803.28 -15711803.16 0.0539 0.0270

Moon -47730-09-03 06:57 J -15711714.27 -15711714.21 -15711714.13 0.0540 0.0508

Mercury -47730-09-03 17:59 J -15711713.84 -15711713.75 -15711713.66 0.0540 0.0401

Venus -47728-11-28 08:23 J -15710897.34 -15710897.15 -15710896.96 0.0529 0.0121

Mercury -47724-04-21 03:35 J -15709657.51 -15709657.35 -15709657.18 0.0488 0.0016  
 Venus -47721-05-17 04:04 J -15708535.52 -15708535.33 -15708535.13 0.0502 0.0179  
 Mercury -47718-03-25 07:26 J -15707493.27 -15707493.19 -15707493.11 0.0539 0.0439  
 Mercury -47718-06-22 20:38 J -15707403.76 -15707403.64 -15707403.52 0.0540 0.0240  
 Moon -47718-09-08 09:50 J -15707326.33 -15707326.09 -15707325.84 0.0541 0.0030  
 Earth -47718-09-08 11:16 J -15707326.26 -15707326.03 -15707325.80 0.0541 0.0036 \*  
 Mars -47716-06-30 16:33 J -15706664.92 -15706664.81 -15706664.68 0.0532 0.0467  
 Venus -47716-08-03 06:28 J -15706631.34 -15706631.23 -15706631.12 0.0531 0.0435  
 Mercury -47712-02-07 04:18 J -15705347.48 -15705347.32 -15705347.16 0.0488 0.0158  
 Mercury -47712-05-08 00:57 J -15705257.51 -15705257.46 -15705257.39 0.0487 0.0457  
 Venus -47709-01-20 23:30 J -15704269.73 -15704269.52 -15704269.32 0.0499 0.0108  
 Mercury -47706-04-10 23:30 J -15703093.66 -15703093.52 -15703093.38 0.0540 0.0080  
 Venus -47704-12-01 00:42 J -15702128.60 -15702128.47 -15702128.33 0.0524 0.0374  
 Mercury -47701-11-26 04:33 J -15701037.43 -15701037.31 -15701037.18 0.0489 0.0311  
 Mercury -47700-02-24 00:57 J -15700947.59 -15700947.46 -15700947.32 0.0487 0.0298  
 Venus -47698-09-25 19:54 J -15700003.80 -15700003.67 -15700003.54 0.0498 0.0388  
 Mercury -47694-01-28 01:54 J -15698783.55 -15698783.42 -15698783.28 0.0539 0.0087  
 Venus -47692-08-05 22:18 J -15697862.76 -15697862.57 -15697862.37 0.0527 0.0064  
 Mercury -47689-09-14 05:16 J -15696727.33 -15696727.28 -15696727.22 0.0489 0.0459  
 Mercury -47689-12-13 01:26 J -15696637.60 -15696637.44 -15696637.28 0.0488 0.0145  
 Moon -47688-03-03 13:26 J -15696557.14 -15696556.94 -15696556.74 0.0487 0.0232  
 Earth -47688-03-03 16:18 J -15696557.03 -15696556.82 -15696556.61 0.0487 0.0201 \*  
 Venus -47685-01-23 19:54 J -15695500.82 -15695500.67 -15695500.52 0.0503 0.0353  
 Mercury -47683-11-16 03:35 J -15694473.47 -15694473.35 -15694473.23 0.0538 0.0268  
 Mercury -47682-02-13 16:18 J -15694383.91 -15694383.82 -15694383.73 0.0540 0.0402  
 Venus -47680-04-10 16:33 J -15693596.97 -15693596.81 -15693596.63 0.0529 0.0263  
 Mercury -47677-10-01 01:40 J -15692327.60 -15692327.43 -15692327.26 0.0488 0.0009  
 Earth -47676-03-07 22:04 J -15692169.79 -15692169.58 -15692169.37 0.0487 0.0202  
 Moon -47676-03-08 01:40 J -15692169.64 -15692169.43 -15692169.21 0.0487 0.0206 \*  
 Venus -47674-09-28 13:54 J -15691235.12 -15691234.92 -15691234.71 0.0500 0.0062



Mercury -47671-09-04 05:16 J -15690163.35 -15690163.28 -15690163.20 0.0538 0.0444  
 Mercury -47671-12-02 18:42 J -15690073.85 -15690073.72 -15690073.60 0.0540 0.0234  
 Mercury -47665-07-20 01:54 J -15688017.57 -15688017.42 -15688017.26 0.0488 0.0162  
 Mercury -47665-10-17 22:33 J -15687927.61 -15687927.56 -15687927.49 0.0487 0.0454  
 Mars -47663-12-19 09:21 J -15687135.39 -15687135.11 -15687134.83 0.0494 0.0119  
 Venus -47662-06-03 06:57 J -15686969.39 -15686969.21 -15686969.02 0.0498 0.0233  
 Mercury -47659-09-20 21:06 J -15685763.76 -15685763.62 -15685763.49 0.0540 0.0069  
 Venus -47656-04-13 09:50 J -15684828.27 -15684828.09 -15684827.92 0.0526 0.0239  
 Mercury -47653-05-08 02:38 J -15683707.51 -15683707.39 -15683707.26 0.0489 0.0308  
 Mercury -47653-08-05 23:02 J -15683617.67 -15683617.54 -15683617.41 0.0487 0.0300  
 Mercury -47647-07-09 23:45 J -15681453.64 -15681453.51 -15681453.37 0.0540 0.0094  
 Venus -47645-12-17 07:40 J -15680562.38 -15680562.18 -15680561.99 0.0528 0.0073  
 Mercury -47641-02-25 03:06 J -15679397.42 -15679397.37 -15679397.31 0.0489 0.0459  
 Mercury -47641-05-24 23:02 J -15679307.70 -15679307.54 -15679307.38 0.0488 0.0144  
 Venus -47638-06-06 02:23 J -15678200.59 -15678200.40 -15678200.21 0.0502 0.0222  
 Mercury -47635-04-28 02:09 J -15677143.53 -15677143.41 -15677143.29 0.0539 0.0261  
 Mercury -47635-07-26 15:06 J -15677053.96 -15677053.87 -15677053.79 0.0540 0.0412  
 Moon -47635-09-07 11:30 J -15677011.24 -15677011.02 -15677010.80 0.0541 0.0070  
 Earth -47635-09-07 11:45 J -15677011.24 -15677011.01 -15677010.78 0.0541 0.0058 \*  
 Venus -47633-08-22 03:50 J -15676296.47 -15676296.34 -15676296.21 0.0530 0.0392  
 Mercury -47629-03-12 23:30 J -15674997.68 -15674997.52 -15674997.35 0.0488 0.0012  
 Mars -47627-09-24 16:47 J -15674071.95 -15674071.80 -15674071.65 0.0496 0.0420  
 Venus -47626-02-08 22:04 J -15673934.78 -15673934.58 -15673934.37 0.0500 0.0063  
 Mercury -47623-02-14 03:50 J -15672833.42 -15672833.34 -15672833.26 0.0538 0.0440  
 Mercury -47623-05-14 17:02 J -15672743.91 -15672743.79 -15672743.67 0.0540 0.0237  
 Earth -47623-09-12 13:40 J -15672623.01 -15672622.93 -15672622.83 0.0541 0.0496  
 Moon -47623-09-12 16:33 J -15672622.92 -15672622.81 -15672622.69 0.0541 0.0470 \*  
 Venus -47621-12-19 19:11 J -15671793.82 -15671793.70 -15671793.57 0.0524 0.0405  
 Mercury -47618-12-30 23:59 J -15670687.66 -15670687.50 -15670687.35 0.0489 0.0161  
 Mercury -47617-03-29 20:38 J -15670597.69 -15670597.64 -15670597.58 0.0488 0.0456

Venus -47615-10-14 17:45 J -15669668.91 -15669668.76 -15669668.61 0.0497 0.0345

Mercury -47611-03-02 19:11 J -15668433.84 -15668433.70 -15668433.56 0.0539 0.0066

Venus -47609-08-24 17:16 J -15667527.97 -15667527.78 -15667527.58 0.0527 0.0098

Mercury -47606-10-19 00:28 J -15666377.61 -15666377.48 -15666377.36 0.0489 0.0311

Mercury -47605-01-16 20:38 J -15666287.77 -15666287.64 -15666287.50 0.0488 0.0298

Earth -47605-03-02 19:11 J -15666241.89 -15666241.70 -15666241.50 0.0487 0.0269

Moon -47605-03-02 22:47 J -15666241.73 -15666241.55 -15666241.35 0.0487 0.0296 \*

Venus -47602-02-11 14:23 J -15665166.04 -15665165.90 -15665165.77 0.0503 0.0382

Mercury -47600-12-19 21:21 J -15664123.74 -15664123.61 -15664123.47 0.0540 0.0105

Mars -47598-12-19 18:42 J -15663393.98 -15663393.72 -15663393.46 0.0534 0.0038

Venus -47597-04-29 15:50 J -15663262.02 -15663261.84 -15663261.66 0.0530 0.0214

Mercury -47594-08-07 01:26 J -15662067.50 -15662067.44 -15662067.38 0.0489 0.0454

Mercury -47594-11-04 21:06 J -15661977.77 -15661977.62 -15661977.45 0.0488 0.0148

Moon -47593-03-06 22:04 J -15661854.80 -15661854.58 -15661854.35 0.0486 0.0141

Earth -47593-03-07 01:54 J -15661854.64 -15661854.42 -15661854.19 0.0486 0.0137 \*

Venus -47591-10-17 09:06 J -15660900.32 -15660900.12 -15660899.91 0.0501 0.0094

Mercury -47588-10-07 23:59 J -15659813.62 -15659813.50 -15659813.38 0.0539 0.0268

Mercury -47587-01-05 12:57 J -15659724.05 -15659723.96 -15659723.87 0.0541 0.0406

Venus -47585-01-03 12:28 J -15658995.99 -15658995.98 -15658995.97 0.0532 0.0530

Mercury -47582-08-23 21:21 J -15657667.77 -15657667.61 -15657667.44 0.0488 0.0016

Venus -47579-06-22 05:02 J -15656634.48 -15656634.29 -15656634.09 0.0499 0.0190

Mercury -47576-07-27 02:23 J -15655503.48 -15655503.40 -15655503.32 0.0539 0.0435

Mercury -47576-10-24 15:50 J -15655413.96 -15655413.84 -15655413.72 0.0540 0.0245

Venus -47573-05-02 07:26 J -15654493.35 -15654493.19 -15654493.02 0.0525 0.0281

Mercury -47570-06-11 22:04 J -15653357.74 -15653357.58 -15653357.42 0.0488 0.0158

Mercury -47570-09-09 18:42 J -15653267.77 -15653267.72 -15653267.66 0.0487 0.0457

Venus -47567-02-25 02:23 J -15652368.47 -15652368.40 -15652368.32 0.0497 0.0462

Mercury -47564-08-12 17:45 J -15651103.89 -15651103.76 -15651103.62 0.0539 0.0072

Venus -47561-01-06 02:38 J -15650227.58 -15650227.39 -15650227.19 0.0528 0.0040

Mercury -47558-03-30 22:33 J -15649047.69 -15649047.56 -15649047.43 0.0489 0.0309

Mercury -47558-06-28 18:42 J -15648957.85 -15648957.72 -15648957.58 0.0488 0.0301  
 Venus -47555-06-25 00:28 J -15647865.65 -15647865.48 -15647865.30 0.0502 0.0266  
 Mercury -47552-05-31 19:54 J -15646793.81 -15646793.67 -15646793.54 0.0539 0.0102  
 Earth -47552-09-06 05:59 J -15646696.47 -15646696.25 -15646696.03 0.0540 0.0179  
 Moon -47552-09-06 07:54 J -15646696.39 -15646696.17 -15646695.94 0.0540 0.0196 \*  
 Venus -47550-09-10 23:16 J -15645961.67 -15645961.53 -15645961.38 0.0530 0.0356  
 Mercury -47546-01-16 23:16 J -15644737.59 -15644737.53 -15644737.47 0.0489 0.0455  
 Mercury -47546-04-16 18:57 J -15644647.87 -15644647.71 -15644647.55 0.0488 0.0147  
 Mars -47544-06-08 02:09 J -15643864.47 -15643864.41 -15643864.34 0.0492 0.0478  
 Venus -47543-02-27 17:02 J -15643600.00 -15643599.79 -15643599.58 0.0500 0.0032  
 Mercury -47540-03-19 21:35 J -15642483.71 -15642483.60 -15642483.47 0.0539 0.0278  
 Mercury -47540-06-17 10:47 J -15642394.14 -15642394.05 -15642393.96 0.0541 0.0397  
 Moon -47540-09-11 07:11 J -15642308.36 -15642308.20 -15642308.03 0.0542 0.0365  
 Earth -47540-09-11 11:02 J -15642308.20 -15642308.04 -15642307.88 0.0542 0.0392 \*  
 Venus -47537-01-08 18:42 J -15641458.81 -15641458.72 -15641458.62 0.0524 0.0453  
 Mercury -47534-02-02 19:40 J -15640337.84 -15640337.68 -15640337.51 0.0488 0.0011  
 Venus -47532-11-02 13:11 J -15639334.11 -15639333.95 -15639333.79 0.0497 0.0311  
 Mercury -47528-01-06 00:14 J -15638173.57 -15638173.49 -15638173.41 0.0539 0.0442  
 Mercury -47528-04-05 13:40 J -15638084.05 -15638083.93 -15638083.81 0.0540 0.0240  
 Venus -47526-09-13 17:45 J -15637192.95 -15637192.76 -15637192.57 0.0527 0.0149  
 Mercury -47523-11-21 20:09 J -15636027.82 -15636027.66 -15636027.50 0.0488 0.0154  
 Mercury -47522-02-19 16:47 J -15635937.85 -15635937.80 -15635937.75 0.0487 0.0459  
 Moon -47522-03-02 21:21 J -15635926.76 -15635926.61 -15635926.44 0.0487 0.0357  
 Earth -47522-03-03 01:11 J -15635926.62 -15635926.45 -15635926.27 0.0487 0.0330 \*  
 Venus -47519-03-02 13:26 J -15634831.04 -15634830.94 -15634830.83 0.0503 0.0428  
 Mercury -47516-01-22 16:18 J -15633773.95 -15633773.82 -15633773.68 0.0540 0.0081  
 Venus -47514-05-19 14:52 J -15632927.07 -15632926.88 -15632926.70 0.0529 0.0164  
 Mercury -47511-09-09 20:52 J -15631717.76 -15631717.63 -15631717.50 0.0489 0.0303  
 Mercury -47511-12-08 17:02 J -15631627.92 -15631627.79 -15631627.66 0.0488 0.0306  
 Earth -47510-03-07 07:26 J -15631539.42 -15631539.19 -15631538.95 0.0487 0.0075

Moon -47510-03-07 10:33 J -15631539.28 -15631539.06 -15631538.83 0.0487 0.0090 \*  
 Mars -47508-03-14 04:18 J -15630801.61 -15630801.32 -15630801.03 0.0494 0.0041  
 Venus -47508-11-05 08:52 J -15630565.33 -15630565.13 -15630564.92 0.0501 0.0143  
 Mercury -47505-11-10 18:28 J -15629463.86 -15629463.73 -15629463.59 0.0539 0.0094  
 Venus -47502-01-22 08:52 J -15628661.20 -15628661.13 -15628661.06 0.0531 0.0491  
 Mercury -47499-06-28 21:21 J -15627407.66 -15627407.61 -15627407.55 0.0489 0.0452  
 Mercury -47499-09-26 17:16 J -15627317.94 -15627317.78 -15627317.62 0.0488 0.0151  
 Earth -47498-03-11 13:11 J -15627151.98 -15627151.95 -15627151.90 0.0487 0.0480  
 Venus -47496-07-11 04:04 J -15626299.53 -15626299.33 -15626299.13 0.0499 0.0143  
 Mercury -47493-08-29 20:38 J -15625153.76 -15625153.64 -15625153.52 0.0539 0.0268  
 Mercury -47493-11-27 09:21 J -15625064.19 -15625064.11 -15625064.02 0.0540 0.0405  
 Venus -47490-05-22 03:50 J -15624158.49 -15624158.34 -15624158.18 0.0525 0.0319  
 Mercury -47487-07-15 17:45 J -15623007.93 -15623007.76 -15623007.59 0.0488 0.0001  
 Venus -47484-03-15 22:04 J -15622033.68 -15622033.58 -15622033.47 0.0496 0.0429  
 Mercury -47481-06-17 22:04 J -15620843.65 -15620843.58 -15620843.50 0.0539 0.0448  
 Mercury -47481-09-15 11:30 J -15620754.14 -15620754.02 -15620753.89 0.0540 0.0234  
 Mars -47479-06-08 21:06 J -15620122.79 -15620122.62 -15620122.43 0.0536 0.0393  
 Venus -47478-01-25 02:38 J -15619892.58 -15619892.39 -15619892.19 0.0528 0.0015  
 Mercury -47475-05-03 18:42 J -15618697.88 -15618697.72 -15618697.56 0.0488 0.0145  
 Mercury -47475-08-01 15:21 J -15618607.90 -15618607.86 -15618607.82 0.0487 0.0468  
 Venus -47472-07-13 20:38 J -15617530.80 -15617530.64 -15617530.47 0.0502 0.0301  
 Mercury -47469-07-04 14:23 J -15616444.03 -15616443.90 -15616443.76 0.0540 0.0075  
 Moon -47469-09-05 03:50 J -15616381.52 -15616381.34 -15616381.14 0.0541 0.0294  
 Earth -47469-09-05 07:11 J -15616381.40 -15616381.20 -15616380.99 0.0541 0.0267 \*  
 Venus -47467-09-30 00:28 J -15615626.64 -15615626.48 -15615626.31 0.0530 0.0300  
 Mercury -47463-02-19 19:11 J -15614387.83 -15614387.70 -15614387.57 0.0489 0.0295  
 Mercury -47463-05-20 15:21 J -15614297.99 -15614297.86 -15614297.73 0.0487 0.0312  
 Venus -47460-03-18 16:33 J -15613265.02 -15613264.81 -15613264.60 0.0500 0.0016  
 Mercury -47457-04-22 17:16 J -15612133.92 -15612133.78 -15612133.65 0.0540 0.0087  
 Earth -47457-09-10 15:35 J -15611993.03 -15611992.85 -15611992.66 0.0541 0.0318

Moon -47457-09-10 19:54 J -15611992.86 -15611992.67 -15611992.48 0.0541 0.0297 \*  
 Venus -47454-01-27 18:28 J -15611123.78 -15611123.73 -15611123.67 0.0524 0.0500  
 Mercury -47452-12-08 19:54 J -15610077.73 -15610077.67 -15610077.59 0.0489 0.0443  
 Mercury -47451-03-08 15:50 J -15609988.00 -15609987.84 -15609987.68 0.0488 0.0160  
 Venus -47449-11-21 13:11 J -15608999.12 -15608998.95 -15608998.76 0.0498 0.0261  
 Mercury -47445-02-09 19:26 J -15607823.81 -15607823.69 -15607823.57 0.0539 0.0257  
 Mercury -47445-05-09 08:23 J -15607734.24 -15607734.15 -15607734.07 0.0540 0.0415  
 Mars -47443-03-14 15:35 J -15607060.08 -15607059.85 -15607059.60 0.0533 0.0204  
 Venus -47443-10-02 14:52 J -15606858.06 -15606857.88 -15606857.69 0.0526 0.0192  
 Mercury -47440-12-25 16:04 J -15605677.99 -15605677.83 -15605677.66 0.0488 0.0013  
 Earth -47439-03-02 08:23 J -15605611.29 -15605611.15 -15605611.01 0.0488 0.0385  
 Moon -47439-03-02 11:02 J -15605611.16 -15605611.04 -15605610.90 0.0488 0.0403 \*  
 Venus -47436-03-21 13:26 J -15604496.00 -15604495.94 -15604495.87 0.0504 0.0476  
 Mercury -47434-11-28 21:21 J -15603513.69 -15603513.61 -15603513.53 0.0538 0.0432  
 Mercury -47433-02-26 10:33 J -15603424.18 -15603424.06 -15603423.94 0.0540 0.0247  
 Venus -47431-06-07 11:59 J -15602592.19 -15602592.00 -15602591.80 0.0529 0.0122  
 Mercury -47428-10-13 16:47 J -15601367.95 -15601367.80 -15601367.64 0.0488 0.0141  
 Mercury -47427-01-11 13:26 J -15601277.97 -15601277.94 -15601277.90 0.0487 0.0473  
 Moon -47427-03-06 13:11 J -15601224.20 -15601223.95 -15601223.71 0.0487 0.0044  
 Earth -47427-03-06 14:52 J -15601224.12 -15601223.88 -15601223.65 0.0487 0.0024 \*  
 Venus -47425-11-24 05:16 J -15600230.47 -15600230.28 -15600230.08 0.0501 0.0178  
 Mercury -47422-12-15 12:28 J -15599114.11 -15599113.98 -15599113.84 0.0540 0.0072  
 Venus -47419-02-10 09:06 J -15598326.23 -15598326.12 -15598326.01 0.0532 0.0439  
 Mercury -47416-08-01 17:59 J -15597057.88 -15597057.75 -15597057.62 0.0489 0.0283  
 Mercury -47416-10-30 14:09 J -15596968.03 -15596967.91 -15596967.79 0.0487 0.0324  
 Earth -47415-03-10 22:04 J -15596836.69 -15596836.58 -15596836.48 0.0486 0.0432  
 Moon -47415-03-10 22:18 J -15596836.64 -15596836.57 -15596836.49 0.0486 0.0459 \*  
 Venus -47413-07-30 01:11 J -15595964.65 -15595964.45 -15595964.24 0.0499 0.0105  
 Mercury -47410-10-03 15:21 J -15594804.00 -15594803.86 -15594803.73 0.0540 0.0091  
 Venus -47407-06-10 05:45 J -15593823.40 -15593823.26 -15593823.12 0.0525 0.0374

Mercury -47404-05-20 18:42 J -15592747.79 -15592747.72 -15592747.64 0.0489 0.0431

Mercury -47404-08-18 14:23 J -15592658.06 -15592657.90 -15592657.74 0.0488 0.0170

Venus -47401-04-03 22:04 J -15591698.71 -15591698.58 -15591698.44 0.0497 0.0380

Mercury -47398-07-22 17:59 J -15590493.87 -15590493.75 -15590493.63 0.0539 0.0251

Mercury -47398-10-20 06:57 J -15590404.29 -15590404.21 -15590404.12 0.0541 0.0424

Venus -47395-02-13 03:50 J -15589557.53 -15589557.34 -15589557.14 0.0528 0.0069

Mercury -47392-06-06 14:52 J -15588348.04 -15588347.88 -15588347.71 0.0488 0.0023

Mars -47390-09-02 04:47 J -15587530.52 -15587530.30 -15587530.07 0.0493 0.0304

Venus -47389-08-01 22:04 J -15587195.72 -15587195.58 -15587195.43 0.0503 0.0355

Mercury -47386-05-10 20:09 J -15586183.74 -15586183.66 -15586183.57 0.0538 0.0420

Mercury -47386-08-08 09:35 J -15586094.22 -15586094.10 -15586093.98 0.0540 0.0260

Earth -47386-09-05 11:16 J -15586066.21 -15586066.03 -15586065.85 0.0540 0.0343

Moon -47386-09-05 15:21 J -15586066.03 -15586065.86 -15586065.69 0.0540 0.0372 \*

Venus -47384-10-18 23:16 J -15585291.70 -15585291.53 -15585291.36 0.0530 0.0251

Mercury -47380-03-25 15:21 J -15584038.02 -15584037.86 -15584037.70 0.0489 0.0132

Mercury -47380-06-23 11:59 J -15583948.02 -15583948.00 -15583947.98 0.0487 0.0483

Venus -47377-04-06 17:16 J -15582929.98 -15582929.78 -15582929.57 0.0500 0.0069

Mercury -47374-05-27 11:45 J -15581784.14 -15581784.01 -15581783.87 0.0540 0.0092

Moon -47374-09-10 12:28 J -15581678.20 -15581677.98 -15581677.76 0.0541 0.0199

Earth -47374-09-10 16:18 J -15581678.03 -15581677.82 -15581677.61 0.0541 0.0225 \*

Mercury -47368-01-11 16:18 J -15579727.95 -15579727.82 -15579727.68 0.0489 0.0277

Mercury -47368-04-11 12:28 J -15579638.10 -15579637.98 -15579637.86 0.0487 0.0332

Venus -47366-12-11 11:02 J -15578664.22 -15578664.04 -15578663.85 0.0498 0.0221

Mercury -47362-03-15 13:26 J -15577474.07 -15577473.94 -15577473.80 0.0540 0.0090

Venus -47360-10-21 16:04 J -15576523.01 -15576522.83 -15576522.66 0.0527 0.0244

Mercury -47357-10-30 17:45 J -15575417.84 -15575417.76 -15575417.68 0.0489 0.0417

Mercury -47356-01-28 13:26 J -15575328.10 -15575327.94 -15575327.79 0.0488 0.0185

Moon -47356-03-01 17:59 J -15575295.85 -15575295.75 -15575295.63 0.0487 0.0433

Earth -47356-03-01 19:26 J -15575295.80 -15575295.69 -15575295.57 0.0487 0.0424 \*

Mars -47354-06-08 00:28 J -15574467.74 -15574467.48 -15574467.22 0.0494 0.0212

Venus -47354-08-16 08:09 J -15574398.17 -15574398.16 -15574398.13 0.0496 0.0493  
 Mercury -47350-01-01 16:04 J -15573163.95 -15573163.83 -15573163.71 0.0539 0.0253  
 Mercury -47350-04-01 05:16 J -15573074.36 -15573074.28 -15573074.20 0.0541 0.0423  
 Venus -47348-06-26 14:23 J -15572257.09 -15572256.90 -15572256.70 0.0529 0.0063  
 Mercury -47345-11-16 13:54 J -15571018.09 -15571017.92 -15571017.76 0.0488 0.0035  
 Earth -47344-03-06 01:11 J -15570908.69 -15570908.45 -15570908.22 0.0487 0.0022  
 Moon -47344-03-06 01:11 J -15570908.68 -15570908.45 -15570908.23 0.0487 0.0009 \*  
 Venus -47342-12-14 06:14 J -15569895.42 -15569895.24 -15569895.05 0.0501 0.0231  
 Mercury -47339-10-20 18:42 J -15568853.80 -15568853.72 -15568853.63 0.0539 0.0414  
 Mercury -47338-01-18 08:23 J -15568764.27 -15568764.15 -15568764.03 0.0541 0.0268  
 Venus -47336-03-01 11:30 J -15567991.15 -15567991.02 -15567990.88 0.0531 0.0377  
 Mercury -47333-09-04 14:23 J -15566708.05 -15566707.90 -15566707.73 0.0488 0.0118  
 Earth -47332-03-10 07:11 J -15566521.33 -15566521.20 -15566521.05 0.0486 0.0386  
 Moon -47332-03-10 08:38 J -15566521.27 -15566521.14 -15566521.00 0.0486 0.0406 \*  
 Venus -47330-08-19 02:52 J -15565629.59 -15565629.38 -15565629.17 0.0499 0.0051  
 Mercury -47327-11-06 10:47 J -15564454.18 -15564454.05 -15564453.91 0.0540 0.0106  
 Mars -47325-09-02 07:54 J -15563788.42 -15563788.17 -15563787.92 0.0535 0.0188  
 Venus -47324-06-29 05:02 J -15563488.40 -15563488.29 -15563488.17 0.0525 0.0422  
 Mercury -47321-06-23 15:06 J -15562398.01 -15562397.87 -15562397.73 0.0489 0.0266  
 Mercury -47321-09-21 11:16 J -15562308.15 -15562308.03 -15562307.91 0.0488 0.0343  
 Venus -47318-04-23 23:30 J -15561363.67 -15561363.52 -15561363.36 0.0497 0.0326  
 Mercury -47315-08-25 13:11 J -15560144.09 -15560143.95 -15560143.82 0.0539 0.0068  
 Venus -47312-03-04 03:06 J -15559222.57 -15559222.37 -15559222.18 0.0527 0.0117  
 Mercury -47309-04-11 16:18 J -15558087.91 -15558087.82 -15558087.73 0.0489 0.0408  
 Mercury -47309-07-10 11:59 J -15557998.16 -15557998.00 -15557997.85 0.0488 0.0194  
 Venus -47306-08-21 20:38 J -15556860.77 -15556860.64 -15556860.51 0.0502 0.0395  
 Mercury -47303-06-13 14:23 J -15555834.02 -15555833.90 -15555833.77 0.0539 0.0251  
 Moon -47303-09-04 05:30 J -15555751.38 -15555751.27 -15555751.17 0.0541 0.0479  
 Earth -47303-09-04 09:35 J -15555751.23 -15555751.10 -15555750.97 0.0541 0.0448 \*  
 Mercury -47303-09-11 03:35 J -15555744.43 -15555744.35 -15555744.27 0.0541 0.0425

Venus -47301-11-06 23:59 J -15554956.68 -15554956.50 -15554956.31 0.0530 0.0199

Mercury -47297-04-28 12:57 J -15553688.13 -15553687.96 -15553687.80 0.0488 0.0049

Venus -47294-04-26 16:04 J -15552595.03 -15552594.83 -15552594.62 0.0500 0.0111

Mercury -47291-04-01 17:02 J -15551523.88 -15551523.79 -15551523.70 0.0539 0.0416

Mercury -47291-06-30 06:28 J -15551434.35 -15551434.23 -15551434.11 0.0541 0.0267

Earth -47291-09-09 18:14 J -15551362.97 -15551362.74 -15551362.52 0.0542 0.0139

Moon -47291-09-09 20:52 J -15551362.85 -15551362.63 -15551362.41 0.0542 0.0123 \*

Mars -47289-06-08 05:16 J -15550725.44 -15550725.28 -15550725.11 0.0534 0.0415

Venus -47289-07-12 21:21 J -15550690.66 -15550690.61 -15550690.56 0.0533 0.0511

Mercury -47285-02-15 13:26 J -15549378.10 -15549377.94 -15549377.78 0.0488 0.0102

Venus -47283-12-30 12:14 J -15548329.19 -15548328.99 -15548328.79 0.0498 0.0168

Mercury -47279-04-18 09:35 J -15547124.24 -15547124.10 -15547123.97 0.0540 0.0112

Venus -47277-11-09 18:28 J -15546187.89 -15546187.73 -15546187.57 0.0526 0.0304

Mercury -47274-12-04 14:23 J -15545068.04 -15545067.90 -15545067.76 0.0489 0.0249

Moon -47273-03-01 05:02 J -15544980.33 -15544980.29 -15544980.23 0.0487 0.0476

Earth -47273-03-01 05:30 J -15544980.32 -15544980.27 -15544980.21 0.0487 0.0470 \*

Mercury -47273-03-03 10:18 J -15544978.18 -15544978.07 -15544977.95 0.0487 0.0359

Venus -47271-09-04 10:04 J -15544063.17 -15544063.08 -15544062.98 0.0496 0.0437

Mercury -47267-02-04 12:14 J -15542814.13 -15542813.99 -15542813.86 0.0539 0.0054

Venus -47265-07-15 15:06 J -15541922.07 -15541921.87 -15541921.68 0.0528 0.0015

Mercury -47262-09-22 14:52 J -15540757.97 -15540757.88 -15540757.78 0.0489 0.0397

Mercury -47262-12-21 10:33 J -15540668.21 -15540668.06 -15540667.90 0.0488 0.0206

Earth -47261-03-05 11:16 J -15540593.26 -15540593.03 -15540592.80 0.0487 0.0064

Moon -47261-03-05 12:57 J -15540593.20 -15540592.96 -15540592.72 0.0487 0.0035 \*

Venus -47258-01-02 08:38 J -15539560.31 -15539560.14 -15539559.97 0.0502 0.0286

Mercury -47256-11-23 14:09 J -15538504.03 -15538503.91 -15538503.78 0.0539 0.0224

Mercury -47255-02-21 03:21 J -15538414.44 -15538414.36 -15538414.29 0.0540 0.0450

Venus -47253-03-20 11:16 J -15537656.18 -15537656.03 -15537655.87 0.0531 0.0326

Mercury -47250-10-09 11:30 J -15536358.18 -15536358.02 -15536357.85 0.0488 0.0060

Moon -47249-03-09 15:50 J -15536205.99 -15536205.84 -15536205.69 0.0486 0.0363



Earth -47249-03-09 18:28 J -15536205.88 -15536205.73 -15536205.56 0.0486 0.0350 \*  
 Venus -47247-09-07 02:38 J -15535294.60 -15535294.39 -15535294.18 0.0499 0.0009  
 Mercury -47244-09-11 15:21 J -15534193.94 -15534193.86 -15534193.77 0.0539 0.0411  
 Mercury -47244-12-10 05:02 J -15534104.41 -15534104.29 -15534104.17 0.0540 0.0271  
 Venus -47241-07-18 06:14 J -15533153.32 -15533153.24 -15533153.16 0.0525 0.0475  
 Mercury -47238-07-28 12:42 J -15532048.13 -15532047.97 -15532047.81 0.0488 0.0084  
 Mars -47236-11-26 12:14 J -15531196.26 -15531195.99 -15531195.70 0.0492 0.0114  
 Venus -47235-05-12 23:16 J -15531028.70 -15531028.53 -15531028.36 0.0497 0.0280  
 Mercury -47232-09-28 07:40 J -15529794.31 -15529794.18 -15529794.04 0.0540 0.0111  
 Venus -47229-03-23 05:30 J -15528887.46 -15528887.27 -15528887.09 0.0528 0.0176  
 Mercury -47226-05-16 13:26 J -15527738.09 -15527737.94 -15527737.80 0.0488 0.0233  
 Mercury -47226-08-14 09:21 J -15527648.21 -15527648.11 -15527648.00 0.0487 0.0375  
 Venus -47223-09-09 22:18 J -15526525.66 -15526525.57 -15526525.48 0.0503 0.0449  
 Mercury -47220-07-17 10:47 J -15525484.19 -15525484.05 -15525483.92 0.0540 0.0050  
 Earth -47220-09-03 18:14 J -15525435.81 -15525435.74 -15525435.66 0.0541 0.0506  
 Moon -47220-09-03 21:35 J -15525435.63 -15525435.60 -15525435.58 0.0541 0.0536  
 Venus -47218-11-27 03:21 J -15524621.55 -15524621.36 -15524621.17 0.0530 0.0133  
 Mercury -47214-03-04 14:09 J -15523428.00 -15523427.91 -15523427.80 0.0489 0.0379  
 Mercury -47214-06-02 09:50 J -15523338.23 -15523338.09 -15523337.94 0.0487 0.0224  
 Venus -47211-05-15 18:14 J -15522259.93 -15522259.74 -15522259.54 0.0501 0.0168  
 Mercury -47208-05-05 13:11 J -15521174.08 -15521173.95 -15521173.82 0.0539 0.0210  
 Mercury -47208-08-03 02:23 J -15521084.47 -15521084.40 -15521084.33 0.0541 0.0464  
 Moon -47208-09-09 01:40 J -15521047.67 -15521047.43 -15521047.19 0.0541 0.0074  
 Earth -47208-09-09 02:23 J -15521047.62 -15521047.40 -15521047.17 0.0541 0.0082 \*  
 Venus -47206-08-01 22:47 J -15520355.65 -15520355.55 -15520355.45 0.0532 0.0453  
 Mercury -47202-03-21 10:18 J -15519028.23 -15519028.07 -15519027.91 0.0488 0.0071  
 Mars -47200-09-01 14:38 J -15518133.03 -15518132.89 -15518132.72 0.0494 0.0415  
 Venus -47199-01-18 14:38 J -15517994.10 -15517993.89 -15517993.69 0.0498 0.0111  
 Mercury -47196-02-21 15:21 J -15516863.96 -15516863.86 -15516863.76 0.0539 0.0383  
 Mercury -47196-05-22 04:47 J -15516774.41 -15516774.30 -15516774.19 0.0540 0.0298

Venus -47194-11-29 18:14 J -15515852.88 -15515852.74 -15515852.59 0.0526 0.0353  
 Mercury -47190-01-07 11:16 J -15514718.19 -15514718.03 -15514717.86 0.0488 0.0074  
 Venus -47188-09-23 10:33 J -15513728.19 -15513728.06 -15513727.93 0.0496 0.0389  
 Mercury -47184-03-10 06:14 J -15512464.37 -15512464.24 -15512464.10 0.0540 0.0115  
 Venus -47182-08-04 15:21 J -15511587.06 -15511586.86 -15511586.66 0.0529 0.0043  
 Mercury -47179-10-26 12:28 J -15510408.12 -15510407.98 -15510407.83 0.0489 0.0216  
 Mercury -47178-01-24 08:23 J -15510318.24 -15510318.15 -15510318.04 0.0487 0.0394  
 Moon -47178-03-05 21:50 J -15510277.82 -15510277.59 -15510277.37 0.0487 0.0068  
 Earth -47178-03-06 00:42 J -15510277.70 -15510277.47 -15510277.24 0.0487 0.0095 \*  
 Venus -47175-01-21 08:09 J -15509225.31 -15509225.16 -15509225.00 0.0501 0.0331  
 Mercury -47173-12-27 08:52 J -15508154.27 -15508154.13 -15508153.99 0.0540 0.0050  
 Mars -47171-11-27 19:54 J -15507453.93 -15507453.67 -15507453.40 0.0536 0.0020  
 Venus -47170-04-09 12:57 J -15507321.12 -15507320.96 -15507320.79 0.0531 0.0268  
 Mercury -47167-08-14 13:11 J -15506098.05 -15506097.95 -15506097.84 0.0489 0.0364  
 Mercury -47167-11-12 08:52 J -15506008.27 -15506008.13 -15506007.98 0.0487 0.0238  
 Earth -47166-03-10 05:59 J -15505890.43 -15505890.25 -15505890.07 0.0486 0.0309  
 Moon -47166-03-10 09:35 J -15505890.27 -15505890.10 -15505889.91 0.0486 0.0313 \*  
 Venus -47164-09-26 03:50 J -15504959.55 -15504959.34 -15504959.13 0.0499 0.0050  
 Mercury -47161-10-15 11:45 J -15503844.14 -15503844.01 -15503843.88 0.0540 0.0208  
 Mercury -47160-01-13 00:42 J -15503754.53 -15503754.47 -15503754.40 0.0541 0.0468  
 Mercury -47155-08-31 09:35 J -15501698.27 -15501698.10 -15501697.94 0.0488 0.0089  
 Venus -47152-06-01 00:42 J -15500693.65 -15500693.47 -15500693.28 0.0497 0.0225  
 Mercury -47149-08-03 14:09 J -15499534.01 -15499533.91 -15499533.81 0.0539 0.0372  
 Mercury -47149-11-01 03:35 J -15499444.46 -15499444.35 -15499444.23 0.0540 0.0310  
 Venus -47146-04-12 06:28 J -15498552.41 -15498552.23 -15498552.05 0.0527 0.0230  
 Mercury -47143-06-19 10:04 J -15497388.25 -15497388.08 -15497387.92 0.0488 0.0064  
 Venus -47140-02-03 22:18 J -15496427.58 -15496427.57 -15496427.54 0.0495 0.0494  
 Mercury -47137-08-20 05:59 J -15495134.38 -15495134.25 -15495134.12 0.0540 0.0142  
 Venus -47135-12-16 03:21 J -15494286.56 -15494286.36 -15494286.17 0.0530 0.0083  
 Mercury -47131-04-07 11:02 J -15493078.19 -15493078.04 -15493077.89 0.0489 0.0207

Mercury -47131-07-06 07:11 J -15492988.29 -15492988.20 -15492988.11 0.0487 0.0403  
 Venus -47128-06-03 18:42 J -15491924.91 -15491924.72 -15491924.53 0.0500 0.0216  
 Mercury -47125-06-08 07:26 J -15490824.33 -15490824.19 -15490824.05 0.0539 0.0044  
 Moon -47125-09-07 22:47 J -15490732.78 -15490732.55 -15490732.33 0.0541 0.0031  
 Earth -47125-09-07 23:45 J -15490732.74 -15490732.51 -15490732.28 0.0541 0.0030 \*  
 Venus -47123-08-20 22:04 J -15490020.71 -15490020.58 -15490020.46 0.0533 0.0405  
 Mercury -47119-01-24 12:14 J -15488768.10 -15488767.99 -15488767.87 0.0489 0.0349  
 Mercury -47119-04-24 07:54 J -15488678.31 -15488678.17 -15488678.02 0.0488 0.0255  
 Mars -47117-05-17 06:42 J -15487924.35 -15487924.22 -15487924.07 0.0491 0.0426  
 Venus -47116-02-06 14:38 J -15487659.10 -15487658.89 -15487658.68 0.0498 0.0063  
 Mercury -47113-03-27 09:50 J -15486514.22 -15486514.09 -15486513.97 0.0539 0.0211  
 Mercury -47113-06-24 22:47 J -15486424.61 -15486424.55 -15486424.48 0.0541 0.0465  
 Venus -47111-12-18 19:11 J -15485517.82 -15485517.70 -15485517.57 0.0526 0.0407  
 Mercury -47107-02-10 08:23 J -15484368.31 -15484368.15 -15484367.99 0.0488 0.0102  
 Venus -47105-10-12 10:47 J -15483393.20 -15483393.05 -15483392.89 0.0496 0.0338  
 Mercury -47101-01-14 12:28 J -15482204.08 -15482203.98 -15482203.88 0.0539 0.0372  
 Mercury -47101-04-13 01:54 J -15482114.53 -15482114.42 -15482114.30 0.0541 0.0311  
 Venus -47099-08-23 17:59 J -15481251.94 -15481251.75 -15481251.55 0.0529 0.0106  
 Mercury -47096-11-29 09:06 J -15480058.28 -15480058.12 -15480057.95 0.0488 0.0047  
 Earth -47095-03-05 10:04 J -15479962.30 -15479962.08 -15479961.85 0.0487 0.0143  
 Moon -47095-03-05 13:54 J -15479962.15 -15479961.92 -15479961.69 0.0487 0.0114 \*  
 Venus -47092-02-09 09:35 J -15478890.23 -15478890.10 -15478889.96 0.0502 0.0386  
 Mercury -47090-11-02 14:52 J -15477893.89 -15477893.88 -15477893.87 0.0538 0.0536  
 Mercury -47089-01-31 04:47 J -15477804.43 -15477804.30 -15477804.17 0.0540 0.0151  
 Venus -47087-04-28 14:23 J -15476986.09 -15476985.90 -15476985.72 0.0531 0.0211  
 Mercury -47084-09-17 09:35 J -15475748.25 -15475748.10 -15475747.95 0.0489 0.0199  
 Mercury -47084-12-16 05:45 J -15475658.35 -15475658.26 -15475658.17 0.0487 0.0411  
 Moon -47083-03-09 11:59 J -15475575.20 -15475575.00 -15475574.79 0.0487 0.0260  
 Earth -47083-03-09 15:35 J -15475575.04 -15475574.85 -15475574.65 0.0487 0.0264 \*  
 Mars -47081-02-21 00:28 J -15474861.77 -15474861.48 -15474861.20 0.0493 0.0078

Venus -47081-10-15 05:30 J -15474624.47 -15474624.27 -15474624.06 0.0500 0.0105  
 Mercury -47078-11-19 07:11 J -15473494.34 -15473494.20 -15473494.06 0.0539 0.0022  
 Venus -47075-01-01 09:21 J -15472720.12 -15472720.11 -15472720.09 0.0533 0.0530  
 Mercury -47072-07-06 10:47 J -15471438.16 -15471438.05 -15471437.93 0.0489 0.0341  
 Mercury -47072-10-04 06:28 J -15471348.37 -15471348.23 -15471348.09 0.0488 0.0263  
 Venus -47069-06-20 01:11 J -15470358.64 -15470358.45 -15470358.25 0.0497 0.0175  
 Mercury -47066-09-07 08:09 J -15469184.28 -15469184.16 -15469184.03 0.0539 0.0207  
 Mercury -47066-12-05 21:21 J -15469094.67 -15469094.61 -15469094.54 0.0541 0.0469  
 Venus -47063-05-01 05:02 J -15468217.46 -15468217.29 -15468217.12 0.0528 0.0275  
 Mercury -47060-04-24 11:59 J -15467128.02 -15467128.00 -15467127.97 0.0490 0.0483  
 Mercury -47060-07-23 07:26 J -15467038.36 -15467038.19 -15467038.03 0.0488 0.0116  
 Venus -47057-02-23 22:33 J -15466092.65 -15466092.56 -15466092.47 0.0495 0.0444  
 Mercury -47054-06-26 10:33 J -15464874.16 -15464874.06 -15464873.97 0.0539 0.0377  
 Mercury -47054-09-23 23:59 J -15464784.61 -15464784.50 -15464784.39 0.0540 0.0305  
 Mars -47052-05-17 23:45 J -15464182.67 -15464182.51 -15464182.33 0.0537 0.0410  
 Venus -47051-01-04 02:52 J -15463951.58 -15463951.38 -15463951.19 0.0530 0.0032  
 Mercury -47048-05-11 07:40 J -15462728.34 -15462728.18 -15462728.01 0.0488 0.0039  
 Venus -47045-06-22 18:14 J -15461589.91 -15461589.74 -15461589.56 0.0500 0.0265  
 Mercury -47042-07-13 02:52 J -15460474.51 -15460474.38 -15460474.24 0.0540 0.0149  
 Earth -47042-09-08 05:30 J -15460417.49 -15460417.27 -15460417.04 0.0541 0.0102  
 Moon -47042-09-08 08:23 J -15460417.39 -15460417.15 -15460416.91 0.0541 0.0092 \*  
 Venus -47040-09-09 00:14 J -15459685.64 -15459685.49 -15459685.34 0.0532 0.0342  
 Mercury -47036-02-27 08:38 J -15458418.29 -15458418.14 -15458417.99 0.0488 0.0185  
 Mercury -47036-05-28 04:33 J -15458328.39 -15458328.31 -15458328.23 0.0487 0.0424  
 Venus -47033-02-26 14:52 J -15457324.09 -15457323.88 -15457323.67 0.0498 0.0016  
 Mercury -47030-05-01 05:45 J -15456164.40 -15456164.26 -15456164.13 0.0540 0.0021  
 Moon -47030-09-13 10:33 J -15456029.11 -15456029.06 -15456029.00 0.0542 0.0524  
 Earth -47030-09-13 14:09 J -15456029.00 -15456028.91 -15456028.81 0.0542 0.0490 \*  
 Venus -47027-01-06 19:40 J -15455182.77 -15455182.68 -15455182.58 0.0526 0.0457  
 Mercury -47025-12-16 09:06 J -15454108.23 -15454108.12 -15454108.00 0.0489 0.0335

Mercury -47024-03-16 04:47 J -15454018.44 -15454018.30 -15454018.16 0.0488 0.0269

Venus -47022-11-01 11:45 J -15453058.18 -15453058.01 -15453057.83 0.0496 0.0286

Mercury -47018-02-17 07:54 J -15451854.30 -15451854.17 -15451854.04 0.0539 0.0183

Mercury -47018-05-17 20:52 J -15451764.68 -15451764.63 -15451764.57 0.0541 0.0491

Mars -47016-02-21 05:16 J -15451119.52 -15451119.28 -15451119.04 0.0535 0.0214

Venus -47016-09-11 16:47 J -15450916.98 -15450916.80 -15450916.61 0.0528 0.0152

Mercury -47013-10-04 10:18 J -15449798.10 -15449798.07 -15449798.03 0.0490 0.0477

Mercury -47012-01-02 05:30 J -15449708.43 -15449708.27 -15449708.10 0.0488 0.0122

Moon -47012-03-04 16:04 J -15449647.05 -15449646.83 -15449646.60 0.0487 0.0165

Earth -47012-03-04 19:26 J -15449646.90 -15449646.69 -15449646.47 0.0487 0.0191 \*

Venus -47009-02-29 09:35 J -15448555.20 -15448555.10 -15448554.99 0.0501 0.0434

Mercury -47007-12-06 08:52 J -15447544.23 -15447544.13 -15447544.03 0.0538 0.0372

Mercury -47006-03-05 22:33 J -15447454.68 -15447454.56 -15447454.45 0.0540 0.0309

Venus -47004-05-17 11:16 J -15446651.21 -15446651.03 -15446650.84 0.0531 0.0169

Mercury -47001-10-21 06:28 J -15445398.39 -15445398.23 -15445398.06 0.0489 0.0026

# 47TH MILLENNIUM BCE

This is a list of transits visible from Jupiter in the 47th millennium BCE.

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Earth	-47000-03-09 02:23 J	-15445259.61	-15445259.40	-15445259.19	0.0487	0.0221		
Moon	-47000-03-09 04:47 J	-15445259.50	-15445259.30	-15445259.09	0.0487	0.0214	*	
Venus	-46998-11-04 04:47 J	-15444289.50	-15444289.30	-15444289.10	0.0499	0.0151		

Mercury -46995-12-23 00:57 J -15443144.60 -15443144.46 -15443144.33 0.0540 0.0143

Venus -46992-01-20 07:11 J -15442385.27 -15442385.20 -15442385.11 0.0533 0.0485

Mercury -46989-08-09 06:57 J -15441088.36 -15441088.21 -15441088.05 0.0489 0.0178

Mercury -46989-11-07 03:06 J -15440998.45 -15440998.37 -15440998.30 0.0487 0.0432

Venus -46986-07-09 23:45 J -15440023.71 -15440023.51 -15440023.31 0.0497 0.0130

Mercury -46983-10-11 03:35 J -15438834.49 -15438834.35 -15438834.21 0.0540 0.0019

Venus -46980-05-20 05:59 J -15437882.40 -15437882.25 -15437882.09 0.0527 0.0331

Mercury -46977-05-28 07:54 J -15436778.29 -15436778.17 -15436778.05 0.0489 0.0324

Mercury -46977-08-26 03:21 J -15436688.49 -15436688.36 -15436688.22 0.0488 0.0280

Venus -46974-03-14 21:21 J -15435757.74 -15435757.61 -15435757.49 0.0495 0.0398

Mercury -46971-07-30 06:14 J -15434524.37 -15434524.24 -15434524.11 0.0539 0.0181

Mercury -46971-10-27 19:26 J -15434434.74 -15434434.69 -15434434.64 0.0541 0.0494

Venus -46968-01-23 02:52 J -15433616.57 -15433616.38 -15433616.18 0.0529 0.0024

Mercury -46965-03-16 08:38 J -15432468.18 -15432468.14 -15432468.10 0.0489 0.0473

Mercury -46965-06-14 03:50 J -15432378.50 -15432378.34 -15432378.18 0.0488 0.0125

Mars -46963-08-11 08:09 J -15431590.40 -15431590.16 -15431589.92 0.0491 0.0259

Venus -46962-07-12 18:42 J -15431254.88 -15431254.72 -15431254.55 0.0501 0.0315

Mercury -46959-05-18 08:09 J -15430214.26 -15430214.16 -15430214.05 0.0539 0.0353

Mercury -46959-08-15 21:50 J -15430124.70 -15430124.59 -15430124.48 0.0540 0.0329

Moon -46959-09-07 04:33 J -15430102.52 -15430102.31 -15430102.09 0.0541 0.0182

Earth -46959-09-07 07:54 J -15430102.38 -15430102.17 -15430101.95 0.0541 0.0189 \*

Venus -46957-09-27 22:33 J -15429350.72 -15429350.56 -15429350.39 0.0532 0.0296

Mercury -46953-04-02 04:33 J -15428068.47 -15428068.31 -15428068.14 0.0488 0.0025

Venus -46950-03-17 14:38 J -15426989.10 -15426988.89 -15426988.68 0.0498 0.0037

Mercury -46947-06-03 23:16 J -15425814.66 -15425814.53 -15425814.40 0.0539 0.0145

Earth -46947-09-12 08:09 J -15425714.32 -15425714.16 -15425713.98 0.0541 0.0364

Moon -46947-09-12 11:59 J -15425714.15 -15425714.00 -15425713.84 0.0541 0.0399 \*

Venus -46944-01-25 15:50 J -15424847.90 -15424847.84 -15424847.77 0.0526 0.0495

Mercury -46941-01-20 05:30 J -15423758.42 -15423758.27 -15423758.12 0.0489 0.0171

Mercury -46941-04-19 01:26 J -15423668.50 -15423668.44 -15423668.37 0.0488 0.0440

Venus -46939-11-20 10:47 J -15422723.24 -15422723.05 -15422722.87 0.0496 0.0239

Mercury -46935-03-23 01:26 J -15421504.58 -15421504.44 -15421504.30 0.0539 0.0026

Venus -46933-09-30 13:54 J -15420582.10 -15420581.92 -15420581.73 0.0529 0.0194

Mercury -46930-11-08 05:59 J -15419448.37 -15419448.25 -15419448.12 0.0489 0.0321

Mercury -46929-02-06 01:40 J -15419358.57 -15419358.43 -15419358.30 0.0488 0.0283

Earth -46929-03-04 01:54 J -15419331.62 -15419331.42 -15419331.21 0.0487 0.0249

Moon -46929-03-04 04:18 J -15419331.52 -15419331.32 -15419331.12 0.0487 0.0225 \*

Mars -46927-05-16 19:54 J -15418527.91 -15418527.67 -15418527.41 0.0492 0.0234

Venus -46926-03-20 06:57 J -15418220.27 -15418220.21 -15418220.13 0.0502 0.0474

Mercury -46923-01-09 03:50 J -15417194.47 -15417194.34 -15417194.21 0.0539 0.0191

Mercury -46923-04-08 17:02 J -15417104.84 -15417104.79 -15417104.73 0.0541 0.0486

Venus -46921-06-05 11:45 J -15416316.20 -15416316.01 -15416315.82 0.0531 0.0114

Mercury -46918-08-27 07:11 J -15415138.25 -15415138.20 -15415138.15 0.0489 0.0465

Mercury -46918-11-25 02:09 J -15415048.57 -15415048.41 -15415048.25 0.0488 0.0133

Moon -46917-03-08 06:57 J -15414944.44 -15414944.21 -15414943.97 0.0487 0.0148

Earth -46917-03-08 08:09 J -15414944.38 -15414944.16 -15414943.93 0.0487 0.0160 \*

Venus -46915-11-23 02:38 J -15413954.58 -15413954.39 -15413954.19 0.0500 0.0194

Mercury -46912-10-28 06:28 J -15412884.34 -15412884.23 -15412884.13 0.0539 0.0355

Mercury -46911-01-25 19:54 J -15412794.77 -15412794.67 -15412794.56 0.0540 0.0328

Venus -46909-02-09 07:26 J -15412050.30 -15412050.19 -15412050.07 0.0533 0.0431

Mercury -46906-09-13 02:38 J -15410738.56 -15410738.39 -15410738.23 0.0488 0.0022

Venus -46903-07-28 23:02 J -15409688.74 -15409688.54 -15409688.33 0.0498 0.0083

Mercury -46900-08-16 08:23 J -15408574.17 -15408574.15 -15408574.12 0.0538 0.0527

Mercury -46900-11-13 22:18 J -15408484.70 -15408484.57 -15408484.43 0.0540 0.0161

Mars -46898-08-12 02:09 J -15407848.65 -15407848.41 -15407848.17 0.0537 0.0227

Venus -46897-06-08 03:35 J -15407547.49 -15407547.35 -15407547.21 0.0527 0.0371

Mercury -46894-07-02 03:21 J -15406428.51 -15406428.36 -15406428.20 0.0489 0.0170

Mercury -46894-09-29 23:30 J -15406338.59 -15406338.52 -15406338.45 0.0488 0.0441

Venus -46891-04-02 20:23 J -15405422.79 -15405422.65 -15405422.50 0.0495 0.0351

Mercury -46888-09-01 23:45 J -15404174.65 -15404174.51 -15404174.37 0.0539 0.0024

Venus -46885-02-11 22:04 J -15403281.78 -15403281.58 -15403281.39 0.0530 0.0056  
 Mercury -46882-04-20 04:18 J -15402118.44 -15402118.32 -15402118.20 0.0490 0.0317  
 Mercury -46882-07-18 23:59 J -15402028.64 -15402028.50 -15402028.37 0.0488 0.0288  
 Venus -46879-07-31 16:47 J -15400919.94 -15400919.80 -15400919.65 0.0500 0.0358  
 Mercury -46876-06-21 01:40 J -15399864.56 -15399864.43 -15399864.30 0.0539 0.0198  
 Earth -46876-09-06 00:42 J -15399787.65 -15399787.47 -15399787.28 0.0540 0.0319  
 Moon -46876-09-06 04:33 J -15399787.50 -15399787.31 -15399787.11 0.0540 0.0307 \*  
 Mercury -46876-09-18 14:52 J -15399774.94 -15399774.88 -15399774.81 0.0540 0.0477  
 Venus -46874-10-17 18:14 J -15399015.91 -15399015.74 -15399015.56 0.0532 0.0258  
 Mercury -46870-02-06 05:02 J -15397808.33 -15397808.29 -15397808.24 0.0490 0.0465  
 Mercury -46870-05-07 00:14 J -15397718.65 -15397718.49 -15397718.33 0.0488 0.0133  
 Venus -46867-04-05 10:33 J -15396654.26 -15396654.06 -15396653.85 0.0498 0.0073  
 Mercury -46864-04-09 03:50 J -15395554.44 -15395554.34 -15395554.23 0.0539 0.0367  
 Mercury -46864-07-07 17:30 J -15395464.87 -15395464.77 -15395464.65 0.0540 0.0317  
 Moon -46864-09-11 05:02 J -15395399.48 -15395399.29 -15395399.09 0.0541 0.0296  
 Earth -46864-09-11 08:23 J -15395399.35 -15395399.15 -15395398.95 0.0541 0.0268 \*  
 Mars -46862-05-17 21:21 J -15394785.80 -15394785.61 -15394785.42 0.0535 0.0366  
 Mercury -46858-02-23 00:57 J -15393408.63 -15393408.46 -15393408.30 0.0488 0.0019  
 Venus -46856-12-09 07:11 J -15392388.39 -15392388.20 -15392388.00 0.0496 0.0201  
 Mercury -46852-01-26 06:14 J -15391244.25 -15391244.24 -15391244.22 0.0538 0.0532  
 Mercury -46852-04-25 20:23 J -15391154.78 -15391154.65 -15391154.52 0.0540 0.0157  
 Venus -46850-10-20 12:57 J -15390247.13 -15390246.96 -15390246.78 0.0528 0.0241  
 Mercury -46847-12-12 01:26 J -15389098.60 -15389098.44 -15389098.29 0.0489 0.0170  
 Moon -46846-03-04 05:45 J -15389016.45 -15389016.26 -15389016.06 0.0488 0.0295  
 Earth -46846-03-04 06:42 J -15389016.39 -15389016.22 -15389016.03 0.0488 0.0317 \*  
 Mercury -46846-03-11 21:06 J -15389008.68 -15389008.62 -15389008.54 0.0487 0.0440  
 Venus -46844-08-14 04:47 J -15388122.36 -15388122.30 -15388122.23 0.0495 0.0468  
 Mercury -46840-02-11 22:47 J -15386844.69 -15386844.55 -15386844.41 0.0539 0.0016  
 Venus -46838-06-25 09:06 J -15385981.32 -15385981.12 -15385980.92 0.0530 0.0072  
 Mercury -46835-09-30 02:09 J -15384788.53 -15384788.41 -15384788.28 0.0489 0.0317



Mercury -46835-12-28 21:50 J -15384698.73 -15384698.59 -15384698.46 0.0488 0.0288

Moon -46834-03-08 12:42 J -15384629.19 -15384628.97 -15384628.75 0.0487 0.0079

Earth -46834-03-08 13:26 J -15384629.17 -15384628.94 -15384628.71 0.0487 0.0095 \*

Venus -46832-12-12 01:26 J -15383619.62 -15383619.44 -15383619.25 0.0499 0.0239

Mercury -46829-11-30 23:59 J -15382534.63 -15382534.50 -15382534.37 0.0538 0.0196

Mercury -46828-02-28 13:11 J -15382445.01 -15382444.95 -15382444.88 0.0540 0.0479

Venus -46826-02-28 01:40 J -15381715.55 -15381715.43 -15381715.29 0.0533 0.0399

Mercury -46823-07-19 03:06 J -15380478.42 -15380478.37 -15380478.32 0.0490 0.0464

Mercury -46823-10-16 22:18 J -15380388.73 -15380388.57 -15380388.41 0.0488 0.0135

Moon -46822-03-12 21:50 J -15380241.61 -15380241.59 -15380241.56 0.0487 0.0483

Venus -46820-08-16 20:52 J -15379353.84 -15379353.63 -15379353.42 0.0497 0.0041

Mercury -46817-09-19 01:54 J -15378224.52 -15378224.42 -15378224.32 0.0538 0.0372

Mercury -46817-12-17 15:35 J -15378134.96 -15378134.85 -15378134.74 0.0540 0.0309

Venus -46814-06-27 22:33 J -15377212.68 -15377212.56 -15377212.43 0.0527 0.0406

Mercury -46811-08-04 22:33 J -15376078.72 -15376078.56 -15376078.39 0.0489 0.0019

Mars -46809-11-03 18:57 J -15375256.98 -15375256.71 -15375256.43 0.0491 0.0123

Venus -46808-04-21 15:35 J -15375088.00 -15375087.85 -15375087.68 0.0495 0.0319

Mercury -46805-10-05 17:59 J -15373824.89 -15373824.75 -15373824.62 0.0540 0.0144

Venus -46802-03-02 21:06 J -15372946.81 -15372946.62 -15372946.42 0.0530 0.0104

Mercury -46799-05-23 23:30 J -15371768.67 -15371768.52 -15371768.37 0.0489 0.0166

Mercury -46799-08-21 19:26 J -15371678.76 -15371678.69 -15371678.63 0.0487 0.0443

Venus -46796-08-19 12:42 J -15370585.09 -15370584.97 -15370584.84 0.0501 0.0393

Mercury -46793-07-24 20:38 J -15369514.78 -15369514.64 -15369514.50 0.0540 0.0020

Moon -46793-09-04 22:18 J -15369472.72 -15369472.57 -15369472.40 0.0540 0.0396

Earth -46793-09-05 02:09 J -15369472.56 -15369472.41 -15369472.26 0.0540 0.0409 \*

Venus -46791-11-05 17:45 J -15368680.94 -15368680.76 -15368680.58 0.0532 0.0209

Mercury -46787-03-11 23:59 J -15367458.62 -15367458.50 -15367458.37 0.0489 0.0318

Mercury -46787-06-09 19:26 J -15367368.82 -15367368.69 -15367368.55 0.0488 0.0286

Venus -46784-04-24 08:52 J -15366319.33 -15366319.13 -15366318.93 0.0499 0.0115

Mercury -46781-05-12 22:47 J -15365204.68 -15365204.55 -15365204.42 0.0539 0.0187

Mercury -46781-08-10 11:59 J -15365115.05 -15365115.00 -15365114.94 0.0540 0.0489  
 Earth -46781-09-10 08:38 J -15365084.35 -15365084.14 -15365083.91 0.0541 0.0173  
 Moon -46781-09-10 10:47 J -15365084.26 -15365084.05 -15365083.84 0.0541 0.0199 \*  
 Venus -46779-07-11 12:14 J -15364415.01 -15364414.99 -15364414.96 0.0534 0.0528  
 Mercury -46776-12-29 00:57 J -15363148.50 -15363148.46 -15363148.40 0.0490 0.0464  
 Mercury -46775-03-28 20:09 J -15363058.82 -15363058.66 -15363058.50 0.0488 0.0135  
 Mars -46773-08-09 12:57 J -15362194.13 -15362193.96 -15362193.78 0.0493 0.0384  
 Venus -46773-12-28 05:45 J -15362053.46 -15362053.26 -15362053.06 0.0496 0.0157  
 Mercury -46769-03-01 00:14 J -15360894.59 -15360894.49 -15360894.39 0.0538 0.0369  
 Mercury -46769-05-29 13:54 J -15360805.03 -15360804.92 -15360804.81 0.0540 0.0312  
 Venus -46767-11-08 07:11 J -15359912.37 -15359912.20 -15359912.03 0.0528 0.0271  
 Mercury -46763-01-14 20:38 J -15358748.81 -15358748.64 -15358748.48 0.0489 0.0019  
 Moon -46763-03-03 10:47 J -15358701.20 -15358701.05 -15358700.90 0.0488 0.0369  
 Earth -46763-03-03 11:30 J -15358701.16 -15358701.02 -15358700.87 0.0488 0.0383 \*  
 Venus -46761-09-02 02:38 J -15357787.49 -15357787.39 -15357787.28 0.0494 0.0425  
 Mercury -46757-03-17 15:50 J -15356494.97 -15356494.84 -15356494.70 0.0539 0.0140  
 Venus -46755-07-14 03:35 J -15355646.54 -15355646.35 -15355646.15 0.0531 0.0040  
 Mercury -46752-11-02 21:06 J -15354438.77 -15354438.62 -15354438.47 0.0489 0.0169  
 Mercury -46751-01-31 17:02 J -15354348.86 -15354348.79 -15354348.72 0.0488 0.0440  
 Earth -46751-03-07 16:33 J -15354314.04 -15354313.81 -15354313.58 0.0487 0.0027  
 Moon -46751-03-07 19:11 J -15354313.94 -15354313.70 -15354313.46 0.0487 0.0003 \*  
 Venus -46749-12-30 20:09 J -15353284.84 -15353284.66 -15353284.49 0.0499 0.0269  
 Mercury -46745-01-04 17:59 J -15352184.89 -15352184.75 -15352184.61 0.0539 0.0033  
 Mars -46744-11-04 09:21 J -15351515.37 -15351515.11 -15351514.85 0.0537 0.0090  
 Venus -46743-03-19 00:42 J -15351380.62 -15351380.47 -15351380.32 0.0533 0.0351  
 Mercury -46740-08-21 22:04 J -15350128.70 -15350128.58 -15350128.45 0.0489 0.0315  
 Mercury -46740-11-19 17:30 J -15350038.90 -15350038.77 -15350038.64 0.0488 0.0289  
 Moon -46739-03-11 18:57 J -15349926.82 -15349926.71 -15349926.58 0.0486 0.0416  
 Earth -46739-03-11 22:47 J -15349926.65 -15349926.55 -15349926.44 0.0486 0.0437 \*  
 Venus -46737-09-04 16:18 J -15349019.03 -15349018.82 -15349018.61 0.0497 0.0009

Mercury -46734-10-23 20:38 J -15347874.77 -15347874.64 -15347874.51 0.0539 0.0195

Mercury -46733-01-21 09:50 J -15347785.14 -15347785.09 -15347785.02 0.0541 0.0483

Venus -46731-07-16 21:35 J -15346877.69 -15346877.60 -15346877.49 0.0527 0.0451

Mercury -46728-06-09 22:47 J -15345818.59 -15345818.55 -15345818.49 0.0490 0.0464

Mercury -46728-09-07 17:45 J -15345728.92 -15345728.76 -15345728.60 0.0488 0.0133

Venus -46725-05-10 13:26 J -15344753.11 -15344752.94 -15344752.76 0.0496 0.0277

Mercury -46722-08-11 22:47 J -15343564.65 -15343564.55 -15343564.45 0.0538 0.0363

Mercury -46722-11-09 12:28 J -15343475.09 -15343474.98 -15343474.87 0.0540 0.0320

Venus -46719-03-21 18:28 J -15342611.91 -15342611.73 -15342611.53 0.0529 0.0146

Mercury -46716-06-26 18:28 J -15341418.89 -15341418.73 -15341418.56 0.0489 0.0019

Venus -46713-09-07 11:30 J -15340250.12 -15340250.02 -15340249.92 0.0501 0.0437

Mercury -46710-08-28 14:23 J -15339165.03 -15339164.90 -15339164.77 0.0539 0.0143

Earth -46710-09-04 21:21 J -15339157.65 -15339157.61 -15339157.55 0.0539 0.0525

Moon -46710-09-05 00:14 J -15339157.57 -15339157.49 -15339157.41 0.0539 0.0503 \*

Mars -46708-08-10 02:23 J -15338452.49 -15338452.40 -15338452.29 0.0535 0.0493

Venus -46708-11-24 11:59 J -15338346.18 -15338346.00 -15338345.81 0.0531 0.0177

Mercury -46704-04-14 19:11 J -15337108.86 -15337108.70 -15337108.55 0.0489 0.0170

Mercury -46704-07-13 14:52 J -15337018.95 -15337018.88 -15337018.81 0.0488 0.0441

Venus -46701-05-13 06:28 J -15335984.43 -15335984.23 -15335984.03 0.0499 0.0156

Mercury -46698-06-16 16:18 J -15334854.96 -15334854.82 -15334854.68 0.0539 0.0031

Moon -46698-09-10 00:42 J -15334769.71 -15334769.47 -15334769.23 0.0540 0.0067

Earth -46698-09-10 01:40 J -15334769.66 -15334769.43 -15334769.20 0.0540 0.0043 \*

Venus -46696-07-30 06:42 J -15334080.28 -15334080.22 -15334080.14 0.0534 0.0495

Mercury -46692-01-31 19:54 J -15332798.79 -15332798.67 -15332798.55 0.0489 0.0317

Mercury -46692-05-01 15:06 J -15332709.00 -15332708.87 -15332708.73 0.0488 0.0286

Mars -46690-04-24 21:35 J -15331985.67 -15331985.60 -15331985.50 0.0490 0.0466

Venus -46689-01-17 00:14 J -15331718.69 -15331718.49 -15331718.28 0.0496 0.0127

Mercury -46686-04-04 18:14 J -15330544.87 -15330544.74 -15330544.62 0.0539 0.0207

Mercury -46686-07-03 07:26 J -15330455.25 -15330455.19 -15330455.12 0.0541 0.0471

Venus -46684-11-27 05:59 J -15329577.40 -15329577.25 -15329577.09 0.0528 0.0317

Mercury -46681-11-19 21:06 J -15328488.67 -15328488.62 -15328488.57 0.0490 0.0460

Mercury -46680-02-17 16:04 J -15328398.99 -15328398.83 -15328398.68 0.0488 0.0137

Earth -46680-03-02 15:50 J -15328385.92 -15328385.84 -15328385.74 0.0488 0.0448

Moon -46680-03-02 18:42 J -15328385.81 -15328385.72 -15328385.61 0.0488 0.0441 \*

Venus -46678-09-21 21:50 J -15327452.71 -15327452.59 -15327452.46 0.0494 0.0393

Mercury -46674-01-21 20:23 J -15326234.74 -15326234.65 -15326234.54 0.0539 0.0373

Mercury -46674-04-21 10:18 J -15326145.18 -15326145.07 -15326144.96 0.0540 0.0313

Venus -46672-08-02 03:35 J -15325311.55 -15325311.35 -15325311.16 0.0530 0.0015

Mercury -46669-12-06 16:18 J -15324088.98 -15324088.82 -15324088.65 0.0488 0.0021

Moon -46668-03-06 17:30 J -15323999.00 -15323998.77 -15323998.54 0.0487 0.0071

Earth -46668-03-06 21:06 J -15323998.85 -15323998.62 -15323998.38 0.0487 0.0042 \*

Venus -46665-01-19 18:14 J -15322949.90 -15322949.74 -15322949.57 0.0500 0.0311

Mercury -46662-02-07 12:57 J -15321835.09 -15321834.96 -15321834.83 0.0540 0.0149

Venus -46660-04-06 23:02 J -15321045.70 -15321045.54 -15321045.38 0.0532 0.0305

Mercury -46657-09-24 17:16 J -15319778.94 -15319778.78 -15319778.63 0.0489 0.0166

Mercury -46657-12-23 12:57 J -15319689.03 -15319688.96 -15319688.89 0.0488 0.0442

Earth -46656-03-11 02:52 J -15319611.52 -15319611.38 -15319611.22 0.0487 0.0370

Moon -46656-03-11 07:11 J -15319611.36 -15319611.20 -15319611.04 0.0487 0.0352 \*

Mars -46654-01-28 10:04 J -15318923.36 -15318923.08 -15318922.80 0.0491 0.0022

Venus -46654-09-24 15:06 J -15318684.08 -15318683.87 -15318683.66 0.0498 0.0038

Mercury -46651-11-26 14:52 J -15317525.02 -15317524.88 -15317524.74 0.0539 0.0028

Venus -46648-08-04 16:33 J -15316542.88 -15316542.81 -15316542.72 0.0526 0.0483

Mercury -46645-07-13 17:45 J -15315468.88 -15315468.76 -15315468.63 0.0490 0.0317

Mercury -46645-10-11 13:11 J -15315379.08 -15315378.95 -15315378.82 0.0488 0.0287

Venus -46642-05-30 11:30 J -15314418.20 -15314418.02 -15314417.84 0.0496 0.0235

Mercury -46639-09-14 16:33 J -15313214.94 -15313214.81 -15313214.68 0.0538 0.0202

Mercury -46639-12-13 05:59 J -15313125.31 -15313125.25 -15313125.19 0.0540 0.0473

Venus -46636-04-09 13:40 J -15312277.11 -15312276.93 -15312276.74 0.0529 0.0179

Mercury -46633-05-01 18:42 J -15311158.76 -15311158.72 -15311158.66 0.0490 0.0462

Mercury -46633-07-30 13:40 J -15311069.09 -15311068.93 -15311068.77 0.0488 0.0135

Venus -46630-09-27 06:14 J -15309915.31 -15309915.24 -15309915.16 0.0501 0.0465

Mercury -46627-07-03 18:14 J -15308904.84 -15308904.74 -15308904.64 0.0538 0.0382

Mercury -46627-10-01 08:09 J -15308815.28 -15308815.16 -15308815.05 0.0540 0.0303

Venus -46625-12-13 11:02 J -15308011.23 -15308011.04 -15308010.84 0.0532 0.0130

Mercury -46621-05-18 14:38 J -15306759.05 -15306758.89 -15306758.72 0.0488 0.0013

Venus -46618-06-02 01:54 J -15305649.62 -15305649.42 -15305649.23 0.0499 0.0188

Mercury -46615-07-20 10:47 J -15304505.18 -15304505.05 -15304504.92 0.0540 0.0142

Moon -46615-09-09 01:11 J -15304454.68 -15304454.45 -15304454.23 0.0541 0.0031

Earth -46615-09-09 01:26 J -15304454.67 -15304454.44 -15304454.20 0.0541 0.0054 \*

Venus -46613-08-18 07:11 J -15303745.30 -15303745.20 -15303745.08 0.0534 0.0443

Mercury -46609-03-06 15:21 J -15302449.02 -15302448.86 -15302448.71 0.0489 0.0163

Mercury -46609-06-04 11:02 J -15302359.11 -15302359.04 -15302358.98 0.0487 0.0445

Venus -46606-02-04 22:33 J -15301383.76 -15301383.56 -15301383.35 0.0497 0.0085

Mercury -46603-05-08 13:26 J -15300195.08 -15300194.94 -15300194.80 0.0539 0.0026

Earth -46603-09-14 09:35 J -15300066.12 -15300066.10 -15300066.07 0.0541 0.0538

Moon -46603-09-14 12:14 J -15300066.06 -15300065.99 -15300065.91 0.0541 0.0511

Venus -46601-12-16 04:47 J -15299242.44 -15299242.30 -15299242.15 0.0528 0.0361

Mercury -46598-12-24 16:18 J -15298138.95 -15298138.82 -15298138.70 0.0489 0.0311

Mercury -46597-03-23 11:30 J -15298049.15 -15298049.02 -15298048.89 0.0488 0.0292

Venus -46595-10-10 20:52 J -15297117.78 -15297117.63 -15297117.48 0.0495 0.0348

Mercury -46591-02-24 15:06 J -15295884.99 -15295884.87 -15295884.73 0.0538 0.0196

Mercury -46591-05-25 04:33 J -15295795.36 -15295795.31 -15295795.25 0.0540 0.0481

Mars -46589-01-28 23:16 J -15295181.79 -15295181.53 -15295181.26 0.0536 0.0064

Venus -46589-08-20 23:30 J -15294976.72 -15294976.52 -15294976.32 0.0530 0.0047

Mercury -46586-10-12 17:02 J -15293828.84 -15293828.79 -15293828.74 0.0490 0.0459

Mercury -46585-01-10 11:45 J -15293739.16 -15293739.01 -15293738.85 0.0489 0.0139

Earth -46585-03-06 02:23 J -15293683.63 -15293683.40 -15293683.17 0.0488 0.0104

Moon -46585-03-06 06:14 J -15293683.46 -15293683.24 -15293683.01 0.0488 0.0134 \*

Venus -46582-02-07 17:02 J -15292614.93 -15292614.79 -15292614.64 0.0500 0.0355

Mercury -46580-12-13 17:02 J -15291574.89 -15291574.79 -15291574.69 0.0538 0.0372

Mercury -46579-03-13 06:42 J -15291485.33 -15291485.22 -15291485.10 0.0540 0.0311  
 Venus -46577-04-25 18:57 J -15290710.88 -15290710.71 -15290710.54 0.0532 0.0268  
 Mercury -46574-10-29 12:28 J -15289429.14 -15289428.98 -15289428.81 0.0489 0.0017  
 Moon -46573-03-10 04:33 J -15289296.50 -15289296.31 -15289296.12 0.0487 0.0290  
 Earth -46573-03-10 08:09 J -15289296.34 -15289296.16 -15289295.97 0.0487 0.0309 \*  
 Venus -46571-10-13 10:33 J -15288349.27 -15288349.06 -15288348.85 0.0498 0.0069  
 Mercury -46568-12-30 08:38 J -15287175.28 -15287175.14 -15287175.01 0.0540 0.0135  
 Mercury -46562-08-17 13:40 J -15285119.08 -15285118.93 -15285118.77 0.0489 0.0156  
 Mercury -46562-11-15 09:21 J -15285029.17 -15285029.11 -15285029.05 0.0487 0.0453  
 Venus -46559-06-18 07:26 J -15284083.38 -15284083.19 -15284082.99 0.0496 0.0201  
 Mercury -46556-10-18 11:16 J -15282865.17 -15282865.03 -15282864.89 0.0540 0.0029  
 Venus -46553-04-28 14:38 J -15281942.06 -15281941.89 -15281941.71 0.0529 0.0231  
 Mercury -46550-06-05 14:38 J -15280809.02 -15280808.89 -15280808.77 0.0489 0.0304  
 Mercury -46550-09-03 09:50 J -15280719.22 -15280719.09 -15280718.96 0.0488 0.0298  
 Venus -46547-02-21 05:30 J -15279817.33 -15279817.27 -15279817.20 0.0494 0.0463  
 Mercury -46544-08-06 13:40 J -15278555.06 -15278554.93 -15278554.80 0.0539 0.0191  
 Mercury -46544-11-04 03:21 J -15278465.42 -15278465.36 -15278465.31 0.0541 0.0488  
 Venus -46541-01-02 11:16 J -15277676.23 -15277676.03 -15277675.84 0.0531 0.0077  
 Mercury -46538-03-24 15:35 J -15276498.91 -15276498.85 -15276498.79 0.0490 0.0450  
 Mercury -46538-06-22 10:18 J -15276409.22 -15276409.07 -15276408.91 0.0488 0.0147  
 Mars -46536-07-18 17:02 J -15275652.00 -15275651.79 -15275651.57 0.0490 0.0313  
 Venus -46535-06-21 01:54 J -15275314.61 -15275314.42 -15275314.24 0.0499 0.0236  
 Mercury -46532-05-25 15:50 J -15274244.95 -15274244.84 -15274244.74 0.0538 0.0362  
 Mercury -46532-08-23 05:30 J -15274155.38 -15274155.27 -15274155.16 0.0540 0.0321  
 Earth -46532-09-08 02:52 J -15274139.60 -15274139.38 -15274139.15 0.0540 0.0142  
 Moon -46532-09-08 04:47 J -15274139.53 -15274139.30 -15274139.06 0.0540 0.0123 \*  
 Venus -46530-09-07 04:47 J -15273410.43 -15273410.30 -15273410.17 0.0533 0.0400  
 Mercury -46526-04-10 10:47 J -15272099.21 -15272099.05 -15272098.88 0.0489 0.0013  
 Venus -46523-02-23 22:18 J -15271048.78 -15271048.57 -15271048.36 0.0497 0.0038  
 Mercury -46520-06-11 07:40 J -15269845.31 -15269845.18 -15269845.05 0.0539 0.0149

Moon -46520-09-13 04:04 J -15269751.48 -15269751.33 -15269751.18 0.0541 0.0402  
 Earth -46520-09-13 07:26 J -15269751.32 -15269751.19 -15269751.05 0.0541 0.0433 \*  
 Venus -46517-01-05 01:40 J -15268907.55 -15268907.43 -15268907.30 0.0528 0.0400  
 Mercury -46514-01-27 11:45 J -15267789.16 -15267789.01 -15267788.85 0.0489 0.0153  
 Mercury -46514-04-27 07:26 J -15267699.24 -15267699.19 -15267699.13 0.0488 0.0456  
 Venus -46512-10-29 17:16 J -15266782.94 -15266782.78 -15266782.61 0.0495 0.0314  
 Mercury -46508-03-30 09:06 J -15265535.26 -15265535.12 -15265534.98 0.0539 0.0034  
 Venus -46506-09-09 23:30 J -15264641.71 -15264641.52 -15264641.33 0.0530 0.0096  
 Mercury -46503-11-15 13:11 J -15263479.08 -15263478.95 -15263478.82 0.0489 0.0293  
 Mercury -46502-02-13 08:23 J -15263389.28 -15263389.15 -15263389.02 0.0488 0.0309  
 Moon -46502-03-06 07:40 J -15263368.40 -15263368.18 -15263367.96 0.0487 0.0183  
 Earth -46502-03-06 11:16 J -15263368.25 -15263368.03 -15263367.81 0.0487 0.0152 \*  
 Mars -46500-04-22 23:45 J -15262589.77 -15262589.51 -15262589.24 0.0491 0.0173  
 Venus -46499-02-26 13:54 J -15262280.05 -15262279.92 -15262279.79 0.0500 0.0389  
 Mercury -46496-01-16 11:45 J -15261225.14 -15261225.01 -15261224.88 0.0539 0.0196  
 Mercury -46496-04-16 01:11 J -15261135.50 -15261135.45 -15261135.39 0.0541 0.0484  
 Venus -46494-05-15 20:38 J -15260375.83 -15260375.64 -15260375.46 0.0533 0.0212  
 Mercury -46491-09-03 14:09 J -15259168.97 -15259168.91 -15259168.84 0.0490 0.0440  
 Mercury -46491-12-02 08:52 J -15259079.28 -15259079.13 -15259078.97 0.0488 0.0156  
 Earth -46490-03-10 16:33 J -15258981.00 -15258980.81 -15258980.60 0.0487 0.0257  
 Moon -46490-03-10 18:57 J -15258980.90 -15258980.71 -15258980.51 0.0487 0.0250 \*  
 Venus -46488-11-01 10:18 J -15258014.28 -15258014.07 -15258013.87 0.0498 0.0116  
 Mercury -46485-11-04 14:09 J -15256915.01 -15256914.91 -15256914.80 0.0538 0.0358  
 Mercury -46484-02-02 04:04 J -15256825.43 -15256825.33 -15256825.22 0.0540 0.0328  
 Venus -46482-01-18 15:50 J -15256109.87 -15256109.84 -15256109.80 0.0534 0.0526  
 Mercury -46479-09-20 09:50 J -15254769.26 -15254769.09 -15254768.93 0.0488 0.0014  
 Venus -46476-07-07 07:54 J -15253748.37 -15253748.17 -15253747.97 0.0496 0.0151  
 Mercury -46473-08-23 16:18 J -15252604.84 -15252604.82 -15252604.80 0.0537 0.0529  
 Mercury -46473-11-21 06:28 J -15252515.36 -15252515.23 -15252515.09 0.0539 0.0162  
 Mars -46471-07-18 21:50 J -15251910.77 -15251910.59 -15251910.38 0.0538 0.0365

Venus -46470-05-18 12:57 J -15251607.12 -15251606.96 -15251606.79 0.0528 0.0275  
 Mercury -46467-07-09 10:18 J -15250459.22 -15250459.07 -15250458.91 0.0489 0.0145  
 Mercury -46467-10-07 05:45 J -15250369.30 -15250369.26 -15250369.20 0.0488 0.0465  
 Venus -46464-03-12 05:45 J -15249482.37 -15249482.26 -15249482.14 0.0494 0.0415  
 Mercury -46461-09-09 08:38 J -15248205.28 -15248205.14 -15248205.00 0.0539 0.0016  
 Venus -46458-01-21 09:06 J -15247341.32 -15247341.12 -15247340.92 0.0531 0.0034  
 Mercury -46455-04-27 11:30 J -15246149.15 -15246149.02 -15246148.89 0.0489 0.0288  
 Mercury -46455-07-26 06:42 J -15246059.35 -15246059.22 -15246059.09 0.0488 0.0315  
 Venus -46452-07-09 23:16 J -15244979.71 -15244979.53 -15244979.36 0.0499 0.0273  
 Mercury -46449-06-28 09:50 J -15243895.22 -15243895.09 -15243894.96 0.0539 0.0196  
 Moon -46449-09-06 20:38 J -15243824.84 -15243824.64 -15243824.43 0.0540 0.0243  
 Earth -46449-09-06 23:45 J -15243824.71 -15243824.51 -15243824.30 0.0540 0.0254 \*  
 Mercury -46449-09-25 23:30 J -15243805.58 -15243805.52 -15243805.46 0.0541 0.0483  
 Venus -46447-09-26 04:47 J -15243075.44 -15243075.30 -15243075.15 0.0534 0.0350  
 Mercury -46443-02-13 13:11 J -15241839.03 -15241838.95 -15241838.88 0.0490 0.0427  
 Mercury -46443-05-14 07:40 J -15241749.33 -15241749.18 -15241749.02 0.0488 0.0170  
 Venus -46440-03-14 20:09 J -15240713.87 -15240713.66 -15240713.45 0.0497 0.0008  
 Mercury -46437-04-16 12:14 J -15239585.09 -15239584.99 -15239584.89 0.0539 0.0362  
 Mercury -46437-07-15 02:09 J -15239495.52 -15239495.41 -15239495.30 0.0540 0.0325  
 Earth -46437-09-12 08:23 J -15239436.33 -15239436.15 -15239435.97 0.0541 0.0341  
 Moon -46437-09-12 12:14 J -15239436.18 -15239435.99 -15239435.80 0.0541 0.0308 \*  
 Mars -46435-04-24 08:23 J -15238847.38 -15238847.15 -15238846.91 0.0537 0.0266  
 Venus -46434-01-24 03:50 J -15238572.44 -15238572.34 -15238572.24 0.0528 0.0455  
 Mercury -46431-03-02 08:23 J -15237439.31 -15237439.15 -15237438.98 0.0488 0.0022  
 Venus -46429-11-17 17:30 J -15236447.95 -15236447.77 -15236447.59 0.0495 0.0264  
 Mercury -46425-02-03 14:38 J -15235274.91 -15235274.89 -15235274.86 0.0538 0.0526  
 Mercury -46425-05-03 05:02 J -15235185.42 -15235185.29 -15235185.15 0.0540 0.0167  
 Venus -46423-09-29 01:26 J -15234306.62 -15234306.44 -15234306.25 0.0530 0.0155  
 Mercury -46420-12-19 09:21 J -15233129.26 -15233129.11 -15233128.95 0.0489 0.0130  
 Earth -46419-03-05 19:54 J -15233052.88 -15233052.67 -15233052.45 0.0488 0.0204



Moon -46419-03-05 22:04 J -15233052.78 -15233052.58 -15233052.38 0.0488 0.0231 \*  
 Mercury -46419-03-19 05:02 J -15233039.32 -15233039.29 -15233039.26 0.0487 0.0479  
 Venus -46416-03-17 15:21 J -15231944.95 -15231944.86 -15231944.76 0.0500 0.0442  
 Mercury -46413-02-20 07:26 J -15230875.33 -15230875.19 -15230875.05 0.0539 0.0012  
 Venus -46411-06-03 20:09 J -15230040.85 -15230040.66 -15230040.47 0.0532 0.0161  
 Mercury -46408-10-07 10:04 J -15228819.21 -15228819.08 -15228818.94 0.0490 0.0279  
 Mercury -46407-01-05 05:16 J -15228729.40 -15228729.28 -15228729.15 0.0488 0.0325  
 Moon -46407-03-10 01:11 J -15228665.67 -15228665.45 -15228665.23 0.0487 0.0210  
 Earth -46407-03-10 01:26 J -15228665.65 -15228665.44 -15228665.22 0.0487 0.0208 \*  
 Venus -46405-11-20 11:30 J -15227679.22 -15227679.02 -15227678.82 0.0498 0.0168  
 Mercury -46402-12-09 09:21 J -15226565.24 -15226565.11 -15226564.97 0.0539 0.0173  
 Mercury -46401-03-07 23:02 J -15226475.59 -15226475.54 -15226475.50 0.0540 0.0505  
 Venus -46399-02-06 14:52 J -15225774.97 -15225774.88 -15225774.80 0.0534 0.0478  
 Mercury -46396-07-26 11:30 J -15224509.10 -15224509.02 -15224508.94 0.0490 0.0420  
 Mercury -46396-10-24 06:14 J -15224419.39 -15224419.24 -15224419.09 0.0488 0.0177  
 Venus -46393-07-26 06:28 J -15223413.43 -15223413.23 -15223413.02 0.0496 0.0110  
 Mercury -46390-09-27 10:33 J -15222255.16 -15222255.06 -15222254.96 0.0538 0.0360  
 Mercury -46390-12-26 00:28 J -15222165.58 -15222165.48 -15222165.37 0.0540 0.0327  
 Venus -46387-06-06 13:26 J -15221272.09 -15221271.94 -15221271.78 0.0529 0.0326  
 Mercury -46384-08-12 07:26 J -15220109.35 -15220109.19 -15220109.02 0.0488 0.0035  
 Mars -46382-10-12 19:26 J -15219317.96 -15219317.69 -15219317.42 0.0490 0.0141  
 Venus -46381-03-31 04:47 J -15219147.44 -15219147.30 -15219147.16 0.0494 0.0371  
 Mercury -46378-07-16 12:42 J -15217944.99 -15217944.97 -15217944.94 0.0538 0.0528  
 Mercury -46378-10-14 03:06 J -15217855.50 -15217855.37 -15217855.23 0.0540 0.0166  
 Venus -46375-02-09 11:16 J -15217006.23 -15217006.03 -15217005.83 0.0531 0.0024  
 Mercury -46372-05-31 08:23 J -15215799.31 -15215799.15 -15215798.99 0.0489 0.0115  
 Venus -46369-07-28 23:59 J -15214644.65 -15214644.50 -15214644.33 0.0499 0.0325  
 Mercury -46366-08-02 05:59 J -15213545.39 -15213545.25 -15213545.11 0.0540 0.0010  
 Earth -46366-09-07 07:40 J -15213509.36 -15213509.18 -15213508.99 0.0540 0.0316  
 Moon -46366-09-07 11:30 J -15213509.20 -15213509.02 -15213508.83 0.0540 0.0314 \*

Venus -46364-10-15 07:54 J -15212740.34 -15212740.17 -15212740.01 0.0533 0.0285  
 Mercury -46360-03-19 09:21 J -15211489.24 -15211489.11 -15211488.97 0.0489 0.0261  
 Mercury -46360-06-17 04:33 J -15211399.43 -15211399.31 -15211399.19 0.0488 0.0342  
 Venus -46357-04-02 21:35 J -15210378.81 -15210378.60 -15210378.39 0.0497 0.0055  
 Mercury -46354-05-21 08:23 J -15209235.28 -15209235.15 -15209235.01 0.0539 0.0159  
 Mercury -46354-08-18 22:04 J -15209145.62 -15209145.58 -15209145.55 0.0540 0.0519  
 Moon -46354-09-12 12:14 J -15209121.20 -15209120.99 -15209120.78 0.0541 0.0240  
 Earth -46354-09-12 15:35 J -15209121.04 -15209120.85 -15209120.65 0.0541 0.0278 \*  
 Venus -46351-02-12 04:04 J -15208237.39 -15208237.33 -15208237.28 0.0527 0.0503  
 Mercury -46348-01-05 10:18 J -15207179.16 -15207179.07 -15207178.98 0.0490 0.0409  
 Mercury -46348-04-05 05:02 J -15207089.44 -15207089.29 -15207089.14 0.0488 0.0189  
 Mars -46346-07-18 09:21 J -15206255.30 -15206255.11 -15206254.91 0.0492 0.0357  
 Venus -46346-12-07 19:11 J -15206112.89 -15206112.70 -15206112.51 0.0495 0.0212  
 Mercury -46342-03-09 10:18 J -15204925.18 -15204925.07 -15204924.96 0.0538 0.0332  
 Mercury -46342-06-07 00:14 J -15204835.59 -15204835.49 -15204835.38 0.0540 0.0352  
 Venus -46340-10-18 00:57 J -15203971.64 -15203971.46 -15203971.28 0.0530 0.0203  
 Mercury -46336-01-22 05:59 J -15202779.41 -15202779.25 -15202779.08 0.0489 0.0045  
 Earth -46336-03-05 06:42 J -15202737.42 -15202737.22 -15202737.02 0.0488 0.0246  
 Moon -46336-03-05 06:42 J -15202737.42 -15202737.22 -15202737.01 0.0488 0.0269 \*  
 Venus -46334-08-12 16:18 J -15201846.87 -15201846.82 -15201846.77 0.0493 0.0475  
 Venus -46333-04-05 14:38 J -15201609.94 -15201609.89 -15201609.84 0.0500 0.0484  
 Mercury -46331-12-26 11:16 J -15200615.06 -15200615.03 -15200615.00 0.0538 0.0523  
 Mercury -46330-03-26 01:40 J -15200525.56 -15200525.43 -15200525.30 0.0540 0.0169  
 Venus -46328-06-22 20:23 J -15199705.84 -15199705.65 -15199705.46 0.0533 0.0110  
 Mercury -46325-11-10 07:26 J -15198469.35 -15198469.19 -15198469.03 0.0489 0.0099  
 Moon -46324-03-09 12:42 J -15198350.18 -15198349.97 -15198349.76 0.0487 0.0186  
 Earth -46324-03-09 14:38 J -15198350.11 -15198349.89 -15198349.67 0.0487 0.0175 \*  
 Venus -46322-12-10 10:47 J -15197344.24 -15197344.05 -15197343.86 0.0498 0.0212  
 Mercury -46318-01-12 04:18 J -15196215.46 -15196215.32 -15196215.18 0.0540 0.0018  
 Mars -46317-10-12 09:50 J -15195576.34 -15195576.09 -15195575.83 0.0539 0.0157

Venus -46316-02-25 16:33 J -15195439.92 -15195439.81 -15195439.68 0.0535 0.0421  
 Mercury -46313-08-29 08:23 J -15194159.29 -15194159.15 -15194159.01 0.0489 0.0246  
 Mercury -46313-11-27 03:21 J -15194069.47 -15194069.36 -15194069.24 0.0488 0.0357  
 Venus -46310-08-15 07:26 J -15193078.39 -15193078.19 -15193077.98 0.0496 0.0059  
 Mercury -46307-10-31 06:57 J -15191905.35 -15191905.21 -15191905.08 0.0539 0.0155  
 Mercury -46306-01-28 20:23 J -15191815.67 -15191815.65 -15191815.61 0.0541 0.0525  
 Venus -46304-06-25 16:33 J -15190936.94 -15190936.81 -15190936.68 0.0528 0.0387  
 Mercury -46301-06-17 09:35 J -15189849.19 -15189849.10 -15189849.00 0.0490 0.0390  
 Mercury -46301-09-15 04:18 J -15189759.47 -15189759.32 -15189759.17 0.0488 0.0207  
 Venus -46298-04-20 05:59 J -15188812.40 -15188812.25 -15188812.08 0.0494 0.0319  
 Mercury -46295-08-19 09:21 J -15187595.22 -15187595.11 -15187595.00 0.0538 0.0320  
 Mercury -46295-11-16 23:16 J -15187505.63 -15187505.53 -15187505.43 0.0540 0.0365  
 Venus -46292-02-28 12:28 J -15186671.18 -15186670.98 -15186670.79 0.0531 0.0079  
 Mercury -46289-07-04 04:47 J -15185449.46 -15185449.30 -15185449.13 0.0489 0.0055  
 Venus -46286-08-18 02:23 J -15184309.53 -15184309.40 -15184309.26 0.0500 0.0378  
 Mercury -46283-06-07 11:02 J -15183285.09 -15183285.04 -15183284.98 0.0538 0.0494  
 Mercury -46283-09-05 01:26 J -15183195.56 -15183195.44 -15183195.31 0.0540 0.0197  
 Moon -46283-09-06 08:38 J -15183194.29 -15183194.14 -15183193.97 0.0540 0.0396  
 Earth -46283-09-06 12:28 J -15183194.13 -15183193.98 -15183193.82 0.0540 0.0392 \*  
 Mars -46281-07-18 21:06 J -15182512.73 -15182512.62 -15182512.48 0.0536 0.0471  
 Venus -46281-11-03 07:54 J -15182405.35 -15182405.17 -15182405.00 0.0533 0.0234  
 Mercury -46277-04-22 05:59 J -15181139.41 -15181139.25 -15181139.09 0.0489 0.0090  
 Venus -46274-04-22 21:50 J -15180043.80 -15180043.59 -15180043.38 0.0497 0.0102  
 Mercury -46271-06-24 02:38 J -15178885.53 -15178885.39 -15178885.25 0.0539 0.0019  
 Earth -46271-09-11 13:11 J -15178806.17 -15178805.95 -15178805.72 0.0541 0.0168  
 Moon -46271-09-11 15:50 J -15178806.06 -15178805.84 -15178805.62 0.0541 0.0134 \*  
 Mercury -46265-02-09 07:26 J -15176829.33 -15176829.19 -15176829.04 0.0489 0.0230  
 Mercury -46265-05-09 02:38 J -15176739.49 -15176739.39 -15176739.28 0.0488 0.0374  
 Mars -46263-04-03 01:26 J -15176045.56 -15176045.44 -15176045.31 0.0488 0.0434  
 Venus -46263-12-26 19:11 J -15175777.90 -15175777.70 -15175777.50 0.0495 0.0164

Mercury -46259-04-12 05:02 J -15174575.42 -15174575.29 -15174575.16 0.0539 0.0157

Mercury -46259-07-10 18:42 J -15174485.75 -15174485.72 -15174485.69 0.0541 0.0522

Venus -46257-11-06 02:23 J -15173636.57 -15173636.40 -15173636.22 0.0530 0.0259

Mercury -46254-11-28 08:38 J -15172519.24 -15172519.14 -15172519.04 0.0490 0.0376

Mercury -46253-02-26 03:06 J -15172429.51 -15172429.37 -15172429.22 0.0488 0.0222

Moon -46253-03-04 16:18 J -15172421.99 -15172421.82 -15172421.64 0.0488 0.0307

Earth -46253-03-04 18:28 J -15172421.92 -15172421.73 -15172421.54 0.0488 0.0286 \*

Venus -46251-08-31 17:02 J -15171511.89 -15171511.79 -15171511.68 0.0493 0.0424

Mercury -46247-01-29 07:40 J -15170265.29 -15170265.18 -15170265.07 0.0539 0.0318

Mercury -46247-04-28 21:35 J -15170175.69 -15170175.60 -15170175.50 0.0541 0.0369

Venus -46245-07-11 23:45 J -15169370.70 -15169370.51 -15169370.31 0.0532 0.0045

Mercury -46242-12-15 04:04 J -15168119.49 -15168119.33 -15168119.17 0.0488 0.0073

Earth -46241-03-09 00:57 J -15168034.69 -15168034.46 -15168034.24 0.0487 0.0129

Moon -46241-03-09 04:04 J -15168034.55 -15168034.33 -15168034.10 0.0487 0.0148 \*

Venus -46239-12-29 12:28 J -15167009.16 -15167008.98 -15167008.80 0.0498 0.0266

Mercury -46236-11-17 10:04 J -15165955.14 -15165955.08 -15165955.02 0.0538 0.0483

Mercury -46235-02-15 00:28 J -15165865.61 -15165865.48 -15165865.35 0.0540 0.0209

Venus -46233-03-16 18:28 J -15165104.87 -15165104.73 -15165104.58 0.0534 0.0361

Mercury -46230-10-03 04:47 J -15163809.46 -15163809.30 -15163809.14 0.0489 0.0078

Mars -46227-01-06 08:23 J -15162983.43 -15162983.15 -15162982.87 0.0490 0.0044

Venus -46227-09-03 09:35 J -15162743.31 -15162743.10 -15162742.89 0.0496 0.0011

Mercury -46224-12-04 02:38 J -15161555.53 -15161555.39 -15161555.25 0.0539 0.0040

Venus -46221-07-14 16:18 J -15160601.93 -15160601.82 -15160601.71 0.0528 0.0434

Mercury -46218-07-22 05:59 J -15159499.39 -15159499.25 -15159499.10 0.0489 0.0221

Mercury -46218-10-20 01:11 J -15159409.55 -15159409.45 -15159409.35 0.0488 0.0384

Venus -46215-05-09 06:42 J -15158477.39 -15158477.22 -15158477.04 0.0494 0.0269

Mercury -46212-09-22 03:35 J -15157245.48 -15157245.35 -15157245.21 0.0539 0.0150

Mercury -46212-12-20 17:16 J -15157155.80 -15157155.78 -15157155.75 0.0540 0.0528

Venus -46209-03-19 11:45 J -15156336.20 -15156336.01 -15156335.82 0.0531 0.0128

Mercury -46206-05-10 07:40 J -15155189.29 -15155189.18 -15155189.07 0.0490 0.0361

Mercury -46206-08-08 02:09 J -15155099.55 -15155099.41 -15155099.26 0.0488 0.0238

Venus -46203-09-06 02:23 J -15153974.51 -15153974.40 -15153974.29 0.0499 0.0424

Mercury -46200-07-11 05:45 J -15152935.37 -15152935.26 -15152935.15 0.0538 0.0320

Earth -46200-09-05 10:47 J -15152879.12 -15152879.05 -15152878.95 0.0540 0.0500

Moon -46200-09-05 13:54 J -15152878.99 -15152878.92 -15152878.84 0.0540 0.0505 \*

Mercury -46200-10-08 19:54 J -15152845.77 -15152845.67 -15152845.57 0.0540 0.0366

Venus -46198-11-23 08:23 J -15152070.34 -15152070.15 -15152069.96 0.0534 0.0180

Mercury -46194-05-27 02:52 J -15150789.54 -15150789.38 -15150789.21 0.0488 0.0088

Venus -46191-05-11 22:18 J -15149708.77 -15149708.57 -15149708.37 0.0497 0.0152

Mercury -46188-04-29 08:09 J -15148625.22 -15148625.16 -15148625.10 0.0538 0.0484

Mercury -46188-07-27 22:47 J -15148535.68 -15148535.55 -15148535.43 0.0540 0.0210

Moon -46188-09-10 19:54 J -15148490.91 -15148490.67 -15148490.43 0.0541 0.0071

Earth -46188-09-10 20:52 J -15148490.86 -15148490.63 -15148490.40 0.0541 0.0103 \*

Venus -46186-07-29 04:18 J -15147804.39 -15147804.32 -15147804.23 0.0535 0.0491

Mercury -46182-03-15 04:04 J -15146479.49 -15146479.33 -15146479.17 0.0489 0.0061

Venus -46179-01-14 20:09 J -15145442.87 -15145442.66 -15145442.46 0.0495 0.0112

Mercury -46176-05-16 01:26 J -15144225.58 -15144225.44 -15144225.30 0.0539 0.0050

Venus -46174-11-26 03:50 J -15143301.50 -15143301.34 -15143301.18 0.0529 0.0313

Mercury -46170-01-01 04:47 J -15142169.45 -15142169.30 -15142169.16 0.0489 0.0211

Earth -46170-03-05 03:35 J -15142106.51 -15142106.35 -15142106.17 0.0488 0.0335

Moon -46170-03-05 07:11 J -15142106.36 -15142106.20 -15142106.03 0.0488 0.0350 \*

Mercury -46170-03-31 23:45 J -15142079.60 -15142079.51 -15142079.41 0.0488 0.0393

Venus -46168-09-19 18:42 J -15141176.86 -15141176.72 -15141176.58 0.0493 0.0372

Mercury -46164-03-04 03:21 J -15139915.49 -15139915.36 -15139915.22 0.0539 0.0123

Mars -46162-01-07 01:26 J -15139241.71 -15139241.44 -15139241.17 0.0538 0.0056

Venus -46162-07-31 23:30 J -15139035.71 -15139035.52 -15139035.32 0.0532 0.0012

Mercury -46159-10-20 06:14 J -15137859.35 -15137859.24 -15137859.13 0.0490 0.0353

Mercury -46158-01-18 00:42 J -15137769.61 -15137769.47 -15137769.32 0.0488 0.0246

Moon -46158-03-09 07:40 J -15137719.41 -15137719.18 -15137718.96 0.0487 0.0104

Earth -46158-03-09 11:30 J -15137719.26 -15137719.02 -15137718.79 0.0487 0.0086 \*

Venus -46155-01-17 12:57 J -15136674.12 -15136673.96 -15136673.79 0.0498 0.0314  
 Mercury -46153-12-21 04:18 J -15135605.43 -15135605.32 -15135605.20 0.0538 0.0313  
 Mercury -46152-03-20 18:14 J -15135515.83 -15135515.74 -15135515.63 0.0540 0.0372  
 Venus -46150-04-05 16:47 J -15134769.96 -15134769.80 -15134769.64 0.0535 0.0316  
 Mercury -46147-11-06 01:54 J -15133459.58 -15133459.42 -15133459.26 0.0489 0.0100  
 Venus -46144-09-22 09:50 J -15132408.30 -15132408.09 -15132407.88 0.0496 0.0045  
 Mercury -46141-10-09 06:14 J -15131295.30 -15131295.24 -15131295.18 0.0538 0.0486  
 Mercury -46140-01-06 20:38 J -15131205.76 -15131205.64 -15131205.51 0.0540 0.0206  
 Venus -46138-08-03 16:04 J -15130266.90 -15130266.83 -15130266.75 0.0529 0.0485  
 Mercury -46135-08-25 02:38 J -15129149.55 -15129149.39 -15129149.23 0.0489 0.0050  
 Venus -46132-05-28 06:28 J -15128142.42 -15128142.23 -15128142.04 0.0494 0.0221  
 Mercury -46129-10-25 23:30 J -15126895.66 -15126895.52 -15126895.38 0.0540 0.0047  
 Venus -46126-04-08 14:09 J -15126001.09 -15126000.91 -15126000.72 0.0531 0.0188  
 Mercury -46123-06-13 03:50 J -15124839.49 -15124839.34 -15124839.19 0.0489 0.0196  
 Mercury -46123-09-10 22:47 J -15124749.64 -15124749.55 -15124749.46 0.0488 0.0408  
 Venus -46120-01-31 05:16 J -15123876.32 -15123876.28 -15123876.22 0.0492 0.0476  
 Venus -46120-09-25 02:38 J -15123639.44 -15123639.39 -15123639.31 0.0500 0.0475  
 Mercury -46117-08-14 01:54 J -15122585.56 -15122585.42 -15122585.28 0.0539 0.0117  
 Venus -46115-12-12 09:50 J -15121735.28 -15121735.09 -15121734.90 0.0533 0.0123  
 Mercury -46111-04-01 04:33 J -15120529.42 -15120529.31 -15120529.19 0.0490 0.0345  
 Mercury -46111-06-29 23:16 J -15120439.67 -15120439.53 -15120439.39 0.0488 0.0253  
 Mars -46109-06-27 08:52 J -15119711.37 -15119711.13 -15119710.90 0.0489 0.0263  
 Venus -46108-05-30 23:30 J -15119373.71 -15119373.52 -15119373.32 0.0497 0.0204  
 Mercury -46105-06-02 03:50 J -15118275.45 -15118275.34 -15118275.22 0.0538 0.0290  
 Mercury -46105-08-30 17:59 J -15118185.84 -15118185.75 -15118185.66 0.0540 0.0396  
 Moon -46105-09-09 23:45 J -15118175.73 -15118175.51 -15118175.28 0.0540 0.0011  
 Earth -46105-09-10 00:57 J -15118175.69 -15118175.46 -15118175.23 0.0540 0.0023 \*  
 Venus -46103-08-17 04:04 J -15117469.44 -15117469.33 -15117469.22 0.0535 0.0439  
 Mercury -46099-01-18 05:59 J -15116219.26 -15116219.25 -15116219.23 0.0490 0.0487  
 Mercury -46099-04-18 00:14 J -15116129.65 -15116129.49 -15116129.33 0.0489 0.0107

Venus -46096-02-02 20:38 J -15115107.85 -15115107.64 -15115107.43 0.0495 0.0062  
 Mercury -46093-03-21 04:47 J -15113965.36 -15113965.30 -15113965.24 0.0537 0.0480  
 Mercury -46093-06-18 19:11 J -15113875.82 -15113875.70 -15113875.57 0.0539 0.0211  
 Venus -46091-12-15 01:11 J -15112966.59 -15112966.45 -15112966.30 0.0530 0.0354  
 Mercury -46087-02-04 01:26 J -15111819.60 -15111819.44 -15111819.28 0.0489 0.0039  
 Moon -46087-03-04 10:47 J -15111791.18 -15111791.05 -15111790.91 0.0489 0.0395  
 Earth -46087-03-04 14:23 J -15111791.03 -15111790.90 -15111790.74 0.0489 0.0380 \*  
 Venus -46085-10-08 18:42 J -15110841.88 -15110841.72 -15110841.56 0.0493 0.0323  
 Mercury -46081-04-06 21:21 J -15109565.75 -15109565.61 -15109565.47 0.0539 0.0042  
 Venus -46079-08-19 22:04 J -15108700.78 -15108700.58 -15108700.39 0.0532 0.0052  
 Mercury -46076-11-23 02:09 J -15107509.55 -15107509.41 -15107509.26 0.0489 0.0189  
 Mercury -46075-02-20 21:21 J -15107419.70 -15107419.61 -15107419.53 0.0488 0.0416  
 Earth -46075-03-08 20:09 J -15107403.90 -15107403.66 -15107403.43 0.0488 0.0036  
 Moon -46075-03-08 23:30 J -15107403.75 -15107403.52 -15107403.29 0.0488 0.0062 \*  
 Mars -46073-04-01 11:59 J -15106649.25 -15106649.00 -15106648.74 0.0490 0.0209  
 Venus -46072-02-05 11:45 J -15106339.15 -15106339.01 -15106338.86 0.0498 0.0359  
 Mercury -46069-01-24 23:45 J -15105255.64 -15105255.51 -15105255.37 0.0539 0.0124  
 Venus -46067-04-24 18:28 J -15104434.90 -15104434.73 -15104434.55 0.0534 0.0257  
 Mercury -46064-09-11 03:21 J -15103199.47 -15103199.36 -15103199.24 0.0490 0.0333  
 Mercury -46064-12-09 22:04 J -15103109.72 -15103109.58 -15103109.44 0.0488 0.0265  
 Moon -46063-03-12 23:45 J -15103016.57 -15103016.51 -15103016.44 0.0487 0.0466  
 Earth -46063-03-13 02:09 J -15103016.49 -15103016.41 -15103016.31 0.0487 0.0451 \*  
 Venus -46061-10-11 08:52 J -15102073.33 -15102073.13 -15102072.92 0.0496 0.0092  
 Mercury -46058-11-13 02:23 J -15100945.52 -15100945.40 -15100945.28 0.0538 0.0287  
 Mercury -46057-02-10 16:18 J -15100855.91 -15100855.82 -15100855.72 0.0540 0.0399  
 Mercury -46052-06-30 04:18 J -15098889.34 -15098889.32 -15098889.29 0.0490 0.0481  
 Mercury -46052-09-27 22:33 J -15098799.72 -15098799.56 -15098799.40 0.0489 0.0112  
 Venus -46049-06-16 06:42 J -15097807.41 -15097807.22 -15097807.02 0.0494 0.0173  
 Mercury -46046-09-01 04:04 J -15096635.40 -15096635.33 -15096635.25 0.0538 0.0460  
 Mercury -46046-11-29 18:42 J -15096545.84 -15096545.72 -15096545.59 0.0540 0.0232

Mars -46044-06-26 15:21 J -15095971.04 -15095970.86 -15095970.68 0.0539 0.0396  
 Venus -46043-04-27 12:57 J -15095666.14 -15095665.96 -15095665.78 0.0530 0.0233  
 Mercury -46040-07-16 23:45 J -15094489.68 -15094489.51 -15094489.35 0.0489 0.0037  
 Venus -46037-02-20 05:30 J -15093541.37 -15093541.27 -15093541.16 0.0492 0.0427  
 Mercury -46034-09-17 19:54 J -15092235.81 -15092235.67 -15092235.53 0.0539 0.0046  
 Venus -46032-12-31 05:59 J -15091400.45 -15091400.25 -15091400.06 0.0533 0.0085  
 Mercury -46028-05-05 00:42 J -15090179.62 -15090179.47 -15090179.32 0.0490 0.0181  
 Mercury -46028-08-02 19:40 J -15090089.75 -15090089.68 -15090089.59 0.0488 0.0425  
 Venus -46025-06-18 22:47 J -15089038.73 -15089038.55 -15089038.37 0.0497 0.0249  
 Mercury -46022-07-06 21:50 J -15087925.73 -15087925.59 -15087925.45 0.0538 0.0128  
 Earth -46022-09-09 19:26 J -15087860.92 -15087860.69 -15087860.46 0.0540 0.0102  
 Moon -46022-09-09 22:18 J -15087860.81 -15087860.57 -15087860.34 0.0540 0.0125 \*  
 Venus -46020-09-05 00:57 J -15087134.59 -15087134.46 -15087134.33 0.0535 0.0398  
 Mercury -46016-02-21 01:40 J -15085869.55 -15085869.43 -15085869.31 0.0490 0.0328  
 Mercury -46016-05-21 20:09 J -15085779.79 -15085779.66 -15085779.52 0.0488 0.0271  
 Venus -46013-02-22 18:14 J -15084772.95 -15084772.74 -15084772.53 0.0495 0.0023  
 Mercury -46010-04-24 23:59 J -15083615.62 -15083615.50 -15083615.38 0.0538 0.0295  
 Mercury -46010-07-23 14:09 J -15083526.00 -15083525.91 -15083525.81 0.0540 0.0391  
 Moon -46010-09-14 23:30 J -15083472.58 -15083472.52 -15083472.45 0.0541 0.0517  
 Earth -46010-09-15 03:35 J -15083472.44 -15083472.35 -15083472.25 0.0541 0.0495  
 Mars -46008-04-02 01:26 J -15082907.68 -15082907.44 -15082907.20 0.0538 0.0229  
 Venus -46007-01-03 01:54 J -15082631.54 -15082631.42 -15082631.29 0.0530 0.0407  
 Mercury -46005-12-10 03:06 J -15081559.41 -15081559.37 -15081559.33 0.0490 0.0471  
 Earth -46004-03-03 21:06 J -15081475.71 -15081475.62 -15081475.51 0.0489 0.0439  
 Moon -46004-03-04 00:42 J -15081475.56 -15081475.47 -15081475.37 0.0489 0.0444 \*  
 Mercury -46004-03-09 21:06 J -15081469.78 -15081469.62 -15081469.46 0.0488 0.0121  
 Venus -46002-10-28 16:18 J -15080506.99 -15080506.82 -15080506.64 0.0493 0.0282

# 46TH MILLENNIUM BCE



**This is a list of transits visible from Jupiter in the 46th millennium BCE.**

PLANET	MAX-	C	START	MAX	END	SUNRAD	DEPTH	S
	TRANSIT							
	TIME							
Mercury	-45998-02-11 02:23 J	-15079305.47	-15079305.40	-15079305.33	0.0538	0.0461		
Mercury	-45998-05-11 16:47 J	-15079215.92	-15079215.80	-15079215.67	0.0540	0.0232		
Venus	-45996-09-07 22:18 J	-15078365.76	-15078365.57	-15078365.37	0.0532	0.0103		
Mercury	-45993-12-26 21:50 J	-15077159.76	-15077159.59	-15077159.43	0.0489	0.0033		
Moon	-45992-03-07 23:59 J	-15077088.75	-15077088.50	-15077088.26	0.0488	0.0008		
Earth	-45992-03-08 02:23 J	-15077088.64	-15077088.40	-15077088.17	0.0488	0.0027	*	
Venus	-45989-02-25 11:45 J	-15076004.13	-15076004.01	-15076003.89	0.0499	0.0405		
Mercury	-45986-02-27 19:11 J	-15074905.84	-15074905.70	-15074905.56	0.0539	0.0064		
Venus	-45984-05-13 17:02 J	-15074099.97	-15074099.79	-15074099.61	0.0534	0.0210		
Mercury	-45981-10-14 22:47 J	-15072849.70	-15072849.55	-15072849.40	0.0490	0.0179		
Mercury	-45980-01-12 17:45 J	-15072759.83	-15072759.76	-15072759.68	0.0488	0.0427		
Earth	-45980-03-12 08:52 J	-15072701.26	-15072701.13	-15072700.99	0.0487	0.0391		
Moon	-45980-03-12 09:35 J	-15072701.21	-15072701.10	-15072700.96	0.0487	0.0405	*	
Venus	-45978-10-31 08:38 J	-15071738.34	-15071738.14	-15071737.94	0.0496	0.0138		
Mercury	-45975-12-16 20:23 J	-15070595.79	-15070595.65	-15070595.52	0.0538	0.0124		
Mercury	-45969-08-02 23:59 J	-15068539.62	-15068539.50	-15068539.38	0.0490	0.0325		
Mercury	-45969-10-31 18:28 J	-15068449.86	-15068449.73	-15068449.59	0.0489	0.0276		
Venus	-45966-07-06 05:30 J	-15067472.47	-15067472.27	-15067472.07	0.0494	0.0127		
Mercury	-45963-10-04 22:04 J	-15066285.70	-15066285.58	-15066285.47	0.0538	0.0300		
Mercury	-45962-01-02 11:59 J	-15066196.09	-15066196.00	-15066195.90	0.0540	0.0385		
Venus	-45960-05-16 08:52 J	-15065331.30	-15065331.13	-15065330.96	0.0531	0.0271		

Mercury -45957-05-22 00:57 J -15064229.50 -15064229.46 -15064229.42 0.0491 0.0471  
 Mercury -45957-08-19 19:11 J -15064139.86 -15064139.70 -15064139.54 0.0489 0.0123  
 Mars -45955-09-21 03:35 J -15063377.62 -15063377.35 -15063377.08 0.0489 0.0118  
 Venus -45954-03-11 01:54 J -15063206.54 -15063206.42 -15063206.28 0.0492 0.0391  
 Mercury -45951-07-23 23:59 J -15061975.57 -15061975.50 -15061975.44 0.0538 0.0472  
 Mercury -45951-10-21 14:23 J -15061886.02 -15061885.90 -15061885.77 0.0540 0.0222  
 Venus -45948-01-19 05:59 J -15061065.45 -15061065.25 -15061065.05 0.0533 0.0033  
 Mercury -45945-06-07 20:09 J -15059829.82 -15059829.66 -15059829.50 0.0489 0.0025  
 Venus -45942-07-08 19:40 J -15058703.85 -15058703.68 -15058703.51 0.0497 0.0287  
 Mercury -45939-08-09 17:02 J -15057575.93 -15057575.79 -15057575.65 0.0539 0.0060  
 Moon -45939-09-08 18:42 J -15057545.93 -15057545.72 -15057545.51 0.0540 0.0211  
 Earth -45939-09-08 22:18 J -15057545.78 -15057545.57 -15057545.35 0.0540 0.0186 \*  
 Venus -45937-09-24 01:11 J -15056799.60 -15056799.45 -15056799.30 0.0535 0.0345  
 Mercury -45933-03-26 20:52 J -15055519.78 -15055519.63 -15055519.48 0.0489 0.0177  
 Mercury -45933-06-24 15:50 J -15055429.92 -15055429.84 -15055429.76 0.0488 0.0427  
 Venus -45930-03-13 17:02 J -15054438.00 -15054437.79 -15054437.58 0.0496 0.0023  
 Mercury -45927-05-28 19:11 J -15053265.84 -15053265.70 -15053265.56 0.0538 0.0111  
 Earth -45927-09-14 04:47 J -15053157.45 -15053157.30 -15053157.14 0.0541 0.0403  
 Moon -45927-09-14 08:52 J -15053157.26 -15053157.13 -15053156.99 0.0541 0.0429 \*  
 Venus -45924-01-21 23:30 J -15052296.62 -15052296.52 -15052296.42 0.0529 0.0447  
 Mercury -45921-01-13 22:04 J -15051209.70 -15051209.58 -15051209.46 0.0490 0.0323  
 Mercury -45921-04-12 16:33 J -15051119.95 -15051119.81 -15051119.67 0.0488 0.0276  
 Mars -45919-06-26 10:47 J -15050315.23 -15050315.05 -15050314.86 0.0490 0.0362  
 Venus -45919-11-16 15:21 J -15050172.04 -15050171.86 -15050171.67 0.0494 0.0236  
 Mercury -45915-03-16 20:23 J -15048955.77 -15048955.65 -15048955.53 0.0537 0.0296  
 Mercury -45915-06-14 10:33 J -15048866.16 -15048866.06 -15048865.97 0.0539 0.0388  
 Venus -45913-09-26 16:47 J -15048030.99 -15048030.80 -15048030.60 0.0532 0.0136  
 Mercury -45910-11-01 23:02 J -15046899.58 -15046899.54 -15046899.50 0.0491 0.0470  
 Mercury -45909-01-30 17:16 J -15046809.94 -15046809.78 -15046809.62 0.0489 0.0125  
 Earth -45909-03-07 08:09 J -15046773.39 -15046773.16 -15046772.93 0.0488 0.0089

Moon -45909-03-07 08:52 J -15046773.35 -15046773.13 -15046772.90 0.0488 0.0059 \*  
 Venus -45907-07-22 13:40 J -15045905.93 -15045905.93 -15045905.93 0.0492 0.0492  
 Venus -45906-03-16 09:50 J -15045669.18 -15045669.09 -15045669.00 0.0498 0.0446  
 Mercury -45903-01-02 21:50 J -15044645.65 -15044645.59 -15044645.52 0.0537 0.0475  
 Mercury -45903-04-02 12:28 J -15044556.11 -15044555.98 -15044555.85 0.0539 0.0216  
 Venus -45901-06-01 11:45 J -15043765.19 -15043765.01 -15043764.82 0.0534 0.0176  
 Mercury -45898-11-18 17:59 J -15042499.92 -15042499.75 -15042499.59 0.0489 0.0028  
 Earth -45897-03-11 13:11 J -15042386.12 -15042385.95 -15042385.77 0.0487 0.0326  
 Moon -45897-03-11 13:40 J -15042386.10 -15042385.93 -15042385.75 0.0487 0.0333 \*  
 Venus -45895-11-19 04:04 J -15041403.53 -15041403.33 -15041403.13 0.0496 0.0171  
 Mercury -45891-01-19 14:38 J -15040246.03 -15040245.89 -15040245.75 0.0539 0.0047  
 Mars -45890-09-20 02:23 J -15039637.63 -15039637.40 -15039637.15 0.0540 0.0248  
 Venus -45889-02-05 07:11 J -15039499.27 -15039499.20 -15039499.11 0.0536 0.0488  
 Mercury -45886-09-06 18:57 J -15038189.86 -15038189.71 -15038189.55 0.0490 0.0173  
 Mercury -45886-12-05 13:54 J -15038099.99 -15038099.92 -15038099.84 0.0488 0.0431  
 Venus -45883-07-25 01:26 J -15037137.64 -15037137.44 -15037137.23 0.0494 0.0093  
 Mercury -45880-11-07 17:02 J -15035935.93 -15035935.79 -15035935.65 0.0539 0.0117  
 Venus -45877-06-04 08:23 J -15034996.31 -15034996.15 -15034995.99 0.0530 0.0317  
 Mercury -45874-06-25 19:54 J -15033879.79 -15033879.67 -15033879.55 0.0490 0.0323  
 Mercury -45874-09-23 14:23 J -15033790.04 -15033789.90 -15033789.77 0.0488 0.0275  
 Venus -45871-03-29 23:59 J -15032871.65 -15032871.50 -15032871.35 0.0493 0.0350  
 Mercury -45868-08-26 19:11 J -15031625.82 -15031625.70 -15031625.58 0.0538 0.0288  
 Mercury -45868-11-24 09:21 J -15031536.20 -15031536.11 -15031536.02 0.0540 0.0398  
 Venus -45865-02-08 03:35 J -15030730.55 -15030730.35 -15030730.15 0.0533 0.0010  
 Mercury -45862-04-13 21:06 J -15029569.66 -15029569.62 -15029569.57 0.0491 0.0468  
 Mercury -45862-07-12 15:06 J -15029480.03 -15029479.87 -15029479.71 0.0489 0.0125  
 Venus -45859-07-27 18:28 J -15028368.89 -15028368.73 -15028368.57 0.0498 0.0332  
 Mercury -45856-06-14 20:23 J -15027315.72 -15027315.65 -15027315.59 0.0537 0.0471  
 Earth -45856-09-07 17:16 J -15027230.97 -15027230.78 -15027230.58 0.0539 0.0305  
 Moon -45856-09-07 21:35 J -15027230.79 -15027230.60 -15027230.42 0.0539 0.0327 \*

Mercury -45856-09-12 10:47 J -15027226.17 -15027226.05 -15027225.92 0.0539 0.0220  
 Mars -45854-06-26 08:09 J -15026574.36 -15026574.16 -15026573.96 0.0538 0.0362  
 Venus -45854-10-13 19:26 J -15026464.85 -15026464.69 -15026464.53 0.0535 0.0313  
 Mercury -45850-04-30 15:50 J -15025170.00 -15025169.84 -15025169.68 0.0490 0.0027  
 Venus -45847-04-01 14:52 J -15024103.09 -15024102.88 -15024102.67 0.0495 0.0064  
 Mercury -45844-07-01 12:42 J -15022916.11 -15022915.97 -15022915.83 0.0538 0.0044  
 Moon -45844-09-12 17:45 J -15022842.96 -15022842.76 -15022842.56 0.0540 0.0290  
 Earth -45844-09-12 21:21 J -15022842.81 -15022842.61 -15022842.40 0.0540 0.0269 \*  
 Venus -45841-02-10 17:59 J -15021961.83 -15021961.75 -15021961.66 0.0529 0.0478  
 Mercury -45838-02-16 16:47 J -15020859.95 -15020859.80 -15020859.65 0.0490 0.0176  
 Mercury -45838-05-17 11:30 J -15020770.09 -15020770.02 -15020769.94 0.0488 0.0429  
 Mars -45836-03-11 18:57 J -15020105.82 -15020105.71 -15020105.58 0.0488 0.0441  
 Venus -45836-12-05 10:18 J -15019837.26 -15019837.07 -15019836.88 0.0493 0.0206  
 Mercury -45832-04-19 14:38 J -15018606.03 -15018605.89 -15018605.76 0.0538 0.0131  
 Venus -45830-10-16 15:35 J -15017696.03 -15017695.85 -15017695.66 0.0532 0.0182  
 Mercury -45827-12-05 17:59 J -15016549.87 -15016549.75 -15016549.63 0.0490 0.0319  
 Mercury -45826-03-05 12:28 J -15016460.11 -15016459.98 -15016459.85 0.0488 0.0279  
 Earth -45826-03-07 12:42 J -15016458.19 -15016457.97 -15016457.75 0.0488 0.0156  
 Moon -45826-03-07 13:26 J -15016458.17 -15016457.94 -15016457.71 0.0488 0.0125 \*  
 Venus -45824-08-10 09:06 J -15015571.19 -15015571.12 -15015571.05 0.0492 0.0460  
 Venus -45823-04-04 05:16 J -15015334.34 -15015334.28 -15015334.22 0.0499 0.0478  
 Mercury -45820-02-05 16:47 J -15014295.92 -15014295.80 -15014295.68 0.0538 0.0296  
 Mercury -45820-05-06 07:11 J -15014206.30 -15014206.20 -15014206.11 0.0540 0.0391  
 Venus -45818-06-21 11:30 J -15013430.21 -15013430.02 -15013429.83 0.0534 0.0126  
 Mercury -45815-09-23 18:57 J -15012239.75 -15012239.71 -15012239.66 0.0491 0.0468  
 Mercury -45815-12-22 12:57 J -15012150.12 -15012149.96 -15012149.80 0.0489 0.0125  
 Moon -45814-03-11 15:50 J -15012071.03 -15012070.84 -15012070.65 0.0487 0.0261  
 Earth -45814-03-11 17:45 J -15012070.96 -15012070.76 -15012070.56 0.0487 0.0256 \*  
 Venus -45812-12-08 01:54 J -15011068.61 -15011068.42 -15011068.23 0.0497 0.0211  
 Mercury -45809-11-24 18:42 J -15009985.78 -15009985.72 -15009985.65 0.0537 0.0467

Mercury -45808-02-22 09:35 J -15009896.23 -15009896.10 -15009895.98 0.0539 0.0227  
 Venus -45806-02-24 05:30 J -15009164.38 -15009164.27 -15009164.16 0.0536 0.0442  
 Mercury -45803-10-10 13:54 J -15007840.08 -15007839.92 -15007839.76 0.0489 0.0025  
 Mars -45801-12-14 19:40 J -15007043.96 -15007043.68 -15007043.40 0.0489 0.0020  
 Venus -45800-08-12 23:59 J -15006802.71 -15006802.50 -15006802.29 0.0495 0.0050  
 Mercury -45797-12-11 11:02 J -15005586.18 -15005586.04 -15005585.90 0.0538 0.0051  
 Venus -45794-06-24 02:38 J -15004661.54 -15004661.39 -15004661.24 0.0530 0.0347  
 Mercury -45791-07-29 14:38 J -15003530.04 -15003529.89 -15003529.74 0.0490 0.0176  
 Mercury -45791-10-27 09:35 J -15003440.18 -15003440.10 -15003440.03 0.0488 0.0429  
 Venus -45788-04-17 21:50 J -15002536.75 -15002536.59 -15002536.43 0.0493 0.0309  
 Mercury -45785-09-29 12:42 J -15001276.10 -15001275.97 -15001275.83 0.0538 0.0129  
 Venus -45782-02-26 22:04 J -15000395.78 -15000395.58 -15000395.38 0.0533 0.0041  
 Mercury -45779-05-17 15:35 J -14999219.96 -14999219.85 -14999219.73 0.0490 0.0323  
 Mercury -45779-08-15 10:04 J -14999130.21 -14999130.08 -14999129.94 0.0489 0.0276  
 Venus -45776-08-15 12:57 J -14998034.10 -14998033.96 -14998033.81 0.0497 0.0359  
 Mercury -45773-07-18 14:09 J -14996966.02 -14996965.91 -14996965.79 0.0538 0.0309  
 Moon -45773-09-06 08:52 J -14996916.26 -14996916.13 -14996916.00 0.0539 0.0450  
 Earth -45773-09-06 12:42 J -14996916.11 -14996915.97 -14996915.82 0.0539 0.0424 \*  
 Mercury -45773-10-16 04:33 J -14996876.40 -14996876.31 -14996876.21 0.0540 0.0380  
 Venus -45771-11-01 17:59 J -14996129.92 -14996129.75 -14996129.58 0.0535 0.0268  
 Mercury -45767-03-05 17:16 J -14994909.83 -14994909.78 -14994909.73 0.0491 0.0464  
 Mercury -45767-06-03 11:02 J -14994820.19 -14994820.04 -14994819.88 0.0489 0.0129  
 Mars -45765-09-18 16:18 J -14993981.85 -14993981.82 -14993981.79 0.0490 0.0486  
 Venus -45764-04-20 10:04 J -14993768.29 -14993768.08 -14993767.87 0.0495 0.0094  
 Mercury -45761-05-06 16:18 J -14992655.88 -14992655.82 -14992655.75 0.0537 0.0477  
 Mercury -45761-08-04 07:11 J -14992566.33 -14992566.20 -14992566.07 0.0540 0.0218  
 Earth -45761-09-11 20:52 J -14992527.85 -14992527.63 -14992527.41 0.0540 0.0171  
 Moon -45761-09-11 23:02 J -14992527.74 -14992527.54 -14992527.33 0.0540 0.0199 \*  
 Venus -45758-03-01 17:30 J -14991626.78 -14991626.77 -14991626.74 0.0529 0.0524  
 Mercury -45755-03-22 11:45 J -14990510.17 -14990510.01 -14990509.84 0.0489 0.0026

Venus -45753-12-24 07:54 J -14989502.37 -14989502.17 -14989501.97 0.0494 0.0166

Mercury -45749-05-23 09:35 J -14988256.24 -14988256.10 -14988255.96 0.0539 0.0053

Venus -45747-11-04 13:54 J -14987361.10 -14987360.92 -14987360.74 0.0531 0.0224

Mercury -45743-01-08 12:57 J -14986200.12 -14986199.96 -14986199.81 0.0490 0.0173

Moon -45743-03-06 14:38 J -14986143.10 -14986142.89 -14986142.68 0.0489 0.0201

Earth -45743-03-06 16:33 J -14986143.02 -14986142.81 -14986142.60 0.0489 0.0229 \*

Mercury -45743-04-08 07:26 J -14986110.26 -14986110.19 -14986110.11 0.0488 0.0432

Venus -45741-08-29 07:11 J -14985236.30 -14985236.20 -14985236.09 0.0492 0.0418

Mercury -45737-03-11 11:16 J -14983946.17 -14983946.03 -14983945.89 0.0538 0.0123

Mars -45736-12-13 11:59 J -14983304.27 -14983304.00 -14983303.74 0.0539 0.0101

Venus -45735-07-10 06:28 J -14983095.42 -14983095.23 -14983095.03 0.0533 0.0093

Mercury -45732-10-27 13:40 J -14981890.05 -14981889.93 -14981889.81 0.0491 0.0323

Mercury -45731-01-25 07:54 J -14981800.30 -14981800.17 -14981800.03 0.0489 0.0277

Earth -45731-03-10 21:35 J -14981755.81 -14981755.60 -14981755.38 0.0488 0.0189

Moon -45731-03-11 00:57 J -14981755.68 -14981755.46 -14981755.24 0.0488 0.0185 \*

Venus -45729-12-26 23:59 J -14980733.68 -14980733.50 -14980733.32 0.0497 0.0252

Mercury -45726-12-29 12:42 J -14979636.08 -14979635.97 -14979635.85 0.0537 0.0303

Mercury -45725-03-28 03:06 J -14979546.47 -14979546.37 -14979546.27 0.0539 0.0383

Venus -45723-03-15 00:14 J -14978829.61 -14978829.49 -14978829.36 0.0536 0.0409

Mercury -45720-08-15 14:52 J -14977579.92 -14977579.88 -14977579.83 0.0491 0.0467

Mercury -45720-11-13 08:52 J -14977490.29 -14977490.13 -14977489.97 0.0489 0.0126

Venus -45717-08-31 18:42 J -14976467.93 -14976467.72 -14976467.51 0.0494 0.0023

Mercury -45714-10-17 13:54 J -14975325.97 -14975325.92 -14975325.86 0.0537 0.0487

Mercury -45713-01-15 04:47 J -14975236.43 -14975236.30 -14975236.17 0.0539 0.0208

Venus -45711-07-13 01:26 J -14974326.57 -14974326.44 -14974326.30 0.0530 0.0391

Mercury -45708-09-01 10:04 J -14973180.24 -14973180.08 -14973179.92 0.0489 0.0020

Venus -45705-05-06 17:02 J -14972201.96 -14972201.79 -14972201.61 0.0493 0.0278

Mercury -45702-11-03 07:26 J -14970926.33 -14970926.19 -14970926.05 0.0539 0.0048

Mars -45700-09-19 06:14 J -14970240.24 -14970240.24 -14970240.23 0.0538 0.0538

Venus -45699-03-17 22:18 J -14970060.76 -14970060.57 -14970060.37 0.0533 0.0091

Mercury -45696-06-20 11:02 J -14968870.19 -14968870.04 -14968869.89 0.0490 0.0170  
 Mercury -45696-09-18 05:30 J -14968780.34 -14968780.27 -14968780.19 0.0488 0.0433  
 Venus -45693-09-03 11:16 J -14967699.15 -14967699.03 -14967698.91 0.0498 0.0400  
 Mercury -45690-08-22 09:35 J -14966616.23 -14966616.10 -14966615.96 0.0538 0.0122  
 Earth -45690-09-06 15:21 J -14966600.93 -14966600.86 -14966600.79 0.0539 0.0512  
 Moon -45690-09-06 18:14 J -14966600.78 -14966600.74 -14966600.69 0.0539 0.0527  
 Venus -45688-11-20 17:16 J -14965794.96 -14965794.78 -14965794.60 0.0535 0.0219  
 Mercury -45684-04-08 11:59 J -14964560.12 -14964560.00 -14964559.87 0.0490 0.0317  
 Mercury -45684-07-07 06:14 J -14964470.37 -14964470.24 -14964470.10 0.0489 0.0282  
 Mars -45682-06-05 09:50 J -14963772.30 -14963772.09 -14963771.87 0.0488 0.0304  
 Venus -45681-05-09 08:52 J -14963433.33 -14963433.13 -14963432.92 0.0496 0.0139  
 Mercury -45678-06-10 11:30 J -14962306.14 -14962306.02 -14962305.91 0.0537 0.0296  
 Mercury -45678-09-08 01:40 J -14962216.52 -14962216.43 -14962216.33 0.0539 0.0390  
 Moon -45678-09-11 19:40 J -14962212.92 -14962212.68 -14962212.44 0.0539 0.0100  
 Earth -45678-09-11 20:09 J -14962212.89 -14962212.66 -14962212.43 0.0539 0.0071 \*  
 Mercury -45672-01-25 12:57 J -14960250.00 -14960249.96 -14960249.91 0.0491 0.0465  
 Mercury -45672-04-25 06:57 J -14960160.37 -14960160.21 -14960160.05 0.0489 0.0128  
 Venus -45669-01-13 06:28 J -14959167.44 -14959167.23 -14959167.03 0.0494 0.0124  
 Mercury -45666-03-29 12:42 J -14957996.03 -14957995.97 -14957995.90 0.0537 0.0476  
 Mercury -45666-06-27 03:35 J -14957906.48 -14957906.35 -14957906.22 0.0539 0.0217  
 Venus -45664-11-23 09:21 J -14957026.28 -14957026.11 -14957025.93 0.0531 0.0258  
 Mercury -45660-02-11 07:54 J -14955850.33 -14955850.17 -14955850.01 0.0489 0.0020  
 Earth -45660-03-05 21:06 J -14955827.81 -14955827.62 -14955827.43 0.0489 0.0294  
 Moon -45660-03-06 00:14 J -14955827.68 -14955827.49 -14955827.28 0.0489 0.0267 \*  
 Venus -45658-09-18 02:52 J -14954901.50 -14954901.38 -14954901.25 0.0492 0.0387  
 Mercury -45654-04-15 05:02 J -14953596.43 -14953596.29 -14953596.15 0.0539 0.0038  
 Venus -45652-07-29 05:30 J -14952760.46 -14952760.27 -14952760.07 0.0534 0.0048  
 Mercury -45649-11-30 09:21 J -14951540.26 -14951540.11 -14951539.96 0.0490 0.0163  
 Mercury -45648-02-28 04:04 J -14951450.40 -14951450.33 -14951450.26 0.0488 0.0440  
 Moon -45648-03-10 00:57 J -14951440.68 -14951440.46 -14951440.23 0.0488 0.0119

Earth -45648-03-10 04:47 J -14951440.53 -14951440.30 -14951440.07 0.0488 0.0132 \*  
 Mars -45646-03-10 04:33 J -14950710.57 -14950710.31 -14950710.04 0.0489 0.0155  
 Venus -45645-01-15 19:40 J -14950398.85 -14950398.68 -14950398.50 0.0497 0.0283  
 Mercury -45642-02-01 07:26 J -14949286.33 -14949286.19 -14949286.05 0.0539 0.0129  
 Venus -45640-04-03 01:11 J -14948494.60 -14948494.45 -14948494.31 0.0536 0.0356  
 Mercury -45637-09-18 10:18 J -14947230.19 -14947230.07 -14947229.94 0.0490 0.0311  
 Mercury -45637-12-17 04:33 J -14947140.44 -14947140.31 -14947140.18 0.0488 0.0286  
 Venus -45634-09-20 17:16 J -14946132.99 -14946132.78 -14946132.57 0.0495 0.0023  
 Mercury -45631-11-20 09:50 J -14944976.21 -14944976.09 -14944975.98 0.0538 0.0294  
 Mercury -45630-02-18 00:14 J -14944886.59 -14944886.49 -14944886.40 0.0540 0.0394  
 Venus -45628-08-01 01:11 J -14943991.55 -14943991.45 -14943991.33 0.0530 0.0439  
 Mercury -45625-07-07 11:30 J -14942920.07 -14942920.02 -14942919.96 0.0491 0.0456  
 Mercury -45625-10-05 05:30 J -14942830.43 -14942830.27 -14942830.11 0.0489 0.0136  
 Venus -45622-05-26 16:18 J -14941867.01 -14941866.82 -14941866.64 0.0493 0.0234  
 Mercury -45619-09-08 11:30 J -14940666.09 -14940666.02 -14940665.95 0.0537 0.0466  
 Mercury -45619-12-07 02:23 J -14940576.53 -14940576.40 -14940576.28 0.0539 0.0226  
 Venus -45616-04-05 19:26 J -14939725.88 -14939725.69 -14939725.50 0.0532 0.0130  
 Mercury -45613-07-24 06:14 J -14938520.41 -14938520.24 -14938520.08 0.0490 0.0021  
 Venus -45610-01-29 15:06 J -14937600.89 -14937600.87 -14937600.83 0.0492 0.0485  
 Venus -45610-09-23 10:33 J -14937364.15 -14937364.06 -14937363.96 0.0498 0.0444  
 Mercury -45607-09-25 04:04 J -14936266.47 -14936266.33 -14936266.19 0.0538 0.0053  
 Venus -45605-12-09 13:54 J -14935460.11 -14935459.92 -14935459.74 0.0534 0.0182  
 Mercury -45601-05-12 07:26 J -14934210.35 -14934210.19 -14934210.04 0.0490 0.0162  
 Mercury -45601-08-10 01:54 J -14934120.48 -14934120.42 -14934120.35 0.0488 0.0442  
 Venus -45598-05-29 05:16 J -14933098.48 -14933098.28 -14933098.08 0.0496 0.0170  
 Mercury -45595-07-14 05:16 J -14931956.41 -14931956.28 -14931956.14 0.0538 0.0134  
 Moon -45595-09-10 14:38 J -14931898.11 -14931897.89 -14931897.66 0.0540 0.0018  
 Earth -45595-09-10 15:35 J -14931898.08 -14931897.85 -14931897.62 0.0540 0.0050 \*  
 Venus -45593-08-14 07:54 J -14931194.24 -14931194.17 -14931194.10 0.0537 0.0496  
 Mercury -45589-02-29 08:52 J -14929900.25 -14929900.13 -14929900.00 0.0490 0.0302



Mercury -45589-05-29 03:06 J -14929810.50 -14929810.37 -14929810.24 0.0488 0.0296

Venus -45586-02-01 03:06 J -14928832.57 -14928832.37 -14928832.16 0.0494 0.0089

Mercury -45583-05-02 07:26 J -14927646.30 -14927646.19 -14927646.07 0.0538 0.0301

Mercury -45583-07-30 22:04 J -14927556.67 -14927556.58 -14927556.48 0.0540 0.0389

Mars -45581-03-08 14:23 J -14926970.16 -14926969.90 -14926969.63 0.0540 0.0089

Venus -45581-12-12 10:33 J -14926691.21 -14926691.06 -14926690.89 0.0531 0.0311

Mercury -45578-12-18 10:18 J -14925590.14 -14925590.07 -14925590.01 0.0491 0.0447

Moon -45577-03-05 01:40 J -14925512.60 -14925512.43 -14925512.26 0.0489 0.0329

Earth -45577-03-05 05:16 J -14925512.43 -14925512.28 -14925512.11 0.0489 0.0349 \*

Mercury -45577-03-17 04:04 J -14925500.49 -14925500.33 -14925500.18 0.0489 0.0145

Venus -45575-10-07 01:54 J -14924566.57 -14924566.42 -14924566.27 0.0492 0.0343

Mercury -45571-02-18 09:50 J -14923336.16 -14923336.09 -14923336.02 0.0537 0.0466

Mercury -45571-05-19 00:42 J -14923246.59 -14923246.47 -14923246.34 0.0540 0.0230

Venus -45569-08-17 06:42 J -14922425.42 -14922425.22 -14922425.02 0.0533 0.0008

Mercury -45565-01-04 05:02 J -14921190.45 -14921190.29 -14921190.13 0.0489 0.0007

Earth -45565-03-09 11:45 J -14921125.24 -14921125.01 -14921124.78 0.0488 0.0072

Moon -45565-03-09 15:06 J -14921125.10 -14921124.87 -14921124.64 0.0488 0.0054 \*

Venus -45562-02-03 19:54 J -14920063.82 -14920063.67 -14920063.51 0.0497 0.0331

Mercury -45559-03-07 02:52 J -14918936.52 -14918936.38 -14918936.24 0.0539 0.0064

Venus -45557-04-21 23:45 J -14918159.67 -14918159.51 -14918159.35 0.0535 0.0310

Mercury -45554-10-23 05:45 J -14916880.41 -14916880.26 -14916880.11 0.0490 0.0155

Mercury -45553-01-21 00:28 J -14916790.54 -14916790.48 -14916790.42 0.0488 0.0449

Moon -45553-03-13 14:09 J -14916737.99 -14916737.91 -14916737.83 0.0488 0.0458

Venus -45551-10-09 17:16 J -14915797.98 -14915797.78 -14915797.57 0.0495 0.0069

Mercury -45548-12-24 04:47 J -14914626.44 -14914626.30 -14914626.16 0.0538 0.0113

Venus -45545-08-19 22:47 J -14913656.63 -14913656.55 -14913656.46 0.0530 0.0478

Mercury -45542-08-11 07:11 J -14912570.33 -14912570.20 -14912570.07 0.0490 0.0298

Mercury -45542-11-09 01:26 J -14912480.57 -14912480.44 -14912480.31 0.0489 0.0300

Venus -45539-06-14 13:40 J -14911532.12 -14911531.93 -14911531.73 0.0493 0.0197

Mercury -45536-10-12 05:45 J -14910316.38 -14910316.26 -14910316.14 0.0538 0.0301

Mercury -45535-01-09 20:09 J -14910226.75 -14910226.66 -14910226.56 0.0540 0.0388

Venus -45533-04-24 19:11 J -14909390.89 -14909390.70 -14909390.52 0.0533 0.0178

Mercury -45530-05-30 08:52 J -14908260.20 -14908260.13 -14908260.06 0.0491 0.0436

Mercury -45530-08-28 02:38 J -14908170.54 -14908170.39 -14908170.23 0.0489 0.0157

Mars -45528-08-29 04:47 J -14907438.56 -14907438.30 -14907438.03 0.0488 0.0152

Venus -45527-02-17 13:11 J -14907266.03 -14907265.95 -14907265.86 0.0491 0.0445

Venus -45527-10-12 07:54 J -14907029.21 -14907029.17 -14907029.11 0.0498 0.0480

Mercury -45524-07-31 07:40 J -14906006.24 -14906006.18 -14906006.11 0.0537 0.0471

Mercury -45524-10-28 22:47 J -14905916.68 -14905916.55 -14905916.43 0.0540 0.0225

Venus -45522-12-29 15:21 J -14905125.05 -14905124.86 -14905124.67 0.0535 0.0126

Mercury -45518-06-16 03:35 J -14903860.51 -14903860.35 -14903860.18 0.0489 0.0012

Venus -45515-06-17 05:02 J -14902763.48 -14902763.29 -14902763.10 0.0496 0.0217

Mercury -45512-08-17 01:26 J -14901606.58 -14901606.44 -14901606.30 0.0539 0.0066

Earth -45512-09-09 22:04 J -14901582.81 -14901582.58 -14901582.36 0.0540 0.0121

Moon -45512-09-10 00:28 J -14901582.72 -14901582.48 -14901582.25 0.0540 0.0085 \*

Venus -45510-09-03 10:18 J -14900859.18 -14900859.07 -14900858.96 0.0537 0.0435

Mercury -45506-04-04 04:47 J -14899550.45 -14899550.30 -14899550.14 0.0490 0.0140

Mercury -45506-07-02 23:30 J -14899460.57 -14899460.52 -14899460.47 0.0488 0.0463

Venus -45503-02-20 03:50 J -14898497.55 -14898497.34 -14898497.13 0.0494 0.0041

Mercury -45500-06-05 03:35 J -14897296.49 -14897296.35 -14897296.21 0.0538 0.0101

Moon -45500-09-15 01:54 J -14897194.52 -14897194.42 -14897194.32 0.0540 0.0479

Earth -45500-09-15 05:30 J -14897194.38 -14897194.27 -14897194.16 0.0540 0.0477 \*

Venus -45497-01-01 10:04 J -14896356.23 -14896356.08 -14896355.94 0.0531 0.0356

Mercury -45494-01-21 05:45 J -14895240.39 -14895240.26 -14895240.13 0.0490 0.0289

Earth -45494-03-05 12:57 J -14895197.09 -14895196.96 -14895196.83 0.0490 0.0405

Moon -45494-03-05 16:04 J -14895196.96 -14895196.83 -14895196.69 0.0490 0.0390 \*

Mercury -45494-04-20 23:59 J -14895150.63 -14895150.50 -14895150.38 0.0489 0.0309

Mars -45492-06-03 06:57 J -14894376.42 -14894376.21 -14894375.99 0.0489 0.0318

Venus -45492-10-26 02:23 J -14894231.56 -14894231.40 -14894231.23 0.0492 0.0295

Mercury -45488-03-24 05:16 J -14892986.40 -14892986.28 -14892986.16 0.0537 0.0277

Mercury -45488-06-21 19:40 J -14892896.76 -14892896.68 -14892896.59 0.0540 0.0410  
 Venus -45486-09-06 05:16 J -14892090.48 -14892090.28 -14892090.08 0.0533 0.0052  
 Mercury -45483-11-09 07:11 J -14890930.27 -14890930.20 -14890930.12 0.0491 0.0430  
 Mercury -45482-02-07 01:11 J -14890840.61 -14890840.45 -14890840.30 0.0489 0.0163  
 Moon -45482-03-09 17:59 J -14890809.99 -14890809.75 -14890809.51 0.0488 0.0004  
 Earth -45482-03-09 20:38 J -14890809.88 -14890809.64 -14890809.41 0.0488 0.0024 \*  
 Venus -45479-02-22 18:14 J -14889728.87 -14889728.74 -14889728.60 0.0497 0.0370  
 Mercury -45476-01-10 05:59 J -14888676.31 -14888676.25 -14888676.18 0.0537 0.0468  
 Mercury -45476-04-09 21:06 J -14888586.75 -14888586.62 -14888586.50 0.0539 0.0227  
 Venus -45474-05-11 23:16 J -14887824.70 -14887824.53 -14887824.36 0.0536 0.0261  
 Mercury -45471-11-26 02:38 J -14886530.55 -14886530.39 -14886530.23 0.0489 0.0021  
 Earth -45470-03-14 04:18 J -14886422.40 -14886422.32 -14886422.22 0.0487 0.0450  
 Moon -45470-03-14 05:30 J -14886422.37 -14886422.27 -14886422.16 0.0487 0.0427 \*  
 Venus -45468-10-28 15:50 J -14885463.04 -14885462.84 -14885462.63 0.0495 0.0109  
 Mercury -45464-01-26 23:30 J -14884276.66 -14884276.52 -14884276.38 0.0539 0.0064  
 Mars -45463-08-26 22:04 J -14883699.78 -14883699.58 -14883699.38 0.0541 0.0367  
 Mercury -45459-09-14 03:35 J -14882220.50 -14882220.35 -14882220.19 0.0490 0.0127  
 Mercury -45459-12-12 22:18 J -14882130.60 -14882130.57 -14882130.54 0.0488 0.0476  
 Venus -45456-07-03 13:54 J -14881197.12 -14881196.92 -14881196.72 0.0493 0.0148  
 Mercury -45453-11-15 01:54 J -14879966.56 -14879966.42 -14879966.28 0.0539 0.0099  
 Venus -45450-05-14 21:50 J -14879055.76 -14879055.59 -14879055.41 0.0532 0.0238  
 Mercury -45447-07-03 05:02 J -14877910.42 -14877910.29 -14877910.16 0.0490 0.0271  
 Mercury -45447-09-30 23:02 J -14877820.66 -14877820.54 -14877820.41 0.0488 0.0327  
 Venus -45444-03-08 13:40 J -14876931.04 -14876930.93 -14876930.80 0.0492 0.0397  
 Mercury -45441-09-03 04:18 J -14875656.45 -14875656.32 -14875656.20 0.0538 0.0265  
 Mercury -45441-12-01 18:42 J -14875566.80 -14875566.72 -14875566.64 0.0540 0.0423  
 Venus -45438-01-17 16:04 J -14874790.03 -14874789.83 -14874789.64 0.0534 0.0073  
 Mercury -45435-04-21 05:59 J -14873600.33 -14873600.25 -14873600.17 0.0491 0.0419  
 Mercury -45435-07-19 23:45 J -14873510.66 -14873510.51 -14873510.36 0.0489 0.0174  
 Venus -45432-07-06 06:28 J -14872428.40 -14872428.23 -14872428.05 0.0496 0.0268

Mercury -45429-06-22 05:45 J -14871346.33 -14871346.26 -14871346.17 0.0537 0.0441  
 Moon -45429-09-08 22:33 J -14871267.78 -14871267.56 -14871267.34 0.0539 0.0170  
 Earth -45429-09-09 01:40 J -14871267.64 -14871267.43 -14871267.21 0.0539 0.0202 \*  
 Mercury -45429-09-19 20:38 J -14871256.76 -14871256.64 -14871256.51 0.0539 0.0254  
 Mars -45427-06-02 22:47 J -14870635.77 -14870635.55 -14870635.32 0.0539 0.0290  
 Venus -45427-09-22 09:50 J -14870524.23 -14870524.09 -14870523.95 0.0536 0.0386  
 Mercury -45423-05-08 01:11 J -14869200.62 -14869200.45 -14869200.29 0.0489 0.0030  
 Venus -45420-03-11 03:21 J -14868162.57 -14868162.36 -14868162.15 0.0494 0.0008  
 Mercury -45417-07-08 21:50 J -14866946.73 -14866946.59 -14866946.45 0.0539 0.0067  
 Earth -45417-09-14 02:23 J -14866879.57 -14866879.40 -14866879.22 0.0540 0.0364  
 Moon -45417-09-14 06:14 J -14866879.41 -14866879.24 -14866879.07 0.0540 0.0360 \*  
 Venus -45414-01-20 10:04 J -14866021.21 -14866021.08 -14866020.95 0.0531 0.0405  
 Mercury -45411-02-24 02:38 J -14864890.54 -14864890.39 -14864890.23 0.0490 0.0112  
 Moon -45411-03-04 23:30 J -14864881.62 -14864881.52 -14864881.40 0.0490 0.0431  
 Earth -45411-03-05 01:54 J -14864881.52 -14864881.42 -14864881.32 0.0490 0.0442 \*  
 Mars -45409-02-18 17:30 J -14864165.88 -14864165.77 -14864165.64 0.0487 0.0434  
 Venus -45409-11-14 02:09 J -14863896.59 -14863896.41 -14863896.23 0.0492 0.0249  
 Mercury -45405-04-26 23:59 J -14862636.64 -14862636.50 -14862636.36 0.0538 0.0102  
 Venus -45403-09-25 06:57 J -14861755.40 -14861755.21 -14861755.02 0.0534 0.0108  
 Mercury -45400-12-13 04:04 J -14860580.47 -14860580.33 -14860580.20 0.0490 0.0258  
 Earth -45399-03-09 08:09 J -14860494.39 -14860494.16 -14860493.93 0.0488 0.0018  
 Moon -45399-03-09 08:52 J -14860494.35 -14860494.13 -14860493.90 0.0488 0.0042 \*  
 Mercury -45399-03-12 22:04 J -14860490.70 -14860490.58 -14860490.46 0.0488 0.0341  
 Venus -45396-03-13 18:57 J -14859393.81 -14859393.71 -14859393.59 0.0497 0.0419  
 Mercury -45393-02-14 02:38 J -14858326.52 -14858326.39 -14858326.27 0.0538 0.0263  
 Mercury -45393-05-13 17:02 J -14858236.87 -14858236.79 -14858236.70 0.0540 0.0427  
 Venus -45391-05-31 02:38 J -14857489.57 -14857489.39 -14857489.20 0.0536 0.0197  
 Mercury -45388-10-01 05:16 J -14856270.37 -14856270.28 -14856270.18 0.0491 0.0400  
 Mercury -45388-12-29 23:02 J -14856180.69 -14856180.54 -14856180.39 0.0489 0.0192  
 Earth -45387-03-13 14:52 J -14856107.01 -14856106.88 -14856106.75 0.0487 0.0403

Moon -45387-03-13 15:35 J -14856106.98 -14856106.85 -14856106.69 0.0487 0.0387 \*  
 Venus -45385-11-16 17:16 J -14855127.98 -14855127.78 -14855127.58 0.0495 0.0160  
 Mercury -45382-12-03 04:47 J -14854016.39 -14854016.30 -14854016.22 0.0537 0.0429  
 Mercury -45381-03-01 19:40 J -14853926.80 -14853926.68 -14853926.56 0.0539 0.0266  
 Venus -45379-02-02 19:54 J -14853223.73 -14853223.67 -14853223.61 0.0537 0.0512  
 Mercury -45376-10-17 23:45 J -14851870.67 -14851870.51 -14851870.34 0.0489 0.0042  
 Mars -45374-11-23 13:54 J -14851104.20 -14851103.92 -14851103.65 0.0488 0.0022  
 Venus -45373-07-22 15:35 J -14850862.05 -14850861.85 -14850861.64 0.0493 0.0097  
 Mercury -45370-12-19 21:50 J -14849616.73 -14849616.59 -14849616.46 0.0539 0.0097  
 Venus -45367-06-02 21:35 J -14848720.77 -14848720.60 -14848720.43 0.0532 0.0286  
 Mercury -45364-08-06 01:11 J -14847560.60 -14847560.45 -14847560.29 0.0490 0.0104  
 Venus -45361-03-27 14:23 J -14846596.05 -14846595.90 -14846595.76 0.0491 0.0349  
 Mercury -45358-10-07 22:33 J -14845306.70 -14845306.56 -14845306.42 0.0538 0.0095  
 Venus -45355-02-05 15:21 J -14844455.05 -14844454.86 -14844454.66 0.0535 0.0026  
 Mercury -45352-05-25 02:52 J -14843250.51 -14843250.38 -14843250.24 0.0490 0.0243  
 Mercury -45352-08-22 21:06 J -14843160.73 -14843160.62 -14843160.51 0.0489 0.0357  
 Venus -45349-07-25 06:14 J -14842093.39 -14842093.24 -14842093.07 0.0496 0.0313  
 Mercury -45346-07-27 00:42 J -14840996.59 -14840996.47 -14840996.35 0.0538 0.0264  
 Earth -45346-09-09 00:42 J -14840952.66 -14840952.47 -14840952.28 0.0539 0.0308  
 Moon -45346-09-09 04:33 J -14840952.51 -14840952.31 -14840952.11 0.0539 0.0274 \*  
 Mercury -45346-10-24 15:06 J -14840906.95 -14840906.87 -14840906.78 0.0540 0.0425  
 Venus -45344-10-11 10:47 J -14840189.21 -14840189.05 -14840188.90 0.0537 0.0331  
 Mercury -45340-03-13 04:18 J -14838940.42 -14838940.32 -14838940.22 0.0491 0.0386  
 Mercury -45340-06-10 22:04 J -14838850.73 -14838850.58 -14838850.43 0.0489 0.0207  
 Mars -45338-08-28 12:57 J -14838041.98 -14838041.96 -14838041.93 0.0489 0.0486  
 Venus -45337-03-30 03:50 J -14837827.55 -14837827.34 -14837827.13 0.0494 0.0054  
 Mercury -45334-05-15 02:52 J -14836686.46 -14836686.38 -14836686.29 0.0537 0.0429  
 Mercury -45334-08-12 17:59 J -14836596.87 -14836596.75 -14836596.63 0.0540 0.0268  
 Moon -45334-09-14 07:11 J -14836564.39 -14836564.20 -14836563.99 0.0540 0.0286  
 Earth -45334-09-14 10:18 J -14836564.25 -14836564.07 -14836563.87 0.0540 0.0302 \*

Venus -45331-02-08 13:11 J -14835686.04 -14835685.95 -14835685.85 0.0531 0.0466

Earth -45328-03-04 12:28 J -14834566.00 -14834565.98 -14834565.96 0.0490 0.0488

Moon -45328-03-04 12:42 J -14834565.99 -14834565.97 -14834565.93 0.0490 0.0485 \*

Mercury -45328-03-29 23:16 J -14834540.69 -14834540.53 -14834540.37 0.0489 0.0060

Venus -45326-12-04 03:06 J -14833561.56 -14833561.37 -14833561.18 0.0492 0.0198

Mercury -45322-05-31 20:38 J -14832286.78 -14832286.64 -14832286.50 0.0539 0.0107

Venus -45320-10-14 08:38 J -14831420.33 -14831420.14 -14831419.95 0.0533 0.0164

Mercury -45316-01-15 23:59 J -14830230.66 -14830230.50 -14830230.34 0.0490 0.0092

Earth -45316-03-08 17:45 J -14830178.99 -14830178.76 -14830178.53 0.0489 0.0067

Moon -45316-03-08 19:11 J -14830178.94 -14830178.70 -14830178.46 0.0489 0.0093 \*

Venus -45314-08-09 02:52 J -14829295.47 -14829295.38 -14829295.30 0.0491 0.0446

Venus -45313-04-01 21:06 J -14829058.67 -14829058.62 -14829058.55 0.0497 0.0472

Mercury -45310-03-19 22:33 J -14827976.70 -14827976.56 -14827976.42 0.0538 0.0065

Mars -45309-11-20 14:23 J -14827365.16 -14827364.90 -14827364.63 0.0540 0.0146

Venus -45308-06-19 02:52 J -14827154.57 -14827154.38 -14827154.19 0.0535 0.0145

Mercury -45305-11-04 01:40 J -14825920.57 -14825920.43 -14825920.29 0.0490 0.0234

Mercury -45304-02-01 19:40 J -14825830.78 -14825830.68 -14825830.57 0.0489 0.0366

Moon -45304-03-12 22:33 J -14825791.72 -14825791.56 -14825791.40 0.0488 0.0352

Earth -45304-03-13 01:26 J -14825791.59 -14825791.44 -14825791.28 0.0488 0.0360 \*

Venus -45302-12-06 17:45 J -14824792.94 -14824792.76 -14824792.56 0.0495 0.0209

Mercury -45298-01-05 23:16 J -14823666.65 -14823666.53 -14823666.40 0.0537 0.0256

Mercury -45298-04-05 13:54 J -14823577.00 -14823576.92 -14823576.84 0.0540 0.0431

Venus -45296-02-21 18:28 J -14822888.82 -14822888.73 -14822888.63 0.0538 0.0465

Mercury -45293-08-23 03:06 J -14821610.46 -14821610.37 -14821610.26 0.0491 0.0373

Mercury -45293-11-20 21:06 J -14821520.77 -14821520.62 -14821520.48 0.0489 0.0222

Venus -45290-08-11 16:04 J -14820527.04 -14820526.83 -14820526.62 0.0493 0.0048

Mercury -45287-10-25 01:11 J -14819356.54 -14819356.45 -14819356.37 0.0537 0.0429

Mercury -45286-01-22 16:04 J -14819266.95 -14819266.83 -14819266.70 0.0539 0.0267

Venus -45284-06-21 22:04 J -14818385.73 -14818385.58 -14818385.42 0.0532 0.0339

Mercury -45281-09-08 22:04 J -14817210.74 -14817210.58 -14817210.42 0.0489 0.0073

Venus -45278-04-16 14:23 J -14816261.06 -14816260.90 -14816260.73 0.0491 0.0301  
 Mercury -45275-11-10 18:42 J -14814956.85 -14814956.72 -14814956.58 0.0539 0.0107  
 Mars -45273-08-27 14:38 J -14814300.98 -14814300.89 -14814300.78 0.0540 0.0502  
 Venus -45272-02-24 18:42 J -14814119.91 -14814119.72 -14814119.52 0.0534 0.0040  
 Mercury -45269-06-27 23:16 J -14812900.69 -14812900.53 -14812900.37 0.0490 0.0073  
 Venus -45266-08-14 07:11 J -14811758.33 -14811758.20 -14811758.05 0.0496 0.0364  
 Mercury -45263-08-29 21:21 J -14810646.76 -14810646.61 -14810646.47 0.0538 0.0058  
 Moon -45263-09-08 06:14 J -14810637.42 -14810637.24 -14810637.05 0.0539 0.0337  
 Earth -45263-09-08 09:50 J -14810637.26 -14810637.09 -14810636.92 0.0539 0.0365 \*  
 Venus -45261-10-30 12:57 J -14809854.13 -14809853.96 -14809853.79 0.0536 0.0271  
 Mercury -45257-04-16 00:14 J -14808590.63 -14808590.49 -14808590.35 0.0490 0.0223  
 Mercury -45257-07-14 18:28 J -14808500.83 -14808500.73 -14808500.63 0.0488 0.0377  
 Mars -45255-05-15 01:54 J -14807831.64 -14807831.42 -14807831.18 0.0487 0.0266  
 Venus -45254-04-19 05:30 J -14807492.47 -14807492.27 -14807492.06 0.0494 0.0106  
 Mercury -45251-06-17 23:02 J -14806336.66 -14806336.54 -14806336.41 0.0538 0.0229  
 Earth -45251-09-13 15:50 J -14806249.05 -14806248.84 -14806248.63 0.0540 0.0225  
 Moon -45251-09-13 17:30 J -14806248.97 -14806248.77 -14806248.56 0.0540 0.0207 \*  
 Mercury -45251-09-15 13:40 J -14806247.00 -14806246.93 -14806246.86 0.0540 0.0459  
 Venus -45248-02-27 12:57 J -14805351.00 -14805350.96 -14805350.91 0.0530 0.0512  
 Mercury -45245-02-03 01:54 J -14804280.53 -14804280.42 -14804280.32 0.0491 0.0364  
 Mercury -45245-05-02 19:40 J -14804190.83 -14804190.68 -14804190.54 0.0489 0.0230  
 Venus -45243-12-23 04:04 J -14803226.53 -14803226.33 -14803226.13 0.0492 0.0148  
 Mercury -45239-04-05 23:45 J -14802026.59 -14802026.51 -14802026.42 0.0537 0.0421  
 Mercury -45239-07-04 14:52 J -14801937.00 -14801936.88 -14801936.76 0.0539 0.0273  
 Venus -45237-11-02 06:57 J -14801085.39 -14801085.21 -14801085.03 0.0533 0.0209  
 Mercury -45233-02-19 20:52 J -14799880.79 -14799880.63 -14799880.47 0.0490 0.0086  
 Moon -45233-03-08 03:06 J -14799863.59 -14799863.37 -14799863.15 0.0489 0.0136  
 Earth -45233-03-08 06:14 J -14799863.47 -14799863.24 -14799863.01 0.0489 0.0106 \*  
 Venus -45231-08-28 03:35 J -14798960.47 -14798960.35 -14798960.23 0.0490 0.0396  
 Mercury -45227-04-22 16:47 J -14797626.93 -14797626.80 -14797626.66 0.0539 0.0106

Venus -45225-07-08 02:09 J -14796819.60 -14796819.41 -14796819.21 0.0536 0.0096

Mercury -45222-12-08 22:04 J -14795570.74 -14795570.58 -14795570.42 0.0490 0.0062

Earth -45221-03-12 11:59 J -14795476.17 -14795476.00 -14795475.82 0.0488 0.0317

Moon -45221-03-12 16:04 J -14795476.01 -14795475.83 -14795475.65 0.0488 0.0317 \*

Mars -45219-02-16 20:38 J -14794769.89 -14794769.64 -14794769.37 0.0488 0.0187

Venus -45219-12-25 17:30 J -14794457.94 -14794457.77 -14794457.58 0.0495 0.0255

Mercury -45215-02-08 19:26 J -14793316.83 -14793316.69 -14793316.55 0.0538 0.0060

Venus -45213-03-12 21:35 J -14792553.73 -14792553.60 -14792553.47 0.0538 0.0402

Mercury -45210-09-26 23:30 J -14791260.67 -14791260.52 -14791260.38 0.0490 0.0207

Mercury -45210-12-25 17:30 J -14791170.87 -14791170.77 -14791170.67 0.0488 0.0393

Venus -45207-08-30 16:18 J -14790192.03 -14790191.82 -14790191.61 0.0493 0.0008

Mercury -45204-11-27 21:35 J -14789006.73 -14789006.60 -14789006.47 0.0538 0.0223

Mercury -45203-02-25 12:14 J -14788917.06 -14788916.99 -14788916.92 0.0540 0.0466

Venus -45201-07-10 23:45 J -14788050.64 -14788050.51 -14788050.38 0.0532 0.0392

Mercury -45198-07-16 00:28 J -14786950.59 -14786950.48 -14786950.37 0.0491 0.0355

Mercury -45198-10-13 18:14 J -14786860.88 -14786860.74 -14786860.60 0.0489 0.0239

Venus -45195-05-05 15:21 J -14785926.03 -14785925.86 -14785925.67 0.0492 0.0251

Mercury -45192-09-15 23:30 J -14784696.62 -14784696.52 -14784696.42 0.0537 0.0395

Mercury -45192-12-14 14:23 J -14784607.01 -14784606.90 -14784606.78 0.0539 0.0299

Venus -45189-03-15 18:28 J -14783784.92 -14783784.73 -14783784.53 0.0534 0.0090

Mercury -45186-08-01 19:26 J -14782550.85 -14782550.69 -14782550.53 0.0490 0.0093

Venus -45183-09-02 08:09 J -14781423.27 -14781423.16 -14781423.04 0.0496 0.0411

Earth -45180-09-07 06:42 J -14780322.32 -14780322.22 -14780322.11 0.0538 0.0479

Moon -45180-09-07 09:06 J -14780322.24 -14780322.12 -14780322.00 0.0538 0.0453 \*

Mercury -45180-10-02 15:35 J -14780296.99 -14780296.85 -14780296.71 0.0538 0.0112

Venus -45178-11-19 10:04 J -14779519.26 -14779519.08 -14779518.90 0.0537 0.0229

Mercury -45174-05-20 20:38 J -14778240.80 -14778240.64 -14778240.48 0.0490 0.0053

Venus -45171-05-08 05:45 J -14777157.46 -14777157.26 -14777157.06 0.0494 0.0153

Mercury -45168-07-21 17:30 J -14775986.92 -14775986.77 -14775986.63 0.0538 0.0063

Moon -45168-09-12 11:30 J -14775934.26 -14775934.02 -14775933.78 0.0539 0.0086



Earth -45168-09-12 12:14 J -14775934.22 -14775933.99 -14775933.76 0.0539 0.0108 \*  
 Mercury -45162-03-08 21:50 J -14773930.73 -14773930.59 -14773930.44 0.0490 0.0198  
 Mercury -45162-06-06 16:04 J -14773840.92 -14773840.83 -14773840.74 0.0488 0.0401  
 Venus -45159-01-11 02:52 J -14772891.58 -14772891.38 -14772891.17 0.0492 0.0105  
 Mercury -45156-05-09 19:40 J -14771676.81 -14771676.68 -14771676.55 0.0538 0.0227  
 Mercury -45156-08-07 10:18 J -14771587.14 -14771587.07 -14771587.00 0.0540 0.0461  
 Mars -45154-02-14 20:38 J -14771030.91 -14771030.64 -14771030.36 0.0541 0.0048  
 Venus -45154-11-22 08:52 J -14770750.30 -14770750.13 -14770749.96 0.0533 0.0266  
 Mercury -45151-12-25 23:16 J -14769620.64 -14769620.53 -14769620.41 0.0491 0.0341  
 Earth -45150-03-08 14:38 J -14769548.11 -14769547.89 -14769547.67 0.0489 0.0158  
 Moon -45150-03-08 18:42 J -14769547.94 -14769547.72 -14769547.50 0.0489 0.0186 \*  
 Mercury -45150-03-25 17:02 J -14769530.93 -14769530.79 -14769530.65 0.0489 0.0253  
 Venus -45148-09-16 02:23 J -14768625.54 -14768625.40 -14768625.25 0.0491 0.0352  
 Mercury -45144-02-25 21:50 J -14767366.69 -14767366.59 -14767366.49 0.0537 0.0393  
 Mercury -45144-05-26 12:57 J -14767277.08 -14767276.96 -14767276.85 0.0539 0.0302  
 Venus -45142-07-28 03:50 J -14766484.54 -14766484.34 -14766484.14 0.0535 0.0039  
 Mercury -45139-10-14 00:28 J -14765310.49 -14765310.48 -14765310.46 0.0491 0.0489  
 Mercury -45138-01-11 17:45 J -14765220.92 -14765220.76 -14765220.60 0.0489 0.0100  
 Moon -45138-03-12 15:50 J -14765161.03 -14765160.84 -14765160.63 0.0488 0.0259  
 Earth -45138-03-12 19:54 J -14765160.86 -14765160.67 -14765160.47 0.0488 0.0260 \*  
 Venus -45135-01-13 18:14 J -14764122.90 -14764122.74 -14764122.57 0.0496 0.0303  
 Mercury -45132-03-14 14:52 J -14762967.01 -14762966.88 -14762966.74 0.0539 0.0134  
 Venus -45130-04-01 21:21 J -14762218.76 -14762218.61 -14762218.47 0.0537 0.0351  
 Mercury -45127-10-30 19:11 J -14760910.87 -14760910.70 -14760910.54 0.0490 0.0048  
 Venus -45124-09-18 16:33 J -14759857.01 -14759856.81 -14759856.60 0.0493 0.0051  
 Mercury -45121-12-31 16:04 J -14758656.98 -14758656.83 -14758656.69 0.0538 0.0056  
 Venus -45118-07-30 20:09 J -14757715.77 -14757715.66 -14757715.55 0.0532 0.0430  
 Mercury -45115-08-18 20:23 J -14756600.80 -14756600.65 -14756600.50 0.0491 0.0191  
 Mercury -45115-11-16 14:38 J -14756510.98 -14756510.89 -14756510.81 0.0489 0.0410  
 Venus -45112-05-24 15:21 J -14755591.05 -14755590.86 -14755590.67 0.0491 0.0203

Mercury -45109-10-19 17:45 J -14754346.89 -14754346.76 -14754346.64 0.0537 0.0230

Mercury -45108-01-17 08:09 J -14754257.23 -14754257.16 -14754257.08 0.0539 0.0457

Venus -45106-04-04 15:35 J -14753449.85 -14753449.65 -14753449.65 0.0534 0.0132

Mercury -45103-06-06 21:35 J -14752290.71 -14752290.60 -14752290.48 0.0491 0.0336

Mercury -45103-09-04 15:21 J -14752201.00 -14752200.86 -14752200.72 0.0489 0.0258

Mars -45101-08-08 02:38 J -14751497.65 -14751497.39 -14751497.12 0.0487 0.0114

Venus -45100-01-27 13:26 J -14751325.01 -14751324.94 -14751324.86 0.0490 0.0453

Venus -45100-09-21 05:59 J -14751088.33 -14751088.25 -14751088.16 0.0496 0.0451

Mercury -45097-08-07 19:26 J -14750036.78 -14750036.69 -14750036.59 0.0537 0.0401

Mercury -45097-11-05 10:33 J -14749947.17 -14749947.06 -14749946.94 0.0539 0.0296

Venus -45095-12-08 11:30 J -14749184.21 -14749184.02 -14749183.84 0.0536 0.0173

Mercury -45091-03-25 23:16 J -14747980.56 -14747980.53 -14747980.50 0.0491 0.0478

Mercury -45091-06-23 16:33 J -14747890.97 -14747890.81 -14747890.66 0.0489 0.0111

Venus -45088-05-27 03:50 J -14746822.53 -14746822.34 -14746822.14 0.0494 0.0194

Mercury -45085-08-24 13:11 J -14745637.09 -14745636.95 -14745636.82 0.0539 0.0133

Moon -45085-09-11 16:33 J -14745619.04 -14745618.81 -14745618.59 0.0539 0.0014

Earth -45085-09-11 17:16 J -14745619.01 -14745618.78 -14745618.55 0.0539 0.0034 \*

Venus -45083-08-13 05:02 J -14744918.37 -14744918.29 -14744918.20 0.0538 0.0484

Mercury -45079-04-11 17:16 J -14743580.94 -14743580.78 -14743580.62 0.0490 0.0042

Venus -45076-01-30 02:23 J -14742556.60 -14742556.40 -14742556.19 0.0493 0.0060

Mercury -45073-06-12 15:06 J -14741327.01 -14741326.87 -14741326.72 0.0538 0.0039

Venus -45071-12-11 07:26 J -14740415.34 -14740415.19 -14740415.02 0.0533 0.0311

Mercury -45067-01-28 18:42 J -14739270.87 -14739270.72 -14739270.58 0.0491 0.0187

Moon -45067-03-07 17:02 J -14739232.98 -14739232.79 -14739232.58 0.0490 0.0253

Earth -45067-03-07 21:06 J -14739232.83 -14739232.62 -14739232.41 0.0490 0.0222 \*

Mercury -45067-04-28 12:42 J -14739181.05 -14739180.97 -14739180.88 0.0489 0.0413

Mars -45065-05-13 00:28 J -14738435.67 -14738435.48 -14738435.28 0.0488 0.0344

Venus -45065-10-05 02:23 J -14738290.56 -14738290.40 -14738290.24 0.0491 0.0305

Mercury -45061-03-31 16:04 J -14737016.96 -14737016.83 -14737016.70 0.0537 0.0224

Mercury -45061-06-29 06:42 J -14736927.29 -14736927.22 -14736927.15 0.0539 0.0462

Venus -45059-08-15 23:16 J -14736149.73 -14736149.53 -14736149.33 0.0535 0.0006

Mercury -45056-11-16 19:54 J -14734960.79 -14734960.67 -14734960.55 0.0491 0.0333

Mercury -45055-02-14 13:40 J -14734871.07 -14734870.93 -14734870.79 0.0489 0.0263

Earth -45055-03-12 03:35 J -14734845.56 -14734845.35 -14734845.14 0.0489 0.0205

Moon -45055-03-12 06:42 J -14734845.43 -14734845.22 -14734845.02 0.0489 0.0212 \*

Venus -45052-02-01 17:16 J -14733787.92 -14733787.78 -14733787.63 0.0495 0.0347

Mercury -45049-01-18 17:30 J -14732706.86 -14732706.77 -14732706.67 0.0536 0.0402

Mercury -45049-04-17 08:38 J -14732617.26 -14732617.14 -14732617.02 0.0539 0.0291

Venus -45047-04-20 17:02 J -14731883.95 -14731883.79 -14731883.63 0.0537 0.0314

Mercury -45044-09-04 21:06 J -14730650.65 -14730650.62 -14730650.58 0.0492 0.0477

Mercury -45044-12-03 14:23 J -14730561.05 -14730560.90 -14730560.74 0.0490 0.0113

Venus -45041-10-07 13:26 J -14729522.14 -14729521.94 -14729521.73 0.0493 0.0086

Mercury -45037-02-04 10:47 J -14728307.19 -14728307.05 -14728306.91 0.0539 0.0124

Mars -45036-08-03 11:16 J -14727761.18 -14727761.03 -14727760.87 0.0542 0.0447

Venus -45035-08-18 20:23 J -14727380.73 -14727380.65 -14727380.56 0.0532 0.0479

Mercury -45032-09-21 15:50 J -14726251.00 -14726250.84 -14726250.68 0.0490 0.0035

Venus -45029-06-12 12:14 J -14725256.18 -14725255.99 -14725255.79 0.0492 0.0166

Mercury -45026-11-23 13:11 J -14723997.09 -14723996.95 -14723996.81 0.0538 0.0040

Venus -45023-04-23 16:04 J -14723115.01 -14723114.83 -14723114.64 0.0534 0.0182

Mercury -45020-07-10 16:47 J -14721940.95 -14721940.80 -14721940.65 0.0490 0.0185

Mercury -45020-10-08 10:47 J -14721851.14 -14721851.05 -14721850.97 0.0489 0.0415

Venus -45017-02-16 11:59 J -14720990.11 -14720990.00 -14720989.89 0.0490 0.0411

Venus -45017-10-10 05:16 J -14720753.29 -14720753.28 -14720753.26 0.0497 0.0494

Mercury -45014-09-11 15:06 J -14719687.00 -14719686.87 -14719686.74 0.0537 0.0211

Mercury -45014-12-10 05:45 J -14719597.32 -14719597.26 -14719597.20 0.0540 0.0476

Venus -45012-12-27 09:50 J -14718849.28 -14718849.09 -14718848.89 0.0536 0.0128

Mercury -45008-04-28 17:59 J -14717630.86 -14717630.75 -14717630.63 0.0491 0.0330

Mercury -45008-07-27 11:45 J -14717541.15 -14717541.01 -14717540.87 0.0489 0.0265

Venus -45005-06-15 03:06 J -14716487.55 -14716487.37 -14716487.18 0.0494 0.0239

Mercury -45002-06-30 16:04 J -14715376.92 -14715376.83 -14715376.73 0.0536 0.0397

Earth -45002-09-11 12:57 J -14715304.19 -14715303.96 -14715303.73 0.0538 0.0086

Moon -45002-09-11 15:21 J -14715304.09 -14715303.86 -14715303.62 0.0538 0.0112 \*

Mercury -45002-09-28 07:11 J -14715287.32 -14715287.20 -14715287.09 0.0538 0.0296

# 45TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 45th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mars	-45000-05-10 06:57 J	-14714697.46	-14714697.21	-14714696.95	0.0540	0.0193		
Venus	-45000-08-31 23:59 J	-14714583.61	-14714583.50	-14714583.39	0.0538	0.0450		
Mercury	-44996-02-14 19:11 J	-14713320.73	-14713320.70	-14713320.66	0.0492	0.0476		
Mercury	-44996-05-15 12:28 J	-14713231.13	-14713230.98	-14713230.82	0.0490	0.0116		
Venus	-44993-02-19 01:11 J	-14712221.66	-14712221.45	-14712221.24	0.0493	0.0016		
Mercury	-44990-07-17 08:52 J	-14710977.27	-14710977.13	-14710976.99	0.0538	0.0121		
Moon	-44990-09-16 13:11 J	-14710916.05	-14710915.95	-14710915.84	0.0539	0.0481		
Earth	-44990-09-16 17:02 J	-14710915.87	-14710915.79	-14710915.70	0.0539	0.0496	*	
Venus	-44988-12-30 02:38 J	-14710080.54	-14710080.39	-14710080.24	0.0533	0.0344		
Mercury	-44984-03-03 13:40 J	-14708921.09	-14708920.93	-14708920.77	0.0490	0.0035		
Earth	-44984-03-07 01:40 J	-14708917.62	-14708917.43	-14708917.24	0.0490	0.0288		
Moon	-44984-03-07 04:33 J	-14708917.48	-14708917.31	-14708917.13	0.0490	0.0314	*	
Mars	-44982-01-28 06:57 J	-14708225.34	-14708225.21	-14708225.06	0.0486	0.0414		
Venus	-44982-10-24 22:18 J	-14707955.74	-14707955.57	-14707955.40	0.0491	0.0272		
Mercury	-44978-05-05 10:47 J	-14706667.20	-14706667.05	-14706666.91	0.0538	0.0054		

Venus -44976-09-03 22:47 J -14705814.74 -14705814.55 -14705814.35 0.0535 0.0046

Mercury -44973-12-20 14:52 J -14704611.02 -14704610.88 -14704610.73 0.0491 0.0180

Moon -44972-03-11 07:11 J -14704530.43 -14704530.20 -14704529.96 0.0489 0.0151

Earth -44972-03-11 08:52 J -14704530.35 -14704530.13 -14704529.90 0.0489 0.0140 \*

Mercury -44972-03-20 08:52 J -14704521.20 -14704521.13 -14704521.04 0.0489 0.0421

Venus -44969-02-21 13:40 J -14703453.06 -14703452.93 -14703452.80 0.0495 0.0381

Mercury -44966-02-21 12:57 J -14702357.09 -14702356.96 -14702356.83 0.0537 0.0218

Mercury -44966-05-22 03:35 J -14702267.41 -14702267.35 -14702267.28 0.0540 0.0471

Venus -44964-05-09 17:16 J -14701548.95 -14701548.78 -14701548.61 0.0537 0.0262

Mercury -44961-10-08 16:04 J -14700300.95 -14700300.83 -14700300.71 0.0491 0.0328

Mercury -44960-01-06 09:35 J -14700211.23 -14700211.10 -14700210.96 0.0489 0.0266

Venus -44958-10-27 11:45 J -14699187.21 -14699187.01 -14699186.81 0.0494 0.0126

Mercury -44955-12-10 14:52 J -14698046.98 -14698046.88 -14698046.79 0.0537 0.0389

Mercury -44954-03-10 05:59 J -14697957.37 -14697957.25 -14697957.14 0.0539 0.0306

Venus -44952-09-06 18:14 J -14697045.77 -14697045.74 -14697045.70 0.0531 0.0519

Mercury -44949-07-27 17:30 J -14695990.81 -14695990.77 -14695990.73 0.0492 0.0473

Mercury -44949-10-25 10:47 J -14695901.21 -14695901.05 -14695900.90 0.0490 0.0117

Mars -44947-11-01 21:50 J -14695163.86 -14695163.59 -14695163.31 0.0487 0.0026

Venus -44946-07-02 11:02 J -14694921.25 -14694921.04 -14694920.84 0.0492 0.0123

Mercury -44943-12-27 07:11 J -14693647.33 -14693647.20 -14693647.06 0.0538 0.0127

Venus -44940-05-12 10:33 J -14692780.24 -14692780.06 -14692779.88 0.0534 0.0212

Mercury -44937-08-13 11:30 J -14691591.18 -14691591.02 -14691590.86 0.0491 0.0035

Venus -44934-03-07 10:04 J -14690655.21 -14690655.08 -14690654.94 0.0490 0.0370

Mercury -44931-10-15 08:52 J -14689337.27 -14689337.13 -14689336.99 0.0537 0.0052

Venus -44928-01-15 04:18 J -14688514.51 -14688514.32 -14688514.12 0.0536 0.0096

Mercury -44925-06-01 12:42 J -14687281.12 -14687280.97 -14687280.82 0.0491 0.0182

Mercury -44925-08-30 06:42 J -14687191.30 -14687191.22 -14687191.14 0.0489 0.0418

Venus -44922-07-04 22:18 J -14686152.74 -14686152.57 -14686152.39 0.0494 0.0268

Mercury -44919-08-03 10:18 J -14685027.20 -14685027.07 -14685026.94 0.0537 0.0230

Moon -44919-09-10 05:45 J -14684989.46 -14684989.26 -14684989.05 0.0538 0.0235

Earth -44919-09-10 09:21 J -14684989.33 -14684989.11 -14684988.89 0.0538 0.0201 \*  
 Mercury -44919-11-01 01:11 J -14684937.52 -14684937.45 -14684937.38 0.0540 0.0459  
 Venus -44917-09-19 22:47 J -14684248.68 -14684248.55 -14684248.42 0.0538 0.0404  
 Mercury -44913-03-20 14:23 J -14682971.02 -14682970.90 -14682970.79 0.0491 0.0325  
 Mercury -44913-06-18 07:40 J -14682881.31 -14682881.18 -14682881.04 0.0489 0.0270  
 Mars -44911-08-06 09:06 J -14682102.18 -14682102.12 -14682102.04 0.0488 0.0470  
 Venus -44910-03-09 20:38 J -14681886.85 -14681886.64 -14681886.43 0.0493 0.0016  
 Mercury -44907-05-22 12:28 J -14680717.08 -14680716.98 -14680716.89 0.0537 0.0398  
 Mercury -44907-08-20 03:35 J -14680627.46 -14680627.35 -14680627.23 0.0539 0.0298  
 Earth -44907-09-15 17:16 J -14680600.93 -14680600.78 -14680600.63 0.0540 0.0400  
 Moon -44907-09-15 21:06 J -14680600.77 -14680600.62 -14680600.46 0.0540 0.0393 \*  
 Venus -44904-01-18 02:23 J -14679745.53 -14679745.40 -14679745.26 0.0533 0.0391  
 Mercury -44901-01-07 15:21 J -14678660.89 -14678660.86 -14678660.81 0.0492 0.0472  
 Moon -44901-03-06 04:33 J -14678602.45 -14678602.31 -14678602.15 0.0490 0.0380  
 Earth -44901-03-06 05:59 J -14678602.40 -14678602.25 -14678602.08 0.0490 0.0361 \*  
 Mercury -44901-04-06 08:38 J -14678571.30 -14678571.14 -14678570.98 0.0490 0.0117  
 Venus -44899-11-12 19:40 J -14677620.86 -14677620.68 -14677620.49 0.0491 0.0233  
 Mercury -44895-06-08 05:45 J -14676317.39 -14676317.26 -14676317.12 0.0538 0.0133  
 Venus -44893-09-22 21:06 J -14675479.82 -14675479.62 -14675479.43 0.0535 0.0088  
 Mercury -44889-01-24 09:35 J -14674261.26 -14674261.10 -14674260.94 0.0490 0.0034  
 Moon -44889-03-10 11:59 J -14674215.22 -14674215.00 -14674214.78 0.0489 0.0086  
 Earth -44889-03-10 12:28 J -14674215.21 -14674214.98 -14674214.74 0.0489 0.0066 \*  
 Venus -44887-07-18 20:09 J -14673354.71 -14673354.66 -14673354.61 0.0490 0.0473  
 Venus -44886-03-12 12:14 J -14673118.09 -14673117.99 -14673117.88 0.0496 0.0423  
 Mercury -44883-03-27 07:11 J -14672007.34 -14672007.20 -14672007.05 0.0537 0.0049  
 Mars -44882-10-27 19:26 J -14671427.92 -14671427.69 -14671427.46 0.0541 0.0298  
 Venus -44881-05-28 11:45 J -14671214.18 -14671214.01 -14671213.83 0.0537 0.0231  
 Mercury -44878-11-12 10:33 J -14669951.21 -14669951.06 -14669950.91 0.0491 0.0183  
 Mercury -44877-02-10 04:33 J -14669861.39 -14669861.31 -14669861.23 0.0489 0.0418  
 Venus -44875-11-15 09:35 J -14668852.30 -14668852.10 -14668851.90 0.0494 0.0166

Mercury -44871-01-13 08:38 J -14667697.27 -14667697.14 -14667697.01 0.0537 0.0227

Mercury -44871-04-12 23:30 J -14667607.59 -14667607.52 -14667607.45 0.0539 0.0460

Mercury -44866-08-31 11:45 J -14665641.12 -14665641.01 -14665640.89 0.0491 0.0329

Mercury -44866-11-29 05:30 J -14665551.41 -14665551.27 -14665551.14 0.0489 0.0266

Venus -44863-07-21 05:45 J -14664586.46 -14664586.26 -14664586.05 0.0492 0.0095

Mercury -44860-11-01 09:50 J -14663387.18 -14663387.09 -14663387.00 0.0536 0.0409

Mercury -44859-01-30 01:11 J -14663297.57 -14663297.45 -14663297.33 0.0539 0.0287

Venus -44857-05-31 09:06 J -14662445.29 -14662445.12 -14662444.95 0.0534 0.0255

Mercury -44854-06-19 13:40 J -14661330.98 -14661330.93 -14661330.89 0.0492 0.0468

Mercury -44854-09-17 06:42 J -14661241.38 -14661241.22 -14661241.06 0.0490 0.0120

Venus -44851-03-26 05:30 J -14660320.42 -14660320.27 -14660320.12 0.0490 0.0340

Mercury -44848-11-18 03:35 J -14658987.49 -14658987.35 -14658987.22 0.0539 0.0123

Mars -44846-08-04 04:18 J -14658363.51 -14658363.32 -14658363.11 0.0541 0.0371

Venus -44845-02-04 04:18 J -14658179.52 -14658179.32 -14658179.13 0.0536 0.0047

Mercury -44842-07-06 07:40 J -14656931.34 -14656931.18 -14656931.02 0.0490 0.0031

Venus -44839-07-23 19:54 J -14655817.83 -14655817.67 -14655817.50 0.0495 0.0307

Mercury -44836-09-06 05:45 J -14654677.40 -14654677.26 -14654677.12 0.0538 0.0045

Earth -44836-09-09 11:02 J -14654674.23 -14654674.04 -14654673.84 0.0538 0.0293

Moon -44836-09-09 15:06 J -14654674.05 -14654673.87 -14654673.69 0.0538 0.0327 \*

Venus -44834-10-09 21:35 J -14653913.74 -14653913.60 -14653913.45 0.0538 0.0357

Mercury -44830-04-24 08:52 J -14652621.28 -14652621.13 -14652620.98 0.0491 0.0179

Mercury -44830-07-23 02:38 J -14652531.47 -14652531.39 -14652531.30 0.0489 0.0421

Mars -44828-04-22 20:52 J -14651891.84 -14651891.63 -14651891.40 0.0486 0.0286

Venus -44827-03-28 18:57 J -14651551.92 -14651551.71 -14651551.50 0.0493 0.0057

Mercury -44824-06-25 07:11 J -14650367.33 -14650367.20 -14650367.07 0.0537 0.0221

Moon -44824-09-14 11:16 J -14650286.23 -14650286.03 -14650285.82 0.0539 0.0278

Earth -44824-09-14 15:06 J -14650286.07 -14650285.87 -14650285.68 0.0539 0.0291 \*

Mercury -44824-09-22 21:50 J -14650277.65 -14650277.59 -14650277.52 0.0539 0.0465

Venus -44821-02-06 21:21 J -14649410.73 -14649410.61 -14649410.49 0.0532 0.0421

Mercury -44818-02-10 09:50 J -14648311.21 -14648311.09 -14648310.97 0.0492 0.0329

Moon -44818-03-06 08:38 J -14648287.22 -14648287.14 -14648287.05 0.0491 0.0449  
 Earth -44818-03-06 09:21 J -14648287.22 -14648287.11 -14648287.01 0.0491 0.0435 \*  
 Mercury -44818-05-11 03:21 J -14648221.50 -14648221.36 -14648221.22 0.0490 0.0266  
 Venus -44816-12-01 17:30 J -14647285.96 -14647285.77 -14647285.57 0.0491 0.0194  
 Mercury -44812-04-13 08:23 J -14646057.24 -14646057.15 -14646057.05 0.0536 0.0402  
 Mercury -44812-07-11 23:45 J -14645967.63 -14645967.51 -14645967.40 0.0538 0.0291  
 Venus -44810-10-12 15:35 J -14645145.04 -14645144.85 -14645144.65 0.0535 0.0119  
 Mercury -44807-11-29 11:16 J -14644001.07 -14644001.03 -14644000.99 0.0492 0.0472  
 Mercury -44806-02-27 04:18 J -14643911.47 -14643911.32 -14643911.16 0.0490 0.0117  
 Earth -44806-03-10 15:50 J -14643900.07 -14643899.84 -14643899.60 0.0490 0.0009  
 Moon -44806-03-10 18:14 J -14643899.98 -14643899.74 -14643899.50 0.0490 0.0022 \*  
 Venus -44804-08-06 15:21 J -14643019.94 -14643019.86 -14643019.77 0.0489 0.0444  
 Venus -44803-03-31 06:57 J -14642783.29 -14642783.21 -14642783.12 0.0496 0.0450  
 Mercury -44800-04-30 01:11 J -14641657.59 -14641657.45 -14641657.31 0.0538 0.0113  
 Venus -44798-06-17 10:04 J -14640879.26 -14640879.08 -14640878.89 0.0537 0.0187  
 Mercury -44795-12-16 05:45 J -14639601.42 -14639601.26 -14639601.09 0.0490 0.0030  
 Moon -44794-03-14 20:23 J -14639512.73 -14639512.65 -14639512.56 0.0488 0.0449  
 Earth -44794-03-14 23:30 J -14639512.63 -14639512.52 -14639512.40 0.0488 0.0425 \*  
 Mars -44792-01-25 05:30 J -14638830.53 -14638830.27 -14638830.01 0.0487 0.0150  
 Venus -44792-12-04 04:47 J -14638517.49 -14638517.30 -14638517.10 0.0494 0.0195  
 Mercury -44788-02-16 03:21 J -14637347.50 -14637347.36 -14637347.22 0.0538 0.0055  
 Venus -44786-02-20 04:04 J -14636613.41 -14636613.33 -14636613.25 0.0539 0.0495  
 Mercury -44783-10-04 06:57 J -14635291.36 -14635291.21 -14635291.06 0.0491 0.0176  
 Mercury -44782-01-02 00:42 J -14635201.55 -14635201.47 -14635201.39 0.0489 0.0422  
 Venus -44780-08-09 03:21 J -14634251.56 -14634251.36 -14634251.15 0.0492 0.0057  
 Mercury -44777-12-05 05:30 J -14633037.40 -14633037.27 -14633037.14 0.0537 0.0221  
 Mercury -44776-03-04 20:23 J -14632947.72 -14632947.65 -14632947.59 0.0539 0.0469  
 Venus -44774-06-20 08:09 J -14632110.32 -14632110.16 -14632110.00 0.0533 0.0300  
 Mercury -44771-07-23 08:09 J -14630981.27 -14630981.16 -14630981.03 0.0491 0.0323  
 Mercury -44771-10-21 01:40 J -14630891.56 -14630891.43 -14630891.29 0.0489 0.0271



Venus -44768-04-14 03:35 J -14629985.51 -14629985.35 -14629985.18 0.0491 0.0299  
 Mercury -44765-09-23 06:57 J -14628727.30 -14628727.21 -14628727.11 0.0536 0.0396  
 Mercury -44765-12-21 22:18 J -14628637.69 -14628637.57 -14628637.46 0.0538 0.0298  
 Venus -44762-02-23 00:14 J -14627844.69 -14627844.49 -14627844.29 0.0535 0.0013  
 Mercury -44759-05-11 09:21 J -14626671.15 -14626671.11 -14626671.07 0.0492 0.0471  
 Mercury -44759-08-09 02:23 J -14626581.56 -14626581.40 -14626581.24 0.0490 0.0118  
 Venus -44756-08-11 18:14 J -14625482.88 -14625482.74 -14625482.59 0.0495 0.0347  
 Moon -44753-09-08 03:35 J -14624359.48 -14624359.35 -14624359.22 0.0537 0.0443  
 Earth -44753-09-08 07:40 J -14624359.33 -14624359.18 -14624359.03 0.0537 0.0407 \*  
 Mercury -44753-10-09 23:45 J -14624327.64 -14624327.51 -14624327.37 0.0538 0.0123  
 Venus -44751-10-28 16:47 J -14623578.95 -14623578.80 -14623578.64 0.0537 0.0323  
 Mercury -44747-05-28 03:35 J -14622271.51 -14622271.35 -14622271.19 0.0490 0.0029  
 Venus -44744-04-16 14:23 J -14621217.10 -14621216.90 -14621216.69 0.0493 0.0086  
 Mercury -44741-07-29 00:57 J -14620017.60 -14620017.46 -14620017.32 0.0538 0.0062  
 Earth -44741-09-13 09:06 J -14619971.33 -14619971.12 -14619970.89 0.0539 0.0165  
 Moon -44741-09-13 11:59 J -14619971.22 -14619971.00 -14619970.79 0.0539 0.0158 \*  
 Venus -44738-02-25 19:54 J -14619075.76 -14619075.67 -14619075.57 0.0533 0.0463  
 Mercury -44735-03-16 05:16 J -14617961.43 -14617961.28 -14617961.13 0.0491 0.0171  
 Mercury -44735-06-13 23:02 J -14617871.61 -14617871.54 -14617871.46 0.0489 0.0428  
 Venus -44733-12-20 13:26 J -14616951.13 -14616950.94 -14616950.74 0.0491 0.0162  
 Mercury -44729-05-17 03:06 J -14615707.50 -14615707.37 -14615707.24 0.0537 0.0230  
 Mercury -44729-08-14 17:59 J -14615617.82 -14615617.75 -14615617.68 0.0540 0.0461  
 Mars -44727-01-20 16:47 J -14615094.07 -14615093.80 -14615093.53 0.0542 0.0117  
 Venus -44727-10-31 16:04 J -14614810.02 -14614809.83 -14614809.64 0.0535 0.0169  
 Mercury -44723-01-02 06:28 J -14613651.34 -14613651.23 -14613651.10 0.0491 0.0317  
 Moon -44723-03-09 19:26 J -14613584.92 -14613584.69 -14613584.46 0.0490 0.0042  
 Earth -44723-03-09 22:33 J -14613584.79 -14613584.56 -14613584.32 0.0490 0.0068 \*  
 Mercury -44723-04-01 23:59 J -14613561.64 -14613561.50 -14613561.37 0.0489 0.0276  
 Venus -44721-08-25 13:11 J -14612685.06 -14612684.95 -14612684.83 0.0490 0.0404  
 Venus -44720-04-19 05:16 J -14612448.30 -14612448.28 -14612448.24 0.0496 0.0490

Mercury -44717-03-05 05:02 J -14611397.38 -14611397.29 -14611397.19 0.0537 0.0397  
 Mercury -44717-06-02 20:38 J -14611307.76 -14611307.64 -14611307.53 0.0539 0.0300  
 Venus -44715-07-06 10:18 J -14610544.26 -14610544.07 -14610543.88 0.0537 0.0136  
 Mercury -44712-10-21 08:09 J -14609341.21 -14609341.16 -14609341.11 0.0492 0.0461  
 Mercury -44711-01-19 00:57 J -14609251.61 -14609251.46 -14609251.30 0.0490 0.0127  
 Earth -44711-03-14 04:47 J -14609197.45 -14609197.30 -14609197.14 0.0489 0.0359  
 Moon -44711-03-14 08:38 J -14609197.28 -14609197.14 -14609196.99 0.0489 0.0379 \*  
 Venus -44709-12-23 03:50 J -14608182.52 -14608182.34 -14608182.15 0.0494 0.0238  
 Mercury -44705-03-21 22:33 J -14606997.70 -14606997.56 -14606997.42 0.0538 0.0131  
 Venus -44703-03-11 01:26 J -14606278.54 -14606278.44 -14606278.33 0.0538 0.0453  
 Mercury -44700-11-07 01:54 J -14604941.58 -14604941.42 -14604941.26 0.0491 0.0028  
 Venus -44697-08-28 02:23 J -14603916.61 -14603916.40 -14603916.19 0.0492 0.0014  
 Mercury -44693-01-08 23:59 J -14602687.64 -14602687.50 -14602687.35 0.0537 0.0049  
 Mars -44692-10-27 15:50 J -14602029.89 -14602029.84 -14602029.77 0.0540 0.0524  
 Venus -44691-07-09 04:18 J -14601775.48 -14601775.32 -14601775.17 0.0533 0.0334  
 Mercury -44688-08-26 03:06 J -14600631.51 -14600631.37 -14600631.22 0.0491 0.0171  
 Mercury -44688-11-23 20:52 J -14600541.70 -14600541.63 -14600541.55 0.0489 0.0429  
 Venus -44685-05-03 00:14 J -14599650.67 -14599650.49 -14599650.32 0.0490 0.0265  
 Mercury -44682-10-28 00:57 J -14598377.59 -14598377.46 -14598377.33 0.0537 0.0234  
 Mercury -44681-01-25 15:50 J -14598287.91 -14598287.84 -14598287.76 0.0539 0.0456  
 Venus -44679-03-13 23:02 J -14597509.74 -14597509.54 -14597509.34 0.0536 0.0033  
 Mercury -44676-06-14 05:02 J -14596321.41 -14596321.29 -14596321.17 0.0491 0.0310  
 Mercury -44676-09-11 22:18 J -14596231.70 -14596231.57 -14596231.43 0.0489 0.0285  
 Mars -44674-07-17 10:18 J -14595558.32 -14595558.07 -14595557.81 0.0486 0.0150  
 Venus -44673-08-30 14:52 J -14595148.02 -14595147.88 -14595147.75 0.0495 0.0379  
 Mercury -44670-08-16 02:52 J -14594067.47 -14594067.38 -14594067.29 0.0536 0.0405  
 Earth -44670-09-08 05:30 J -14594044.33 -14594044.27 -14594044.21 0.0537 0.0518  
 Mercury -44670-11-13 18:14 J -14593977.85 -14593977.74 -14593977.62 0.0539 0.0293  
 Venus -44668-11-16 17:45 J -14593243.93 -14593243.76 -14593243.59 0.0538 0.0271  
 Mercury -44664-04-02 06:28 J -14592011.28 -14592011.23 -14592011.17 0.0492 0.0454

Mercury -44664-06-30 23:30 J -14591921.68 -14591921.52 -14591921.37 0.0490 0.0134  
 Venus -44661-05-05 13:11 J -14590882.16 -14590881.95 -14590881.75 0.0493 0.0128  
 Mercury -44658-09-01 20:52 J -14589667.77 -14589667.63 -14589667.50 0.0538 0.0132  
 Moon -44658-09-13 13:11 J -14589656.19 -14589655.95 -14589655.71 0.0539 0.0085  
 Earth -44658-09-13 13:54 J -14589656.15 -14589655.92 -14589655.69 0.0539 0.0086 \*  
 Venus -44655-03-16 20:38 J -14588740.68 -14588740.64 -14588740.58 0.0532 0.0513  
 Mercury -44652-04-19 00:42 J -14587611.63 -14587611.47 -14587611.31 0.0490 0.0015  
 Venus -44649-01-09 12:42 J -14586616.17 -14586615.97 -14586615.76 0.0491 0.0118  
 Mercury -44646-06-20 22:47 J -14585357.69 -14585357.55 -14585357.41 0.0537 0.0037  
 Venus -44644-11-19 14:09 J -14584475.09 -14584474.91 -14584474.72 0.0534 0.0211  
 Mercury -44640-02-05 01:40 J -14583301.58 -14583301.43 -14583301.28 0.0491 0.0165  
 Earth -44640-03-09 04:04 J -14583269.55 -14583269.33 -14583269.10 0.0490 0.0133  
 Moon -44640-03-09 07:54 J -14583269.40 -14583269.17 -14583268.94 0.0490 0.0103 \*  
 Mercury -44640-05-05 19:26 J -14583211.76 -14583211.69 -14583211.62 0.0489 0.0435  
 Mars -44638-04-21 01:40 J -14582496.65 -14582496.43 -14582496.21 0.0487 0.0295  
 Venus -44638-09-14 12:42 J -14582350.11 -14582349.97 -14582349.83 0.0490 0.0361  
 Mercury -44634-04-09 00:14 J -14581047.62 -14581047.49 -14581047.36 0.0537 0.0215  
 Mercury -44634-07-07 15:21 J -14580957.93 -14580957.86 -14580957.80 0.0539 0.0474  
 Venus -44632-07-25 07:40 J -14580209.37 -14580209.18 -14580208.99 0.0536 0.0096  
 Mercury -44629-11-24 03:06 J -14578991.49 -14578991.37 -14578991.24 0.0492 0.0307  
 Mercury -44628-02-21 20:23 J -14578901.77 -14578901.65 -14578901.51 0.0490 0.0288  
 Moon -44628-03-13 07:54 J -14578882.34 -14578882.17 -14578881.98 0.0489 0.0313  
 Earth -44628-03-13 11:30 J -14578882.20 -14578882.02 -14578881.83 0.0489 0.0300 \*  
 Venus -44625-01-12 00:57 J -14577847.63 -14577847.46 -14577847.28 0.0494 0.0273  
 Mercury -44622-01-26 00:57 J -14576737.55 -14576737.46 -14576737.37 0.0536 0.0406  
 Mercury -44622-04-25 16:18 J -14576647.93 -14576647.82 -14576647.70 0.0539 0.0292  
 Venus -44620-03-29 23:59 J -14575943.62 -14575943.50 -14575943.36 0.0539 0.0409  
 Mercury -44617-09-12 05:16 J -14574681.35 -14574681.28 -14574681.22 0.0492 0.0444  
 Mercury -44617-12-10 22:04 J -14574591.73 -14574591.58 -14574591.42 0.0490 0.0144  
 Venus -44614-09-16 23:59 J -14573581.71 -14573581.50 -14573581.29 0.0492 0.0024

Mercury -44610-02-11 18:42 J -14572337.86 -14572337.72 -14572337.58 0.0538 0.0126  
 Venus -44608-07-28 05:30 J -14571440.40 -14571440.27 -14571440.13 0.0534 0.0387  
 Mercury -44605-09-28 23:16 J -14570281.69 -14570281.53 -14570281.37 0.0490 0.0005  
 Venus -44602-05-22 23:16 J -14569315.71 -14569315.53 -14569315.34 0.0490 0.0222  
 Mercury -44599-11-30 21:06 J -14568027.76 -14568027.62 -14568027.48 0.0538 0.0037  
 Venus -44596-04-02 00:57 J -14567174.65 -14567174.46 -14567174.26 0.0536 0.0090  
 Mercury -44593-07-18 00:42 J -14565971.62 -14565971.47 -14565971.32 0.0491 0.0149  
 Mercury -44593-10-15 18:28 J -14565881.80 -14565881.73 -14565881.67 0.0489 0.0449  
 Venus -44590-01-26 00:14 J -14565049.56 -14565049.49 -14565049.42 0.0489 0.0459  
 Venus -44590-09-19 15:06 J -14564812.97 -14564812.87 -14564812.76 0.0495 0.0426  
 Mercury -44587-09-18 23:02 J -14563717.67 -14563717.54 -14563717.40 0.0537 0.0204  
 Mercury -44587-12-17 14:09 J -14563627.97 -14563627.91 -14563627.86 0.0539 0.0485  
 Venus -44585-12-05 17:30 J -14562908.95 -14562908.77 -14562908.59 0.0537 0.0222  
 Mercury -44581-05-06 01:40 J -14561661.55 -14561661.43 -14561661.30 0.0492 0.0299  
 Mercury -44581-08-03 18:57 J -14561571.83 -14561571.71 -14561571.58 0.0490 0.0295  
 Venus -44578-05-25 13:26 J -14560547.13 -14560546.94 -14560546.74 0.0493 0.0174  
 Mercury -44575-07-08 00:28 J -14559407.57 -14559407.48 -14559407.37 0.0536 0.0382  
 Moon -44575-09-12 14:52 J -14559341.10 -14559340.88 -14559340.66 0.0538 0.0005  
 Earth -44575-09-12 16:04 J -14559341.06 -14559340.83 -14559340.60 0.0538 0.0005 \*  
 Mercury -44575-10-05 16:04 J -14559317.95 -14559317.83 -14559317.72 0.0538 0.0315  
 Mars -44573-04-15 19:11 J -14558759.98 -14558759.70 -14558759.43 0.0541 0.0073  
 Venus -44573-08-10 09:21 J -14558643.13 -14558643.11 -14558643.08 0.0539 0.0534  
 Mercury -44569-02-23 03:35 J -14557351.42 -14557351.35 -14557351.28 0.0492 0.0439  
 Mercury -44569-05-22 20:23 J -14557261.80 -14557261.65 -14557261.50 0.0490 0.0150  
 Venus -44566-01-28 11:16 J -14556281.23 -14556281.03 -14556280.82 0.0491 0.0078  
 Mercury -44563-07-24 17:02 J -14555007.93 -14555007.79 -14555007.66 0.0538 0.0128  
 Venus -44561-12-08 13:40 J -14554140.10 -14554139.93 -14554139.76 0.0535 0.0257  
 Moon -44557-03-08 11:59 J -14552954.23 -14552954.00 -14552953.77 0.0490 0.0148  
 Earth -44557-03-08 15:35 J -14552954.07 -14552953.85 -14552953.63 0.0490 0.0176 \*  
 Mercury -44557-03-10 22:04 J -14552951.74 -14552951.58 -14552951.42 0.0490 0.0011

Mars -44555-01-06 03:50 J -14552285.46 -14552285.34 -14552285.21 0.0485 0.0427  
 Venus -44555-10-03 11:30 J -14552015.17 -14552015.02 -14552014.86 0.0489 0.0319  
 Mercury -44551-05-12 18:57 J -14550697.85 -14550697.71 -14550697.56 0.0538 0.0043  
 Venus -44549-08-13 08:52 J -14549874.32 -14549874.13 -14549873.93 0.0537 0.0043  
 Mercury -44546-12-28 23:30 J -14548641.67 -14548641.52 -14548641.37 0.0491 0.0137  
 Earth -44545-03-12 22:04 J -14548566.78 -14548566.58 -14548566.38 0.0489 0.0254  
 Moon -44545-03-13 00:28 J -14548566.67 -14548566.48 -14548566.29 0.0489 0.0258 \*  
 Mercury -44545-03-27 17:02 J -14548551.84 -14548551.79 -14548551.73 0.0489 0.0461  
 Venus -44542-01-31 00:57 J -14547512.61 -14547512.46 -14547512.30 0.0494 0.0319  
 Mercury -44539-02-28 21:21 J -14546387.74 -14546387.61 -14546387.48 0.0537 0.0203  
 Mercury -44539-05-29 12:28 J -14546298.04 -14546297.98 -14546297.92 0.0540 0.0488  
 Venus -44537-04-18 03:06 J -14545608.51 -14545608.37 -14545608.21 0.0539 0.0347  
 Mercury -44534-10-17 00:57 J -14544331.59 -14544331.46 -14544331.33 0.0491 0.0281  
 Mercury -44533-01-14 18:14 J -14544241.86 -14544241.74 -14544241.62 0.0489 0.0312  
 Venus -44531-10-06 00:28 J -14543246.69 -14543246.48 -14543246.27 0.0492 0.0071  
 Mercury -44528-12-17 23:16 J -14542077.63 -14542077.53 -14542077.42 0.0536 0.0371  
 Mercury -44527-03-17 14:52 J -14541987.99 -14541987.88 -14541987.77 0.0539 0.0326  
 Venus -44525-08-16 05:59 J -14541105.36 -14541105.25 -14541105.14 0.0533 0.0435  
 Mercury -44522-08-05 02:09 J -14540021.48 -14540021.41 -14540021.33 0.0492 0.0429  
 Mercury -44522-11-02 18:57 J -14539931.86 -14539931.71 -14539931.55 0.0490 0.0160  
 Mars -44520-10-10 14:23 J -14539224.17 -14539223.90 -14539223.63 0.0486 0.0007  
 Venus -44519-06-10 23:59 J -14538980.69 -14538980.50 -14538980.30 0.0491 0.0175  
 Mercury -44515-01-03 16:47 J -14537677.94 -14537677.80 -14537677.67 0.0538 0.0155  
 Venus -44513-04-21 00:14 J -14536839.68 -14536839.49 -14536839.30 0.0535 0.0136  
 Mercury -44510-08-21 20:38 J -14535621.80 -14535621.64 -14535621.48 0.0490 0.0018  
 Venus -44507-02-13 23:45 J -14534714.61 -14534714.51 -14534714.40 0.0489 0.0415  
 Venus -44507-10-08 14:23 J -14534477.96 -14534477.90 -14534477.83 0.0495 0.0467  
 Mercury -44504-10-22 17:30 J -14533367.91 -14533367.77 -14533367.63 0.0537 0.0035  
 Venus -44502-12-25 16:33 J -14532574.00 -14532573.81 -14532573.62 0.0538 0.0174  
 Mercury -44498-06-09 22:18 J -14531311.72 -14531311.57 -14531311.41 0.0491 0.0124

Mercury -44498-09-07 16:04 J -14531221.86 -14531221.83 -14531221.79 0.0489 0.0475  
 Venus -44495-06-13 12:42 J -14530212.15 -14530211.97 -14530211.78 0.0493 0.0217  
 Mercury -44492-08-10 19:26 J -14529057.82 -14529057.69 -14529057.56 0.0537 0.0205  
 Earth -44492-09-11 14:52 J -14529026.11 -14529025.88 -14529025.65 0.0538 0.0114  
 Moon -44492-09-11 17:30 J -14529026.00 -14529025.77 -14529025.53 0.0538 0.0096 \*  
 Mercury -44492-11-08 10:33 J -14528968.12 -14528968.06 -14528968.00 0.0539 0.0485  
 Venus -44490-08-30 10:18 J -14528308.15 -14528308.07 -14528307.98 0.0540 0.0480  
 Mercury -44486-03-28 23:45 J -14527001.64 -14527001.51 -14527001.37 0.0491 0.0268  
 Mercury -44486-06-26 17:02 J -14526911.91 -14526911.79 -14526911.67 0.0489 0.0326  
 Mars -44484-07-15 04:18 J -14526162.42 -14526162.32 -14526162.21 0.0487 0.0449  
 Venus -44483-02-16 11:30 J -14525946.22 -14525946.02 -14525945.81 0.0491 0.0032  
 Mercury -44480-05-29 21:35 J -14524747.70 -14524747.60 -14524747.49 0.0537 0.0370  
 Mercury -44480-08-27 13:11 J -14524658.06 -14524657.95 -14524657.84 0.0539 0.0328  
 Moon -44480-09-16 20:23 J -14524637.69 -14524637.65 -14524637.61 0.0540 0.0530  
 Earth -44480-09-16 23:59 J -14524637.58 -14524637.50 -14524637.40 0.0540 0.0499  
 Venus -44478-12-28 16:47 J -14523804.95 -14523804.80 -14523804.64 0.0534 0.0318  
 Mercury -44474-01-15 01:26 J -14522691.52 -14522691.44 -14522691.35 0.0492 0.0410  
 Earth -44474-03-09 01:26 J -14522638.65 -14522638.44 -14522638.23 0.0491 0.0226  
 Moon -44474-03-09 03:21 J -14522638.56 -14522638.36 -14522638.15 0.0491 0.0199 \*  
 Mercury -44474-04-14 18:28 J -14522601.88 -14522601.73 -14522601.58 0.0490 0.0179  
 Venus -44472-10-22 11:59 J -14521680.17 -14521680.00 -14521679.82 0.0490 0.0272  
 Mercury -44468-06-15 15:35 J -14520347.99 -14520347.85 -14520347.72 0.0538 0.0166  
 Venus -44466-09-02 10:33 J -14519539.25 -14519539.06 -14519538.86 0.0536 0.0017  
 Mercury -44462-01-31 19:26 J -14518291.85 -14518291.69 -14518291.53 0.0490 0.0030  
 Moon -44462-03-13 06:14 J -14518251.46 -14518251.24 -14518251.02 0.0490 0.0197  
 Earth -44462-03-13 06:57 J -14518251.42 -14518251.21 -14518250.99 0.0490 0.0202 \*  
 Venus -44459-02-19 02:38 J -14517177.52 -14517177.39 -14517177.25 0.0494 0.0368  
 Mercury -44456-04-03 17:16 J -14516037.92 -14516037.78 -14516037.63 0.0537 0.0016  
 Mars -44455-10-03 19:54 J -14515489.85 -14515489.67 -14515489.47 0.0542 0.0391  
 Venus -44454-05-08 03:21 J -14515273.52 -14515273.36 -14515273.20 0.0538 0.0295

Mercury -44451-11-19 20:52 J -14513981.78 -14513981.63 -14513981.47 0.0491 0.0116

Mercury -44450-02-17 14:38 J -14513891.91 -14513891.89 -14513891.87 0.0489 0.0484

Venus -44448-10-25 00:42 J -14512911.67 -14512911.47 -14512911.26 0.0492 0.0117

Mercury -44444-01-20 17:59 J -14511727.88 -14511727.75 -14511727.62 0.0537 0.0198

Mercury -44444-04-20 09:06 J -14511638.18 -14511638.12 -14511638.07 0.0539 0.0492

Venus -44442-09-05 05:30 J -14510770.36 -14510770.27 -14510770.19 0.0534 0.0482

Mercury -44439-09-07 22:47 J -14509671.68 -14509671.55 -14509671.41 0.0492 0.0254

Mercury -44439-12-06 16:04 J -14509581.94 -14509581.83 -14509581.71 0.0490 0.0341

Venus -44436-06-30 00:14 J -14508645.69 -14508645.49 -14508645.28 0.0490 0.0127

Mercury -44433-11-08 19:40 J -14507417.78 -14507417.68 -14507417.57 0.0536 0.0371

Mercury -44432-02-06 11:16 J -14507328.14 -14507328.03 -14507327.92 0.0539 0.0327

Venus -44430-05-11 01:11 J -14506504.64 -14506504.45 -14506504.27 0.0536 0.0190

Mercury -44427-06-27 00:28 J -14505361.57 -14505361.48 -14505361.39 0.0492 0.0396

Mercury -44427-09-24 17:16 J -14505271.93 -14505271.78 -14505271.63 0.0490 0.0192

Venus -44424-03-05 00:14 J -14504379.63 -14504379.49 -14504379.35 0.0489 0.0367

Mercury -44421-11-25 13:54 J -14503018.06 -14503017.92 -14503017.79 0.0538 0.0167

Mars -44419-07-11 12:28 J -14502425.21 -14502424.98 -14502424.74 0.0542 0.0290

Venus -44418-01-13 20:09 J -14502238.85 -14502238.66 -14502238.46 0.0538 0.0110

Mercury -44415-07-13 18:42 J -14500961.88 -14500961.72 -14500961.56 0.0490 0.0047

Venus -44412-07-02 13:40 J -14499877.10 -14499876.93 -14499876.75 0.0493 0.0266

Moon -44409-09-10 20:09 J -14498710.87 -14498710.66 -14498710.43 0.0538 0.0153

Earth -44409-09-10 23:59 J -14498710.72 -14498710.50 -14498710.28 0.0538 0.0171 \*

Mercury -44409-09-13 16:04 J -14498707.97 -14498707.83 -14498707.68 0.0538 0.0013

Venus -44407-09-18 12:57 J -14497973.08 -14497972.96 -14497972.83 0.0539 0.0420

Mercury -44403-05-01 19:40 J -14496651.83 -14496651.68 -14496651.52 0.0491 0.0104

Mars -44401-04-01 11:59 J -14495951.23 -14495951.00 -14495950.78 0.0486 0.0267

Venus -44400-03-07 13:11 J -14495611.16 -14495610.95 -14495610.74 0.0492 0.0019

Mercury -44397-07-02 17:59 J -14494397.89 -14494397.75 -14494397.62 0.0537 0.0169

Earth -44397-09-16 05:30 J -14494322.41 -14494322.27 -14494322.12 0.0539 0.0424

Moon -44397-09-16 09:21 J -14494322.22 -14494322.11 -14494321.98 0.0539 0.0454 \*

Mercury -44397-09-30 08:52 J -14494308.16 -14494308.13 -14494308.09 0.0539 0.0520  
 Venus -44394-01-16 16:47 J -14493469.94 -14493469.80 -14493469.65 0.0534 0.0366  
 Mercury -44391-02-17 21:21 J -14492341.74 -14492341.61 -14492341.47 0.0492 0.0246  
 Moon -44391-03-08 10:47 J -14492323.25 -14492323.05 -14492322.84 0.0491 0.0250  
 Earth -44391-03-08 11:16 J -14492323.22 -14492323.03 -14492322.84 0.0491 0.0276 \*  
 Mercury -44391-05-18 14:38 J -14492252.00 -14492251.89 -14492251.77 0.0490 0.0350  
 Venus -44389-11-10 12:57 J -14491345.15 -14491344.96 -14491344.77 0.0490 0.0222  
 Mercury -44385-04-20 18:28 J -14490087.84 -14490087.73 -14490087.62 0.0536 0.0361  
 Mercury -44385-07-19 09:50 J -14489998.19 -14489998.09 -14489997.98 0.0539 0.0335  
 Venus -44383-09-21 09:21 J -14489204.31 -14489204.11 -14489203.91 0.0537 0.0060  
 Mercury -44380-12-06 23:16 J -14488031.62 -14488031.53 -14488031.43 0.0492 0.0384  
 Mercury -44379-03-06 16:18 J -14487941.97 -14487941.82 -14487941.68 0.0490 0.0207  
 Moon -44379-03-12 18:57 J -14487935.93 -14487935.71 -14487935.50 0.0490 0.0156  
 Earth -44379-03-12 19:40 J -14487935.90 -14487935.68 -14487935.45 0.0490 0.0166 \*  
 Venus -44377-07-16 13:40 J -14487078.99 -14487078.93 -14487078.85 0.0488 0.0457  
 Venus -44376-03-10 03:06 J -14486842.48 -14486842.37 -14486842.26 0.0494 0.0414  
 Mercury -44373-05-07 11:59 J -14485688.14 -14485688.00 -14485687.87 0.0538 0.0166  
 Venus -44371-05-27 03:21 J -14484938.54 -14484938.36 -14484938.18 0.0539 0.0243  
 Mercury -44368-12-23 17:30 J -14483631.93 -14483631.77 -14483631.61 0.0490 0.0060  
 Mars -44365-01-04 23:02 J -14482889.79 -14482889.54 -14482889.28 0.0486 0.0168  
 Venus -44365-11-13 00:57 J -14482576.66 -14482576.46 -14482576.26 0.0492 0.0164  
 Mercury -44361-02-24 14:23 J -14481378.05 -14481377.90 -14481377.76 0.0538 0.0011  
 Mercury -44356-10-11 18:57 J -14479321.86 -14479321.71 -14479321.55 0.0491 0.0085  
 Venus -44353-07-19 00:42 J -14478310.67 -14478310.47 -14478310.26 0.0491 0.0080  
 Mercury -44350-12-13 16:33 J -14477067.94 -14477067.81 -14477067.67 0.0537 0.0160  
 Mercury -44349-03-12 07:40 J -14476978.20 -14476978.18 -14476978.16 0.0539 0.0530  
 Venus -44347-05-30 03:21 J -14476169.53 -14476169.36 -14476169.18 0.0535 0.0246  
 Mercury -44344-07-30 20:09 J -14475011.80 -14475011.66 -14475011.52 0.0491 0.0234  
 Mercury -44344-10-28 13:26 J -14474922.05 -14474921.94 -14474921.83 0.0489 0.0361  
 Venus -44341-03-24 01:26 J -14474044.60 -14474044.44 -14474044.28 0.0489 0.0318



Mercury -44338-10-01 18:14 J -14472757.85 -14472757.74 -14472757.63 0.0536 0.0333

Mercury -44338-12-30 09:50 J -14472668.20 -14472668.09 -14472667.99 0.0539 0.0362

Venus -44335-02-01 20:38 J -14471903.84 -14471903.64 -14471903.44 0.0537 0.0058

Mercury -44332-05-18 21:50 J -14470701.68 -14470701.59 -14470701.48 0.0492 0.0375

Mercury -44332-08-16 14:52 J -14470612.02 -14470611.88 -14470611.74 0.0490 0.0216

Venus -44329-07-21 14:38 J -14469542.05 -14469541.89 -14469541.73 0.0493 0.0314

Mercury -44326-07-20 18:42 J -14468447.74 -14468447.72 -14468447.70 0.0535 0.0526

Earth -44326-09-10 21:35 J -14468395.79 -14468395.60 -14468395.39 0.0537 0.0282

Moon -44326-09-11 01:40 J -14468395.63 -14468395.43 -14468395.22 0.0537 0.0258 \*

Mercury -44326-10-18 10:33 J -14468358.19 -14468358.06 -14468357.92 0.0538 0.0176

Venus -44324-10-07 10:47 J -14467638.19 -14467638.05 -14467637.91 0.0539 0.0375

Mercury -44320-06-04 16:18 J -14466301.98 -14466301.82 -14466301.66 0.0491 0.0073

Venus -44317-03-26 13:54 J -14465276.13 -14465275.92 -14465275.71 0.0491 0.0068

Mercury -44314-08-06 12:28 J -14464048.12 -14464047.98 -14464047.83 0.0537 0.0009

Moon -44314-09-15 23:59 J -14464007.68 -14464007.50 -14464007.30 0.0538 0.0334

Earth -44314-09-16 03:21 J -14464007.54 -14464007.36 -14464007.17 0.0538 0.0311 \*

Venus -44311-02-04 16:18 J -14463134.94 -14463134.82 -14463134.69 0.0535 0.0415

Moon -44308-03-07 20:52 J -14462007.80 -14462007.63 -14462007.44 0.0491 0.0297

Earth -44308-03-07 22:18 J -14462007.75 -14462007.57 -14462007.39 0.0491 0.0319 \*

Mercury -44308-03-23 17:45 J -14461991.92 -14461991.76 -14461991.60 0.0491 0.0074

Venus -44306-11-30 12:42 J -14461010.17 -14461009.97 -14461009.78 0.0490 0.0177

Mercury -44302-05-25 14:38 J -14459738.03 -14459737.89 -14459737.75 0.0537 0.0162

Mercury -44302-08-23 05:45 J -14459648.28 -14459648.26 -14459648.23 0.0540 0.0528

Mars -44301-12-28 08:38 J -14459155.41 -14459155.14 -14459154.88 0.0543 0.0183

Venus -44300-10-10 12:28 J -14458869.18 -14458868.98 -14458868.79 0.0537 0.0122

Mercury -44296-01-09 19:26 J -14457681.83 -14457681.69 -14457681.55 0.0491 0.0217

Earth -44296-03-12 05:45 J -14457620.49 -14457620.26 -14457620.03 0.0490 0.0118

Moon -44296-03-12 08:09 J -14457620.39 -14457620.16 -14457619.92 0.0490 0.0103 \*

Mercury -44296-04-09 12:28 J -14457592.07 -14457591.98 -14457591.87 0.0489 0.0379

Venus -44294-08-05 13:26 J -14456744.04 -14456743.94 -14456743.82 0.0488 0.0413

Venus -44293-03-29 03:06 J -14456507.43 -14456507.37 -14456507.28 0.0494 0.0461  
 Mercury -44290-03-13 16:47 J -14455427.91 -14455427.80 -14455427.69 0.0536 0.0327  
 Mercury -44290-06-11 08:23 J -14455338.25 -14455338.15 -14455338.05 0.0539 0.0370  
 Venus -44288-06-15 05:45 J -14454603.44 -14454603.26 -14454603.07 0.0538 0.0184  
 Mercury -44285-10-28 20:38 J -14453371.74 -14453371.64 -14453371.53 0.0492 0.0364  
 Mercury -44284-01-26 13:26 J -14453282.08 -14453281.94 -14453281.79 0.0490 0.0226  
 Venus -44282-12-03 02:09 J -14452241.60 -14452241.41 -14452241.22 0.0493 0.0213  
 Mercury -44279-12-30 18:28 J -14451117.78 -14451117.73 -14451117.68 0.0535 0.0501  
 Mercury -44278-03-30 10:18 J -14451028.20 -14451028.07 -14451027.94 0.0538 0.0201  
 Venus -44276-02-17 21:35 J -14450337.67 -14450337.60 -14450337.52 0.0540 0.0495  
 Mercury -44273-11-14 14:52 J -14448972.04 -14448971.88 -14448971.72 0.0491 0.0080  
 Venus -44270-08-08 01:40 J -14447975.63 -14447975.43 -14447975.22 0.0491 0.0032  
 Mercury -44266-01-16 11:16 J -14446718.18 -14446718.03 -14446717.89 0.0537 0.0016  
 Mars -44265-10-04 12:14 J -14446091.13 -14446090.99 -14446090.85 0.0542 0.0465  
 Venus -44264-06-18 00:42 J -14445834.64 -14445834.47 -14445834.31 0.0535 0.0288  
 Mercury -44261-09-02 16:33 J -14444661.97 -14444661.81 -14444661.66 0.0491 0.0065  
 Venus -44258-04-13 01:54 J -14443709.59 -14443709.42 -14443709.24 0.0489 0.0269  
 Mercury -44255-11-04 12:42 J -14442408.10 -14442407.97 -14442407.83 0.0536 0.0163  
 Mercury -44254-02-02 03:50 J -14442318.36 -14442318.34 -14442318.31 0.0539 0.0527  
 Venus -44252-02-20 18:57 J -14441568.91 -14441568.71 -14441568.52 0.0538 0.0017  
 Mercury -44249-06-21 17:45 J -14440351.90 -14440351.76 -14440351.61 0.0492 0.0209  
 Mercury -44249-09-19 11:02 J -14440262.13 -14440262.04 -14440261.94 0.0489 0.0388  
 Mars -44247-06-26 18:28 J -14439616.99 -14439616.73 -14439616.46 0.0485 0.0110  
 Venus -44246-08-10 13:54 J -14439207.07 -14439206.92 -14439206.78 0.0493 0.0357  
 Mercury -44243-08-23 14:38 J -14438098.00 -14438097.89 -14438097.77 0.0536 0.0331  
 Moon -44243-09-09 22:18 J -14438080.74 -14438080.57 -14438080.38 0.0537 0.0339  
 Earth -44243-09-10 01:54 J -14438080.58 -14438080.42 -14438080.24 0.0537 0.0362 \*  
 Mercury -44243-11-21 06:14 J -14438008.34 -14438008.24 -14438008.13 0.0539 0.0366  
 Venus -44241-10-26 13:11 J -14437303.11 -14437302.95 -14437302.79 0.0539 0.0315  
 Mercury -44237-04-09 19:40 J -14436041.79 -14436041.68 -14436041.57 0.0492 0.0350

Mercury -44237-07-08 12:28 J -14435952.12 -14435951.98 -14435951.84 0.0490 0.0240

Venus -44234-04-15 13:11 J -14434941.16 -14434940.95 -14434940.75 0.0492 0.0112

Mercury -44231-06-11 16:47 J -14433787.85 -14433787.80 -14433787.75 0.0536 0.0498

Mercury -44231-09-09 08:38 J -14433698.27 -14433698.14 -14433698.00 0.0538 0.0206

Earth -44231-09-15 10:18 J -14433692.27 -14433692.07 -14433691.86 0.0538 0.0245

Moon -44231-09-15 11:45 J -14433692.20 -14433692.01 -14433691.81 0.0538 0.0261 \*

Venus -44228-02-23 18:14 J -14432799.84 -14432799.74 -14432799.65 0.0534 0.0467

Earth -44225-03-07 05:59 J -14431692.39 -14431692.25 -14431692.10 0.0492 0.0378

Moon -44225-03-07 08:38 J -14431692.30 -14431692.14 -14431691.97 0.0492 0.0358 \*

Mercury -44225-04-26 13:26 J -14431642.10 -14431641.94 -14431641.78 0.0490 0.0088

Venus -44223-12-19 12:57 J -14430675.16 -14430674.96 -14430674.75 0.0490 0.0130

Mercury -44219-06-28 10:47 J -14429388.20 -14429388.05 -14429387.91 0.0537 0.0039

Venus -44217-10-29 12:14 J -14428534.18 -14428533.99 -14428533.81 0.0536 0.0170

Mercury -44213-02-13 14:52 J -14427332.04 -14427331.88 -14427331.72 0.0491 0.0057

Moon -44213-03-11 10:04 J -14427305.31 -14427305.08 -14427304.85 0.0491 0.0038

Earth -44213-03-11 13:40 J -14427305.16 -14427304.93 -14427304.70 0.0491 0.0060 \*

Mars -44211-03-31 07:54 J -14426555.37 -14426555.17 -14426554.97 0.0486 0.0328

Venus -44211-08-24 13:54 J -14426409.05 -14426408.92 -14426408.77 0.0489 0.0365

Mercury -44207-04-16 11:30 J -14425078.16 -14425078.02 -14425077.88 0.0536 0.0153

Mercury -44207-07-15 02:38 J -14424988.41 -14424988.39 -14424988.38 0.0539 0.0534

Venus -44205-07-04 02:09 J -14424268.60 -14424268.41 -14424268.22 0.0538 0.0145

Mercury -44202-12-02 16:18 J -14423021.96 -14423021.82 -14423021.67 0.0492 0.0201

Mercury -44201-03-01 09:35 J -14422932.19 -14422932.10 -14422932.00 0.0490 0.0396

Moon -44201-03-16 00:28 J -14422917.52 -14422917.48 -14422917.42 0.0490 0.0476

Venus -44199-12-22 02:09 J -14421906.59 -14421906.41 -14421906.23 0.0492 0.0260

Mercury -44195-02-02 12:57 J -14420768.07 -14420767.96 -14420767.85 0.0536 0.0331

Mercury -44195-05-03 04:18 J -14420678.42 -14420678.32 -14420678.21 0.0538 0.0365

Venus -44193-03-08 18:28 J -14420002.83 -14420002.73 -14420002.62 0.0540 0.0453

Mercury -44190-09-20 17:59 J -14418711.86 -14418711.75 -14418711.64 0.0492 0.0345

Mercury -44190-12-19 10:47 J -14418622.19 -14418622.05 -14418621.91 0.0490 0.0246

Venus -44187-08-26 23:59 J -14417640.71 -14417640.50 -14417640.29 0.0491 0.0011  
 Mercury -44184-11-21 14:23 J -14416457.94 -14416457.90 -14416457.85 0.0535 0.0504  
 Mercury -44183-02-19 06:28 J -14416368.36 -14416368.23 -14416368.09 0.0538 0.0199  
 Venus -44181-07-07 02:09 J -14415499.56 -14415499.41 -14415499.26 0.0535 0.0341  
 Mercury -44178-07-09 19:40 J -14414401.70 -14414401.68 -14414401.65 0.0493 0.0485  
 Mercury -44178-10-07 12:14 J -14414312.15 -14414311.99 -14414311.83 0.0490 0.0100  
 Venus -44175-05-02 00:14 J -14413374.67 -14413374.49 -14413374.30 0.0489 0.0229  
 Mercury -44172-12-08 08:52 J -14412058.27 -14412058.13 -14412057.99 0.0538 0.0035  
 Venus -44169-03-11 20:38 J -14411233.84 -14411233.64 -14411233.45 0.0537 0.0044  
 Mercury -44166-07-26 13:11 J -14410002.11 -14410001.95 -14410001.79 0.0491 0.0051  
 Venus -44163-01-05 00:57 J -14409108.51 -14409108.46 -14409108.39 0.0488 0.0463  
 Venus -44163-08-29 13:40 J -14408872.04 -14408871.93 -14408871.80 0.0494 0.0402  
 Earth -44160-09-09 06:28 J -14407765.35 -14407765.23 -14407765.09 0.0536 0.0441  
 Moon -44160-09-09 08:52 J -14407765.27 -14407765.13 -14407764.99 0.0536 0.0411 \*  
 Mercury -44160-09-26 10:47 J -14407748.19 -14407748.05 -14407747.91 0.0537 0.0136  
 Venus -44158-11-15 12:57 J -14406968.13 -14406967.96 -14406967.79 0.0539 0.0265  
 Mercury -44154-05-14 14:52 J -14405692.03 -14405691.88 -14405691.74 0.0492 0.0196  
 Mercury -44154-08-12 07:54 J -14405602.26 -14405602.17 -14405602.08 0.0490 0.0401  
 Venus -44151-05-04 13:11 J -14404606.15 -14404605.95 -14404605.75 0.0492 0.0159  
 Mercury -44148-07-15 11:30 J -14403438.14 -14403438.02 -14403437.91 0.0535 0.0323  
 Moon -44148-09-14 07:26 J -14403377.42 -14403377.19 -14403376.96 0.0537 0.0142  
 Earth -44148-09-14 07:26 J -14403377.41 -14403377.19 -14403376.96 0.0537 0.0131 \*  
 Mercury -44148-10-13 03:06 J -14403348.47 -14403348.37 -14403348.27 0.0538 0.0371  
 Mars -44146-03-24 01:54 J -14402821.69 -14402821.42 -14402821.14 0.0542 0.0019  
 Venus -44145-03-14 13:40 J -14402464.98 -14402464.93 -14402464.86 0.0534 0.0502  
 Mercury -44142-03-02 16:04 J -14401381.94 -14401381.83 -14401381.71 0.0493 0.0341  
 Moon -44142-03-07 09:35 J -14401377.21 -14401377.10 -14401376.99 0.0493 0.0428  
 Earth -44142-03-07 13:11 J -14401377.05 -14401376.95 -14401376.85 0.0493 0.0438 \*  
 Mercury -44142-05-31 09:06 J -14401292.26 -14401292.12 -14401291.98 0.0491 0.0252  
 Venus -44139-01-07 12:42 J -14400340.18 -14400339.97 -14400339.77 0.0490 0.0085

Mercury -44136-05-03 12:42 J -14399128.02 -14399127.97 -14399127.92 0.0535 0.0503

Mercury -44136-08-01 04:33 J -14399038.44 -14399038.31 -14399038.17 0.0537 0.0198

Venus -44134-11-18 08:09 J -14398199.34 -14398199.16 -14398198.98 0.0536 0.0207

Mercury -44131-12-19 17:45 J -14397071.78 -14397071.76 -14397071.73 0.0493 0.0483

Earth -44130-03-11 20:09 J -14396989.89 -14396989.66 -14396989.42 0.0491 0.0005

Moon -44130-03-11 23:45 J -14396989.74 -14396989.51 -14396989.27 0.0491 0.0027 \*

Mercury -44130-03-19 10:18 J -14396982.23 -14396982.07 -14396981.92 0.0491 0.0103

Mars -44129-12-16 12:14 J -14396344.15 -14396343.99 -14396343.83 0.0485 0.0389

Venus -44128-09-12 11:16 J -14396074.18 -14396074.03 -14396073.87 0.0488 0.0328

Mercury -44124-05-20 06:28 J -14394728.37 -14394728.23 -14394728.08 0.0537 0.0029

Venus -44122-07-24 02:52 J -14393933.58 -14393933.38 -14393933.18 0.0538 0.0093

Mercury -44118-01-05 11:45 J -14392672.17 -14392672.01 -14392671.85 0.0491 0.0042

Moon -44118-03-16 00:28 J -14392602.60 -14392602.48 -14392602.35 0.0489 0.0415

Earth -44118-03-16 03:50 J -14392602.45 -14392602.34 -14392602.24 0.0489 0.0436 \*

Venus -44115-01-09 23:30 J -14391571.68 -14391571.52 -14391571.35 0.0493 0.0296

Mercury -44112-03-08 08:38 J -14390418.28 -14390418.14 -14390418.00 0.0537 0.0139

Venus -44110-03-28 19:54 J -14389667.80 -14389667.67 -14389667.53 0.0540 0.0398

Mercury -44107-10-24 12:57 J -14388362.10 -14388361.96 -14388361.81 0.0492 0.0192

Mercury -44106-01-22 06:14 J -14388272.33 -14388272.24 -14388272.15 0.0490 0.0404

Venus -44104-09-14 23:02 J -14387305.75 -14387305.54 -14387305.33 0.0491 0.0053

Mercury -44101-12-25 10:18 J -14386108.18 -14386108.07 -14386107.95 0.0536 0.0311

Mercury -44100-03-25 01:54 J -14386018.51 -14386018.42 -14386018.32 0.0538 0.0386

Venus -44098-07-27 00:42 J -14385164.60 -14385164.47 -14385164.33 0.0535 0.0385

Mercury -44095-08-12 14:23 J -14384052.01 -14384051.90 -14384051.78 0.0492 0.0337

Mercury -44095-11-10 07:11 J -14383962.33 -14383962.20 -14383962.06 0.0490 0.0255

Mars -44093-09-19 18:57 J -14383282.98 -14383282.71 -14383282.43 0.0486 0.0034

Venus -44092-05-20 23:30 J -14383039.71 -14383039.52 -14383039.32 0.0489 0.0185

Mercury -44089-10-13 11:16 J -14381798.08 -14381798.03 -14381797.98 0.0534 0.0496

Mercury -44088-01-11 03:06 J -14381708.50 -14381708.37 -14381708.23 0.0537 0.0204

Venus -44086-03-31 15:35 J -14380899.05 -14380898.85 -14380898.65 0.0537 0.0076

Mercury -44083-05-31 15:50 J -14379741.86 -14379741.84 -14379741.80 0.0493 0.0482

Mercury -44083-08-29 08:23 J -14379652.31 -14379652.15 -14379651.99 0.0491 0.0105

Venus -44080-01-24 00:14 J -14378773.60 -14378773.49 -14378773.39 0.0488 0.0420

Venus -44080-09-17 12:42 J -14378537.06 -14378536.97 -14378536.88 0.0493 0.0443

Moon -44077-09-08 00:28 J -14377450.50 -14377450.48 -14377450.44 0.0535 0.0529

Mercury -44077-10-30 04:47 J -14377398.45 -14377398.30 -14377398.16 0.0537 0.0029

Venus -44075-12-04 07:54 J -14376633.35 -14376633.17 -14376632.99 0.0539 0.0232

Mercury -44071-06-17 09:35 J -14375342.25 -14375342.10 -14375341.94 0.0491 0.0044

Venus -44068-05-23 09:35 J -14374271.30 -14374271.10 -14374270.91 0.0492 0.0191

Mercury -44065-08-18 06:14 J -14373088.38 -14373088.24 -14373088.10 0.0536 0.0148

Moon -44065-09-13 04:33 J -14373062.53 -14373062.31 -14373062.08 0.0537 0.0034

Earth -44065-09-13 05:45 J -14373062.49 -14373062.26 -14373062.03 0.0537 0.0024 \*

Venus -44063-08-09 00:57 J -14372367.48 -14372367.46 -14372367.44 0.0541 0.0537

Mercury -44059-04-05 11:16 J -14371032.17 -14371032.03 -14371031.88 0.0492 0.0186

Mercury -44059-07-04 04:18 J -14370942.40 -14370942.32 -14370942.23 0.0490 0.0411

Mars -44057-06-23 23:45 J -14370221.58 -14370221.51 -14370221.42 0.0486 0.0461

Venus -44056-01-26 09:06 J -14370005.33 -14370005.12 -14370004.91 0.0490 0.0051

Mercury -44053-06-06 08:09 J -14368778.27 -14368778.16 -14368778.04 0.0536 0.0317

Mercury -44053-09-03 23:45 J -14368688.60 -14368688.51 -14368688.41 0.0539 0.0380

Venus -44051-12-07 08:38 J -14367864.31 -14367864.14 -14367863.96 0.0536 0.0256

Mercury -44047-01-22 12:42 J -14366722.09 -14366721.97 -14366721.86 0.0492 0.0334

Moon -44047-03-10 22:18 J -14366674.81 -14366674.57 -14366674.34 0.0491 0.0099

Earth -44047-03-11 01:26 J -14366674.67 -14366674.44 -14366674.21 0.0491 0.0069 \*

Mercury -44047-04-22 05:16 J -14366632.41 -14366632.28 -14366632.14 0.0490 0.0257

Venus -44045-10-01 09:21 J -14365739.27 -14365739.11 -14365738.94 0.0489 0.0288

Mercury -44041-03-25 09:50 J -14364468.14 -14364468.09 -14364468.03 0.0535 0.0489

Mercury -44041-06-23 01:54 J -14364378.55 -14364378.42 -14364378.29 0.0538 0.0214

Venus -44039-08-12 01:40 J -14363598.62 -14363598.43 -14363598.23 0.0538 0.0047

Mercury -44036-11-10 14:09 J -14362411.94 -14362411.91 -14362411.87 0.0493 0.0478

Mercury -44035-02-08 06:28 J -14362322.38 -14362322.23 -14362322.07 0.0491 0.0109

Earth -44035-03-15 08:09 J -14362287.32 -14362287.16 -14362287.01 0.0490 0.0364  
 Moon -44035-03-15 10:04 J -14362287.23 -14362287.08 -14362286.92 0.0490 0.0351 \*  
 Venus -44032-01-28 22:33 J -14361236.71 -14361236.56 -14361236.41 0.0493 0.0339  
 Mercury -44029-04-11 03:06 J -14360068.51 -14360068.37 -14360068.22 0.0536 0.0034  
 Mars -44028-09-09 02:23 J -14359552.45 -14359552.40 -14359552.32 0.0543 0.0529  
 Venus -44027-04-16 14:52 J -14359333.03 -14359332.88 -14359332.74 0.0539 0.0365  
 Mercury -44024-11-27 07:40 J -14358012.34 -14358012.18 -14358012.02 0.0492 0.0043  
 Venus -44021-10-03 21:21 J -14356970.81 -14356970.61 -14356970.40 0.0491 0.0093  
 Mercury -44017-01-29 04:33 J -14355758.45 -14355758.31 -14355758.17 0.0536 0.0147  
 Venus -44015-08-14 19:26 J -14354829.81 -14354829.69 -14354829.56 0.0535 0.0415  
 Mercury -44012-09-15 09:06 J -14353702.27 -14353702.12 -14353701.98 0.0492 0.0189  
 Mercury -44012-12-14 02:09 J -14353612.50 -14353612.41 -14353612.32 0.0490 0.0408  
 Venus -44009-06-08 19:11 J -14352704.89 -14352704.70 -14352704.50 0.0489 0.0154  
 Mercury -44006-11-17 05:45 J -14351448.38 -14351448.26 -14351448.15 0.0536 0.0327  
 Mercury -44005-02-14 21:21 J -14351358.71 -14351358.61 -14351358.51 0.0538 0.0369  
 Venus -44003-04-19 14:38 J -14350564.09 -14350563.89 -14350563.70 0.0537 0.0120

# 44TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 44th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
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Mercury -44000-07-04 10:47 J -14349392.16 -14349392.05 -14349391.93 0.0493 0.0330  
 Mercury -44000-10-02 03:35 J -14349302.49 -14349302.35 -14349302.22 0.0490 0.0261

Venus -43997-02-12 19:54 J -14348438.79 -14348438.67 -14348438.54 0.0488 0.0388  
 Venus -43997-10-06 08:38 J -14348202.20 -14348202.14 -14348202.09 0.0494 0.0473  
 Mercury -43994-09-05 07:26 J -14347138.24 -14347138.19 -14347138.14 0.0535 0.0498  
 Mercury -43994-12-03 23:30 J -14347048.65 -14347048.52 -14347048.38 0.0538 0.0206  
 Mars -43992-06-17 03:06 J -14346487.63 -14346487.37 -14346487.10 0.0543 0.0170  
 Venus -43992-12-23 08:09 J -14346298.34 -14346298.16 -14346297.97 0.0539 0.0182  
 Mercury -43988-04-22 12:14 J -14345082.02 -14345081.99 -14345081.95 0.0493 0.0476  
 Mercury -43988-07-21 04:33 J -14344992.47 -14344992.31 -14344992.15 0.0491 0.0109  
 Venus -43985-06-11 07:11 J -14343936.38 -14343936.20 -14343936.01 0.0492 0.0229  
 Earth -43982-09-13 07:54 J -14342747.40 -14342747.17 -14342746.94 0.0537 0.0069  
 Moon -43982-09-13 10:18 J -14342747.31 -14342747.07 -14342746.83 0.0537 0.0062 \*  
 Mercury -43982-09-22 01:40 J -14342738.57 -14342738.43 -14342738.29 0.0537 0.0038  
 Venus -43980-08-27 23:59 J -14342032.58 -14342032.50 -14342032.41 0.0540 0.0490  
 Mercury -43976-05-09 05:45 J -14340682.41 -14340682.26 -14340682.10 0.0491 0.0042  
 Mars -43974-03-12 04:33 J -14340010.53 -14340010.31 -14340010.08 0.0485 0.0263  
 Venus -43973-02-15 07:26 J -14339670.40 -14339670.19 -14339669.98 0.0490 0.0010  
 Mercury -43970-07-11 02:52 J -14338428.52 -14338428.38 -14338428.24 0.0536 0.0142  
 Moon -43970-09-18 07:11 J -14338359.30 -14338359.20 -14338359.10 0.0538 0.0483  
 Earth -43970-09-18 10:47 J -14338359.11 -14338359.05 -14338358.99 0.0538 0.0517 \*  
 Venus -43968-12-26 03:21 J -14337529.53 -14337529.36 -14337529.20 0.0536 0.0286  
 Mercury -43964-02-25 06:57 J -14336372.36 -14336372.21 -14336372.06 0.0492 0.0189  
 Earth -43964-03-10 04:04 J -14336359.55 -14336359.33 -14336359.10 0.0492 0.0146  
 Moon -43964-03-10 05:59 J -14336359.45 -14336359.25 -14336359.03 0.0492 0.0176 \*  
 Mercury -43964-05-25 23:59 J -14336282.58 -14336282.50 -14336282.41 0.0490 0.0408  
 Venus -43962-10-21 07:26 J -14335404.37 -14335404.19 -14335404.01 0.0489 0.0249  
 Mercury -43958-04-29 04:04 J -14334118.44 -14334118.33 -14334118.21 0.0535 0.0323  
 Mercury -43958-07-27 19:40 J -14334028.78 -14334028.68 -14334028.58 0.0538 0.0372  
 Venus -43956-08-30 20:09 J -14333263.86 -14333263.66 -14333263.47 0.0538 0.0021  
 Mercury -43953-12-14 08:23 J -14332062.26 -14332062.15 -14332062.03 0.0493 0.0334  
 Mercury -43952-03-14 01:11 J -14331972.59 -14331972.45 -14331972.31 0.0491 0.0257



Moon -43952-03-14 10:47 J -14331972.25 -14331972.05 -14331971.85 0.0491 0.0281  
 Earth -43952-03-14 11:16 J -14331972.22 -14331972.03 -14331971.84 0.0491 0.0293 \*  
 Venus -43950-06-26 06:28 J -14331138.23 -14331138.23 -14331138.23 0.0487 0.0487  
 Venus -43949-02-17 17:45 J -14330901.90 -14330901.76 -14330901.62 0.0493 0.0366  
 Mercury -43946-02-15 05:02 J -14329808.33 -14329808.29 -14329808.25 0.0535 0.0508  
 Mercury -43946-05-15 21:06 J -14329718.75 -14329718.62 -14329718.48 0.0538 0.0195  
 Venus -43944-05-05 12:57 J -14328998.11 -14328997.96 -14328997.79 0.0540 0.0323  
 Mercury -43941-10-02 10:33 J -14327752.10 -14327752.06 -14327752.02 0.0493 0.0473  
 Mercury -43941-12-31 02:38 J -14327662.54 -14327662.39 -14327662.23 0.0491 0.0113  
 Mars -43939-12-14 05:16 J -14326949.54 -14326949.28 -14326949.02 0.0485 0.0155  
 Venus -43938-10-23 16:47 J -14326636.00 -14326635.80 -14326635.60 0.0491 0.0122  
 Mercury -43934-03-03 23:16 J -14325408.67 -14325408.53 -14325408.39 0.0537 0.0028  
 Venus -43932-09-02 19:26 J -14324494.78 -14324494.69 -14324494.59 0.0535 0.0461  
 Mercury -43929-10-19 03:50 J -14323352.50 -14323352.34 -14323352.18 0.0491 0.0038  
 Venus -43926-06-28 16:33 J -14322370.02 -14322369.81 -14322369.61 0.0490 0.0117  
 Mercury -43923-12-21 01:11 J -14321098.59 -14321098.45 -14321098.31 0.0536 0.0140  
 Venus -43920-05-08 13:26 J -14320229.13 -14320228.94 -14320228.75 0.0537 0.0165  
 Mercury -43917-08-07 05:16 J -14319042.42 -14319042.28 -14319042.13 0.0492 0.0185  
 Mercury -43917-11-04 22:18 J -14318952.65 -14318952.57 -14318952.48 0.0490 0.0411  
 Venus -43914-03-03 17:45 J -14318103.90 -14318103.76 -14318103.61 0.0488 0.0349  
 Mercury -43911-10-09 02:23 J -14316788.51 -14316788.40 -14316788.28 0.0535 0.0318  
 Mercury -43910-01-06 18:14 J -14316698.84 -14316698.74 -14316698.64 0.0538 0.0377  
 Venus -43908-01-11 03:35 J -14315963.54 -14315963.35 -14315963.16 0.0538 0.0149  
 Mercury -43905-05-26 06:28 J -14314732.35 -14314732.23 -14314732.12 0.0493 0.0335  
 Mercury -43905-08-23 23:02 J -14314642.67 -14314642.54 -14314642.40 0.0491 0.0257  
 Venus -43902-07-01 05:02 J -14313601.46 -14313601.29 -14313601.11 0.0492 0.0267  
 Mercury -43899-07-28 03:35 J -14312478.40 -14312478.35 -14312478.30 0.0534 0.0500  
 Moon -43899-09-11 23:59 J -14312432.72 -14312432.50 -14312432.29 0.0536 0.0190  
 Earth -43899-09-12 03:06 J -14312432.58 -14312432.37 -14312432.15 0.0536 0.0189 \*  
 Mercury -43899-10-25 19:40 J -14312388.81 -14312388.68 -14312388.55 0.0537 0.0201

Venus -43897-09-15 18:28 J -14311697.83 -14311697.73 -14311697.62 0.0540 0.0459

Mercury -43893-03-14 07:54 J -14310422.20 -14310422.17 -14310422.12 0.0494 0.0478

Mercury -43893-06-12 00:14 J -14310332.64 -14310332.49 -14310332.33 0.0491 0.0109

Venus -43890-03-06 02:38 J -14309335.60 -14309335.39 -14309335.18 0.0490 0.0018

Mercury -43887-08-13 20:52 J -14308078.77 -14308078.63 -14308078.49 0.0537 0.0019

Earth -43887-09-17 04:47 J -14308044.46 -14308044.30 -14308044.14 0.0538 0.0389

Moon -43887-09-17 08:38 J -14308044.31 -14308044.14 -14308043.97 0.0538 0.0358 \*

Venus -43884-01-14 01:26 J -14307194.59 -14307194.44 -14307194.28 0.0536 0.0327

Moon -43881-03-09 09:35 J -14306044.30 -14306044.10 -14306043.88 0.0492 0.0239

Earth -43881-03-09 10:04 J -14306044.29 -14306044.08 -14306043.86 0.0492 0.0211 \*

Mercury -43881-03-31 02:09 J -14306022.57 -14306022.41 -14306022.26 0.0492 0.0036

Venus -43879-11-09 02:52 J -14305069.56 -14305069.38 -14305069.19 0.0489 0.0219

Mercury -43875-06-01 22:47 J -14303768.69 -14303768.55 -14303768.41 0.0536 0.0151

Mars -43874-12-03 21:35 J -14303218.82 -14303218.60 -14303218.39 0.0543 0.0352

Venus -43873-09-18 20:09 J -14302928.86 -14302928.66 -14302928.46 0.0538 0.0032

Mercury -43869-01-18 03:21 J -14301712.50 -14301712.36 -14301712.21 0.0492 0.0182

Moon -43869-03-13 15:06 J -14301657.07 -14301656.87 -14301656.67 0.0491 0.0222

Earth -43869-03-13 16:33 J -14301657.02 -14301656.81 -14301656.60 0.0491 0.0224 \*

Mercury -43869-04-16 20:23 J -14301622.74 -14301622.65 -14301622.57 0.0490 0.0413

Venus -43867-07-15 03:35 J -14300803.43 -14300803.35 -14300803.27 0.0488 0.0451

Venus -43866-03-08 15:06 J -14300566.98 -14300566.87 -14300566.74 0.0493 0.0403

Mercury -43863-03-21 00:42 J -14299458.59 -14299458.47 -14299458.36 0.0536 0.0319

Mercury -43863-06-18 16:33 J -14299368.91 -14299368.81 -14299368.71 0.0538 0.0379

Venus -43861-05-24 12:42 J -14298663.14 -14298662.97 -14298662.80 0.0539 0.0273

Mercury -43858-11-06 04:47 J -14297402.41 -14297402.30 -14297402.18 0.0493 0.0328

Mercury -43857-02-03 21:35 J -14297312.74 -14297312.60 -14297312.47 0.0490 0.0263

Venus -43855-11-11 14:52 J -14296301.07 -14296300.88 -14296300.68 0.0491 0.0162

Mercury -43851-01-07 01:54 J -14295148.47 -14295148.42 -14295148.36 0.0534 0.0495

Mercury -43851-04-06 18:14 J -14295058.87 -14295058.74 -14295058.61 0.0537 0.0207

Venus -43849-09-21 15:06 J -14294159.94 -14294159.87 -14294159.79 0.0534 0.0492

Mercury -43846-08-25 06:14 J -14293092.28 -14293092.24 -14293092.21 0.0494 0.0477  
 Mercury -43846-11-22 22:18 J -14293002.72 -14293002.57 -14293002.41 0.0491 0.0109  
 Venus -43843-07-17 14:23 J -14292035.10 -14292034.90 -14292034.69 0.0490 0.0079  
 Mercury -43839-01-23 19:40 J -14290748.83 -14290748.68 -14290748.54 0.0536 0.0030  
 Mars -43838-09-10 09:06 J -14290154.34 -14290154.12 -14290153.89 0.0542 0.0315  
 Venus -43837-05-27 08:23 J -14289894.33 -14289894.15 -14289893.97 0.0537 0.0195  
 Mercury -43834-09-10 23:45 J -14288692.67 -14288692.51 -14288692.35 0.0492 0.0038  
 Venus -43831-03-22 13:26 J -14287769.09 -14287768.94 -14287768.78 0.0488 0.0319  
 Mercury -43828-11-11 20:23 J -14286438.78 -14286438.65 -14286438.51 0.0536 0.0158  
 Mercury -43827-02-09 11:45 J -14286349.02 -14286349.01 -14286348.99 0.0539 0.0533  
 Venus -43825-01-31 01:26 J -14285628.63 -14285628.44 -14285628.25 0.0539 0.0107  
 Mercury -43822-06-30 01:40 J -14284382.58 -14284382.43 -14284382.28 0.0492 0.0178  
 Mercury -43822-09-27 18:28 J -14284292.81 -14284292.73 -14284292.64 0.0490 0.0418  
 Mars -43820-06-04 15:06 J -14283677.12 -14283676.87 -14283676.61 0.0485 0.0139  
 Venus -43819-07-20 00:42 J -14283266.63 -14283266.47 -14283266.30 0.0492 0.0297  
 Mercury -43816-08-30 22:18 J -14282128.69 -14282128.57 -14282128.46 0.0536 0.0329  
 Earth -43816-09-11 00:14 J -14282117.68 -14282117.49 -14282117.29 0.0536 0.0304  
 Moon -43816-09-11 04:04 J -14282117.51 -14282117.33 -14282117.14 0.0536 0.0311 \*  
 Mercury -43816-11-28 14:09 J -14282039.01 -14282038.91 -14282038.81 0.0538 0.0369  
 Venus -43814-10-05 18:42 J -14281362.85 -14281362.72 -14281362.59 0.0540 0.0409  
 Mercury -43810-04-18 03:06 J -14280072.48 -14280072.37 -14280072.25 0.0493 0.0323  
 Mercury -43810-07-16 19:40 J -14279982.81 -14279982.68 -14279982.54 0.0490 0.0266  
 Venus -43807-03-25 00:14 J -14279000.69 -14279000.49 -14279000.28 0.0490 0.0056  
 Mercury -43804-06-18 23:59 J -14277818.55 -14277818.50 -14277818.44 0.0535 0.0498  
 Moon -43804-09-16 04:47 J -14277729.51 -14277729.30 -14277729.09 0.0538 0.0266  
 Earth -43804-09-16 07:54 J -14277729.36 -14277729.17 -14277728.97 0.0538 0.0302 \*  
 Mercury -43804-09-16 16:18 J -14277728.95 -14277728.82 -14277728.68 0.0538 0.0207  
 Venus -43801-02-03 01:26 J -14276859.58 -14276859.44 -14276859.30 0.0536 0.0374  
 Mercury -43798-02-04 04:47 J -14275762.34 -14275762.30 -14275762.25 0.0493 0.0467  
 Moon -43798-03-09 13:26 J -14275729.11 -14275728.94 -14275728.76 0.0492 0.0310

Earth -43798-03-09 15:06 J -14275729.06 -14275728.87 -14275728.68 0.0492 0.0283 \*  
 Mercury -43798-05-04 20:52 J -14275672.78 -14275672.63 -14275672.47 0.0491 0.0118  
 Venus -43796-11-28 00:57 J -14274734.65 -14274734.46 -14274734.26 0.0489 0.0179  
 Mercury -43792-07-05 18:14 J -14273418.88 -14273418.74 -14273418.60 0.0536 0.0036  
 Venus -43790-10-08 17:02 J -14272593.98 -14272593.79 -14272593.59 0.0537 0.0070  
 Mercury -43786-02-20 21:50 J -14271362.74 -14271362.59 -14271362.43 0.0492 0.0036  
 Earth -43786-03-13 20:09 J -14271341.88 -14271341.66 -14271341.44 0.0491 0.0150  
 Moon -43786-03-13 23:16 J -14271341.75 -14271341.53 -14271341.30 0.0491 0.0159 \*  
 Mars -43784-03-08 20:09 J -14270615.87 -14270615.66 -14270615.44 0.0486 0.0285  
 Venus -43784-08-03 01:54 J -14270468.53 -14270468.42 -14270468.31 0.0488 0.0412  
 Venus -43783-03-27 13:54 J -14270232.01 -14270231.92 -14270231.82 0.0493 0.0442  
 Mercury -43780-04-23 19:26 J -14269108.82 -14269108.69 -14269108.55 0.0536 0.0143  
 Venus -43778-06-13 08:38 J -14268328.32 -14268328.14 -14268327.96 0.0539 0.0238  
 Mercury -43775-12-09 23:30 J -14267052.67 -14267052.52 -14267052.37 0.0492 0.0179  
 Mercury -43774-03-09 16:33 J -14266962.90 -14266962.81 -14266962.73 0.0490 0.0417  
 Venus -43772-11-30 11:16 J -14265966.23 -14265966.03 -14265965.84 0.0491 0.0193  
 Mercury -43768-02-09 20:09 J -14264798.77 -14264798.66 -14264798.55 0.0535 0.0333  
 Mercury -43768-05-10 11:59 J -14264709.10 -14264709.00 -14264708.90 0.0538 0.0364  
 Venus -43766-10-11 13:40 J -14263824.94 -14263824.93 -14263824.91 0.0535 0.0533  
 Mercury -43763-09-28 01:26 J -14262742.55 -14262742.44 -14262742.32 0.0493 0.0318  
 Mercury -43763-12-26 17:59 J -14262652.88 -14262652.75 -14262652.61 0.0491 0.0273  
 Venus -43760-08-05 11:02 J -14261700.25 -14261700.04 -14261699.83 0.0489 0.0046  
 Mercury -43757-11-28 21:35 J -14260488.64 -14260488.60 -14260488.55 0.0535 0.0507  
 Mercury -43756-02-26 14:09 J -14260399.04 -14260398.91 -14260398.78 0.0538 0.0198  
 Venus -43754-06-16 08:52 J -14259559.31 -14259559.13 -14259558.96 0.0537 0.0245  
 Mercury -43751-07-17 03:06 J -14258432.42 -14258432.37 -14258432.31 0.0493 0.0461  
 Mercury -43751-10-14 19:11 J -14258342.85 -14258342.70 -14258342.54 0.0491 0.0125  
 Venus -43748-04-10 11:30 J -14257434.19 -14257434.02 -14257433.84 0.0488 0.0280  
 Mercury -43745-12-15 16:18 J -14256088.96 -14256088.82 -14256088.68 0.0537 0.0035  
 Venus -43742-02-19 02:23 J -14255293.59 -14255293.40 -14255293.20 0.0539 0.0055

Mercury -43739-08-02 20:52 J -14254032.79 -14254032.63 -14254032.48 0.0491 0.0026

Venus -43736-08-07 23:59 J -14252931.65 -14252931.50 -14252931.35 0.0492 0.0338

Moon -43733-09-10 00:42 J -14251802.62 -14251802.47 -14251802.31 0.0535 0.0398

Earth -43733-09-10 04:18 J -14251802.48 -14251802.32 -14251802.15 0.0535 0.0383 \*

Mercury -43733-10-03 18:14 J -14251778.88 -14251778.74 -14251778.60 0.0536 0.0135

Venus -43731-10-24 17:16 J -14251027.92 -14251027.78 -14251027.63 0.0540 0.0364

Mercury -43727-05-21 21:50 J -14249722.74 -14249722.59 -14249722.44 0.0492 0.0174

Mercury -43727-08-19 14:52 J -14249632.96 -14249632.88 -14249632.80 0.0490 0.0422

Venus -43724-04-12 23:30 J -14248665.73 -14248665.52 -14248665.32 0.0491 0.0097

Mercury -43721-07-22 19:26 J -14247468.81 -14247468.69 -14247468.57 0.0535 0.0313

Earth -43721-09-15 07:54 J -14247414.38 -14247414.17 -14247413.95 0.0537 0.0201

Moon -43721-09-15 10:04 J -14247414.29 -14247414.08 -14247413.86 0.0537 0.0171 \*

Mercury -43721-10-20 11:16 J -14247379.13 -14247379.03 -14247378.93 0.0538 0.0383

Mars -43719-02-26 15:35 J -14246885.11 -14246884.85 -14246884.58 0.0543 0.0176

Venus -43718-02-21 22:18 J -14246524.70 -14246524.57 -14246524.44 0.0535 0.0410

Earth -43715-03-08 20:23 J -14245413.81 -14245413.65 -14245413.49 0.0493 0.0351

Moon -43715-03-08 23:30 J -14245413.67 -14245413.52 -14245413.36 0.0493 0.0373 \*

Mercury -43715-03-09 23:30 J -14245412.63 -14245412.52 -14245412.40 0.0493 0.0317

Mercury -43715-06-07 16:04 J -14245322.96 -14245322.83 -14245322.70 0.0491 0.0274

Venus -43713-12-16 22:18 J -14244399.77 -14244399.57 -14244399.37 0.0489 0.0144

Mercury -43709-05-10 19:40 J -14243158.72 -14243158.68 -14243158.63 0.0534 0.0508

Mercury -43709-08-08 12:14 J -14243069.13 -14243068.99 -14243068.86 0.0537 0.0197

Venus -43707-10-27 15:35 J -14242259.05 -14242258.85 -14242258.66 0.0538 0.0113

Mercury -43704-12-27 01:40 J -14241102.48 -14241102.43 -14241102.36 0.0494 0.0453

Moon -43703-03-13 01:54 J -14241026.65 -14241026.42 -14241026.20 0.0491 0.0109

Earth -43703-03-13 05:45 J -14241026.49 -14241026.26 -14241026.03 0.0491 0.0098 \*

Mercury -43703-03-26 17:59 J -14241012.91 -14241012.75 -14241012.60 0.0491 0.0133

Mars -43702-11-25 10:33 J -14240404.18 -14240404.06 -14240403.91 0.0485 0.0415

Venus -43701-08-21 23:45 J -14240133.64 -14240133.51 -14240133.38 0.0487 0.0374

Venus -43700-04-15 11:02 J -14239897.08 -14239897.04 -14239896.98 0.0493 0.0476

Mercury -43697-05-27 14:09 J -14238759.05 -14238758.91 -14238758.77 0.0537 0.0028  
 Venus -43695-07-02 09:06 J -14237993.30 -14237993.12 -14237992.93 0.0540 0.0187  
 Mercury -43691-01-12 19:26 J -14236702.85 -14236702.69 -14236702.54 0.0491 0.0018  
 Venus -43689-12-19 10:04 J -14235631.27 -14235631.08 -14235630.90 0.0491 0.0234  
 Mercury -43685-03-15 16:18 J -14234448.96 -14234448.82 -14234448.68 0.0536 0.0136  
 Mars -43684-12-04 17:16 J -14233819.86 -14233819.78 -14233819.70 0.0543 0.0516  
 Venus -43683-03-07 01:54 J -14233727.50 -14233727.42 -14233727.34 0.0541 0.0489  
 Mercury -43680-10-31 20:52 J -14232392.78 -14232392.63 -14232392.48 0.0492 0.0159  
 Mercury -43679-01-29 13:40 J -14232303.00 -14232302.93 -14232302.85 0.0490 0.0436  
 Venus -43677-08-24 10:33 J -14231365.27 -14231365.06 -14231364.85 0.0490 0.0005  
 Mercury -43673-01-02 18:14 J -14230138.86 -14230138.74 -14230138.63 0.0535 0.0305  
 Mercury -43673-04-01 10:04 J -14230049.18 -14230049.08 -14230048.99 0.0538 0.0393  
 Venus -43671-07-05 08:09 J -14229224.33 -14229224.16 -14229223.99 0.0536 0.0290  
 Mercury -43668-08-19 22:04 J -14228082.70 -14228082.58 -14228082.46 0.0493 0.0309  
 Mercury -43668-11-17 14:38 J -14227993.02 -14227992.89 -14227992.76 0.0491 0.0282  
 Mars -43666-08-29 11:59 J -14227343.27 -14227343.00 -14227342.73 0.0485 0.0004  
 Venus -43665-04-29 11:16 J -14227099.21 -14227099.03 -14227098.85 0.0489 0.0237  
 Mercury -43662-10-21 19:11 J -14225828.75 -14225828.70 -14225828.63 0.0534 0.0484  
 Mercury -43661-01-19 11:45 J -14225739.14 -14225739.01 -14225738.88 0.0537 0.0220  
 Venus -43659-03-10 00:42 J -14224958.67 -14224958.47 -14224958.27 0.0538 0.0013  
 Mercury -43656-06-07 23:59 J -14223772.56 -14223772.50 -14223772.44 0.0494 0.0449  
 Mercury -43656-09-05 16:04 J -14223682.98 -14223682.83 -14223682.67 0.0491 0.0137  
 Venus -43653-01-03 11:45 J -14222833.06 -14222833.01 -14222832.94 0.0487 0.0467  
 Venus -43653-08-26 22:04 J -14222596.71 -14222596.58 -14222596.44 0.0492 0.0375  
 Earth -43650-09-09 23:59 J -14221487.57 -14221487.50 -14221487.43 0.0535 0.0507  
 Moon -43650-09-10 02:38 J -14221487.43 -14221487.39 -14221487.34 0.0535 0.0523 \*  
 Mercury -43650-11-07 12:28 J -14221429.13 -14221428.98 -14221428.84 0.0537 0.0034  
 Venus -43648-11-12 15:35 J -14220693.01 -14220692.85 -14220692.69 0.0541 0.0321  
 Mercury -43644-06-24 17:59 J -14219372.91 -14219372.75 -14219372.59 0.0492 0.0007  
 Venus -43641-05-01 21:50 J -14218330.79 -14218330.59 -14218330.39 0.0490 0.0137

Mercury -43638-08-26 14:09 J -14217119.05 -14217118.91 -14217118.77 0.0536 0.0141  
 Moon -43638-09-15 05:02 J -14217099.53 -14217099.29 -14217099.05 0.0537 0.0058  
 Earth -43638-09-15 05:59 J -14217099.48 -14217099.25 -14217099.02 0.0537 0.0088 \*  
 Venus -43635-03-12 23:16 J -14216189.63 -14216189.53 -14216189.43 0.0536 0.0461  
 Moon -43632-03-08 02:38 J -14215098.49 -14215098.39 -14215098.26 0.0493 0.0424  
 Earth -43632-03-08 06:57 J -14215098.35 -14215098.21 -14215098.08 0.0493 0.0399 \*  
 Mercury -43632-04-12 19:40 J -14215062.83 -14215062.68 -14215062.53 0.0492 0.0148  
 Mercury -43632-07-11 12:28 J -14214973.04 -14214972.98 -14214972.92 0.0490 0.0446  
 Mars -43630-06-02 17:45 J -14214281.89 -14214281.76 -14214281.63 0.0485 0.0423  
 Venus -43629-01-05 21:50 J -14214064.80 -14214064.59 -14214064.39 0.0489 0.0100  
 Mercury -43626-06-14 16:18 J -14212808.94 -14212808.82 -14212808.70 0.0536 0.0306  
 Mercury -43626-09-12 08:09 J -14212719.25 -14212719.16 -14212719.06 0.0538 0.0393  
 Venus -43624-11-15 17:59 J -14211923.93 -14211923.75 -14211923.56 0.0538 0.0171  
 Mercury -43620-01-29 21:21 J -14210752.73 -14210752.61 -14210752.48 0.0493 0.0291  
 Earth -43620-03-12 14:38 J -14210711.13 -14210710.89 -14210710.66 0.0492 0.0043  
 Moon -43620-03-12 18:28 J -14210710.96 -14210710.73 -14210710.50 0.0492 0.0061 \*  
 Mercury -43620-04-29 13:40 J -14210663.05 -14210662.93 -14210662.80 0.0490 0.0299  
 Venus -43618-09-10 23:16 J -14209798.68 -14209798.53 -14209798.37 0.0488 0.0330  
 Mercury -43614-04-02 17:59 J -14208498.81 -14208498.75 -14208498.68 0.0535 0.0474  
 Mercury -43614-07-01 10:33 J -14208409.19 -14208409.06 -14208408.94 0.0537 0.0230  
 Venus -43612-07-21 10:04 J -14207658.27 -14207658.08 -14207657.89 0.0539 0.0134  
 Mercury -43609-11-17 22:33 J -14206442.62 -14206442.56 -14206442.48 0.0494 0.0440  
 Mercury -43608-02-15 14:52 J -14206353.04 -14206352.88 -14206352.73 0.0491 0.0147  
 Earth -43608-03-16 20:09 J -14206323.71 -14206323.66 -14206323.60 0.0490 0.0475  
 Venus -43605-01-08 10:33 J -14205296.23 -14205296.06 -14205295.88 0.0492 0.0280  
 Mercury -43602-04-19 11:59 J -14204099.14 -14204099.00 -14204098.85 0.0537 0.0058  
 Venus -43600-03-26 01:11 J -14203392.56 -14203392.45 -14203392.33 0.0541 0.0442  
 Mercury -43597-12-04 16:18 J -14202042.97 -14202042.82 -14202042.66 0.0492 0.0014  
 Venus -43594-09-13 09:50 J -14201030.30 -14201030.09 -14201029.88 0.0490 0.0040  
 Mercury -43590-02-05 12:42 J -14199789.11 -14199788.97 -14199788.83 0.0536 0.0136

Venus -43588-07-24 06:57 J -14198889.36 -14198889.21 -14198889.05 0.0537 0.0335  
 Mercury -43585-09-22 18:28 J -14197732.88 -14197732.73 -14197732.58 0.0492 0.0137  
 Mercury -43585-12-21 11:16 J -14197643.08 -14197643.03 -14197642.97 0.0490 0.0459  
 Venus -43582-05-19 10:47 J -14196764.24 -14196764.05 -14196763.85 0.0488 0.0193  
 Mercury -43579-11-24 14:09 J -14195479.02 -14195478.91 -14195478.79 0.0535 0.0308  
 Mercury -43578-02-22 06:14 J -14195389.33 -14195389.24 -14195389.14 0.0538 0.0390  
 Venus -43576-03-29 01:26 J -14194623.64 -14194623.44 -14194623.24 0.0539 0.0042  
 Mercury -43573-07-11 20:09 J -14193422.79 -14193422.66 -14193422.53 0.0493 0.0279  
 Mercury -43573-10-09 12:28 J -14193333.10 -14193332.98 -14193332.85 0.0490 0.0312  
 Venus -43570-01-22 11:45 J -14192498.11 -14192498.01 -14192497.90 0.0487 0.0422  
 Venus -43570-09-15 22:04 J -14192261.68 -14192261.58 -14192261.47 0.0492 0.0419  
 Mercury -43567-09-12 16:04 J -14191168.89 -14191168.83 -14191168.76 0.0535 0.0475  
 Mercury -43567-12-11 08:38 J -14191079.27 -14191079.14 -14191079.01 0.0538 0.0230  
 Mars -43565-05-23 05:02 J -14190550.57 -14190550.29 -14190550.01 0.0543 0.0037  
 Venus -43565-12-01 18:57 J -14190357.88 -14190357.71 -14190357.54 0.0540 0.0258  
 Mercury -43561-04-29 22:04 J -14189112.66 -14189112.58 -14189112.50 0.0493 0.0420  
 Mercury -43561-07-28 14:09 J -14189023.06 -14189022.91 -14189022.76 0.0491 0.0165  
 Venus -43558-05-21 22:18 J -14187995.76 -14187995.57 -14187995.38 0.0491 0.0182  
 Moon -43555-09-14 13:11 J -14186784.17 -14186783.95 -14186783.73 0.0536 0.0005  
 Earth -43555-09-14 14:23 J -14186784.13 -14186783.90 -14186783.67 0.0536 0.0027 \*  
 Mercury -43555-09-29 10:47 J -14186769.19 -14186769.05 -14186768.90 0.0537 0.0068  
 Venus -43552-04-01 00:42 J -14185854.53 -14185854.47 -14185854.42 0.0535 0.0511  
 Earth -43549-03-07 14:23 J -14184782.97 -14184782.90 -14184782.81 0.0494 0.0460  
 Moon -43549-03-07 18:28 J -14184782.78 -14184782.73 -14184782.67 0.0494 0.0477  
 Mercury -43549-05-16 15:06 J -14184713.02 -14184712.87 -14184712.71 0.0492 0.0017  
 Mars -43547-02-18 13:54 J -14184070.14 -14184069.92 -14184069.69 0.0485 0.0268  
 Venus -43546-01-24 22:47 J -14183729.76 -14183729.55 -14183729.34 0.0489 0.0054  
 Mercury -43543-07-18 12:28 J -14182459.12 -14182458.98 -14182458.84 0.0536 0.0107  
 Venus -43541-12-04 17:45 J -14181588.94 -14181588.76 -14181588.57 0.0537 0.0218  
 Mercury -43537-03-04 17:02 J -14180402.94 -14180402.79 -14180402.64 0.0492 0.0129



Moon -43537-03-11 20:23 J -14180395.89 -14180395.65 -14180395.41 0.0492 0.0008  
 Earth -43537-03-11 23:16 J -14180395.76 -14180395.53 -14180395.29 0.0492 0.0015 \*  
 Mercury -43537-06-02 09:50 J -14180313.13 -14180313.09 -14180313.04 0.0490 0.0467  
 Venus -43535-09-29 23:45 J -14179463.68 -14179463.51 -14179463.34 0.0488 0.0284  
 Mercury -43531-05-06 12:42 J -14178149.08 -14178148.97 -14178148.84 0.0535 0.0301  
 Mercury -43531-08-04 04:47 J -14178059.39 -14178059.30 -14178059.20 0.0538 0.0397  
 Venus -43529-08-09 08:38 J -14177323.33 -14177323.14 -14177322.94 0.0540 0.0089  
 Mercury -43526-12-22 18:57 J -14176092.84 -14176092.71 -14176092.58 0.0493 0.0267  
 Earth -43525-03-16 08:23 J -14176008.25 -14176008.15 -14176008.04 0.0491 0.0436  
 Moon -43525-03-16 09:35 J -14176008.17 -14176008.10 -14176008.02 0.0491 0.0459 \*  
 Mercury -43525-03-21 11:30 J -14176003.14 -14176003.02 -14176002.90 0.0491 0.0325  
 Venus -43522-01-27 10:33 J -14174961.21 -14174961.06 -14174960.90 0.0491 0.0324  
 Mercury -43519-02-22 14:23 J -14173838.97 -14173838.90 -14173838.84 0.0534 0.0475  
 Mercury -43519-05-23 06:42 J -14173749.35 -14173749.22 -14173749.09 0.0537 0.0229  
 Venus -43517-04-14 01:11 J -14173057.58 -14173057.45 -14173057.31 0.0541 0.0391  
 Mercury -43514-10-10 20:52 J -14171782.71 -14171782.63 -14171782.54 0.0493 0.0408  
 Mercury -43513-01-08 12:57 J -14171693.11 -14171692.96 -14171692.81 0.0491 0.0178  
 Mars -43512-11-22 17:59 J -14171009.01 -14171008.75 -14171008.50 0.0485 0.0151  
 Venus -43511-10-02 10:04 J -14170695.29 -14170695.08 -14170694.87 0.0490 0.0086  
 Mercury -43507-03-11 09:06 J -14169439.27 -14169439.12 -14169438.98 0.0537 0.0068  
 Venus -43505-08-12 10:33 J -14168554.19 -14168554.06 -14168553.93 0.0537 0.0395  
 Mercury -43502-10-27 14:38 J -14167383.05 -14167382.89 -14167382.74 0.0492 0.0035  
 Venus -43499-06-07 11:16 J -14166429.23 -14166429.03 -14166428.83 0.0488 0.0147  
 Mercury -43496-12-28 11:16 J -14165129.18 -14165129.03 -14165128.89 0.0536 0.0098  
 Venus -43493-04-17 03:50 J -14164288.53 -14164288.34 -14164288.14 0.0538 0.0098  
 Mercury -43490-08-15 15:50 J -14163072.99 -14163072.84 -14163072.69 0.0492 0.0117  
 Mercury -43490-11-13 08:38 J -14162983.17 -14162983.14 -14162983.11 0.0490 0.0479  
 Venus -43487-02-10 12:42 J -14162163.10 -14162162.97 -14162162.83 0.0487 0.0375  
 Venus -43487-10-04 23:45 J -14161926.57 -14161926.51 -14161926.45 0.0493 0.0467  
 Mercury -43484-10-16 12:42 J -14160819.09 -14160818.97 -14160818.84 0.0535 0.0271

Mercury -43483-01-14 04:33 J -14160729.39 -14160729.31 -14160729.22 0.0538 0.0426

Venus -43482-12-21 19:40 J -14160022.87 -14160022.68 -14160022.50 0.0540 0.0206

Mercury -43478-06-03 17:45 J -14158762.90 -14158762.76 -14158762.63 0.0493 0.0258

Mercury -43478-09-01 10:04 J -14158673.19 -14158673.08 -14158672.96 0.0491 0.0334

Venus -43475-06-09 23:02 J -14157660.73 -14157660.54 -14157660.36 0.0490 0.0229

Mercury -43472-08-04 12:57 J -14156509.03 -14156508.96 -14156508.89 0.0534 0.0465

Earth -43472-09-13 12:28 J -14156469.21 -14156468.98 -14156468.75 0.0535 0.0085

Moon -43472-09-13 15:21 J -14156469.10 -14156468.86 -14156468.63 0.0535 0.0099 \*

Mercury -43472-11-02 05:30 J -14156419.40 -14156419.27 -14156419.14 0.0537 0.0238

Venus -43470-08-26 08:09 J -14155757.21 -14155757.16 -14155757.10 0.0542 0.0520

Mercury -43466-03-22 19:40 J -14154452.77 -14154452.68 -14154452.59 0.0494 0.0396

Mercury -43466-06-20 11:45 J -14154363.15 -14154363.01 -14154362.86 0.0491 0.0192

Venus -43463-02-12 23:30 J -14153394.73 -14153394.52 -14153394.31 0.0489 0.0006

Mercury -43460-08-21 07:11 J -14152109.34 -14152109.20 -14152109.06 0.0536 0.0068

Earth -43460-09-18 17:45 J -14152080.82 -14152080.76 -14152080.68 0.0537 0.0510

Venus -43458-12-24 17:59 J -14151253.92 -14151253.75 -14151253.58 0.0538 0.0268

Earth -43454-03-12 11:02 J -14150080.28 -14150080.04 -14150079.81 0.0492 0.0053

Moon -43454-03-12 11:59 J -14150080.23 -14150080.00 -14150079.78 0.0492 0.0029 \*

Mercury -43454-04-08 13:26 J -14150053.10 -14150052.94 -14150052.78 0.0492 0.0047

Venus -43452-10-18 23:45 J -14149128.69 -14149128.51 -14149128.32 0.0488 0.0239

Mercury -43448-06-09 09:21 J -14147799.25 -14147799.11 -14147798.97 0.0536 0.0098

Mars -43447-11-09 11:02 J -14147281.19 -14147281.04 -14147280.89 0.0544 0.0459

Venus -43446-08-29 12:14 J -14146988.18 -14146987.99 -14146987.79 0.0539 0.0029

Mercury -43442-01-25 15:06 J -14145743.02 -14145742.87 -14145742.72 0.0492 0.0097

Earth -43442-03-16 18:57 J -14145692.85 -14145692.71 -14145692.57 0.0491 0.0390

Moon -43442-03-16 20:09 J -14145692.80 -14145692.66 -14145692.53 0.0491 0.0403 \*

Venus -43440-06-24 01:54 J -14144862.48 -14144862.42 -14144862.36 0.0487 0.0463

Venus -43439-02-15 11:02 J -14144626.17 -14144626.04 -14144625.89 0.0492 0.0371

Mercury -43436-03-28 11:16 J -14143489.15 -14143489.03 -14143488.90 0.0535 0.0263

Mercury -43436-06-26 03:21 J -14143399.44 -14143399.36 -14143399.28 0.0538 0.0435

Venus -43434-05-04 04:33 J -14142722.47 -14142722.31 -14142722.15 0.0541 0.0329  
 Mercury -43431-11-13 16:33 J -14141432.95 -14141432.81 -14141432.68 0.0493 0.0246  
 Mercury -43430-02-11 08:52 J -14141343.24 -14141343.13 -14141343.02 0.0491 0.0345  
 Venus -43428-10-21 11:30 J -14140360.23 -14140360.02 -14140359.82 0.0490 0.0134  
 Mercury -43424-01-14 12:42 J -14139179.05 -14139178.97 -14139178.88 0.0534 0.0437  
 Mercury -43424-04-14 05:16 J -14139089.40 -14139089.28 -14139089.16 0.0537 0.0266  
 Venus -43422-09-01 11:02 J -14138219.15 -14138219.04 -14138218.93 0.0536 0.0443  
 Mercury -43419-09-01 18:28 J -14137122.83 -14137122.73 -14137122.64 0.0494 0.0387  
 Mercury -43419-11-30 10:33 J -14137033.21 -14137033.06 -14137032.92 0.0491 0.0201  
 Venus -43416-06-26 12:14 J -14136094.20 -14136093.99 -14136093.79 0.0488 0.0098  
 Mercury -43412-01-31 05:59 J -14134779.39 -14134779.25 -14134779.11 0.0536 0.0077  
 Mars -43411-08-17 06:42 J -14134216.48 -14134216.22 -14134215.96 0.0543 0.0220  
 Venus -43410-05-07 01:40 J -14133953.62 -14133953.43 -14133953.24 0.0539 0.0142  
 Mercury -43407-09-18 12:14 J -14132723.15 -14132722.99 -14132722.83 0.0492 0.0058  
 Venus -43404-03-01 13:54 J -14131828.07 -14131827.92 -14131827.76 0.0487 0.0325  
 Mercury -43401-11-19 07:40 J -14130469.33 -14130469.18 -14130469.04 0.0536 0.0097  
 Venus -43398-01-09 18:28 J -14129687.92 -14129687.73 -14129687.54 0.0540 0.0158  
 Mercury -43395-07-07 13:54 J -14128413.08 -14128412.92 -14128412.77 0.0492 0.0087  
 Mars -43393-05-14 22:18 J -14127735.83 -14127735.57 -14127735.31 0.0484 0.0111  
 Venus -43392-06-28 22:47 J -14127325.72 -14127325.55 -14127325.37 0.0491 0.0273  
 Mercury -43389-09-07 09:21 J -14126159.23 -14126159.11 -14126158.98 0.0535 0.0264  
 Moon -43389-09-12 14:23 J -14126154.12 -14126153.90 -14126153.68 0.0535 0.0174  
 Earth -43389-09-12 18:14 J -14126153.96 -14126153.74 -14126153.52 0.0535 0.0159 \*  
 Mercury -43389-12-06 01:26 J -14126069.52 -14126069.44 -14126069.36 0.0538 0.0433  
 Venus -43387-09-14 11:30 J -14125422.12 -14125422.02 -14125421.91 0.0542 0.0458  
 Mercury -43383-04-25 15:35 J -14124102.98 -14124102.85 -14124102.71 0.0493 0.0228  
 Mercury -43383-07-24 07:54 J -14124013.27 -14124013.17 -14124013.06 0.0491 0.0364  
 Venus -43380-03-03 23:30 J -14123059.73 -14123059.52 -14123059.31 0.0489 0.0039  
 Mercury -43377-06-26 11:16 J -14121849.11 -14121849.03 -14121848.94 0.0535 0.0431  
 Earth -43377-09-18 02:09 J -14121765.53 -14121765.41 -14121765.28 0.0537 0.0450

Moon -43377-09-18 05:59 J -14121765.34 -14121765.25 -14121765.15 0.0537 0.0485 \*  
 Mercury -43377-09-24 03:50 J -14121759.46 -14121759.34 -14121759.22 0.0537 0.0273  
 Venus -43374-01-12 20:38 J -14120918.80 -14120918.64 -14120918.49 0.0537 0.0324  
 Mercury -43371-02-11 17:02 J -14119792.88 -14119792.79 -14119792.69 0.0494 0.0376  
 Earth -43371-03-11 19:40 J -14119764.91 -14119764.68 -14119764.45 0.0493 0.0109  
 Moon -43371-03-11 20:52 J -14119764.87 -14119764.63 -14119764.39 0.0493 0.0080 \*  
 Mercury -43371-05-12 09:06 J -14119703.26 -14119703.12 -14119702.98 0.0491 0.0211  
 Venus -43369-11-07 00:28 J -14118793.67 -14118793.48 -14118793.28 0.0488 0.0192  
 Mercury -43365-07-13 05:45 J -14117449.40 -14117449.26 -14117449.12 0.0537 0.0104  
 Venus -43363-09-17 13:11 J -14116653.15 -14116652.95 -14116652.76 0.0539 0.0029  
 Mercury -43359-02-28 10:47 J -14115393.21 -14115393.05 -14115392.89 0.0492 0.0067  
 Moon -43359-03-16 00:57 J -14115377.61 -14115377.46 -14115377.29 0.0491 0.0347  
 Earth -43359-03-16 03:35 J -14115377.51 -14115377.35 -14115377.17 0.0491 0.0337 \*  
 Mars -43357-02-17 03:35 J -14114674.55 -14114674.35 -14114674.14 0.0485 0.0309  
 Venus -43357-07-13 02:38 J -14114527.49 -14114527.39 -14114527.28 0.0487 0.0415  
 Venus -43356-03-06 12:14 J -14114291.09 -14114290.99 -14114290.88 0.0491 0.0418  
 Mercury -43353-05-01 06:14 J -14113139.38 -14113139.24 -14113139.09 0.0535 0.0086  
 Venus -43351-05-23 01:40 J -14112387.60 -14112387.43 -14112387.26 0.0541 0.0287  
 Mercury -43348-12-17 12:28 J -14111083.13 -14111082.98 -14111082.82 0.0493 0.0077  
 Venus -43345-11-09 12:14 J -14110025.19 -14110024.99 -14110024.80 0.0490 0.0182  
 Mercury -43341-02-18 07:40 J -14108829.31 -14108829.18 -14108829.05 0.0535 0.0262  
 Mercury -43341-05-17 23:45 J -14108739.59 -14108739.51 -14108739.43 0.0538 0.0434  
 Venus -43339-09-20 09:21 J -14107884.19 -14107884.11 -14107884.02 0.0537 0.0487  
 Mercury -43336-10-05 14:09 J -14106773.05 -14106772.91 -14106772.77 0.0493 0.0220  
 Mercury -43335-01-03 06:42 J -14106683.32 -14106683.22 -14106683.12 0.0491 0.0373  
 Venus -43333-07-15 11:30 J -14105759.23 -14105759.02 -14105758.81 0.0488 0.0055  
 Mercury -43330-12-07 09:21 J -14104519.20 -14104519.11 -14104519.03 0.0534 0.0434  
 Mercury -43329-03-06 01:54 J -14104429.55 -14104429.42 -14104429.30 0.0537 0.0270  
 Venus -43327-05-26 04:18 J -14103618.50 -14103618.32 -14103618.13 0.0539 0.0199  
 Mercury -43324-07-24 16:18 J -14102462.93 -14102462.82 -14102462.72 0.0494 0.0360

Mercury -43324-10-22 08:09 J -14102373.30 -14102373.16 -14102373.02 0.0491 0.0227  
 Venus -43321-03-20 13:11 J -14101493.12 -14101492.95 -14101492.78 0.0487 0.0283  
 Mercury -43318-12-24 04:04 J -14100119.47 -14100119.33 -14100119.19 0.0537 0.0108  
 Venus -43315-01-28 21:06 J -14099352.81 -14099352.62 -14099352.42 0.0540 0.0100  
 Mercury -43312-08-10 09:21 J -14098063.26 -14098063.11 -14098062.95 0.0492 0.0076  
 Venus -43309-07-17 23:16 J -14096990.68 -14096990.53 -14096990.36 0.0491 0.0319  
 Earth -43306-09-13 00:14 J -14095838.69 -14095838.49 -14095838.27 0.0535 0.0232  
 Moon -43306-09-13 04:33 J -14095838.52 -14095838.31 -14095838.11 0.0535 0.0238 \*  
 Mercury -43306-10-12 05:45 J -14095809.40 -14095809.26 -14095809.11 0.0536 0.0064  
 Venus -43304-10-03 12:14 J -14095087.11 -14095086.99 -14095086.85 0.0541 0.0405  
 Mercury -43300-05-29 11:02 J -14093753.19 -14093753.04 -14093752.88 0.0493 0.0069  
 Venus -43297-03-23 00:14 J -14092724.70 -14092724.49 -14092724.28 0.0489 0.0087  
 Mercury -43294-07-31 06:28 J -14091499.36 -14091499.23 -14091499.10 0.0534 0.0251  
 Moon -43294-09-17 21:06 J -14091450.78 -14091450.62 -14091450.44 0.0536 0.0370  
 Earth -43294-09-18 00:42 J -14091450.65 -14091450.47 -14091450.30 0.0536 0.0342 \*  
 Mercury -43294-10-28 22:18 J -14091409.64 -14091409.57 -14091409.49 0.0537 0.0443  
 Mars -43292-02-02 09:50 J -14090947.32 -14090947.09 -14090946.84 0.0544 0.0278  
 Venus -43291-01-31 17:02 J -14090583.93 -14090583.79 -14090583.64 0.0537 0.0363  
 Moon -43288-03-11 01:40 J -14089449.64 -14089449.43 -14089449.20 0.0494 0.0133  
 Earth -43288-03-11 04:33 J -14089449.53 -14089449.31 -14089449.09 0.0494 0.0162 \*  
 Mercury -43288-03-17 12:42 J -14089443.11 -14089442.97 -14089442.83 0.0494 0.0212  
 Mercury -43288-06-15 05:16 J -14089353.38 -14089353.28 -14089353.18 0.0491 0.0381  
 Venus -43286-11-27 00:57 J -14088458.65 -14088458.46 -14088458.25 0.0488 0.0145  
 Mercury -43282-05-19 07:26 J -14087189.27 -14087189.19 -14087189.10 0.0534 0.0431  
 Mercury -43282-08-16 23:59 J -14087099.62 -14087099.50 -14087099.37 0.0537 0.0271  
 Venus -43280-10-06 10:04 J -14086318.27 -14086318.08 -14086317.88 0.0539 0.0068  
 Mercury -43276-01-03 14:23 J -14085133.00 -14085132.90 -14085132.79 0.0494 0.0355  
 Earth -43276-03-15 12:14 J -14085062.18 -14085061.99 -14085061.80 0.0492 0.0286  
 Moon -43276-03-15 15:50 J -14085062.02 -14085061.84 -14085061.64 0.0492 0.0292 \*  
 Mercury -43276-04-03 06:28 J -14085043.37 -14085043.23 -14085043.09 0.0491 0.0234

Mars -43275-11-05 01:54 J -14084462.58 -14084462.42 -14084462.24 0.0484 0.0373  
 Venus -43274-08-02 01:26 J -14084192.57 -14084192.44 -14084192.31 0.0487 0.0375  
 Venus -43273-03-25 10:47 J -14083956.12 -14083956.05 -14083955.97 0.0491 0.0456  
 Mercury -43270-06-05 01:54 J -14082789.56 -14082789.42 -14082789.28 0.0536 0.0103  
 Venus -43268-06-11 03:21 J -14082052.53 -14082052.36 -14082052.18 0.0541 0.0232  
 Mercury -43265-10-22 16:33 J -14080822.81 -14080822.81 -14080822.80 0.0494 0.0493  
 Mercury -43264-01-20 08:09 J -14080733.31 -14080733.16 -14080733.00 0.0492 0.0089  
 Venus -43262-11-29 10:33 J -14079690.24 -14079690.06 -14079689.87 0.0490 0.0221  
 Mercury -43258-03-24 04:04 J -14078479.48 -14078479.33 -14078479.19 0.0536 0.0064  
 Mars -43257-11-11 00:42 J -14077881.63 -14077881.47 -14077881.31 0.0543 0.0445  
 Venus -43256-02-13 19:11 J -14077786.73 -14077786.70 -14077786.66 0.0542 0.0533  
 Mercury -43253-11-08 09:35 J -14076423.26 -14076423.10 -14076422.95 0.0492 0.0062  
 Venus -43250-08-04 11:02 J -14075424.24 -14075424.04 -14075423.83 0.0489 0.0016  
 Mercury -43246-01-10 05:30 J -14074169.40 -14074169.27 -14074169.13 0.0535 0.0234  
 Mercury -43246-04-09 21:35 J -14074079.67 -14074079.60 -14074079.52 0.0538 0.0463  
 Venus -43244-06-14 04:18 J -14073283.50 -14073283.32 -14073283.15 0.0538 0.0247  
 Mercury -43241-08-27 11:16 J -14072113.17 -14072113.03 -14072112.89 0.0493 0.0206  
 Mercury -43241-11-25 03:35 J -14072023.45 -14072023.35 -14072023.25 0.0491 0.0387  
 Mars -43239-08-09 02:09 J -14071401.68 -14071401.41 -14071401.14 0.0485 0.0034  
 Venus -43238-04-09 13:11 J -14071158.13 -14071157.95 -14071157.77 0.0487 0.0237  
 Mercury -43235-10-29 06:14 J -14069859.33 -14069859.24 -14069859.15 0.0534 0.0421  
 Mercury -43234-01-26 22:47 J -14069769.68 -14069769.55 -14069769.43 0.0536 0.0280  
 Venus -43232-02-16 17:02 J -14069017.98 -14069017.79 -14069017.59 0.0540 0.0064  
 Mercury -43229-06-15 12:42 J -14067803.07 -14067802.97 -14067802.86 0.0494 0.0351  
 Mercury -43229-09-13 04:47 J -14067713.43 -14067713.30 -14067713.16 0.0492 0.0239  
 Venus -43227-12-13 14:52 J -14066891.94 -14066891.88 -14066891.81 0.0486 0.0462  
 Venus -43226-08-06 23:16 J -14066655.67 -14066655.53 -14066655.39 0.0491 0.0363  
 Moon -43223-09-11 17:16 J -14065523.95 -14065523.78 -14065523.60 0.0534 0.0357  
 Earth -43223-09-11 21:06 J -14065523.80 -14065523.62 -14065523.45 0.0534 0.0346 \*  
 Mercury -43223-11-15 00:14 J -14065459.63 -14065459.49 -14065459.35 0.0536 0.0105

Venus -43221-10-22 08:09 J -14064752.30 -14064752.16 -14064752.01 0.0541 0.0368  
 Mercury -43217-04-03 14:38 J -14063492.90 -14063492.89 -14063492.87 0.0495 0.0491  
 Mercury -43217-07-02 06:14 J -14063403.39 -14063403.24 -14063403.08 0.0492 0.0093  
 Venus -43214-04-11 21:50 J -14062389.79 -14062389.59 -14062389.39 0.0489 0.0123  
 Mercury -43211-09-03 01:40 J -14061149.57 -14061149.43 -14061149.28 0.0536 0.0069  
 Earth -43211-09-17 00:57 J -14061135.66 -14061135.46 -14061135.24 0.0536 0.0244  
 Moon -43211-09-17 02:52 J -14061135.57 -14061135.38 -14061135.19 0.0536 0.0275 \*  
 Venus -43208-02-19 17:45 J -14060248.88 -14060248.76 -14060248.63 0.0537 0.0413  
 Earth -43205-03-10 11:59 J -14059134.20 -14059134.00 -14059133.78 0.0494 0.0221  
 Moon -43205-03-10 15:50 J -14059134.05 -14059133.84 -14059133.62 0.0494 0.0188 \*  
 Mercury -43205-04-20 08:09 J -14059093.32 -14059093.16 -14059093.01 0.0493 0.0052  
 Mars -43203-05-13 01:54 J -14058340.51 -14058340.42 -14058340.32 0.0485 0.0449  
 Venus -43203-12-15 22:33 J -14058123.76 -14058123.56 -14058123.35 0.0488 0.0108  
 Mercury -43199-06-22 03:35 J -14056839.48 -14056839.35 -14056839.22 0.0535 0.0236  
 Mercury -43199-09-19 19:40 J -14056749.75 -14056749.68 -14056749.61 0.0538 0.0460  
 Venus -43197-10-25 11:45 J -14055983.20 -14055983.01 -14055982.82 0.0539 0.0120  
 Mercury -43193-02-07 09:35 J -14054783.24 -14054783.10 -14054782.96 0.0493 0.0200  
 Moon -43193-03-14 14:52 J -14054747.08 -14054746.88 -14054746.67 0.0492 0.0221  
 Earth -43193-03-14 18:42 J -14054746.92 -14054746.72 -14054746.51 0.0492 0.0220 \*  
 Mercury -43193-05-07 01:54 J -14054693.52 -14054693.42 -14054693.33 0.0491 0.0392  
 Venus -43191-08-20 23:59 J -14053857.65 -14053857.50 -14053857.35 0.0487 0.0335  
 Mercury -43187-04-10 05:16 J -14052529.38 -14052529.28 -14052529.19 0.0534 0.0408  
 Mercury -43187-07-08 21:35 J -14052439.71 -14052439.60 -14052439.48 0.0537 0.0295  
 Venus -43185-06-30 03:06 J -14051717.55 -14051717.37 -14051717.18 0.0540 0.0183  
 Mercury -43182-11-26 11:16 J -14050473.14 -14050473.03 -14050472.92 0.0494 0.0344  
 Mercury -43181-02-24 03:06 J -14050383.50 -14050383.37 -14050383.23 0.0492 0.0244  
 Venus -43179-12-18 10:18 J -14049355.25 -14049355.07 -14049354.90 0.0490 0.0265  
 Mercury -43175-04-26 22:47 J -14048129.69 -14048129.55 -14048129.41 0.0536 0.0112  
 Venus -43173-03-04 14:38 J -14047451.96 -14047451.89 -14047451.81 0.0542 0.0498  
 Mercury -43170-09-14 12:42 J -14046162.98 -14046162.97 -14046162.95 0.0495 0.0490

Mercury -43170-12-13 04:33 J -14046073.47 -14046073.31 -14046073.16 0.0493 0.0095  
 Venus -43167-08-23 10:33 J -14045089.27 -14045089.06 -14045088.86 0.0489 0.0032  
 Mercury -43163-02-12 23:59 J -14043819.64 -14043819.50 -14043819.36 0.0535 0.0066  
 Venus -43161-07-02 23:16 J -14042948.69 -14042948.53 -14042948.35 0.0538 0.0280  
 Mercury -43158-10-01 05:59 J -14041763.40 -14041763.25 -14041763.09 0.0493 0.0052  
 Venus -43155-04-28 09:50 J -14040823.27 -14040823.09 -14040822.89 0.0487 0.0204  
 Mercury -43152-12-02 01:11 J -14039509.58 -14039509.45 -14039509.32 0.0535 0.0245  
 Mercury -43151-03-01 17:16 J -14039419.85 -14039419.78 -14039419.70 0.0538 0.0452  
 Venus -43149-03-07 17:02 J -14038682.99 -14038682.79 -14038682.59 0.0540 0.0015  
 Mercury -43146-07-20 07:54 J -14037453.31 -14037453.17 -14037453.03 0.0493 0.0194  
 Mercury -43146-10-18 00:14 J -14037363.58 -14037363.49 -14037363.40 0.0491 0.0399  
 Venus -43143-01-01 11:30 J -14036557.11 -14036557.02 -14036556.91 0.0486 0.0429  
 Venus -43143-08-25 20:09 J -14036320.79 -14036320.66 -14036320.54 0.0491 0.0395  
 Earth -43140-09-10 22:33 J -14035208.68 -14035208.56 -14035208.42 0.0534 0.0439  
 Moon -43140-09-11 01:11 J -14035208.58 -14035208.45 -14035208.32 0.0534 0.0440 \*  
 Mercury -43140-09-20 02:52 J -14035199.47 -14035199.38 -14035199.29 0.0534 0.0415  
 Mercury -43140-12-18 19:26 J -14035109.81 -14035109.69 -14035109.57 0.0537 0.0289  
 Mars -43138-04-29 17:30 J -14034613.05 -14034612.77 -14034612.49 0.0544 0.0073  
 Venus -43138-11-11 09:21 J -14034417.27 -14034417.11 -14034416.94 0.0541 0.0314  
 Mercury -43134-05-08 09:21 J -14033143.22 -14033143.11 -14033142.99 0.0494 0.0341  
 Mercury -43134-08-06 01:26 J -14033053.58 -14033053.44 -14033053.31 0.0491 0.0247  
 Venus -43131-04-30 20:09 J -14032054.86 -14032054.66 -14032054.46 0.0490 0.0162  
 Earth -43128-09-16 04:33 J -14030820.53 -14030820.31 -14030820.08 0.0536 0.0158  
 Moon -43128-09-16 04:47 J -14030820.52 -14030820.30 -14030820.07 0.0536 0.0188 \*  
 Mercury -43128-10-06 21:21 J -14030799.75 -14030799.61 -14030799.46 0.0536 0.0122  
 Venus -43125-03-10 17:02 J -14029913.89 -14029913.79 -14029913.69 0.0537 0.0455  
 Mercury -43122-02-24 11:16 J -14028833.06 -14028833.03 -14028833.00 0.0495 0.0484  
 Moon -43122-03-10 12:42 J -14028819.17 -14028818.97 -14028818.78 0.0494 0.0268  
 Earth -43122-03-10 16:18 J -14028819.00 -14028818.82 -14028818.63 0.0494 0.0296 \*  
 Mercury -43122-05-25 02:52 J -14028743.54 -14028743.38 -14028743.23 0.0492 0.0099



Mars -43120-01-28 22:04 J -14028128.81 -14028128.58 -14028128.35 0.0485 0.0244  
 Venus -43119-01-03 21:21 J -14027788.82 -14027788.61 -14027788.40 0.0488 0.0067  
 Mercury -43116-07-25 22:33 J -14026489.71 -14026489.56 -14026489.42 0.0535 0.0060  
 Venus -43114-11-14 06:42 J -14025648.41 -14025648.22 -14025648.03 0.0539 0.0152  
 Mercury -43110-03-13 04:04 J -14024433.49 -14024433.33 -14024433.18 0.0493 0.0052  
 Earth -43110-03-14 22:47 J -14024431.78 -14024431.55 -14024431.33 0.0493 0.0148  
 Moon -43110-03-15 01:54 J -14024431.64 -14024431.42 -14024431.20 0.0493 0.0142 \*  
 Venus -43108-09-08 22:47 J -14023522.72 -14023522.55 -14023522.39 0.0487 0.0294  
 Mercury -43104-05-13 23:30 J -14022179.65 -14022179.52 -14022179.39 0.0534 0.0240  
 Mercury -43104-08-11 15:35 J -14022089.92 -14022089.85 -14022089.77 0.0537 0.0454  
 Venus -43102-07-19 21:50 J -14021382.78 -14021382.59 -14021382.40 0.0540 0.0151  
 Mercury -43099-12-30 05:45 J -14020123.41 -14020123.26 -14020123.12 0.0494 0.0197  
 Mercury -43098-03-29 21:50 J -14020033.67 -14020033.59 -14020033.49 0.0491 0.0397  
 Venus -43095-01-06 06:14 J -14019020.41 -14019020.24 -14019020.07 0.0490 0.0294  
 Mercury -43092-03-02 00:28 J -14017869.57 -14017869.48 -14017869.39 0.0534 0.0423  
 Mercury -43092-05-30 17:02 J -14017779.91 -14017779.79 -14017779.66 0.0537 0.0280  
 Venus -43090-03-24 13:40 J -14017117.04 -14017116.93 -14017116.82 0.0542 0.0453  
 Mercury -43087-10-18 07:40 J -14015813.29 -14015813.18 -14015813.07 0.0494 0.0336  
 Mercury -43086-01-15 23:30 J -14015723.65 -14015723.52 -14015723.38 0.0492 0.0252  
 Mars -43085-11-01 16:47 J -14015068.04 -14015067.80 -14015067.54 0.0484 0.0162  
 Venus -43084-09-11 06:28 J -14014754.43 -14014754.23 -14014754.02 0.0489 0.0062  
 Mercury -43080-03-18 19:11 J -14013469.84 -14013469.70 -14013469.56 0.0536 0.0114  
 Venus -43078-07-22 23:45 J -14012613.66 -14012613.51 -14012613.35 0.0538 0.0328  
 Mercury -43075-08-06 09:21 J -14011503.14 -14011503.11 -14011503.08 0.0495 0.0481  
 Mercury -43075-11-04 00:57 J -14011413.62 -14011413.46 -14011413.31 0.0492 0.0101  
 Venus -43072-05-17 07:26 J -14010488.39 -14010488.19 -14010487.99 0.0488 0.0167  
 Mercury -43068-01-04 20:52 J -14009159.77 -14009159.63 -14009159.48 0.0535 0.0056  
 Venus -43066-03-27 16:18 J -14008348.02 -14008347.82 -14008347.62 0.0539 0.0031  
 Mercury -43063-08-23 02:23 J -14007103.56 -14007103.40 -14007103.24 0.0493 0.0047  
 Venus -43060-01-20 09:35 J -14006222.22 -14006222.10 -14006221.97 0.0487 0.0389

Venus -43060-09-13 18:28 J -14005985.82 -14005985.73 -14005985.63 0.0491 0.0436  
 Moon -43057-09-09 21:35 J -14004893.62 -14004893.60 -14004893.58 0.0532 0.0530  
 Mercury -43057-10-23 22:04 J -14004849.71 -14004849.58 -14004849.45 0.0534 0.0234  
 Mercury -43056-01-21 14:09 J -14004759.98 -14004759.91 -14004759.84 0.0537 0.0460  
 Venus -43055-11-30 04:33 J -14004082.47 -14004082.31 -14004082.14 0.0541 0.0282  
 Mercury -43051-06-11 03:35 J -14002793.49 -14002793.35 -14002793.21 0.0494 0.0197  
 Mercury -43051-09-08 19:54 J -14002703.76 -14002703.67 -14002703.58 0.0492 0.0396  
 Venus -43048-05-19 18:14 J -14001719.93 -14001719.74 -14001719.55 0.0490 0.0200  
 Mercury -43045-08-11 23:02 J -14000539.63 -14000539.54 -14000539.45 0.0533 0.0417  
 Moon -43045-09-14 22:18 J -14000505.79 -14000505.57 -14000505.34 0.0534 0.0069  
 Earth -43045-09-15 00:14 J -14000505.73 -14000505.49 -14000505.26 0.0534 0.0039 \*  
 Mercury -43045-11-09 15:35 J -14000449.97 -14000449.85 -14000449.73 0.0536 0.0284  
 Venus -43042-03-30 11:16 J -13999579.11 -13999579.03 -13999578.94 0.0537 0.0483  
 Earth -43039-03-09 18:42 J -13998503.86 -13998503.72 -13998503.56 0.0495 0.0375  
 Moon -43039-03-09 22:04 J -13998503.74 -13998503.58 -13998503.42 0.0495 0.0350 \*  
 Mercury -43039-03-30 05:16 J -13998483.39 -13998483.28 -13998483.16 0.0494 0.0341  
 Mercury -43039-06-27 21:06 J -13998393.75 -13998393.62 -13998393.48 0.0492 0.0248  
 Venus -43036-01-22 17:02 J -13997454.00 -13997453.79 -13997453.58 0.0488 0.0037  
 Mercury -43033-08-28 16:33 J -13996139.95 -13996139.81 -13996139.66 0.0536 0.0105  
 Venus -43031-12-03 05:02 J -13995313.47 -13995313.29 -13995313.10 0.0539 0.0193  
 Mercury -43027-01-16 07:26 J -13994173.22 -13994173.19 -13994173.15 0.0495 0.0479  
 Moon -43027-03-14 02:38 J -13994116.63 -13994116.39 -13994116.15 0.0493 0.0066  
 Earth -43027-03-14 04:18 J -13994116.55 -13994116.32 -13994116.08 0.0493 0.0082 \*  
 Mercury -43027-04-15 23:02 J -13994083.69 -13994083.54 -13994083.39 0.0492 0.0104  
 Venus -43025-09-27 18:28 J -13993187.90 -13993187.73 -13993187.55 0.0487 0.0264  
 Mercury -43021-06-16 18:28 J -13991829.87 -13991829.73 -13991829.58 0.0535 0.0065  
 Venus -43019-08-07 22:04 J -13991047.78 -13991047.58 -13991047.39 0.0541 0.0102  
 Mercury -43015-02-02 00:28 J -13989773.64 -13989773.48 -13989773.33 0.0493 0.0046  
 Venus -43012-01-25 03:35 J -13988685.50 -13988685.35 -13988685.20 0.0490 0.0330  
 Mercury -43009-04-04 20:09 J -13987519.79 -13987519.66 -13987519.52 0.0535 0.0234

Mercury -43009-07-03 12:28 J -13987430.05 -13987429.98 -13987429.91 0.0537 0.0463

Venus -43007-04-12 13:11 J -13986782.08 -13986781.95 -13986781.81 0.0542 0.0405

Mercury -43004-11-21 02:09 J -13985463.56 -13985463.41 -13985463.27 0.0494 0.0192

Mercury -43003-02-18 18:14 J -13985373.83 -13985373.74 -13985373.65 0.0491 0.0401

Venus -43001-09-30 04:33 J -13984419.51 -13984419.31 -13984419.10 0.0489 0.0100

# 43RD MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 43rd millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-42997-01-22 21:21 J	-13983209.70	-13983209.61	-13983209.52	0.0533	0.0412		
Mercury	-42997-04-21 13:54 J	-13983120.04	-13983119.92	-13983119.80	0.0536	0.0290		
Venus	-42995-08-10 18:57 J	-13982278.85	-13982278.71	-13982278.56	0.0537	0.0359		
Mercury	-42992-09-09 03:06 J	-13981153.47	-13981153.37	-13981153.25	0.0495	0.0343		
Mercury	-42992-12-07 19:11 J	-13981063.84	-13981063.70	-13981063.56	0.0492	0.0246		
Venus	-42989-06-05 05:16 J	-13980153.48	-13980153.28	-13980153.08	0.0488	0.0131		
Mercury	-42985-02-08 15:21 J	-13978810.01	-13978809.86	-13978809.72	0.0535	0.0112		
Mars	-42984-07-22 21:21 J	-13978279.89	-13978279.61	-13978279.33	0.0543	0.0072		
Venus	-42983-04-15 10:47 J	-13978013.25	-13978013.05	-13978012.85	0.0539	0.0060		
Mercury	-42980-06-28 05:02 J	-13976843.31	-13976843.29	-13976843.25	0.0495	0.0484		
Mercury	-42980-09-25 20:38 J	-13976753.79	-13976753.64	-13976753.48	0.0493	0.0099		
Venus	-42977-02-09 05:30 J	-13975887.41	-13975887.27	-13975887.13	0.0486	0.0360		
Venus	-42977-10-02 13:54 J	-13975650.98	-13975650.92	-13975650.85	0.0491	0.0462		

Mercury -42974-11-27 16:04 J -13974499.97 -13974499.83 -13974499.69 0.0535 0.0074  
 Venus -42972-12-19 02:23 J -13973747.58 -13973747.40 -13973747.22 0.0541 0.0241  
 Mercury -42968-07-14 22:33 J -13972443.72 -13972443.56 -13972443.40 0.0493 0.0043  
 Mars -42966-04-24 08:52 J -13971795.38 -13971795.13 -13971794.87 0.0484 0.0124  
 Venus -42965-06-07 13:40 J -13971385.11 -13971384.93 -13971384.74 0.0489 0.0229  
 Earth -42962-09-14 21:21 J -13970190.84 -13970190.61 -13970190.38 0.0534 0.0078  
 Moon -42962-09-15 00:14 J -13970190.73 -13970190.49 -13970190.25 0.0534 0.0045 \*  
 Mercury -42962-09-15 17:45 J -13970189.89 -13970189.76 -13970189.63 0.0534 0.0245  
 Mercury -42962-12-14 10:04 J -13970100.16 -13970100.08 -13970100.01 0.0537 0.0452  
 Venus -42960-08-23 17:59 J -13969481.76 -13969481.75 -13969481.73 0.0542 0.0540  
 Venus -42959-04-18 11:16 J -13969244.06 -13969244.03 -13969243.99 0.0537 0.0528  
 Moon -42956-03-08 22:18 J -13968188.68 -13968188.57 -13968188.44 0.0495 0.0427  
 Earth -42956-03-09 00:28 J -13968188.58 -13968188.48 -13968188.38 0.0495 0.0446 \*  
 Mercury -42956-05-03 00:14 J -13968133.64 -13968133.49 -13968133.35 0.0493 0.0190  
 Mercury -42956-07-31 16:18 J -13968043.91 -13968043.82 -13968043.73 0.0491 0.0402  
 Venus -42953-02-11 14:09 J -13967119.12 -13967118.91 -13967118.70 0.0488 0.0005  
 Mercury -42950-07-04 19:26 J -13965879.78 -13965879.69 -13965879.60 0.0534 0.0415  
 Moon -42950-09-20 00:28 J -13965802.54 -13965802.48 -13965802.42 0.0536 0.0516  
 Earth -42950-09-20 04:04 J -13965802.36 -13965802.33 -13965802.28 0.0536 0.0528  
 Mercury -42950-10-02 12:14 J -13965790.11 -13965789.99 -13965789.87 0.0537 0.0289  
 Venus -42948-12-22 04:33 J -13964978.49 -13964978.31 -13964978.13 0.0539 0.0239  
 Mercury -42944-02-19 01:54 J -13963823.53 -13963823.42 -13963823.31 0.0494 0.0334  
 Earth -42944-03-13 08:09 J -13963801.40 -13963801.16 -13963800.93 0.0494 0.0004  
 Moon -42944-03-13 08:23 J -13963801.37 -13963801.15 -13963800.92 0.0494 0.0017 \*  
 Mercury -42944-05-19 17:30 J -13963733.90 -13963733.77 -13963733.63 0.0492 0.0254  
 Venus -42942-10-17 16:04 J -13962853.01 -13962852.83 -13962852.64 0.0487 0.0227  
 Mercury -42938-07-21 13:40 J -13961480.07 -13961479.93 -13961479.79 0.0535 0.0118  
 Venus -42936-08-26 18:14 J -13960712.93 -13960712.74 -13960712.54 0.0540 0.0068  
 Mercury -42933-12-08 03:06 J -13959513.39 -13959513.37 -13959513.34 0.0495 0.0484  
 Mercury -42932-03-07 18:42 J -13959423.88 -13959423.72 -13959423.57 0.0493 0.0100

Earth -42932-03-17 13:11 J -13959414.04 -13959413.95 -13959413.84 0.0492 0.0443  
 Moon -42932-03-17 14:23 J -13959414.03 -13959413.90 -13959413.77 0.0492 0.0414 \*  
 Mars -42930-01-26 05:45 J -13958734.48 -13958734.26 -13958734.04 0.0485 0.0281  
 Venus -42930-06-22 17:45 J -13958586.83 -13958586.76 -13958586.68 0.0486 0.0450  
 Venus -42929-02-14 01:40 J -13958350.56 -13958350.43 -13958350.29 0.0491 0.0367  
 Mercury -42926-05-09 14:52 J -13957170.02 -13957169.88 -13957169.73 0.0535 0.0063  
 Venus -42924-05-01 08:23 J -13956447.29 -13956447.15 -13956447.01 0.0541 0.0373  
 Mercury -42921-12-24 20:09 J -13955113.81 -13955113.66 -13955113.50 0.0493 0.0049  
 Venus -42918-10-20 00:14 J -13954084.69 -13954084.49 -13954084.29 0.0489 0.0129  
 Mercury -42914-02-25 15:21 J -13952859.99 -13952859.86 -13952859.73 0.0534 0.0253  
 Mercury -42914-05-26 07:40 J -13952770.25 -13952770.18 -13952770.10 0.0537 0.0445  
 Venus -42912-08-29 17:02 J -13951943.92 -13951943.79 -13951943.66 0.0538 0.0397  
 Mercury -42909-10-12 22:18 J -13950803.71 -13950803.57 -13950803.42 0.0494 0.0186  
 Mercury -42908-01-10 14:23 J -13950713.98 -13950713.90 -13950713.81 0.0491 0.0406  
 Venus -42906-06-25 01:11 J -13949818.65 -13949818.45 -13949818.24 0.0487 0.0099  
 Mercury -42903-12-14 16:47 J -13948549.88 -13948549.80 -13948549.71 0.0534 0.0426  
 Mercury -42902-03-14 09:35 J -13948460.22 -13948460.10 -13948459.97 0.0537 0.0279  
 Venus -42900-05-04 10:47 J -13947678.25 -13947678.05 -13947677.86 0.0540 0.0108  
 Mercury -42897-07-31 23:59 J -13946493.61 -13946493.50 -13946493.38 0.0494 0.0331  
 Mercury -42897-10-29 15:50 J -13946403.98 -13946403.84 -13946403.71 0.0492 0.0256  
 Venus -42894-02-28 02:38 J -13945552.54 -13945552.39 -13945552.23 0.0486 0.0324  
 Mercury -42891-12-31 11:45 J -13944150.15 -13944150.01 -13944149.87 0.0536 0.0115  
 Venus -42888-01-07 02:38 J -13943412.57 -13943412.39 -13943412.20 0.0541 0.0191  
 Mercury -42885-05-20 01:54 J -13942183.46 -13942183.42 -13942183.38 0.0495 0.0474  
 Mercury -42885-08-17 17:16 J -13942093.93 -13942093.78 -13942093.63 0.0492 0.0108  
 Venus -42882-06-27 11:45 J -13941050.18 -13941050.01 -13941049.83 0.0490 0.0267  
 Moon -42879-09-13 20:23 J -13939875.87 -13939875.65 -13939875.43 0.0534 0.0137  
 Earth -42879-09-13 23:45 J -13939875.73 -13939875.51 -13939875.28 0.0534 0.0167 \*  
 Mercury -42879-10-19 13:26 J -13939840.09 -13939839.94 -13939839.80 0.0535 0.0057  
 Venus -42877-09-11 15:50 J -13939146.92 -13939146.84 -13939146.77 0.0542 0.0499

Mercury -42873-06-05 18:14 J -13937783.89 -13937783.74 -13937783.58 0.0493 0.0048  
 Venus -42870-03-02 12:28 J -13936784.19 -13936783.98 -13936783.77 0.0489 0.0036  
 Mercury -42867-08-07 14:23 J -13935530.03 -13935529.90 -13935529.77 0.0534 0.0237  
 Earth -42867-09-19 02:23 J -13935487.54 -13935487.40 -13935487.25 0.0535 0.0417  
 Moon -42867-09-19 05:59 J -13935487.40 -13935487.25 -13935487.09 0.0535 0.0402 \*  
 Mercury -42867-11-05 06:42 J -13935440.29 -13935440.22 -13935440.15 0.0537 0.0459  
 Mars -42865-01-08 08:52 J -13935011.29 -13935011.13 -13935010.98 0.0543 0.0453  
 Venus -42864-01-10 00:14 J -13934643.66 -13934643.49 -13934643.32 0.0538 0.0271  
 Earth -42861-03-12 11:30 J -13933486.25 -13933486.02 -13933485.79 0.0494 0.0075  
 Moon -42861-03-12 12:28 J -13933486.21 -13933485.98 -13933485.74 0.0494 0.0097 \*  
 Mercury -42861-03-24 20:09 J -13933473.80 -13933473.66 -13933473.52 0.0494 0.0189  
 Mercury -42861-06-22 12:14 J -13933384.08 -13933383.99 -13933383.90 0.0491 0.0404  
 Venus -42859-11-05 12:28 J -13932518.17 -13932517.98 -13932517.79 0.0487 0.0195  
 Mercury -42855-05-26 14:38 J -13931219.97 -13931219.89 -13931219.80 0.0533 0.0430  
 Mercury -42855-08-24 07:26 J -13931130.31 -13931130.19 -13931130.06 0.0536 0.0275  
 Venus -42853-09-14 15:50 J -13930378.04 -13930377.84 -13930377.64 0.0541 0.0029  
 Mercury -42849-01-11 22:18 J -13929163.68 -13929163.57 -13929163.45 0.0495 0.0327  
 Moon -42849-03-16 18:42 J -13929098.87 -13929098.72 -13929098.56 0.0493 0.0359  
 Earth -42849-03-16 21:06 J -13929098.76 -13929098.62 -13929098.47 0.0493 0.0382 \*  
 Mercury -42849-04-10 14:09 J -13929074.04 -13929073.91 -13929073.78 0.0492 0.0261  
 Mars -42848-10-14 06:28 J -13928522.37 -13928522.23 -13928522.07 0.0484 0.0399  
 Venus -42847-07-11 14:38 J -13928251.99 -13928251.89 -13928251.78 0.0486 0.0415  
 Venus -42846-03-04 22:04 J -13928015.70 -13928015.58 -13928015.46 0.0490 0.0397  
 Mercury -42843-06-12 09:21 J -13926820.25 -13926820.11 -13926819.97 0.0536 0.0105  
 Venus -42841-05-20 08:09 J -13926112.32 -13926112.16 -13926112.00 0.0542 0.0324  
 Mercury -42838-10-31 00:14 J -13924853.53 -13924853.49 -13924853.44 0.0495 0.0468  
 Mercury -42837-01-28 15:35 J -13924764.00 -13924763.85 -13924763.70 0.0492 0.0114  
 Venus -42835-11-07 22:04 J -13923749.78 -13923749.58 -13923749.38 0.0489 0.0166  
 Mercury -42831-03-31 11:16 J -13922510.17 -13922510.03 -13922509.88 0.0535 0.0062  
 Mars -42830-10-16 23:45 J -13921945.75 -13921945.51 -13921945.26 0.0544 0.0264

Venus -42829-09-17 17:45 J -13921608.86 -13921608.76 -13921608.65 0.0538 0.0446  
 Mercury -42826-11-16 17:16 J -13920453.94 -13920453.78 -13920453.63 0.0493 0.0033  
 Venus -42823-07-13 23:30 J -13919483.73 -13919483.52 -13919483.31 0.0488 0.0060  
 Mercury -42819-01-17 12:57 J -13918200.09 -13918199.96 -13918199.83 0.0534 0.0230  
 Mercury -42819-04-17 05:16 J -13918110.34 -13918110.28 -13918110.21 0.0537 0.0467  
 Venus -42817-05-23 08:52 J -13917343.32 -13917343.13 -13917342.94 0.0539 0.0149  
 Mercury -42814-09-04 18:28 J -13916143.87 -13916143.73 -13916143.59 0.0494 0.0185  
 Mercury -42814-12-03 10:33 J -13916054.15 -13916054.06 -13916053.97 0.0491 0.0408  
 Mars -42812-07-18 00:14 J -13915461.76 -13915461.49 -13915461.23 0.0485 0.0003  
 Venus -42811-03-19 01:11 J -13915217.62 -13915217.45 -13915217.28 0.0487 0.0285  
 Mercury -42808-11-05 13:54 J -13913890.01 -13913889.92 -13913889.82 0.0533 0.0410  
 Mercury -42807-02-03 06:42 J -13913800.33 -13913800.22 -13913800.10 0.0536 0.0293  
 Venus -42805-01-26 23:30 J -13913077.71 -13913077.52 -13913077.32 0.0541 0.0153  
 Mercury -42802-06-23 20:23 J -13911833.77 -13911833.65 -13911833.54 0.0495 0.0327  
 Mercury -42802-09-21 11:59 J -13911744.13 -13911744.00 -13911743.86 0.0492 0.0262  
 Venus -42799-07-16 08:52 J -13910715.29 -13910715.13 -13910714.96 0.0490 0.0300  
 Earth -42796-09-12 17:59 J -13909560.94 -13909560.75 -13909560.55 0.0533 0.0297  
 Moon -42796-09-12 21:50 J -13909560.79 -13909560.59 -13909560.38 0.0533 0.0268 \*  
 Mercury -42796-11-22 07:26 J -13909490.33 -13909490.19 -13909490.05 0.0536 0.0103  
 Venus -42794-10-01 13:11 J -13908812.06 -13908811.95 -13908811.85 0.0543 0.0459  
 Mercury -42790-04-11 22:47 J -13907523.60 -13907523.55 -13907523.50 0.0495 0.0462  
 Mercury -42790-07-10 14:09 J -13907434.07 -13907433.91 -13907433.76 0.0493 0.0121  
 Venus -42787-03-21 09:50 J -13906449.29 -13906449.09 -13906448.88 0.0488 0.0072  
 Mercury -42784-09-10 09:06 J -13905180.27 -13905180.12 -13905179.98 0.0535 0.0067  
 Moon -42784-09-17 20:09 J -13905172.86 -13905172.66 -13905172.45 0.0535 0.0276  
 Earth -42784-09-17 23:16 J -13905172.72 -13905172.53 -13905172.34 0.0535 0.0299 \*  
 Venus -42781-01-30 00:28 J -13904308.64 -13904308.48 -13904308.32 0.0539 0.0320  
 Moon -42778-03-12 17:45 J -13903170.97 -13903170.76 -13903170.54 0.0494 0.0157  
 Earth -42778-03-12 20:09 J -13903170.88 -13903170.66 -13903170.43 0.0494 0.0130 \*  
 Mercury -42778-04-28 15:50 J -13903124.00 -13903123.84 -13903123.69 0.0493 0.0028

Mars -42776-04-20 22:33 J -13902400.70 -13902400.56 -13902400.41 0.0484 0.0405  
 Venus -42776-11-24 10:47 J -13902183.24 -13902183.05 -13902182.85 0.0487 0.0155  
 Mercury -42772-06-29 11:02 J -13900870.17 -13900870.04 -13900869.91 0.0534 0.0234  
 Mercury -42772-09-27 03:21 J -13900780.43 -13900780.36 -13900780.29 0.0537 0.0465  
 Venus -42770-10-04 17:45 J -13900042.96 -13900042.76 -13900042.56 0.0540 0.0028  
 Mercury -42766-02-14 17:30 J -13898813.92 -13898813.77 -13898813.62 0.0494 0.0169  
 Earth -42766-03-17 04:04 J -13898783.50 -13898783.33 -13898783.15 0.0493 0.0319  
 Moon -42766-03-17 07:40 J -13898783.36 -13898783.18 -13898782.99 0.0493 0.0305 \*  
 Mercury -42766-05-15 09:35 J -13898724.18 -13898724.10 -13898724.02 0.0491 0.0422  
 Venus -42764-07-30 13:11 J -13897917.08 -13897916.95 -13897916.81 0.0486 0.0375  
 Venus -42763-03-23 21:21 J -13897680.70 -13897680.61 -13897680.52 0.0491 0.0438  
 Mercury -42760-04-17 12:42 J -13896560.07 -13896559.97 -13896559.88 0.0533 0.0403  
 Mercury -42760-07-16 05:30 J -13896470.39 -13896470.27 -13896470.15 0.0536 0.0301  
 Venus -42758-06-09 07:54 J -13895777.34 -13895777.17 -13895776.99 0.0541 0.0276  
 Mercury -42755-12-03 18:57 J -13894503.83 -13894503.71 -13894503.60 0.0495 0.0320  
 Mercury -42754-03-03 10:33 J -13894414.19 -13894414.06 -13894413.93 0.0492 0.0268  
 Venus -42752-11-26 21:21 J -13893414.79 -13893414.61 -13893414.41 0.0489 0.0208  
 Mercury -42748-05-04 06:57 J -13892160.35 -13892160.21 -13892160.07 0.0535 0.0126  
 Venus -42746-10-07 15:35 J -13891273.93 -13891273.85 -13891273.77 0.0537 0.0483  
 Mercury -42743-09-21 20:52 J -13890193.68 -13890193.63 -13890193.57 0.0495 0.0460  
 Mercury -42743-12-20 12:14 J -13890104.14 -13890103.99 -13890103.84 0.0493 0.0123  
 Venus -42740-08-01 21:35 J -13889148.81 -13889148.60 -13889148.39 0.0488 0.0023  
 Mercury -42736-02-20 07:11 J -13887850.34 -13887850.20 -13887850.05 0.0535 0.0067  
 Venus -42734-06-12 06:57 J -13887008.39 -13887008.21 -13887008.02 0.0540 0.0191  
 Mercury -42731-10-08 14:23 J -13885794.06 -13885793.90 -13885793.75 0.0493 0.0019  
 Venus -42728-04-06 23:45 J -13884882.68 -13884882.51 -13884882.33 0.0486 0.0245  
 Mercury -42725-12-09 08:52 J -13883540.26 -13883540.13 -13883540.00 0.0534 0.0239  
 Mercury -42724-03-09 01:11 J -13883450.52 -13883450.45 -13883450.37 0.0537 0.0460  
 Venus -42722-02-14 23:30 J -13882742.71 -13882742.52 -13882742.32 0.0541 0.0104  
 Mercury -42719-07-27 16:04 J -13881483.97 -13881483.83 -13881483.68 0.0494 0.0160



Mercury -42719-10-25 08:09 J -13881394.23 -13881394.16 -13881394.09 0.0491 0.0432

Venus -42717-12-11 01:40 J -13880616.48 -13880616.43 -13880616.37 0.0485 0.0464

Venus -42716-08-04 07:54 J -13880380.31 -13880380.17 -13880380.02 0.0490 0.0340

Moon -42713-09-11 20:09 J -13879245.83 -13879245.66 -13879245.48 0.0533 0.0353

Earth -42713-09-11 23:30 J -13879245.68 -13879245.52 -13879245.35 0.0533 0.0374 \*

Mercury -42713-09-27 10:33 J -13879230.15 -13879230.06 -13879229.96 0.0534 0.0406

Mercury -42713-12-26 03:35 J -13879140.47 -13879140.35 -13879140.23 0.0537 0.0299

Mars -42711-04-03 16:47 J -13878677.05 -13878676.80 -13878676.55 0.0544 0.0252

Venus -42711-10-20 15:50 J -13878476.97 -13878476.84 -13878476.71 0.0542 0.0399

Mercury -42707-05-15 17:59 J -13877173.87 -13877173.75 -13877173.62 0.0494 0.0302

Mercury -42707-08-13 09:35 J -13877084.22 -13877084.10 -13877083.97 0.0492 0.0285

Venus -42704-04-09 09:21 J -13876114.31 -13876114.11 -13876113.91 0.0488 0.0113

Earth -42701-09-17 06:14 J -13874857.45 -13874857.24 -13874857.03 0.0535 0.0231

Moon -42701-09-17 07:40 J -13874857.39 -13874857.18 -13874856.97 0.0535 0.0204 \*

Mercury -42701-10-14 05:30 J -13874830.41 -13874830.27 -13874830.13 0.0536 0.0136

Venus -42698-02-18 00:57 J -13873973.60 -13873973.46 -13873973.31 0.0538 0.0367

Mercury -42695-03-03 19:40 J -13872863.74 -13872863.68 -13872863.62 0.0495 0.0451

Earth -42695-03-12 02:23 J -13872855.61 -13872855.40 -13872855.19 0.0495 0.0198

Moon -42695-03-12 05:59 J -13872855.46 -13872855.25 -13872855.04 0.0495 0.0226 \*

Mercury -42695-06-01 10:47 J -13872774.20 -13872774.05 -13872773.90 0.0493 0.0132

Mars -42693-01-08 05:02 J -13872188.51 -13872188.29 -13872188.07 0.0484 0.0267

Venus -42693-12-13 10:33 J -13871848.26 -13871848.06 -13871847.85 0.0487 0.0113

Mercury -42689-08-02 06:57 J -13870520.35 -13870520.21 -13870520.06 0.0535 0.0040

Venus -42687-10-23 16:47 J -13869708.00 -13869707.80 -13869707.61 0.0540 0.0073

Moon -42683-03-16 07:26 J -13868468.39 -13868468.19 -13868467.98 0.0493 0.0245

Earth -42683-03-16 11:16 J -13868468.23 -13868468.03 -13868467.83 0.0493 0.0256 \*

Mercury -42683-03-20 12:42 J -13868464.13 -13868463.97 -13868463.82 0.0493 0.0013

Venus -42681-08-18 12:28 J -13867582.13 -13867581.98 -13867581.83 0.0486 0.0333

Venus -42680-04-11 20:23 J -13867345.70 -13867345.65 -13867345.61 0.0490 0.0477

Mercury -42677-05-21 07:11 J -13866210.33 -13866210.20 -13866210.07 0.0534 0.0233

Mercury -42677-08-18 23:45 J -13866120.58 -13866120.51 -13866120.44 0.0537 0.0464

Mars -42675-01-09 16:47 J -13865611.96 -13865611.80 -13865611.62 0.0544 0.0429

Venus -42675-06-28 05:45 J -13865442.43 -13865442.26 -13865442.08 0.0542 0.0233

Mercury -42671-01-06 14:52 J -13864154.03 -13864153.88 -13864153.73 0.0494 0.0150

Mercury -42671-04-06 06:57 J -13864064.28 -13864064.21 -13864064.14 0.0492 0.0443

Venus -42669-12-15 20:38 J -13863079.81 -13863079.64 -13863079.46 0.0489 0.0249

Mercury -42665-03-09 08:38 J -13861900.23 -13861900.14 -13861900.05 0.0533 0.0408

Mercury -42665-06-07 01:26 J -13861810.55 -13861810.44 -13861810.32 0.0536 0.0297

Venus -42663-03-02 21:06 J -13861176.66 -13861176.62 -13861176.58 0.0543 0.0531

Venus -42663-10-26 16:04 J -13860938.85 -13860938.83 -13860938.81 0.0538 0.0533

Mercury -42660-10-25 16:47 J -13859843.92 -13859843.80 -13859843.67 0.0494 0.0291

Mercury -42659-01-23 08:23 J -13859754.27 -13859754.15 -13859754.02 0.0492 0.0296

Mars -42658-10-12 02:38 J -13859127.64 -13859127.39 -13859127.13 0.0484 0.0138

Venus -42657-08-20 21:21 J -13858813.82 -13858813.61 -13858813.40 0.0488 0.0021

Mercury -42653-03-26 03:35 J -13857500.49 -13857500.35 -13857500.21 0.0536 0.0134

Venus -42651-07-01 10:04 J -13856673.26 -13856673.08 -13856672.91 0.0540 0.0249

Mercury -42648-08-13 18:57 J -13855533.78 -13855533.71 -13855533.64 0.0495 0.0431

Mercury -42648-11-11 10:04 J -13855444.23 -13855444.08 -13855443.93 0.0492 0.0151

Venus -42645-04-25 23:30 J -13854547.71 -13854547.52 -13854547.33 0.0487 0.0201

Mercury -42641-01-13 05:45 J -13853190.41 -13853190.26 -13853190.12 0.0535 0.0032

Venus -42639-03-06 01:40 J -13852407.63 -13852407.43 -13852407.23 0.0541 0.0048

Mercury -42636-08-30 11:30 J -13851134.18 -13851134.02 -13851133.87 0.0493 0.0011

Venus -42634-12-31 01:40 J -13850281.52 -13850281.43 -13850281.32 0.0486 0.0421

Venus -42633-08-23 08:38 J -13850045.26 -13850045.14 -13850045.00 0.0490 0.0385

Earth -42630-09-12 05:16 J -13848930.40 -13848930.28 -13848930.15 0.0532 0.0448

Moon -42630-09-12 07:11 J -13848930.32 -13848930.20 -13848930.06 0.0532 0.0435 \*

Mercury -42630-11-01 06:57 J -13848880.34 -13848880.21 -13848880.07 0.0534 0.0206

Mercury -42629-01-29 23:30 J -13848790.58 -13848790.52 -13848790.47 0.0537 0.0491

Venus -42628-11-08 16:04 J -13848141.99 -13848141.83 -13848141.68 0.0542 0.0349

Mercury -42624-06-18 13:26 J -13846824.09 -13846823.94 -13846823.79 0.0494 0.0143

Mercury -42624-09-16 05:16 J -13846734.34 -13846734.28 -13846734.21 0.0492 0.0450

Venus -42621-04-28 09:21 J -13845779.31 -13845779.11 -13845778.91 0.0488 0.0158

Mercury -42618-08-20 07:11 J -13844570.30 -13844570.20 -13844570.10 0.0533 0.0399

Moon -42618-09-17 03:21 J -13844542.60 -13844542.36 -13844542.12 0.0534 0.0086

Earth -42618-09-17 03:35 J -13844542.57 -13844542.35 -13844542.12 0.0534 0.0115 \*

Mercury -42618-11-17 23:59 J -13844480.61 -13844480.50 -13844480.38 0.0536 0.0304

Venus -42615-03-08 23:16 J -13843638.65 -13843638.53 -13843638.40 0.0539 0.0410

Moon -42612-03-11 10:04 J -13842540.27 -13842540.08 -13842539.88 0.0496 0.0275

Earth -42612-03-11 13:40 J -13842540.13 -13842539.93 -13842539.72 0.0496 0.0244 \*

Mercury -42612-04-06 15:35 J -13842513.98 -13842513.85 -13842513.72 0.0495 0.0281

Mercury -42612-07-05 07:11 J -13842424.32 -13842424.20 -13842424.07 0.0492 0.0308

Venus -42609-01-02 11:02 J -13841513.25 -13841513.04 -13841512.83 0.0487 0.0067

Mercury -42606-09-06 01:40 J -13840170.57 -13840170.43 -13840170.28 0.0535 0.0135

Venus -42604-11-11 16:33 J -13839373.00 -13839372.81 -13839372.61 0.0541 0.0122

Mercury -42600-01-23 17:30 J -13838203.84 -13838203.77 -13838203.68 0.0495 0.0421

Earth -42600-03-15 22:33 J -13838152.76 -13838152.56 -13838152.34 0.0494 0.0215

Moon -42600-03-16 01:40 J -13838152.63 -13838152.43 -13838152.22 0.0494 0.0213 \*

Mercury -42600-04-23 08:52 J -13838114.28 -13838114.13 -13838113.98 0.0493 0.0163

Venus -42598-09-07 12:28 J -13837247.14 -13837246.98 -13837246.81 0.0486 0.0289

Mercury -42594-06-25 03:50 J -13835860.49 -13835860.34 -13835860.20 0.0535 0.0032

Venus -42592-07-17 09:21 J -13835107.29 -13835107.11 -13835106.92 0.0542 0.0171

Mercury -42588-02-09 10:47 J -13833804.21 -13833804.05 -13833803.89 0.0493 0.0020

Venus -42585-01-04 20:52 J -13832744.79 -13832744.63 -13832744.46 0.0489 0.0292

Mercury -42582-04-13 05:45 J -13831550.40 -13831550.26 -13831550.13 0.0534 0.0196

Mercury -42582-07-11 22:18 J -13831460.62 -13831460.57 -13831460.53 0.0537 0.0501

Venus -42580-03-22 00:14 J -13830841.58 -13830841.49 -13830841.39 0.0543 0.0470

Mercury -42577-11-28 12:14 J -13829494.14 -13829493.99 -13829493.84 0.0494 0.0131

Mercury -42576-02-26 04:04 J -13829404.38 -13829404.33 -13829404.27 0.0491 0.0462

Venus -42574-09-09 22:04 J -13828478.78 -13828478.58 -13828478.37 0.0488 0.0067

Mercury -42570-01-30 06:57 J -13827240.31 -13827240.21 -13827240.10 0.0533 0.0371

Mercury -42570-04-29 23:59 J -13827150.61 -13827150.50 -13827150.39 0.0536 0.0332  
 Venus -42568-07-20 10:18 J -13826338.23 -13826338.07 -13826337.90 0.0539 0.0298  
 Mercury -42565-09-16 14:09 J -13825184.04 -13825183.91 -13825183.78 0.0495 0.0272  
 Mercury -42565-12-15 05:45 J -13825094.38 -13825094.26 -13825094.14 0.0492 0.0317  
 Venus -42562-05-16 00:14 J -13824212.69 -13824212.49 -13824212.29 0.0487 0.0155  
 Mercury -42558-02-16 00:28 J -13822840.62 -13822840.48 -13822840.34 0.0535 0.0143  
 Mars -42557-06-27 17:45 J -13822343.04 -13822342.76 -13822342.47 0.0544 0.0069  
 Venus -42556-03-24 23:45 J -13822072.71 -13822072.51 -13822072.31 0.0541 0.0009  
 Mercury -42553-07-05 16:33 J -13820873.90 -13820873.81 -13820873.73 0.0496 0.0410  
 Mercury -42553-10-03 07:40 J -13820784.32 -13820784.18 -13820784.03 0.0493 0.0176  
 Venus -42550-01-19 02:52 J -13819946.51 -13819946.38 -13819946.24 0.0485 0.0372  
 Venus -42550-09-12 09:21 J -13819710.20 -13819710.11 -13819710.01 0.0490 0.0430  
 Mercury -42547-12-05 01:54 J -13818530.56 -13818530.42 -13818530.27 0.0535 0.0032  
 Venus -42545-11-27 15:06 J -13817807.03 -13817806.87 -13817806.70 0.0543 0.0301  
 Mercury -42541-07-22 09:35 J -13816474.26 -13816474.10 -13816473.95 0.0493 0.0031  
 Mars -42539-04-03 13:40 J -13815854.18 -13815853.93 -13815853.67 0.0484 0.0116  
 Venus -42538-05-18 09:21 J -13815444.30 -13815444.11 -13815443.92 0.0488 0.0201  
 Moon -42535-09-16 08:38 J -13814227.36 -13814227.14 -13814226.91 0.0534 0.0016  
 Earth -42535-09-16 09:50 J -13814227.32 -13814227.09 -13814226.85 0.0534 0.0044 \*  
 Mercury -42535-09-23 03:50 J -13814220.48 -13814220.34 -13814220.21 0.0534 0.0197  
 Mercury -42535-12-21 20:23 J -13814130.70 -13814130.65 -13814130.60 0.0537 0.0501  
 Venus -42532-03-28 02:52 J -13813303.47 -13813303.38 -13813303.28 0.0539 0.0469  
 Earth -42529-03-11 00:14 J -13812224.67 -13812224.49 -13812224.30 0.0496 0.0291  
 Moon -42529-03-11 02:52 J -13812224.54 -13812224.38 -13812224.20 0.0496 0.0321 \*  
 Mercury -42529-05-10 11:30 J -13812164.17 -13812164.02 -13812163.87 0.0494 0.0111  
 Mercury -42529-08-08 03:21 J -13812074.38 -13812074.36 -13812074.33 0.0491 0.0482  
 Venus -42526-01-21 11:02 J -13811178.24 -13811178.04 -13811177.83 0.0487 0.0024  
 Mercury -42523-07-12 05:30 J -13809910.37 -13809910.27 -13809910.16 0.0533 0.0363  
 Mercury -42523-10-09 22:33 J -13809820.67 -13809820.56 -13809820.45 0.0536 0.0341  
 Venus -42521-11-30 19:40 J -13809037.87 -13809037.68 -13809037.49 0.0540 0.0180

Mercury -42517-02-27 12:57 J -13807854.09 -13807853.96 -13807853.82 0.0495 0.0260

Moon -42517-03-15 05:30 J -13807837.49 -13807837.27 -13807837.04 0.0494 0.0157

Earth -42517-03-15 07:26 J -13807837.41 -13807837.19 -13807836.97 0.0494 0.0158 \*

Mercury -42517-05-27 04:33 J -13807764.42 -13807764.31 -13807764.19 0.0492 0.0329

Venus -42515-09-26 13:26 J -13806912.12 -13806911.94 -13806911.76 0.0486 0.0244

Mercury -42511-07-29 00:14 J -13805510.62 -13805510.49 -13805510.35 0.0535 0.0171

Venus -42509-08-05 10:33 J -13804772.25 -13804772.06 -13804771.86 0.0541 0.0118

Mercury -42506-12-16 15:06 J -13803543.96 -13803543.87 -13803543.78 0.0495 0.0400

Mercury -42505-03-15 06:28 J -13803454.38 -13803454.23 -13803454.09 0.0493 0.0184

Mars -42503-01-05 12:14 J -13802793.20 -13802792.99 -13802792.78 0.0484 0.0288

Venus -42503-06-01 16:18 J -13802645.88 -13802645.82 -13802645.74 0.0485 0.0458

Venus -42502-01-23 21:50 J -13802409.73 -13802409.59 -13802409.43 0.0489 0.0340

Mercury -42499-05-17 00:42 J -13801200.61 -13801200.47 -13801200.32 0.0534 0.0020

Venus -42497-04-09 21:50 J -13800506.71 -13800506.59 -13800506.46 0.0543 0.0428

Mercury -42493-01-02 08:23 J -13799144.31 -13799144.15 -13799144.00 0.0494 0.0044

Venus -42491-09-28 23:16 J -13798143.73 -13798143.53 -13798143.33 0.0488 0.0114

Mercury -42487-03-05 02:09 J -13796890.55 -13796890.41 -13796890.28 0.0534 0.0194

Mercury -42487-06-02 18:42 J -13796800.77 -13796800.72 -13796800.68 0.0537 0.0502

Venus -42485-08-08 09:35 J -13796003.26 -13796003.10 -13796002.95 0.0540 0.0344

Mercury -42482-10-21 10:18 J -13794834.23 -13794834.07 -13794833.92 0.0494 0.0101

Venus -42479-06-03 23:59 J -13793877.70 -13793877.50 -13793877.29 0.0486 0.0113

Mercury -42476-12-22 03:35 J -13792580.45 -13792580.35 -13792580.24 0.0533 0.0364

Mercury -42475-03-21 20:38 J -13792490.75 -13792490.64 -13792490.53 0.0536 0.0340

Venus -42473-04-13 03:06 J -13791737.57 -13791737.37 -13791737.17 0.0541 0.0056

Mercury -42470-08-09 12:14 J -13790524.12 -13790523.99 -13790523.85 0.0495 0.0241

Mercury -42470-11-07 03:50 J -13790434.45 -13790434.34 -13790434.23 0.0492 0.0348

Venus -42467-02-07 02:38 J -13789611.53 -13789611.39 -13789611.23 0.0486 0.0330

Venus -42467-10-01 09:35 J -13789375.15 -13789375.10 -13789375.05 0.0490 0.0472

Mercury -42464-10-10 05:16 J -13788270.28 -13788270.28 -13788270.27 0.0532 0.0532

Mercury -42463-01-07 22:47 J -13788180.69 -13788180.55 -13788180.41 0.0536 0.0178

Venus -42462-12-17 18:42 J -13787471.90 -13787471.72 -13787471.54 0.0542 0.0240  
 Mercury -42458-05-28 13:54 J -13786214.01 -13786213.92 -13786213.82 0.0495 0.0388  
 Mercury -42458-08-26 05:02 J -13786124.43 -13786124.29 -13786124.14 0.0493 0.0197  
 Venus -42455-06-06 10:04 J -13785109.25 -13785109.08 -13785108.89 0.0489 0.0247  
 Earth -42452-09-15 17:16 J -13783912.02 -13783911.78 -13783911.55 0.0533 0.0025  
 Moon -42452-09-15 20:09 J -13783911.90 -13783911.66 -13783911.42 0.0533 0.0055 \*  
 Mercury -42452-10-27 00:28 J -13783870.63 -13783870.48 -13783870.33 0.0535 0.0007  
 Venus -42450-08-22 08:23 J -13783206.16 -13783206.15 -13783206.13 0.0543 0.0541  
 Venus -42449-04-16 03:35 J -13782968.40 -13782968.35 -13782968.29 0.0538 0.0517  
 Moon -42446-03-11 06:42 J -13781909.37 -13781909.22 -13781909.06 0.0496 0.0379  
 Earth -42446-03-11 08:09 J -13781909.32 -13781909.16 -13781908.99 0.0496 0.0352 \*  
 Mercury -42446-06-14 06:57 J -13781814.36 -13781814.21 -13781814.05 0.0493 0.0052  
 Venus -42443-02-09 12:14 J -13780843.20 -13780842.99 -13780842.78 0.0487 0.0026  
 Mercury -42440-08-15 00:57 J -13779560.60 -13779560.46 -13779560.32 0.0533 0.0182  
 Mercury -42440-11-12 17:16 J -13779470.81 -13779470.78 -13779470.74 0.0536 0.0513  
 Venus -42438-12-20 17:02 J -13778702.97 -13778702.79 -13778702.61 0.0540 0.0220  
 Earth -42434-03-15 17:16 J -13777522.00 -13777521.78 -13777521.55 0.0495 0.0110  
 Moon -42434-03-15 17:16 J -13777522.00 -13777521.78 -13777521.56 0.0495 0.0118 \*  
 Mercury -42434-04-02 08:52 J -13777504.28 -13777504.13 -13777503.98 0.0494 0.0091  
 Venus -42432-10-15 14:23 J -13776577.09 -13776576.90 -13776576.71 0.0486 0.0196  
 Mercury -42428-06-03 01:54 J -13775250.52 -13775250.42 -13775250.31 0.0533 0.0360  
 Mercury -42428-08-31 18:57 J -13775160.82 -13775160.71 -13775160.60 0.0536 0.0342  
 Venus -42426-08-25 08:38 J -13774437.34 -13774437.14 -13774436.94 0.0542 0.0074  
 Mercury -42422-01-19 10:47 J -13773194.18 -13773194.05 -13773193.91 0.0495 0.0233  
 Mercury -42422-04-19 02:23 J -13773104.50 -13773104.40 -13773104.29 0.0492 0.0357  
 Mars -42421-09-24 01:54 J -13772580.59 -13772580.42 -13772580.24 0.0484 0.0366  
 Venus -42420-06-20 16:04 J -13772310.93 -13772310.83 -13772310.72 0.0485 0.0415  
 Venus -42419-02-11 21:21 J -13772074.73 -13772074.61 -13772074.47 0.0489 0.0380  
 Mercury -42416-06-19 20:52 J -13770850.77 -13770850.63 -13770850.49 0.0535 0.0176  
 Venus -42414-04-30 00:42 J -13770171.61 -13770171.47 -13770171.32 0.0543 0.0369

Mercury -42411-11-07 12:57 J -13768884.06 -13768883.96 -13768883.86 0.0495 0.0372  
 Mercury -42410-02-05 04:18 J -13768794.46 -13768794.32 -13768794.18 0.0493 0.0212  
 Venus -42408-10-17 22:47 J -13767808.75 -13767808.55 -13767808.35 0.0488 0.0155  
 Mercury -42404-04-07 22:47 J -13766540.69 -13766540.55 -13766540.40 0.0535 0.0012  
 Mars -42403-09-22 19:26 J -13766007.96 -13766007.69 -13766007.42 0.0544 0.0172  
 Venus -42402-08-28 12:14 J -13765668.11 -13765667.99 -13765667.85 0.0539 0.0400  
 Mercury -42399-11-24 05:45 J -13764484.42 -13764484.26 -13764484.11 0.0493 0.0063  
 Venus -42396-06-23 00:14 J -13763542.69 -13763542.49 -13763542.28 0.0487 0.0068  
 Mercury -42392-01-25 00:28 J -13762230.62 -13762230.48 -13762230.34 0.0534 0.0160  
 Mercury -42392-04-24 17:02 J -13762140.80 -13762140.79 -13762140.79 0.0537 0.0536  
 Venus -42390-05-03 04:04 J -13761402.53 -13761402.33 -13761402.14 0.0541 0.0107  
 Mercury -42387-09-12 07:26 J -13760174.34 -13760174.19 -13760174.03 0.0494 0.0083  
 Mars -42385-06-27 21:06 J -13759519.89 -13759519.62 -13759519.36 0.0484 0.0031  
 Venus -42384-02-26 03:21 J -13759276.53 -13759276.36 -13759276.19 0.0486 0.0283  
 Mercury -42381-11-13 00:42 J -13757920.58 -13757920.47 -13757920.35 0.0532 0.0348  
 Mercury -42380-02-10 17:45 J -13757830.87 -13757830.76 -13757830.65 0.0536 0.0353  
 Venus -42378-01-05 15:21 J -13757137.04 -13757136.86 -13757136.67 0.0542 0.0201  
 Mercury -42375-07-01 09:21 J -13755864.25 -13755864.11 -13755863.97 0.0495 0.0226  
 Mercury -42375-09-29 00:57 J -13755774.56 -13755774.46 -13755774.35 0.0493 0.0365  
 Venus -42372-06-25 11:02 J -13754774.21 -13754774.04 -13754773.87 0.0488 0.0292  
 Mercury -42369-09-01 01:40 J -13753610.44 -13753610.43 -13753610.41 0.0532 0.0528  
 Moon -42369-09-14 11:30 J -13753597.23 -13753597.02 -13753596.79 0.0532 0.0168  
 Earth -42369-09-14 15:21 J -13753597.08 -13753596.86 -13753596.63 0.0532 0.0134 \*  
 Mercury -42369-11-29 19:11 J -13753520.84 -13753520.70 -13753520.56 0.0535 0.0179  
 Venus -42367-09-10 05:16 J -13752871.35 -13752871.28 -13752871.20 0.0543 0.0501  
 Earth -42363-03-10 16:18 J -13751593.94 -13751593.82 -13751593.68 0.0497 0.0406  
 Moon -42363-03-10 16:04 J -13751593.93 -13751593.83 -13751593.71 0.0497 0.0430 \*  
 Mercury -42363-04-19 11:16 J -13751554.13 -13751554.03 -13751553.92 0.0496 0.0367  
 Mercury -42363-07-18 02:38 J -13751464.53 -13751464.39 -13751464.25 0.0493 0.0219  
 Venus -42360-02-28 11:02 J -13750508.25 -13750508.04 -13750507.83 0.0487 0.0064

Mercury -42357-09-17 20:38 J -13749210.78 -13749210.64 -13749210.49 0.0535 0.0012  
 Earth -42357-09-19 19:26 J -13749208.81 -13749208.69 -13749208.57 0.0535 0.0460  
 Moon -42357-09-19 23:02 J -13749208.64 -13749208.54 -13749208.43 0.0535 0.0469 \*  
 Venus -42354-01-08 18:57 J -13748367.88 -13748367.71 -13748367.54 0.0540 0.0274  
 Earth -42351-03-15 02:23 J -13747206.63 -13747206.40 -13747206.16 0.0495 0.0058  
 Moon -42351-03-15 04:47 J -13747206.53 -13747206.30 -13747206.06 0.0495 0.0076 \*  
 Mercury -42351-05-06 04:33 J -13747154.47 -13747154.31 -13747154.16 0.0493 0.0076  
 Mars -42349-03-31 17:02 J -13746458.91 -13746458.79 -13746458.68 0.0484 0.0434  
 Venus -42349-11-03 13:11 J -13746242.15 -13746241.95 -13746241.76 0.0486 0.0157  
 Mercury -42345-07-06 22:33 J -13744900.70 -13744900.56 -13744900.42 0.0534 0.0158  
 Venus -42343-09-13 11:30 J -13744102.22 -13744102.02 -13744101.82 0.0541 0.0019  
 Mercury -42339-02-22 05:59 J -13742844.40 -13742844.25 -13742844.09 0.0494 0.0074  
 Venus -42337-07-09 15:21 J -13741975.99 -13741975.86 -13741975.72 0.0485 0.0373  
 Venus -42336-03-02 21:21 J -13741739.71 -13741739.61 -13741739.50 0.0489 0.0422  
 Mercury -42333-04-24 23:59 J -13740590.61 -13740590.50 -13740590.38 0.0533 0.0330  
 Mercury -42333-07-23 17:02 J -13740500.89 -13740500.79 -13740500.69 0.0536 0.0372  
 Venus -42331-05-19 01:40 J -13739836.59 -13739836.43 -13739836.27 0.0542 0.0316  
 Mercury -42328-12-11 07:54 J -13738534.31 -13738534.17 -13738534.03 0.0495 0.0217  
 Mercury -42327-03-10 23:30 J -13738444.62 -13738444.52 -13738444.42 0.0492 0.0373  
 Venus -42325-11-05 23:02 J -13737473.73 -13737473.54 -13737473.35 0.0488 0.0200  
 Mercury -42321-02-12 00:28 J -13736280.51 -13736280.48 -13736280.45 0.0531 0.0516  
 Mercury -42321-05-11 17:59 J -13736190.89 -13736190.75 -13736190.62 0.0535 0.0190  
 Venus -42319-09-16 08:38 J -13735333.26 -13735333.14 -13735333.03 0.0539 0.0434  
 Mercury -42316-09-29 09:35 J -13734224.20 -13734224.10 -13734223.99 0.0496 0.0363  
 Mercury -42316-12-28 00:57 J -13734134.60 -13734134.46 -13734134.32 0.0493 0.0224  
 Venus -42313-07-12 00:28 J -13733207.69 -13733207.48 -13733207.27 0.0487 0.0024  
 Mercury -42309-02-28 19:11 J -13731880.85 -13731880.70 -13731880.56 0.0534 0.0019  
 Venus -42307-05-22 00:14 J -13731067.68 -13731067.49 -13731067.30 0.0541 0.0143  
 Mercury -42304-10-16 02:38 J -13729824.54 -13729824.39 -13729824.23 0.0494 0.0080  
 Venus -42301-03-17 01:26 J -13728941.61 -13728941.44 -13728941.26 0.0486 0.0247



Mercury -42298-12-17 20:23 J -13727570.79 -13727570.65 -13727570.51 0.0534 0.0163  
 Mercury -42297-03-16 12:57 J -13727480.97 -13727480.96 -13727480.95 0.0537 0.0532  
 Venus -42295-01-24 16:18 J -13726802.01 -13726801.82 -13726801.62 0.0542 0.0150  
 Mercury -42292-08-04 04:47 J -13725514.46 -13725514.30 -13725514.15 0.0494 0.0064  
 Venus -42290-11-21 04:18 J -13724675.38 -13724675.32 -13724675.25 0.0485 0.0460  
 Venus -42289-07-14 08:38 J -13724439.28 -13724439.14 -13724438.98 0.0488 0.0328  
 Earth -42286-09-14 19:11 J -13723281.91 -13723281.70 -13723281.48 0.0532 0.0216  
 Moon -42286-09-14 23:02 J -13723281.74 -13723281.54 -13723281.33 0.0532 0.0248 \*  
 Mercury -42286-10-05 22:04 J -13723260.70 -13723260.58 -13723260.47 0.0533 0.0332  
 Mercury -42285-01-03 15:06 J -13723170.97 -13723170.87 -13723170.77 0.0536 0.0371  
 Mars -42284-03-10 04:04 J -13722739.54 -13722739.33 -13722739.10 0.0544 0.0356  
 Venus -42284-09-29 07:54 J -13722536.29 -13722536.17 -13722536.06 0.0543 0.0444  
 Earth -42280-03-09 23:02 J -13721278.60 -13721278.54 -13721278.47 0.0497 0.0473  
 Moon -42280-03-10 01:26 J -13721278.48 -13721278.44 -13721278.39 0.0497 0.0485 \*  
 Mercury -42280-05-23 06:28 J -13721204.37 -13721204.23 -13721204.10 0.0495 0.0211  
 Mercury -42280-08-20 21:50 J -13721114.69 -13721114.59 -13721114.49 0.0492 0.0379  
 Venus -42277-03-19 10:04 J -13720173.28 -13720173.08 -13720172.88 0.0487 0.0104  
 Mercury -42274-07-24 23:30 J -13718950.57 -13718950.52 -13718950.48 0.0532 0.0504  
 Moon -42274-09-19 21:35 J -13718893.76 -13718893.60 -13718893.44 0.0534 0.0386  
 Earth -42274-09-20 00:28 J -13718893.63 -13718893.48 -13718893.31 0.0534 0.0382 \*  
 Mercury -42274-10-22 16:47 J -13718860.93 -13718860.80 -13718860.66 0.0535 0.0204  
 Venus -42271-01-27 18:57 J -13718032.86 -13718032.71 -13718032.55 0.0540 0.0321  
 Mercury -42268-03-11 08:09 J -13716894.26 -13716894.16 -13716894.05 0.0496 0.0355  
 Moon -42268-03-14 04:33 J -13716891.54 -13716891.31 -13716891.08 0.0496 0.0009  
 Earth -42268-03-14 08:09 J -13716891.40 -13716891.16 -13716890.93 0.0496 0.0015 \*  
 Mercury -42268-06-08 23:30 J -13716804.66 -13716804.52 -13716804.38 0.0493 0.0231  
 Mars -42267-12-19 03:21 J -13716246.59 -13716246.36 -13716246.13 0.0484 0.0232  
 Venus -42266-11-23 12:28 J -13715907.18 -13715906.98 -13715906.77 0.0486 0.0114  
 Mercury -42262-08-10 17:45 J -13714550.91 -13714550.76 -13714550.61 0.0534 0.0022  
 Venus -42260-10-02 07:11 J -13713767.40 -13713767.20 -13713767.00 0.0541 0.0017

Earth -42256-03-18 14:52 J -13712503.98 -13712503.88 -13712503.77 0.0494 0.0438  
 Moon -42256-03-18 18:57 J -13712503.78 -13712503.71 -13712503.62 0.0494 0.0464 \*  
 Mercury -42256-03-28 00:57 J -13712494.62 -13712494.46 -13712494.31 0.0494 0.0082  
 Venus -42254-07-29 14:52 J -13711641.03 -13711640.88 -13711640.73 0.0486 0.0332  
 Venus -42253-03-21 21:06 J -13711404.68 -13711404.62 -13711404.55 0.0489 0.0463  
 Mercury -42250-05-29 18:42 J -13710240.86 -13710240.72 -13710240.58 0.0533 0.0158  
 Mercury -42250-08-27 11:16 J -13710151.03 -13710151.03 -13710151.03 0.0536 0.0535  
 Mars -42249-12-16 06:57 J -13709674.43 -13709674.21 -13709673.98 0.0544 0.0329  
 Venus -42248-06-06 21:06 J -13709501.79 -13709501.62 -13709501.45 0.0542 0.0283  
 Mercury -42244-01-14 02:38 J -13708184.54 -13708184.39 -13708184.23 0.0495 0.0063  
 Venus -42242-11-25 20:09 J -13707138.84 -13707138.66 -13707138.47 0.0488 0.0233  
 Mercury -42238-03-17 19:40 J -13705930.79 -13705930.68 -13705930.57 0.0533 0.0339  
 Mercury -42238-06-15 12:42 J -13705841.07 -13705840.97 -13705840.86 0.0536 0.0364  
 Venus -42236-10-05 08:38 J -13704998.22 -13704998.14 -13704998.05 0.0539 0.0479  
 Mercury -42233-11-02 04:47 J -13703874.44 -13703874.30 -13703874.16 0.0495 0.0204  
 Mercury -42232-01-30 20:09 J -13703784.75 -13703784.66 -13703784.56 0.0492 0.0387  
 Mars -42231-09-21 18:14 J -13703185.98 -13703185.74 -13703185.48 0.0484 0.0164  
 Venus -42230-07-31 21:35 J -13702872.81 -13702872.60 -13702872.39 0.0487 0.0011  
 Mercury -42226-01-03 21:06 J -13701620.66 -13701620.62 -13701620.58 0.0532 0.0510  
 Mercury -42226-04-03 14:38 J -13701531.02 -13701530.89 -13701530.75 0.0535 0.0199  
 Venus -42224-06-10 01:26 J -13700732.62 -13700732.44 -13700732.25 0.0541 0.0196  
 Mercury -42221-08-21 06:28 J -13699564.33 -13699564.23 -13699564.12 0.0496 0.0350  
 Mercury -42221-11-18 21:35 J -13699474.73 -13699474.60 -13699474.46 0.0493 0.0235  
 Venus -42218-04-05 23:30 J -13698606.70 -13698606.52 -13698606.33 0.0486 0.0209  
 Mercury -42214-01-20 16:18 J -13697220.96 -13697220.82 -13697220.67 0.0534 0.0035  
 Venus -42212-02-12 16:33 J -13696467.01 -13696466.81 -13696466.62 0.0542 0.0101  
 Mercury -42209-06-09 08:23 J -13695254.16 -13695254.15 -13695254.13 0.0497 0.0493  
 Mercury -42209-09-06 23:16 J -13695164.68 -13695164.53 -13695164.37 0.0494 0.0088  
 Venus -42207-12-10 02:38 J -13694340.48 -13694340.39 -13694340.28 0.0485 0.0422  
 Venus -42206-08-03 07:54 J -13694104.30 -13694104.17 -13694104.03 0.0489 0.0368

Moon -42203-09-13 16:04 J -13692967.00 -13692966.83 -13692966.64 0.0531 0.0346  
 Earth -42203-09-13 19:40 J -13692966.86 -13692966.68 -13692966.49 0.0531 0.0312 \*  
 Mercury -42203-11-08 17:16 J -13692910.92 -13692910.78 -13692910.64 0.0533 0.0150  
 Venus -42201-10-18 03:21 J -13692201.48 -13692201.36 -13692201.23 0.0543 0.0410  
 Mercury -42197-06-26 00:42 J -13690854.62 -13690854.47 -13690854.32 0.0495 0.0063  
 Venus -42194-04-08 08:52 J -13689838.33 -13689838.13 -13689837.93 0.0488 0.0143  
 Mercury -42191-08-27 18:14 J -13688600.86 -13688600.74 -13688600.63 0.0532 0.0332  
 Earth -42191-09-18 20:52 J -13688578.83 -13688578.63 -13688578.42 0.0533 0.0265  
 Moon -42191-09-18 22:47 J -13688578.74 -13688578.55 -13688578.36 0.0533 0.0275 \*  
 Mercury -42191-11-25 11:16 J -13688511.14 -13688511.03 -13688510.93 0.0535 0.0368  
 Venus -42188-02-15 13:40 J -13687698.08 -13687697.93 -13687697.78 0.0540 0.0350  
 Earth -42185-03-13 11:30 J -13686576.24 -13686576.02 -13686575.79 0.0496 0.0090  
 Moon -42185-03-13 15:35 J -13686576.08 -13686575.85 -13686575.61 0.0496 0.0060 \*  
 Mercury -42185-04-14 02:38 J -13686544.53 -13686544.39 -13686544.25 0.0495 0.0207  
 Mercury -42185-07-12 18:14 J -13686454.84 -13686454.74 -13686454.65 0.0493 0.0384  
 Venus -42183-12-12 09:06 J -13685572.33 -13685572.12 -13685571.92 0.0486 0.0083  
 Mercury -42179-06-15 18:42 J -13684290.75 -13684290.72 -13684290.69 0.0532 0.0517  
 Mercury -42179-09-13 12:14 J -13684201.12 -13684200.99 -13684200.85 0.0535 0.0191  
 Venus -42177-10-21 06:14 J -13683432.44 -13683432.24 -13683432.04 0.0542 0.0061  
 Mercury -42173-02-01 04:47 J -13682234.41 -13682234.30 -13682234.19 0.0496 0.0346  
 Moon -42173-03-17 17:45 J -13682188.90 -13682188.76 -13682188.62 0.0494 0.0395  
 Earth -42173-03-17 21:35 J -13682188.75 -13682188.60 -13682188.45 0.0494 0.0373 \*  
 Mercury -42173-04-30 19:54 J -13682144.80 -13682144.67 -13682144.53 0.0493 0.0240  
 Venus -42171-08-17 11:16 J -13681306.18 -13681306.03 -13681305.86 0.0485 0.0300  
 Mercury -42167-07-02 14:09 J -13679891.06 -13679890.91 -13679890.77 0.0534 0.0026  
 Venus -42165-06-25 21:50 J -13679166.77 -13679166.59 -13679166.41 0.0543 0.0232  
 Mercury -42162-11-20 06:42 J -13677924.24 -13677924.22 -13677924.20 0.0497 0.0490  
 Mercury -42161-02-17 21:21 J -13677834.76 -13677834.61 -13677834.45 0.0494 0.0092  
 Venus -42159-12-14 17:45 J -13676803.93 -13676803.76 -13676803.58 0.0488 0.0269  
 Mercury -42155-04-20 15:35 J -13675580.99 -13675580.85 -13675580.70 0.0533 0.0147

Venus -42153-02-29 11:30 J -13674901.05 -13674901.02 -13674900.97 0.0543 0.0530  
 Venus -42153-10-24 07:54 J -13674663.21 -13674663.17 -13674663.12 0.0539 0.0523  
 Mercury -42150-12-06 23:16 J -13673524.69 -13673524.53 -13673524.38 0.0494 0.0058  
 Venus -42147-08-19 19:54 J -13672537.88 -13672537.67 -13672537.47 0.0487 0.0049  
 Mercury -42143-02-06 16:33 J -13671270.92 -13671270.81 -13671270.69 0.0532 0.0325  
 Mercury -42143-05-07 09:35 J -13671181.20 -13671181.10 -13671180.99 0.0535 0.0375  
 Venus -42141-06-28 20:52 J -13670397.81 -13670397.63 -13670397.45 0.0540 0.0226  
 Mercury -42138-09-25 00:28 J -13669214.62 -13669214.48 -13669214.34 0.0496 0.0208  
 Mercury -42138-12-23 16:04 J -13669124.93 -13669124.83 -13669124.73 0.0493 0.0384  
 Venus -42135-04-24 21:50 J -13668271.79 -13668271.59 -13668271.40 0.0486 0.0171  
 Mercury -42132-11-25 17:16 J -13666960.82 -13666960.78 -13666960.74 0.0531 0.0509  
 Mercury -42131-02-23 10:47 J -13666871.18 -13666871.05 -13666870.91 0.0534 0.0197  
 Mars -42130-06-03 10:47 J -13666406.32 -13666406.05 -13666405.79 0.0544 0.0203  
 Venus -42129-03-03 11:02 J -13666132.24 -13666132.04 -13666131.85 0.0542 0.0072  
 Mercury -42126-07-14 02:23 J -13664904.50 -13664904.40 -13664904.29 0.0496 0.0351  
 Mercury -42126-10-11 17:30 J -13664814.90 -13664814.77 -13664814.63 0.0493 0.0236  
 Venus -42124-12-28 22:47 J -13664005.66 -13664005.55 -13664005.42 0.0485 0.0391  
 Venus -42123-08-22 03:35 J -13663769.46 -13663769.35 -13663769.22 0.0489 0.0396  
 Earth -42120-09-12 15:06 J -13662652.00 -13662651.87 -13662651.74 0.0530 0.0436  
 Moon -42120-09-12 17:30 J -13662651.87 -13662651.77 -13662651.66 0.0530 0.0466 \*  
 Mercury -42120-12-12 11:45 J -13662561.16 -13662561.01 -13662560.87 0.0534 0.0020  
 Venus -42118-11-07 01:26 J -13661866.59 -13661866.44 -13661866.30 0.0543 0.0369  
 Mercury -42114-05-02 04:47 J -13660594.32 -13660594.30 -13660594.27 0.0497 0.0488  
 Mercury -42114-07-30 19:40 J -13660504.84 -13660504.68 -13660504.53 0.0494 0.0093  
 Mars -42112-03-13 17:45 J -13659913.02 -13659912.76 -13659912.50 0.0484 0.0111  
 Venus -42111-04-27 04:47 J -13659503.49 -13659503.30 -13659503.10 0.0487 0.0173  
 Moon -42108-09-17 19:26 J -13658263.92 -13658263.69 -13658263.46 0.0533 0.0169  
 Earth -42108-09-17 19:26 J -13658263.91 -13658263.69 -13658263.46 0.0533 0.0155 \*  
 Mercury -42108-09-30 13:11 J -13658251.09 -13658250.95 -13658250.81 0.0533 0.0156  
 Venus -42105-03-06 13:54 J -13657363.05 -13657362.92 -13657362.78 0.0540 0.0397

Moon -42102-03-13 13:11 J -13656261.18 -13656260.95 -13656260.73 0.0497 0.0135  
 Earth -42102-03-13 17:02 J -13656261.01 -13656260.79 -13656260.57 0.0497 0.0162 \*  
 Mercury -42102-05-18 21:21 J -13656194.77 -13656194.61 -13656194.46 0.0494 0.0056  
 Venus -42100-12-31 06:14 J -13655237.45 -13655237.24 -13655237.04 0.0486 0.0049  
 Mercury -42096-07-19 14:38 J -13653941.00 -13653940.89 -13653940.77 0.0533 0.0326  
 Mercury -42096-10-17 07:54 J -13653851.27 -13653851.17 -13653851.07 0.0536 0.0377  
 Mars -42094-03-12 10:33 J -13653340.13 -13653340.06 -13653339.97 0.0544 0.0522  
 Venus -42094-11-10 05:45 J -13653097.45 -13653097.26 -13653097.07 0.0541 0.0107  
 Mercury -42090-03-06 23:02 J -13651884.68 -13651884.54 -13651884.40 0.0495 0.0200  
 Earth -42090-03-18 00:57 J -13651873.64 -13651873.46 -13651873.27 0.0495 0.0294  
 Moon -42090-03-18 03:35 J -13651873.52 -13651873.35 -13651873.17 0.0495 0.0313 \*  
 Mercury -42090-06-04 14:23 J -13651794.99 -13651794.90 -13651794.80 0.0493 0.0389  
 Venus -42088-09-05 08:52 J -13650971.30 -13650971.13 -13650970.95 0.0486 0.0264  
 Mercury -42084-05-07 15:35 J -13649630.89 -13649630.85 -13649630.80 0.0531 0.0504  
 Mercury -42084-08-05 09:21 J -13649541.25 -13649541.11 -13649540.98 0.0534 0.0203  
 Venus -42082-07-15 17:45 J -13648831.95 -13648831.76 -13648831.58 0.0542 0.0198  
 Mercury -42079-12-24 00:28 J -13647574.59 -13647574.48 -13647574.37 0.0496 0.0352  
 Mercury -42078-03-23 15:35 J -13647484.99 -13647484.85 -13647484.71 0.0494 0.0235  
 Mars -42077-12-15 08:23 J -13646852.36 -13646852.15 -13646851.93 0.0485 0.0282  
 Venus -42076-05-11 11:30 J -13646705.04 -13646705.02 -13646704.98 0.0485 0.0478  
 Venus -42075-01-02 15:50 J -13646469.00 -13646468.84 -13646468.68 0.0488 0.0304  
 Mercury -42072-05-24 10:18 J -13645231.22 -13645231.07 -13645230.92 0.0533 0.0024  
 Venus -42070-03-20 06:28 J -13644566.31 -13644566.23 -13644566.16 0.0543 0.0499  
 Mercury -42067-10-12 02:23 J -13643264.41 -13643264.40 -13643264.38 0.0497 0.0494  
 Mercury -42066-01-09 17:16 J -13643174.93 -13643174.78 -13643174.63 0.0494 0.0088  
 Venus -42064-09-07 15:35 J -13642203.06 -13642202.85 -13642202.64 0.0487 0.0077  
 Mercury -42060-03-12 10:47 J -13640921.19 -13640921.05 -13640920.91 0.0533 0.0164  
 Mercury -42060-06-10 03:35 J -13640831.36 -13640831.35 -13640831.33 0.0536 0.0531  
 Venus -42058-07-18 18:28 J -13640062.90 -13640062.73 -13640062.55 0.0541 0.0264  
 Mercury -42055-10-28 19:26 J -13638864.85 -13638864.69 -13638864.54 0.0495 0.0053

Venus -42052-05-13 17:45 J -13637936.96 -13637936.76 -13637936.56 0.0486 0.0141  
 Mercury -42049-12-29 12:14 J -13636611.11 -13636610.99 -13636610.88 0.0532 0.0337  
 Mercury -42048-03-29 05:30 J -13636521.38 -13636521.27 -13636521.17 0.0536 0.0366  
 Venus -42046-03-23 10:47 J -13635797.25 -13635797.05 -13635796.85 0.0542 0.0025  
 Mercury -42043-08-16 21:06 J -13634554.76 -13634554.62 -13634554.48 0.0495 0.0199  
 Mercury -42043-11-14 12:28 J -13634465.07 -13634464.98 -13634464.88 0.0493 0.0391  
 Venus -42040-01-16 19:54 J -13633670.81 -13633670.67 -13633670.53 0.0485 0.0356  
 Venus -42040-09-10 00:57 J -13633434.56 -13633434.46 -13633434.36 0.0489 0.0429  
 Earth -42037-09-11 17:30 J -13632336.78 -13632336.77 -13632336.74 0.0530 0.0527  
 Mercury -42037-10-17 13:40 J -13632300.97 -13632300.93 -13632300.89 0.0532 0.0508  
 Mercury -42036-01-15 07:26 J -13632211.33 -13632211.19 -13632211.06 0.0535 0.0202  
 Venus -42035-11-26 01:26 J -13631531.60 -13631531.44 -13631531.28 0.0543 0.0320  
 Mercury -42031-06-04 23:02 J -13630244.65 -13630244.54 -13630244.43 0.0496 0.0343  
 Mercury -42031-09-02 14:09 J -13630155.05 -13630154.91 -13630154.78 0.0493 0.0242  
 Venus -42028-05-16 02:23 J -13629168.58 -13629168.40 -13629168.21 0.0488 0.0209  
 Moon -42025-09-16 19:11 J -13627948.92 -13627948.70 -13627948.48 0.0532 0.0084  
 Earth -42025-09-16 21:06 J -13627948.85 -13627948.62 -13627948.39 0.0532 0.0062 \*  
 Mercury -42025-11-03 08:38 J -13627901.28 -13627901.14 -13627900.99 0.0534 0.0033  
 Venus -42022-03-26 10:04 J -13627028.20 -13627028.08 -13627027.96 0.0539 0.0428  
 Earth -42019-03-12 17:45 J -13625945.96 -13625945.76 -13625945.55 0.0498 0.0252  
 Moon -42019-03-12 20:38 J -13625945.84 -13625945.64 -13625945.44 0.0497 0.0223 \*  
 Mercury -42019-03-24 00:28 J -13625934.49 -13625934.48 -13625934.46 0.0497 0.0494  
 Mercury -42019-06-21 15:06 J -13625845.02 -13625844.87 -13625844.71 0.0494 0.0089  
 Venus -42016-01-19 03:50 J -13624902.55 -13624902.34 -13624902.13 0.0487 0.0014  
 Mercury -42013-08-22 09:35 J -13623591.24 -13623591.10 -13623590.96 0.0533 0.0152  
 Venus -42011-11-29 00:42 J -13622762.66 -13622762.47 -13622762.28 0.0541 0.0136  
 Moon -42007-03-17 02:09 J -13621558.63 -13621558.41 -13621558.19 0.0496 0.0220  
 Earth -42007-03-17 03:06 J -13621558.58 -13621558.37 -13621558.16 0.0496 0.0211 \*  
 Mercury -42007-04-09 17:02 J -13621534.94 -13621534.79 -13621534.64 0.0495 0.0058  
 Venus -42005-09-24 05:02 J -13620636.47 -13620636.29 -13620636.11 0.0485 0.0233

Mercury -42001-06-10 09:50 J -13619281.20 -13619281.09 -13619280.98 0.0532 0.0344

Mercury -42001-09-08 03:06 J -13619191.47 -13619191.37 -13619191.26 0.0535 0.0359

# 42ND MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 42nd millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Venus	-41999-08-03 14:52 J		-13618497.07	-13618496.88	-13618496.69	0.0543	0.0160	
Mercury	-41995-01-26 19:11 J		-13617224.84	-13617224.70	-13617224.55	0.0496	0.0198	
Mercury	-41995-04-26 10:47 J		-13617135.15	-13617135.05	-13617134.96	0.0493	0.0393	
Mars	-41994-09-03 17:59 J		-13616639.90	-13616639.75	-13616639.59	0.0484	0.0383	
Venus	-41993-05-30 08:09 J		-13616370.24	-13616370.16	-13616370.08	0.0485	0.0445	
Venus	-41992-01-21 11:45 J		-13616134.16	-13616134.01	-13616133.86	0.0488	0.0333	
Mercury	-41989-03-29 11:02 J		-13614971.07	-13614971.04	-13614971.01	0.0531	0.0519	
Mercury	-41989-06-27 04:47 J		-13614881.43	-13614881.30	-13614881.16	0.0535	0.0190	
Venus	-41987-04-08 05:45 J		-13614231.37	-13614231.26	-13614231.15	0.0544	0.0453	
Mercury	-41984-11-14 21:21 J		-13612914.72	-13612914.61	-13612914.50	0.0496	0.0340	
Mercury	-41983-02-12 12:14 J		-13612825.12	-13612824.99	-13612824.85	0.0493	0.0245	
Venus	-41981-09-26 12:42 J		-13611868.17	-13611867.97	-13611867.76	0.0487	0.0112	
Mercury	-41977-04-15 06:42 J		-13610571.37	-13610571.22	-13610571.08	0.0534	0.0027	
Mars	-41976-08-27 10:18 J		-13610072.36	-13610072.07	-13610071.78	0.0544	0.0017	
Venus	-41975-08-06 18:42 J		-13609727.88	-13609727.72	-13609727.56	0.0540	0.0311	
Mercury	-41972-09-02 23:16 J		-13608604.56	-13608604.53	-13608604.50	0.0497	0.0483	

Mercury -41972-12-01 13:54 J -13608515.07 -13608514.92 -13608514.77 0.0494 0.0097

Venus -41969-06-01 15:06 J -13607602.07 -13607601.87 -13607601.66 0.0486 0.0106

Mercury -41965-02-02 08:09 J -13606261.31 -13606261.16 -13606261.02 0.0533 0.0147

Venus -41963-04-11 08:09 J -13605462.36 -13605462.16 -13605461.96 0.0541 0.0014

Mercury -41960-09-19 15:06 J -13604205.02 -13604204.87 -13604204.72 0.0495 0.0057

Mars -41958-06-07 05:59 J -13603579.52 -13603579.25 -13603578.99 0.0485 0.0007

Venus -41957-02-05 17:30 J -13603335.92 -13603335.77 -13603335.61 0.0486 0.0321

Venus -41957-09-28 23:02 J -13603099.60 -13603099.54 -13603099.47 0.0489 0.0464

Mercury -41954-11-21 08:52 J -13601951.24 -13601951.13 -13601951.01 0.0532 0.0328

Mercury -41953-02-19 02:09 J -13601861.51 -13601861.41 -13601861.31 0.0535 0.0373

Venus -41952-12-14 21:21 J -13601196.78 -13601196.61 -13601196.44 0.0542 0.0286

Mercury -41948-07-08 17:02 J -13599894.93 -13599894.79 -13599894.65 0.0496 0.0201

Mercury -41948-10-06 08:23 J -13599805.24 -13599805.15 -13599805.05 0.0493 0.0390

Venus -41945-06-03 22:47 J -13598833.73 -13598833.55 -13598833.37 0.0487 0.0239

Mercury -41942-09-09 08:52 J -13597641.15 -13597641.13 -13597641.11 0.0531 0.0523

Earth -41942-09-16 14:38 J -13597634.12 -13597633.89 -13597633.66 0.0531 0.0073

Moon -41942-09-16 17:59 J -13597633.99 -13597633.75 -13597633.52 0.0531 0.0045 \*

Mercury -41942-12-08 02:38 J -13597551.53 -13597551.39 -13597551.25 0.0534 0.0186

Venus -41939-04-14 07:26 J -13596693.28 -13596693.19 -13596693.09 0.0540 0.0466

Moon -41936-03-11 23:45 J -13595630.70 -13595630.51 -13595630.31 0.0498 0.0290

Earth -41936-03-12 00:42 J -13595630.64 -13595630.47 -13595630.29 0.0498 0.0318 \*

Mercury -41936-04-26 19:26 J -13595584.80 -13595584.69 -13595584.58 0.0496 0.0338

Mercury -41936-07-25 10:33 J -13595495.20 -13595495.06 -13595494.93 0.0494 0.0248

Venus -41933-02-08 00:28 J -13594567.68 -13594567.48 -13594567.27 0.0486 0.0022

Earth -41930-09-21 18:42 J -13593245.75 -13593245.72 -13593245.66 0.0534 0.0521

Mercury -41930-09-26 04:18 J -13593241.47 -13593241.32 -13593241.18 0.0534 0.0022

Venus -41928-12-18 00:14 J -13592427.68 -13592427.49 -13592427.30 0.0541 0.0183

Mercury -41924-02-12 21:35 J -13591274.64 -13591274.60 -13591274.56 0.0497 0.0478

Moon -41924-03-16 09:06 J -13591243.34 -13591243.12 -13591242.91 0.0496 0.0148

Earth -41924-03-16 10:04 J -13591243.30 -13591243.08 -13591242.85 0.0496 0.0147 \*



Mercury -41924-05-13 12:14 J -13591185.14 -13591184.99 -13591184.84 0.0494 0.0102  
 Mars -41922-03-10 21:50 J -13590518.74 -13590518.59 -13590518.44 0.0484 0.0393  
 Venus -41922-10-14 02:38 J -13590301.58 -13590301.39 -13590301.20 0.0485 0.0198  
 Mercury -41918-07-15 05:59 J -13588931.39 -13588931.25 -13588931.11 0.0533 0.0152  
 Venus -41916-08-22 15:50 J -13588162.03 -13588161.84 -13588161.64 0.0542 0.0108  
 Mercury -41912-03-01 13:54 J -13586875.07 -13586874.92 -13586874.76 0.0495 0.0046  
 Venus -41910-06-19 05:45 J -13586035.37 -13586035.26 -13586035.15 0.0485 0.0409  
 Venus -41909-02-10 09:50 J -13585799.22 -13585799.09 -13585798.95 0.0488 0.0370  
 Mercury -41906-05-03 07:11 J -13584621.31 -13584621.20 -13584621.08 0.0532 0.0323  
 Mercury -41906-08-01 00:42 J -13584531.57 -13584531.47 -13584531.37 0.0535 0.0380  
 Venus -41904-04-27 04:33 J -13583896.43 -13583896.31 -13583896.17 0.0543 0.0409  
 Mercury -41901-12-18 15:21 J -13582565.00 -13582564.86 -13582564.72 0.0496 0.0197  
 Mercury -41900-03-18 06:42 J -13582475.31 -13582475.22 -13582475.13 0.0493 0.0393  
 Venus -41898-10-16 11:16 J -13581533.23 -13581533.03 -13581532.83 0.0487 0.0149  
 Mercury -41894-02-19 08:09 J -13580311.20 -13580311.16 -13580311.12 0.0531 0.0504  
 Mercury -41894-05-20 01:54 J -13580221.56 -13580221.42 -13580221.29 0.0534 0.0204  
 Venus -41892-08-25 15:21 J -13579393.01 -13579392.86 -13579392.71 0.0540 0.0345  
 Mercury -41889-10-06 17:16 J -13578254.88 -13578254.78 -13578254.66 0.0496 0.0340  
 Mercury -41888-01-04 08:23 J -13578165.28 -13578165.15 -13578165.02 0.0494 0.0247  
 Venus -41886-06-21 12:14 J -13577267.19 -13577266.99 -13577266.78 0.0486 0.0072  
 Mercury -41882-03-08 02:09 J -13575911.56 -13575911.41 -13575911.26 0.0533 0.0015  
 Venus -41880-04-30 05:16 J -13575127.47 -13575127.28 -13575127.08 0.0542 0.0054  
 Mercury -41877-07-25 19:54 J -13573944.71 -13573944.67 -13573944.63 0.0497 0.0475  
 Mercury -41877-10-23 10:33 J -13573855.21 -13573855.06 -13573854.91 0.0494 0.0106  
 Venus -41874-02-24 15:21 J -13573001.03 -13573000.86 -13573000.69 0.0485 0.0284  
 Mercury -41871-12-25 03:35 J -13571601.49 -13571601.35 -13571601.21 0.0533 0.0160  
 Venus -41868-01-02 20:38 J -13570861.82 -13570861.64 -13570861.46 0.0543 0.0239  
 Mercury -41865-08-11 12:28 J -13569545.14 -13569544.98 -13569544.83 0.0495 0.0038  
 Venus -41862-06-23 20:38 J -13568498.80 -13568498.64 -13568498.46 0.0488 0.0276  
 Moon -41859-09-15 14:52 J -13567319.10 -13567318.88 -13567318.66 0.0531 0.0130

Earth -41859-09-15 18:42 J -13567318.94 -13567318.72 -13567318.50 0.0531 0.0158 \*  
 Mercury -41859-10-13 05:02 J -13567291.40 -13567291.29 -13567291.17 0.0532 0.0329  
 Mercury -41858-01-10 22:33 J -13567201.66 -13567201.56 -13567201.46 0.0535 0.0376  
 Venus -41857-09-07 11:16 J -13566596.06 -13566596.03 -13566595.99 0.0544 0.0531  
 Venus -41856-05-03 09:06 J -13566358.18 -13566358.12 -13566358.07 0.0539 0.0516  
 Moon -41853-03-11 06:14 J -13565315.39 -13565315.24 -13565315.08 0.0498 0.0359  
 Earth -41853-03-11 07:26 J -13565315.33 -13565315.19 -13565315.04 0.0498 0.0385 \*  
 Mercury -41853-05-30 14:23 J -13565235.04 -13565234.90 -13565234.76 0.0495 0.0182  
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 Earth -41847-09-21 00:14 J -13562930.62 -13562930.49 -13562930.36 0.0533 0.0443  
 Moon -41847-09-21 03:50 J -13562930.44 -13562930.34 -13562930.22 0.0533 0.0465 \*  
 Mercury -41847-10-30 00:28 J -13562891.62 -13562891.48 -13562891.35 0.0534 0.0211  
 Venus -41844-01-05 23:45 J -13562092.69 -13562092.51 -13562092.33 0.0541 0.0227  
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 Moon -41841-03-15 16:47 J -13560928.04 -13560927.80 -13560927.56 0.0496 0.0066 \*  
 Mercury -41841-03-18 15:50 J -13560924.95 -13560924.84 -13560924.72 0.0496 0.0333  
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 Mars -41840-11-27 10:47 J -13560306.26 -13560306.05 -13560305.83 0.0485 0.0265  
 Venus -41839-11-02 01:11 J -13559966.64 -13559966.45 -13559966.25 0.0486 0.0159  
 Mercury -41835-08-18 01:40 J -13558581.58 -13558581.43 -13558581.28 0.0533 0.0035  
 Venus -41833-09-10 13:54 J -13557827.12 -13557826.92 -13557826.73 0.0542 0.0068  
 Mercury -41829-01-05 17:59 J -13556614.79 -13556614.75 -13556614.70 0.0497 0.0473  
 Mercury -41829-04-04 08:38 J -13556525.29 -13556525.14 -13556524.99 0.0494 0.0108  
 Venus -41827-07-08 03:50 J -13555700.47 -13555700.34 -13555700.21 0.0485 0.0371  
 Venus -41826-03-01 07:40 J -13555464.29 -13555464.18 -13555464.06 0.0488 0.0406  
 Mercury -41823-06-06 01:40 J -13554271.57 -13554271.43 -13554271.28 0.0533 0.0159  
 Mars -41822-11-20 19:11 J -13553738.98 -13553738.70 -13553738.42 0.0544 0.0134  
 Venus -41821-05-16 01:40 J -13553561.57 -13553561.43 -13553561.28 0.0544 0.0369

Mercury -41817-01-22 11:02 J -13552215.20 -13552215.04 -13552214.89 0.0495 0.0034

Venus -41815-11-04 09:21 J -13551198.30 -13551198.11 -13551197.91 0.0487 0.0187

Mercury -41811-03-25 02:52 J -13549961.49 -13549961.38 -13549961.26 0.0532 0.0334

Mercury -41811-06-22 20:23 J -13549871.75 -13549871.65 -13549871.55 0.0535 0.0370

Venus -41809-09-13 15:06 J -13549058.00 -13549057.87 -13549057.73 0.0541 0.0393

Mercury -41806-11-10 12:57 J -13547905.10 -13547904.96 -13547904.82 0.0496 0.0173

Mercury -41805-02-08 04:18 J -13547815.40 -13547815.32 -13547815.24 0.0493 0.0416

Mars -41804-08-31 02:52 J -13547245.64 -13547245.38 -13547245.13 0.0484 0.0127

Venus -41803-07-10 11:02 J -13546932.25 -13546932.04 -13546931.83 0.0486 0.0032

Mercury -41799-01-11 04:18 J -13545651.36 -13545651.32 -13545651.27 0.0531 0.0503

Mercury -41799-04-10 22:18 J -13545561.70 -13545561.57 -13545561.43 0.0535 0.0208

Venus -41797-05-19 07:40 J -13544792.37 -13544792.18 -13544791.98 0.0542 0.0108

Mercury -41794-08-29 15:06 J -13543594.99 -13543594.87 -13543594.75 0.0496 0.0315

Mercury -41794-11-27 05:59 J -13543505.38 -13543505.25 -13543505.12 0.0493 0.0269

Venus -41791-03-15 14:09 J -13542666.09 -13542665.91 -13542665.73 0.0485 0.0245

Mercury -41787-01-28 00:14 J -13541251.64 -13541251.49 -13541251.34 0.0534 0.0043

Venus -41785-01-22 21:50 J -13540526.78 -13540526.59 -13540526.40 0.0542 0.0187

Mercury -41782-06-17 16:47 J -13539284.85 -13539284.80 -13539284.75 0.0497 0.0464

Mercury -41782-09-15 07:11 J -13539195.35 -13539195.20 -13539195.05 0.0494 0.0117

Venus -41780-11-18 17:02 J -13538399.85 -13538399.79 -13538399.71 0.0485 0.0456

Venus -41779-07-12 20:23 J -13538163.80 -13538163.65 -13538163.49 0.0488 0.0316

Earth -41776-09-14 23:02 J -13537003.75 -13537003.54 -13537003.34 0.0530 0.0241

Moon -41776-09-15 02:52 J -13537003.59 -13537003.38 -13537003.16 0.0530 0.0208 \*

Mercury -41776-11-16 01:26 J -13536941.58 -13536941.44 -13536941.30 0.0533 0.0133

Venus -41774-09-27 10:47 J -13536261.14 -13536261.05 -13536260.97 0.0543 0.0485

Earth -41770-03-11 12:42 J -13535000.06 -13534999.97 -13534999.88 0.0499 0.0459

Moon -41770-03-11 15:35 J -13534999.97 -13534999.85 -13534999.73 0.0499 0.0429 \*

Mercury -41770-07-04 09:06 J -13534885.27 -13534885.12 -13534884.96 0.0495 0.0031

Venus -41767-03-17 21:50 J -13533897.79 -13533897.59 -13533897.38 0.0486 0.0099

Mercury -41764-09-04 01:26 J -13532631.56 -13532631.44 -13532631.32 0.0532 0.0328

Moon -41764-09-19 17:16 J -13532615.96 -13532615.78 -13532615.59 0.0532 0.0335  
 Earth -41764-09-19 20:23 J -13532615.83 -13532615.65 -13532615.46 0.0532 0.0322 \*  
 Mercury -41764-12-02 18:42 J -13532541.82 -13532541.72 -13532541.61 0.0535 0.0375  
 Venus -41761-01-25 21:21 J -13531757.78 -13531757.61 -13531757.43 0.0541 0.0268  
 Moon -41758-03-15 20:52 J -13530612.86 -13530612.63 -13530612.40 0.0497 0.0011  
 Earth -41758-03-16 00:14 J -13530612.72 -13530612.49 -13530612.25 0.0497 0.0019 \*  
 Mercury -41758-04-22 11:30 J -13530575.16 -13530575.02 -13530574.87 0.0496 0.0166  
 Mercury -41758-07-21 02:52 J -13530485.46 -13530485.38 -13530485.30 0.0493 0.0425  
 Venus -41756-11-21 00:42 J -13529631.67 -13529631.47 -13529631.27 0.0485 0.0116  
 Mercury -41752-06-23 02:23 J -13528321.44 -13528321.40 -13528321.35 0.0531 0.0504  
 Mercury -41752-09-20 20:23 J -13528231.79 -13528231.65 -13528231.52 0.0534 0.0205  
 Venus -41750-09-30 13:11 J -13527492.15 -13527491.95 -13527491.75 0.0543 0.0022  
 Mercury -41746-02-08 13:40 J -13526265.05 -13526264.93 -13526264.81 0.0496 0.0306  
 Earth -41746-03-20 09:35 J -13526225.14 -13526225.10 -13526225.04 0.0495 0.0484  
 Moon -41746-03-20 13:40 J -13526225.02 -13526224.93 -13526224.84 0.0495 0.0454  
 Mercury -41746-05-09 04:33 J -13526175.43 -13526175.31 -13526175.18 0.0494 0.0280  
 Venus -41744-07-27 03:06 J -13525365.52 -13525365.37 -13525365.22 0.0485 0.0330  
 Venus -41743-03-20 07:11 J -13525129.28 -13525129.20 -13525129.12 0.0488 0.0444  
 Mercury -41740-07-09 22:04 J -13523921.72 -13523921.58 -13523921.43 0.0534 0.0043  
 Venus -41738-06-05 04:47 J -13523226.47 -13523226.30 -13523226.14 0.0544 0.0310  
 Mercury -41735-11-27 16:04 J -13521954.90 -13521954.83 -13521954.77 0.0497 0.0445  
 Mercury -41734-02-25 06:28 J -13521865.38 -13521865.23 -13521865.08 0.0494 0.0135  
 Venus -41732-11-23 08:52 J -13520863.31 -13520863.13 -13520862.94 0.0487 0.0228  
 Mercury -41728-04-27 23:59 J -13519611.64 -13519611.50 -13519611.36 0.0533 0.0125  
 Venus -41726-10-03 16:47 J -13518722.91 -13518722.80 -13518722.68 0.0540 0.0442  
 Mercury -41723-12-14 07:54 J -13517555.32 -13517555.17 -13517555.01 0.0495 0.0018  
 Venus -41720-07-29 11:02 J -13516597.25 -13516597.04 -13516596.84 0.0486 0.0013  
 Mercury -41716-02-14 01:11 J -13515301.57 -13515301.45 -13515301.33 0.0532 0.0301  
 Mercury -41716-05-14 18:28 J -13515211.82 -13515211.73 -13515211.63 0.0535 0.0402  
 Venus -41714-06-08 07:26 J -13514457.37 -13514457.19 -13514456.99 0.0541 0.0156

Mercury -41711-10-02 10:04 J -13513245.23 -13513245.08 -13513244.94 0.0496 0.0159

Mercury -41711-12-31 01:11 J -13513155.52 -13513155.45 -13513155.37 0.0493 0.0431

Venus -41708-04-03 13:54 J -13512331.11 -13512330.92 -13512330.73 0.0485 0.0202

Mercury -41705-12-03 00:57 J -13510991.51 -13510991.46 -13510991.41 0.0531 0.0496

Mercury -41704-03-02 18:57 J -13510901.85 -13510901.71 -13510901.58 0.0534 0.0212

Mars -41703-05-08 03:21 J -13510470.55 -13510470.36 -13510470.15 0.0544 0.0390

Venus -41702-02-10 19:11 J -13510191.89 -13510191.70 -13510191.50 0.0543 0.0146

Mercury -41699-07-21 12:28 J -13508935.10 -13508934.98 -13508934.86 0.0497 0.0297

Mercury -41699-10-19 03:21 J -13508845.49 -13508845.36 -13508845.23 0.0494 0.0290

Venus -41697-12-07 17:30 J -13508064.87 -13508064.77 -13508064.65 0.0484 0.0410

Venus -41696-07-31 20:23 J -13507828.79 -13507828.65 -13507828.51 0.0487 0.0359

Moon -41693-09-13 17:45 J -13506688.94 -13506688.76 -13506688.56 0.0530 0.0322

Earth -41693-09-13 21:21 J -13506688.78 -13506688.61 -13506688.43 0.0530 0.0350 \*

Mercury -41693-12-19 20:23 J -13506591.80 -13506591.65 -13506591.51 0.0533 0.0041

Venus -41691-10-16 09:35 J -13505926.21 -13505926.10 -13505925.98 0.0544 0.0438

Moon -41687-03-10 20:09 J -13504684.72 -13504684.66 -13504684.60 0.0499 0.0480

Mercury -41687-05-09 14:38 J -13504624.96 -13504624.89 -13504624.81 0.0497 0.0435

Mercury -41687-08-07 05:16 J -13504535.43 -13504535.28 -13504535.13 0.0494 0.0146

Mars -41685-02-21 15:50 J -13503972.09 -13503971.84 -13503971.58 0.0484 0.0125

Venus -41684-04-05 21:35 J -13503562.79 -13503562.60 -13503562.39 0.0486 0.0140

Earth -41681-09-19 02:23 J -13502300.61 -13502300.40 -13502300.20 0.0532 0.0247

Moon -41681-09-19 03:35 J -13502300.55 -13502300.35 -13502300.15 0.0532 0.0252 \*

Mercury -41681-10-07 22:04 J -13502281.73 -13502281.58 -13502281.44 0.0533 0.0127

Venus -41678-02-14 00:42 J -13501422.63 -13501422.47 -13501422.31 0.0541 0.0326

Earth -41675-03-15 10:18 J -13500297.30 -13500297.07 -13500296.83 0.0497 0.0034

Moon -41675-03-15 14:09 J -13500297.14 -13500296.91 -13500296.68 0.0497 0.0046 \*

Mercury -41675-05-26 07:11 J -13500225.35 -13500225.20 -13500225.04 0.0495 0.0015

Venus -41673-12-10 00:28 J -13499296.69 -13499296.48 -13499296.28 0.0486 0.0075

Mercury -41669-07-26 23:45 J -13497971.63 -13497971.51 -13497971.39 0.0532 0.0293

Mercury -41669-10-24 17:16 J -13497881.88 -13497881.78 -13497881.69 0.0535 0.0411

Mars -41667-02-14 19:54 J -13497403.88 -13497403.67 -13497403.46 0.0544 0.0371  
 Venus -41667-10-19 16:04 J -13497157.02 -13497156.83 -13497156.63 0.0542 0.0040  
 Mercury -41663-03-14 08:52 J -13495915.28 -13495915.13 -13495914.98 0.0496 0.0146  
 Moon -41663-03-19 14:38 J -13495910.03 -13495909.89 -13495909.75 0.0495 0.0393  
 Earth -41663-03-19 17:45 J -13495909.88 -13495909.76 -13495909.64 0.0495 0.0422 \*  
 Mercury -41663-06-12 00:14 J -13495825.56 -13495825.49 -13495825.43 0.0493 0.0443  
 Venus -41661-08-15 03:06 J -13495030.53 -13495030.37 -13495030.19 0.0485 0.0287  
 Venus -41660-04-08 07:54 J -13494794.18 -13494794.17 -13494794.16 0.0489 0.0488  
 Mercury -41657-05-15 00:42 J -13493661.53 -13493661.47 -13493661.40 0.0531 0.0468  
 Mercury -41657-08-12 18:42 J -13493571.85 -13493571.72 -13493571.59 0.0534 0.0240  
 Venus -41655-06-24 05:30 J -13492891.44 -13492891.27 -13492891.09 0.0543 0.0258  
 Mercury -41652-12-31 11:02 J -13491605.16 -13491605.04 -13491604.92 0.0497 0.0288  
 Mercury -41651-03-31 01:54 J -13491515.54 -13491515.42 -13491515.30 0.0494 0.0298  
 Mars -41650-11-25 08:23 J -13490911.37 -13490911.15 -13490910.93 0.0484 0.0266  
 Venus -41649-12-12 09:21 J -13490528.28 -13490528.11 -13490527.93 0.0487 0.0272  
 Mercury -41645-05-31 18:57 J -13489261.85 -13489261.71 -13489261.56 0.0533 0.0052  
 Venus -41643-10-22 14:38 J -13488387.97 -13488387.89 -13488387.80 0.0540 0.0484  
 Mercury -41640-10-19 13:26 J -13487295.01 -13487294.94 -13487294.86 0.0498 0.0426  
 Mercury -41639-01-17 04:04 J -13487205.48 -13487205.33 -13487205.19 0.0495 0.0157  
 Venus -41637-08-17 11:45 J -13486262.21 -13486262.01 -13486261.80 0.0486 0.0057  
 Mercury -41633-03-19 20:09 J -13484951.80 -13484951.66 -13484951.51 0.0532 0.0125  
 Venus -41631-06-27 06:42 J -13484122.41 -13484122.22 -13484122.04 0.0542 0.0201  
 Mercury -41628-11-05 05:59 J -13482895.40 -13482895.25 -13482895.09 0.0495 0.0015  
 Venus -41625-04-22 13:54 J -13481996.11 -13481995.92 -13481995.72 0.0485 0.0159  
 Mercury -41621-01-06 21:50 J -13480641.72 -13480641.59 -13480641.47 0.0532 0.0294  
 Mercury -41621-04-05 15:06 J -13480551.96 -13480551.87 -13480551.77 0.0535 0.0410  
 Venus -41619-03-01 22:47 J -13479856.74 -13479856.55 -13479856.35 0.0543 0.0086  
 Mercury -41616-08-24 08:09 J -13478585.31 -13478585.16 -13478585.01 0.0496 0.0127  
 Mercury -41616-11-21 23:16 J -13478495.57 -13478495.53 -13478495.47 0.0493 0.0463  
 Venus -41614-12-27 17:30 J -13477729.90 -13477729.77 -13477729.64 0.0484 0.0368

Venus -41613-08-19 20:23 J -13477493.76 -13477493.65 -13477493.53 0.0488 0.0400  
 Earth -41610-09-14 05:59 J -13476373.39 -13476373.25 -13476373.10 0.0529 0.0410  
 Moon -41610-09-14 07:40 J -13476373.33 -13476373.18 -13476373.01 0.0529 0.0380 \*  
 Mercury -41610-10-25 23:16 J -13476331.60 -13476331.53 -13476331.45 0.0531 0.0461  
 Mercury -41609-01-23 17:16 J -13476241.91 -13476241.78 -13476241.65 0.0534 0.0248  
 Venus -41608-11-04 13:26 J -13475591.08 -13475590.94 -13475590.80 0.0544 0.0377  
 Mercury -41604-06-12 09:50 J -13474275.21 -13474275.09 -13474274.96 0.0496 0.0275  
 Mercury -41604-09-10 00:42 J -13474185.59 -13474185.47 -13474185.35 0.0494 0.0311  
 Venus -41601-04-24 22:18 J -13473227.76 -13473227.57 -13473227.37 0.0487 0.0184  
 Earth -41598-09-19 09:50 J -13471985.31 -13471985.09 -13471984.87 0.0531 0.0180  
 Moon -41598-09-19 10:33 J -13471985.29 -13471985.06 -13471984.83 0.0532 0.0175 \*  
 Mercury -41598-11-11 18:42 J -13471931.86 -13471931.72 -13471931.57 0.0533 0.0079  
 Venus -41595-03-05 01:40 J -13471087.57 -13471087.43 -13471087.28 0.0541 0.0375  
 Moon -41592-03-14 15:06 J -13469982.10 -13469981.87 -13469981.64 0.0498 0.0115  
 Earth -41592-03-14 18:14 J -13469981.97 -13469981.74 -13469981.51 0.0498 0.0095 \*  
 Mercury -41592-03-31 12:14 J -13469965.07 -13469964.99 -13469964.91 0.0497 0.0416  
 Mercury -41592-06-29 02:38 J -13469875.53 -13469875.39 -13469875.24 0.0494 0.0166  
 Venus -41590-12-30 01:11 J -13468961.66 -13468961.45 -13468961.24 0.0486 0.0029  
 Mercury -41586-08-30 18:57 J -13467621.85 -13467621.71 -13467621.56 0.0532 0.0113  
 Venus -41584-11-07 13:40 J -13466822.13 -13466821.93 -13466821.73 0.0542 0.0079  
 Earth -41580-03-19 04:04 J -13465594.47 -13465594.33 -13465594.17 0.0496 0.0377  
 Moon -41580-03-19 05:59 J -13465594.41 -13465594.25 -13465594.10 0.0496 0.0356 \*  
 Mercury -41580-04-17 04:47 J -13465565.46 -13465565.30 -13465565.15 0.0495 0.0025  
 Venus -41578-09-04 04:47 J -13464695.48 -13464695.30 -13464695.12 0.0485 0.0239  
 Mercury -41574-06-18 20:09 J -13463311.78 -13463311.66 -13463311.54 0.0531 0.0288  
 Mercury -41574-09-16 13:40 J -13463222.02 -13463221.93 -13463221.84 0.0535 0.0413  
 Venus -41572-07-13 04:04 J -13462556.52 -13462556.33 -13462556.15 0.0544 0.0213  
 Mercury -41568-02-03 06:57 J -13461255.36 -13461255.21 -13461255.06 0.0496 0.0117  
 Mercury -41568-05-03 22:04 J -13461165.62 -13461165.58 -13461165.54 0.0493 0.0474  
 Mars -41567-08-14 08:23 J -13460698.31 -13460698.15 -13460697.97 0.0484 0.0368

Venus -41566-05-10 07:26 J -13460429.26 -13460429.19 -13460429.11 0.0484 0.0449  
 Venus -41565-01-01 09:21 J -13460193.27 -13460193.11 -13460192.95 0.0487 0.0312  
 Mercury -41562-04-06 21:21 J -13459001.68 -13459001.61 -13459001.54 0.0531 0.0461  
 Mercury -41562-07-05 15:21 J -13458911.99 -13458911.86 -13458911.73 0.0534 0.0247  
 Venus -41560-03-17 18:57 J -13458290.78 -13458290.71 -13458290.63 0.0544 0.0503  
 Venus -41560-11-10 17:59 J -13458052.76 -13458052.75 -13458052.74 0.0540 0.0539  
 Mercury -41557-11-22 09:06 J -13456945.25 -13456945.12 -13456944.99 0.0497 0.0257  
 Mercury -41556-02-19 23:59 J -13456855.61 -13456855.50 -13456855.38 0.0494 0.0330  
 Venus -41554-09-06 11:45 J -13455927.22 -13455927.01 -13455926.81 0.0486 0.0098  
 Mercury -41550-04-23 17:16 J -13454601.92 -13454601.78 -13454601.63 0.0534 0.0084  
 Mars -41549-08-02 07:40 J -13454135.46 -13454135.18 -13454134.90 0.0544 0.0143  
 Venus -41548-07-16 10:04 J -13453787.25 -13453787.08 -13453786.90 0.0541 0.0259  
 Mercury -41545-09-10 11:02 J -13452635.13 -13452635.04 -13452634.95 0.0497 0.0403  
 Mercury -41545-12-09 01:26 J -13452545.58 -13452545.44 -13452545.29 0.0494 0.0179  
 Venus -41542-05-12 14:23 J -13451661.10 -13451660.90 -13451660.70 0.0485 0.0115  
 Mercury -41538-02-09 18:42 J -13450291.86 -13450291.72 -13450291.57 0.0533 0.0087  
 Venus -41536-03-21 00:28 J -13449521.68 -13449521.48 -13449521.28 0.0543 0.0032  
 Mercury -41533-09-27 03:35 J -13448235.51 -13448235.35 -13448235.20 0.0495 0.0037  
 Mars -41531-05-17 23:30 J -13447637.78 -13447637.52 -13447637.26 0.0484 0.0019  
 Venus -41530-01-15 18:14 J -13447394.89 -13447394.74 -13447394.58 0.0485 0.0322  
 Venus -41530-09-08 21:35 J -13447158.68 -13447158.60 -13447158.51 0.0488 0.0445  
 Moon -41527-09-13 07:26 J -13446058.30 -13446058.19 -13446058.08 0.0528 0.0468  
 Earth -41527-09-13 07:26 J -13446058.25 -13446058.19 -13446058.11 0.0528 0.0501 \*  
 Mercury -41527-11-28 18:57 J -13445981.84 -13445981.71 -13445981.58 0.0531 0.0275  
 Mercury -41526-02-26 12:28 J -13445892.07 -13445891.98 -13445891.90 0.0534 0.0425  
 Venus -41525-11-23 10:33 J -13445256.21 -13445256.06 -13445255.90 0.0544 0.0337  
 Mercury -41521-07-16 05:30 J -13443925.42 -13443925.27 -13443925.12 0.0496 0.0108  
 Mercury -41521-10-13 20:38 J -13443835.66 -13443835.64 -13443835.61 0.0494 0.0485  
 Venus -41518-05-14 23:30 J -13442892.70 -13442892.52 -13442892.33 0.0487 0.0230  
 Mercury -41515-09-16 19:54 J -13441671.75 -13441671.67 -13441671.60 0.0530 0.0454



Moon -41515-09-18 07:26 J -13441670.42 -13441670.19 -13441669.97 0.0530 0.0070  
 Earth -41515-09-18 09:06 J -13441670.35 -13441670.12 -13441669.88 0.0530 0.0076 \*  
 Mercury -41515-12-15 13:40 J -13441582.05 -13441581.93 -13441581.80 0.0534 0.0253  
 Venus -41512-03-23 23:59 J -13440752.63 -13440752.50 -13440752.38 0.0541 0.0416  
 Earth -41509-03-14 03:50 J -13439666.56 -13439666.34 -13439666.11 0.0499 0.0144  
 Moon -41509-03-14 05:16 J -13439666.49 -13439666.28 -13439666.06 0.0499 0.0171 \*  
 Mercury -41509-05-04 07:40 J -13439615.31 -13439615.18 -13439615.05 0.0497 0.0249  
 Mercury -41509-08-01 22:33 J -13439525.67 -13439525.56 -13439525.45 0.0494 0.0339  
 Venus -41506-01-18 00:57 J -13438626.67 -13438626.46 -13438626.25 0.0485 0.0012  
 Mercury -41503-10-03 15:21 J -13437272.01 -13437271.86 -13437271.72 0.0533 0.0083  
 Venus -41501-11-26 16:33 J -13436487.00 -13436486.81 -13436486.62 0.0542 0.0135  
 Mercury -41497-02-21 10:04 J -13435305.17 -13435305.08 -13435304.98 0.0497 0.0387  
 Moon -41497-03-18 14:38 J -13435279.08 -13435278.89 -13435278.70 0.0497 0.0308  
 Earth -41497-03-18 14:38 J -13435279.06 -13435278.89 -13435278.71 0.0497 0.0328 \*  
 Mercury -41497-05-21 00:42 J -13435215.62 -13435215.47 -13435215.33 0.0494 0.0196  
 Mars -41495-02-18 15:21 J -13434576.98 -13434576.86 -13434576.72 0.0484 0.0414  
 Venus -41495-09-23 04:04 J -13434360.51 -13434360.33 -13434360.13 0.0485 0.0199  
 Mercury -41491-07-22 17:02 J -13432961.93 -13432961.79 -13432961.64 0.0533 0.0082  
 Venus -41489-08-01 07:40 J -13432221.37 -13432221.18 -13432220.98 0.0543 0.0153  
 Mercury -41485-03-09 02:09 J -13430905.56 -13430905.41 -13430905.25 0.0495 0.0047  
 Venus -41483-05-29 07:26 J -13430094.30 -13430094.19 -13430094.08 0.0484 0.0407  
 Venus -41482-01-20 09:50 J -13429858.23 -13429858.09 -13429857.95 0.0487 0.0355  
 Mercury -41479-05-10 18:28 J -13428651.86 -13428651.73 -13428651.60 0.0532 0.0253  
 Mercury -41479-08-08 11:59 J -13428562.08 -13428562.00 -13428561.93 0.0535 0.0448  
 Venus -41477-04-05 20:52 J -13427955.74 -13427955.63 -13427955.51 0.0544 0.0447  
 Mercury -41474-12-27 04:18 J -13426595.47 -13426595.32 -13426595.17 0.0496 0.0098  
 Venus -41471-09-25 12:28 J -13425592.18 -13425591.98 -13425591.78 0.0486 0.0144  
 Mercury -41467-02-26 18:42 J -13424341.80 -13424341.72 -13424341.64 0.0530 0.0441  
 Mercury -41467-05-27 12:28 J -13424252.10 -13424251.98 -13424251.85 0.0534 0.0265  
 Venus -41465-08-04 06:57 J -13423452.37 -13423452.21 -13423452.04 0.0541 0.0297

Mercury -41462-10-15 06:14 J -13422285.37 -13422285.24 -13422285.11 0.0497 0.0242

Mercury -41461-01-12 21:06 J -13422195.73 -13422195.62 -13422195.51 0.0494 0.0347

Venus -41459-05-31 15:21 J -13421326.06 -13421325.86 -13421325.65 0.0485 0.0070

Mercury -41455-03-15 13:40 J -13419942.07 -13419941.93 -13419941.78 0.0533 0.0091

Venus -41453-04-08 21:35 J -13419186.80 -13419186.60 -13419186.40 0.0543 0.0010

Mercury -41450-08-03 08:23 J -13417975.24 -13417975.15 -13417975.05 0.0498 0.0382

Mercury -41450-10-31 23:02 J -13417885.68 -13417885.54 -13417885.40 0.0495 0.0202

Venus -41447-02-03 17:30 J -13417059.93 -13417059.77 -13417059.60 0.0484 0.0283

Venus -41447-09-27 20:38 J -13416823.66 -13416823.64 -13416823.61 0.0488 0.0482

Mercury -41443-01-01 15:06 J -13415632.02 -13415631.87 -13415631.73 0.0532 0.0085

Venus -41442-12-13 12:42 J -13414921.14 -13414920.97 -13414920.80 0.0544 0.0282

Mercury -41438-08-20 01:11 J -13413575.61 -13413575.45 -13413575.30 0.0495 0.0060

Venus -41435-06-02 22:33 J -13412557.73 -13412557.56 -13412557.39 0.0487 0.0267

Earth -41432-09-17 15:21 J -13411355.09 -13411354.86 -13411354.63 0.0530 0.0004

Moon -41432-09-17 18:28 J -13411354.97 -13411354.73 -13411354.49 0.0530 0.0008 \*

Mercury -41432-10-20 16:33 J -13411321.94 -13411321.81 -13411321.67 0.0532 0.0252

Mercury -41431-01-18 10:04 J -13411232.15 -13411232.08 -13411232.00 0.0535 0.0450

Venus -41429-04-12 02:52 J -13410417.47 -13410417.38 -13410417.28 0.0541 0.0471

Earth -41426-03-14 11:45 J -13409351.22 -13409351.01 -13409350.80 0.0499 0.0205

Moon -41426-03-14 11:45 J -13409351.22 -13409351.01 -13409350.79 0.0499 0.0235 \*

Mercury -41426-06-08 02:52 J -13409265.53 -13409265.38 -13409265.23 0.0496 0.0088

Venus -41423-02-06 00:42 J -13408291.68 -13408291.47 -13408291.26 0.0486 0.0054

Mercury -41420-08-08 17:45 J -13407011.84 -13407011.76 -13407011.66 0.0531 0.0424

Mercury -41420-11-06 11:59 J -13406922.13 -13406922.00 -13406921.88 0.0534 0.0284

Venus -41418-12-16 17:45 J -13406151.95 -13406151.76 -13406151.57 0.0542 0.0186

Moon -41414-03-18 19:54 J -13404963.86 -13404963.67 -13404963.47 0.0497 0.0248

Earth -41414-03-18 21:21 J -13404963.81 -13404963.61 -13404963.41 0.0497 0.0262 \*

Mercury -41414-03-27 05:02 J -13404955.43 -13404955.29 -13404955.16 0.0497 0.0232

Mercury -41414-06-24 19:40 J -13404865.78 -13404865.68 -13404865.57 0.0494 0.0356

Mars -41413-11-07 12:57 J -13404364.19 -13404363.96 -13404363.73 0.0485 0.0231

Venus -41412-10-12 04:18 J -13404025.52 -13404025.32 -13404025.12 0.0485 0.0155  
 Mercury -41408-08-25 12:28 J -13402612.12 -13402611.98 -13402611.83 0.0533 0.0102  
 Venus -41406-08-21 04:18 J -13401886.51 -13401886.32 -13401886.12 0.0543 0.0116  
 Mercury -41402-01-13 06:42 J -13400645.31 -13400645.22 -13400645.12 0.0498 0.0377  
 Mercury -41402-04-12 21:21 J -13400555.75 -13400555.61 -13400555.47 0.0495 0.0208  
 Venus -41400-06-17 07:54 J -13399759.31 -13399759.17 -13399759.04 0.0484 0.0363  
 Venus -41399-02-08 10:18 J -13399523.19 -13399523.07 -13399522.95 0.0487 0.0398  
 Mercury -41396-06-13 13:26 J -13398302.08 -13398301.94 -13398301.79 0.0532 0.0079  
 Mars -41395-10-27 00:42 J -13397801.76 -13397801.47 -13397801.18 0.0544 0.0030  
 Venus -41394-04-25 17:16 J -13397620.91 -13397620.78 -13397620.65 0.0544 0.0411  
 Mercury -41390-01-29 23:16 J -13396245.68 -13396245.53 -13396245.37 0.0496 0.0064  
 Venus -41388-10-14 11:02 J -13395257.23 -13395257.04 -13395256.85 0.0486 0.0179  
 Mercury -41384-04-01 14:23 J -13393992.03 -13393991.90 -13393991.77 0.0531 0.0255  
 Mercury -41384-06-30 07:54 J -13393902.24 -13393902.17 -13393902.09 0.0535 0.0446  
 Venus -41382-08-24 08:23 J -13393117.30 -13393117.15 -13393117.00 0.0542 0.0346  
 Mercury -41379-11-18 01:40 J -13391935.59 -13391935.43 -13391935.28 0.0496 0.0078  
 Mars -41377-08-11 01:11 J -13391303.69 -13391303.45 -13391303.20 0.0484 0.0159  
 Venus -41376-06-19 13:40 J -13390991.14 -13390990.93 -13390990.73 0.0485 0.0034  
 Mercury -41372-01-18 15:50 J -13389681.93 -13389681.84 -13389681.75 0.0531 0.0425  
 Mercury -41372-04-18 09:50 J -13389592.21 -13389592.09 -13389591.96 0.0534 0.0283  
 Venus -41370-04-29 00:14 J -13388851.69 -13388851.49 -13388851.29 0.0543 0.0062  
 Mercury -41367-09-06 03:21 J -13387625.49 -13387625.36 -13387625.22 0.0497 0.0224  
 Mercury -41367-12-04 18:14 J -13387535.84 -13387535.74 -13387535.63 0.0494 0.0363  
 Venus -41364-02-22 16:18 J -13386724.99 -13386724.82 -13386724.63 0.0485 0.0244  
 Mercury -41360-02-04 11:30 J -13385282.16 -13385282.02 -13385281.87 0.0533 0.0115  
 Venus -41358-01-01 13:54 J -13384586.10 -13384585.92 -13384585.74 0.0543 0.0230  
 Mercury -41355-06-25 05:30 J -13383315.37 -13383315.27 -13383315.17 0.0498 0.0367  
 Mercury -41355-09-22 19:54 J -13383225.80 -13383225.67 -13383225.53 0.0495 0.0217  
 Venus -41353-10-28 20:38 J -13382458.71 -13382458.64 -13382458.56 0.0484 0.0447  
 Venus -41352-06-21 22:18 J -13382222.73 -13382222.57 -13382222.41 0.0487 0.0309

Moon -41349-09-16 13:11 J -13381040.17 -13381039.95 -13381039.72 0.0529 0.0105  
 Earth -41349-09-16 17:02 J -13381040.02 -13381039.79 -13381039.56 0.0529 0.0087 \*  
 Mercury -41349-11-23 12:14 J -13380972.14 -13380971.99 -13380971.84 0.0532 0.0066  
 Venus -41347-09-05 23:16 J -13380320.55 -13380320.53 -13380320.48 0.0544 0.0534  
 Venus -41346-05-01 22:47 J -13380082.62 -13380082.55 -13380082.48 0.0540 0.0502  
 Moon -41343-03-13 14:23 J -13379036.07 -13379035.90 -13379035.72 0.0500 0.0312  
 Earth -41343-03-13 15:50 J -13379036.02 -13379035.84 -13379035.64 0.0500 0.0280 \*  
 Mercury -41343-07-11 21:35 J -13378915.75 -13378915.60 -13378915.45 0.0496 0.0067  
 Venus -41340-02-25 00:28 J -13377956.68 -13377956.48 -13377956.27 0.0486 0.0095  
 Mercury -41337-09-11 12:57 J -13376662.09 -13376661.96 -13376661.82 0.0531 0.0247  
 Earth -41337-09-21 17:45 J -13376651.84 -13376651.76 -13376651.67 0.0531 0.0490  
 Moon -41337-09-21 21:06 J -13376651.72 -13376651.62 -13376651.51 0.0531 0.0467 \*  
 Mercury -41337-12-10 06:28 J -13376572.30 -13376572.23 -13376572.15 0.0534 0.0452  
 Venus -41334-01-04 13:26 J -13375817.13 -13375816.94 -13375816.76 0.0542 0.0218  
 Earth -41331-03-18 02:23 J -13374648.61 -13374648.40 -13374648.18 0.0498 0.0194  
 Moon -41331-03-18 05:16 J -13374648.49 -13374648.28 -13374648.05 0.0498 0.0188 \*  
 Mercury -41331-04-29 23:30 J -13374605.67 -13374605.52 -13374605.37 0.0497 0.0078  
 Venus -41329-10-31 02:09 J -13373690.61 -13373690.41 -13373690.21 0.0485 0.0121  
 Mercury -41325-06-30 13:40 J -13372352.02 -13372351.93 -13372351.84 0.0530 0.0429  
 Mercury -41325-09-28 07:40 J -13372262.30 -13372262.18 -13372262.06 0.0534 0.0277  
 Venus -41323-09-09 04:33 J -13371551.51 -13371551.31 -13371551.11 0.0543 0.0069  
 Mercury -41319-02-16 01:54 J -13370295.56 -13370295.42 -13370295.28 0.0497 0.0217  
 Mercury -41319-05-16 16:47 J -13370205.90 -13370205.80 -13370205.70 0.0494 0.0371  
 Venus -41317-07-06 05:16 J -13369424.43 -13369424.28 -13369424.12 0.0484 0.0329  
 Venus -41316-02-27 07:40 J -13369188.27 -13369188.18 -13369188.08 0.0487 0.0430  
 Mercury -41313-07-17 09:21 J -13367952.25 -13367952.11 -13367951.96 0.0533 0.0111  
 Venus -41311-05-14 19:11 J -13367285.85 -13367285.70 -13367285.55 0.0544 0.0357  
 Mercury -41308-12-05 03:50 J -13365985.44 -13365985.34 -13365985.23 0.0498 0.0362  
 Mercury -41307-03-04 18:14 J -13365895.87 -13365895.74 -13365895.60 0.0495 0.0222  
 Venus -41305-11-02 09:21 J -13364922.29 -13364922.11 -13364921.92 0.0486 0.0216

Mercury -41301-05-05 10:47 J -13363642.19 -13363642.05 -13363641.90 0.0532 0.0060  
 Venus -41299-09-12 08:38 J -13362782.27 -13362782.14 -13362782.00 0.0541 0.0392  
 Mercury -41296-12-21 20:09 J -13361585.81 -13361585.66 -13361585.51 0.0496 0.0075  
 Venus -41293-07-08 12:28 J -13360656.19 -13360655.98 -13360655.77 0.0486 0.0008  
 Mercury -41289-02-22 11:45 J -13359332.15 -13359332.01 -13359331.88 0.0531 0.0238  
 Mercury -41289-05-22 05:02 J -13359242.36 -13359242.29 -13359242.21 0.0534 0.0461  
 Venus -41287-05-17 20:09 J -13358516.86 -13358516.66 -13358516.46 0.0542 0.0095  
 Mercury -41284-10-09 21:35 J -13357275.75 -13357275.60 -13357275.45 0.0497 0.0077  
 Venus -41281-03-13 15:21 J -13356390.04 -13356389.86 -13356389.67 0.0485 0.0205  
 Mercury -41278-12-11 12:14 J -13355022.08 -13355021.99 -13355021.90 0.0530 0.0420  
 Mercury -41277-03-10 06:14 J -13354932.36 -13354932.24 -13354932.12 0.0533 0.0284  
 Mars -41276-04-12 20:52 J -13354533.73 -13354533.63 -13354533.53 0.0543 0.0507  
 Venus -41275-01-20 08:52 J -13354251.31 -13354251.13 -13354250.94 0.0543 0.0199  
 Mercury -41272-07-28 23:45 J -13352965.65 -13352965.51 -13352965.37 0.0497 0.0220  
 Mercury -41272-10-26 14:23 J -13352875.99 -13352875.90 -13352875.79 0.0494 0.0370  
 Venus -41270-11-17 17:45 J -13352123.86 -13352123.76 -13352123.65 0.0484 0.0415  
 Venus -41269-07-10 19:11 J -13351887.85 -13351887.70 -13351887.55 0.0487 0.0339  
 Earth -41266-09-16 14:38 J -13350725.11 -13350724.89 -13350724.68 0.0529 0.0202  
 Moon -41266-09-16 18:14 J -13350724.95 -13350724.74 -13350724.53 0.0529 0.0224 \*  
 Mercury -41266-12-28 06:57 J -13350622.35 -13350622.21 -13350622.06 0.0533 0.0106  
 Venus -41264-09-24 22:18 J -13349985.65 -13349985.57 -13349985.48 0.0544 0.0491  
 Earth -41260-03-12 22:33 J -13348720.72 -13348720.56 -13348720.39 0.0500 0.0347  
 Moon -41260-03-13 01:26 J -13348720.59 -13348720.44 -13348720.28 0.0500 0.0375 \*  
 Mercury -41260-05-17 02:09 J -13348655.51 -13348655.41 -13348655.30 0.0498 0.0358  
 Mercury -41260-08-14 16:33 J -13348565.94 -13348565.81 -13348565.67 0.0495 0.0226  
 Mars -41258-02-01 07:54 J -13348030.43 -13348030.17 -13348029.92 0.0484 0.0104  
 Venus -41257-03-15 21:21 J -13347621.81 -13347621.61 -13347621.41 0.0486 0.0126  
 Moon -41254-09-21 15:35 J -13346337.02 -13346336.85 -13346336.67 0.0531 0.0363  
 Earth -41254-09-21 18:28 J -13346336.89 -13346336.73 -13346336.58 0.0531 0.0389 \*  
 Mercury -41254-10-16 08:38 J -13346312.29 -13346312.14 -13346312.00 0.0532 0.0066

Venus -41251-01-23 14:23 J -13345482.07 -13345481.90 -13345481.73 0.0542 0.0267  
 Moon -41248-03-17 04:33 J -13344333.53 -13344333.31 -13344333.08 0.0498 0.0123  
 Earth -41248-03-17 08:23 J -13344333.38 -13344333.15 -13344332.93 0.0498 0.0123 \*  
 Mercury -41248-06-02 18:14 J -13344255.89 -13344255.74 -13344255.58 0.0496 0.0079  
 Venus -41246-11-19 23:30 J -13343355.72 -13343355.52 -13343355.31 0.0485 0.0086  
 Mercury -41242-08-04 09:50 J -13342002.22 -13342002.09 -13342001.95 0.0531 0.0236  
 Mercury -41242-11-02 03:35 J -13341912.42 -13341912.35 -13341912.28 0.0535 0.0466  
 Mars -41240-01-20 10:04 J -13341467.34 -13341467.08 -13341466.82 0.0544 0.0237  
 Venus -41240-09-28 04:47 J -13341216.50 -13341216.30 -13341216.10 0.0543 0.0022  
 Mercury -41236-03-21 20:09 J -13339945.81 -13339945.66 -13339945.50 0.0496 0.0070  
 Venus -41234-07-26 03:06 J -13339089.53 -13339089.37 -13339089.20 0.0485 0.0293  
 Venus -41233-03-18 06:14 J -13338853.29 -13338853.24 -13338853.18 0.0488 0.0467  
 Mercury -41230-05-23 10:47 J -13337692.14 -13337692.05 -13337691.96 0.0530 0.0413  
 Mercury -41230-08-21 04:47 J -13337602.42 -13337602.30 -13337602.18 0.0533 0.0292  
 Venus -41228-06-02 15:06 J -13336951.02 -13336950.87 -13336950.70 0.0543 0.0323  
 Mercury -41224-01-07 21:50 J -13335635.73 -13335635.59 -13335635.46 0.0498 0.0221  
 Mercury -41224-04-07 12:28 J -13335546.08 -13335545.98 -13335545.87 0.0495 0.0369  
 Mars -41223-11-04 18:28 J -13334969.94 -13334969.73 -13334969.51 0.0484 0.0279  
 Venus -41222-11-22 07:54 J -13334587.35 -13334587.17 -13334586.99 0.0487 0.0252  
 Mercury -41218-06-09 05:45 J -13333292.41 -13333292.26 -13333292.12 0.0532 0.0114  
 Venus -41216-10-01 03:21 J -13332447.48 -13332447.36 -13332447.23 0.0541 0.0418  
 Mercury -41213-10-26 23:45 J -13331325.61 -13331325.51 -13331325.40 0.0498 0.0363  
 Mercury -41212-01-24 14:23 J -13331236.04 -13331235.90 -13331235.76 0.0495 0.0222  
 Venus -41210-07-28 08:38 J -13330321.34 -13330321.14 -13330320.93 0.0485 0.0037  
 Mercury -41206-03-28 06:14 J -13328982.39 -13328982.24 -13328982.09 0.0532 0.0072  
 Venus -41204-06-05 18:14 J -13328181.93 -13328181.74 -13328181.54 0.0543 0.0136  
 Mercury -41201-11-12 16:33 J -13326925.96 -13326925.81 -13326925.66 0.0496 0.0080  
 Venus -41198-04-02 11:45 J -13326055.20 -13326055.01 -13326054.81 0.0485 0.0174  
 Mercury -41194-01-14 07:26 J -13324672.32 -13324672.19 -13324672.05 0.0531 0.0244  
 Mercury -41194-04-14 01:11 J -13324582.52 -13324582.45 -13324582.38 0.0534 0.0457

Venus -41192-02-08 09:06 J -13323916.31 -13323916.12 -13323915.93 0.0544 0.0151  
 Mercury -41189-08-31 18:28 J -13322615.88 -13322615.73 -13322615.58 0.0496 0.0067  
 Venus -41187-12-06 14:52 J -13321789.01 -13321788.88 -13321788.76 0.0484 0.0381  
 Venus -41186-07-30 16:18 J -13321552.95 -13321552.82 -13321552.68 0.0487 0.0373  
 Moon -41183-09-15 14:52 J -13320410.07 -13320409.88 -13320409.69 0.0528 0.0317  
 Earth -41183-09-15 17:45 J -13320409.95 -13320409.76 -13320409.56 0.0528 0.0289 \*  
 Mercury -41183-11-02 08:52 J -13320362.22 -13320362.13 -13320362.04 0.0530 0.0415  
 Mercury -41182-01-31 02:52 J -13320272.50 -13320272.38 -13320272.26 0.0534 0.0293  
 Venus -41181-10-13 22:33 J -13319650.67 -13319650.56 -13319650.44 0.0544 0.0441  
 Moon -41177-03-11 22:33 J -13318405.65 -13318405.56 -13318405.47 0.0501 0.0460  
 Earth -41177-03-12 02:09 J -13318405.53 -13318405.41 -13318405.29 0.0501 0.0430 \*  
 Mercury -41177-06-19 20:23 J -13318305.79 -13318305.65 -13318305.51 0.0497 0.0212  
 Mercury -41177-09-17 11:02 J -13318216.14 -13318216.04 -13318215.94 0.0494 0.0376  
 Venus -41174-04-04 18:57 J -13317286.90 -13317286.71 -13317286.51 0.0486 0.0162  
 Earth -41171-09-20 19:54 J -13316021.86 -13316021.67 -13316021.48 0.0530 0.0296  
 Moon -41171-09-20 21:06 J -13316021.81 -13316021.62 -13316021.42 0.0530 0.0276 \*  
 Mercury -41171-11-19 04:04 J -13315962.47 -13315962.33 -13315962.18 0.0532 0.0119  
 Venus -41168-02-11 10:18 J -13315147.24 -13315147.07 -13315146.91 0.0541 0.0298  
 Earth -41165-03-16 09:06 J -13314018.35 -13314018.12 -13314017.88 0.0499 0.0033  
 Moon -41165-03-16 12:42 J -13314018.19 -13314017.97 -13314017.74 0.0499 0.0043 \*  
 Mercury -41165-04-07 21:50 J -13313995.69 -13313995.59 -13313995.49 0.0498 0.0364  
 Mercury -41165-07-06 12:14 J -13313906.13 -13313905.99 -13313905.85 0.0495 0.0221  
 Venus -41163-12-08 21:21 J -13313020.82 -13313020.61 -13313020.40 0.0485 0.0051  
 Mercury -41159-09-07 05:02 J -13311652.44 -13311652.29 -13311652.15 0.0531 0.0062  
 Venus -41157-10-16 23:30 J -13310881.72 -13310881.52 -13310881.32 0.0543 0.0008  
 Mercury -41153-04-24 14:09 J -13309596.06 -13309595.91 -13309595.76 0.0496 0.0074  
 Venus -41151-08-13 23:16 J -13308754.70 -13308754.53 -13308754.35 0.0484 0.0263  
 Mercury -41147-06-26 05:02 J -13307342.42 -13307342.29 -13307342.15 0.0531 0.0251  
 Mercury -41147-09-23 22:47 J -13307252.63 -13307252.55 -13307252.47 0.0534 0.0450  
 Venus -41145-06-21 12:14 J -13306616.15 -13306615.99 -13306615.81 0.0544 0.0285

Mercury -41141-02-11 16:33 J -13305285.96 -13305285.81 -13305285.66 0.0497 0.0066  
 Mars -41140-07-24 11:30 J -13304757.17 -13304757.02 -13304756.84 0.0485 0.0372  
 Venus -41139-04-19 03:21 J -13304488.41 -13304488.36 -13304488.30 0.0484 0.0465  
 Venus -41139-12-11 03:50 J -13304252.51 -13304252.34 -13304252.17 0.0486 0.0281  
 Mercury -41135-04-14 06:14 J -13303032.33 -13303032.24 -13303032.15 0.0530 0.0426  
 Mercury -41135-07-13 00:14 J -13302942.61 -13302942.49 -13302942.36 0.0533 0.0283  
 Venus -41133-10-20 03:06 J -13302112.46 -13302112.37 -13302112.26 0.0541 0.0464  
 Mercury -41130-11-30 18:28 J -13300975.87 -13300975.73 -13300975.59 0.0497 0.0210  
 Mercury -41129-02-28 09:06 J -13300886.22 -13300886.12 -13300886.02 0.0494 0.0377  
 Venus -41127-08-16 05:30 J -13299986.47 -13299986.27 -13299986.06 0.0485 0.0070  
 Mercury -41123-05-01 02:09 J -13298632.56 -13298632.41 -13298632.27 0.0533 0.0117  
 Mars -41122-07-07 20:52 J -13298199.85 -13298199.63 -13298199.38 0.0544 0.0321  
 Venus -41121-06-24 18:14 J -13297846.93 -13297846.74 -13297846.55 0.0542 0.0182  
 Mercury -41118-09-18 20:38 J -13296665.75 -13296665.64 -13296665.54 0.0498 0.0354  
 Mercury -41118-12-17 10:47 J -13296576.18 -13296576.05 -13296575.91 0.0495 0.0229  
 Venus -41115-04-21 09:06 J -13295720.32 -13295720.12 -13295719.92 0.0485 0.0139  
 Mercury -41111-02-17 03:21 J -13294322.51 -13294322.36 -13294322.21 0.0531 0.0057  
 Venus -41109-02-28 05:59 J -13293581.44 -13293581.25 -13293581.05 0.0543 0.0115  
 Mercury -41106-10-05 12:14 J -13292266.15 -13292265.99 -13292265.84 0.0496 0.0075  
 Mars -41104-04-26 19:40 J -13291696.94 -13291696.68 -13291696.42 0.0485 0.0007  
 Venus -41104-12-25 11:59 J -13291454.14 -13291454.00 -13291453.85 0.0485 0.0348  
 Venus -41103-08-18 14:09 J -13291218.02 -13291217.91 -13291217.79 0.0487 0.0406  
 Earth -41100-09-14 16:47 J -13290094.95 -13290094.80 -13290094.64 0.0527 0.0394  
 Moon -41100-09-14 18:42 J -13290094.85 -13290094.72 -13290094.58 0.0527 0.0423 \*  
 Mercury -41100-12-06 04:04 J -13290012.47 -13290012.33 -13290012.20 0.0530 0.0238  
 Mercury -41099-03-05 21:35 J -13289922.67 -13289922.60 -13289922.53 0.0534 0.0461  
 Venus -41098-11-02 17:59 J -13289315.88 -13289315.75 -13289315.62 0.0543 0.0409  
 Mercury -41094-07-24 14:09 J -13287956.06 -13287955.91 -13287955.76 0.0497 0.0072  
 Venus -41091-04-23 14:52 J -13286952.07 -13286951.88 -13286951.68 0.0486 0.0191  
 Moon -41088-09-19 13:40 J -13285707.17 -13285706.93 -13285706.70 0.0529 0.0142



Earth -41088-09-19 13:40 J -13285707.15 -13285706.93 -13285706.70 0.0529 0.0162 \*  
 Mercury -41088-09-24 03:50 J -13285702.42 -13285702.34 -13285702.25 0.0530 0.0431  
 Mercury -41088-12-22 22:04 J -13285612.70 -13285612.58 -13285612.45 0.0533 0.0276  
 Mars -41086-04-15 09:21 J -13285134.32 -13285134.11 -13285133.90 0.0544 0.0372  
 Venus -41085-03-02 07:11 J -13284812.35 -13284812.20 -13284812.04 0.0542 0.0335  
 Moon -41082-03-16 11:59 J -13283703.23 -13283703.00 -13283702.76 0.0500 0.0032  
 Earth -41082-03-16 15:06 J -13283703.10 -13283702.87 -13283702.63 0.0500 0.0040 \*  
 Mercury -41082-05-12 16:33 J -13283645.95 -13283645.81 -13283645.67 0.0498 0.0210  
 Mercury -41082-08-10 07:11 J -13283556.30 -13283556.20 -13283556.10 0.0495 0.0378  
 Venus -41080-12-27 17:45 J -13282685.97 -13282685.76 -13282685.56 0.0485 0.0022  
 Mercury -41076-10-10 23:30 J -13281302.66 -13281302.52 -13281302.37 0.0533 0.0105  
 Venus -41074-11-05 22:47 J -13280546.75 -13280546.55 -13280546.35 0.0543 0.0053  
 Mercury -41070-02-28 18:42 J -13279335.82 -13279335.72 -13279335.61 0.0498 0.0352  
 Earth -41070-03-21 00:42 J -13279315.58 -13279315.47 -13279315.35 0.0497 0.0432  
 Moon -41070-03-21 02:38 J -13279315.47 -13279315.39 -13279315.31 0.0497 0.0463 \*  
 Mercury -41070-05-29 09:06 J -13279246.26 -13279246.12 -13279245.99 0.0495 0.0231  
 Mars -41068-01-28 06:28 J -13278636.38 -13278636.23 -13278636.07 0.0484 0.0384  
 Venus -41068-09-01 20:23 J -13278419.83 -13278419.65 -13278419.47 0.0484 0.0229  
 Mercury -41064-07-30 01:11 J -13276992.60 -13276992.45 -13276992.31 0.0532 0.0064  
 Venus -41062-07-11 12:57 J -13276281.14 -13276280.96 -13276280.78 0.0544 0.0235  
 Mercury -41059-12-17 20:52 J -13275025.64 -13275025.63 -13275025.61 0.0499 0.0494  
 Mercury -41058-03-17 10:47 J -13274936.20 -13274936.05 -13274935.89 0.0496 0.0085  
 Venus -41056-05-08 00:28 J -13274153.57 -13274153.48 -13274153.39 0.0484 0.0432  
 Venus -41056-12-30 01:11 J -13273917.60 -13273917.45 -13273917.29 0.0487 0.0315  
 Mercury -41052-05-18 02:23 J -13272682.54 -13272682.40 -13272682.27 0.0531 0.0234  
 Mercury -41052-08-15 19:54 J -13272592.73 -13272592.67 -13272592.60 0.0534 0.0467  
 Venus -41050-03-16 00:14 J -13272015.53 -13272015.49 -13272015.45 0.0544 0.0530  
 Venus -41050-11-09 00:14 J -13271777.56 -13271777.49 -13271777.41 0.0541 0.0497  
 Mercury -41046-01-03 12:14 J -13270626.14 -13270625.99 -13270625.84 0.0497 0.0070  
 Venus -41044-09-04 03:21 J -13269651.56 -13269651.36 -13269651.16 0.0486 0.0102

Mercury -41040-03-06 02:52 J -13268372.47 -13268372.38 -13268372.28 0.0529 0.0416

Mercury -41040-06-03 21:06 J -13268282.74 -13268282.62 -13268282.50 0.0533 0.0290

Venus -41038-07-14 13:54 J -13267512.10 -13267511.92 -13267511.74 0.0542 0.0212

Mercury -41035-10-22 14:23 J -13266316.04 -13266315.90 -13266315.77 0.0498 0.0215

Mercury -41034-01-20 05:02 J -13266226.39 -13266226.29 -13266226.19 0.0495 0.0374

Venus -41032-05-10 05:30 J -13265385.48 -13265385.27 -13265385.07 0.0485 0.0108

Mercury -41028-03-22 21:21 J -13263972.76 -13263972.61 -13263972.46 0.0532 0.0101

Venus -41026-03-19 02:38 J -13263246.59 -13263246.39 -13263246.19 0.0544 0.0078

Mercury -41023-08-10 16:47 J -13262005.90 -13262005.80 -13262005.69 0.0498 0.0352

Mercury -41023-11-08 07:11 J -13261916.34 -13261916.20 -13261916.06 0.0495 0.0233

Venus -41020-01-13 09:06 J -13261119.28 -13261119.12 -13261118.96 0.0484 0.0313

Venus -41020-09-06 10:33 J -13260883.14 -13260883.06 -13260882.96 0.0487 0.0436

Earth -41017-09-13 12:57 J -13259780.00 -13259779.96 -13259779.92 0.0527 0.0517

Mercury -41016-01-08 22:33 J -13259662.71 -13259662.56 -13259662.41 0.0532 0.0073

Venus -41015-11-21 16:33 J -13258980.96 -13258980.81 -13258980.66 0.0544 0.0365

Mercury -41011-05-29 19:11 J -13257695.72 -13257695.70 -13257695.68 0.0499 0.0491

Mercury -41011-08-27 09:06 J -13257606.27 -13257606.12 -13257605.97 0.0496 0.0087

Venus -41008-05-12 12:14 J -13256617.17 -13256616.99 -13256616.80 0.0486 0.0224

Moon -41005-09-18 14:52 J -13255392.10 -13255391.88 -13255391.65 0.0529 0.0060

Earth -41005-09-18 16:33 J -13255392.04 -13255391.81 -13255391.58 0.0529 0.0072 \*

Mercury -41005-10-27 23:59 J -13255352.63 -13255352.50 -13255352.36 0.0531 0.0241

Mercury -41004-01-25 17:45 J -13255262.83 -13255262.76 -13255262.68 0.0534 0.0462

Venus -41002-03-22 07:54 J -13254477.30 -13254477.17 -13254477.02 0.0542 0.0383

# 41ST MILLENNIUM BCE

This is a list of transits visible from Jupiter in the 41st millennium

## BCE.

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Earth	-40999-03-15 20:09 J	-13253387.89	-13253387.66	-13253387.43	0.0500	0.0115		
Moon	-40999-03-15 21:50 J	-13253387.81	-13253387.59	-13253387.37	0.0500	0.0101	*	
Mercury	-40999-06-15 11:02 J	-13253296.19	-13253296.04	-13253295.89	0.0497	0.0059		
Venus	-40996-01-15 15:06 J	-13252351.07	-13252350.87	-13252350.66	0.0485	0.0019		
Mercury	-40993-08-16 01:11 J	-13251042.54	-13251042.45	-13251042.35	0.0530	0.0412		
Mercury	-40993-11-13 19:26 J	-13250952.81	-13250952.69	-13250952.56	0.0533	0.0296		
Venus	-40991-11-24 21:21 J	-13250211.81	-13250211.61	-13250211.42	0.0542	0.0094		
Earth	-40987-03-20 02:52 J	-13249000.54	-13249000.38	-13249000.21	0.0498	0.0345		
Moon	-40987-03-20 02:52 J	-13249000.54	-13249000.38	-13249000.22	0.0498	0.0370	*	
Mercury	-40987-04-03 12:28 J	-13248986.11	-13248985.98	-13248985.84	0.0498	0.0212		
Mercury	-40987-07-02 03:06 J	-13248896.47	-13248896.37	-13248896.27	0.0495	0.0377		
Mars	-40986-10-18 00:42 J	-13248423.68	-13248423.47	-13248423.25	0.0485	0.0265		
Venus	-40985-09-20 18:14 J	-13248084.93	-13248084.74	-13248084.55	0.0485	0.0194		
Mercury	-40981-09-01 20:38 J	-13246642.79	-13246642.64	-13246642.50	0.0532	0.0119		
Venus	-40979-07-30 09:35 J	-13245946.28	-13245946.10	-13245945.91	0.0543	0.0198		
Mercury	-40975-01-20 14:38 J	-13244675.99	-13244675.89	-13244675.78	0.0499	0.0354		
Mercury	-40975-04-20 05:02 J	-13244586.43	-13244586.29	-13244586.15	0.0496	0.0230		
Venus	-40973-05-26 21:21 J	-13243818.72	-13243818.61	-13243818.49	0.0484	0.0398		
Venus	-40972-01-17 22:04 J	-13243582.72	-13243582.58	-13243582.43	0.0486	0.0347		
Mercury	-40969-06-20 20:38 J	-13242332.79	-13242332.64	-13242332.50	0.0531	0.0075		
Mars	-40968-09-29 23:02 J	-13241866.81	-13241866.54	-13241866.26	0.0544	0.0182		
Venus	-40967-04-03 20:23 J	-13241680.73	-13241680.65	-13241680.57	0.0544	0.0494		
Venus	-40967-11-27 21:06 J	-13241442.65	-13241442.62	-13241442.58	0.0541	0.0533		
Mercury	-40964-11-08 17:30 J	-13240365.80	-13240365.77	-13240365.75	0.0499	0.0489		
Mercury	-40963-02-06 07:26 J	-13240276.34	-13240276.19	-13240276.04	0.0496	0.0091		

Venus -40961-09-23 00:42 J -13239316.67 -13239316.47 -13239316.27 0.0485 0.0137  
 Mercury -40957-04-08 21:35 J -13238022.73 -13238022.60 -13238022.47 0.0531 0.0249  
 Mercury -40957-07-07 15:35 J -13237932.93 -13237932.85 -13237932.78 0.0534 0.0453  
 Venus -40955-08-02 12:57 J -13237177.14 -13237176.96 -13237176.79 0.0543 0.0257  
 Mercury -40952-11-25 09:21 J -13235966.26 -13235966.11 -13235965.95 0.0497 0.0055  
 Mars -40950-07-21 12:14 J -13235363.24 -13235362.99 -13235362.74 0.0484 0.0117  
 Venus -40949-05-29 03:06 J -13235050.57 -13235050.37 -13235050.16 0.0485 0.0074  
 Mercury -40945-01-26 22:47 J -13233712.63 -13233712.55 -13233712.45 0.0530 0.0419  
 Mercury -40945-04-25 17:16 J -13233622.90 -13233622.78 -13233622.66 0.0533 0.0290  
 Venus -40943-04-07 04:04 J -13232911.53 -13232911.33 -13232911.13 0.0543 0.0026  
 Mercury -40940-09-13 11:30 J -13231656.16 -13231656.02 -13231655.88 0.0497 0.0197  
 Mercury -40940-12-12 02:09 J -13231566.50 -13231566.41 -13231566.32 0.0494 0.0390  
 Venus -40937-02-02 06:57 J -13230784.38 -13230784.21 -13230784.04 0.0484 0.0277  
 Venus -40937-09-25 08:52 J -13230548.17 -13230548.13 -13230548.08 0.0487 0.0471  
 Mercury -40933-02-12 18:57 J -13229312.85 -13229312.71 -13229312.56 0.0532 0.0124  
 Venus -40932-12-10 16:47 J -13228645.96 -13228645.80 -13228645.64 0.0544 0.0317  
 Mercury -40928-07-02 13:11 J -13227346.05 -13227345.95 -13227345.84 0.0498 0.0348  
 Mercury -40928-09-30 03:21 J -13227256.49 -13227256.36 -13227256.22 0.0495 0.0236  
 Venus -40926-10-08 10:33 J -13226518.08 -13226518.06 -13226518.03 0.0484 0.0481  
 Venus -40925-05-31 10:47 J -13226282.23 -13226282.05 -13226281.87 0.0486 0.0260  
 Earth -40922-09-18 19:11 J -13225076.93 -13225076.70 -13225076.46 0.0528 0.0020  
 Moon -40922-09-18 22:33 J -13225076.80 -13225076.56 -13225076.32 0.0528 0.0019 \*  
 Mercury -40922-12-01 19:54 J -13225002.82 -13225002.67 -13225002.52 0.0531 0.0053  
 Venus -40919-04-10 05:30 J -13224142.39 -13224142.27 -13224142.14 0.0541 0.0419  
 Moon -40916-03-14 23:02 J -13223072.76 -13223072.54 -13223072.31 0.0501 0.0182  
 Earth -40916-03-14 23:02 J -13223072.75 -13223072.54 -13223072.32 0.0501 0.0200 \*  
 Mercury -40916-04-20 15:21 J -13223035.88 -13223035.86 -13223035.82 0.0499 0.0490  
 Mercury -40916-07-19 05:30 J -13222946.42 -13222946.27 -13222946.12 0.0496 0.0091  
 Venus -40913-02-04 12:57 J -13222016.17 -13222015.96 -13222015.75 0.0485 0.0051  
 Mercury -40910-09-19 19:54 J -13220692.81 -13220692.67 -13220692.54 0.0530 0.0247

Mercury -40910-12-18 13:40 J -13220603.00 -13220602.93 -13220602.86 0.0534 0.0454

Venus -40908-12-13 17:59 J -13219876.94 -13219876.75 -13219876.55 0.0543 0.0132

Moon -40904-03-19 09:06 J -13218685.29 -13218685.12 -13218684.94 0.0499 0.0307

Earth -40904-03-19 11:16 J -13218685.22 -13218685.03 -13218684.84 0.0499 0.0285 \*

Mercury -40904-05-07 07:54 J -13218636.33 -13218636.17 -13218636.02 0.0497 0.0050

Venus -40902-10-10 16:33 J -13217750.00 -13217749.81 -13217749.61 0.0484 0.0156

Mercury -40898-07-08 20:38 J -13216382.72 -13216382.64 -13216382.55 0.0529 0.0424

Mercury -40898-10-06 15:06 J -13216292.99 -13216292.87 -13216292.75 0.0533 0.0284

Venus -40896-08-18 08:23 J -13215611.34 -13215611.15 -13215610.96 0.0544 0.0153

Mercury -40892-02-23 10:04 J -13214326.22 -13214326.08 -13214325.94 0.0498 0.0190

Mercury -40892-05-24 00:42 J -13214236.56 -13214236.47 -13214236.38 0.0495 0.0398

Venus -40890-06-15 19:54 J -13213483.80 -13213483.67 -13213483.53 0.0484 0.0360

Venus -40889-02-06 20:38 J -13213247.77 -13213247.64 -13213247.52 0.0486 0.0383

Mercury -40886-07-25 16:47 J -13211982.95 -13211982.80 -13211982.66 0.0532 0.0119

Venus -40884-04-22 22:33 J -13211345.67 -13211345.56 -13211345.44 0.0544 0.0439

Mercury -40881-12-12 12:14 J -13210016.09 -13210015.99 -13210015.87 0.0498 0.0332

Mercury -40880-03-12 02:38 J -13209926.53 -13209926.39 -13209926.26 0.0495 0.0252

Venus -40878-10-12 23:16 J -13208981.72 -13208981.53 -13208981.33 0.0486 0.0175

Mercury -40874-05-13 18:28 J -13207672.88 -13207672.73 -13207672.58 0.0531 0.0048

Venus -40872-08-21 13:40 J -13206842.09 -13206841.93 -13206841.76 0.0542 0.0305

Mercury -40869-09-30 14:09 J -13205705.95 -13205705.91 -13205705.87 0.0499 0.0480

Mercury -40869-12-29 04:04 J -13205616.48 -13205616.33 -13205616.18 0.0496 0.0099

Venus -40866-06-18 02:09 J -13204715.62 -13204715.41 -13204715.21 0.0485 0.0035

Mercury -40862-03-01 19:26 J -13203362.83 -13203362.69 -13203362.56 0.0530 0.0223

Mercury -40862-05-30 13:11 J -13203273.01 -13203272.95 -13203272.89 0.0534 0.0477

Venus -40860-04-26 03:06 J -13202576.57 -13202576.37 -13202576.17 0.0543 0.0019

Mercury -40857-10-17 05:59 J -13201306.40 -13201306.25 -13201306.09 0.0497 0.0047

Venus -40854-02-21 05:30 J -13200449.44 -13200449.27 -13200449.08 0.0484 0.0238

Mercury -40851-12-18 19:11 J -13199052.79 -13199052.70 -13199052.61 0.0529 0.0418

Mercury -40850-03-18 13:26 J -13198963.06 -13198962.94 -13198962.82 0.0533 0.0288

Venus -40849-12-29 13:26 J -13198311.11 -13198310.94 -13198310.77 0.0544 0.0278  
 Mercury -40845-08-05 08:38 J -13196996.28 -13196996.14 -13196996.00 0.0498 0.0184  
 Mercury -40845-11-02 23:02 J -13196906.62 -13196906.54 -13196906.45 0.0495 0.0405  
 Venus -40843-10-27 10:18 J -13196183.16 -13196183.07 -13196182.99 0.0484 0.0438  
 Venus -40842-06-20 09:50 J -13195947.25 -13195947.09 -13195946.92 0.0486 0.0299  
 Moon -40839-09-17 12:42 J -13194762.19 -13194761.97 -13194761.74 0.0528 0.0136  
 Earth -40839-09-17 16:47 J -13194762.03 -13194761.80 -13194761.58 0.0528 0.0135 \*  
 Mercury -40838-01-04 14:38 J -13194653.03 -13194652.89 -13194652.74 0.0532 0.0117  
 Venus -40836-04-29 04:47 J -13193807.40 -13193807.30 -13193807.20 0.0542 0.0463  
 Moon -40833-03-14 06:42 J -13192757.41 -13192757.22 -13192757.01 0.0501 0.0228  
 Earth -40833-03-14 08:52 J -13192757.33 -13192757.13 -13192756.93 0.0501 0.0251 \*  
 Mercury -40833-05-24 11:02 J -13192686.16 -13192686.04 -13192685.93 0.0499 0.0323  
 Mercury -40833-08-22 01:11 J -13192596.58 -13192596.45 -13192596.32 0.0495 0.0261  
 Mars -40831-01-11 01:54 J -13192089.67 -13192089.42 -13192089.17 0.0485 0.0136  
 Venus -40830-02-23 11:59 J -13191681.20 -13191681.00 -13191680.79 0.0485 0.0090  
 Earth -40827-09-22 20:23 J -13190373.75 -13190373.65 -13190373.53 0.0530 0.0459  
 Moon -40827-09-23 00:14 J -13190373.56 -13190373.49 -13190373.40 0.0530 0.0497 \*  
 Mercury -40827-10-23 16:18 J -13190342.97 -13190342.82 -13190342.67 0.0532 0.0051  
 Venus -40824-01-01 20:38 J -13189541.82 -13189541.64 -13189541.45 0.0543 0.0187  
 Mercury -40821-03-12 13:26 J -13188375.99 -13188375.94 -13188375.89 0.0499 0.0462  
 Earth -40821-03-18 19:54 J -13188369.88 -13188369.67 -13188369.46 0.0499 0.0228  
 Moon -40821-03-18 23:30 J -13188369.72 -13188369.52 -13188369.31 0.0499 0.0245 \*  
 Mercury -40821-06-10 03:06 J -13188286.51 -13188286.37 -13188286.22 0.0496 0.0118  
 Venus -40819-10-29 15:50 J -13187415.05 -13187414.84 -13187414.64 0.0484 0.0117  
 Mercury -40815-08-11 17:45 J -13186032.89 -13186032.76 -13186032.62 0.0531 0.0217  
 Mercury -40815-11-09 11:45 J -13185943.07 -13185943.01 -13185942.95 0.0534 0.0485  
 Mars -40814-12-25 18:42 J -13185532.01 -13185531.72 -13185531.43 0.0544 0.0042  
 Venus -40813-09-06 10:47 J -13185276.25 -13185276.05 -13185275.85 0.0543 0.0099  
 Mercury -40809-03-29 04:47 J -13183976.45 -13183976.30 -13183976.15 0.0497 0.0035  
 Venus -40807-07-04 19:11 J -13183148.86 -13183148.70 -13183148.55 0.0484 0.0320

Venus -40806-02-25 20:23 J -13182912.75 -13182912.65 -13182912.55 0.0487 0.0423  
 Mercury -40803-05-30 18:42 J -13181722.82 -13181722.72 -13181722.62 0.0530 0.0393  
 Mercury -40803-08-28 13:11 J -13181633.07 -13181632.95 -13181632.83 0.0533 0.0314  
 Venus -40801-05-11 23:02 J -13181010.68 -13181010.54 -13181010.40 0.0544 0.0389  
 Mercury -40797-01-16 06:57 J -13179666.35 -13179666.21 -13179666.07 0.0498 0.0178  
 Mercury -40797-04-14 21:35 J -13179576.69 -13179576.60 -13179576.52 0.0495 0.0410  
 Mars -40796-10-14 13:11 J -13179029.17 -13179028.95 -13179028.72 0.0484 0.0243  
 Venus -40795-10-31 22:47 J -13178646.73 -13178646.55 -13178646.36 0.0486 0.0215  
 Mercury -40791-06-16 13:11 J -13177323.09 -13177322.95 -13177322.80 0.0532 0.0125  
 Venus -40789-09-09 11:02 J -13176507.19 -13176507.04 -13176506.88 0.0542 0.0344  
 Mercury -40786-11-04 09:35 J -13175356.22 -13175356.10 -13175355.99 0.0499 0.0316  
 Mercury -40785-02-01 23:45 J -13175266.64 -13175266.51 -13175266.38 0.0496 0.0269  
 Venus -40783-07-07 02:09 J -13174380.61 -13174380.41 -13174380.20 0.0485 0.0012  
 Mercury -40779-04-04 14:23 J -13173013.05 -13173012.90 -13173012.75 0.0531 0.0050  
 Venus -40777-05-15 01:54 J -13172241.62 -13172241.42 -13172241.22 0.0544 0.0063  
 Mercury -40774-08-23 11:59 J -13171046.06 -13171046.00 -13171045.94 0.0499 0.0453  
 Mercury -40774-11-21 01:54 J -13170956.57 -13170956.42 -13170956.27 0.0496 0.0127  
 Venus -40771-03-12 05:16 J -13170114.47 -13170114.28 -13170114.09 0.0484 0.0198  
 Mercury -40767-01-21 15:50 J -13168702.98 -13168702.84 -13168702.71 0.0531 0.0219  
 Mercury -40767-04-21 09:35 J -13168613.15 -13168613.10 -13168613.03 0.0534 0.0483  
 Venus -40765-01-18 16:33 J -13167975.99 -13167975.81 -13167975.62 0.0544 0.0221  
 Mercury -40762-09-09 04:04 J -13166646.48 -13166646.33 -13166646.18 0.0497 0.0017  
 Venus -40760-11-15 09:35 J -13165848.21 -13165848.10 -13165847.98 0.0484 0.0398  
 Venus -40759-07-09 09:21 J -13165612.25 -13165612.11 -13165611.96 0.0486 0.0338  
 Earth -40756-09-17 00:42 J -13164446.68 -13164446.47 -13164446.25 0.0527 0.0199  
 Moon -40756-09-17 04:47 J -13164446.51 -13164446.30 -13164446.08 0.0527 0.0191 \*  
 Mercury -40756-11-09 17:16 J -13164392.88 -13164392.78 -13164392.68 0.0530 0.0386  
 Mercury -40755-02-07 11:30 J -13164303.13 -13164303.02 -13164302.90 0.0533 0.0323  
 Venus -40754-09-23 05:59 J -13163710.32 -13163710.25 -13163710.18 0.0544 0.0506  
 Venus -40753-05-18 07:26 J -13163472.24 -13163472.19 -13163472.13 0.0541 0.0515

Earth -40750-03-14 15:35 J -13162442.02 -13162441.85 -13162441.66 0.0501 0.0320  
 Moon -40750-03-14 19:26 J -13162441.88 -13162441.69 -13162441.50 0.0501 0.0287 \*  
 Mercury -40750-06-28 05:45 J -13162336.40 -13162336.26 -13162336.11 0.0498 0.0166  
 Mercury -40750-09-25 20:23 J -13162246.73 -13162246.65 -13162246.57 0.0495 0.0422  
 Venus -40747-03-14 11:59 J -13161346.19 -13161346.00 -13161345.79 0.0485 0.0131  
 Moon -40744-09-22 00:28 J -13160058.62 -13160058.48 -13160058.33 0.0530 0.0419  
 Earth -40744-09-22 03:35 J -13160058.51 -13160058.35 -13160058.19 0.0530 0.0388 \*  
 Mercury -40744-11-26 12:57 J -13159993.10 -13159992.96 -13159992.81 0.0532 0.0151  
 Venus -40741-01-21 21:21 J -13159206.78 -13159206.61 -13159206.42 0.0543 0.0236  
 Moon -40738-03-18 22:33 J -13158054.77 -13158054.56 -13158054.34 0.0500 0.0175  
 Earth -40738-03-19 02:38 J -13158054.61 -13158054.39 -13158054.17 0.0500 0.0160 \*  
 Mercury -40738-04-16 08:09 J -13158026.28 -13158026.16 -13158026.04 0.0499 0.0307  
 Mercury -40738-07-14 22:18 J -13157936.70 -13157936.57 -13157936.44 0.0496 0.0277  
 Venus -40736-11-17 15:50 J -13157080.05 -13157079.84 -13157079.64 0.0485 0.0073  
 Mercury -40732-09-14 13:11 J -13155683.10 -13155682.95 -13155682.80 0.0531 0.0041  
 Venus -40730-09-26 08:09 J -13154941.36 -13154941.16 -13154940.96 0.0544 0.0059  
 Mercury -40726-02-02 10:33 J -13153716.12 -13153716.06 -13153715.99 0.0500 0.0445  
 Mercury -40726-05-03 00:28 J -13153626.62 -13153626.48 -13153626.33 0.0497 0.0136  
 Venus -40724-07-23 19:54 J -13152813.83 -13152813.67 -13152813.49 0.0484 0.0275  
 Venus -40723-03-16 20:52 J -13152577.68 -13152577.63 -13152577.56 0.0486 0.0465  
 Mercury -40720-07-03 14:09 J -13151373.05 -13151372.91 -13151372.78 0.0530 0.0215  
 Mercury -40720-10-01 07:54 J -13151283.22 -13151283.17 -13151283.11 0.0533 0.0485  
 Venus -40718-05-31 21:06 J -13150675.77 -13150675.62 -13150675.46 0.0545 0.0346  
 Mercury -40714-02-19 02:52 J -13149316.54 -13149316.38 -13149316.23 0.0497 0.0012  
 Mars -40713-07-03 20:38 J -13148815.79 -13148815.64 -13148815.47 0.0485 0.0379  
 Venus -40712-03-28 23:59 J -13148547.53 -13148547.50 -13148547.47 0.0484 0.0476  
 Venus -40712-11-19 22:47 J -13148311.73 -13148311.55 -13148311.37 0.0485 0.0255  
 Mercury -40708-04-21 15:06 J -13147062.97 -13147062.87 -13147062.76 0.0529 0.0387  
 Mercury -40708-07-20 09:35 J -13146973.21 -13146973.10 -13146972.98 0.0533 0.0321  
 Venus -40706-09-29 14:23 J -13146172.03 -13146171.90 -13146171.76 0.0543 0.0399



Mercury -40703-12-08 05:02 J -13145006.43 -13145006.29 -13145006.14 0.0498 0.0147  
 Mercury -40702-03-07 19:40 J -13144916.75 -13144916.68 -13144916.61 0.0495 0.0442  
 Venus -40700-07-26 01:54 J -13144045.62 -13144045.42 -13144045.21 0.0485 0.0049  
 Mercury -40696-05-08 11:30 J -13142663.16 -13142663.02 -13142662.88 0.0532 0.0158  
 Mars -40695-06-11 19:54 J -13142263.79 -13142263.67 -13142263.53 0.0543 0.0486  
 Venus -40694-06-04 05:30 J -13141906.47 -13141906.27 -13141906.08 0.0543 0.0121  
 Mercury -40691-09-26 06:57 J -13140696.32 -13140696.21 -13140696.08 0.0499 0.0294  
 Mercury -40691-12-24 21:06 J -13140606.74 -13140606.62 -13140606.49 0.0495 0.0291  
 Venus -40688-03-31 05:30 J -13139779.47 -13139779.27 -13139779.08 0.0484 0.0156  
 Mercury -40684-02-24 12:57 J -13138353.11 -13138352.96 -13138352.82 0.0531 0.0021  
 Venus -40682-02-06 18:14 J -13137640.93 -13137640.74 -13137640.55 0.0544 0.0167  
 Mercury -40679-07-15 09:21 J -13136386.18 -13136386.11 -13136386.03 0.0499 0.0435  
 Mercury -40679-10-12 23:16 J -13136296.68 -13136296.53 -13136296.38 0.0496 0.0146  
 Mars -40677-04-06 08:23 J -13135755.41 -13135755.15 -13135754.89 0.0485 0.0003  
 Venus -40677-12-04 09:50 J -13135513.22 -13135513.09 -13135512.94 0.0484 0.0354  
 Venus -40676-07-28 10:04 J -13135277.20 -13135277.08 -13135276.95 0.0486 0.0382  
 Moon -40673-09-15 22:33 J -13134131.75 -13134131.56 -13134131.36 0.0526 0.0288  
 Earth -40673-09-16 02:09 J -13134131.61 -13134131.41 -13134131.22 0.0526 0.0292 \*  
 Mercury -40673-12-13 12:57 J -13134043.10 -13134042.96 -13134042.82 0.0530 0.0202  
 Mercury -40672-03-13 06:42 J -13133953.27 -13133953.22 -13133953.17 0.0533 0.0497  
 Venus -40671-10-12 03:21 J -13133375.46 -13133375.36 -13133375.25 0.0544 0.0465  
 Moon -40667-03-13 20:38 J -13132126.80 -13132126.64 -13132126.47 0.0503 0.0344  
 Earth -40667-03-14 00:42 J -13132126.62 -13132126.47 -13132126.31 0.0503 0.0375 \*  
 Mercury -40667-08-01 01:26 J -13131986.59 -13131986.44 -13131986.29 0.0498 0.0005  
 Venus -40664-04-02 13:11 J -13131011.14 -13131010.95 -13131010.75 0.0485 0.0177  
 Earth -40661-09-21 02:52 J -13129743.57 -13129743.38 -13129743.18 0.0528 0.0285  
 Moon -40661-09-21 04:18 J -13129743.50 -13129743.32 -13129743.14 0.0528 0.0314 \*  
 Mercury -40661-10-01 13:40 J -13129733.03 -13129732.93 -13129732.82 0.0529 0.0380  
 Mercury -40661-12-30 08:09 J -13129643.28 -13129643.16 -13129643.05 0.0532 0.0325  
 Mars -40659-03-20 17:02 J -13129198.05 -13129197.79 -13129197.51 0.0544 0.0219

Venus -40658-02-09 19:40 J -13128871.84 -13128871.68 -13128871.50 0.0543 0.0278  
 Earth -40655-03-18 12:57 J -13127739.18 -13127738.96 -13127738.73 0.0500 0.0114  
 Moon -40655-03-18 16:47 J -13127739.02 -13127738.80 -13127738.58 0.0500 0.0126 \*  
 Mercury -40655-05-20 03:50 J -13127676.49 -13127676.34 -13127676.20 0.0498 0.0137  
 Mercury -40655-08-17 18:14 J -13127586.79 -13127586.74 -13127586.67 0.0495 0.0453  
 Venus -40653-12-06 15:50 J -13126745.05 -13126744.84 -13126744.63 0.0484 0.0032  
 Mercury -40649-10-18 09:35 J -13125333.24 -13125333.10 -13125332.96 0.0532 0.0158  
 Venus -40647-10-15 11:16 J -13124606.23 -13124606.03 -13124605.83 0.0544 0.0005  
 Mercury -40643-03-08 06:14 J -13123366.36 -13123366.24 -13123366.11 0.0499 0.0276  
 Mercury -40643-06-05 20:23 J -13123276.77 -13123276.65 -13123276.53 0.0496 0.0309  
 Mars -40641-01-08 21:50 J -13122694.74 -13122694.59 -13122694.43 0.0484 0.0388  
 Venus -40641-08-11 19:40 J -13122478.85 -13122478.68 -13122478.49 0.0484 0.0235  
 Mercury -40637-08-06 11:16 J -13121023.18 -13121023.03 -13121022.88 0.0531 0.0007  
 Venus -40635-06-20 01:11 J -13120340.61 -13120340.45 -13120340.27 0.0544 0.0285  
 Mercury -40632-12-25 08:23 J -13119056.23 -13119056.15 -13119056.07 0.0499 0.0421  
 Mercury -40631-03-24 22:04 J -13118966.72 -13118966.58 -13118966.43 0.0496 0.0159  
 Venus -40629-04-16 23:45 J -13118212.59 -13118212.51 -13118212.41 0.0484 0.0434  
 Venus -40629-12-08 23:02 J -13117976.70 -13117976.54 -13117976.37 0.0486 0.0298  
 Mercury -40625-05-25 12:28 J -13116713.12 -13116712.98 -13116712.84 0.0530 0.0178  
 Mercury -40625-08-23 06:28 J -13116623.26 -13116623.23 -13116623.20 0.0534 0.0522  
 Venus -40623-10-18 16:04 J -13115836.94 -13115836.83 -13115836.72 0.0542 0.0449  
 Mercury -40619-01-11 00:14 J -13114656.64 -13114656.49 -13114656.34 0.0497 0.0015  
 Venus -40617-08-14 02:38 J -13113710.59 -13113710.39 -13113710.18 0.0485 0.0094  
 Mercury -40613-03-13 12:28 J -13112403.08 -13112402.98 -13112402.87 0.0529 0.0366  
 Mercury -40613-06-11 06:57 J -13112313.32 -13112313.21 -13112313.10 0.0532 0.0338  
 Venus -40611-06-23 02:38 J -13111571.58 -13111571.39 -13111571.20 0.0543 0.0160  
 Mercury -40608-10-30 02:23 J -13110346.55 -13110346.40 -13110346.25 0.0498 0.0129  
 Mercury -40607-01-27 16:47 J -13110256.84 -13110256.80 -13110256.74 0.0495 0.0463  
 Venus -40605-04-19 06:42 J -13109444.42 -13109444.22 -13109444.01 0.0484 0.0110  
 Mercury -40601-03-30 08:09 J -13108003.30 -13108003.16 -13108003.02 0.0531 0.0165

Venus -40599-02-25 16:04 J -13107306.03 -13107305.83 -13107305.64 0.0544 0.0127  
 Mercury -40596-08-18 04:47 J -13106036.42 -13106036.30 -13106036.17 0.0499 0.0268  
 Mercury -40596-11-15 18:57 J -13105946.82 -13105946.71 -13105946.59 0.0496 0.0318  
 Venus -40594-12-24 10:04 J -13105178.24 -13105178.08 -13105177.93 0.0484 0.0314  
 Venus -40593-08-16 09:50 J -13104942.19 -13104942.09 -13104941.98 0.0486 0.0420  
 Earth -40590-09-16 06:28 J -13103816.39 -13103816.23 -13103816.06 0.0526 0.0372  
 Moon -40590-09-16 08:23 J -13103816.31 -13103816.15 -13103815.98 0.0526 0.0360 \*  
 Mercury -40589-01-17 09:21 J -13103693.26 -13103693.11 -13103692.96 0.0531 0.0010  
 Venus -40588-10-31 05:59 J -13103040.37 -13103040.25 -13103040.11 0.0545 0.0410  
 Earth -40584-03-13 11:16 J -13101811.15 -13101811.03 -13101810.91 0.0503 0.0425  
 Moon -40584-03-13 14:38 J -13101811.02 -13101810.89 -13101810.74 0.0503 0.0393 \*  
 Mercury -40584-06-06 07:26 J -13101726.28 -13101726.19 -13101726.10 0.0500 0.0406  
 Mercury -40584-09-03 21:06 J -13101636.76 -13101636.62 -13101636.47 0.0496 0.0176  
 Venus -40581-04-21 12:57 J -13100676.15 -13100675.96 -13100675.77 0.0485 0.0215  
 Earth -40578-09-21 10:33 J -13099428.27 -13099428.06 -13099427.85 0.0528 0.0218  
 Moon -40578-09-21 11:30 J -13099428.23 -13099428.02 -13099427.80 0.0528 0.0242 \*  
 Mercury -40578-11-05 10:47 J -13099383.19 -13099383.05 -13099382.91 0.0530 0.0173  
 Mercury -40577-02-03 04:47 J -13099293.32 -13099293.30 -13099293.28 0.0534 0.0527  
 Venus -40575-02-28 23:30 J -13098536.67 -13098536.52 -13098536.36 0.0543 0.0334  
 Moon -40572-03-17 18:57 J -13097423.95 -13097423.71 -13097423.47 0.0501 0.0058  
 Earth -40572-03-17 21:35 J -13097423.83 -13097423.60 -13097423.37 0.0501 0.0054 \*  
 Mercury -40572-06-22 23:02 J -13097326.69 -13097326.54 -13097326.39 0.0497 0.0027  
 Venus -40570-12-26 15:50 J -13096410.05 -13096409.84 -13096409.63 0.0485 0.0010  
 Mercury -40566-08-24 11:59 J -13095073.11 -13095073.00 -13095072.88 0.0529 0.0345  
 Mercury -40566-11-22 06:28 J -13094983.34 -13094983.23 -13094983.12 0.0533 0.0361  
 Venus -40564-11-03 13:11 J -13094271.14 -13094270.95 -13094270.75 0.0544 0.0054  
 Mercury -40560-04-11 01:11 J -13093016.59 -13093016.45 -13093016.30 0.0498 0.0117  
 Mercury -40560-07-09 15:50 J -13092926.89 -13092926.84 -13092926.80 0.0495 0.0472  
 Mars -40559-09-28 03:50 J -13092481.56 -13092481.34 -13092481.12 0.0485 0.0241  
 Venus -40558-08-31 20:09 J -13092143.84 -13092143.66 -13092143.46 0.0484 0.0192

Mercury -40554-09-10 06:57 J -13090673.35 -13090673.21 -13090673.07 0.0531 0.0178  
 Venus -40552-07-08 22:33 J -13090005.74 -13090005.56 -13090005.38 0.0544 0.0246  
 Mercury -40548-01-28 03:21 J -13088706.49 -13088706.36 -13088706.23 0.0499 0.0261  
 Mercury -40548-04-27 17:30 J -13088616.88 -13088616.77 -13088616.65 0.0496 0.0326  
 Venus -40546-05-07 00:57 J -13087877.58 -13087877.46 -13087877.34 0.0484 0.0390  
 Venus -40546-12-29 00:14 J -13087641.63 -13087641.49 -13087641.34 0.0486 0.0341  
 Mercury -40542-06-29 07:54 J -13086363.32 -13086363.17 -13086363.02 0.0530 0.0002  
 Mars -40541-09-04 18:14 J -13085929.98 -13085929.74 -13085929.49 0.0543 0.0303  
 Venus -40540-03-13 10:18 J -13085740.10 -13085740.07 -13085740.02 0.0544 0.0534  
 Venus -40540-11-06 13:11 J -13085502.03 -13085501.95 -13085501.86 0.0542 0.0486  
 Mercury -40537-11-16 05:45 J -13084396.34 -13084396.26 -13084396.17 0.0500 0.0401  
 Mercury -40536-02-13 19:40 J -13084306.82 -13084306.68 -13084306.54 0.0497 0.0182  
 Venus -40534-09-03 02:09 J -13083375.61 -13083375.41 -13083375.21 0.0485 0.0132  
 Mercury -40530-04-17 08:52 J -13082053.27 -13082053.13 -13082052.99 0.0530 0.0174  
 Mercury -40530-07-16 02:52 J -13081963.40 -13081963.38 -13081963.36 0.0533 0.0525  
 Venus -40528-07-12 04:47 J -13081236.48 -13081236.30 -13081236.11 0.0544 0.0212  
 Mercury -40525-12-02 22:04 J -13079996.74 -13079996.58 -13079996.43 0.0497 0.0042  
 Mars -40523-07-01 14:52 J -13079421.12 -13079420.88 -13079420.63 0.0484 0.0144  
 Venus -40522-05-09 05:59 J -13079109.46 -13079109.25 -13079109.05 0.0484 0.0072  
 Mercury -40518-02-03 10:18 J -13077743.19 -13077743.07 -13077742.96 0.0529 0.0342  
 Mercury -40518-05-04 04:33 J -13077653.41 -13077653.31 -13077653.20 0.0533 0.0364  
 Venus -40516-03-16 19:40 J -13076970.88 -13076970.68 -13076970.48 0.0544 0.0068  
 Mercury -40513-09-20 23:59 J -13075686.65 -13075686.50 -13075686.35 0.0498 0.0107  
 Mercury -40513-12-19 14:23 J -13075596.93 -13075596.90 -13075596.87 0.0495 0.0483  
 Venus -40510-01-12 09:21 J -13074843.27 -13074843.11 -13074842.93 0.0484 0.0274  
 Venus -40510-09-05 09:50 J -13074607.15 -13074607.09 -13074607.02 0.0486 0.0460  
 Earth -40507-09-15 14:38 J -13073501.02 -13073500.89 -13073500.76 0.0525 0.0436  
 Moon -40507-09-15 14:52 J -13073501.02 -13073500.88 -13073500.73 0.0525 0.0413 \*  
 Mercury -40507-11-22 11:16 J -13073433.06 -13073433.03 -13073433.00 0.0528 0.0514  
 Mercury -40506-02-20 06:14 J -13073343.38 -13073343.24 -13073343.10 0.0532 0.0197

Mars -40505-06-14 18:57 J -13072862.86 -13072862.71 -13072862.54 0.0544 0.0457  
 Venus -40505-11-19 08:23 J -13072705.30 -13072705.15 -13072705.00 0.0544 0.0355  
 Moon -40501-03-12 14:52 J -13071495.96 -13071495.88 -13071495.78 0.0503 0.0467  
 Earth -40501-03-12 17:30 J -13071495.80 -13071495.77 -13071495.72 0.0503 0.0496 \*  
 Mercury -40501-07-10 02:09 J -13071376.54 -13071376.41 -13071376.28 0.0499 0.0250  
 Mercury -40501-10-07 16:18 J -13071286.93 -13071286.82 -13071286.71 0.0496 0.0336  
 Venus -40499-09-17 14:38 J -13070576.94 -13070576.89 -13070576.84 0.0484 0.0469  
 Venus -40498-05-11 13:11 J -13070341.12 -13070340.95 -13070340.77 0.0485 0.0257  
 Moon -40495-09-20 11:02 J -13069113.26 -13069113.04 -13069112.83 0.0527 0.0155  
 Earth -40495-09-20 13:26 J -13069113.16 -13069112.94 -13069112.71 0.0527 0.0133 \*  
 Mercury -40495-12-09 06:42 J -13069033.37 -13069033.22 -13069033.07 0.0530 0.0016  
 Venus -40492-03-19 20:09 J -13068201.80 -13068201.66 -13068201.51 0.0542 0.0370  
 Earth -40489-03-17 03:21 J -13067108.59 -13067108.36 -13067108.13 0.0502 0.0015  
 Moon -40489-03-17 03:50 J -13067108.56 -13067108.34 -13067108.12 0.0502 0.0020 \*  
 Mercury -40489-04-28 04:04 J -13067066.41 -13067066.33 -13067066.24 0.0500 0.0396  
 Mercury -40489-07-26 17:59 J -13066976.89 -13066976.75 -13066976.61 0.0497 0.0188  
 Venus -40486-01-14 16:33 J -13066075.02 -13066074.81 -13066074.60 0.0485 0.0052  
 Mercury -40483-09-27 07:26 J -13064723.33 -13064723.19 -13064723.04 0.0529 0.0164  
 Venus -40481-11-22 09:50 J -13063936.29 -13063936.09 -13063935.90 0.0544 0.0087  
 Earth -40477-03-21 14:38 J -13062720.96 -13062720.89 -13062720.80 0.0500 0.0470  
 Moon -40477-03-21 16:04 J -13062720.93 -13062720.83 -13062720.71 0.0500 0.0439 \*  
 Mercury -40477-05-14 20:09 J -13062666.81 -13062666.66 -13062666.51 0.0498 0.0045  
 Venus -40475-09-19 19:26 J -13061808.89 -13061808.69 -13061808.50 0.0484 0.0154  
 Mercury -40471-07-16 08:09 J -13060413.27 -13060413.16 -13060413.05 0.0529 0.0344  
 Mercury -40471-10-14 02:38 J -13060323.50 -13060323.39 -13060323.28 0.0532 0.0361  
 Venus -40469-07-27 23:45 J -13059670.70 -13059670.51 -13059670.32 0.0545 0.0196  
 Mercury -40465-03-02 22:33 J -13058356.70 -13058356.56 -13058356.41 0.0498 0.0097  
 Mercury -40465-05-31 13:11 J -13058266.96 -13058266.95 -13058266.94 0.0495 0.0494  
 Venus -40463-05-25 23:30 J -13057542.65 -13057542.52 -13057542.37 0.0484 0.0354  
 Venus -40462-01-16 22:47 J -13057306.68 -13057306.55 -13057306.42 0.0486 0.0375

Mercury -40459-05-04 09:21 J -13056103.14 -13056103.11 -13056103.08 0.0528 0.0515

Mercury -40459-08-02 04:18 J -13056013.46 -13056013.32 -13056013.18 0.0532 0.0197

Venus -40457-04-01 13:26 J -13055405.03 -13055404.94 -13055404.84 0.0545 0.0477

Venus -40457-11-25 15:50 J -13055166.85 -13055166.84 -13055166.81 0.0542 0.0539

Mercury -40454-12-21 00:42 J -13054046.60 -13054046.47 -13054046.34 0.0499 0.0241

Mercury -40453-03-19 14:52 J -13053956.99 -13053956.88 -13053956.77 0.0496 0.0344

Venus -40451-09-22 01:26 J -13053040.63 -13053040.44 -13053040.25 0.0485 0.0170

Mercury -40447-05-21 05:45 J -13051703.41 -13051703.26 -13051703.11 0.0531 0.0029

Venus -40445-07-31 06:14 J -13050901.41 -13050901.24 -13050901.06 0.0543 0.0261

Mercury -40442-10-09 03:06 J -13049736.47 -13049736.37 -13049736.28 0.0500 0.0384

Mercury -40441-01-06 16:47 J -13049646.94 -13049646.80 -13049646.66 0.0497 0.0198

Venus -40439-05-28 05:30 J -13048774.48 -13048774.27 -13048774.06 0.0484 0.0032

Mercury -40435-03-09 06:14 J -13047393.38 -13047393.24 -13047393.09 0.0529 0.0152

Venus -40433-04-04 16:18 J -13046636.02 -13046635.82 -13046635.62 0.0544 0.0034

Mercury -40430-10-25 18:28 J -13045336.88 -13045336.73 -13045336.58 0.0498 0.0048

Venus -40427-01-31 09:21 J -13044508.29 -13044508.11 -13044507.93 0.0484 0.0234

Moon -40424-09-14 13:11 J -13043186.01 -13043185.95 -13043185.90 0.0524 0.0506

Mercury -40424-12-26 06:57 J -13043083.33 -13043083.21 -13043083.10 0.0528 0.0333

Mercury -40423-03-26 01:11 J -13042993.55 -13042993.45 -13042993.34 0.0532 0.0370

Venus -40422-12-09 04:18 J -13042370.48 -13042370.32 -13042370.16 0.0544 0.0321

Mercury -40418-08-13 20:38 J -13041026.78 -13041026.64 -13041026.49 0.0499 0.0096

Mercury -40418-11-11 11:16 J -13040937.03 -13040937.03 -13040937.03 0.0496 0.0495

Venus -40416-10-06 12:42 J -13040242.05 -13040241.97 -13040241.87 0.0484 0.0435

Venus -40415-05-30 11:16 J -13040006.19 -13040006.03 -13040005.86 0.0485 0.0290

Earth -40412-09-19 13:26 J -13038798.17 -13038797.94 -13038797.70 0.0527 0.0030

Moon -40412-09-19 17:02 J -13038798.03 -13038797.79 -13038797.55 0.0527 0.0053 \*

Mercury -40412-10-14 07:11 J -13038773.23 -13038773.20 -13038773.17 0.0528 0.0517

Mercury -40411-01-12 02:09 J -13038683.55 -13038683.41 -13038683.27 0.0531 0.0193

Venus -40409-04-07 20:38 J -13037866.76 -13037866.64 -13037866.51 0.0543 0.0415

Earth -40406-03-17 11:16 J -13036793.26 -13036793.03 -13036792.80 0.0502 0.0076

Moon -40406-03-17 12:42 J -13036793.21 -13036792.97 -13036792.73 0.0502 0.0091 \*  
 Mercury -40406-06-01 23:16 J -13036716.66 -13036716.53 -13036716.40 0.0499 0.0234  
 Mercury -40406-08-30 13:26 J -13036627.05 -13036626.94 -13036626.83 0.0496 0.0352  
 Mars -40405-12-22 04:47 J -13036147.55 -13036147.30 -13036147.04 0.0485 0.0108  
 Venus -40403-02-02 14:23 J -13035740.10 -13035739.90 -13035739.69 0.0484 0.0086  
 Mercury -40400-10-31 03:35 J -13034373.50 -13034373.35 -13034373.20 0.0531 0.0025  
 Venus -40398-12-12 11:45 J -13033601.20 -13033601.01 -13033600.81 0.0544 0.0140  
 Mercury -40394-03-21 01:26 J -13032406.53 -13032406.44 -13032406.34 0.0500 0.0378  
 Moon -40394-03-21 18:57 J -13032405.86 -13032405.71 -13032405.56 0.0500 0.0373  
 Earth -40394-03-21 21:35 J -13032405.73 -13032405.60 -13032405.46 0.0500 0.0403 \*  
 Mercury -40394-06-18 15:06 J -13032317.01 -13032316.87 -13032316.73 0.0497 0.0204  
 Venus -40392-10-08 17:45 J -13031473.96 -13031473.76 -13031473.56 0.0484 0.0117  
 Mercury -40388-08-19 04:47 J -13030063.44 -13030063.30 -13030063.15 0.0530 0.0144  
 Mars -40387-11-30 12:14 J -13029595.28 -13029594.99 -13029594.70 0.0543 0.0079  
 Venus -40386-08-17 01:11 J -13029335.64 -13029335.45 -13029335.26 0.0544 0.0144  
 Mercury -40382-04-06 17:16 J -13028006.93 -13028006.78 -13028006.63 0.0498 0.0058  
 Venus -40380-06-13 22:04 J -13027207.73 -13027207.58 -13027207.42 0.0484 0.0317  
 Venus -40379-02-04 22:04 J -13026971.69 -13026971.58 -13026971.47 0.0486 0.0413  
 Mercury -40376-06-07 05:30 J -13025753.39 -13025753.27 -13025753.15 0.0528 0.0323  
 Mercury -40376-09-04 23:59 J -13025663.61 -13025663.50 -13025663.40 0.0532 0.0380  
 Venus -40374-04-21 10:33 J -13025070.18 -13025070.06 -13025069.95 0.0544 0.0440  
 Mercury -40370-01-23 18:42 J -13023696.86 -13023696.72 -13023696.57 0.0499 0.0095  
 Mars -40369-09-24 13:11 J -13023087.16 -13023086.95 -13023086.73 0.0485 0.0269  
 Venus -40368-10-11 00:42 J -13022705.65 -13022705.47 -13022705.28 0.0485 0.0208  
 Mercury -40364-03-26 05:45 J -13021443.29 -13021443.26 -13021443.21 0.0527 0.0505  
 Mercury -40364-06-24 00:42 J -13021353.60 -13021353.47 -13021353.33 0.0531 0.0203  
 Venus -40362-08-20 01:40 J -13020566.60 -13020566.43 -13020566.26 0.0543 0.0291  
 Mercury -40359-11-11 21:06 J -13019386.75 -13019386.62 -13019386.49 0.0500 0.0237  
 Mercury -40358-02-09 11:16 J -13019297.14 -13019297.03 -13019296.92 0.0496 0.0350  
 Venus -40356-06-16 02:52 J -13018439.59 -13018439.38 -13018439.17 0.0484 0.0004

Mercury -40352-04-12 01:26 J -13017043.59 -13017043.44 -13017043.29 0.0530 0.0026  
 Venus -40350-04-24 15:35 J -13016301.05 -13016300.85 -13016300.65 0.0544 0.0011  
 Mercury -40347-08-30 23:45 J -13015076.61 -13015076.51 -13015076.41 0.0500 0.0375  
 Mercury -40347-11-28 13:26 J -13014987.07 -13014986.94 -13014986.80 0.0497 0.0209  
 Venus -40344-02-19 06:42 J -13014173.40 -13014173.22 -13014173.03 0.0484 0.0201  
 Mercury -40340-01-29 02:38 J -13012733.54 -13012733.39 -13012733.25 0.0530 0.0150  
 Venus -40339-12-28 05:30 J -13012035.45 -13012035.27 -13012035.10 0.0545 0.0271  
 Mercury -40335-09-16 15:21 J -13010677.01 -13010676.86 -13010676.70 0.0498 0.0063  
 Venus -40333-10-25 10:33 J -13009907.17 -13009907.06 -13009906.94 0.0484 0.0400  
 Venus -40332-06-18 09:06 J -13009671.27 -13009671.12 -13009670.96 0.0485 0.0324  
 Moon -40329-09-18 14:23 J -13008483.13 -13008482.90 -13008482.67 0.0526 0.0032  
 Earth -40329-09-18 18:14 J -13008482.97 -13008482.74 -13008482.51 0.0526 0.0050 \*  
 Mercury -40329-11-17 03:50 J -13008423.46 -13008423.34 -13008423.22 0.0529 0.0320  
 Mercury -40328-02-14 22:18 J -13008333.67 -13008333.57 -13008333.47 0.0532 0.0385  
 Venus -40326-04-27 21:21 J -13007531.71 -13007531.61 -13007531.51 0.0542 0.0460  
 Moon -40323-03-16 12:42 J -13006478.18 -13006477.97 -13006477.76 0.0503 0.0176  
 Earth -40323-03-16 15:21 J -13006478.08 -13006477.86 -13006477.64 0.0503 0.0156 \*  
 Mercury -40323-07-05 17:30 J -13006366.92 -13006366.77 -13006366.62 0.0498 0.0085  
 Venus -40320-02-21 12:42 J -13005405.17 -13005404.97 -13005404.77 0.0485 0.0122  
 Mercury -40317-09-05 04:18 J -13004113.36 -13004113.32 -13004113.27 0.0527 0.0497  
 Moon -40317-09-23 22:18 J -13004094.62 -13004094.57 -13004094.50 0.0528 0.0506  
 Mercury -40317-12-03 23:16 J -13004023.66 -13004023.53 -13004023.39 0.0531 0.0211  
 Venus -40315-12-31 08:09 J -13003266.34 -13003266.16 -13003265.97 0.0543 0.0172  
 Earth -40311-03-20 23:02 J -13002090.72 -13002090.54 -13002090.36 0.0501 0.0315  
 Moon -40311-03-21 02:23 J -13002090.59 -13002090.40 -13002090.20 0.0501 0.0287 \*  
 Mercury -40311-04-23 19:11 J -13002056.83 -13002056.70 -13002056.57 0.0500 0.0237  
 Mercury -40311-07-22 09:21 J -13001967.22 -13001967.11 -13001967.01 0.0497 0.0351  
 Venus -40309-10-27 16:04 J -13001139.03 -13001138.83 -13001138.62 0.0485 0.0082  
 Mercury -40305-09-21 23:59 J -12999713.65 -12999713.50 -12999713.35 0.0530 0.0033  
 Venus -40303-09-04 20:09 J -12999000.85 -12999000.66 -12999000.46 0.0544 0.0116



Mercury -40299-02-09 21:21 J -12997746.70 -12997746.61 -12997746.51 0.0501 0.0380

Mercury -40299-05-10 11:16 J -12997657.17 -12997657.03 -12997656.89 0.0497 0.0204

Venus -40297-07-02 18:57 J -12996872.87 -12996872.71 -12996872.54 0.0484 0.0285

Venus -40296-02-23 18:42 J -12996636.80 -12996636.72 -12996636.64 0.0486 0.0442

Mercury -40293-07-11 00:14 J -12995403.63 -12995403.49 -12995403.34 0.0529 0.0156

Venus -40291-05-10 08:23 J -12994735.29 -12994735.15 -12994735.02 0.0545 0.0401

Mercury -40287-02-26 13:40 J -12993347.08 -12993346.93 -12993346.78 0.0498 0.0063

Mars -40286-06-14 13:54 J -12992874.09 -12992873.92 -12992873.75 0.0486 0.0367

Venus -40285-03-07 23:30 J -12992606.53 -12992606.52 -12992606.49 0.0484 0.0481

Venus -40285-10-29 21:21 J -12992370.79 -12992370.61 -12992370.43 0.0485 0.0238

Mercury -40281-04-29 01:11 J -12991093.56 -12991093.45 -12991093.33 0.0529 0.0329

Mercury -40281-07-27 19:54 J -12991003.77 -12991003.67 -12991003.57 0.0532 0.0376

Venus -40279-09-08 02:09 J -12990231.57 -12990231.41 -12990231.25 0.0543 0.0337

Mercury -40276-12-15 15:50 J -12989036.99 -12989036.84 -12989036.69 0.0498 0.0083

Venus -40273-07-04 23:59 J -12988104.70 -12988104.50 -12988104.29 0.0484 0.0035

Mercury -40269-02-16 02:23 J -12986783.45 -12986783.40 -12986783.35 0.0528 0.0500

Mercury -40269-05-15 21:21 J -12986693.74 -12986693.61 -12986693.47 0.0531 0.0211

Venus -40267-05-13 16:04 J -12985966.03 -12985965.83 -12985965.63 0.0544 0.0058

Mercury -40264-10-03 17:59 J -12984726.89 -12984726.75 -12984726.62 0.0499 0.0227

Mercury -40263-01-01 07:54 J -12984637.27 -12984637.17 -12984637.06 0.0496 0.0359

Venus -40261-03-10 04:18 J -12983838.51 -12983838.32 -12983838.13 0.0484 0.0166

Mercury -40257-03-03 22:33 J -12982383.71 -12982383.56 -12982383.41 0.0530 0.0038

Venus -40255-01-16 02:23 J -12981700.58 -12981700.40 -12981700.22 0.0544 0.0234

Mercury -40252-07-22 19:26 J -12980416.78 -12980416.69 -12980416.59 0.0501 0.0380

Mercury -40252-10-20 09:06 J -12980327.25 -12980327.12 -12980326.98 0.0497 0.0204

Mars -40250-03-17 19:26 J -12979813.95 -12979813.69 -12979813.43 0.0486 0.0003

Venus -40250-11-14 07:54 J -12979572.30 -12979572.17 -12979572.03 0.0484 0.0367

Venus -40249-07-07 07:11 J -12979336.34 -12979336.20 -12979336.06 0.0486 0.0357

Earth -40246-09-18 17:45 J -12978167.98 -12978167.76 -12978167.54 0.0525 0.0154

Moon -40246-09-18 21:21 J -12978167.83 -12978167.61 -12978167.38 0.0525 0.0139 \*

Mercury -40246-12-21 23:02 J -12978073.68 -12978073.54 -12978073.39 0.0529 0.0143  
 Venus -40244-09-20 13:11 J -12977435.00 -12977434.95 -12977434.90 0.0544 0.0522  
 Venus -40243-05-16 16:04 J -12977196.92 -12977196.83 -12977196.74 0.0542 0.0485  
 Earth -40240-03-15 15:21 J -12976163.05 -12976162.86 -12976162.65 0.0504 0.0253  
 Moon -40240-03-15 18:57 J -12976162.90 -12976162.71 -12976162.51 0.0504 0.0272 \*  
 Mercury -40240-08-08 11:16 J -12976017.18 -12976017.03 -12976016.88 0.0498 0.0057  
 Venus -40237-03-12 09:06 J -12975070.32 -12975070.12 -12975069.93 0.0485 0.0151  
 Moon -40234-09-23 11:59 J -12973780.17 -12973780.00 -12973779.83 0.0527 0.0371  
 Earth -40234-09-23 14:09 J -12973780.05 -12973779.91 -12973779.76 0.0527 0.0403 \*  
 Mercury -40234-10-09 23:02 J -12973763.66 -12973763.54 -12973763.42 0.0528 0.0334  
 Mercury -40233-01-07 17:30 J -12973673.87 -12973673.77 -12973673.66 0.0532 0.0370  
 Mars -40232-02-22 14:09 J -12973262.20 -12973261.91 -12973261.62 0.0543 0.0061  
 Venus -40231-01-19 05:30 J -12972931.45 -12972931.27 -12972931.08 0.0544 0.0209  
 Moon -40228-03-20 00:57 J -12971775.66 -12971775.46 -12971775.24 0.0501 0.0215  
 Earth -40228-03-20 04:47 J -12971775.50 -12971775.30 -12971775.09 0.0501 0.0242 \*  
 Mercury -40228-05-27 13:40 J -12971707.07 -12971706.93 -12971706.78 0.0499 0.0084  
 Venus -40226-11-16 12:28 J -12970804.18 -12970803.98 -12970803.77 0.0484 0.0052  
 Mercury -40222-07-28 23:45 J -12969453.54 -12969453.51 -12969453.47 0.0527 0.0510  
 Mercury -40222-10-26 18:57 J -12969363.85 -12969363.71 -12969363.57 0.0531 0.0201  
 Venus -40220-09-23 19:54 J -12968665.87 -12968665.67 -12968665.48 0.0544 0.0071  
 Mercury -40216-03-15 16:04 J -12967396.96 -12967396.83 -12967396.70 0.0499 0.0226  
 Mercury -40216-06-13 05:59 J -12967307.35 -12967307.25 -12967307.14 0.0496 0.0360  
 Mars -40215-12-19 02:52 J -12966753.53 -12966753.38 -12966753.20 0.0484 0.0376  
 Venus -40214-07-22 15:50 J -12966538.01 -12966537.84 -12966537.66 0.0484 0.0252  
 Venus -40213-03-14 15:35 J -12966301.89 -12966301.85 -12966301.80 0.0486 0.0473  
 Mercury -40210-08-14 20:23 J -12965053.80 -12965053.65 -12965053.50 0.0530 0.0034  
 Venus -40208-05-29 08:52 J -12964400.29 -12964400.13 -12964399.98 0.0544 0.0352  
 Mercury -40204-01-01 18:14 J -12963086.84 -12963086.74 -12963086.64 0.0500 0.0369  
 Mercury -40204-04-01 07:54 J -12962997.31 -12962997.17 -12962997.03 0.0497 0.0213  
 Venus -40202-03-27 20:23 J -12962271.71 -12962271.65 -12962271.56 0.0484 0.0448

Venus -40202-11-18 18:42 J -12962035.89 -12962035.72 -12962035.54 0.0485 0.0271  
 Mercury -40198-06-02 21:21 J -12960743.75 -12960743.61 -12960743.46 0.0529 0.0139  
 Venus -40196-09-26 22:47 J -12959896.69 -12959896.55 -12959896.40 0.0542 0.0370  
 Mercury -40192-01-18 09:21 J -12958687.26 -12958687.11 -12958686.96 0.0498 0.0057  
 Venus -40190-07-24 21:35 J -12957769.81 -12957769.60 -12957769.40 0.0485 0.0067  
 Mercury -40186-03-21 21:50 J -12956433.71 -12956433.59 -12956433.47 0.0528 0.0321  
 Mercury -40186-06-19 16:33 J -12956343.92 -12956343.81 -12956343.71 0.0531 0.0383  
 Venus -40184-06-01 11:16 J -12955631.23 -12955631.03 -12955630.83 0.0543 0.0087  
 Mercury -40181-11-06 11:30 J -12954377.17 -12954377.02 -12954376.87 0.0499 0.0089  
 Venus -40178-03-30 00:28 J -12953503.68 -12953503.48 -12953503.28 0.0484 0.0136  
 Mercury -40174-01-07 21:21 J -12952123.63 -12952123.61 -12952123.57 0.0527 0.0515  
 Mercury -40174-04-07 16:33 J -12952033.94 -12952033.81 -12952033.67 0.0531 0.0195  
 Venus -40172-02-03 22:33 J -12951365.74 -12951365.56 -12951365.37 0.0544 0.0199  
 Mercury -40169-08-25 14:09 J -12950067.05 -12950066.91 -12950066.78 0.0500 0.0227  
 Mercury -40169-11-23 04:04 J -12949977.43 -12949977.33 -12949977.23 0.0497 0.0360  
 Venus -40167-12-03 04:33 J -12949237.45 -12949237.31 -12949237.15 0.0484 0.0334  
 Venus -40166-07-27 03:21 J -12949001.48 -12949001.36 -12949001.23 0.0485 0.0386  
 Moon -40163-09-17 11:16 J -12947853.24 -12947853.03 -12947852.82 0.0525 0.0268  
 Earth -40163-09-17 14:09 J -12947853.11 -12947852.91 -12947852.71 0.0525 0.0276 \*  
 Mercury -40162-01-24 17:45 J -12947723.91 -12947723.76 -12947723.61 0.0530 0.0023  
 Venus -40161-10-09 11:45 J -12947100.10 -12947100.01 -12947099.92 0.0545 0.0479  
 Venus -40160-06-04 15:21 J -12946861.90 -12946861.86 -12946861.82 0.0543 0.0528  
 Moon -40157-03-14 17:30 J -12945847.93 -12945847.77 -12945847.59 0.0504 0.0349  
 Earth -40157-03-14 21:21 J -12945847.78 -12945847.61 -12945847.43 0.0504 0.0325 \*  
 Mercury -40157-06-13 16:18 J -12945756.91 -12945756.82 -12945756.71 0.0500 0.0369  
 Mercury -40157-09-11 05:59 J -12945667.38 -12945667.25 -12945667.11 0.0497 0.0214  
 Venus -40154-04-01 05:59 J -12944735.44 -12944735.25 -12944735.06 0.0485 0.0182  
 Earth -40151-09-22 16:33 J -12943464.99 -12943464.81 -12943464.62 0.0527 0.0311  
 Moon -40151-09-22 17:30 J -12943464.96 -12943464.77 -12943464.58 0.0527 0.0280 \*  
 Mercury -40151-11-12 19:11 J -12943413.85 -12943413.70 -12943413.56 0.0529 0.0146

Venus -40148-02-07 05:59 J -12942596.43 -12942596.25 -12942596.08 0.0543 0.0255  
 Earth -40145-03-19 08:38 J -12941460.35 -12941460.14 -12941459.91 0.0502 0.0162  
 Moon -40145-03-19 11:45 J -12941460.22 -12941460.01 -12941459.79 0.0502 0.0144 \*  
 Mercury -40145-06-30 08:09 J -12941357.31 -12941357.16 -12941357.01 0.0498 0.0068  
 Venus -40143-12-05 09:35 J -12940469.31 -12940469.10 -12940468.89 0.0484 0.0018  
 Mercury -40139-08-31 20:09 J -12939103.78 -12939103.66 -12939103.54 0.0528 0.0317  
 Mercury -40139-11-29 14:52 J -12939013.98 -12939013.88 -12939013.78 0.0532 0.0387  
 Venus -40137-10-12 17:45 J -12938330.96 -12938330.76 -12938330.56 0.0543 0.0031  
 Mercury -40133-04-18 09:35 J -12937047.25 -12937047.10 -12937046.95 0.0499 0.0088  
 Mars -40132-09-07 00:57 J -12936540.67 -12936540.46 -12936540.24 0.0486 0.0267  
 Venus -40131-08-10 12:57 J -12936203.14 -12936202.96 -12936202.77 0.0484 0.0220  
 Mercury -40127-06-19 20:38 J -12934793.69 -12934793.64 -12934793.60 0.0527 0.0499  
 Mercury -40127-09-17 15:35 J -12934703.98 -12934703.85 -12934703.71 0.0531 0.0210  
 Venus -40125-06-17 04:47 J -12934065.46 -12934065.30 -12934065.14 0.0544 0.0317  
 Mercury -40121-02-05 11:45 J -12932737.14 -12932737.01 -12932736.88 0.0500 0.0232  
 Mercury -40121-05-05 01:40 J -12932647.53 -12932647.43 -12932647.32 0.0497 0.0355  
 Venus -40119-04-15 17:02 J -12931936.90 -12931936.79 -12931936.69 0.0484 0.0416  
 Venus -40119-12-07 14:52 J -12931701.04 -12931700.88 -12931700.71 0.0485 0.0300  
 Mercury -40115-07-06 15:35 J -12930394.00 -12930393.85 -12930393.70 0.0530 0.0019  
 Mars -40114-08-09 16:33 J -12929994.91 -12929994.81 -12929994.71 0.0542 0.0505  
 Venus -40113-10-15 19:26 J -12929561.82 -12929561.69 -12929561.56 0.0543 0.0404  
 Mercury -40110-11-24 14:23 J -12928426.99 -12928426.90 -12928426.80 0.0501 0.0369  
 Mercury -40109-02-22 04:04 J -12928337.47 -12928337.33 -12928337.19 0.0497 0.0214  
 Venus -40107-08-12 18:14 J -12927434.94 -12927434.74 -12927434.53 0.0484 0.0099  
 Mercury -40103-04-24 16:33 J -12926083.95 -12926083.81 -12926083.67 0.0529 0.0156  
 Venus -40101-06-20 09:50 J -12925296.29 -12925296.09 -12925295.90 0.0544 0.0130  
 Mercury -40098-12-11 06:14 J -12924027.39 -12924027.24 -12924027.09 0.0498 0.0070  
 Mars -40096-06-10 09:35 J -12923480.35 -12923480.10 -12923479.85 0.0485 0.0108  
 Venus -40095-04-17 21:35 J -12923168.80 -12923168.60 -12923168.40 0.0484 0.0103  
 Mercury -40091-02-10 17:45 J -12921773.88 -12921773.76 -12921773.64 0.0528 0.0326

Mercury -40091-05-11 12:28 J -12921684.08 -12921683.98 -12921683.88 0.0532 0.0380  
 Venus -40089-02-23 23:30 J -12921030.71 -12921030.52 -12921030.33 0.0544 0.0150  
 Mercury -40086-09-29 08:23 J -12919717.30 -12919717.15 -12919717.00 0.0499 0.0076  
 Venus -40084-12-22 01:54 J -12918902.58 -12918902.42 -12918902.26 0.0484 0.0300  
 Venus -40083-08-15 00:57 J -12918666.56 -12918666.46 -12918666.36 0.0486 0.0419  
 Earth -40080-09-16 18:28 J -12917537.90 -12917537.73 -12917537.56 0.0524 0.0356  
 Moon -40080-09-16 19:40 J -12917537.84 -12917537.68 -12917537.51 0.0524 0.0358 \*  
 Mercury -40080-11-29 18:42 J -12917463.76 -12917463.72 -12917463.67 0.0527 0.0496  
 Mercury -40079-02-27 13:54 J -12917374.05 -12917373.92 -12917373.78 0.0531 0.0214  
 Mars -40078-05-19 16:04 J -12916928.09 -12916927.83 -12916927.56 0.0543 0.0249  
 Venus -40078-10-29 11:02 J -12916765.16 -12916765.04 -12916764.92 0.0544 0.0434  
 Earth -40074-03-14 22:18 J -12915532.70 -12915532.57 -12915532.45 0.0505 0.0422  
 Moon -40074-03-15 01:26 J -12915532.54 -12915532.44 -12915532.34 0.0505 0.0449 \*  
 Mercury -40074-07-18 10:04 J -12915407.21 -12915407.08 -12915406.95 0.0500 0.0229  
 Mercury -40074-10-15 23:59 J -12915317.61 -12915317.50 -12915317.40 0.0497 0.0357  
 Venus -40071-04-20 03:21 J -12914400.54 -12914400.36 -12914400.17 0.0485 0.0216  
 Earth -40068-09-21 17:59 J -12913149.96 -12913149.75 -12913149.53 0.0526 0.0213  
 Moon -40068-09-21 18:42 J -12913149.95 -12913149.72 -12913149.49 0.0526 0.0179 \*  
 Mercury -40068-12-16 14:52 J -12913064.03 -12913063.88 -12913063.73 0.0530 0.0039  
 Venus -40065-02-27 02:23 J -12912261.57 -12912261.40 -12912261.23 0.0543 0.0288  
 Moon -40062-03-19 07:40 J -12911145.42 -12911145.18 -12911144.94 0.0503 0.0051  
 Earth -40062-03-19 09:50 J -12911145.32 -12911145.09 -12911144.86 0.0503 0.0067 \*  
 Mercury -40062-05-06 12:14 J -12911097.08 -12911096.99 -12911096.89 0.0501 0.0373  
 Mercury -40062-08-04 01:54 J -12911007.56 -12911007.42 -12911007.28 0.0498 0.0211  
 Mars -40060-03-13 16:47 J -12910419.83 -12910419.80 -12910419.75 0.0485 0.0479  
 Venus -40060-12-24 06:28 J -12910134.44 -12910134.23 -12910134.03 0.0484 0.0018  
 Mercury -40056-10-04 14:38 J -12908754.04 -12908753.89 -12908753.75 0.0529 0.0158  
 Venus -40054-11-01 13:40 J -12907996.13 -12907995.93 -12907995.73 0.0544 0.0011  
 Mercury -40050-05-23 04:33 J -12906697.46 -12906697.31 -12906697.16 0.0498 0.0072  
 Venus -40048-08-29 10:47 J -12905868.25 -12905868.05 -12905867.86 0.0484 0.0184

Mercury -40044-07-23 15:21 J -12904443.98 -12904443.86 -12904443.74 0.0528 0.0334

Mercury -40044-10-21 10:04 J -12904354.18 -12904354.08 -12904353.97 0.0532 0.0372

Venus -40042-07-07 02:38 J -12903730.56 -12903730.39 -12903730.21 0.0545 0.0276

Mercury -40038-03-11 06:42 J -12902387.37 -12902387.22 -12902387.07 0.0499 0.0072

Venus -40036-05-04 14:38 J -12901602.01 -12901601.89 -12901601.76 0.0484 0.0381

Venus -40036-12-26 12:28 J -12901366.13 -12901365.98 -12901365.83 0.0485 0.0333

Mercury -40032-05-11 16:18 J -12900133.86 -12900133.82 -12900133.78 0.0527 0.0505

Mercury -40032-08-09 11:30 J -12900044.15 -12900044.02 -12900043.88 0.0531 0.0207

Venus -40030-11-04 20:38 J -12899226.75 -12899226.64 -12899226.53 0.0543 0.0452

Mercury -40027-12-28 09:06 J -12898077.26 -12898077.12 -12898076.99 0.0500 0.0215

Mercury -40026-03-27 22:47 J -12897987.64 -12897987.55 -12897987.44 0.0496 0.0371

Venus -40024-08-31 16:04 J -12897100.03 -12897099.83 -12897099.63 0.0485 0.0132

Mercury -40020-05-28 13:11 J -12895734.10 -12895733.95 -12895733.80 0.0530 0.0042

Venus -40018-07-10 09:35 J -12894961.29 -12894961.10 -12894960.91 0.0543 0.0174

Mercury -40015-10-16 10:47 J -12893767.15 -12893767.05 -12893766.95 0.0501 0.0366

Mercury -40014-01-14 00:14 J -12893677.62 -12893677.49 -12893677.35 0.0497 0.0216

Venus -40012-05-06 19:11 J -12892833.90 -12892833.70 -12892833.49 0.0484 0.0069

Mercury -40008-03-16 13:54 J -12891424.07 -12891423.92 -12891423.78 0.0529 0.0137

Venus -40006-03-14 21:21 J -12890695.80 -12890695.61 -12890695.41 0.0544 0.0110

Mercury -40003-11-02 02:23 J -12889367.55 -12889367.40 -12889367.25 0.0498 0.0070

# 40TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 40th millennium BCE.**

PLANET	MAX- TRANSIT	C	START	MAX	END	SUNRAD	DEPTH	S
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TIME

Venus -40000-01-09 23:16 J -12888567.70 -12888567.53 -12888567.36 0.0484 0.0265

Venus -40000-09-02 22:18 J -12888331.64 -12888331.57 -12888331.49 0.0486 0.0452

Moon -39997-09-15 14:23 J -12887223.00 -12887222.90 -12887222.80 0.0523 0.0478

Earth -39997-09-15 14:23 J -12887222.99 -12887222.90 -12887222.80 0.0523 0.0477 \*

Mercury -39996-01-02 13:26 J -12887114.06 -12887113.94 -12887113.82 0.0528 0.0332

Mercury -39996-04-02 08:09 J -12887024.26 -12887024.16 -12887024.05 0.0531 0.0373

Venus -39995-11-17 06:42 J -12886430.35 -12886430.22 -12886430.08 0.0545 0.0399

Earth -39991-03-14 05:02 J -12885217.34 -12885217.29 -12885217.24 0.0506 0.0492

Mercury -39991-08-21 05:02 J -12885057.44 -12885057.29 -12885057.14 0.0499 0.0069

Venus -39989-09-15 04:33 J -12884301.37 -12884301.31 -12884301.25 0.0484 0.0458

Venus -39988-05-09 01:40 J -12884065.61 -12884065.43 -12884065.25 0.0485 0.0252

Moon -39985-09-20 12:57 J -12882835.19 -12882834.96 -12882834.74 0.0526 0.0060

Earth -39985-09-20 14:38 J -12882835.12 -12882834.89 -12882834.66 0.0526 0.0092 \*

Mercury -39985-10-21 13:54 J -12882803.95 -12882803.92 -12882803.88 0.0527 0.0510

Mercury -39984-01-19 09:21 J -12882714.25 -12882714.11 -12882713.97 0.0531 0.0201

Venus -39982-03-18 00:57 J -12881926.62 -12881926.46 -12881926.30 0.0544 0.0331

Earth -39979-03-18 18:14 J -12880829.98 -12880829.74 -12880829.51 0.0503 0.0011

Moon -39979-03-18 18:42 J -12880829.95 -12880829.72 -12880829.50 0.0503 0.0008 \*

Mercury -39979-06-09 07:26 J -12880747.32 -12880747.19 -12880747.05 0.0500 0.0209

Mercury -39979-09-06 21:21 J -12880657.71 -12880657.61 -12880657.51 0.0497 0.0377

Mars -39978-12-01 21:21 J -12880206.85 -12880206.61 -12880206.36 0.0486 0.0151

Venus -39976-01-12 04:33 J -12879799.52 -12879799.31 -12879799.10 0.0484 0.0049

Mercury -39973-11-07 10:47 J -12878404.20 -12878404.05 -12878403.90 0.0530 0.0034

Venus -39971-11-20 15:35 J -12877661.05 -12877660.85 -12877660.65 0.0544 0.0057

Earth -39967-03-23 05:30 J -12876442.30 -12876442.27 -12876442.22 0.0501 0.0493

Mercury -39967-03-28 09:50 J -12876437.19 -12876437.09 -12876436.98 0.0501 0.0351

Mercury -39967-06-25 23:30 J -12876347.66 -12876347.52 -12876347.39 0.0497 0.0232

Venus -39965-09-17 08:52 J -12875533.33 -12875533.13 -12875532.93 0.0484 0.0148

Mercury -39961-08-26 12:14 J -12874094.14 -12874093.99 -12874093.85 0.0529 0.0133

Mars -39960-11-03 04:04 J -12873660.57 -12873660.33 -12873660.07 0.0542 0.0299  
 Venus -39959-07-26 04:04 J -12873395.51 -12873395.33 -12873395.15 0.0544 0.0225  
 Mercury -39955-01-14 11:45 J -12872127.01 -12872127.01 -12872127.00 0.0501 0.0500  
 Mercury -39955-04-14 00:57 J -12872037.61 -12872037.46 -12872037.31 0.0498 0.0078  
 Venus -39953-05-23 12:42 J -12871267.11 -12871266.97 -12871266.82 0.0484 0.0345  
 Venus -39952-01-14 11:02 J -12871031.17 -12871031.04 -12871030.90 0.0485 0.0369  
 Mercury -39949-06-14 12:57 J -12869784.08 -12869783.96 -12869783.84 0.0528 0.0309  
 Mercury -39949-09-12 07:40 J -12869694.28 -12869694.18 -12869694.08 0.0531 0.0395  
 Venus -39947-03-30 15:06 J -12869129.93 -12869129.87 -12869129.80 0.0544 0.0508  
 Venus -39947-11-23 18:57 J -12868891.79 -12868891.71 -12868891.62 0.0542 0.0491  
 Mercury -39943-01-31 03:21 J -12867727.51 -12867727.36 -12867727.22 0.0499 0.0069  
 Mars -39942-09-04 04:33 J -12867146.54 -12867146.31 -12867146.08 0.0485 0.0219  
 Venus -39941-09-19 14:23 J -12866765.10 -12866764.90 -12866764.71 0.0485 0.0170  
 Mercury -39937-04-02 12:14 J -12865474.02 -12865473.99 -12865473.94 0.0527 0.0505  
 Mercury -39937-07-01 07:40 J -12865384.32 -12865384.18 -12865384.04 0.0530 0.0205  
 Venus -39935-07-29 05:59 J -12864626.43 -12864626.25 -12864626.06 0.0544 0.0210  
 Mercury -39932-11-19 05:45 J -12863417.39 -12863417.26 -12863417.12 0.0500 0.0205  
 Mercury -39931-02-16 19:40 J -12863327.77 -12863327.68 -12863327.58 0.0497 0.0382  
 Venus -39929-05-25 18:28 J -12862498.93 -12862498.73 -12862498.52 0.0484 0.0031  
 Mercury -39925-04-19 08:38 J -12861074.29 -12861074.14 -12861073.99 0.0530 0.0033  
 Mars -39924-08-12 03:50 J -12860594.54 -12860594.34 -12860594.14 0.0544 0.0399  
 Venus -39923-04-02 19:26 J -12860360.88 -12860360.69 -12860360.49 0.0545 0.0068  
 Mercury -39920-09-07 08:23 J -12859107.25 -12859107.15 -12859107.04 0.0501 0.0344  
 Mercury -39920-12-05 21:50 J -12859017.72 -12859017.59 -12859017.45 0.0498 0.0239  
 Venus -39917-01-29 22:18 J -12858232.75 -12858232.57 -12858232.39 0.0484 0.0227  
 Mercury -39913-02-06 09:50 J -12856764.23 -12856764.09 -12856763.94 0.0529 0.0138  
 Venus -39912-12-06 09:06 J -12856095.27 -12856095.12 -12856094.96 0.0545 0.0345  
 Mercury -39908-06-26 11:02 J -12854797.08 -12854797.04 -12854797.00 0.0501 0.0483  
 Mercury -39908-09-24 00:14 J -12854707.64 -12854707.49 -12854707.34 0.0498 0.0095  
 Venus -39906-10-05 03:06 J -12853966.46 -12853966.37 -12853966.26 0.0484 0.0421



Venus -39905-05-28 00:28 J -12853730.65 -12853730.48 -12853730.31 0.0485 0.0287  
 Earth -39902-09-20 21:35 J -12852519.84 -12852519.60 -12852519.37 0.0525 0.0024  
 Moon -39902-09-21 00:42 J -12852519.71 -12852519.47 -12852519.23 0.0525 0.0009 \*  
 Mercury -39902-11-25 11:16 J -12852454.15 -12852454.03 -12852453.90 0.0528 0.0304  
 Mercury -39901-02-23 05:59 J -12852364.34 -12852364.25 -12852364.15 0.0532 0.0402  
 Venus -39899-04-06 02:52 J -12851591.52 -12851591.38 -12851591.24 0.0543 0.0380  
 Earth -39896-03-17 23:16 J -12850514.76 -12850514.53 -12850514.30 0.0503 0.0070  
 Moon -39896-03-18 00:14 J -12850514.72 -12850514.49 -12850514.25 0.0503 0.0075 \*  
 Mercury -39896-07-13 01:54 J -12850397.57 -12850397.42 -12850397.27 0.0499 0.0057  
 Venus -39893-02-01 03:35 J -12849464.55 -12849464.35 -12849464.15 0.0484 0.0088  
 Mercury -39890-09-13 11:59 J -12848144.06 -12848144.00 -12848143.94 0.0527 0.0480  
 Mercury -39890-12-12 07:11 J -12848054.33 -12848054.20 -12848054.06 0.0531 0.0230  
 Venus -39888-12-09 15:35 J -12847326.05 -12847325.85 -12847325.66 0.0544 0.0102  
 Moon -39884-03-22 07:54 J -12846127.26 -12846127.17 -12846127.06 0.0501 0.0445  
 Earth -39884-03-22 10:33 J -12846127.18 -12846127.06 -12846126.93 0.0501 0.0416 \*  
 Mercury -39884-05-01 04:18 J -12846087.46 -12846087.32 -12846087.18 0.0500 0.0200  
 Mercury -39884-07-29 17:59 J -12845997.84 -12845997.75 -12845997.65 0.0497 0.0387  
 Venus -39882-10-07 07:54 J -12845198.37 -12845198.17 -12845197.97 0.0484 0.0109  
 Mercury -39878-09-30 07:11 J -12843744.35 -12843744.20 -12843744.05 0.0529 0.0040  
 Venus -39876-08-14 00:42 J -12843060.65 -12843060.47 -12843060.28 0.0545 0.0188  
 Mercury -39872-02-17 06:57 J -12841777.32 -12841777.21 -12841777.10 0.0501 0.0338  
 Mercury -39872-05-17 20:23 J -12841687.78 -12841687.65 -12841687.52 0.0498 0.0246  
 Venus -39870-06-12 12:57 J -12840932.12 -12840931.96 -12840931.80 0.0484 0.0303  
 Venus -39869-02-03 11:02 J -12840696.15 -12840696.04 -12840695.93 0.0485 0.0408  
 Mercury -39866-07-19 08:09 J -12839434.31 -12839434.16 -12839434.02 0.0528 0.0136  
 Venus -39864-04-18 12:57 J -12838795.06 -12838794.96 -12838794.86 0.0545 0.0467  
 Venus -39864-12-12 17:30 J -12838556.80 -12838556.77 -12838556.73 0.0543 0.0532  
 Mercury -39861-12-06 09:35 J -12837467.14 -12837467.10 -12837467.05 0.0502 0.0475  
 Mercury -39860-03-05 22:47 J -12837377.70 -12837377.55 -12837377.40 0.0498 0.0104  
 Mars -39859-05-24 14:52 J -12836933.02 -12836932.88 -12836932.72 0.0486 0.0397

Venus -39858-10-09 13:40 J -12836430.11 -12836429.93 -12836429.74 0.0484 0.0208  
 Mercury -39854-05-07 09:06 J -12835124.24 -12835124.12 -12835124.00 0.0528 0.0307  
 Mercury -39854-08-05 04:04 J -12835034.43 -12835034.33 -12835034.23 0.0532 0.0398  
 Venus -39852-08-17 08:52 J -12834291.30 -12834291.13 -12834290.95 0.0544 0.0264  
 Mercury -39849-12-23 01:11 J -12833067.60 -12833067.45 -12833067.30 0.0499 0.0038  
 Venus -39846-06-14 17:59 J -12832163.96 -12832163.75 -12832163.55 0.0484 0.0014  
 Mercury -39842-02-23 10:18 J -12830814.13 -12830814.07 -12830814.00 0.0527 0.0475  
 Mercury -39842-05-24 05:45 J -12830724.39 -12830724.26 -12830724.13 0.0531 0.0236  
 Venus -39840-04-21 22:47 J -12830025.75 -12830025.55 -12830025.35 0.0544 0.0012  
 Mercury -39837-10-11 03:06 J -12828757.51 -12828757.37 -12828757.23 0.0500 0.0187  
 Mercury -39836-01-08 16:47 J -12828667.88 -12828667.80 -12828667.70 0.0497 0.0399  
 Venus -39834-02-17 21:35 J -12827897.78 -12827897.60 -12827897.40 0.0484 0.0188  
 Mercury -39830-03-12 06:57 J -12826414.36 -12826414.21 -12826414.06 0.0530 0.0065  
 Venus -39829-12-25 10:33 J -12825760.23 -12825760.06 -12825759.89 0.0544 0.0294  
 Mercury -39825-07-30 05:30 J -12824447.38 -12824447.27 -12824447.16 0.0501 0.0330  
 Mercury -39825-10-27 18:57 J -12824357.84 -12824357.71 -12824357.58 0.0498 0.0254  
 Mars -39823-02-24 23:16 J -12823872.79 -12823872.53 -12823872.27 0.0486 0.0026  
 Venus -39823-10-24 02:52 J -12823631.50 -12823631.38 -12823631.25 0.0484 0.0380  
 Venus -39822-06-17 00:28 J -12823395.63 -12823395.48 -12823395.33 0.0485 0.0328  
 Moon -39819-09-19 18:14 J -12822204.97 -12822204.74 -12822204.51 0.0524 0.0105  
 Earth -39819-09-19 21:50 J -12822204.82 -12822204.59 -12822204.35 0.0524 0.0076 \*  
 Mercury -39819-12-29 06:42 J -12822104.36 -12822104.22 -12822104.07 0.0528 0.0125  
 Venus -39816-04-24 23:59 J -12821256.62 -12821256.50 -12821256.37 0.0543 0.0418  
 Moon -39813-03-17 05:02 J -12820199.51 -12820199.29 -12820199.07 0.0505 0.0128  
 Earth -39813-03-17 07:26 J -12820199.41 -12820199.19 -12820198.96 0.0505 0.0129 \*  
 Mercury -39813-05-18 08:09 J -12820137.21 -12820137.16 -12820137.11 0.0502 0.0468  
 Mercury -39813-08-15 21:21 J -12820047.76 -12820047.61 -12820047.46 0.0499 0.0112  
 Venus -39810-02-20 04:18 J -12819129.52 -12819129.32 -12819129.12 0.0484 0.0131  
 Earth -39807-09-24 21:50 J -12817816.65 -12817816.59 -12817816.50 0.0526 0.0498  
 Moon -39807-09-25 01:26 J -12817816.47 -12817816.44 -12817816.40 0.0526 0.0518

Mercury -39807-10-17 07:26 J -12817794.31 -12817794.19 -12817794.06 0.0527 0.0302  
 Mercury -39806-01-15 02:23 J -12817704.50 -12817704.40 -12817704.31 0.0531 0.0401  
 Mars -39805-01-27 22:04 J -12817326.86 -12817326.58 -12817326.29 0.0543 0.0132  
 Venus -39805-12-28 13:40 J -12816991.12 -12816990.93 -12816990.74 0.0544 0.0143  
 Earth -39801-03-21 20:38 J -12815811.80 -12815811.64 -12815811.48 0.0502 0.0368  
 Moon -39801-03-22 00:28 J -12815811.62 -12815811.48 -12815811.34 0.0502 0.0400 \*  
 Mercury -39801-06-03 23:45 J -12815737.66 -12815737.51 -12815737.36 0.0499 0.0031  
 Venus -39799-10-26 07:54 J -12814863.37 -12814863.17 -12814862.96 0.0484 0.0069  
 Mercury -39795-08-05 08:23 J -12813484.21 -12813484.15 -12813484.09 0.0527 0.0476  
 Mercury -39795-11-03 03:35 J -12813394.48 -12813394.35 -12813394.21 0.0531 0.0236  
 Venus -39793-09-02 03:50 J -12812725.53 -12812725.34 -12812725.14 0.0545 0.0132  
 Mercury -39789-03-23 02:23 J -12811427.54 -12811427.40 -12811427.26 0.0500 0.0169  
 Mercury -39789-06-20 16:04 J -12811337.90 -12811337.83 -12811337.74 0.0497 0.0418  
 Mars -39788-11-28 10:47 J -12810812.22 -12810812.05 -12810811.87 0.0485 0.0357  
 Venus -39787-07-01 12:28 J -12810597.15 -12810596.98 -12810596.80 0.0484 0.0264  
 Venus -39786-02-22 10:47 J -12810361.13 -12810361.05 -12810360.97 0.0485 0.0446  
 Mercury -39783-08-22 05:16 J -12809084.43 -12809084.28 -12809084.13 0.0530 0.0072  
 Venus -39781-05-07 17:02 J -12808459.92 -12808459.79 -12808459.66 0.0545 0.0408  
 Mercury -39777-01-10 04:33 J -12807117.43 -12807117.31 -12807117.20 0.0501 0.0316  
 Mercury -39777-04-08 17:59 J -12807027.88 -12807027.75 -12807027.62 0.0498 0.0267  
 Venus -39775-03-06 17:02 J -12806330.85 -12806330.79 -12806330.72 0.0484 0.0456  
 Venus -39775-10-28 13:40 J -12806095.10 -12806094.93 -12806094.74 0.0485 0.0248  
 Mercury -39771-06-10 06:28 J -12804774.38 -12804774.23 -12804774.08 0.0529 0.0100  
 Venus -39769-09-05 10:33 J -12803956.22 -12803956.06 -12803955.90 0.0543 0.0314  
 Mercury -39766-10-29 06:57 J -12802807.27 -12802807.21 -12802807.15 0.0502 0.0457  
 Mercury -39765-01-26 20:09 J -12802717.81 -12802717.66 -12802717.51 0.0498 0.0122  
 Venus -39763-07-03 17:59 J -12801828.95 -12801828.75 -12801828.54 0.0484 0.0053  
 Mercury -39759-03-29 06:14 J -12800464.36 -12800464.24 -12800464.11 0.0527 0.0289  
 Mercury -39759-06-27 01:11 J -12800374.54 -12800374.45 -12800374.36 0.0531 0.0414  
 Venus -39757-05-10 20:09 J -12799690.86 -12799690.66 -12799690.46 0.0544 0.0029

Mercury -39754-11-14 22:18 J -12798407.72 -12798407.57 -12798407.41 0.0500 0.0026  
 Venus -39751-03-08 23:02 J -12797562.74 -12797562.54 -12797562.34 0.0484 0.0144  
 Mercury -39747-01-15 06:42 J -12796154.28 -12796154.22 -12796154.14 0.0526 0.0467  
 Mercury -39747-04-15 02:09 J -12796064.54 -12796064.41 -12796064.28 0.0530 0.0241  
 Venus -39745-01-14 08:09 J -12795425.33 -12795425.16 -12795424.98 0.0545 0.0253  
 Mercury -39742-09-03 00:57 J -12794097.60 -12794097.46 -12794097.32 0.0500 0.0160  
 Mercury -39742-12-01 14:52 J -12794007.96 -12794007.88 -12794007.81 0.0497 0.0427  
 Venus -39740-11-12 03:06 J -12793296.51 -12793296.37 -12793296.22 0.0484 0.0339  
 Venus -39739-07-06 00:28 J -12793060.62 -12793060.48 -12793060.35 0.0485 0.0366  
 Earth -39736-09-19 03:06 J -12791889.60 -12791889.37 -12791889.15 0.0524 0.0154  
 Moon -39736-09-19 06:28 J -12791889.44 -12791889.23 -12791889.01 0.0524 0.0177 \*  
 Mercury -39735-02-01 03:21 J -12791754.51 -12791754.36 -12791754.21 0.0530 0.0071  
 Venus -39734-09-18 21:21 J -12791159.65 -12791159.61 -12791159.56 0.0545 0.0529  
 Venus -39733-05-14 03:06 J -12790921.46 -12790921.37 -12790921.27 0.0544 0.0470  
 Earth -39730-03-17 17:59 J -12789883.96 -12789883.75 -12789883.53 0.0505 0.0179  
 Moon -39730-03-17 21:50 J -12789883.81 -12789883.59 -12789883.37 0.0505 0.0163 \*  
 Mercury -39730-06-22 03:35 J -12789787.47 -12789787.35 -12789787.23 0.0501 0.0299  
 Mercury -39730-09-19 17:02 J -12789697.91 -12789697.79 -12789697.66 0.0498 0.0285  
 Venus -39727-03-11 04:18 J -12788794.52 -12788794.32 -12788794.13 0.0484 0.0169  
 Moon -39724-09-24 03:35 J -12787501.47 -12787501.35 -12787501.22 0.0526 0.0451  
 Earth -39724-09-24 06:14 J -12787501.37 -12787501.24 -12787501.11 0.0526 0.0434 \*  
 Mercury -39724-11-20 04:47 J -12787444.45 -12787444.30 -12787444.15 0.0529 0.0094  
 Venus -39721-01-17 17:45 J -12786655.95 -12786655.76 -12786655.57 0.0544 0.0201  
 Moon -39718-03-22 01:11 J -12785496.62 -12785496.45 -12785496.27 0.0502 0.0336  
 Earth -39718-03-22 05:02 J -12785496.47 -12785496.29 -12785496.10 0.0502 0.0307 \*  
 Mercury -39718-04-10 05:59 J -12785477.32 -12785477.25 -12785477.19 0.0502 0.0444  
 Mercury -39718-07-08 18:57 J -12785387.85 -12785387.71 -12785387.56 0.0498 0.0135  
 Venus -39716-11-14 07:54 J -12784528.38 -12784528.17 -12784527.96 0.0484 0.0028  
 Mercury -39712-09-08 05:45 J -12783134.39 -12783134.26 -12783134.12 0.0528 0.0266  
 Mercury -39712-12-07 00:42 J -12783044.55 -12783044.47 -12783044.39 0.0531 0.0438

Venus -39710-09-22 06:14 J -12782390.43 -12782390.24 -12782390.04 0.0544 0.0078  
 Mercury -39706-04-26 21:21 J -12781077.76 -12781077.61 -12781077.46 0.0499 0.0011  
 Mars -39705-08-17 20:38 J -12780598.86 -12780598.64 -12780598.43 0.0487 0.0264  
 Venus -39704-07-20 12:57 J -12780262.15 -12780261.96 -12780261.78 0.0484 0.0221  
 Mercury -39700-06-27 05:45 J -12778824.33 -12778824.26 -12778824.18 0.0526 0.0452  
 Mercury -39700-09-25 00:57 J -12778734.59 -12778734.46 -12778734.32 0.0530 0.0256  
 Venus -39698-05-27 14:38 J -12778125.04 -12778124.89 -12778124.75 0.0544 0.0369  
 Mercury -39694-02-12 23:30 J -12776767.66 -12776767.52 -12776767.38 0.0501 0.0153  
 Mercury -39694-05-13 13:26 J -12776678.01 -12776677.94 -12776677.87 0.0497 0.0436  
 Venus -39692-03-25 18:14 J -12775995.84 -12775995.74 -12775995.63 0.0484 0.0413  
 Venus -39692-11-16 15:06 J -12775760.03 -12775759.87 -12775759.70 0.0485 0.0291  
 Mercury -39688-07-14 01:54 J -12774424.57 -12774424.42 -12774424.27 0.0529 0.0081  
 Venus -39686-09-25 08:23 J -12773621.30 -12773621.15 -12773621.00 0.0544 0.0352  
 Mercury -39683-12-02 02:09 J -12772457.53 -12772457.41 -12772457.29 0.0501 0.0292  
 Mercury -39682-03-01 15:35 J -12772367.97 -12772367.85 -12772367.72 0.0498 0.0293  
 Venus -39680-07-22 18:14 J -12771493.95 -12771493.74 -12771493.54 0.0484 0.0091  
 Mercury -39676-05-02 02:52 J -12770114.53 -12770114.38 -12770114.23 0.0528 0.0093  
 Venus -39674-05-30 22:47 J -12769355.75 -12769355.55 -12769355.35 0.0545 0.0080  
 Mercury -39671-09-20 04:47 J -12768147.37 -12768147.30 -12768147.22 0.0502 0.0429  
 Mercury -39671-12-18 17:59 J -12768057.89 -12768057.75 -12768057.60 0.0499 0.0153  
 Mars -39669-05-21 07:26 J -12767538.44 -12767538.19 -12767537.94 0.0485 0.0119  
 Venus -39668-03-27 22:47 J -12767227.75 -12767227.55 -12767227.35 0.0484 0.0105  
 Mercury -39664-02-18 04:04 J -12765804.46 -12765804.33 -12765804.19 0.0528 0.0261  
 Mercury -39664-05-18 23:02 J -12765714.62 -12765714.54 -12765714.46 0.0531 0.0443  
 Venus -39662-02-02 12:28 J -12765090.17 -12765089.98 -12765089.79 0.0545 0.0194  
 Mercury -39659-10-06 20:09 J -12763747.81 -12763747.66 -12763747.51 0.0499 0.0004  
 Venus -39657-12-01 02:52 J -12762961.54 -12762961.38 -12762961.22 0.0484 0.0299  
 Venus -39656-07-25 00:28 J -12762725.59 -12762725.48 -12762725.36 0.0485 0.0406  
 Moon -39653-09-18 09:06 J -12761574.33 -12761574.12 -12761573.90 0.0523 0.0237  
 Earth -39653-09-18 11:59 J -12761574.21 -12761574.00 -12761573.78 0.0523 0.0214 \*

Mercury -39653-12-07 05:16 J -12761494.37 -12761494.28 -12761494.20 0.0527 0.0432

Mercury -39652-03-07 00:28 J -12761404.60 -12761404.48 -12761404.35 0.0530 0.0277

Mars -39651-04-24 02:09 J -12760991.69 -12760991.41 -12760991.11 0.0543 0.0112

Venus -39651-10-08 00:14 J -12760824.58 -12760824.49 -12760824.39 0.0544 0.0472

Venus -39650-06-03 05:16 J -12760586.33 -12760586.28 -12760586.22 0.0543 0.0520

Moon -39647-03-16 21:06 J -12759568.82 -12759568.62 -12759568.40 0.0505 0.0230

Earth -39647-03-17 00:57 J -12759568.66 -12759568.46 -12759568.25 0.0505 0.0248 \*

Mercury -39647-07-25 22:33 J -12759437.71 -12759437.56 -12759437.42 0.0500 0.0140

Mercury -39647-10-23 12:14 J -12759348.05 -12759347.99 -12759347.92 0.0497 0.0448

Venus -39644-03-30 04:47 J -12758459.48 -12758459.30 -12758459.11 0.0484 0.0211

Earth -39641-09-23 09:35 J -12757186.27 -12757186.10 -12757185.92 0.0525 0.0351

Moon -39641-09-23 10:33 J -12757186.21 -12757186.06 -12757185.90 0.0525 0.0375 \*

Mercury -39641-12-24 00:57 J -12757094.61 -12757094.46 -12757094.31 0.0529 0.0095

Venus -39638-02-05 15:06 J -12756321.05 -12756320.87 -12756320.69 0.0544 0.0238

Earth -39635-03-21 11:45 J -12755181.21 -12755181.01 -12755180.80 0.0504 0.0244

Moon -39635-03-21 14:38 J -12755181.07 -12755180.89 -12755180.69 0.0504 0.0275 \*

Mercury -39635-05-14 00:42 J -12755127.59 -12755127.47 -12755127.35 0.0502 0.0285

Mercury -39635-08-11 14:09 J -12755038.03 -12755037.91 -12755037.79 0.0498 0.0301

Venus -39633-12-03 09:06 J -12754193.33 -12754193.12 -12754192.91 0.0484 0.0015

Mercury -39629-10-12 01:40 J -12752784.58 -12752784.43 -12752784.28 0.0528 0.0083

Venus -39627-10-11 03:35 J -12752055.55 -12752055.35 -12752055.15 0.0544 0.0041

Mercury -39623-03-02 03:21 J -12750817.44 -12750817.36 -12750817.28 0.0502 0.0424

Mercury -39623-05-30 16:33 J -12750727.95 -12750727.81 -12750727.67 0.0499 0.0158

Venus -39621-08-08 12:42 J -12749927.16 -12749926.97 -12749926.78 0.0484 0.0183

Mercury -39617-07-31 02:09 J -12748474.54 -12748474.41 -12748474.27 0.0527 0.0260

Mercury -39617-10-28 21:06 J -12748384.70 -12748384.62 -12748384.54 0.0531 0.0443

Venus -39615-06-15 16:33 J -12747789.97 -12747789.81 -12747789.65 0.0545 0.0317

Mercury -39611-03-18 18:57 J -12746417.86 -12746417.71 -12746417.56 0.0500 0.0023

Venus -39609-04-13 17:59 J -12745660.88 -12745660.75 -12745660.62 0.0484 0.0374

Venus -39609-12-05 14:38 J -12745425.04 -12745424.89 -12745424.74 0.0484 0.0327

Mercury -39605-05-19 03:21 J -12744164.45 -12744164.36 -12744164.27 0.0527 0.0429

Mercury -39605-08-16 22:47 J -12744074.68 -12744074.55 -12744074.42 0.0530 0.0280

Venus -39603-10-14 11:59 J -12743286.13 -12743286.00 -12743285.87 0.0544 0.0407

Mercury -39599-01-04 21:21 J -12742107.76 -12742107.61 -12742107.47 0.0500 0.0129

Mercury -39599-04-04 11:02 J -12742018.10 -12742018.04 -12742017.98 0.0497 0.0459

Venus -39597-08-10 17:45 J -12741158.96 -12741158.76 -12741158.56 0.0484 0.0130

Mercury -39593-06-04 23:59 J -12739764.64 -12739764.50 -12739764.35 0.0529 0.0115

Venus -39591-06-19 01:11 J -12739020.64 -12739020.45 -12739020.26 0.0544 0.0133

Mercury -39588-10-23 23:30 J -12737797.64 -12737797.52 -12737797.39 0.0501 0.0272

Mercury -39587-01-21 13:11 J -12737708.07 -12737707.95 -12737707.84 0.0498 0.0313

Venus -39585-04-15 22:47 J -12736892.76 -12736892.55 -12736892.34 0.0484 0.0064

Mercury -39581-03-24 00:28 J -12735454.63 -12735454.48 -12735454.33 0.0528 0.0068

Venus -39579-02-21 09:50 J -12734755.28 -12734755.09 -12734754.89 0.0544 0.0157

Mercury -39576-08-12 01:40 J -12733487.51 -12733487.43 -12733487.35 0.0503 0.0419

Mercury -39576-11-09 14:52 J -12733398.02 -12733397.88 -12733397.73 0.0499 0.0164

Venus -39574-12-21 03:35 J -12732626.53 -12732626.35 -12732626.18 0.0484 0.0258

Venus -39573-08-13 01:26 J -12732390.52 -12732390.44 -12732390.36 0.0485 0.0447

Earth -39570-09-18 13:54 J -12731259.11 -12731258.92 -12731258.73 0.0522 0.0302

Moon -39570-09-18 15:21 J -12731259.03 -12731258.86 -12731258.68 0.0522 0.0320 \*

Mercury -39569-01-11 00:57 J -12731144.59 -12731144.46 -12731144.32 0.0527 0.0247

Mercury -39569-04-09 19:54 J -12731054.75 -12731054.67 -12731054.60 0.0530 0.0453

Venus -39568-10-26 21:06 J -12730489.74 -12730489.62 -12730489.50 0.0544 0.0436

Earth -39564-03-16 06:42 J -12729253.39 -12729253.22 -12729253.03 0.0507 0.0318

Moon -39564-03-16 09:50 J -12729253.27 -12729253.09 -12729252.91 0.0507 0.0294 \*

Mercury -39564-08-28 17:16 J -12729087.93 -12729087.78 -12729087.63 0.0500 0.0023

Venus -39562-08-26 07:40 J -12728360.24 -12728360.18 -12728360.10 0.0484 0.0451

Venus -39561-04-18 04:04 J -12728124.51 -12728124.33 -12728124.15 0.0484 0.0247

Earth -39558-09-23 11:59 J -12726871.20 -12726871.00 -12726870.79 0.0525 0.0258

Moon -39558-09-23 12:57 J -12726871.16 -12726870.96 -12726870.75 0.0525 0.0284 \*

Mercury -39558-10-30 01:26 J -12726834.53 -12726834.44 -12726834.35 0.0526 0.0428

Mercury -39557-01-27 20:38 J -12726744.76 -12726744.64 -12726744.51 0.0530 0.0280

Venus -39555-02-24 16:18 J -12725985.98 -12725985.82 -12725985.64 0.0544 0.0286

Moon -39552-03-20 19:26 J -12724865.90 -12724865.69 -12724865.47 0.0504 0.0212

Earth -39552-03-20 21:21 J -12724865.83 -12724865.61 -12724865.40 0.0504 0.0188 \*

Mercury -39552-06-16 19:54 J -12724777.81 -12724777.67 -12724777.52 0.0501 0.0119

Mercury -39552-09-14 09:50 J -12724688.14 -12724688.09 -12724688.04 0.0497 0.0470

Mars -39551-11-12 01:40 J -12724264.67 -12724264.43 -12724264.18 0.0486 0.0124

Venus -39550-12-23 07:54 J -12723858.37 -12723858.17 -12723857.96 0.0484 0.0051

Mercury -39546-11-15 22:04 J -12722434.72 -12722434.58 -12722434.43 0.0529 0.0114

Venus -39544-10-30 06:42 J -12721720.42 -12721720.22 -12721720.02 0.0545 0.0015

Mercury -39540-04-04 22:18 J -12720467.70 -12720467.57 -12720467.45 0.0501 0.0263

Mercury -39540-07-03 11:45 J -12720378.13 -12720378.01 -12720377.90 0.0498 0.0322

Venus -39538-08-28 11:45 J -12719592.20 -12719592.01 -12719591.81 0.0484 0.0145

Mercury -39534-09-03 23:30 J -12718124.67 -12718124.52 -12718124.37 0.0528 0.0055

Mars -39533-10-08 17:16 J -12717723.96 -12717723.78 -12717723.58 0.0541 0.0417

Venus -39532-07-04 18:57 J -12717454.89 -12717454.71 -12717454.54 0.0545 0.0263

Mercury -39528-01-22 00:42 J -12716157.55 -12716157.47 -12716157.38 0.0502 0.0405

Mercury -39528-04-21 13:54 J -12716068.06 -12716067.92 -12716067.78 0.0499 0.0176

Venus -39526-05-03 17:16 J -12715325.93 -12715325.78 -12715325.63 0.0484 0.0335

Venus -39526-12-25 14:23 J -12715090.03 -12715089.90 -12715089.77 0.0485 0.0366

Mercury -39522-06-22 23:45 J -12713814.64 -12713814.51 -12713814.37 0.0527 0.0235

Mercury -39522-09-20 18:42 J -12713724.79 -12713724.72 -12713724.65 0.0530 0.0466

Venus -39520-11-02 08:52 J -12712951.24 -12712951.13 -12712951.01 0.0543 0.0440

Mercury -39516-02-07 15:35 J -12711758.00 -12711757.85 -12711757.70 0.0500 0.0026

Mars -39515-08-15 08:38 J -12711204.36 -12711204.14 -12711203.91 0.0486 0.0249

Venus -39514-08-30 17:59 J -12710823.94 -12710823.75 -12710823.55 0.0484 0.0169

Mercury -39510-04-11 00:14 J -12709504.58 -12709504.49 -12709504.40 0.0526 0.0415

Mercury -39510-07-09 19:26 J -12709414.81 -12709414.69 -12709414.56 0.0529 0.0291

Venus -39508-07-07 21:06 J -12708685.81 -12708685.62 -12708685.42 0.0544 0.0166

Mercury -39505-11-26 17:59 J -12707447.89 -12707447.75 -12707447.60 0.0501 0.0118



Mercury -39504-02-24 07:54 J -12707358.22 -12707358.17 -12707358.12 0.0498 0.0472

Venus -39502-05-05 21:21 J -12706557.82 -12706557.61 -12706557.40 0.0484 0.0029

Mercury -39498-04-27 20:09 J -12705104.81 -12705104.66 -12705104.51 0.0529 0.0112

Mars -39497-07-17 20:09 J -12704657.91 -12704657.66 -12704657.41 0.0543 0.0286

Venus -39496-03-12 10:04 J -12704420.27 -12704420.08 -12704419.88 0.0545 0.0111

Mercury -39493-09-14 20:38 J -12703137.76 -12703137.64 -12703137.51 0.0502 0.0257

Mercury -39493-12-13 10:18 J -12703048.19 -12703048.07 -12703047.96 0.0498 0.0330

Venus -39490-01-09 01:54 J -12702291.60 -12702291.42 -12702291.24 0.0484 0.0223

Venus -39490-09-01 23:30 J -12702055.55 -12702055.52 -12702055.48 0.0485 0.0478

Earth -39487-09-17 17:02 J -12700943.94 -12700943.79 -12700943.63 0.0522 0.0391

Moon -39487-09-17 17:30 J -12700943.92 -12700943.77 -12700943.61 0.0522 0.0399 \*

Mercury -39486-02-13 21:21 J -12700794.76 -12700794.61 -12700794.46 0.0528 0.0057

Venus -39485-11-14 23:16 J -12700154.67 -12700154.53 -12700154.39 0.0545 0.0384

Moon -39481-03-15 12:28 J -12698938.15 -12698937.98 -12698937.81 0.0507 0.0360

Earth -39481-03-15 14:09 J -12698938.05 -12698937.91 -12698937.75 0.0507 0.0385 \*

Mercury -39481-07-03 23:16 J -12698827.62 -12698827.53 -12698827.44 0.0502 0.0399

Mercury -39481-10-01 12:14 J -12698738.13 -12698737.99 -12698737.85 0.0499 0.0183

Venus -39479-09-14 06:14 J -12698025.34 -12698025.24 -12698025.13 0.0484 0.0415

Venus -39478-05-08 02:38 J -12697789.56 -12697789.39 -12697789.22 0.0484 0.0282

Moon -39475-09-22 15:50 J -12696556.05 -12696555.84 -12696555.63 0.0524 0.0216

Earth -39475-09-22 18:42 J -12696555.94 -12696555.72 -12696555.50 0.0524 0.0186 \*

Mercury -39475-12-02 22:33 J -12696484.70 -12696484.56 -12696484.43 0.0527 0.0227

Mercury -39474-03-02 17:16 J -12696394.84 -12696394.78 -12696394.71 0.0531 0.0476

Venus -39472-03-15 17:59 J -12695650.90 -12695650.75 -12695650.59 0.0544 0.0334

Moon -39469-03-20 02:23 J -12694550.62 -12694550.40 -12694550.18 0.0504 0.0131

Earth -39469-03-20 02:38 J -12694550.62 -12694550.39 -12694550.16 0.0504 0.0113 \*

Mercury -39469-07-20 14:23 J -12694428.05 -12694427.90 -12694427.75 0.0500 0.0039

Venus -39466-01-11 06:57 J -12693523.41 -12693523.21 -12693523.01 0.0484 0.0088

Mercury -39463-09-20 22:47 J -12692174.64 -12692174.55 -12692174.45 0.0526 0.0404

Mercury -39463-12-19 18:14 J -12692084.86 -12692084.74 -12692084.62 0.0529 0.0301

Venus -39461-11-18 03:50 J -12691385.54 -12691385.34 -12691385.14 0.0544 0.0050  
 Mercury -39457-05-08 16:18 J -12690117.97 -12690117.82 -12690117.68 0.0501 0.0116  
 Mercury -39457-08-06 05:59 J -12690028.29 -12690028.25 -12690028.20 0.0498 0.0474  
 Venus -39455-09-16 11:02 J -12689257.24 -12689257.04 -12689256.83 0.0484 0.0109  
 Mercury -39451-10-07 18:57 J -12687774.86 -12687774.71 -12687774.56 0.0528 0.0124  
 Venus -39449-07-23 14:38 J -12687120.07 -12687119.89 -12687119.70 0.0544 0.0232  
 Mercury -39445-02-25 18:42 J -12685807.85 -12685807.72 -12685807.59 0.0502 0.0259  
 Mercury -39445-05-25 08:09 J -12685718.27 -12685718.16 -12685718.05 0.0499 0.0328  
 Venus -39443-05-22 14:52 J -12684991.03 -12684990.88 -12684990.71 0.0484 0.0303  
 Venus -39442-01-13 11:59 J -12684755.11 -12684755.00 -12684754.88 0.0485 0.0396  
 Mercury -39439-07-26 19:11 J -12683464.85 -12683464.70 -12683464.55 0.0528 0.0060  
 Venus -39437-03-28 02:09 J -12682854.48 -12682854.41 -12682854.34 0.0544 0.0508  
 Venus -39437-11-21 08:23 J -12682616.24 -12682616.15 -12682616.06 0.0544 0.0481  
 Mercury -39434-12-14 21:35 J -12681497.69 -12681497.60 -12681497.51 0.0503 0.0396  
 Mercury -39433-03-13 10:33 J -12681408.20 -12681408.06 -12681407.92 0.0499 0.0187  
 Mars -39432-05-04 15:06 J -12680991.02 -12680990.87 -12680990.70 0.0487 0.0377  
 Venus -39431-09-18 15:35 J -12680489.03 -12680488.85 -12680488.66 0.0484 0.0201  
 Mercury -39427-05-14 20:09 J -12679154.80 -12679154.66 -12679154.52 0.0527 0.0232  
 Mercury -39427-08-12 15:06 J -12679064.93 -12679064.87 -12679064.80 0.0531 0.0470  
 Venus -39425-07-26 22:33 J -12678350.74 -12678350.56 -12678350.37 0.0544 0.0215  
 Mercury -39422-12-31 12:42 J -12677098.11 -12677097.97 -12677097.82 0.0500 0.0043  
 Venus -39419-05-24 19:11 J -12676222.90 -12676222.70 -12676222.49 0.0484 0.0008  
 Mercury -39415-03-02 21:06 J -12674844.72 -12674844.62 -12674844.52 0.0526 0.0402  
 Mercury -39415-05-31 16:33 J -12674754.93 -12674754.81 -12674754.68 0.0530 0.0306  
 Venus -39413-03-31 11:30 J -12674085.22 -12674085.02 -12674084.82 0.0544 0.0061  
 Mercury -39410-10-19 15:06 J -12672788.02 -12672787.87 -12672787.72 0.0501 0.0105  
 Mercury -39409-01-17 04:47 J -12672698.33 -12672698.30 -12672698.27 0.0497 0.0484  
 Venus -39407-01-27 23:59 J -12671956.69 -12671956.50 -12671956.31 0.0484 0.0188  
 Moon -39404-09-16 19:26 J -12670628.78 -12670628.69 -12670628.59 0.0521 0.0470  
 Earth -39404-09-16 21:35 J -12670628.69 -12670628.60 -12670628.49 0.0521 0.0468 \*

Mercury -39403-03-19 17:30 J -12670444.92 -12670444.77 -12670444.62 0.0528 0.0133  
 Venus -39402-12-04 20:52 J -12669819.79 -12669819.63 -12669819.48 0.0544 0.0346  
 Moon -39398-03-15 14:23 J -12668622.98 -12668622.90 -12668622.80 0.0508 0.0460  
 Earth -39398-03-15 14:23 J -12668622.96 -12668622.90 -12668622.83 0.0508 0.0484 \*  
 Mercury -39398-08-07 16:47 J -12668477.93 -12668477.80 -12668477.67 0.0502 0.0258  
 Mercury -39398-11-05 06:14 J -12668388.35 -12668388.24 -12668388.13 0.0499 0.0328  
 Mars -39396-02-04 19:40 J -12667930.94 -12667930.68 -12667930.43 0.0487 0.0011  
 Venus -39396-10-03 04:33 J -12667690.43 -12667690.31 -12667690.18 0.0484 0.0381  
 Venus -39395-05-27 01:11 J -12667454.60 -12667454.45 -12667454.29 0.0485 0.0317  
 Earth -39392-09-21 19:26 J -12666240.92 -12666240.69 -12666240.46 0.0523 0.0089  
 Moon -39392-09-21 23:16 J -12666240.76 -12666240.53 -12666240.30 0.0523 0.0124 \*  
 Mercury -39391-01-05 17:59 J -12666134.90 -12666134.75 -12666134.60 0.0527 0.0047  
 Venus -39389-04-03 13:11 J -12665316.09 -12665315.95 -12665315.80 0.0543 0.0362  
 Earth -39386-03-20 03:35 J -12664235.58 -12664235.35 -12664235.12 0.0506 0.0019  
 Moon -39386-03-20 05:45 J -12664235.50 -12664235.26 -12664235.02 0.0506 0.0030 \*  
 Mercury -39386-05-26 19:11 J -12664167.78 -12664167.70 -12664167.61 0.0503 0.0401  
 Mercury -39386-08-24 08:23 J -12664078.29 -12664078.15 -12664078.01 0.0500 0.0182  
 Venus -39383-01-30 04:04 J -12663188.53 -12663188.33 -12663188.13 0.0484 0.0118  
 Mercury -39380-10-24 17:59 J -12661824.89 -12661824.75 -12661824.61 0.0527 0.0235  
 Mercury -39379-01-22 12:57 J -12661735.03 -12661734.96 -12661734.89 0.0530 0.0466  
 Mars -39378-01-02 00:57 J -12661390.72 -12661390.46 -12661390.20 0.0541 0.0265  
 Venus -39378-12-08 01:54 J -12661050.62 -12661050.42 -12661050.23 0.0544 0.0089  
 Moon -39374-03-24 14:09 J -12659847.95 -12659847.91 -12659847.87 0.0503 0.0493  
 Mercury -39374-06-12 11:02 J -12659768.19 -12659768.04 -12659767.89 0.0500 0.0042  
 Venus -39372-10-05 08:23 J -12658922.35 -12658922.15 -12658921.94 0.0484 0.0076  
 Mercury -39368-08-12 18:42 J -12657514.82 -12657514.72 -12657514.63 0.0526 0.0410  
 Mercury -39368-11-10 14:09 J -12657425.03 -12657424.91 -12657424.78 0.0530 0.0298  
 Venus -39366-08-12 15:06 J -12656785.06 -12656784.87 -12656784.68 0.0545 0.0184  
 Mercury -39362-03-31 13:11 J -12655458.09 -12655457.95 -12655457.80 0.0501 0.0103  
 Mercury -39362-06-29 02:52 J -12655368.40 -12655368.38 -12655368.35 0.0497 0.0487

Mars -39361-11-08 01:54 J -12654870.58 -12654870.42 -12654870.24 0.0485 0.0360  
 Venus -39360-06-10 12:14 J -12654656.15 -12654655.99 -12654655.81 0.0484 0.0270  
 Venus -39359-02-01 09:21 J -12654420.20 -12654420.11 -12654420.01 0.0485 0.0428  
 Mercury -39356-08-29 15:35 J -12653115.00 -12653114.85 -12653114.71 0.0529 0.0132  
 Venus -39354-04-17 03:21 J -12652519.47 -12652519.36 -12652519.25 0.0544 0.0458  
 Venus -39354-12-11 08:52 J -12652281.17 -12652281.13 -12652281.08 0.0543 0.0525  
 Mercury -39350-01-17 15:35 J -12651147.98 -12651147.85 -12651147.72 0.0502 0.0247  
 Mercury -39350-04-17 05:02 J -12651058.40 -12651058.29 -12651058.18 0.0498 0.0338  
 Venus -39348-02-13 17:30 J -12650389.83 -12650389.77 -12650389.70 0.0484 0.0458  
 Venus -39348-10-07 13:26 J -12650154.12 -12650153.94 -12650153.76 0.0484 0.0234  
 Mercury -39344-06-17 16:33 J -12648804.97 -12648804.81 -12648804.66 0.0527 0.0043  
 Mars -39343-10-11 21:21 J -12648323.74 -12648323.61 -12648323.46 0.0542 0.0474  
 Venus -39342-08-15 19:40 J -12648015.86 -12648015.68 -12648015.50 0.0544 0.0248  
 Mercury -39339-11-05 17:16 J -12646837.86 -12646837.78 -12646837.69 0.0503 0.0401  
 Mercury -39338-02-03 06:28 J -12646748.37 -12646748.23 -12646748.09 0.0500 0.0182  
 Venus -39336-06-12 17:02 J -12645888.00 -12645887.79 -12645887.58 0.0484 0.0037  
 Mercury -39332-04-05 16:47 J -12644494.94 -12644494.80 -12644494.66 0.0526 0.0222  
 Mercury -39332-07-04 11:45 J -12644405.07 -12644405.01 -12644404.95 0.0530 0.0478  
 Venus -39330-04-20 06:57 J -12643750.41 -12643750.21 -12643750.01 0.0544 0.0031  
 Mercury -39327-11-22 08:38 J -12642438.29 -12642438.14 -12642437.99 0.0500 0.0036  
 Venus -39324-02-15 20:38 J -12641621.83 -12641621.64 -12641621.44 0.0484 0.0157  
 Mercury -39320-01-22 16:18 J -12640184.91 -12640184.82 -12640184.72 0.0526 0.0414  
 Mercury -39320-04-22 11:59 J -12640095.13 -12640095.00 -12640094.88 0.0529 0.0293  
 Venus -39319-12-23 17:45 J -12639484.93 -12639484.76 -12639484.60 0.0544 0.0310  
 Mercury -39315-09-10 11:16 J -12638128.17 -12638128.03 -12638127.88 0.0501 0.0104  
 Mercury -39315-12-09 00:57 J -12638038.48 -12638038.46 -12638038.43 0.0498 0.0487  
 Venus -39313-10-22 01:26 J -12637355.57 -12637355.44 -12637355.29 0.0484 0.0348  
 Venus -39312-06-14 21:50 J -12637119.73 -12637119.59 -12637119.44 0.0484 0.0345  
 Moon -39309-09-20 12:57 J -12635926.19 -12635925.96 -12635925.72 0.0523 0.0013  
 Earth -39309-09-20 17:16 J -12635926.02 -12635925.78 -12635925.55 0.0523 0.0028 \*

Mercury -39308-02-08 12:57 J -12635785.10 -12635784.96 -12635784.81 0.0529 0.0123

Venus -39306-04-23 12:57 J -12634981.09 -12634980.96 -12634980.83 0.0544 0.0406

Moon -39303-03-19 05:59 J -12633920.48 -12633920.25 -12633920.03 0.0506 0.0050

Earth -39303-03-19 09:21 J -12633920.34 -12633920.11 -12633919.88 0.0506 0.0054 \*

Mercury -39303-06-29 13:40 J -12633818.05 -12633817.93 -12633817.80 0.0502 0.0246

Mercury -39303-09-27 03:06 J -12633728.48 -12633728.37 -12633728.26 0.0498 0.0339

Venus -39300-02-18 00:57 J -12632853.65 -12632853.46 -12632853.26 0.0484 0.0150

Mercury -39297-11-27 14:09 J -12631475.06 -12631474.91 -12631474.75 0.0528 0.0047

Venus -39295-12-27 02:23 J -12630715.59 -12630715.40 -12630715.20 0.0544 0.0136

Earth -39291-03-23 21:06 J -12629532.72 -12629532.62 -12629532.50 0.0504 0.0440

Moon -39291-03-24 01:11 J -12629532.58 -12629532.45 -12629532.31 0.0504 0.0411 \*

Mercury -39291-04-17 16:04 J -12629507.91 -12629507.83 -12629507.73 0.0503 0.0390

Mercury -39291-07-16 05:16 J -12629418.42 -12629418.28 -12629418.14 0.0499 0.0192

Venus -39289-10-24 05:30 J -12628587.47 -12628587.27 -12628587.06 0.0484 0.0044

Mercury -39285-09-15 15:06 J -12627165.01 -12627164.87 -12627164.73 0.0526 0.0218

Mercury -39285-12-14 10:04 J -12627075.14 -12627075.08 -12627075.02 0.0530 0.0483

Venus -39283-08-31 12:57 J -12626450.15 -12626449.96 -12626449.77 0.0544 0.0146

Mercury -39279-05-04 06:42 J -12625108.37 -12625108.22 -12625108.07 0.0500 0.0036

Mars -39278-07-29 02:23 J -12624657.60 -12624657.40 -12624657.18 0.0488 0.0277

Venus -39277-06-29 09:21 J -12624321.29 -12624321.11 -12624320.93 0.0484 0.0238

Venus -39276-02-20 06:57 J -12624085.26 -12624085.21 -12624085.14 0.0485 0.0460

Mercury -39273-07-04 15:21 J -12622854.96 -12622854.86 -12622854.76 0.0525 0.0399

Mercury -39273-10-02 10:47 J -12622765.17 -12622765.05 -12622764.92 0.0529 0.0307

Venus -39271-05-05 23:02 J -12622184.66 -12622184.54 -12622184.41 0.0544 0.0425

Mercury -39267-02-20 08:52 J -12620798.27 -12620798.13 -12620797.98 0.0501 0.0111

Mercury -39267-05-20 22:33 J -12620708.59 -12620708.56 -12620708.52 0.0498 0.0480

Venus -39265-03-04 13:40 J -12620055.02 -12620054.93 -12620054.83 0.0484 0.0428

Venus -39265-10-26 09:50 J -12619819.27 -12619819.09 -12619818.92 0.0484 0.0263

Mercury -39261-07-21 10:47 J -12618455.20 -12618455.05 -12618454.90 0.0528 0.0118

Venus -39259-09-03 16:18 J -12617680.99 -12617680.82 -12617680.65 0.0544 0.0283

Mercury -39256-12-09 11:45 J -12616488.14 -12616488.01 -12616487.88 0.0502 0.0248

Mercury -39255-03-09 00:57 J -12616398.56 -12616398.46 -12616398.34 0.0499 0.0339

Venus -39253-07-01 13:40 J -12615553.13 -12615552.93 -12615552.72 0.0484 0.0069

Mercury -39249-05-09 11:30 J -12614145.17 -12614145.02 -12614144.86 0.0527 0.0059

Venus -39247-05-09 05:30 J -12613415.47 -12613415.27 -12613415.07 0.0545 0.0014

Mercury -39244-09-27 14:23 J -12612177.99 -12612177.90 -12612177.81 0.0503 0.0388

Mercury -39244-12-26 03:21 J -12612088.50 -12612088.36 -12612088.22 0.0499 0.0193

Mars -39242-05-01 10:18 J -12611597.32 -12611597.07 -12611596.82 0.0486 0.0095

Venus -39241-03-06 17:30 J -12611286.97 -12611286.77 -12611286.57 0.0484 0.0126

Mercury -39237-02-26 12:42 J -12609835.11 -12609834.97 -12609834.83 0.0527 0.0226

Mercury -39237-05-26 07:54 J -12609745.24 -12609745.17 -12609745.11 0.0530 0.0477

Venus -39235-01-11 18:14 J -12609149.91 -12609149.74 -12609149.56 0.0544 0.0262

Mercury -39232-10-14 05:30 J -12607778.42 -12607778.27 -12607778.12 0.0500 0.0047

Venus -39230-11-10 22:18 J -12607020.72 -12607020.57 -12607020.41 0.0484 0.0316

Venus -39229-07-03 18:57 J -12606784.83 -12606784.71 -12606784.58 0.0485 0.0376

Earth -39226-09-20 21:06 J -12605610.85 -12605610.62 -12605610.39 0.0522 0.0110

Moon -39226-09-21 00:57 J -12605610.69 -12605610.46 -12605610.24 0.0522 0.0076 \*

Mercury -39226-12-15 13:40 J -12605525.03 -12605524.93 -12605524.83 0.0526 0.0397

Mercury -39225-03-14 09:06 J -12605435.24 -12605435.12 -12605435.00 0.0529 0.0310

Mars -39224-03-28 01:40 J -12605056.72 -12605056.43 -12605056.13 0.0541 0.0081

Venus -39224-09-16 04:33 J -12604884.32 -12604884.31 -12604884.28 0.0544 0.0539

Venus -39223-05-12 10:47 J -12604646.16 -12604646.05 -12604645.93 0.0543 0.0440

Earth -39220-03-18 08:38 J -12603605.36 -12603605.14 -12603604.92 0.0507 0.0159

Moon -39220-03-18 12:42 J -12603605.19 -12603604.97 -12603604.75 0.0507 0.0154 \*

Mercury -39220-08-02 07:11 J -12603468.35 -12603468.20 -12603468.06 0.0501 0.0109

Mercury -39220-10-30 20:38 J -12603378.67 -12603378.64 -12603378.60 0.0498 0.0480

Venus -39217-03-08 22:04 J -12602518.77 -12602518.58 -12602518.38 0.0484 0.0182

Moon -39214-09-25 17:16 J -12601222.90 -12601222.78 -12601222.66 0.0524 0.0450

Earth -39214-09-25 19:26 J -12601222.80 -12601222.69 -12601222.57 0.0524 0.0454 \*

Mercury -39213-01-01 09:50 J -12601125.24 -12601125.09 -12601124.94 0.0528 0.0133

Venus -39211-01-14 22:18 J -12600380.76 -12600380.57 -12600380.38 0.0544 0.0167  
 Moon -39208-03-22 16:47 J -12599217.98 -12599217.80 -12599217.61 0.0505 0.0307  
 Earth -39208-03-22 20:38 J -12599217.80 -12599217.64 -12599217.46 0.0505 0.0338 \*  
 Mercury -39208-05-21 09:21 J -12599158.23 -12599158.11 -12599157.98 0.0502 0.0255  
 Mercury -39208-08-18 22:47 J -12599068.66 -12599068.55 -12599068.44 0.0499 0.0332  
 Mars -39206-02-01 14:23 J -12598536.98 -12598536.90 -12598536.82 0.0486 0.0457  
 Venus -39206-11-13 01:40 J -12598252.63 -12598252.43 -12598252.22 0.0484 0.0017  
 Mercury -39202-10-20 09:21 J -12596815.26 -12596815.11 -12596814.95 0.0527 0.0061  
 Venus -39200-09-19 08:38 J -12596115.34 -12596115.14 -12596114.94 0.0544 0.0112  
 Mercury -39196-03-09 12:14 J -12594848.08 -12594847.99 -12594847.89 0.0503 0.0391  
 Mercury -39196-06-07 01:26 J -12594758.58 -12594758.44 -12594758.31 0.0500 0.0192  
 Venus -39194-07-19 06:28 J -12593986.41 -12593986.23 -12593986.04 0.0484 0.0204  
 Mercury -39190-08-08 10:04 J -12592505.21 -12592505.08 -12592504.94 0.0526 0.0235  
 Mercury -39190-11-06 05:16 J -12592415.35 -12592415.28 -12592415.21 0.0530 0.0467  
 Venus -39188-05-24 20:38 J -12591849.77 -12591849.64 -12591849.49 0.0545 0.0386  
 Mercury -39184-03-26 03:35 J -12590448.50 -12590448.35 -12590448.20 0.0500 0.0049  
 Venus -39182-03-24 11:02 J -12589720.16 -12589720.04 -12589719.92 0.0484 0.0395  
 Venus -39182-11-15 06:42 J -12589484.38 -12589484.22 -12589484.05 0.0484 0.0293  
 Mercury -39178-05-27 11:02 J -12588195.14 -12588195.04 -12588194.94 0.0526 0.0406  
 Mercury -39178-08-25 06:42 J -12588105.34 -12588105.22 -12588105.10 0.0529 0.0302  
 Venus -39176-09-22 16:47 J -12587345.95 -12587345.80 -12587345.64 0.0544 0.0328  
 Mercury -39172-01-12 05:59 J -12586138.39 -12586138.25 -12586138.10 0.0501 0.0097  
 Mercury -39172-04-11 19:26 J -12586048.70 -12586048.69 -12586048.66 0.0498 0.0492  
 Venus -39170-07-21 10:47 J -12585218.25 -12585218.05 -12585217.85 0.0484 0.0100  
 Mercury -39166-06-13 07:54 J -12583795.31 -12583795.17 -12583795.02 0.0528 0.0136  
 Venus -39164-05-28 04:33 J -12583080.50 -12583080.31 -12583080.11 0.0544 0.0055  
 Mercury -39161-10-31 07:40 J -12581828.30 -12581828.18 -12581828.05 0.0502 0.0251  
 Mercury -39160-01-28 20:52 J -12581738.74 -12581738.63 -12581738.51 0.0499 0.0335  
 Venus -39158-03-26 14:23 J -12580952.10 -12580951.90 -12580951.69 0.0484 0.0095  
 Mercury -39154-04-01 08:38 J -12579485.29 -12579485.14 -12579484.99 0.0527 0.0042

Venus -39152-01-30 15:06 J -12578815.05 -12578814.87 -12578814.68 0.0544 0.0225  
 Mercury -39149-08-19 10:04 J -12577518.16 -12577518.08 -12577517.98 0.0503 0.0395  
 Mercury -39149-11-16 23:02 J -12577428.68 -12577428.54 -12577428.40 0.0500 0.0188  
 Venus -39147-11-29 18:42 J -12576685.88 -12576685.72 -12576685.55 0.0484 0.0285  
 Venus -39146-07-23 15:35 J -12576449.96 -12576449.85 -12576449.74 0.0485 0.0406  
 Moon -39143-09-19 13:26 J -12575296.16 -12575295.94 -12575295.72 0.0521 0.0206  
 Earth -39143-09-19 16:18 J -12575296.02 -12575295.82 -12575295.61 0.0521 0.0236 \*  
 Mercury -39142-01-18 08:09 J -12575175.30 -12575175.16 -12575175.03 0.0526 0.0236  
 Mercury -39142-04-18 03:21 J -12575085.43 -12575085.36 -12575085.29 0.0530 0.0465  
 Venus -39141-10-04 23:59 J -12574549.57 -12574549.50 -12574549.43 0.0544 0.0505  
 Venus -39140-05-31 06:42 J -12574311.32 -12574311.22 -12574311.12 0.0544 0.0473  
 Moon -39137-03-17 09:50 J -12573290.30 -12573290.09 -12573289.88 0.0508 0.0235  
 Earth -39137-03-17 13:54 J -12573290.13 -12573289.92 -12573289.72 0.0508 0.0237 \*  
 Mercury -39137-09-05 01:40 J -12573118.58 -12573118.43 -12573118.28 0.0501 0.0049  
 Venus -39135-08-05 00:14 J -12572419.53 -12572419.49 -12572419.44 0.0484 0.0471  
 Venus -39134-03-28 19:40 J -12572183.87 -12572183.68 -12572183.50 0.0484 0.0214  
 Earth -39131-09-24 15:06 J -12570908.04 -12570907.87 -12570907.68 0.0523 0.0330  
 Moon -39131-09-24 15:35 J -12570908.02 -12570907.85 -12570907.67 0.0523 0.0321 \*  
 Mercury -39131-11-06 08:38 J -12570865.23 -12570865.14 -12570865.05 0.0525 0.0414  
 Mercury -39130-02-04 04:18 J -12570775.45 -12570775.32 -12570775.20 0.0529 0.0294  
 Venus -39128-02-02 20:09 J -12570045.84 -12570045.66 -12570045.47 0.0545 0.0207  
 Earth -39125-03-22 03:35 J -12568902.54 -12568902.35 -12568902.15 0.0505 0.0271  
 Moon -39125-03-22 06:14 J -12568902.43 -12568902.24 -12568902.03 0.0505 0.0244 \*  
 Mercury -39125-06-24 04:18 J -12568808.47 -12568808.32 -12568808.18 0.0501 0.0095  
 Mercury -39125-09-21 17:45 J -12568718.77 -12568718.76 -12568718.74 0.0498 0.0494  
 Mars -39124-10-21 20:09 J -12568323.90 -12568323.66 -12568323.42 0.0487 0.0168  
 Venus -39123-12-01 23:16 J -12567917.74 -12567917.53 -12567917.33 0.0484 0.0021  
 Mercury -39119-11-23 05:30 J -12566465.42 -12566465.27 -12566465.12 0.0528 0.0127  
 Venus -39117-10-08 09:35 J -12565780.30 -12565780.10 -12565779.90 0.0545 0.0065  
 Mercury -39113-04-12 06:42 J -12564498.35 -12564498.22 -12564498.09 0.0502 0.0237



Mercury -39113-07-10 19:54 J -12564408.78 -12564408.67 -12564408.56 0.0499 0.0348

Venus -39111-08-07 03:50 J -12563651.53 -12563651.34 -12563651.15 0.0484 0.0171

Mercury -39107-09-11 06:42 J -12562155.37 -12562155.22 -12562155.06 0.0527 0.0042

Venus -39105-06-12 21:06 J -12561514.77 -12561514.62 -12561514.46 0.0544 0.0338

Mercury -39101-01-30 08:38 J -12560188.23 -12560188.14 -12560188.05 0.0503 0.0389

Mercury -39101-04-28 21:35 J -12560098.74 -12560098.60 -12560098.47 0.0500 0.0192

Venus -39099-04-12 07:54 J -12559385.30 -12559385.17 -12559385.03 0.0484 0.0363

Venus -39099-12-04 04:18 J -12559149.47 -12559149.32 -12559149.17 0.0485 0.0326

Mercury -39095-06-30 07:11 J -12557845.33 -12557845.20 -12557845.05 0.0526 0.0218

Mercury -39095-09-28 02:23 J -12557755.45 -12557755.40 -12557755.34 0.0530 0.0484

Venus -39093-10-11 14:23 J -12557011.04 -12557010.90 -12557010.75 0.0544 0.0364

Mercury -39089-02-15 23:45 J -12555788.66 -12555788.51 -12555788.36 0.0501 0.0046

Mars -39088-07-24 23:59 J -12555263.73 -12555263.50 -12555263.26 0.0486 0.0194

Venus -39087-08-09 07:54 J -12554883.37 -12554883.17 -12554882.97 0.0484 0.0134

Mercury -39083-04-18 06:42 J -12553535.31 -12553535.22 -12553535.13 0.0525 0.0412

Mercury -39083-07-17 02:23 J -12553445.52 -12553445.40 -12553445.28 0.0529 0.0295

Venus -39081-06-16 00:14 J -12552745.69 -12552745.49 -12552745.29 0.0544 0.0087

Mercury -39078-12-05 02:23 J -12551478.55 -12551478.40 -12551478.25 0.0502 0.0094

Mercury -39077-03-03 15:50 J -12551388.84 -12551388.84 -12551388.82 0.0498 0.0497

Venus -39075-04-14 12:42 J -12550617.17 -12550616.97 -12550616.76 0.0484 0.0058

Mercury -39071-05-05 03:21 J -12549135.51 -12549135.36 -12549135.22 0.0528 0.0122

Mars -39070-06-21 07:26 J -12548723.49 -12548723.19 -12548722.90 0.0542 0.0055

Venus -39069-02-19 12:28 J -12548480.17 -12548479.98 -12548479.79 0.0545 0.0186

Mercury -39066-09-23 05:02 J -12547168.42 -12547168.29 -12547168.16 0.0502 0.0233

Mercury -39066-12-21 18:14 J -12547078.84 -12547078.74 -12547078.63 0.0499 0.0352

Venus -39064-12-18 17:02 J -12546350.97 -12546350.79 -12546350.61 0.0484 0.0249

Venus -39063-08-11 13:26 J -12546115.02 -12546114.94 -12546114.85 0.0484 0.0438

Earth -39060-09-18 19:11 J -12544980.88 -12544980.70 -12544980.51 0.0521 0.0324

Moon -39060-09-18 20:09 J -12544980.84 -12544980.66 -12544980.47 0.0521 0.0299 \*

Mercury -39059-02-21 04:18 J -12544825.47 -12544825.32 -12544825.17 0.0527 0.0048

Venus -39058-10-25 01:11 J -12544214.55 -12544214.45 -12544214.33 0.0544 0.0456

Venus -39057-06-19 08:09 J -12543976.21 -12543976.16 -12543976.10 0.0544 0.0520

Earth -39054-03-17 20:23 J -12542974.83 -12542974.65 -12542974.47 0.0508 0.0307

Moon -39054-03-17 23:02 J -12542974.71 -12542974.54 -12542974.35 0.0508 0.0312 \*

Mercury -39054-07-12 07:40 J -12542858.28 -12542858.18 -12542858.08 0.0503 0.0374

Mercury -39054-10-09 20:38 J -12542768.78 -12542768.64 -12542768.51 0.0500 0.0207

Venus -39052-08-23 22:04 J -12542084.66 -12542084.58 -12542084.48 0.0484 0.0437

Venus -39051-04-16 17:30 J -12541848.95 -12541848.77 -12541848.59 0.0484 0.0247

Earth -39048-09-23 20:52 J -12540592.83 -12540592.63 -12540592.42 0.0523 0.0254

Moon -39048-09-23 22:18 J -12540592.78 -12540592.57 -12540592.35 0.0523 0.0236 \*

Mercury -39048-12-10 05:30 J -12540515.41 -12540515.27 -12540515.13 0.0526 0.0215

Mercury -39047-03-10 00:42 J -12540425.52 -12540425.47 -12540425.41 0.0530 0.0488

Venus -39045-02-22 21:06 J -12539710.80 -12539710.62 -12539710.44 0.0544 0.0253

Moon -39042-03-22 05:30 J -12538587.49 -12538587.27 -12538587.03 0.0505 0.0155

Earth -39042-03-22 06:42 J -12538587.43 -12538587.22 -12538587.00 0.0505 0.0183 \*

Mercury -39042-07-28 22:18 J -12538458.72 -12538458.57 -12538458.42 0.0500 0.0053

Venus -39040-12-20 20:52 J -12537582.83 -12537582.63 -12537582.42 0.0484 0.0055

Mercury -39036-09-28 05:59 J -12536205.35 -12536205.25 -12536205.14 0.0525 0.0392

Mercury -39036-12-27 01:40 J -12536115.54 -12536115.43 -12536115.30 0.0529 0.0316

Venus -39034-10-28 08:38 J -12535445.34 -12535445.14 -12535444.94 0.0544 0.0021

Mercury -39030-05-17 00:42 J -12534148.62 -12534148.47 -12534148.33 0.0501 0.0093

Mercury -39030-08-14 14:09 J -12534058.92 -12534058.91 -12534058.90 0.0498 0.0497

Venus -39028-08-26 01:40 J -12533316.63 -12533316.43 -12533316.23 0.0484 0.0136

Mercury -39024-10-15 01:26 J -12531805.58 -12531805.44 -12531805.29 0.0528 0.0127

Venus -39022-07-02 16:47 J -12531179.96 -12531179.80 -12531179.63 0.0544 0.0304

Mercury -39018-03-05 03:21 J -12529838.49 -12529838.36 -12529838.23 0.0503 0.0231

Mercury -39018-06-02 16:33 J -12529748.91 -12529748.81 -12529748.70 0.0499 0.0356

Venus -39016-05-01 07:11 J -12529050.35 -12529050.20 -12529050.04 0.0484 0.0323

Venus -39016-12-23 03:06 J -12528814.50 -12528814.37 -12528814.23 0.0484 0.0362

Mercury -39012-08-03 02:23 J -12527495.56 -12527495.40 -12527495.25 0.0527 0.0052

Venus -39010-10-31 12:14 J -12526676.12 -12526675.99 -12526675.85 0.0544 0.0403

Mercury -39007-12-22 05:59 J -12525528.34 -12525528.25 -12525528.15 0.0503 0.0369

Mercury -39006-03-21 18:57 J -12525438.84 -12525438.71 -12525438.57 0.0500 0.0213

Mars -39005-04-13 11:16 J -12525050.15 -12525050.03 -12525049.90 0.0488 0.0422

Venus -39004-08-28 06:28 J -12524548.42 -12524548.23 -12524548.03 0.0484 0.0168

# 39TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 39th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-39000-05-22 03:06 J	-12523185.51	-12523185.37	-12523185.23	0.0526	0.0221		
Mercury	-39000-08-19 22:33 J	-12523095.62	-12523095.56	-12523095.50	0.0530	0.0482		
Venus	-38998-07-06 02:09 J	-12522410.60	-12522410.41	-12522410.21	0.0545	0.0138		
Mercury	-38994-01-07 21:21 J	-12521128.75	-12521128.61	-12521128.46	0.0500	0.0070		
Venus	-38992-05-03 11:16 J	-12520282.24	-12520282.03	-12520281.82	0.0484	0.0022		
Mercury	-38988-03-10 04:18 J	-12518875.42	-12518875.32	-12518875.22	0.0525	0.0388		
Mercury	-38988-06-08 00:14 J	-12518785.61	-12518785.49	-12518785.38	0.0529	0.0321		
Venus	-38986-03-10 14:52 J	-12518145.07	-12518144.88	-12518144.68	0.0544	0.0133		
Mercury	-38983-10-26 23:16 J	-12516818.67	-12516818.53	-12516818.38	0.0501	0.0083		
Venus	-38980-01-06 15:21 J	-12516016.05	-12516015.86	-12516015.68	0.0484	0.0213		
Venus	-38980-08-30 11:59 J	-12515780.03	-12515780.00	-12515779.95	0.0485	0.0474		
Earth	-38977-09-18 01:40 J	-12514665.58	-12514665.43	-12514665.28	0.0520	0.0397		
Moon	-38977-09-18 02:38 J	-12514665.56	-12514665.39	-12514665.22	0.0520	0.0373	*	

Mercury -38976-03-27 00:57 J -12514475.60 -12514475.46 -12514475.31 0.0528 0.0149  
 Venus -38975-11-13 01:40 J -12513879.56 -12513879.43 -12513879.29 0.0544 0.0407  
 Moon -38971-03-16 22:18 J -12512659.70 -12512659.57 -12512659.42 0.0508 0.0407  
 Earth -38971-03-16 23:45 J -12512659.65 -12512659.51 -12512659.36 0.0508 0.0394 \*  
 Mercury -38971-08-15 01:40 J -12512508.56 -12512508.43 -12512508.29 0.0502 0.0226  
 Mercury -38971-11-12 14:52 J -12512418.98 -12512418.88 -12512418.77 0.0499 0.0360  
 Mars -38969-01-15 17:02 J -12511990.05 -12511989.79 -12511989.54 0.0487 0.0058  
 Venus -38969-09-11 20:38 J -12511749.75 -12511749.64 -12511749.52 0.0484 0.0399  
 Venus -38968-05-05 16:18 J -12511513.99 -12511513.82 -12511513.65 0.0484 0.0284  
 Moon -38965-09-22 17:30 J -12510277.99 -12510277.77 -12510277.55 0.0522 0.0128  
 Earth -38965-09-22 19:54 J -12510277.89 -12510277.67 -12510277.44 0.0522 0.0148 \*  
 Mercury -38964-01-13 00:42 J -12510165.62 -12510165.47 -12510165.31 0.0527 0.0043  
 Venus -38962-03-13 17:30 J -12509375.94 -12509375.77 -12509375.60 0.0544 0.0288  
 Moon -38959-03-21 12:57 J -12508272.18 -12508271.96 -12508271.74 0.0507 0.0091  
 Earth -38959-03-21 13:40 J -12508272.15 -12508271.93 -12508271.70 0.0507 0.0118 \*  
 Mercury -38959-06-03 04:33 J -12508198.41 -12508198.31 -12508198.21 0.0504 0.0365  
 Mercury -38959-08-31 17:16 J -12508108.91 -12508108.78 -12508108.64 0.0500 0.0219  
 Venus -38956-01-08 20:52 J -12507247.83 -12507247.63 -12507247.42 0.0484 0.0094  
 Mercury -38953-11-01 01:26 J -12505855.58 -12505855.44 -12505855.30 0.0526 0.0218  
 Mercury -38952-01-29 20:38 J -12505765.70 -12505765.64 -12505765.58 0.0530 0.0483  
 Mars -38952-12-05 16:18 J -12505455.94 -12505455.82 -12505455.68 0.0540 0.0485  
 Venus -38951-11-16 06:14 J -12505110.44 -12505110.24 -12505110.04 0.0545 0.0021  
 Mercury -38947-03-22 07:26 J -12503888.20 -12503888.19 -12503888.18 0.0504 0.0502  
 Mercury -38947-06-19 19:54 J -12503798.82 -12503798.67 -12503798.52 0.0501 0.0077  
 Venus -38945-09-14 01:11 J -12502981.65 -12502981.45 -12502981.25 0.0484 0.0098  
 Mercury -38941-08-20 02:09 J -12501545.51 -12501545.41 -12501545.31 0.0525 0.0391  
 Mercury -38941-11-17 21:50 J -12501455.71 -12501455.59 -12501455.47 0.0529 0.0317  
 Venus -38939-07-21 19:11 J -12500844.88 -12500844.70 -12500844.52 0.0545 0.0251  
 Mercury -38935-04-07 22:33 J -12499488.71 -12499488.56 -12499488.41 0.0501 0.0065  
 Mars -38934-10-19 03:21 J -12498929.54 -12498929.36 -12498929.16 0.0486 0.0322

Venus -38933-05-20 06:28 J -12498715.40 -12498715.23 -12498715.07 0.0484 0.0286

Venus -38932-01-11 02:09 J -12498479.52 -12498479.41 -12498479.29 0.0484 0.0397

Mercury -38929-09-05 23:30 J -12497145.67 -12497145.52 -12497145.38 0.0528 0.0154

Venus -38927-03-26 07:40 J -12496579.24 -12496579.18 -12496579.12 0.0544 0.0518

Venus -38927-11-19 15:06 J -12496340.98 -12496340.87 -12496340.76 0.0544 0.0454

Mercury -38923-01-25 00:42 J -12495178.61 -12495178.47 -12495178.34 0.0502 0.0214

Mercury -38923-04-24 13:40 J -12495089.02 -12495088.93 -12495088.83 0.0499 0.0372

Venus -38921-01-24 11:02 J -12494449.08 -12494449.04 -12494449.00 0.0484 0.0473

Venus -38921-09-16 05:45 J -12494213.45 -12494213.26 -12494213.07 0.0484 0.0206

Mercury -38917-06-25 00:28 J -12492835.64 -12492835.48 -12492835.33 0.0527 0.0023

Mars -38916-09-15 01:40 J -12492388.68 -12492388.43 -12492388.17 0.0542 0.0270

Venus -38915-07-25 03:06 J -12492075.55 -12492075.37 -12492075.18 0.0544 0.0186

Mercury -38912-11-13 03:06 J -12490868.47 -12490868.37 -12490868.26 0.0503 0.0357

Mercury -38911-02-10 16:04 J -12490778.97 -12490778.83 -12490778.70 0.0500 0.0226

Venus -38909-05-22 10:33 J -12489947.26 -12489947.06 -12489946.85 0.0484 0.0021

Mercury -38905-04-12 23:59 J -12488525.64 -12488525.50 -12488525.36 0.0526 0.0207

Mercury -38905-07-11 19:26 J -12488435.75 -12488435.69 -12488435.64 0.0529 0.0493

Venus -38903-03-29 11:45 J -12487810.21 -12487810.01 -12487809.81 0.0544 0.0096

Mercury -38900-09-01 05:45 J -12486558.28 -12486558.26 -12486558.23 0.0505 0.0496

Mercury -38900-11-29 18:28 J -12486468.88 -12486468.73 -12486468.58 0.0501 0.0084

Venus -38897-01-26 16:04 J -12485681.02 -12485680.83 -12485680.64 0.0484 0.0171

Moon -38894-09-17 23:45 J -12484350.60 -12484350.51 -12484350.42 0.0519 0.0473

Earth -38894-09-18 01:54 J -12484350.48 -12484350.42 -12484350.34 0.0519 0.0493 \*

Mercury -38893-01-31 00:28 J -12484215.58 -12484215.48 -12484215.37 0.0525 0.0385

Mercury -38893-04-29 20:09 J -12484125.77 -12484125.66 -12484125.54 0.0529 0.0322

Venus -38892-12-01 23:02 J -12483544.68 -12483544.54 -12483544.39 0.0544 0.0369

Moon -38888-03-16 07:26 J -12482344.26 -12482344.19 -12482344.11 0.0509 0.0476

Earth -38888-03-16 08:23 J -12482344.25 -12482344.15 -12482344.04 0.0509 0.0452 \*

Mercury -38888-09-17 21:06 J -12482158.77 -12482158.62 -12482158.47 0.0502 0.0057

Venus -38886-10-01 20:52 J -12481414.76 -12481414.63 -12481414.49 0.0484 0.0359

Venus -38885-05-24 15:50 J -12481178.98 -12481178.84 -12481178.68 0.0484 0.0321  
 Earth -38882-09-23 00:42 J -12479962.70 -12479962.47 -12479962.24 0.0522 0.0069  
 Moon -38882-09-23 04:18 J -12479962.56 -12479962.32 -12479962.09 0.0522 0.0047 \*  
 Mercury -38881-02-16 21:21 J -12479815.76 -12479815.61 -12479815.46 0.0528 0.0152  
 Venus -38879-04-01 20:23 J -12479040.80 -12479040.65 -12479040.49 0.0545 0.0340  
 Earth -38876-03-20 23:30 J -12477956.75 -12477956.52 -12477956.28 0.0507 0.0065  
 Moon -38876-03-21 02:09 J -12477956.65 -12477956.41 -12477956.17 0.0507 0.0039 \*  
 Mercury -38876-07-06 23:45 J -12477848.64 -12477848.51 -12477848.37 0.0502 0.0197  
 Mercury -38876-10-04 12:57 J -12477759.05 -12477758.96 -12477758.87 0.0499 0.0390  
 Venus -38873-01-28 20:23 J -12476912.84 -12476912.65 -12476912.45 0.0484 0.0131  
 Mercury -38870-12-05 22:47 J -12475505.71 -12475505.55 -12475505.40 0.0527 0.0017  
 Venus -38868-12-05 09:50 J -12474775.28 -12474775.09 -12474774.89 0.0545 0.0076  
 Mercury -38864-04-25 02:09 J -12473538.52 -12473538.41 -12473538.31 0.0503 0.0343  
 Mercury -38864-07-23 14:52 J -12473449.01 -12473448.88 -12473448.75 0.0500 0.0239  
 Venus -38862-10-04 00:42 J -12472646.67 -12472646.47 -12472646.27 0.0484 0.0059  
 Mercury -38858-09-23 23:30 J -12471195.66 -12471195.52 -12471195.37 0.0526 0.0184  
 Mercury -38858-12-22 18:57 J -12471105.74 -12471105.71 -12471105.68 0.0530 0.0517  
 Venus -38856-08-09 21:21 J -12470509.79 -12470509.61 -12470509.42 0.0544 0.0199  
 Mercury -38852-02-11 04:47 J -12469228.34 -12469228.30 -12469228.27 0.0504 0.0485  
 Mercury -38852-05-11 17:16 J -12469138.93 -12469138.78 -12469138.64 0.0501 0.0094  
 Mars -38851-07-08 14:09 J -12468716.11 -12468715.91 -12468715.71 0.0488 0.0298  
 Venus -38850-06-09 06:14 J -12468380.42 -12468380.24 -12468380.06 0.0484 0.0246  
 Venus -38849-01-31 02:23 J -12468144.49 -12468144.40 -12468144.31 0.0484 0.0436  
 Mercury -38846-07-12 23:16 J -12466885.64 -12466885.53 -12466885.42 0.0525 0.0371  
 Mercury -38846-10-10 18:57 J -12466795.82 -12466795.71 -12466795.59 0.0528 0.0334  
 Venus -38844-04-14 05:02 J -12466244.38 -12466244.29 -12466244.20 0.0544 0.0480  
 Venus -38844-12-08 12:14 J -12466006.07 -12466005.99 -12466005.90 0.0544 0.0489  
 Mercury -38840-02-27 19:40 J -12464828.83 -12464828.68 -12464828.53 0.0502 0.0050  
 Venus -38838-02-12 11:59 J -12464114.08 -12464114.00 -12464113.90 0.0484 0.0431  
 Venus -38838-10-06 06:57 J -12463878.39 -12463878.21 -12463878.03 0.0484 0.0248

Mercury -38834-07-29 19:54 J -12462485.82 -12462485.67 -12462485.53 0.0527 0.0160

Venus -38832-08-13 00:57 J -12461740.64 -12461740.46 -12461740.28 0.0545 0.0223

Mercury -38829-12-16 22:18 J -12460518.70 -12460518.57 -12460518.43 0.0503 0.0189

Mercury -38828-03-16 11:30 J -12460429.11 -12460429.02 -12460428.93 0.0499 0.0398

Venus -38826-06-11 10:47 J -12459612.25 -12459612.05 -12459611.84 0.0484 0.0057

Mercury -38822-05-17 20:38 J -12458175.79 -12458175.64 -12458175.48 0.0527 0.0019

Venus -38820-04-17 14:38 J -12457475.09 -12457474.89 -12457474.69 0.0545 0.0045

Mercury -38817-10-05 01:11 J -12456208.56 -12456208.45 -12456208.34 0.0503 0.0327

Mercury -38816-01-02 14:09 J -12456119.04 -12456118.91 -12456118.79 0.0500 0.0256

Mars -38815-04-11 01:54 J -12455655.67 -12455655.42 -12455655.17 0.0487 0.0084

Venus -38814-02-14 16:04 J -12455346.03 -12455345.83 -12455345.64 0.0484 0.0133

Mercury -38810-03-05 22:04 J -12453865.73 -12453865.58 -12453865.44 0.0526 0.0179

Mercury -38810-06-03 17:16 J -12453775.80 -12453775.78 -12453775.76 0.0530 0.0523

Venus -38809-12-21 03:21 J -12453209.52 -12453209.36 -12453209.19 0.0544 0.0311

Mercury -38805-07-24 03:35 J -12451898.39 -12451898.35 -12451898.30 0.0504 0.0471

Mercury -38805-10-21 16:04 J -12451808.97 -12451808.83 -12451808.68 0.0501 0.0108

Venus -38803-10-20 20:38 J -12451079.79 -12451079.64 -12451079.49 0.0484 0.0320

Venus -38802-06-13 15:50 J -12450843.97 -12450843.84 -12450843.69 0.0484 0.0359

Moon -38799-09-22 05:59 J -12449647.48 -12449647.25 -12449647.01 0.0521 0.0021

Earth -38799-09-22 09:50 J -12449647.32 -12449647.09 -12449646.85 0.0521 0.0011 \*

Mercury -38799-12-22 22:47 J -12449555.66 -12449555.55 -12449555.43 0.0525 0.0349

Mercury -38798-03-22 18:42 J -12449465.83 -12449465.72 -12449465.61 0.0529 0.0358

Mars -38797-03-01 20:23 J -12449120.91 -12449120.65 -12449120.38 0.0540 0.0248

Venus -38796-04-20 22:47 J -12448705.69 -12448705.55 -12448705.41 0.0544 0.0390

Moon -38793-03-20 02:52 J -12447641.60 -12447641.38 -12447641.15 0.0507 0.0033

Earth -38793-03-20 06:14 J -12447641.47 -12447641.24 -12447641.01 0.0507 0.0007 \*

Mercury -38793-08-09 18:28 J -12447498.87 -12447498.73 -12447498.58 0.0502 0.0040

Venus -38790-02-16 20:52 J -12446577.82 -12446577.63 -12446577.44 0.0484 0.0172

Mercury -38786-01-08 18:42 J -12445155.86 -12445155.72 -12445155.57 0.0527 0.0175

Venus -38785-12-24 07:26 J -12444440.39 -12444440.19 -12444439.99 0.0544 0.0111

Earth -38781-03-24 17:59 J -12443253.79 -12443253.75 -12443253.70 0.0506 0.0495  
 Mercury -38781-05-28 20:52 J -12443188.76 -12443188.63 -12443188.49 0.0503 0.0182  
 Mercury -38781-08-26 10:04 J -12443099.16 -12443099.08 -12443098.99 0.0500 0.0407  
 Mars -38779-01-12 10:18 J -12442595.14 -12442595.07 -12442594.97 0.0486 0.0457  
 Venus -38779-10-23 02:09 J -12442311.62 -12442311.41 -12442311.21 0.0484 0.0018  
 Mercury -38775-10-27 19:26 J -12440845.84 -12440845.69 -12440845.54 0.0526 0.0004  
 Venus -38773-08-28 18:57 J -12440174.90 -12440174.71 -12440174.51 0.0544 0.0161  
 Mercury -38769-03-16 23:45 J -12438878.62 -12438878.51 -12438878.40 0.0504 0.0320  
 Mercury -38769-06-14 12:28 J -12438789.10 -12438788.98 -12438788.85 0.0500 0.0265  
 Venus -38767-06-28 06:28 J -12438045.41 -12438045.23 -12438045.04 0.0484 0.0207  
 Venus -38766-02-19 02:38 J -12437809.43 -12437809.39 -12437809.35 0.0484 0.0473  
 Mercury -38763-08-15 20:09 J -12436535.81 -12436535.66 -12436535.52 0.0526 0.0177  
 Mercury -38763-11-13 15:21 J -12436445.87 -12436445.86 -12436445.84 0.0530 0.0524  
 Mars -38762-12-10 05:16 J -12436054.43 -12436054.28 -12436054.12 0.0542 0.0459  
 Venus -38761-05-03 07:26 J -12435909.31 -12435909.19 -12435909.07 0.0544 0.0429  
 Venus -38761-12-27 14:52 J -12435670.90 -12435670.88 -12435670.85 0.0544 0.0539  
 Mercury -38757-01-04 02:38 J -12434568.45 -12434568.39 -12434568.33 0.0505 0.0457  
 Mercury -38757-04-02 15:06 J -12434479.01 -12434478.87 -12434478.72 0.0501 0.0124  
 Venus -38755-03-03 12:14 J -12433779.11 -12433778.99 -12433778.87 0.0484 0.0391  
 Venus -38755-10-25 06:42 J -12433543.38 -12433543.22 -12433543.05 0.0484 0.0284  
 Mercury -38751-06-03 21:06 J -12432225.74 -12432225.62 -12432225.50 0.0525 0.0344  
 Mercury -38751-09-01 17:02 J -12432135.90 -12432135.79 -12432135.68 0.0529 0.0362  
 Venus -38749-09-01 05:16 J -12431405.45 -12431405.28 -12431405.11 0.0545 0.0280  
 Mercury -38745-01-20 17:30 J -12430168.92 -12430168.77 -12430168.62 0.0502 0.0025  
 Venus -38743-06-30 10:47 J -12429277.25 -12429277.05 -12429276.85 0.0484 0.0094  
 Mercury -38739-03-22 21:50 J -12427915.61 -12427915.59 -12427915.56 0.0524 0.0516  
 Mercury -38739-06-20 18:14 J -12427825.88 -12427825.74 -12427825.60 0.0528 0.0196  
 Venus -38737-05-06 17:30 J -12427139.97 -12427139.77 -12427139.57 0.0545 0.0010  
 Mercury -38734-11-08 19:54 J -12425858.81 -12425858.67 -12425858.53 0.0503 0.0168  
 Mercury -38733-02-06 09:06 J -12425769.20 -12425769.12 -12425769.04 0.0499 0.0419



Venus -38731-03-05 16:04 J -12425011.03 -12425010.83 -12425010.62 0.0484 0.0093  
 Mercury -38727-04-08 18:28 J -12423515.89 -12423515.73 -12423515.58 0.0526 0.0016  
 Venus -38725-01-10 01:26 J -12422874.61 -12422874.44 -12422874.27 0.0544 0.0272  
 Mercury -38722-08-27 22:04 J -12421548.69 -12421548.58 -12421548.46 0.0504 0.0315  
 Mercury -38722-11-25 11:02 J -12421459.16 -12421459.04 -12421458.91 0.0501 0.0272  
 Venus -38720-11-08 21:35 J -12420744.76 -12420744.60 -12420744.43 0.0484 0.0279  
 Venus -38719-07-02 17:30 J -12420508.89 -12420508.77 -12420508.66 0.0484 0.0399  
 Earth -38716-09-21 12:42 J -12419332.20 -12419331.97 -12419331.74 0.0520 0.0076  
 Moon -38716-09-21 15:50 J -12419332.07 -12419331.84 -12419331.62 0.0520 0.0105 \*  
 Mercury -38715-01-25 18:57 J -12419205.86 -12419205.71 -12419205.57 0.0525 0.0163  
 Venus -38714-09-14 11:59 J -12418609.01 -12418609.00 -12418608.99 0.0544 0.0542  
 Venus -38713-05-09 20:09 J -12418370.79 -12418370.66 -12418370.54 0.0544 0.0424  
 Earth -38710-03-20 13:11 J -12417326.18 -12417325.95 -12417325.72 0.0509 0.0072  
 Moon -38710-03-20 16:47 J -12417326.03 -12417325.80 -12417325.57 0.0509 0.0086 \*  
 Mercury -38710-06-16 00:57 J -12417238.52 -12417238.46 -12417238.39 0.0505 0.0452  
 Mercury -38710-09-13 13:40 J -12417149.08 -12417148.93 -12417148.79 0.0501 0.0129  
 Venus -38708-07-15 02:38 J -12416478.44 -12416478.39 -12416478.33 0.0485 0.0464  
 Venus -38707-03-07 20:52 J -12416242.81 -12416242.63 -12416242.44 0.0484 0.0209  
 Moon -38704-09-26 08:38 J -12414944.24 -12414944.14 -12414944.04 0.0522 0.0473  
 Earth -38704-09-26 10:18 J -12414944.15 -12414944.07 -12414943.98 0.0522 0.0483 \*  
 Mercury -38704-11-13 19:11 J -12414895.81 -12414895.70 -12414895.58 0.0525 0.0342  
 Mercury -38703-02-11 15:06 J -12414805.98 -12414805.87 -12414805.76 0.0528 0.0363  
 Venus -38701-01-13 09:35 J -12414105.29 -12414105.10 -12414104.91 0.0545 0.0161  
 Moon -38698-03-25 01:11 J -12412938.53 -12412938.45 -12412938.35 0.0506 0.0467  
 Earth -38698-03-25 04:33 J -12412938.42 -12412938.31 -12412938.20 0.0506 0.0442 \*  
 Mercury -38698-07-02 16:18 J -12412838.97 -12412838.82 -12412838.67 0.0502 0.0014  
 Mars -38697-10-01 23:16 J -12412381.77 -12412381.53 -12412381.28 0.0488 0.0154  
 Venus -38696-11-11 01:40 J -12411976.63 -12411976.43 -12411976.22 0.0484 0.0023  
 Mercury -38692-09-01 20:09 J -12410585.69 -12410585.66 -12410585.63 0.0524 0.0512  
 Mercury -38692-11-30 16:18 J -12410495.95 -12410495.82 -12410495.67 0.0528 0.0200

Venus -38690-09-17 23:02 J -12409839.74 -12409839.54 -12409839.34 0.0545 0.0104  
 Mercury -38686-04-20 18:42 J -12408528.86 -12408528.72 -12408528.58 0.0503 0.0156  
 Mercury -38686-07-19 07:54 J -12408439.24 -12408439.17 -12408439.10 0.0499 0.0431  
 Venus -38684-07-17 05:59 J -12407710.44 -12407710.25 -12407710.05 0.0484 0.0168  
 Mercury -38680-09-18 17:30 J -12406185.92 -12406185.77 -12406185.61 0.0527 0.0034  
 Venus -38678-05-23 10:33 J -12405574.20 -12405574.06 -12405573.91 0.0544 0.0373  
 Mercury -38674-02-06 21:21 J -12404218.73 -12404218.61 -12404218.49 0.0504 0.0299  
 Mercury -38674-05-07 10:04 J -12404129.20 -12404129.08 -12404128.95 0.0500 0.0285  
 Venus -38672-03-22 11:59 J -12403444.14 -12403444.00 -12403443.86 0.0484 0.0352  
 Venus -38672-11-13 07:11 J -12403208.35 -12403208.20 -12403208.05 0.0484 0.0323  
 Mercury -38668-07-07 17:45 J -12401875.90 -12401875.76 -12401875.61 0.0525 0.0148  
 Venus -38666-09-21 02:52 J -12401070.54 -12401070.38 -12401070.21 0.0544 0.0315  
 Mercury -38663-11-25 23:30 J -12399908.58 -12399908.52 -12399908.45 0.0505 0.0447  
 Mercury -38662-02-23 11:59 J -12399819.14 -12399819.00 -12399818.85 0.0502 0.0136  
 Mars -38661-07-05 06:14 J -12399321.46 -12399321.24 -12399321.01 0.0487 0.0217  
 Venus -38660-07-19 11:30 J -12398942.21 -12398942.02 -12398941.82 0.0484 0.0135  
 Mercury -38656-04-25 18:14 J -12397565.86 -12397565.74 -12397565.62 0.0524 0.0327  
 Mercury -38656-07-24 13:54 J -12397476.02 -12397475.92 -12397475.81 0.0528 0.0376  
 Venus -38654-05-26 14:23 J -12396805.10 -12396804.90 -12396804.70 0.0544 0.0046  
 Mercury -38651-12-12 14:38 J -12395509.04 -12395508.89 -12395508.74 0.0502 0.0010  
 Venus -38648-03-24 15:50 J -12394676.04 -12394675.84 -12394675.63 0.0484 0.0056  
 Mercury -38644-02-11 18:14 J -12393255.77 -12393255.74 -12393255.71 0.0523 0.0509  
 Mercury -38644-05-12 14:38 J -12393166.03 -12393165.89 -12393165.75 0.0527 0.0201  
 Mars -38643-05-26 20:38 J -12392786.93 -12392786.64 -12392786.34 0.0541 0.0062  
 Venus -38642-01-29 02:38 J -12392539.57 -12392539.39 -12392539.21 0.0545 0.0224  
 Mercury -38639-09-30 17:30 J -12391198.91 -12391198.77 -12391198.63 0.0503 0.0146  
 Mercury -38639-12-29 06:42 J -12391109.29 -12391109.22 -12391109.15 0.0500 0.0442  
 Venus -38637-11-27 21:06 J -12390409.80 -12390409.62 -12390409.44 0.0484 0.0242  
 Venus -38636-07-21 16:33 J -12390173.90 -12390173.81 -12390173.72 0.0484 0.0433  
 Moon -38633-09-20 16:04 J -12389017.06 -12389016.83 -12389016.60 0.0520 0.0187

Earth -38633-09-20 17:59 J -12389016.97 -12389016.75 -12389016.52 0.0520 0.0154 \*  
 Mercury -38632-02-28 15:35 J -12388856.00 -12388855.85 -12388855.69 0.0527 0.0037  
 Venus -38631-10-03 15:21 J -12388273.95 -12388273.86 -12388273.77 0.0544 0.0487  
 Venus -38630-05-29 23:30 J -12388035.61 -12388035.52 -12388035.42 0.0544 0.0477  
 Moon -38627-03-19 18:14 J -12387010.96 -12387010.74 -12387010.51 0.0509 0.0142  
 Earth -38627-03-19 21:35 J -12387010.83 -12387010.60 -12387010.38 0.0509 0.0134 \*  
 Mercury -38627-07-19 19:54 J -12386888.78 -12386888.67 -12386888.55 0.0504 0.0289  
 Mercury -38627-10-17 08:52 J -12386799.25 -12386799.13 -12386799.01 0.0500 0.0295  
 Venus -38625-08-03 01:40 J -12386143.52 -12386143.43 -12386143.33 0.0484 0.0427  
 Venus -38624-03-26 20:23 J -12385907.83 -12385907.65 -12385907.47 0.0484 0.0245  
 Earth -38621-09-25 18:14 J -12384628.87 -12384628.74 -12384628.59 0.0522 0.0420  
 Moon -38621-09-25 18:28 J -12384628.86 -12384628.73 -12384628.59 0.0522 0.0418 \*  
 Mercury -38621-12-17 16:47 J -12384545.95 -12384545.80 -12384545.65 0.0526 0.0135  
 Venus -38618-02-01 12:14 J -12383770.17 -12383769.99 -12383769.80 0.0544 0.0213  
 Earth -38615-03-24 10:47 J -12382623.20 -12382623.05 -12382622.89 0.0506 0.0372  
 Moon -38615-03-24 12:42 J -12382623.11 -12382622.97 -12382622.84 0.0506 0.0404 \*  
 Mercury -38615-05-07 22:33 J -12382578.63 -12382578.56 -12382578.48 0.0505 0.0432  
 Mercury -38615-08-05 11:02 J -12382489.18 -12382489.04 -12382488.89 0.0501 0.0150  
 Venus -38613-11-30 01:26 J -12381641.65 -12381641.44 -12381641.24 0.0484 0.0059  
 Mercury -38609-10-05 17:02 J -12380235.91 -12380235.79 -12380235.67 0.0524 0.0313  
 Mercury -38608-01-03 12:42 J -12380146.07 -12380145.97 -12380145.87 0.0528 0.0390  
 Venus -38607-10-06 21:06 J -12379504.82 -12379504.62 -12379504.42 0.0544 0.0067  
 Mercury -38603-05-24 12:57 J -12378179.11 -12378178.96 -12378178.81 0.0503 0.0011  
 Venus -38601-08-05 06:14 J -12377375.44 -12377375.24 -12377375.04 0.0484 0.0130  
 Mercury -38597-07-24 17:16 J -12375925.83 -12375925.78 -12375925.73 0.0523 0.0493  
 Mercury -38597-10-22 13:26 J -12375836.08 -12375835.94 -12375835.80 0.0527 0.0214  
 Venus -38595-06-11 07:26 J -12375239.35 -12375239.19 -12375239.03 0.0544 0.0338  
 Mercury -38591-03-12 15:35 J -12373868.99 -12373868.85 -12373868.71 0.0503 0.0145  
 Mercury -38591-06-10 04:47 J -12373779.37 -12373779.30 -12373779.23 0.0500 0.0444  
 Venus -38589-04-10 10:47 J -12373109.20 -12373109.05 -12373108.89 0.0484 0.0317

Venus -38589-12-02 05:45 J -12372873.39 -12372873.26 -12372873.11 0.0484 0.0357  
 Mercury -38585-08-10 13:40 J -12371526.08 -12371525.93 -12371525.77 0.0526 0.0035  
 Venus -38583-10-10 03:21 J -12370735.50 -12370735.36 -12370735.20 0.0545 0.0359  
 Mercury -38580-12-29 18:28 J -12369558.85 -12369558.73 -12369558.61 0.0504 0.0283  
 Mercury -38579-03-29 07:26 J -12369469.31 -12369469.19 -12369469.07 0.0501 0.0302  
 Mars -38578-03-25 17:30 J -12369107.91 -12369107.77 -12369107.62 0.0489 0.0399  
 Venus -38577-08-07 10:18 J -12368607.26 -12368607.07 -12368606.88 0.0484 0.0169  
 Mercury -38573-05-29 14:38 J -12367216.04 -12367215.89 -12367215.74 0.0525 0.0136  
 Venus -38571-06-14 17:02 J -12366469.99 -12366469.79 -12366469.59 0.0545 0.0097  
 Mercury -38568-10-17 21:06 J -12365248.69 -12365248.62 -12365248.54 0.0505 0.0424  
 Mercury -38567-01-15 09:35 J -12365159.24 -12365159.10 -12365158.96 0.0501 0.0156  
 Venus -38565-04-12 14:38 J -12364341.10 -12364340.89 -12364340.69 0.0484 0.0021  
 Mercury -38561-03-17 15:35 J -12362905.97 -12362905.85 -12362905.72 0.0525 0.0305  
 Mercury -38561-06-15 11:30 J -12362816.12 -12362816.02 -12362815.92 0.0528 0.0399  
 Venus -38559-02-17 05:02 J -12362204.48 -12362204.29 -12362204.10 0.0544 0.0171  
 Mercury -38556-11-03 11:59 J -12360849.15 -12360849.00 -12360848.85 0.0502 0.0011  
 Venus -38554-12-17 19:54 J -12360074.86 -12360074.67 -12360074.49 0.0484 0.0205  
 Venus -38553-08-09 15:35 J -12359838.89 -12359838.85 -12359838.79 0.0484 0.0470  
 Earth -38550-09-20 23:59 J -12358701.71 -12358701.50 -12358701.29 0.0518 0.0224  
 Moon -38550-09-21 00:28 J -12358701.68 -12358701.48 -12358701.28 0.0518 0.0257 \*  
 Mercury -38549-01-04 15:50 J -12358595.89 -12358595.84 -12358595.78 0.0523 0.0482  
 Mercury -38549-04-03 12:14 J -12358506.13 -12358505.99 -12358505.85 0.0527 0.0226  
 Venus -38548-10-22 13:40 J -12357939.04 -12357938.93 -12357938.82 0.0543 0.0448  
 Venus -38547-06-17 20:52 J -12357700.70 -12357700.63 -12357700.56 0.0544 0.0509  
 Earth -38544-03-18 23:02 J -12356695.75 -12356695.54 -12356695.33 0.0510 0.0228  
 Moon -38544-03-19 00:57 J -12356695.66 -12356695.46 -12356695.26 0.0510 0.0228 \*  
 Mercury -38544-08-22 13:54 J -12356539.06 -12356538.92 -12356538.78 0.0503 0.0143  
 Mercury -38544-11-20 02:52 J -12356449.44 -12356449.38 -12356449.31 0.0500 0.0447  
 Mars -38543-12-26 22:04 J -12356047.83 -12356047.58 -12356047.32 0.0488 0.0033  
 Venus -38542-08-23 00:42 J -12355808.58 -12355808.47 -12355808.35 0.0485 0.0392

Venus -38541-04-14 19:54 J -12355572.84 -12355572.67 -12355572.50 0.0484 0.0281  
 Earth -38538-09-25 20:52 J -12354313.81 -12354313.63 -12354313.45 0.0521 0.0329  
 Moon -38538-09-25 22:18 J -12354313.75 -12354313.57 -12354313.38 0.0521 0.0330 \*  
 Mercury -38537-01-21 12:42 J -12354196.12 -12354195.97 -12354195.82 0.0526 0.0048  
 Venus -38535-02-20 08:09 J -12353435.33 -12353435.16 -12353434.98 0.0544 0.0243  
 Moon -38532-03-23 12:42 J -12352308.16 -12352307.97 -12352307.78 0.0508 0.0315  
 Earth -38532-03-23 13:11 J -12352308.14 -12352307.95 -12352307.75 0.0508 0.0285 \*  
 Mercury -38532-06-10 16:33 J -12352228.93 -12352228.81 -12352228.69 0.0504 0.0285  
 Mercury -38532-09-08 05:16 J -12352139.40 -12352139.28 -12352139.16 0.0501 0.0301  
 Venus -38530-12-19 23:30 J -12351306.72 -12351306.52 -12351306.32 0.0484 0.0091  
 Mercury -38526-11-09 12:42 J -12349886.12 -12349885.97 -12349885.82 0.0525 0.0137  
 Venus -38524-10-25 20:09 J -12349169.86 -12349169.66 -12349169.46 0.0545 0.0025  
 Mercury -38520-03-29 19:26 J -12347918.77 -12347918.69 -12347918.61 0.0505 0.0422  
 Mercury -38520-06-27 07:54 J -12347829.31 -12347829.17 -12347829.03 0.0502 0.0161  
 Venus -38518-08-25 04:18 J -12347040.52 -12347040.32 -12347040.11 0.0484 0.0096  
 Mercury -38514-08-28 13:26 J -12345576.07 -12345575.94 -12345575.82 0.0524 0.0309  
 Mercury -38514-11-26 09:21 J -12345486.21 -12345486.11 -12345486.01 0.0528 0.0395  
 Venus -38512-06-30 08:38 J -12344904.31 -12344904.14 -12344903.97 0.0544 0.0289  
 Mercury -38508-04-15 10:18 J -12343519.21 -12343519.07 -12343518.92 0.0502 0.0019  
 Mars -38507-09-29 05:02 J -12342987.47 -12342987.29 -12342987.10 0.0487 0.0335  
 Venus -38506-04-30 09:06 J -12342774.29 -12342774.12 -12342773.96 0.0484 0.0283  
 Venus -38506-12-22 04:04 J -12342538.45 -12342538.33 -12342538.21 0.0484 0.0389  
 Mercury -38502-06-16 14:09 J -12341265.97 -12341265.91 -12341265.85 0.0523 0.0480  
 Mercury -38502-09-14 10:33 J -12341176.20 -12341176.06 -12341175.92 0.0527 0.0230  
 Venus -38500-10-29 05:02 J -12340400.42 -12340400.29 -12340400.15 0.0544 0.0406  
 Mercury -38496-02-01 12:57 J -12339209.11 -12339208.96 -12339208.82 0.0503 0.0130  
 Mercury -38496-05-02 01:54 J -12339119.48 -12339119.42 -12339119.36 0.0500 0.0458  
 Venus -38494-01-03 14:23 J -12338507.95 -12338507.90 -12338507.84 0.0485 0.0466  
 Venus -38494-08-27 08:38 J -12338272.32 -12338272.14 -12338271.95 0.0484 0.0203  
 Mercury -38490-07-03 11:16 J -12336866.18 -12336866.03 -12336865.88 0.0526 0.0058

Mars -38489-08-20 05:30 J -12336452.55 -12336452.27 -12336451.98 0.0540 0.0139  
 Venus -38488-07-03 14:38 J -12336135.08 -12336134.89 -12336134.70 0.0544 0.0132  
 Mercury -38485-11-20 14:38 J -12334899.01 -12334898.89 -12334898.77 0.0504 0.0284  
 Mercury -38484-02-18 03:35 J -12334809.47 -12334809.35 -12334809.24 0.0501 0.0302  
 Venus -38482-05-02 12:57 J -12334006.16 -12334005.96 -12334005.75 0.0484 0.0017  
 Mercury -38478-04-21 11:30 J -12332556.17 -12332556.02 -12332555.87 0.0525 0.0122  
 Venus -38476-03-08 01:11 J -12331869.65 -12331869.45 -12331869.26 0.0544 0.0140  
 Mercury -38473-09-08 17:16 J -12330588.85 -12330588.78 -12330588.70 0.0505 0.0426  
 Mercury -38473-12-07 05:45 J -12330499.40 -12330499.26 -12330499.12 0.0502 0.0156  
 Venus -38470-01-05 17:16 J -12329739.97 -12329739.78 -12329739.59 0.0484 0.0174  
 Earth -38467-09-19 22:33 J -12328386.74 -12328386.56 -12328386.38 0.0518 0.0335  
 Moon -38467-09-19 23:16 J -12328386.69 -12328386.53 -12328386.35 0.0518 0.0365 \*  
 Mercury -38466-02-07 11:16 J -12328246.15 -12328246.03 -12328245.91 0.0524 0.0311  
 Mercury -38466-05-08 07:11 J -12328156.30 -12328156.20 -12328156.10 0.0528 0.0393  
 Venus -38465-11-10 11:16 J -12327604.16 -12327604.03 -12327603.89 0.0544 0.0409  
 Moon -38461-03-18 04:33 J -12326380.50 -12326380.31 -12326380.11 0.0511 0.0299  
 Earth -38461-03-18 05:02 J -12326380.47 -12326380.29 -12326380.10 0.0511 0.0303 \*  
 Mercury -38461-09-25 08:38 J -12326189.29 -12326189.14 -12326188.99 0.0503 0.0019  
 Venus -38459-09-10 22:47 J -12325473.69 -12325473.55 -12325473.42 0.0485 0.0358  
 Venus -38458-05-04 17:16 J -12325237.94 -12325237.78 -12325237.62 0.0484 0.0311  
 Moon -38455-09-24 17:59 J -12323998.95 -12323998.75 -12323998.54 0.0520 0.0231  
 Earth -38455-09-24 20:52 J -12323998.84 -12323998.63 -12323998.42 0.0520 0.0224 \*  
 Mercury -38455-11-26 11:45 J -12323936.06 -12323936.01 -12323935.95 0.0523 0.0486  
 Mercury -38454-02-24 08:09 J -12323846.30 -12323846.16 -12323846.02 0.0527 0.0223  
 Venus -38452-03-11 08:52 J -12323100.30 -12323100.13 -12323099.96 0.0545 0.0289  
 Moon -38449-03-22 18:42 J -12321992.91 -12321992.72 -12321992.52 0.0508 0.0245  
 Earth -38449-03-22 19:54 J -12321992.88 -12321992.67 -12321992.46 0.0508 0.0214 \*  
 Mercury -38449-07-14 11:02 J -12321879.18 -12321879.04 -12321878.90 0.0503 0.0127  
 Mercury -38449-10-12 00:14 J -12321789.55 -12321789.49 -12321789.44 0.0500 0.0461  
 Venus -38446-01-07 21:06 J -12320971.82 -12320971.62 -12320971.42 0.0484 0.0123

Mercury -38443-12-13 09:21 J -12319536.27 -12319536.11 -12319535.96 0.0526 0.0058

Venus -38441-11-13 21:35 J -12318834.81 -12318834.60 -12318834.40 0.0544 0.0026

Mercury -38437-05-02 13:40 J -12317569.06 -12317568.93 -12317568.81 0.0504 0.0271

Mercury -38437-07-31 02:23 J -12317479.52 -12317479.40 -12317479.29 0.0501 0.0313

Venus -38435-09-13 02:09 J -12316705.62 -12316705.41 -12316705.21 0.0484 0.0064

Mercury -38431-10-01 10:04 J -12315226.23 -12315226.08 -12315225.93 0.0525 0.0115

Venus -38429-07-19 06:57 J -12314569.39 -12314569.21 -12314569.03 0.0543 0.0251

Mercury -38425-02-19 15:21 J -12313258.93 -12313258.86 -12313258.78 0.0505 0.0426

Mercury -38425-05-19 03:50 J -12313169.48 -12313169.34 -12313169.20 0.0502 0.0156

Mars -38424-06-18 07:40 J -12312774.37 -12312774.18 -12312773.97 0.0490 0.0296

Venus -38423-05-19 06:28 J -12312439.40 -12312439.23 -12312439.05 0.0485 0.0251

Venus -38422-01-10 02:09 J -12312203.51 -12312203.41 -12312203.31 0.0484 0.0421

Mercury -38419-07-20 10:04 J -12310916.20 -12310916.08 -12310915.95 0.0524 0.0297

Mercury -38419-10-18 05:59 J -12310826.34 -12310826.25 -12310826.15 0.0527 0.0406

Venus -38417-03-23 16:33 J -12310303.86 -12310303.81 -12310303.75 0.0543 0.0519

Venus -38417-11-17 00:28 J -12310065.60 -12310065.48 -12310065.36 0.0544 0.0433

Mercury -38413-03-07 06:14 J -12308859.39 -12308859.24 -12308859.09 0.0503 0.0012

Venus -38411-01-22 11:02 J -12308173.12 -12308173.04 -12308172.94 0.0485 0.0435

Venus -38411-09-15 05:30 J -12307937.45 -12307937.27 -12307937.09 0.0484 0.0232

Mercury -38407-05-08 09:35 J -12306606.15 -12306606.10 -12306606.05 0.0523 0.0488

Mercury -38407-08-06 05:59 J -12306516.39 -12306516.25 -12306516.11 0.0527 0.0220

Venus -38405-07-22 11:45 J -12305800.20 -12305800.01 -12305799.82 0.0545 0.0168

Mercury -38402-12-25 09:06 J -12304549.26 -12304549.12 -12304548.98 0.0504 0.0129

Mercury -38401-03-23 22:18 J -12304459.63 -12304459.57 -12304459.52 0.0500 0.0460

Venus -38399-05-21 10:18 J -12303671.28 -12303671.07 -12303670.87 0.0484 0.0046

Mercury -38395-05-25 06:42 J -12302206.37 -12302206.22 -12302206.06 0.0526 0.0049

Venus -38393-03-27 00:14 J -12301534.69 -12301534.49 -12301534.29 0.0545 0.0097

Mercury -38390-10-13 11:45 J -12300239.13 -12300239.01 -12300238.89 0.0504 0.0270

Mercury -38389-01-11 00:28 J -12300149.60 -12300149.48 -12300149.36 0.0501 0.0314

Mars -38388-03-21 16:04 J -12299714.08 -12299713.83 -12299713.57 0.0488 0.0075

Venus -38387-01-24 14:23 J -12299405.09 -12299404.90 -12299404.70 0.0484 0.0142  
 Moon -38384-09-18 23:45 J -12298071.62 -12298071.51 -12298071.40 0.0517 0.0451  
 Earth -38384-09-19 01:54 J -12298071.55 -12298071.42 -12298071.28 0.0517 0.0421 \*  
 Mercury -38383-03-13 07:40 J -12297896.33 -12297896.18 -12297896.03 0.0525 0.0121  
 Venus -38382-11-30 12:14 J -12297269.14 -12297268.99 -12297268.84 0.0544 0.0362  
 Moon -38378-03-18 07:54 J -12296065.31 -12296065.17 -12296065.02 0.0511 0.0383  
 Earth -38378-03-18 08:38 J -12296065.28 -12296065.14 -12296064.98 0.0511 0.0389 \*  
 Mercury -38378-08-01 14:23 J -12295928.98 -12295928.90 -12295928.82 0.0505 0.0413  
 Mercury -38378-10-30 02:38 J -12295839.52 -12295839.39 -12295839.24 0.0502 0.0168  
 Venus -38376-09-29 19:54 J -12295138.82 -12295138.67 -12295138.52 0.0485 0.0326  
 Venus -38375-05-23 14:23 J -12294903.04 -12294902.90 -12294902.75 0.0484 0.0343  
 Earth -38372-09-24 01:11 J -12293683.67 -12293683.45 -12293683.22 0.0520 0.0143  
 Moon -38372-09-24 05:02 J -12293683.51 -12293683.29 -12293683.06 0.0520 0.0163 \*  
 Mercury -38372-12-30 08:23 J -12293586.27 -12293586.15 -12293586.02 0.0524 0.0293  
 Mercury -38371-03-30 04:18 J -12293496.41 -12293496.32 -12293496.22 0.0528 0.0411  
 Mars -38370-02-04 09:35 J -12293185.28 -12293185.10 -12293184.89 0.0538 0.0405  
 Venus -38369-03-30 06:28 J -12292765.38 -12292765.23 -12292765.06 0.0544 0.0324  
 Earth -38366-03-22 18:42 J -12291677.95 -12291677.72 -12291677.49 0.0509 0.0106  
 Moon -38366-03-22 21:21 J -12291677.84 -12291677.61 -12291677.38 0.0509 0.0136 \*  
 Mercury -38366-08-18 04:18 J -12291529.47 -12291529.32 -12291529.17 0.0503 0.0012  
 Venus -38363-01-26 18:14 J -12290636.93 -12290636.74 -12290636.54 0.0484 0.0153  
 Mercury -38360-10-18 08:23 J -12289276.21 -12289276.15 -12289276.08 0.0523 0.0474  
 Mercury -38359-01-16 04:47 J -12289186.43 -12289186.30 -12289186.16 0.0526 0.0235  
 Venus -38358-12-03 17:16 J -12288499.98 -12288499.78 -12288499.58 0.0544 0.0055  
 Mercury -38354-06-06 06:42 J -12287219.36 -12287219.22 -12287219.08 0.0504 0.0136  
 Mercury -38354-09-03 19:54 J -12287129.73 -12287129.67 -12287129.61 0.0500 0.0453  
 Mars -38353-12-22 18:57 J -12286653.82 -12286653.71 -12286653.59 0.0487 0.0433  
 Venus -38352-10-01 22:18 J -12286370.77 -12286370.57 -12286370.36 0.0484 0.0035  
 Mercury -38348-11-04 04:33 J -12284876.46 -12284876.31 -12284876.15 0.0526 0.0045  
 Venus -38346-08-08 02:52 J -12284234.56 -12284234.38 -12284234.19 0.0544 0.0216



Mercury -38342-03-25 09:35 J -12282909.22 -12282909.10 -12282908.97 0.0505 0.0274

Mercury -38342-06-22 22:18 J -12282819.68 -12282819.57 -12282819.45 0.0501 0.0313

Venus -38340-06-07 03:35 J -12282104.53 -12282104.35 -12282104.16 0.0484 0.0218

Venus -38339-01-28 22:47 J -12281868.62 -12281868.55 -12281868.47 0.0484 0.0449

Mercury -38336-08-23 05:16 J -12280566.43 -12280566.28 -12280566.13 0.0525 0.0131

Mars -38335-11-13 15:21 J -12280119.11 -12280118.86 -12280118.60 0.0541 0.0281

Venus -38334-04-12 14:23 J -12279968.99 -12279968.90 -12279968.80 0.0544 0.0480

Venus -38334-12-06 23:16 J -12279730.63 -12279730.53 -12279730.44 0.0544 0.0473

Mercury -38330-01-11 12:28 J -12278599.06 -12278598.98 -12278598.90 0.0505 0.0414

Mercury -38330-04-11 00:42 J -12278509.60 -12278509.47 -12278509.32 0.0502 0.0168

Venus -38328-02-10 08:23 J -12277838.26 -12277838.15 -12277838.04 0.0485 0.0402

Venus -38328-10-04 02:23 J -12277602.57 -12277602.40 -12277602.22 0.0484 0.0262

Mercury -38324-06-11 05:59 J -12276256.38 -12276256.25 -12276256.12 0.0524 0.0301

Mercury -38324-09-09 01:54 J -12276166.51 -12276166.42 -12276166.32 0.0528 0.0404

Venus -38322-08-11 12:14 J -12275465.17 -12275464.99 -12275464.80 0.0545 0.0213

Mercury -38318-01-28 03:06 J -12274199.51 -12274199.37 -12274199.22 0.0503 0.0027

Venus -38316-06-09 07:11 J -12273336.41 -12273336.20 -12273336.00 0.0484 0.0076

Mercury -38312-03-30 06:42 J -12271946.29 -12271946.22 -12271946.16 0.0523 0.0472

Mercury -38312-06-28 03:06 J -12271856.50 -12271856.37 -12271856.23 0.0527 0.0237

Venus -38310-04-15 23:02 J -12271199.74 -12271199.54 -12271199.34 0.0544 0.0056

Mercury -38307-11-16 05:02 J -12269889.43 -12269889.29 -12269889.15 0.0504 0.0135

Mercury -38306-02-13 17:59 J -12269799.81 -12269799.75 -12269799.69 0.0500 0.0453

Venus -38304-02-12 11:02 J -12269070.24 -12269070.04 -12269069.84 0.0484 0.0112

Earth -38301-09-18 04:33 J -12267756.34 -12267756.31 -12267756.29 0.0516 0.0512

Mercury -38300-04-16 03:35 J -12267546.50 -12267546.35 -12267546.20 0.0526 0.0060

Venus -38299-12-19 08:52 J -12266934.29 -12266934.13 -12266933.97 0.0543 0.0326

Earth -38295-03-17 06:42 J -12265750.26 -12265750.22 -12265750.19 0.0512 0.0504

Moon -38295-03-17 08:52 J -12265750.19 -12265750.13 -12265750.05 0.0512 0.0489 \*

Mercury -38295-09-04 07:26 J -12265579.31 -12265579.19 -12265579.07 0.0505 0.0280

Mercury -38295-12-02 20:09 J -12265489.78 -12265489.66 -12265489.54 0.0501 0.0305

Venus -38293-10-18 15:50 J -12264804.00 -12264803.84 -12264803.67 0.0485 0.0296  
 Venus -38292-06-11 10:47 J -12264568.18 -12264568.05 -12264567.92 0.0484 0.0370  
 Moon -38289-09-22 16:47 J -12263369.03 -12263368.80 -12263368.56 0.0519 0.0036  
 Earth -38289-09-22 20:52 J -12263368.87 -12263368.63 -12263368.40 0.0519 0.0018 \*  
 Mercury -38288-02-02 03:06 J -12263236.52 -12263236.37 -12263236.22 0.0524 0.0133  
 Venus -38286-04-19 02:23 J -12262430.55 -12262430.40 -12262430.25 0.0544 0.0356  
 Moon -38283-03-21 19:26 J -12261362.92 -12261362.69 -12261362.46 0.0510 0.0050  
 Earth -38283-03-21 23:02 J -12261362.77 -12261362.54 -12261362.31 0.0510 0.0024 \*  
 Mercury -38283-06-23 10:18 J -12261269.15 -12261269.07 -12261268.99 0.0506 0.0417  
 Mercury -38283-09-20 22:47 J -12261179.69 -12261179.55 -12261179.41 0.0502 0.0165  
 Venus -38281-06-23 21:35 J -12260537.63 -12260537.60 -12260537.56 0.0485 0.0477  
 Venus -38280-02-14 15:21 J -12260302.05 -12260301.86 -12260301.67 0.0484 0.0185  
 Mercury -38277-11-21 03:21 J -12258926.48 -12258926.36 -12258926.23 0.0524 0.0310  
 Mercury -38276-02-18 23:30 J -12258836.62 -12258836.52 -12258836.42 0.0528 0.0394  
 Venus -38275-12-22 14:52 J -12258165.08 -12258164.88 -12258164.68 0.0545 0.0094  
 Mercury -38271-07-10 01:26 J -12256869.59 -12256869.44 -12256869.30 0.0503 0.0025  
 Mars -38270-09-12 00:28 J -12256440.72 -12256440.48 -12256440.25 0.0489 0.0191  
 Venus -38269-10-20 19:26 J -12256035.89 -12256035.69 -12256035.48 0.0484 0.0007  
 Mercury -38265-09-09 04:04 J -12254616.39 -12254616.33 -12254616.27 0.0523 0.0482  
 Mercury -38265-12-08 00:42 J -12254526.61 -12254526.47 -12254526.34 0.0527 0.0228  
 Venus -38263-08-27 03:21 J -12253899.55 -12253899.36 -12253899.16 0.0544 0.0171  
 Mercury -38259-04-28 03:50 J -12252559.48 -12252559.34 -12252559.20 0.0503 0.0122  
 Mercury -38259-07-26 16:47 J -12252469.85 -12252469.80 -12252469.75 0.0500 0.0465  
 Venus -38257-06-26 00:28 J -12251769.67 -12251769.48 -12251769.29 0.0484 0.0187  
 Venus -38256-02-16 19:54 J -12251533.70 -12251533.67 -12251533.64 0.0484 0.0478  
 Mercury -38253-09-26 01:40 J -12250216.58 -12250216.43 -12250216.28 0.0526 0.0061  
 Venus -38251-05-01 14:09 J -12249634.02 -12249633.91 -12249633.79 0.0543 0.0436  
 Venus -38251-12-25 21:50 J -12249395.65 -12249395.59 -12249395.52 0.0544 0.0510  
 Mercury -38247-02-14 05:45 J -12248249.38 -12248249.26 -12248249.14 0.0505 0.0277  
 Mercury -38247-05-14 18:14 J -12248159.85 -12248159.74 -12248159.62 0.0501 0.0307

Venus -38245-03-01 04:47 J -12247503.43 -12247503.30 -12247503.17 0.0485 0.0372

Venus -38245-10-22 23:16 J -12247267.69 -12247267.53 -12247267.36 0.0484 0.0292

Mercury -38241-07-15 02:09 J -12245906.56 -12245906.41 -12245906.26 0.0525 0.0117

Venus -38239-08-30 09:06 J -12245130.30 -12245130.12 -12245129.94 0.0544 0.0247

Mercury -38236-12-03 08:09 J -12243939.23 -12243939.16 -12243939.08 0.0506 0.0422

Mercury -38235-03-02 20:38 J -12243849.78 -12243849.64 -12243849.50 0.0502 0.0160

Mars -38234-06-15 02:52 J -12243380.62 -12243380.38 -12243380.14 0.0488 0.0166

Venus -38233-06-28 03:21 J -12243001.56 -12243001.36 -12243001.15 0.0484 0.0107

Mercury -38229-05-03 01:11 J -12241596.57 -12241596.45 -12241596.32 0.0523 0.0311

Mercury -38229-07-31 21:21 J -12241506.71 -12241506.61 -12241506.51 0.0527 0.0393

Venus -38227-05-04 18:14 J -12240864.94 -12240864.74 -12240864.54 0.0544 0.0025

Mercury -38224-12-19 23:16 J -12239539.68 -12239539.53 -12239539.38 0.0503 0.0021

Venus -38221-03-03 08:52 J -12238735.34 -12238735.13 -12238734.93 0.0484 0.0078

Mercury -38217-02-20 01:26 J -12237286.49 -12237286.44 -12237286.38 0.0523 0.0490

Mercury -38217-05-19 22:04 J -12237196.71 -12237196.58 -12237196.44 0.0526 0.0220

Mars -38216-04-29 11:45 J -12236852.26 -12236852.01 -12236851.75 0.0539 0.0278

Venus -38215-01-07 05:45 J -12236599.43 -12236599.26 -12236599.09 0.0544 0.0289

Mercury -38212-10-08 01:54 J -12235229.56 -12235229.42 -12235229.27 0.0504 0.0122

Mercury -38211-01-05 14:52 J -12235139.93 -12235139.88 -12235139.83 0.0500 0.0467

Venus -38210-11-07 13:26 J -12234469.11 -12234468.94 -12234468.77 0.0484 0.0263

Venus -38209-06-30 07:54 J -12234233.28 -12234233.17 -12234233.05 0.0484 0.0400

Earth -38206-09-22 22:47 J -12233053.78 -12233053.55 -12233053.32 0.0518 0.0076

Moon -38206-09-23 02:09 J -12233053.63 -12233053.41 -12233053.18 0.0518 0.0053 \*

Mercury -38205-03-07 23:02 J -12232886.69 -12232886.54 -12232886.38 0.0526 0.0053

Venus -38203-05-08 03:06 J -12232095.50 -12232095.37 -12232095.23 0.0545 0.0400

Earth -38200-03-21 03:50 J -12231047.57 -12231047.34 -12231047.11 0.0510 0.0055

Moon -38200-03-21 07:40 J -12231047.41 -12231047.18 -12231046.95 0.0510 0.0028 \*

Mercury -38200-07-27 04:33 J -12230919.43 -12230919.31 -12230919.18 0.0504 0.0265

Mercury -38200-10-24 17:16 J -12230829.89 -12230829.78 -12230829.67 0.0501 0.0320

Venus -38198-07-13 18:42 J -12230202.80 -12230202.72 -12230202.64 0.0485 0.0444

Venus -38197-03-05 12:28 J -12229967.16 -12229966.98 -12229966.79 0.0484 0.0215  
 Moon -38194-09-27 21:06 J -12228665.62 -12228665.62 -12228665.60 0.0521 0.0520  
 Earth -38194-09-27 23:16 J -12228665.60 -12228665.53 -12228665.46 0.0521 0.0496 \*  
 Mercury -38194-12-26 00:14 J -12228576.64 -12228576.49 -12228576.34 0.0525 0.0116  
 Venus -38191-01-10 15:06 J -12227830.07 -12227829.87 -12227829.68 0.0544 0.0137  
 Moon -38188-03-25 10:33 J -12226660.17 -12226660.06 -12226659.92 0.0508 0.0427  
 Earth -38188-03-25 14:09 J -12226660.01 -12226659.91 -12226659.79 0.0508 0.0441 \*  
 Mercury -38188-05-15 06:42 J -12226609.30 -12226609.22 -12226609.14 0.0505 0.0417  
 Mercury -38188-08-12 18:57 J -12226519.85 -12226519.71 -12226519.57 0.0502 0.0164  
 Venus -38186-11-09 16:18 J -12225701.02 -12225700.82 -12225700.61 0.0484 0.0030  
 Mercury -38182-10-14 00:28 J -12224266.61 -12224266.48 -12224266.35 0.0524 0.0293  
 Mercury -38181-01-11 20:38 J -12224176.73 -12224176.64 -12224176.55 0.0527 0.0410  
 Mars -38180-02-06 13:40 J -12223785.08 -12223784.93 -12223784.76 0.0540 0.0451  
 Venus -38180-09-15 01:26 J -12223564.63 -12223564.44 -12223564.24 0.0544 0.0131  
 Mercury -38176-05-31 21:21 J -12222209.76 -12222209.61 -12222209.47 0.0503 0.0019  
 Venus -38174-07-15 21:06 J -12221434.81 -12221434.62 -12221434.42 0.0484 0.0155  
 Mercury -38170-08-01 23:45 J -12219956.57 -12219956.51 -12219956.46 0.0522 0.0488  
 Mercury -38170-10-30 20:09 J -12219866.79 -12219866.66 -12219866.52 0.0526 0.0221  
 Venus -38168-05-20 09:21 J -12219299.25 -12219299.11 -12219298.98 0.0543 0.0404  
 Venus -38167-01-13 17:30 J -12219060.79 -12219060.77 -12219060.75 0.0544 0.0540  
 Mercury -38164-03-19 23:59 J -12217899.64 -12217899.50 -12217899.35 0.0504 0.0123  
 Mercury -38164-06-17 12:57 J -12217810.01 -12217809.96 -12217809.90 0.0501 0.0467  
 Venus -38162-03-21 03:06 J -12217168.51 -12217168.37 -12217168.22 0.0485 0.0336  
 Venus -38162-11-11 21:21 J -12216932.76 -12216932.61 -12216932.45 0.0484 0.0325  
 Mercury -38158-08-18 20:52 J -12215556.78 -12215556.63 -12215556.48 0.0525 0.0046  
 Venus -38156-09-18 06:14 J -12214795.41 -12214795.24 -12214795.07 0.0545 0.0283  
 Mercury -38152-01-06 02:52 J -12213589.50 -12213589.38 -12213589.25 0.0505 0.0262  
 Mercury -38152-04-05 15:21 J -12213499.97 -12213499.86 -12213499.74 0.0501 0.0324  
 Mars -38151-03-04 11:16 J -12213167.11 -12213167.03 -12213166.93 0.0490 0.0455  
 Venus -38150-07-18 01:26 J -12212666.64 -12212666.44 -12212666.25 0.0484 0.0139

Mercury -38146-06-06 21:35 J -12211246.75 -12211246.60 -12211246.45 0.0525 0.0124

Venus -38144-05-23 19:26 J -12210529.89 -12210529.69 -12210529.49 0.0545 0.0025

Mercury -38141-10-25 05:45 J -12209279.35 -12209279.26 -12209279.18 0.0506 0.0403

Mercury -38140-01-22 17:59 J -12209189.89 -12209189.75 -12209189.61 0.0502 0.0178

Venus -38138-03-23 06:28 J -12208400.44 -12208400.23 -12208400.03 0.0484 0.0046

Mercury -38134-03-25 22:33 J -12206936.69 -12206936.56 -12206936.43 0.0524 0.0292

Mercury -38134-06-23 18:42 J -12206846.81 -12206846.72 -12206846.62 0.0528 0.0413

Venus -38132-01-26 06:57 J -12206264.39 -12206264.21 -12206264.03 0.0544 0.0240

Mercury -38129-11-10 19:54 J -12204879.82 -12204879.67 -12204879.53 0.0503 0.0027

Venus -38127-11-26 10:33 J -12204134.24 -12204134.06 -12204133.88 0.0485 0.0230

Venus -38126-07-20 05:45 J -12203898.35 -12203898.26 -12203898.17 0.0484 0.0431

Moon -38123-09-22 01:11 J -12202738.68 -12202738.45 -12202738.21 0.0518 0.0135

Earth -38123-09-22 03:35 J -12202738.57 -12202738.35 -12202738.12 0.0518 0.0157 \*

Mercury -38122-01-11 22:47 J -12202626.61 -12202626.55 -12202626.48 0.0523 0.0469

Mercury -38122-04-11 19:40 J -12202536.82 -12202536.68 -12202536.55 0.0526 0.0241

Venus -38121-09-30 17:02 J -12201998.86 -12201998.79 -12201998.71 0.0543 0.0505

Venus -38120-05-27 01:40 J -12201760.54 -12201760.43 -12201760.31 0.0544 0.0438

Moon -38117-03-20 01:11 J -12200732.68 -12200732.45 -12200732.22 0.0511 0.0130

Earth -38117-03-20 04:47 J -12200732.52 -12200732.30 -12200732.08 0.0511 0.0155 \*

Mercury -38117-08-29 22:18 J -12200569.71 -12200569.57 -12200569.43 0.0504 0.0122

Mercury -38117-11-27 11:02 J -12200480.09 -12200480.04 -12200479.98 0.0500 0.0467

Mars -38116-12-05 15:35 J -12200107.10 -12200106.85 -12200106.60 0.0489 0.0094

Venus -38115-08-01 16:04 J -12199867.94 -12199867.83 -12199867.73 0.0485 0.0411

Venus -38114-03-25 10:04 J -12199632.26 -12199632.08 -12199631.90 0.0484 0.0249

Earth -38111-09-26 20:52 J -12198350.79 -12198350.63 -12198350.48 0.0520 0.0383

Moon -38111-09-26 20:52 J -12198350.76 -12198350.63 -12198350.48 0.0520 0.0404 \*

Mercury -38110-01-28 19:11 J -12198226.86 -12198226.70 -12198226.55 0.0525 0.0052

Venus -38108-01-29 10:33 J -12197495.25 -12197495.06 -12197494.87 0.0544 0.0170

Earth -38105-03-24 19:40 J -12196344.84 -12196344.68 -12196344.52 0.0509 0.0367

Moon -38105-03-24 21:50 J -12196344.75 -12196344.59 -12196344.42 0.0509 0.0353 \*

Mercury -38105-06-18 00:57 J -12196259.58 -12196259.46 -12196259.33 0.0505 0.0262  
 Mercury -38105-09-15 13:40 J -12196170.04 -12196169.93 -12196169.82 0.0502 0.0325  
 Venus -38103-11-28 15:21 J -12195366.07 -12195365.86 -12195365.66 0.0484 0.0065  
 Mercury -38099-11-16 19:26 J -12193916.84 -12193916.69 -12193916.53 0.0524 0.0127  
 Venus -38097-10-03 22:18 J -12193229.77 -12193229.57 -12193229.37 0.0544 0.0095  
 Mercury -38093-04-06 04:04 J -12191949.42 -12191949.33 -12191949.24 0.0506 0.0399  
 Mercury -38093-07-04 16:18 J -12191859.96 -12191859.82 -12191859.68 0.0502 0.0183  
 Venus -38091-08-03 19:54 J -12191099.87 -12191099.67 -12191099.47 0.0484 0.0120  
 Mercury -38087-09-04 20:09 J -12189606.79 -12189606.66 -12189606.53 0.0524 0.0299  
 Mercury -38087-12-03 16:18 J -12189516.91 -12189516.82 -12189516.72 0.0527 0.0406  
 Venus -38085-06-08 10:33 J -12188964.21 -12188964.06 -12188963.91 0.0544 0.0355  
 Mercury -38081-04-22 18:57 J -12187549.86 -12187549.71 -12187549.56 0.0503 0.0040  
 Mars -38080-09-08 01:40 J -12187046.64 -12187046.43 -12187046.22 0.0488 0.0283  
 Venus -38079-04-09 01:26 J -12186833.60 -12186833.44 -12186833.28 0.0485 0.0302  
 Venus -38079-11-30 19:40 J -12186597.82 -12186597.68 -12186597.54 0.0484 0.0357  
 Mercury -38075-06-23 21:06 J -12185296.69 -12185296.62 -12185296.56 0.0523 0.0467  
 Mercury -38075-09-21 17:45 J -12185206.90 -12185206.76 -12185206.62 0.0527 0.0243  
 Venus -38073-10-07 08:23 J -12184460.31 -12184460.15 -12184460.00 0.0544 0.0332  
 Mercury -38069-02-09 20:52 J -12183239.77 -12183239.63 -12183239.48 0.0504 0.0113  
 Mercury -38069-05-09 09:50 J -12183150.13 -12183150.09 -12183150.05 0.0500 0.0475  
 Venus -38068-12-13 05:45 J -12182567.27 -12182567.26 -12182567.24 0.0486 0.0483  
 Venus -38067-08-05 23:16 J -12182331.72 -12182331.53 -12182331.34 0.0484 0.0173  
 Mercury -38063-07-10 18:28 J -12180896.88 -12180896.73 -12180896.58 0.0525 0.0071  
 Mars -38062-07-24 21:50 J -12180517.88 -12180517.59 -12180517.29 0.0539 0.0084  
 Venus -38061-06-11 19:26 J -12180194.89 -12180194.69 -12180194.49 0.0544 0.0069  
 Mercury -38058-11-28 23:30 J -12178929.64 -12178929.52 -12178929.39 0.0505 0.0257  
 Mercury -38057-02-26 11:59 J -12178840.11 -12178840.00 -12178839.88 0.0501 0.0328  
 Venus -38055-04-11 04:33 J -12178065.51 -12178065.31 -12178065.10 0.0484 0.0010  
 Mercury -38051-04-28 17:59 J -12176586.90 -12176586.75 -12176586.60 0.0524 0.0118  
 Venus -38049-02-15 02:52 J -12175929.57 -12175929.38 -12175929.19 0.0544 0.0207

Mercury -38046-09-17 02:23 J -12174619.49 -12174619.40 -12174619.31 0.0506 0.0397

Mercury -38046-12-15 14:38 J -12174530.03 -12174529.89 -12174529.75 0.0503 0.0186

Venus -38044-12-15 10:18 J -12173799.26 -12173799.07 -12173798.88 0.0484 0.0191

Venus -38043-08-08 05:02 J -12173563.33 -12173563.29 -12173563.23 0.0484 0.0468

Earth -38040-09-21 02:52 J -12172423.58 -12172423.38 -12172423.18 0.0517 0.0259

Moon -38040-09-21 03:35 J -12172423.55 -12172423.35 -12172423.15 0.0517 0.0235 \*

Mercury -38039-02-14 18:14 J -12172276.86 -12172276.74 -12172276.61 0.0523 0.0296

Mercury -38039-05-15 14:23 J -12172186.99 -12172186.90 -12172186.80 0.0527 0.0408

Venus -38038-10-20 13:40 J -12171664.02 -12171663.93 -12171663.82 0.0543 0.0469

Venus -38037-06-14 23:02 J -12171425.63 -12171425.54 -12171425.44 0.0545 0.0474

Earth -38034-03-20 12:14 J -12170417.19 -12170416.99 -12170416.77 0.0512 0.0219

Moon -38034-03-20 14:38 J -12170417.09 -12170416.89 -12170416.68 0.0512 0.0197 \*

Mercury -38034-10-03 17:16 J -12170219.92 -12170219.78 -12170219.63 0.0503 0.0046

Venus -38032-08-20 15:21 J -12169532.98 -12169532.86 -12169532.72 0.0485 0.0374

Venus -38031-04-13 09:06 J -12169297.28 -12169297.12 -12169296.95 0.0484 0.0283

Earth -38028-09-26 00:28 J -12168035.67 -12168035.48 -12168035.29 0.0519 0.0298

Moon -38028-09-26 02:23 J -12168035.59 -12168035.40 -12168035.20 0.0519 0.0309 \*

Mercury -38028-12-03 18:42 J -12167966.78 -12167966.72 -12167966.65 0.0522 0.0471

Mercury -38027-03-03 15:21 J -12167876.99 -12167876.86 -12167876.72 0.0526 0.0240

Venus -38025-02-18 12:28 J -12167160.16 -12167159.98 -12167159.79 0.0545 0.0218

Moon -38022-03-25 04:04 J -12166029.53 -12166029.33 -12166029.13 0.0509 0.0284

Earth -38022-03-25 04:18 J -12166029.50 -12166029.32 -12166029.13 0.0509 0.0306 \*

Mercury -38022-07-22 20:09 J -12165909.81 -12165909.66 -12165909.52 0.0504 0.0096

Mercury -38022-10-20 08:52 J -12165820.15 -12165820.13 -12165820.10 0.0500 0.0493

Venus -38020-12-17 14:09 J -12165031.11 -12165030.91 -12165030.71 0.0484 0.0100

Mercury -38016-12-20 16:47 J -12163566.95 -12163566.80 -12163566.65 0.0526 0.0075

Venus -38014-10-24 01:26 J -12162894.64 -12162894.44 -12162894.24 0.0544 0.0041

Mercury -38010-05-10 22:18 J -12161599.69 -12161599.57 -12161599.44 0.0505 0.0245

Mercury -38010-08-08 10:47 J -12161510.15 -12161510.05 -12161509.94 0.0501 0.0340

Venus -38008-08-22 18:28 J -12160764.94 -12160764.73 -12160764.53 0.0484 0.0085

Mercury -38004-10-08 17:30 J -12159256.92 -12159256.77 -12159256.62 0.0524 0.0097

Venus -38002-06-28 11:59 J -12158629.17 -12158629.00 -12158628.83 0.0543 0.0305

# 38TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 38th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-37998-02-27 00:57 J	-12157289.55	-12157289.46	-12157289.37	0.0506	0.0388		
Mercury	-37998-05-27 13:11 J	-12157200.08	-12157199.95	-12157199.81	0.0502	0.0193		
Mars	-37997-05-28 08:52 J	-12156833.31	-12156833.13	-12156832.94	0.0490	0.0341		
Venus	-37996-04-27 23:59 J	-12156498.66	-12156498.50	-12156498.32	0.0485	0.0265		
Venus	-37996-12-19 18:28 J	-12156262.84	-12156262.73	-12156262.60	0.0484	0.0394		
Mercury	-37992-07-27 17:02 J	-12154946.92	-12154946.79	-12154946.66	0.0523	0.0285		
Mercury	-37992-10-25 13:11 J	-12154857.04	-12154856.95	-12154856.86	0.0527	0.0417		
Venus	-37990-10-27 04:47 J	-12154125.45	-12154125.30	-12154125.15	0.0544	0.0365		
Mercury	-37986-03-15 15:50 J	-12152889.99	-12152889.84	-12152889.70	0.0504	0.0052		
Venus	-37984-01-01 06:14 J	-12152232.31	-12152232.24	-12152232.15	0.0485	0.0444		
Venus	-37984-08-24 23:45 J	-12151996.69	-12151996.51	-12151996.32	0.0484	0.0212		
Mercury	-37980-05-15 17:16 J	-12150636.85	-12150636.78	-12150636.71	0.0522	0.0463		
Mercury	-37980-08-13 13:54 J	-12150547.06	-12150546.92	-12150546.79	0.0526	0.0245		
Venus	-37978-07-01 16:33 J	-12149860.01	-12149859.81	-12149859.61	0.0545	0.0104		
Mercury	-37974-01-01 18:28 J	-12148579.87	-12148579.73	-12148579.58	0.0504	0.0091		
Mercury	-37974-04-01 07:26 J	-12148490.19	-12148490.19	-12148490.18	0.0501	0.0500		



Venus -37972-04-30 04:33 J -12147730.52 -12147730.31 -12147730.11 0.0484 0.0029  
 Mercury -37968-06-01 14:38 J -12146237.04 -12146236.89 -12146236.74 0.0525 0.0074  
 Venus -37966-03-06 05:02 J -12145594.48 -12145594.29 -12145594.09 0.0544 0.0157  
 Mercury -37963-10-20 21:21 J -12144269.73 -12144269.61 -12144269.48 0.0505 0.0229  
 Mercury -37962-01-18 10:04 J -12144180.19 -12144180.08 -12144179.98 0.0501 0.0357  
 Mars -37961-02-29 21:21 J -12143772.87 -12143772.61 -12143772.36 0.0489 0.0040  
 Venus -37960-01-03 09:50 J -12143464.28 -12143464.09 -12143463.89 0.0484 0.0155  
 Earth -37957-09-20 10:04 J -12142108.26 -12142108.08 -12142107.89 0.0516 0.0327  
 Moon -37957-09-20 11:30 J -12142108.21 -12142108.02 -12142107.81 0.0516 0.0297 \*  
 Mercury -37956-03-20 15:35 J -12141927.00 -12141926.85 -12141926.69 0.0524 0.0094  
 Venus -37955-11-08 17:30 J -12141328.90 -12141328.77 -12141328.64 0.0543 0.0413  
 Venus -37954-07-05 02:38 J -12141090.44 -12141090.39 -12141090.34 0.0544 0.0525  
 Moon -37951-03-19 18:57 J -12140101.91 -12140101.71 -12140101.51 0.0512 0.0275  
 Earth -37951-03-19 19:26 J -12140101.88 -12140101.69 -12140101.50 0.0512 0.0288 \*  
 Mercury -37951-08-08 23:59 J -12139959.60 -12139959.50 -12139959.41 0.0506 0.0375  
 Mercury -37951-11-06 11:59 J -12139870.13 -12139870.00 -12139869.86 0.0502 0.0207  
 Venus -37949-09-08 14:23 J -12139198.04 -12139197.90 -12139197.74 0.0485 0.0337  
 Venus -37948-05-02 08:38 J -12138962.30 -12138962.14 -12138961.99 0.0484 0.0319  
 Moon -37945-09-25 05:30 J -12137720.47 -12137720.27 -12137720.06 0.0519 0.0241  
 Earth -37945-09-25 08:52 J -12137720.33 -12137720.13 -12137719.92 0.0519 0.0235 \*  
 Mercury -37944-01-06 16:18 J -12137616.95 -12137616.82 -12137616.68 0.0523 0.0264  
 Mercury -37944-04-06 12:42 J -12137527.05 -12137526.97 -12137526.89 0.0527 0.0440  
 Venus -37942-03-09 14:23 J -12136825.07 -12136824.90 -12136824.72 0.0544 0.0267  
 Moon -37939-03-24 07:54 J -12135714.37 -12135714.17 -12135713.96 0.0510 0.0203  
 Earth -37939-03-24 09:50 J -12135714.30 -12135714.09 -12135713.88 0.0510 0.0229 \*  
 Mercury -37939-08-25 14:38 J -12135560.04 -12135559.89 -12135559.75 0.0503 0.0061  
 Venus -37936-01-05 13:40 J -12134696.13 -12134695.93 -12134695.73 0.0484 0.0138  
 Mercury -37933-10-25 15:50 J -12133306.91 -12133306.84 -12133306.76 0.0522 0.0450  
 Mercury -37932-01-23 12:42 J -12133217.11 -12133216.97 -12133216.84 0.0526 0.0257  
 Venus -37931-11-11 22:33 J -12132559.77 -12132559.56 -12132559.36 0.0544 0.0012

Mercury -37927-06-13 17:02 J -12131249.93 -12131249.79 -12131249.64 0.0505 0.0084  
 Mars -37926-12-03 04:47 J -12130712.43 -12130712.30 -12130712.15 0.0488 0.0409  
 Venus -37925-09-10 19:26 J -12130429.89 -12130429.69 -12130429.48 0.0484 0.0044  
 Mercury -37921-11-11 13:11 J -12128907.10 -12128906.95 -12128906.80 0.0525 0.0083  
 Venus -37919-07-17 09:06 J -12128294.29 -12128294.12 -12128293.94 0.0544 0.0270  
 Mercury -37915-04-01 19:54 J -12126939.80 -12126939.67 -12126939.54 0.0505 0.0223  
 Mercury -37915-06-30 08:23 J -12126850.24 -12126850.15 -12126850.04 0.0502 0.0365  
 Venus -37913-05-17 00:28 J -12126163.65 -12126163.48 -12126163.29 0.0484 0.0227  
 Venus -37912-01-07 18:42 J -12125927.81 -12125927.72 -12125927.62 0.0484 0.0429  
 Mercury -37909-08-30 13:40 J -12124597.08 -12124596.93 -12124596.77 0.0524 0.0092  
 Mars -37908-10-17 21:06 J -12124183.91 -12124183.62 -12124183.32 0.0540 0.0095  
 Venus -37907-03-21 20:52 J -12124028.66 -12124028.63 -12124028.57 0.0543 0.0527  
 Venus -37907-11-15 07:26 J -12123790.32 -12123790.19 -12123790.06 0.0545 0.0414  
 Mercury -37903-01-18 23:02 J -12122629.64 -12122629.54 -12122629.44 0.0506 0.0360  
 Mercury -37903-04-18 11:16 J -12122540.16 -12122540.03 -12122539.90 0.0502 0.0223  
 Venus -37901-01-21 06:14 J -12121897.34 -12121897.24 -12121897.12 0.0485 0.0406  
 Venus -37901-09-12 23:30 J -12121661.69 -12121661.52 -12121661.34 0.0484 0.0247  
 Mercury -37897-06-18 14:38 J -12120287.02 -12120286.89 -12120286.75 0.0523 0.0259  
 Mercury -37897-09-16 11:02 J -12120197.12 -12120197.04 -12120196.96 0.0527 0.0445  
 Venus -37895-07-20 20:38 J -12119524.83 -12119524.64 -12119524.45 0.0545 0.0159  
 Mercury -37892-11-07 01:40 J -12118319.44 -12118319.43 -12118319.42 0.0507 0.0503  
 Mercury -37891-02-04 13:26 J -12118230.08 -12118229.94 -12118229.79 0.0503 0.0076  
 Venus -37889-05-19 04:04 J -12117395.54 -12117395.33 -12117395.13 0.0484 0.0065  
 Mercury -37885-04-06 15:21 J -12115976.95 -12115976.86 -12115976.77 0.0522 0.0429  
 Mercury -37885-07-05 12:14 J -12115887.12 -12115886.99 -12115886.86 0.0526 0.0280  
 Venus -37883-03-25 08:09 J -12115259.36 -12115259.16 -12115258.96 0.0544 0.0103  
 Mercury -37880-11-23 16:04 J -12113919.97 -12113919.83 -12113919.68 0.0504 0.0070  
 Venus -37877-01-23 09:35 J -12113129.29 -12113129.10 -12113128.90 0.0484 0.0116  
 Moon -37874-09-20 12:42 J -12111793.13 -12111792.97 -12111792.81 0.0515 0.0367  
 Earth -37874-09-20 15:35 J -12111792.99 -12111792.85 -12111792.70 0.0515 0.0397 \*

Mercury -37873-04-23 12:14 J -12111577.15 -12111576.99 -12111576.84 0.0525 0.0098

Venus -37872-11-27 15:21 J -12110994.00 -12110993.86 -12110993.71 0.0543 0.0376

Moon -37868-03-18 22:47 J -12109786.70 -12109786.55 -12109786.39 0.0513 0.0364

Earth -37868-03-19 00:28 J -12109786.64 -12109786.48 -12109786.31 0.0513 0.0365 \*

Mercury -37868-09-11 18:28 J -12109609.86 -12109609.73 -12109609.60 0.0506 0.0216

Mercury -37868-12-10 06:57 J -12109520.30 -12109520.21 -12109520.10 0.0502 0.0372

Venus -37866-09-28 15:50 J -12108863.00 -12108862.84 -12108862.68 0.0485 0.0296

Venus -37865-05-21 09:50 J -12108627.22 -12108627.09 -12108626.95 0.0484 0.0359

Earth -37862-09-25 11:45 J -12107405.23 -12107405.01 -12107404.78 0.0517 0.0150

Moon -37862-09-25 15:50 J -12107405.06 -12107404.84 -12107404.61 0.0517 0.0155 \*

Mercury -37861-02-10 12:28 J -12107267.13 -12107266.98 -12107266.82 0.0524 0.0079

Venus -37859-03-28 11:59 J -12106490.17 -12106490.00 -12106489.83 0.0545 0.0302

Earth -37856-03-23 17:16 J -12105399.00 -12105398.78 -12105398.56 0.0511 0.0166

Moon -37856-03-23 20:38 J -12105398.87 -12105398.64 -12105398.41 0.0511 0.0135 \*

Mercury -37856-06-30 21:21 J -12105299.71 -12105299.61 -12105299.50 0.0506 0.0355

Mercury -37856-09-28 09:50 J -12105210.22 -12105210.09 -12105209.96 0.0503 0.0230

Venus -37854-06-03 21:06 J -12104596.65 -12104596.62 -12104596.57 0.0486 0.0476

Venus -37853-01-25 14:09 J -12104361.10 -12104360.91 -12104360.72 0.0484 0.0175

Mercury -37850-11-29 12:42 J -12102957.10 -12102956.97 -12102956.83 0.0523 0.0256

Mercury -37849-02-27 09:06 J -12102867.20 -12102867.12 -12102867.04 0.0527 0.0447

Venus -37848-12-01 00:42 J -12102224.67 -12102224.47 -12102224.27 0.0545 0.0044

Mercury -37844-04-19 00:28 J -12100989.51 -12100989.48 -12100989.44 0.0507 0.0491

Mercury -37844-07-17 12:28 J -12100900.12 -12100899.98 -12100899.83 0.0503 0.0090

Mars -37843-08-22 17:59 J -12100498.98 -12100498.75 -12100498.51 0.0490 0.0198

Venus -37842-09-30 19:26 J -12100094.89 -12100094.69 -12100094.48 0.0484 0.0010

Mercury -37838-09-17 13:40 J -12098647.02 -12098646.93 -12098646.84 0.0522 0.0424

Mercury -37838-12-16 10:18 J -12098557.19 -12098557.07 -12098556.94 0.0526 0.0284

Venus -37836-08-05 13:26 J -12097959.12 -12097958.94 -12097958.75 0.0544 0.0213

Mercury -37832-05-05 14:52 J -12096590.02 -12096589.88 -12096589.73 0.0504 0.0059

Venus -37830-06-06 00:14 J -12095828.68 -12095828.49 -12095828.30 0.0484 0.0188

Venus -37829-01-27 18:28 J -12095592.77 -12095592.73 -12095592.67 0.0484 0.0465  
 Mercury -37826-10-04 11:30 J -12094247.17 -12094247.02 -12094246.87 0.0525 0.0118  
 Venus -37824-04-10 00:28 J -12093693.57 -12093693.48 -12093693.37 0.0543 0.0472  
 Venus -37824-12-04 10:18 J -12093455.17 -12093455.07 -12093454.97 0.0544 0.0463  
 Mercury -37820-02-21 17:30 J -12092279.90 -12092279.77 -12092279.63 0.0505 0.0201  
 Mercury -37820-05-22 06:14 J -12092190.34 -12092190.24 -12092190.15 0.0502 0.0386  
 Venus -37818-02-09 06:14 J -12091562.37 -12091562.24 -12091562.11 0.0485 0.0366  
 Venus -37818-10-02 23:59 J -12091326.67 -12091326.50 -12091326.34 0.0484 0.0286  
 Mercury -37814-07-23 11:30 J -12089937.17 -12089937.02 -12089936.86 0.0524 0.0063  
 Venus -37812-08-08 18:28 J -12089189.91 -12089189.73 -12089189.54 0.0544 0.0195  
 Mercury -37809-12-10 19:54 J -12087969.77 -12087969.67 -12087969.56 0.0507 0.0348  
 Mercury -37808-03-10 08:23 J -12087880.28 -12087880.15 -12087880.02 0.0503 0.0237  
 Mars -37807-05-26 01:54 J -12087438.66 -12087438.42 -12087438.19 0.0489 0.0173  
 Venus -37806-06-08 05:16 J -12087060.48 -12087060.28 -12087060.08 0.0484 0.0104  
 Mercury -37802-05-11 11:45 J -12085627.15 -12085627.01 -12085626.87 0.0522 0.0240  
 Mercury -37802-08-09 07:54 J -12085537.24 -12085537.17 -12085537.09 0.0526 0.0460  
 Venus -37800-04-13 05:30 J -12084924.47 -12084924.27 -12084924.07 0.0544 0.0068  
 Mercury -37797-09-28 23:02 J -12083659.58 -12083659.54 -12083659.50 0.0508 0.0486  
 Mercury -37797-12-27 11:02 J -12083570.19 -12083570.04 -12083569.90 0.0504 0.0095  
 Venus -37794-02-11 10:04 J -12082794.28 -12082794.08 -12082793.88 0.0484 0.0078  
 Earth -37791-09-19 20:09 J -12081477.74 -12081477.66 -12081477.57 0.0515 0.0478  
 Moon -37791-09-20 00:14 J -12081477.61 -12081477.49 -12081477.37 0.0515 0.0442 \*  
 Mercury -37790-02-27 11:45 J -12081317.10 -12081317.01 -12081316.91 0.0522 0.0421  
 Mercury -37790-05-28 08:38 J -12081227.27 -12081227.14 -12081227.01 0.0526 0.0287  
 Mars -37789-04-03 13:26 J -12080916.12 -12080915.94 -12080915.74 0.0538 0.0412  
 Venus -37789-12-16 17:02 J -12080658.94 -12080658.79 -12080658.62 0.0544 0.0328  
 Earth -37785-03-18 10:33 J -12079471.19 -12079471.06 -12079470.93 0.0514 0.0421  
 Moon -37785-03-18 13:54 J -12079471.05 -12079470.92 -12079470.79 0.0514 0.0426 \*  
 Mercury -37785-10-15 13:54 J -12079260.07 -12079259.92 -12079259.78 0.0505 0.0044  
 Venus -37783-10-17 15:50 J -12078528.01 -12078527.84 -12078527.66 0.0485 0.0258

Venus -37782-06-10 09:35 J -12078292.22 -12078292.10 -12078291.98 0.0484 0.0393  
 Moon -37779-09-24 14:38 J -12077090.12 -12077089.89 -12077089.65 0.0517 0.0079  
 Earth -37779-09-24 18:42 J -12077089.95 -12077089.72 -12077089.49 0.0517 0.0079 \*  
 Mercury -37778-03-16 09:50 J -12076917.24 -12076917.09 -12076916.94 0.0525 0.0122  
 Venus -37776-04-16 16:04 J -12076154.98 -12076154.83 -12076154.68 0.0545 0.0356  
 Moon -37773-03-22 22:18 J -12075083.80 -12075083.57 -12075083.34 0.0511 0.0072  
 Earth -37773-03-23 02:09 J -12075083.63 -12075083.41 -12075083.18 0.0511 0.0107 \*  
 Mercury -37773-08-03 16:33 J -12074949.95 -12074949.81 -12074949.68 0.0505 0.0189  
 Mercury -37773-11-01 05:02 J -12074860.38 -12074860.29 -12074860.20 0.0502 0.0398  
 Venus -37771-06-22 20:52 J -12074261.72 -12074261.63 -12074261.55 0.0486 0.0438  
 Venus -37770-02-13 13:54 J -12074026.11 -12074025.92 -12074025.74 0.0484 0.0212  
 Mercury -37766-01-02 10:33 J -12072607.21 -12072607.06 -12072606.90 0.0524 0.0049  
 Venus -37765-12-20 04:04 J -12071889.53 -12071889.33 -12071889.13 0.0544 0.0097  
 Mercury -37761-05-22 19:11 J -12070639.81 -12070639.70 -12070639.59 0.0506 0.0331  
 Mercury -37761-08-20 07:26 J -12070550.32 -12070550.19 -12070550.06 0.0503 0.0252  
 Venus -37759-10-19 19:26 J -12069759.89 -12069759.69 -12069759.48 0.0484 0.0033  
 Mercury -37755-10-21 10:47 J -12068297.19 -12068297.05 -12068296.91 0.0522 0.0224  
 Mercury -37754-01-19 06:57 J -12068207.27 -12068207.21 -12068207.15 0.0526 0.0475  
 Mars -37753-01-12 11:30 J -12067849.27 -12067849.02 -12067848.77 0.0539 0.0304  
 Venus -37753-08-24 11:59 J -12067624.19 -12067624.00 -12067623.80 0.0543 0.0175  
 Mercury -37749-03-10 21:21 J -12066329.65 -12066329.61 -12066329.56 0.0508 0.0481  
 Mercury -37749-06-08 09:21 J -12066240.25 -12066240.11 -12066239.96 0.0504 0.0102  
 Venus -37747-06-25 00:57 J -12065493.65 -12065493.46 -12065493.26 0.0485 0.0150  
 Mercury -37743-08-09 10:47 J -12063987.14 -12063987.05 -12063986.95 0.0521 0.0403  
 Mercury -37743-11-07 07:26 J -12063897.31 -12063897.19 -12063897.06 0.0525 0.0302  
 Venus -37741-04-28 22:18 J -12063358.69 -12063358.57 -12063358.45 0.0543 0.0436  
 Venus -37741-12-23 07:26 J -12063120.27 -12063120.19 -12063120.11 0.0544 0.0495  
 Mercury -37737-03-27 12:14 J -12061930.14 -12061929.99 -12061929.85 0.0505 0.0042  
 Venus -37735-02-28 06:14 J -12061227.39 -12061227.24 -12061227.09 0.0485 0.0330  
 Venus -37735-10-21 23:45 J -12060991.66 -12060991.51 -12060991.35 0.0484 0.0321

Mercury -37731-08-26 07:54 J -12059587.32 -12059587.17 -12059587.02 0.0525 0.0124

Venus -37729-08-27 19:54 J -12058854.84 -12058854.67 -12058854.48 0.0545 0.0242

Mercury -37725-01-14 15:06 J -12057620.00 -12057619.87 -12057619.73 0.0506 0.0179

Mercury -37725-04-13 03:35 J -12057530.43 -12057530.35 -12057530.26 0.0502 0.0409

Mars -37724-02-12 13:26 J -12057225.05 -12057224.94 -12057224.83 0.0492 0.0441

Venus -37723-06-27 04:47 J -12056725.49 -12056725.30 -12056725.10 0.0484 0.0140

Mercury -37719-06-14 08:52 J -12055277.29 -12055277.13 -12055276.98 0.0524 0.0045

Venus -37717-05-02 09:06 J -12054589.32 -12054589.12 -12054588.92 0.0544 0.0015

Mercury -37714-11-02 17:59 J -12053309.86 -12053309.75 -12053309.64 0.0506 0.0322

Mercury -37713-01-31 05:59 J -12053220.37 -12053220.25 -12053220.12 0.0503 0.0263

Venus -37711-03-02 09:35 J -12052459.31 -12052459.10 -12052458.90 0.0484 0.0042

Moon -37708-09-19 01:11 J -12051162.49 -12051162.45 -12051162.41 0.0514 0.0506

Mercury -37707-04-02 09:35 J -12050967.24 -12050967.10 -12050966.95 0.0523 0.0212

Mercury -37707-07-01 05:45 J -12050877.31 -12050877.26 -12050877.20 0.0527 0.0490

Venus -37705-01-05 20:38 J -12050323.82 -12050323.64 -12050323.47 0.0543 0.0274

Moon -37702-03-18 13:11 J -12049155.99 -12049155.95 -12049155.91 0.0514 0.0504

Earth -37702-03-18 16:47 J -12049155.85 -12049155.80 -12049155.73 0.0514 0.0495

Mercury -37702-08-21 20:38 J -12048999.69 -12048999.64 -12048999.58 0.0507 0.0464

Mercury -37702-11-19 08:38 J -12048910.28 -12048910.14 -12048910.00 0.0504 0.0117

Venus -37700-11-05 15:21 J -12048193.04 -12048192.86 -12048192.68 0.0485 0.0221

Venus -37699-06-29 09:35 J -12047957.19 -12047957.10 -12047957.01 0.0484 0.0429

Earth -37696-09-24 01:54 J -12046774.66 -12046774.42 -12046774.19 0.0516 0.0015

Moon -37696-09-24 04:47 J -12046774.53 -12046774.30 -12046774.07 0.0516 0.0008 \*

Mercury -37695-01-19 09:50 J -12046657.19 -12046657.09 -12046656.99 0.0521 0.0389

Mercury -37695-04-19 06:28 J -12046567.35 -12046567.23 -12046567.11 0.0525 0.0316

Venus -37694-09-10 04:33 J -12046058.32 -12046058.31 -12046058.29 0.0542 0.0539

Venus -37693-05-05 14:09 J -12045820.04 -12045819.91 -12045819.77 0.0544 0.0390

Earth -37690-03-23 04:47 J -12044768.53 -12044768.30 -12044768.07 0.0512 0.0019

Moon -37690-03-23 08:38 J -12044768.37 -12044768.14 -12044767.91 0.0512 0.0013 \*

Mercury -37690-09-07 10:33 J -12044600.20 -12044600.06 -12044599.91 0.0505 0.0037

Mars -37689-11-15 19:40 J -12044164.93 -12044164.68 -12044164.42 0.0491 0.0072  
 Venus -37688-07-11 20:38 J -12043926.75 -12043926.64 -12043926.53 0.0486 0.0401  
 Venus -37687-03-04 14:23 J -12043691.08 -12043690.90 -12043690.72 0.0484 0.0249  
 Mercury -37683-02-05 06:57 J -12042257.36 -12042257.21 -12042257.06 0.0524 0.0140  
 Venus -37681-01-09 01:11 J -12041554.65 -12041554.45 -12041554.26 0.0544 0.0130  
 Mercury -37678-06-26 13:26 J -12040290.08 -12040289.94 -12040289.81 0.0506 0.0179  
 Mercury -37678-09-24 01:54 J -12040200.50 -12040200.42 -12040200.34 0.0502 0.0410  
 Venus -37676-11-07 18:57 J -12039424.92 -12039424.71 -12039424.51 0.0484 0.0067  
 Mercury -37672-11-24 06:57 J -12037947.36 -12037947.21 -12037947.05 0.0523 0.0041  
 Venus -37670-09-13 12:28 J -12037289.18 -12037288.98 -12037288.79 0.0544 0.0130  
 Mercury -37666-04-14 16:18 J -12035979.93 -12035979.82 -12035979.70 0.0507 0.0316  
 Mercury -37666-07-13 04:33 J -12035890.43 -12035890.31 -12035890.18 0.0503 0.0270  
 Venus -37664-07-14 00:14 J -12035158.69 -12035158.49 -12035158.29 0.0484 0.0113  
 Mercury -37660-09-12 07:40 J -12033637.32 -12033637.18 -12033637.04 0.0523 0.0212  
 Mercury -37660-12-11 04:04 J -12033547.39 -12033547.33 -12033547.28 0.0527 0.0489  
 Venus -37658-05-19 00:28 J -12033023.62 -12033023.48 -12033023.33 0.0543 0.0385  
 Venus -37657-01-12 10:04 J -12032785.08 -12032785.08 -12032785.07 0.0545 0.0544  
 Mercury -37654-01-31 19:11 J -12031669.76 -12031669.70 -12031669.64 0.0507 0.0456  
 Mercury -37654-05-01 07:11 J -12031580.34 -12031580.20 -12031580.06 0.0504 0.0124  
 Mars -37653-08-19 04:18 J -12031104.52 -12031104.32 -12031104.12 0.0489 0.0297  
 Venus -37652-03-19 05:16 J -12030892.44 -12030892.28 -12030892.12 0.0485 0.0294  
 Venus -37652-11-09 22:47 J -12030656.69 -12030656.55 -12030656.41 0.0484 0.0354  
 Mercury -37648-07-01 08:23 J -12029327.26 -12029327.15 -12029327.04 0.0522 0.0381  
 Mercury -37648-09-29 05:02 J -12029237.41 -12029237.29 -12029237.17 0.0526 0.0326  
 Venus -37646-09-16 22:47 J -12028519.72 -12028519.55 -12028519.38 0.0544 0.0291  
 Mercury -37642-02-17 09:35 J -12027270.24 -12027270.10 -12027269.95 0.0505 0.0027  
 Venus -37641-11-22 10:47 J -12026626.09 -12026626.05 -12026625.99 0.0486 0.0471  
 Venus -37640-07-16 04:04 J -12026390.53 -12026390.33 -12026390.14 0.0484 0.0175  
 Mercury -37636-07-18 05:45 J -12024927.41 -12024927.26 -12024927.11 0.0524 0.0153  
 Mars -37635-06-29 04:47 J -12024581.57 -12024581.30 -12024581.02 0.0537 0.0201

Venus -37634-05-22 07:40 J -12024254.38 -12024254.18 -12024253.98 0.0544 0.0024  
 Mercury -37631-12-06 11:45 J -12022960.15 -12022960.01 -12022959.88 0.0506 0.0176  
 Mercury -37630-03-06 00:14 J -12022870.57 -12022870.49 -12022870.41 0.0502 0.0414  
 Venus -37628-03-21 08:52 J -12022124.33 -12022124.13 -12022123.92 0.0485 0.0009  
 Mercury -37624-05-06 05:59 J -12020617.40 -12020617.25 -12020617.09 0.0523 0.0025  
 Venus -37622-01-24 17:30 J -12019988.95 -12019988.77 -12019988.59 0.0543 0.0239  
 Mercury -37619-09-24 14:23 J -12018650.01 -12018649.90 -12018649.79 0.0507 0.0318  
 Mercury -37619-12-23 02:38 J -12018560.51 -12018560.39 -12018560.26 0.0503 0.0268  
 Venus -37617-11-24 13:40 J -12017858.11 -12017857.93 -12017857.74 0.0485 0.0188  
 Venus -37616-07-18 07:54 J -12017622.22 -12017622.17 -12017622.10 0.0484 0.0461  
 Moon -37613-09-23 01:26 J -12016459.67 -12016459.44 -12016459.20 0.0516 0.0101  
 Earth -37613-09-23 02:52 J -12016459.61 -12016459.38 -12016459.15 0.0516 0.0086 \*  
 Mercury -37612-02-22 05:45 J -12016307.40 -12016307.26 -12016307.12 0.0522 0.0210  
 Mercury -37612-05-23 01:54 J -12016217.47 -12016217.42 -12016217.36 0.0526 0.0489  
 Venus -37611-09-29 03:35 J -12015723.43 -12015723.35 -12015723.27 0.0542 0.0498  
 Venus -37610-05-25 13:40 J -12015485.05 -12015484.93 -12015484.80 0.0545 0.0430  
 Moon -37607-03-22 09:21 J -12014453.35 -12014453.11 -12014452.88 0.0513 0.0082  
 Earth -37607-03-22 12:14 J -12014453.22 -12014452.99 -12014452.76 0.0513 0.0052 \*  
 Mercury -37607-07-13 17:30 J -12014339.83 -12014339.77 -12014339.70 0.0508 0.0454  
 Mercury -37607-10-11 05:30 J -12014250.41 -12014250.27 -12014250.13 0.0504 0.0128  
 Venus -37605-07-30 19:11 J -12013591.82 -12013591.70 -12013591.56 0.0486 0.0366  
 Venus -37604-03-23 12:42 J -12013356.13 -12013355.97 -12013355.80 0.0484 0.0282  
 Moon -37601-09-27 23:30 J -12012071.63 -12012071.52 -12012071.40 0.0518 0.0445  
 Earth -37601-09-28 00:14 J -12012071.57 -12012071.49 -12012071.38 0.0518 0.0472 \*  
 Mercury -37601-12-11 06:14 J -12011997.35 -12011997.24 -12011997.14 0.0522 0.0384  
 Mercury -37600-03-11 02:52 J -12011907.50 -12011907.38 -12011907.25 0.0525 0.0323  
 Mars -37599-04-07 19:40 J -12011514.79 -12011514.68 -12011514.55 0.0540 0.0494  
 Venus -37598-01-28 02:38 J -12011219.58 -12011219.39 -12011219.20 0.0545 0.0178  
 Earth -37595-03-27 03:50 J -12010065.42 -12010065.34 -12010065.25 0.0510 0.0474  
 Moon -37595-03-27 04:47 J -12010065.36 -12010065.30 -12010065.23 0.0510 0.0486 \*



Mercury -37595-07-30 08:09 J -12009940.31 -12009940.16 -12009940.01 0.0505 0.0016  
 Venus -37593-11-26 17:16 J -12009089.99 -12009089.78 -12009089.58 0.0484 0.0100  
 Mercury -37589-12-28 04:04 J -12007597.48 -12007597.33 -12007597.18 0.0525 0.0157  
 Venus -37587-10-02 14:38 J -12006954.08 -12006953.89 -12006953.68 0.0544 0.0081  
 Mercury -37583-05-18 10:47 J -12005630.19 -12005630.05 -12005629.91 0.0506 0.0161  
 Mercury -37583-08-15 23:16 J -12005540.61 -12005540.53 -12005540.46 0.0502 0.0427  
 Venus -37581-08-01 22:33 J -12004823.76 -12004823.56 -12004823.36 0.0485 0.0080  
 Mercury -37577-10-16 04:33 J -12003287.46 -12003287.31 -12003287.15 0.0523 0.0019  
 Venus -37575-06-06 23:30 J -12002688.67 -12002688.52 -12002688.36 0.0542 0.0344  
 Mercury -37571-03-06 12:42 J -12001320.08 -12001319.97 -12001319.86 0.0507 0.0316  
 Mercury -37571-06-04 00:57 J -12001230.59 -12001230.46 -12001230.34 0.0503 0.0270  
 Mars -37570-05-09 07:40 J -12000891.36 -12000891.18 -12000890.99 0.0492 0.0330  
 Venus -37569-04-07 03:21 J -12000557.53 -12000557.36 -12000557.19 0.0486 0.0261  
 Venus -37569-11-28 21:35 J -12000321.72 -12000321.60 -12000321.47 0.0484 0.0387  
 Mercury -37565-08-04 04:47 J -11998977.45 -11998977.30 -11998977.16 0.0522 0.0194  
 Mercury -37565-11-02 00:57 J -11998887.50 -11998887.46 -11998887.42 0.0526 0.0504  
 Venus -37563-10-05 18:57 J -11998184.87 -11998184.71 -11998184.55 0.0544 0.0320  
 Mercury -37560-12-23 15:21 J -11997009.91 -11997009.86 -11997009.80 0.0508 0.0459  
 Mercury -37559-03-23 03:21 J -11996920.50 -11996920.36 -11996920.22 0.0504 0.0124  
 Venus -37558-12-12 08:23 J -11996291.23 -11996291.15 -11996291.06 0.0486 0.0439  
 Venus -37557-08-04 01:40 J -11996055.62 -11996055.43 -11996055.25 0.0484 0.0207  
 Mercury -37553-05-23 04:04 J -11994667.43 -11994667.33 -11994667.22 0.0521 0.0383  
 Mercury -37553-08-21 00:57 J -11994577.58 -11994577.46 -11994577.34 0.0525 0.0322  
 Venus -37551-06-10 05:45 J -11993919.46 -11993919.26 -11993919.06 0.0544 0.0062  
 Mercury -37547-01-09 06:14 J -11992610.38 -11992610.24 -11992610.09 0.0505 0.0019  
 Venus -37545-04-09 06:57 J -11991789.42 -11991789.21 -11991789.00 0.0484 0.0027  
 Mercury -37541-06-09 01:40 J -11990267.58 -11990267.43 -11990267.28 0.0524 0.0152  
 Venus -37539-02-12 17:30 J -11989653.95 -11989653.77 -11989653.58 0.0544 0.0195  
 Mercury -37536-10-28 09:06 J -11988300.26 -11988300.12 -11988299.99 0.0506 0.0158  
 Mercury -37535-01-25 21:21 J -11988210.68 -11988210.61 -11988210.53 0.0502 0.0430

Mars -37534-02-09 17:45 J -11987831.02 -11987830.76 -11987830.51 0.0490 0.0043  
 Venus -37534-12-14 11:30 J -11987523.21 -11987523.02 -11987522.82 0.0485 0.0155  
 Moon -37530-09-23 07:26 J -11986144.40 -11986144.19 -11986143.97 0.0515 0.0187  
 Earth -37530-09-23 07:54 J -11986144.39 -11986144.17 -11986143.94 0.0515 0.0164 \*  
 Mercury -37529-03-28 02:38 J -11985957.55 -11985957.39 -11985957.24 0.0524 0.0017  
 Venus -37528-10-18 05:16 J -11985388.39 -11985388.28 -11985388.16 0.0543 0.0449  
 Venus -37527-06-13 15:06 J -11985149.96 -11985149.87 -11985149.76 0.0544 0.0476  
 Earth -37524-03-21 16:47 J -11984138.02 -11984137.80 -11984137.58 0.0513 0.0134  
 Moon -37524-03-21 17:45 J -11984137.97 -11984137.76 -11984137.54 0.0513 0.0158 \*  
 Mercury -37524-08-16 11:45 J -11983990.13 -11983990.01 -11983989.90 0.0507 0.0302  
 Mercury -37524-11-13 23:45 J -11983900.63 -11983900.51 -11983900.38 0.0503 0.0283  
 Venus -37522-08-19 17:02 J -11983256.93 -11983256.79 -11983256.64 0.0486 0.0333  
 Venus -37521-04-11 10:47 J -11983021.21 -11983021.05 -11983020.90 0.0484 0.0313  
 Earth -37518-09-28 06:14 J -11981756.39 -11981756.24 -11981756.09 0.0517 0.0396  
 Moon -37518-09-28 08:23 J -11981756.31 -11981756.15 -11981755.98 0.0517 0.0371 \*  
 Mercury -37517-01-15 03:06 J -11981647.51 -11981647.37 -11981647.22 0.0522 0.0188  
 Mercury -37517-04-13 23:30 J -11981557.55 -11981557.52 -11981557.49 0.0526 0.0511  
 Venus -37515-02-16 00:57 J -11980884.64 -11980884.46 -11980884.27 0.0544 0.0214  
 Earth -37512-03-26 03:21 J -11979750.52 -11979750.36 -11979750.20 0.0511 0.0368  
 Moon -37512-03-26 03:50 J -11979750.49 -11979750.34 -11979750.17 0.0511 0.0384 \*  
 Mercury -37512-06-04 13:40 J -11979679.99 -11979679.93 -11979679.87 0.0508 0.0457  
 Mercury -37512-09-02 01:26 J -11979590.58 -11979590.44 -11979590.29 0.0504 0.0126  
 Venus -37510-12-16 14:52 J -11978755.08 -11978754.88 -11978754.68 0.0485 0.0131  
 Mercury -37506-11-03 03:06 J -11977337.48 -11977337.37 -11977337.26 0.0521 0.0368  
 Mercury -37505-01-31 23:59 J -11977247.62 -11977247.50 -11977247.38 0.0525 0.0336  
 Venus -37504-10-21 11:02 J -11976619.24 -11976619.04 -11976618.83 0.0543 0.0049  
 Mercury -37500-06-21 04:04 J -11975280.48 -11975280.33 -11975280.18 0.0505 0.0022  
 Mars -37499-11-12 21:06 J -11974770.76 -11974770.62 -11974770.47 0.0489 0.0400  
 Venus -37498-08-21 19:26 J -11974488.89 -11974488.69 -11974488.49 0.0485 0.0049  
 Mercury -37494-11-19 23:30 J -11972937.66 -11972937.52 -11972937.37 0.0524 0.0151

Venus -37492-06-25 20:09 J -11972353.82 -11972353.66 -11972353.49 0.0543 0.0309  
 Mercury -37488-04-09 06:57 J -11970970.34 -11970970.21 -11970970.07 0.0506 0.0161  
 Mercury -37488-07-07 19:26 J -11970880.76 -11970880.69 -11970880.61 0.0503 0.0429  
 Venus -37486-04-27 01:11 J -11970222.63 -11970222.45 -11970222.27 0.0485 0.0227  
 Venus -37486-12-18 18:57 J -11969986.81 -11969986.71 -11969986.61 0.0484 0.0417  
 Mercury -37482-09-08 00:14 J -11968627.65 -11968627.49 -11968627.34 0.0523 0.0025  
 Mars -37481-09-21 20:38 J -11968247.93 -11968247.64 -11968247.34 0.0538 0.0049  
 Venus -37480-10-24 18:28 J -11967849.88 -11967849.73 -11967849.58 0.0545 0.0362  
 Mercury -37476-01-26 09:50 J -11966660.20 -11966660.09 -11966659.97 0.0507 0.0301  
 Mercury -37476-04-25 22:04 J -11966570.70 -11966570.58 -11966570.46 0.0503 0.0283  
 Venus -37475-12-31 05:59 J -11965956.36 -11965956.25 -11965956.14 0.0486 0.0407  
 Venus -37474-08-23 23:02 J -11965720.72 -11965720.54 -11965720.36 0.0484 0.0236  
 Mercury -37470-06-27 00:57 J -11964317.61 -11964317.46 -11964317.32 0.0522 0.0193  
 Mercury -37470-09-24 21:21 J -11964227.65 -11964227.61 -11964227.58 0.0526 0.0508  
 Venus -37468-06-29 06:42 J -11963584.41 -11963584.22 -11963584.02 0.0544 0.0108  
 Mercury -37465-11-14 12:42 J -11962350.04 -11962349.97 -11962349.91 0.0508 0.0444  
 Mercury -37464-02-12 00:28 J -11962260.62 -11962260.48 -11962260.34 0.0504 0.0137  
 Venus -37462-04-29 04:04 J -11961454.53 -11961454.33 -11961454.12 0.0484 0.0058  
 Mercury -37458-04-15 01:26 J -11960007.55 -11960007.44 -11960007.33 0.0521 0.0364  
 Mercury -37458-07-13 22:18 J -11959917.69 -11959917.57 -11959917.46 0.0525 0.0341  
 Venus -37456-03-03 16:33 J -11959319.00 -11959318.81 -11959318.61 0.0543 0.0154  
 Mercury -37453-12-01 02:09 J -11957950.55 -11957950.41 -11957950.26 0.0505 0.0022  
 Venus -37450-01-02 08:23 J -11957188.35 -11957188.15 -11957187.95 0.0485 0.0125  
 Earth -37447-09-22 11:16 J -11955829.23 -11955829.03 -11955828.82 0.0514 0.0251  
 Moon -37447-09-22 13:11 J -11955829.15 -11955828.95 -11955828.74 0.0514 0.0276 \*  
 Mercury -37446-05-01 22:33 J -11955607.70 -11955607.56 -11955607.41 0.0524 0.0165  
 Venus -37445-11-06 02:09 J -11955053.54 -11955053.41 -11955053.28 0.0542 0.0413  
 Venus -37444-07-02 11:02 J -11954815.11 -11954815.04 -11954814.96 0.0544 0.0503  
 Earth -37441-03-20 14:23 J -11953823.10 -11953822.90 -11953822.70 0.0514 0.0252  
 Moon -37441-03-20 14:52 J -11953823.08 -11953822.88 -11953822.68 0.0514 0.0272 \*

Mercury -37441-09-19 04:47 J -11953640.44 -11953640.30 -11953640.16 0.0506 0.0167

Mercury -37441-12-17 17:02 J -11953550.86 -11953550.79 -11953550.70 0.0503 0.0422

Venus -37439-09-07 13:26 J -11952922.10 -11952921.94 -11952921.78 0.0486 0.0303

Venus -37438-05-01 07:11 J -11952686.35 -11952686.20 -11952686.06 0.0484 0.0341

Moon -37435-09-26 23:45 J -11951441.70 -11951441.51 -11951441.30 0.0516 0.0251

Earth -37435-09-27 02:52 J -11951441.57 -11951441.38 -11951441.18 0.0516 0.0276 \*

Mercury -37434-02-17 22:04 J -11951297.74 -11951297.58 -11951297.43 0.0523 0.0026

Venus -37432-03-06 21:06 J -11950549.80 -11950549.62 -11950549.44 0.0544 0.0247

Moon -37429-03-25 05:30 J -11949435.44 -11949435.27 -11949435.08 0.0512 0.0305

Earth -37429-03-25 07:40 J -11949435.37 -11949435.18 -11949434.99 0.0512 0.0285 \*

Mercury -37429-07-08 07:40 J -11949330.29 -11949330.18 -11949330.06 0.0507 0.0306

Mercury -37429-10-05 19:54 J -11949240.79 -11949240.67 -11949240.55 0.0504 0.0280

Venus -37427-05-13 19:11 J -11948655.73 -11948655.70 -11948655.66 0.0487 0.0479

Venus -37426-01-04 11:59 J -11948420.19 -11948420.00 -11948419.80 0.0484 0.0163

Mercury -37423-12-06 22:18 J -11946987.71 -11946987.57 -11946987.42 0.0522 0.0201

Mercury -37422-03-06 18:42 J -11946897.76 -11946897.72 -11946897.67 0.0526 0.0499

Venus -37421-11-09 09:06 J -11946284.32 -11946284.12 -11946283.92 0.0544 0.0010

Mercury -37417-04-26 10:47 J -11945020.12 -11945020.05 -11945019.98 0.0508 0.0445

Mercury -37417-07-24 22:33 J -11944930.70 -11944930.56 -11944930.42 0.0504 0.0136

Mars -37416-08-02 01:11 J -11944557.67 -11944557.45 -11944557.22 0.0491 0.0225

Venus -37415-09-09 16:33 J -11944154.01 -11944153.81 -11944153.60 0.0484 0.0020

Mercury -37411-09-24 22:47 J -11942677.66 -11942677.55 -11942677.44 0.0521 0.0373

Mercury -37411-12-23 19:54 J -11942587.79 -11942587.67 -11942587.56 0.0525 0.0334

Venus -37409-07-14 20:52 J -11942018.80 -11942018.63 -11942018.45 0.0543 0.0263

Mercury -37405-05-13 01:11 J -11940620.60 -11940620.45 -11940620.31 0.0505 0.0013

Venus -37403-05-15 22:04 J -11939887.77 -11939887.58 -11939887.40 0.0485 0.0197

Venus -37402-01-06 15:50 J -11939651.91 -11939651.84 -11939651.76 0.0484 0.0445

Mercury -37399-10-11 20:52 J -11938277.78 -11938277.63 -11938277.49 0.0524 0.0167

Venus -37397-03-19 07:11 J -11937753.25 -11937753.20 -11937753.14 0.0541 0.0517

Venus -37397-11-12 17:02 J -11937514.92 -11937514.79 -11937514.65 0.0544 0.0399

Mercury -37393-03-01 02:52 J -11936310.51 -11936310.38 -11936310.24 0.0506 0.0167  
 Mercury -37393-05-29 15:21 J -11936220.94 -11936220.86 -11936220.78 0.0503 0.0422  
 Venus -37391-01-19 02:09 J -11935621.54 -11935621.41 -11935621.28 0.0486 0.0377  
 Venus -37391-09-11 19:40 J -11935385.85 -11935385.68 -11935385.51 0.0484 0.0265  
 Mercury -37387-07-30 21:06 J -11933967.78 -11933967.62 -11933967.47 0.0523 0.0015  
 Venus -37385-07-18 03:21 J -11933249.56 -11933249.36 -11933249.17 0.0543 0.0141  
 Mercury -37382-12-19 05:30 J -11932000.38 -11932000.27 -11932000.16 0.0507 0.0312  
 Mercury -37381-03-17 17:30 J -11931910.89 -11931910.77 -11931910.64 0.0504 0.0274  
 Mars -37380-05-05 04:18 J -11931497.56 -11931497.32 -11931497.07 0.0490 0.0133  
 Venus -37379-05-18 00:14 J -11931119.69 -11931119.49 -11931119.29 0.0484 0.0087  
 Mercury -37375-05-18 20:09 J -11929657.80 -11929657.66 -11929657.51 0.0522 0.0203  
 Mercury -37375-08-16 16:33 J -11929567.85 -11929567.81 -11929567.76 0.0526 0.0496  
 Venus -37373-03-22 11:45 J -11928984.20 -11928984.01 -11928983.81 0.0543 0.0123  
 Mercury -37370-10-07 08:38 J -11927690.20 -11927690.14 -11927690.07 0.0508 0.0449  
 Mercury -37369-01-04 20:23 J -11927600.79 -11927600.65 -11927600.51 0.0505 0.0133  
 Venus -37367-01-21 05:45 J -11926853.46 -11926853.26 -11926853.06 0.0485 0.0092  
 Moon -37364-09-21 05:16 J -11925514.42 -11925514.28 -11925514.13 0.0513 0.0396  
 Earth -37364-09-21 08:09 J -11925514.32 -11925514.16 -11925513.99 0.0513 0.0367 \*  
 Mercury -37363-03-06 20:23 J -11925347.76 -11925347.65 -11925347.54 0.0521 0.0381  
 Mercury -37363-06-04 17:16 J -11925257.90 -11925257.78 -11925257.66 0.0525 0.0325  
 Venus -37362-11-25 22:47 J -11924718.69 -11924718.55 -11924718.40 0.0543 0.0377  
 Venus -37361-07-21 08:38 J -11924480.16 -11924480.14 -11924480.11 0.0545 0.0540  
 Moon -37358-03-20 17:45 J -11923507.92 -11923507.76 -11923507.59 0.0515 0.0351  
 Earth -37358-03-20 19:40 J -11923507.85 -11923507.68 -11923507.50 0.0515 0.0329 \*  
 Mercury -37358-10-23 23:16 J -11923290.68 -11923290.53 -11923290.39 0.0505 0.0015  
 Venus -37356-09-26 10:33 J -11922587.22 -11922587.06 -11922586.88 0.0485 0.0272  
 Venus -37355-05-20 04:04 J -11922351.46 -11922351.33 -11922351.20 0.0484 0.0369  
 Earth -37352-09-26 05:02 J -11921126.51 -11921126.29 -11921126.07 0.0516 0.0183  
 Moon -37352-09-26 08:38 J -11921126.36 -11921126.14 -11921125.91 0.0516 0.0168 \*  
 Mercury -37351-03-23 18:14 J -11920947.89 -11920947.74 -11920947.60 0.0524 0.0157

Venus -37349-03-25 21:35 J -11920214.77 -11920214.60 -11920214.43 0.0544 0.0290  
 Earth -37346-03-25 11:30 J -11919120.22 -11919120.02 -11919119.80 0.0512 0.0201  
 Moon -37346-03-25 14:52 J -11919120.09 -11919119.88 -11919119.67 0.0512 0.0225 \*  
 Mercury -37346-08-12 01:54 J -11918980.56 -11918980.42 -11918980.28 0.0506 0.0154  
 Mercury -37346-11-09 14:09 J -11918890.98 -11918890.91 -11918890.83 0.0502 0.0434  
 Venus -37344-06-01 16:04 J -11918320.90 -11918320.83 -11918320.75 0.0486 0.0448  
 Venus -37343-01-23 08:52 J -11918085.32 -11918085.13 -11918084.94 0.0484 0.0191  
 Mercury -37339-01-09 18:57 J -11916637.86 -11916637.71 -11916637.55 0.0523 0.0018  
 Venus -37338-11-29 08:38 J -11915949.34 -11915949.14 -11915948.94 0.0543 0.0035  
 Mercury -37334-05-31 03:50 J -11914670.45 -11914670.34 -11914670.23 0.0507 0.0309  
 Mercury -37334-08-28 15:50 J -11914580.96 -11914580.84 -11914580.72 0.0503 0.0275  
 Venus -37332-09-28 12:57 J -11913819.17 -11913818.96 -11913818.76 0.0485 0.0011  
 Mercury -37328-10-28 19:11 J -11912327.84 -11912327.70 -11912327.55 0.0522 0.0188  
 Mercury -37327-01-26 15:35 J -11912237.88 -11912237.85 -11912237.81 0.0526 0.0512  
 Mars -37327-12-16 17:02 J -11911914.08 -11911913.79 -11911913.50 0.0537 0.0114  
 Venus -37326-08-03 18:28 J -11911683.92 -11911683.73 -11911683.55 0.0542 0.0226  
 Mercury -37322-03-19 06:28 J -11910360.29 -11910360.23 -11910360.17 0.0508 0.0454  
 Mercury -37322-06-16 18:14 J -11910270.88 -11910270.74 -11910270.60 0.0505 0.0127  
 Venus -37320-06-03 17:59 J -11909552.94 -11909552.75 -11909552.56 0.0485 0.0167  
 Venus -37319-01-25 11:59 J -11909317.03 -11909317.00 -11909316.95 0.0484 0.0473  
 Mercury -37316-08-16 18:14 J -11908017.85 -11908017.74 -11908017.63 0.0521 0.0381  
 Mercury -37316-11-14 15:21 J -11907927.98 -11907927.86 -11907927.74 0.0525 0.0324  
 Venus -37314-04-08 01:54 J -11907418.51 -11907418.42 -11907418.33 0.0542 0.0487  
 Venus -37314-12-02 11:59 J -11907180.11 -11907180.00 -11907179.87 0.0544 0.0429  
 Mercury -37310-04-04 21:06 J -11905960.77 -11905960.62 -11905960.47 0.0506 0.0014  
 Venus -37308-02-06 23:59 J -11905286.64 -11905286.50 -11905286.36 0.0486 0.0343  
 Venus -37308-09-30 17:02 J -11905050.95 -11905050.79 -11905050.62 0.0484 0.0297  
 Mercury -37304-09-02 15:35 J -11903617.99 -11903617.85 -11903617.70 0.0524 0.0151  
 Venus -37302-08-06 23:59 J -11902914.69 -11902914.50 -11902914.31 0.0544 0.0176  
 Mercury -37298-01-21 23:59 J -11901650.64 -11901650.50 -11901650.36 0.0506 0.0154

Mercury -37298-04-21 12:14 J -11901561.06 -11901560.99 -11901560.91 0.0503 0.0434

Venus -37296-06-05 21:35 J -11900784.80 -11900784.60 -11900784.40 0.0484 0.0116

Mercury -37292-06-21 16:18 J -11899307.97 -11899307.82 -11899307.66 0.0523 0.0023

Venus -37290-04-11 12:14 J -11898649.19 -11898648.99 -11898648.79 0.0544 0.0079

Mercury -37287-11-10 02:38 J -11897340.50 -11897340.39 -11897340.27 0.0507 0.0297

Mercury -37286-02-07 14:52 J -11897251.00 -11897250.88 -11897250.76 0.0503 0.0288

Venus -37284-02-09 02:52 J -11896518.59 -11896518.38 -11896518.18 0.0485 0.0062

Earth -37281-09-20 12:28 J -11895199.08 -11895198.98 -11895198.86 0.0513 0.0449

Moon -37281-09-20 16:33 J -11895198.90 -11895198.81 -11895198.73 0.0513 0.0476 \*

Mercury -37280-04-09 17:16 J -11894997.93 -11894997.78 -11894997.64 0.0522 0.0188

Mercury -37280-07-08 13:40 J -11894907.96 -11894907.93 -11894907.89 0.0526 0.0513

Venus -37279-12-14 23:30 J -11894383.68 -11894383.52 -11894383.36 0.0542 0.0331

Earth -37275-03-19 19:26 J -11893192.80 -11893192.69 -11893192.56 0.0515 0.0436

Moon -37275-03-19 22:33 J -11893192.67 -11893192.56 -11893192.44 0.0515 0.0450 \*

Mercury -37275-08-29 04:47 J -11893030.36 -11893030.30 -11893030.23 0.0508 0.0450

Mercury -37275-11-26 16:33 J -11892940.95 -11892940.81 -11892940.67 0.0504 0.0131

Venus -37273-10-15 06:57 J -11892252.38 -11892252.21 -11892252.03 0.0486 0.0241

Venus -37272-06-08 00:42 J -11892016.58 -11892016.47 -11892016.35 0.0484 0.0398

Moon -37269-09-25 05:16 J -11890811.52 -11890811.28 -11890811.05 0.0515 0.0085

Earth -37269-09-25 08:52 J -11890811.36 -11890811.13 -11890810.90 0.0515 0.0097 \*

Mercury -37268-01-26 17:16 J -11890687.89 -11890687.78 -11890687.66 0.0521 0.0365

Mercury -37268-04-26 14:23 J -11890598.02 -11890597.90 -11890597.78 0.0525 0.0340

Venus -37266-04-14 19:26 J -11889879.85 -11889879.69 -11889879.53 0.0544 0.0326

Moon -37263-03-24 06:57 J -11888805.44 -11888805.21 -11888804.99 0.0513 0.0114

Earth -37263-03-24 10:33 J -11888805.29 -11888805.06 -11888804.83 0.0513 0.0090 \*

Mercury -37263-09-14 19:11 J -11888630.85 -11888630.70 -11888630.56 0.0505 0.0023

Mars -37262-10-26 12:28 J -11888224.22 -11888223.98 -11888223.73 0.0492 0.0136

Venus -37261-06-20 12:28 J -11887986.08 -11887985.98 -11887985.88 0.0487 0.0417

Venus -37260-02-11 05:16 J -11887750.45 -11887750.28 -11887750.09 0.0484 0.0223

Mercury -37256-02-12 13:40 J -11886288.07 -11886287.93 -11886287.78 0.0523 0.0151

Venus -37255-12-18 03:35 J -11885614.55 -11885614.35 -11885614.15 0.0544 0.0064  
 Mercury -37251-07-03 21:50 J -11884320.72 -11884320.59 -11884320.45 0.0507 0.0158  
 Mercury -37251-10-01 10:18 J -11884231.14 -11884231.07 -11884231.00 0.0503 0.0432  
 Venus -37249-10-17 11:02 J -11883484.24 -11883484.04 -11883483.83 0.0484 0.0045  
 Mercury -37245-12-01 14:09 J -11881978.07 -11881977.91 -11881977.76 0.0523 0.0027  
 Venus -37243-08-22 14:38 J -11881349.08 -11881348.89 -11881348.70 0.0543 0.0192  
 Mercury -37239-04-22 00:57 J -11880010.58 -11880010.46 -11880010.34 0.0507 0.0296  
 Mercury -37239-07-20 12:57 J -11879921.08 -11879920.96 -11879920.84 0.0504 0.0289  
 Venus -37237-06-22 16:04 J -11879218.03 -11879217.83 -11879217.63 0.0485 0.0135  
 Mercury -37233-09-19 14:38 J -11877668.04 -11877667.89 -11877667.75 0.0522 0.0198  
 Mercury -37233-12-18 11:02 J -11877578.07 -11877578.04 -11877577.99 0.0526 0.0504  
 Venus -37231-04-27 02:23 J -11877083.51 -11877083.40 -11877083.28 0.0542 0.0443  
 Venus -37231-12-21 12:57 J -11876845.06 -11876844.96 -11876844.86 0.0545 0.0471  
 Mercury -37227-02-08 03:50 J -11875700.41 -11875700.34 -11875700.27 0.0508 0.0437  
 Mercury -37227-05-08 15:35 J -11875610.99 -11875610.85 -11875610.71 0.0504 0.0144  
 Mars -37226-07-29 23:16 J -11875163.75 -11875163.53 -11875163.30 0.0490 0.0240  
 Venus -37225-02-26 21:35 J -11874951.75 -11874951.60 -11874951.44 0.0486 0.0311  
 Venus -37225-10-19 14:38 J -11874716.04 -11874715.89 -11874715.74 0.0484 0.0326  
 Mercury -37221-07-08 15:21 J -11873357.97 -11873357.86 -11873357.75 0.0521 0.0366  
 Mercury -37221-10-06 12:28 J -11873268.10 -11873267.98 -11873267.87 0.0525 0.0341  
 Venus -37219-08-26 00:57 J -11872579.64 -11872579.46 -11872579.27 0.0544 0.0222  
 Mercury -37215-02-24 17:30 J -11871300.91 -11871300.77 -11871300.62 0.0505 0.0016  
 Venus -37213-06-24 18:28 J -11870449.92 -11870449.73 -11870449.53 0.0484 0.0147  
 Mercury -37209-07-25 12:57 J -11868958.11 -11868957.96 -11868957.81 0.0524 0.0169  
 Mars -37208-06-01 22:18 J -11868646.76 -11868646.57 -11868646.38 0.0536 0.0415  
 Venus -37207-04-30 11:30 J -11868314.23 -11868314.02 -11868313.82 0.0543 0.0038  
 Mercury -37204-12-13 20:09 J -11866990.80 -11866990.66 -11866990.52 0.0506 0.0156  
 Mercury -37203-03-13 08:23 J -11866901.22 -11866901.15 -11866901.07 0.0503 0.0431  
 Venus -37201-02-28 23:45 J -11866183.71 -11866183.51 -11866183.30 0.0485 0.0031  
 Mercury -37197-05-13 12:14 J -11864648.14 -11864647.99 -11864647.83 0.0522 0.0023



Venus -37195-01-02 18:28 J -11864048.90 -11864048.73 -11864048.56 0.0542 0.0301  
 Mercury -37192-10-01 23:02 J -11862680.66 -11862680.54 -11862680.42 0.0508 0.0297  
 Mercury -37192-12-30 11:02 J -11862591.16 -11862591.04 -11862590.92 0.0504 0.0289  
 Venus -37190-11-04 05:59 J -11861917.44 -11861917.25 -11861917.07 0.0486 0.0205  
 Venus -37189-06-26 23:30 J -11861681.61 -11861681.52 -11861681.43 0.0484 0.0431  
 Earth -37186-09-25 06:42 J -11860496.46 -11860496.22 -11860495.99 0.0514 0.0014  
 Moon -37186-09-25 09:21 J -11860496.34 -11860496.11 -11860495.88 0.0514 0.0017 \*  
 Mercury -37185-03-01 12:28 J -11860338.13 -11860337.98 -11860337.83 0.0521 0.0198  
 Mercury -37185-05-30 08:52 J -11860248.16 -11860248.13 -11860248.08 0.0525 0.0502  
 Venus -37183-05-03 16:04 J -11859544.98 -11859544.83 -11859544.68 0.0544 0.0359  
 Earth -37180-03-23 16:33 J -11858490.04 -11858489.81 -11858489.57 0.0514 0.0021  
 Moon -37180-03-23 20:09 J -11858489.89 -11858489.66 -11858489.44 0.0514 0.0051 \*  
 Mercury -37180-07-21 02:09 J -11858370.48 -11858370.41 -11858370.34 0.0509 0.0435  
 Mercury -37180-10-18 13:54 J -11858281.06 -11858280.92 -11858280.78 0.0505 0.0147  
 Venus -37178-07-10 11:02 J -11857651.16 -11857651.04 -11857650.91 0.0486 0.0382  
 Venus -37177-03-02 03:50 J -11857415.51 -11857415.34 -11857415.16 0.0484 0.0254  
 Mercury -37174-12-19 12:42 J -11856028.08 -11856027.97 -11856027.86 0.0521 0.0373  
 Mercury -37173-03-18 09:50 J -11855938.20 -11855938.09 -11855937.97 0.0525 0.0334  
 Mars -37172-03-11 04:47 J -11855580.56 -11855580.30 -11855580.04 0.0538 0.0260  
 Venus -37171-01-06 04:33 J -11855279.50 -11855279.31 -11855279.11 0.0544 0.0110  
 Mercury -37168-08-06 16:33 J -11853970.95 -11853970.81 -11853970.66 0.0506 0.0011  
 Venus -37166-11-06 09:06 J -11853149.32 -11853149.12 -11853148.91 0.0484 0.0077  
 Mercury -37161-01-05 11:02 J -11851628.19 -11851628.04 -11851627.89 0.0524 0.0170  
 Venus -37160-09-10 16:47 J -11851014.00 -11851013.80 -11851013.61 0.0543 0.0142  
 Mercury -37156-05-25 18:42 J -11849660.85 -11849660.72 -11849660.58 0.0506 0.0149  
 Mercury -37156-08-23 06:57 J -11849571.27 -11849571.21 -11849571.13 0.0503 0.0440  
 Venus -37154-07-12 13:26 J -11848883.14 -11848882.94 -11848882.74 0.0485 0.0102  
 Mercury -37150-10-24 11:30 J -11847318.17 -11847318.02 -11847317.86 0.0523 0.0010  
 Venus -37148-05-16 02:38 J -11846748.52 -11846748.39 -11846748.24 0.0542 0.0397  
 Venus -37147-01-09 12:42 J -11846510.04 -11846509.97 -11846509.90 0.0544 0.0510

Mercury -37144-03-13 21:35 J -11845350.72 -11845350.60 -11845350.49 0.0507 0.0293  
 Mercury -37144-06-11 09:21 J -11845261.22 -11845261.11 -11845260.99 0.0504 0.0292  
 Mars -37143-04-18 01:11 J -11844950.60 -11844950.45 -11844950.30 0.0493 0.0395  
 Venus -37142-03-17 19:11 J -11844616.87 -11844616.70 -11844616.53 0.0486 0.0277  
 Venus -37142-11-08 12:28 J -11844381.11 -11844380.98 -11844380.84 0.0484 0.0359  
 Mercury -37138-08-12 10:47 J -11843008.19 -11843008.05 -11843007.90 0.0521 0.0192  
 Mercury -37138-11-10 07:26 J -11842918.22 -11842918.19 -11842918.15 0.0525 0.0508  
 Venus -37136-09-13 20:38 J -11842244.81 -11842244.64 -11842244.45 0.0544 0.0252  
 Mercury -37133-12-31 00:14 J -11841040.56 -11841040.49 -11841040.41 0.0509 0.0434  
 Mercury -37132-03-30 11:59 J -11840951.14 -11840951.00 -11840950.86 0.0505 0.0150  
 Venus -37131-11-21 01:26 J -11840350.51 -11840350.44 -11840350.36 0.0487 0.0451  
 Venus -37130-07-14 17:59 J -11840114.94 -11840114.75 -11840114.56 0.0484 0.0184  
 Mercury -37126-05-31 10:47 J -11838698.15 -11838698.05 -11838697.93 0.0520 0.0370  
 Mercury -37126-08-29 08:09 J -11838608.28 -11838608.16 -11838608.05 0.0524 0.0336  
 Venus -37124-05-19 07:54 J -11837979.37 -11837979.17 -11837978.97 0.0544 0.0005  
 Mercury -37120-01-16 14:52 J -11836641.02 -11836640.88 -11836640.73 0.0506 0.0016  
 Venus -37118-03-19 23:02 J -11835848.74 -11835848.54 -11835848.33 0.0485 0.0011  
 Mercury -37114-06-17 08:38 J -11834298.28 -11834298.14 -11834297.99 0.0524 0.0165  
 Venus -37112-01-21 19:40 J -11833713.85 -11833713.68 -11833713.50 0.0543 0.0254  
 Mercury -37109-11-04 17:45 J -11832330.89 -11832330.76 -11832330.62 0.0507 0.0134  
 Mercury -37108-02-02 05:59 J -11832241.30 -11832241.25 -11832241.18 0.0503 0.0456  
 Mars -37107-01-19 15:06 J -11831890.13 -11831889.87 -11831889.62 0.0491 0.0014  
 Venus -37107-11-23 04:47 J -11831582.49 -11831582.30 -11831582.11 0.0485 0.0171  
 Venus -37106-07-16 22:04 J -11831346.64 -11831346.58 -11831346.52 0.0484 0.0462  
 Moon -37103-09-24 11:16 J -11830181.26 -11830181.03 -11830180.78 0.0514 0.0090  
 Earth -37103-09-24 12:57 J -11830181.19 -11830180.96 -11830180.73 0.0514 0.0087 \*  
 Mercury -37102-04-05 09:35 J -11829988.25 -11829988.10 -11829987.94 0.0523 0.0016  
 Venus -37101-09-26 07:54 J -11829448.25 -11829448.17 -11829448.10 0.0542 0.0500  
 Venus -37100-05-22 18:42 J -11829209.85 -11829209.72 -11829209.58 0.0544 0.0408  
 Moon -37097-03-22 19:11 J -11828174.94 -11828174.70 -11828174.47 0.0514 0.0031

Earth -37097-03-22 21:35 J -11828174.82 -11828174.60 -11828174.36 0.0514 0.0062 \*  
 Mercury -37097-08-23 20:23 J -11828020.77 -11828020.65 -11828020.53 0.0507 0.0281  
 Mercury -37097-11-21 08:09 J -11827931.27 -11827931.16 -11827931.04 0.0504 0.0303  
 Venus -37095-07-29 09:06 J -11827316.26 -11827316.12 -11827315.97 0.0486 0.0348  
 Venus -37094-03-22 02:09 J -11827080.57 -11827080.41 -11827080.24 0.0484 0.0287  
 Earth -37091-09-29 10:18 J -11825793.16 -11825793.07 -11825792.97 0.0517 0.0469  
 Moon -37091-09-29 09:50 J -11825793.13 -11825793.09 -11825793.03 0.0517 0.0501 \*  
 Mercury -37090-01-22 10:18 J -11825678.22 -11825678.07 -11825677.92 0.0522 0.0172  
 Venus -37088-01-25 05:45 J -11824944.45 -11824944.26 -11824944.07 0.0544 0.0156  
 Earth -37085-03-27 12:28 J -11823787.07 -11823786.98 -11823786.88 0.0512 0.0463  
 Moon -37085-03-27 13:40 J -11823787.00 -11823786.93 -11823786.84 0.0512 0.0473 \*  
 Mercury -37085-06-11 23:02 J -11823710.61 -11823710.54 -11823710.46 0.0508 0.0425  
 Mercury -37085-09-09 10:47 J -11823621.19 -11823621.05 -11823620.91 0.0505 0.0157  
 Venus -37083-11-25 07:40 J -11822814.38 -11822814.18 -11822813.98 0.0484 0.0112  
 Mercury -37079-11-10 09:35 J -11821368.21 -11821368.10 -11821367.99 0.0520 0.0359  
 Mercury -37078-02-08 06:42 J -11821278.34 -11821278.22 -11821278.11 0.0524 0.0345  
 Venus -37077-09-29 12:57 J -11820679.15 -11820678.96 -11820678.76 0.0543 0.0110  
 Mercury -37073-06-28 13:26 J -11819311.09 -11819310.94 -11819310.80 0.0506 0.0020  
 Mars -37072-10-22 22:47 J -11818829.73 -11818829.55 -11818829.38 0.0490 0.0354  
 Venus -37071-07-31 13:40 J -11818548.13 -11818547.93 -11818547.73 0.0485 0.0064  
 Mercury -37067-11-27 07:11 J -11816968.35 -11816968.20 -11816968.06 0.0523 0.0172  
 Venus -37065-06-03 23:16 J -11816413.67 -11816413.53 -11816413.37 0.0542 0.0363  
 Venus -37064-01-28 09:35 J -11816175.10 -11816175.10 -11816175.08 0.0545 0.0543  
 Mercury -37061-04-16 16:18 J -11815000.96 -11815000.82 -11815000.68 0.0507 0.0128  
 Mercury -37061-07-15 04:33 J -11814911.36 -11814911.31 -11814911.25 0.0503 0.0461  
 Venus -37059-04-05 19:11 J -11814281.88 -11814281.70 -11814281.52 0.0486 0.0241  
 Venus -37059-11-27 12:14 J -11814046.11 -11814045.99 -11814045.87 0.0484 0.0392  
 Mercury -37055-09-15 07:40 J -11812658.34 -11812658.18 -11812658.03 0.0522 0.0014  
 Mars -37054-08-26 15:35 J -11812313.11 -11812312.85 -11812312.58 0.0536 0.0254  
 Venus -37053-10-02 22:47 J -11811909.72 -11811909.55 -11811909.38 0.0545 0.0298

Mercury -37049-02-03 19:26 J -11810690.81 -11810690.69 -11810690.57 0.0508 0.0267

Mercury -37049-05-03 07:26 J -11810601.31 -11810601.19 -11810601.08 0.0504 0.0319

Venus -37048-12-10 00:57 J -11810015.56 -11810015.46 -11810015.35 0.0487 0.0414

Venus -37047-08-02 17:16 J -11809779.96 -11809779.78 -11809779.59 0.0484 0.0217

Mercury -37043-07-04 08:23 J -11808348.30 -11808348.15 -11808348.00 0.0522 0.0168

Venus -37041-06-07 11:30 J -11807644.22 -11807644.02 -11807643.82 0.0544 0.0051

Mercury -37038-11-22 22:04 J -11806380.66 -11806380.58 -11806380.50 0.0508 0.0413

Mercury -37037-02-20 09:35 J -11806291.24 -11806291.10 -11806290.96 0.0505 0.0169

Venus -37035-04-07 21:50 J -11805513.79 -11805513.59 -11805513.38 0.0485 0.0042

Mercury -37031-04-22 08:52 J -11804038.25 -11804038.13 -11804038.01 0.0521 0.0339

Mercury -37031-07-21 05:59 J -11803948.35 -11803948.25 -11803948.14 0.0525 0.0367

Venus -37029-02-10 22:04 J -11803378.76 -11803378.58 -11803378.39 0.0543 0.0204

Mercury -37026-12-09 12:14 J -11801981.14 -11801980.99 -11801980.85 0.0506 0.0024

Venus -37024-12-12 03:50 J -11801247.54 -11801247.34 -11801247.15 0.0485 0.0135

Earth -37020-09-23 17:16 J -11799866.00 -11799865.78 -11799865.56 0.0513 0.0163

Moon -37020-09-23 17:16 J -11799865.99 -11799865.78 -11799865.56 0.0513 0.0161 \*

Mercury -37019-05-09 05:45 J -11799638.40 -11799638.26 -11799638.11 0.0523 0.0185

Mars -37018-06-05 06:42 J -11799246.38 -11799246.22 -11799246.04 0.0538 0.0437

Venus -37018-10-16 05:16 J -11799113.38 -11799113.28 -11799113.18 0.0541 0.0464

Venus -37017-06-10 15:35 J -11798874.96 -11798874.85 -11798874.73 0.0544 0.0441

Earth -37014-03-23 01:54 J -11797859.64 -11797859.42 -11797859.19 0.0515 0.0142

Moon -37014-03-23 03:21 J -11797859.58 -11797859.36 -11797859.14 0.0515 0.0109 \*

Mercury -37014-09-27 14:52 J -11797671.02 -11797670.88 -11797670.74 0.0507 0.0123

Mercury -37014-12-26 03:06 J -11797581.42 -11797581.37 -11797581.32 0.0504 0.0468

Venus -37012-08-17 09:50 J -11796981.24 -11796981.09 -11796980.93 0.0486 0.0310

Venus -37011-04-10 03:06 J -11796745.52 -11796745.37 -11796745.22 0.0484 0.0324

Earth -37008-09-28 12:28 J -11795478.13 -11795477.98 -11795477.82 0.0515 0.0380

Moon -37008-09-28 14:52 J -11795478.03 -11795477.88 -11795477.74 0.0515 0.0409 \*

Mercury -37007-02-25 06:14 J -11795328.40 -11795328.24 -11795328.08 0.0522 0.0010

Venus -37005-02-14 02:52 J -11794609.57 -11794609.38 -11794609.19 0.0544 0.0189

Earth -37002-03-27 19:40 J -11793471.82 -11793471.68 -11793471.53 0.0513 0.0398

Moon -37002-03-27 20:09 J -11793471.81 -11793471.66 -11793471.51 0.0513 0.0400 \*

Mercury -37002-07-16 17:45 J -11793360.88 -11793360.76 -11793360.64 0.0508 0.0262

Mercury -37002-10-14 05:45 J -11793271.37 -11793271.26 -11793271.15 0.0504 0.0325

# 37TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 37th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Venus	-37000-04-22 15:35 J	-11792714.87	-11792714.85	-11792714.82	0.0487	0.0483		
Venus	-37000-12-14 07:54 J	-11792479.36	-11792479.17	-11792478.97	0.0484	0.0148		
Mercury	-36996-12-14 06:28 J	-11791018.38	-11791018.23	-11791018.08	0.0521	0.0166		
Venus	-36994-10-19 15:06 J	-11790344.07	-11790343.87	-11790343.67	0.0544	0.0061		
Mercury	-36990-05-04 20:52 J	-11789050.71	-11789050.63	-11789050.54	0.0509	0.0399		
Mercury	-36990-08-02 08:38 J	-11788961.28	-11788961.14	-11788961.00	0.0505	0.0184		
Mars	-36989-07-12 09:06 J	-11788616.34	-11788616.12	-11788615.90	0.0493	0.0256		
Venus	-36988-08-19 13:26 J	-11788213.14	-11788212.94	-11788212.73	0.0485	0.0029		
Mercury	-36984-10-02 07:11 J	-11786708.32	-11786708.20	-11786708.08	0.0521	0.0334		
Mercury	-36984-12-31 04:18 J	-11786618.43	-11786618.32	-11786618.21	0.0524	0.0371		
Venus	-36982-06-24 03:21 J	-11786078.52	-11786078.36	-11786078.19	0.0542	0.0308		
Mercury	-36978-05-21 11:02 J	-11784651.18	-11784651.04	-11784650.89	0.0506	0.0039		
Venus	-36976-04-24 18:28 J	-11783946.92	-11783946.73	-11783946.55	0.0486	0.0204		
Venus	-36976-12-16 11:30 J	-11783711.11	-11783711.02	-11783710.92	0.0484	0.0427		

Mercury -36972-07-21 07:26 J -11782398.22 -11782398.19 -11782398.15 0.0520 0.0506

Mercury -36972-10-19 05:16 J -11782308.42 -11782308.28 -11782308.14 0.0523 0.0205

Venus -36970-10-23 01:40 J -11781574.58 -11781574.43 -11781574.28 0.0544 0.0347

Mercury -36966-03-09 13:40 J -11780341.07 -11780340.93 -11780340.78 0.0507 0.0110

Mercury -36966-06-07 01:54 J -11780251.45 -11780251.42 -11780251.37 0.0503 0.0481

Venus -36965-12-29 00:14 J -11779680.61 -11779680.49 -11779680.36 0.0487 0.0378

Venus -36964-08-21 17:02 J -11779444.96 -11779444.79 -11779444.61 0.0484 0.0254

Mercury -36960-08-07 05:02 J -11777998.44 -11777998.29 -11777998.13 0.0522 0.0028

Venus -36958-06-27 09:06 J -11777309.32 -11777309.12 -11777308.92 0.0543 0.0086

Mercury -36955-12-26 16:18 J -11776030.94 -11776030.82 -11776030.70 0.0508 0.0255

Mercury -36954-03-26 04:18 J -11775941.43 -11775941.32 -11775941.21 0.0505 0.0332

Mars -36953-04-14 18:42 J -11775555.96 -11775555.72 -11775555.47 0.0492 0.0116

Venus -36952-04-26 23:02 J -11775178.74 -11775178.54 -11775178.34 0.0485 0.0079

Mercury -36948-05-26 05:16 J -11773688.43 -11773688.28 -11773688.13 0.0521 0.0152

Venus -36946-03-01 19:26 J -11773043.88 -11773043.69 -11773043.49 0.0543 0.0170

Mercury -36943-10-14 19:26 J -11771720.78 -11771720.69 -11771720.60 0.0509 0.0394

Mercury -36942-01-12 07:11 J -11771631.34 -11771631.20 -11771631.07 0.0505 0.0190

Venus -36941-12-31 04:18 J -11770912.52 -11770912.32 -11770912.12 0.0485 0.0097

Earth -36937-09-22 22:18 J -11769550.77 -11769550.57 -11769550.36 0.0512 0.0241

Moon -36937-09-23 00:14 J -11769550.70 -11769550.49 -11769550.27 0.0512 0.0229 \*

Mercury -36936-03-14 05:16 J -11769378.40 -11769378.28 -11769378.16 0.0520 0.0331

Mercury -36936-06-12 02:38 J -11769288.50 -11769288.39 -11769288.29 0.0524 0.0374

Venus -36935-11-04 06:57 J -11768778.34 -11768778.21 -11768778.08 0.0542 0.0417

Venus -36934-06-30 17:59 J -11768539.83 -11768539.75 -11768539.66 0.0545 0.0487

Earth -36931-03-22 12:14 J -11767544.20 -11767543.99 -11767543.78 0.0516 0.0198

Moon -36931-03-22 12:28 J -11767544.20 -11767543.98 -11767543.75 0.0516 0.0168 \*

Mercury -36931-10-31 10:04 J -11767321.22 -11767321.08 -11767320.93 0.0506 0.0050

Venus -36929-09-05 10:18 J -11766646.24 -11766646.07 -11766645.90 0.0486 0.0271

Venus -36928-04-29 03:06 J -11766410.51 -11766410.37 -11766410.23 0.0484 0.0359

Moon -36925-09-27 16:18 J -11765162.99 -11765162.82 -11765162.64 0.0515 0.0338

Earth -36925-09-27 19:54 J -11765162.85 -11765162.67 -11765162.48 0.0515 0.0311 \*  
 Mercury -36925-12-31 05:45 J -11765068.29 -11765068.26 -11765068.21 0.0519 0.0501  
 Mercury -36924-03-31 03:35 J -11764978.49 -11764978.35 -11764978.21 0.0523 0.0209  
 Venus -36922-03-05 06:57 J -11764274.38 -11764274.21 -11764274.02 0.0544 0.0243  
 Moon -36919-03-27 02:23 J -11763156.57 -11763156.40 -11763156.23 0.0513 0.0330  
 Earth -36919-03-27 04:33 J -11763156.48 -11763156.31 -11763156.13 0.0513 0.0338 \*  
 Mercury -36919-08-19 12:42 J -11763011.11 -11763010.97 -11763010.83 0.0507 0.0095  
 Mercury -36919-11-17 00:57 J -11762921.48 -11762921.46 -11762921.43 0.0503 0.0493  
 Mars -36917-01-17 04:33 J -11762495.35 -11762495.31 -11762495.26 0.0489 0.0480  
 Venus -36917-05-11 15:21 J -11762379.94 -11762379.86 -11762379.78 0.0487 0.0445  
 Venus -36916-01-02 07:26 J -11762144.37 -11762144.19 -11762143.99 0.0484 0.0184  
 Mercury -36912-01-17 04:18 J -11760668.47 -11760668.32 -11760668.16 0.0522 0.0045  
 Venus -36911-11-07 18:42 J -11760008.92 -11760008.72 -11760008.52 0.0543 0.0011  
 Mercury -36907-06-07 15:35 J -11758700.98 -11758700.85 -11758700.73 0.0508 0.0239  
 Mercury -36907-09-05 03:21 J -11758611.46 -11758611.36 -11758611.25 0.0504 0.0347  
 Venus -36905-09-07 13:26 J -11757878.14 -11757877.94 -11757877.73 0.0485 0.0010  
 Mercury -36901-11-05 04:18 J -11756358.47 -11756358.32 -11756358.17 0.0521 0.0136  
 Mars -36900-11-20 05:59 J -11755978.55 -11755978.25 -11755977.95 0.0536 0.0050  
 Venus -36899-07-13 01:54 J -11755743.59 -11755743.42 -11755743.24 0.0542 0.0271  
 Mercury -36895-03-26 17:59 J -11754390.84 -11754390.75 -11754390.66 0.0509 0.0388  
 Mercury -36895-06-24 05:45 J -11754301.40 -11754301.26 -11754301.13 0.0506 0.0197  
 Venus -36893-05-13 19:26 J -11753611.88 -11753611.69 -11753611.50 0.0486 0.0166  
 Venus -36892-01-04 12:57 J -11753376.01 -11753375.96 -11753375.90 0.0484 0.0464  
 Mercury -36889-08-24 04:18 J -11752048.44 -11752048.32 -11752048.19 0.0520 0.0314  
 Mercury -36889-11-22 01:26 J -11751958.54 -11751958.44 -11751958.34 0.0524 0.0388  
 Venus -36887-03-17 11:59 J -11751478.05 -11751478.00 -11751477.94 0.0541 0.0519  
 Venus -36887-11-10 23:02 J -11751239.68 -11751239.54 -11751239.40 0.0544 0.0380  
 Mercury -36883-04-12 08:23 J -11749991.29 -11749991.15 -11749991.00 0.0506 0.0058  
 Venus -36881-01-18 00:57 J -11749345.60 -11749345.46 -11749345.32 0.0487 0.0340  
 Venus -36881-09-09 17:30 J -11749109.93 -11749109.77 -11749109.60 0.0484 0.0290

Mercury -36877-06-12 04:04 J -11747738.37 -11747738.33 -11747738.28 0.0519 0.0495

Mercury -36877-09-10 01:40 J -11747648.57 -11747648.43 -11747648.28 0.0523 0.0214

Venus -36875-07-16 11:02 J -11746974.24 -11746974.04 -11746973.85 0.0544 0.0132

Mercury -36871-01-29 11:30 J -11745681.16 -11745681.02 -11745680.87 0.0507 0.0085

Venus -36869-05-15 23:02 J -11744843.73 -11744843.54 -11744843.33 0.0484 0.0117

Mercury -36865-06-29 02:38 J -11743338.54 -11743338.39 -11743338.23 0.0522 0.0047

Venus -36863-03-20 23:30 J -11742708.72 -11742708.52 -11742708.32 0.0543 0.0115

Mercury -36860-11-17 14:23 J -11741371.03 -11741370.90 -11741370.77 0.0508 0.0227

Mercury -36859-02-15 02:23 J -11741281.50 -11741281.40 -11741281.30 0.0504 0.0359

Venus -36857-01-20 04:04 J -11740577.54 -11740577.33 -11740577.13 0.0485 0.0061

Moon -36854-09-23 04:47 J -11739235.49 -11739235.30 -11739235.11 0.0512 0.0278

Earth -36854-09-23 08:09 J -11739235.35 -11739235.16 -11739234.97 0.0512 0.0296 \*

Mercury -36853-04-17 03:21 J -11739028.51 -11739028.36 -11739028.20 0.0521 0.0121

Venus -36852-11-23 10:47 J -11738443.20 -11738443.05 -11738442.90 0.0542 0.0363

Venus -36851-07-19 21:21 J -11738204.64 -11738204.61 -11738204.57 0.0544 0.0535

Moon -36848-03-21 17:02 J -11737228.98 -11737228.79 -11737228.59 0.0516 0.0245

Earth -36848-03-21 19:11 J -11737228.89 -11737228.70 -11737228.50 0.0516 0.0269 \*

Mercury -36848-09-05 17:16 J -11737060.88 -11737060.78 -11737060.68 0.0509 0.0370

Mercury -36848-12-04 04:47 J -11736971.43 -11736971.30 -11736971.16 0.0505 0.0214

Venus -36846-09-25 10:04 J -11736311.26 -11736311.08 -11736310.90 0.0486 0.0234

Venus -36845-05-18 03:06 J -11736075.48 -11736075.37 -11736075.25 0.0484 0.0395

Earth -36842-09-28 03:35 J -11734847.55 -11734847.35 -11734847.14 0.0514 0.0248

Moon -36842-09-28 07:40 J -11734847.38 -11734847.18 -11734846.98 0.0514 0.0276 \*

Mercury -36841-02-04 03:21 J -11734718.49 -11734718.36 -11734718.23 0.0520 0.0297

Mercury -36841-05-04 00:28 J -11734628.58 -11734628.48 -11734628.38 0.0524 0.0404

Venus -36839-03-24 05:45 J -11733939.43 -11733939.26 -11733939.09 0.0544 0.0278

Earth -36836-03-26 08:09 J -11732841.36 -11732841.16 -11732840.96 0.0514 0.0253

Moon -36836-03-26 11:45 J -11732841.21 -11732841.01 -11732840.80 0.0514 0.0237 \*

Mercury -36836-09-22 06:57 J -11732661.35 -11732661.21 -11732661.06 0.0507 0.0062

Mars -36835-10-06 13:26 J -11732282.19 -11732281.94 -11732281.70 0.0493 0.0127



Venus -36834-05-31 15:50 J -11732044.95 -11732044.84 -11732044.73 0.0488 0.0409  
 Venus -36833-01-22 08:38 J -11731809.33 -11731809.14 -11731808.96 0.0485 0.0221  
 Mercury -36830-11-23 03:21 J -11730408.42 -11730408.36 -11730408.30 0.0519 0.0476  
 Mercury -36829-02-21 00:57 J -11730318.60 -11730318.46 -11730318.32 0.0522 0.0230  
 Venus -36828-11-26 16:04 J -11729674.03 -11729673.83 -11729673.62 0.0543 0.0028  
 Mercury -36824-07-11 09:50 J -11728351.23 -11728351.09 -11728350.94 0.0508 0.0082  
 Venus -36822-09-27 13:40 J -11727543.14 -11727542.93 -11727542.73 0.0485 0.0046  
 Mercury -36818-12-10 00:57 J -11726008.62 -11726008.46 -11726008.30 0.0522 0.0052  
 Venus -36816-08-01 03:06 J -11725408.55 -11725408.37 -11725408.19 0.0542 0.0224  
 Mercury -36812-04-29 12:57 J -11724041.08 -11724040.96 -11724040.83 0.0508 0.0219  
 Mercury -36812-07-28 00:57 J -11723951.55 -11723951.46 -11723951.36 0.0505 0.0370  
 Venus -36810-06-02 19:26 J -11723276.88 -11723276.69 -11723276.49 0.0486 0.0129  
 Mercury -36806-09-28 01:40 J -11721698.59 -11721698.43 -11721698.28 0.0521 0.0117  
 Venus -36804-04-05 15:21 J -11721142.96 -11721142.86 -11721142.76 0.0541 0.0468  
 Venus -36804-11-30 02:38 J -11720904.51 -11720904.39 -11720904.27 0.0545 0.0431  
 Mercury -36800-02-15 16:04 J -11719730.93 -11719730.83 -11719730.73 0.0509 0.0360  
 Mercury -36800-05-16 03:35 J -11719641.48 -11719641.35 -11719641.22 0.0505 0.0224  
 Mars -36799-07-10 00:57 J -11719221.68 -11719221.46 -11719221.24 0.0491 0.0245  
 Venus -36798-02-06 00:28 J -11719010.63 -11719010.48 -11719010.32 0.0486 0.0303  
 Venus -36798-09-29 17:02 J -11718774.93 -11718774.79 -11718774.63 0.0484 0.0324  
 Mercury -36794-07-17 02:09 J -11717388.54 -11717388.41 -11717388.27 0.0520 0.0286  
 Mercury -36794-10-14 23:16 J -11717298.61 -11717298.53 -11717298.43 0.0524 0.0418  
 Venus -36792-08-04 14:23 J -11716639.08 -11716638.90 -11716638.70 0.0544 0.0184  
 Mercury -36789-12-04 18:57 J -11715420.73 -11715420.71 -11715420.69 0.0510 0.0502  
 Mercury -36788-03-04 06:14 J -11715331.38 -11715331.24 -11715331.09 0.0506 0.0079  
 Venus -36787-10-12 06:28 J -11714744.27 -11714744.23 -11714744.18 0.0488 0.0475  
 Venus -36786-06-04 22:47 J -11714508.74 -11714508.55 -11714508.35 0.0485 0.0152  
 Mercury -36782-05-05 02:09 J -11713078.48 -11713078.41 -11713078.33 0.0519 0.0461  
 Mercury -36782-08-02 23:45 J -11712988.64 -11712988.51 -11712988.37 0.0523 0.0246  
 Mars -36781-05-07 08:09 J -11712710.21 -11712710.16 -11712710.11 0.0534 0.0525

Venus -36780-04-08 22:47 J -11712373.75 -11712373.55 -11712373.35 0.0542 0.0076  
 Mercury -36777-12-21 08:23 J -11711021.29 -11711021.15 -11711021.01 0.0508 0.0075  
 Venus -36774-02-08 04:18 J -11710242.53 -11710242.32 -11710242.12 0.0486 0.0025  
 Earth -36771-09-22 14:23 J -11708920.06 -11708919.90 -11708919.73 0.0511 0.0366  
 Moon -36771-09-22 18:28 J -11708919.90 -11708919.73 -11708919.55 0.0511 0.0337 \*  
 Mercury -36770-05-21 23:59 J -11708678.65 -11708678.50 -11708678.34 0.0521 0.0071  
 Venus -36769-12-12 08:38 J -11708108.30 -11708108.14 -11708107.98 0.0541 0.0328  
 Earth -36765-03-20 21:21 J -11706913.77 -11706913.61 -11706913.44 0.0517 0.0364  
 Moon -36765-03-21 00:57 J -11706913.63 -11706913.46 -11706913.28 0.0517 0.0341 \*  
 Mercury -36765-10-09 11:16 J -11706711.16 -11706711.03 -11706710.90 0.0509 0.0218  
 Mercury -36764-01-06 23:16 J -11706621.63 -11706621.53 -11706621.43 0.0505 0.0371  
 Venus -36763-10-14 09:35 J -11705976.28 -11705976.10 -11705975.91 0.0486 0.0199  
 Venus -36762-06-07 02:38 J -11705740.48 -11705740.39 -11705740.29 0.0484 0.0428  
 Moon -36759-09-27 03:06 J -11704532.59 -11704532.37 -11704532.14 0.0513 0.0185  
 Earth -36759-09-27 06:57 J -11704532.43 -11704532.21 -11704531.98 0.0513 0.0160 \*  
 Mercury -36758-03-09 23:45 J -11704368.66 -11704368.51 -11704368.35 0.0521 0.0114  
 Venus -36756-04-12 06:14 J -11703604.40 -11703604.24 -11703604.07 0.0544 0.0321  
 Moon -36753-03-25 12:57 J -11702526.18 -11702525.96 -11702525.74 0.0515 0.0166  
 Earth -36753-03-25 16:47 J -11702526.01 -11702525.80 -11702525.58 0.0515 0.0190 \*  
 Mercury -36753-07-28 14:38 J -11702400.99 -11702400.89 -11702400.79 0.0509 0.0355  
 Mercury -36753-10-26 02:09 J -11702311.54 -11702311.41 -11702311.28 0.0506 0.0231  
 Venus -36751-06-19 15:35 J -11701709.98 -11701709.85 -11701709.72 0.0487 0.0371  
 Venus -36750-02-10 07:54 J -11701474.34 -11701474.17 -11701473.99 0.0484 0.0256  
 Mercury -36747-12-27 00:14 J -11700058.62 -11700058.49 -11700058.35 0.0520 0.0284  
 Mercury -36746-03-26 21:21 J -11699968.69 -11699968.61 -11699968.51 0.0524 0.0419  
 Mars -36745-02-14 21:50 J -11699643.87 -11699643.59 -11699643.30 0.0537 0.0149  
 Venus -36745-12-15 18:42 J -11699338.92 -11699338.72 -11699338.51 0.0544 0.0077  
 Mercury -36741-05-16 17:30 J -11698090.80 -11698090.77 -11698090.74 0.0510 0.0494  
 Mercury -36741-08-14 04:47 J -11698001.44 -11698001.30 -11698001.15 0.0506 0.0088  
 Venus -36739-10-16 12:57 J -11697208.16 -11697207.96 -11697207.76 0.0485 0.0080

Mercury -36735-10-15 00:42 J -11695748.54 -11695748.47 -11695748.39 0.0519 0.0454

Mercury -36734-01-12 22:18 J -11695658.70 -11695658.57 -11695658.43 0.0523 0.0255

Venus -36733-08-20 06:28 J -11695073.42 -11695073.23 -11695073.04 0.0543 0.0173

Mercury -36729-06-02 07:40 J -11693691.33 -11693691.18 -11693691.04 0.0507 0.0059

Venus -36727-06-21 18:42 J -11692941.92 -11692941.72 -11692941.52 0.0486 0.0094

Mercury -36723-10-31 23:02 J -11691348.70 -11691348.54 -11691348.39 0.0521 0.0084

Venus -36721-04-24 15:06 J -11690807.99 -11690807.87 -11690807.74 0.0541 0.0426

Venus -36721-12-19 01:11 J -11690569.55 -11690569.45 -11690569.34 0.0544 0.0465

Mercury -36717-03-21 09:35 J -11689381.23 -11689381.10 -11689380.97 0.0509 0.0214

Mercury -36717-06-18 21:35 J -11689291.69 -11689291.60 -11689291.50 0.0505 0.0375

Mars -36716-03-29 03:35 J -11689008.51 -11689008.35 -11689008.19 0.0495 0.0382

Venus -36715-02-24 23:45 J -11688675.68 -11688675.51 -11688675.34 0.0487 0.0269

Venus -36715-10-18 17:02 J -11688439.93 -11688439.79 -11688439.65 0.0485 0.0358

Mercury -36711-08-19 23:02 J -11687038.70 -11687038.54 -11687038.38 0.0520 0.0094

Venus -36709-08-23 11:45 J -11686304.20 -11686304.01 -11686303.83 0.0543 0.0216

Mercury -36705-01-08 12:28 J -11685071.08 -11685070.98 -11685070.88 0.0510 0.0357

Mercury -36705-04-07 00:14 J -11684981.62 -11684981.49 -11684981.36 0.0506 0.0229

Venus -36704-10-31 05:02 J -11684409.37 -11684409.29 -11684409.20 0.0488 0.0442

Venus -36703-06-23 21:35 J -11684173.78 -11684173.60 -11684173.40 0.0485 0.0185

Mercury -36699-06-07 22:33 J -11682728.70 -11682728.56 -11682728.43 0.0519 0.0280

Mercury -36699-09-05 19:40 J -11682638.77 -11682638.68 -11682638.59 0.0523 0.0421

Venus -36697-04-27 22:04 J -11682038.78 -11682038.58 -11682038.37 0.0543 0.0037

Mercury -36694-10-27 15:50 J -11680760.87 -11680760.84 -11680760.80 0.0510 0.0492

Mercury -36693-01-25 03:21 J -11680671.51 -11680671.36 -11680671.22 0.0507 0.0091

Venus -36691-02-27 03:21 J -11679907.56 -11679907.36 -11679907.15 0.0485 0.0011

Moon -36688-09-21 13:54 J -11678605.05 -11678604.92 -11678604.79 0.0510 0.0427

Earth -36688-09-21 17:45 J -11678604.86 -11678604.76 -11678604.65 0.0510 0.0453 \*

Mercury -36687-03-26 22:47 J -11678418.63 -11678418.55 -11678418.48 0.0519 0.0454

Mercury -36687-06-24 20:23 J -11678328.79 -11678328.65 -11678328.51 0.0523 0.0253

Venus -36685-01-01 09:50 J -11677773.26 -11677773.09 -11677772.91 0.0542 0.0281

Moon -36682-03-21 01:26 J -11676598.57 -11676598.44 -11676598.30 0.0518 0.0413  
 Earth -36682-03-21 05:30 J -11676598.40 -11676598.27 -11676598.14 0.0518 0.0430 \*  
 Mercury -36682-11-13 05:59 J -11676361.39 -11676361.25 -11676361.10 0.0507 0.0055  
 Mars -36681-12-30 16:47 J -11675948.05 -11675947.80 -11675947.54 0.0492 0.0007  
 Venus -36680-11-02 08:23 J -11675641.34 -11675641.15 -11675640.96 0.0486 0.0165  
 Venus -36679-06-26 01:26 J -11675405.50 -11675405.44 -11675405.38 0.0484 0.0458  
 Earth -36676-09-26 13:54 J -11674217.15 -11674216.92 -11674216.69 0.0513 0.0091  
 Moon -36676-09-26 16:33 J -11674217.04 -11674216.81 -11674216.59 0.0513 0.0112 \*  
 Mercury -36675-04-12 21:06 J -11674018.77 -11674018.62 -11674018.46 0.0522 0.0088  
 Venus -36674-09-05 21:35 J -11673507.65 -11673507.60 -11673507.55 0.0540 0.0523  
 Venus -36673-05-01 08:52 J -11673269.27 -11673269.13 -11673268.98 0.0544 0.0368  
 Earth -36670-03-25 22:18 J -11672210.79 -11672210.57 -11672210.34 0.0515 0.0112  
 Moon -36670-03-26 01:54 J -11672210.64 -11672210.42 -11672210.19 0.0515 0.0089 \*  
 Mercury -36670-09-01 08:52 J -11672051.26 -11672051.13 -11672051.00 0.0508 0.0197  
 Mercury -36670-11-29 20:38 J -11671961.72 -11671961.64 -11671961.54 0.0505 0.0391  
 Venus -36668-07-08 13:54 J -11671375.06 -11671374.92 -11671374.77 0.0487 0.0338  
 Venus -36667-03-01 06:42 J -11671139.38 -11671139.22 -11671139.05 0.0484 0.0288  
 Mercury -36663-01-29 21:35 J -11669708.75 -11669708.60 -11669708.44 0.0520 0.0085  
 Venus -36661-01-04 17:59 J -11669003.95 -11669003.75 -11669003.55 0.0543 0.0114  
 Mercury -36658-06-20 10:47 J -11667741.15 -11667741.05 -11667740.94 0.0510 0.0354  
 Mercury -36658-09-17 22:33 J -11667651.69 -11667651.56 -11667651.43 0.0506 0.0232  
 Venus -36656-11-04 11:30 J -11666873.22 -11666873.02 -11666872.82 0.0485 0.0113  
 Mercury -36652-11-17 21:35 J -11665398.73 -11665398.60 -11665398.46 0.0519 0.0263  
 Mercury -36651-02-15 18:42 J -11665308.80 -11665308.72 -11665308.63 0.0523 0.0437  
 Venus -36650-09-09 03:50 J -11664738.54 -11664738.34 -11664738.14 0.0542 0.0138  
 Mercury -36646-04-08 13:40 J -11663430.95 -11663430.93 -11663430.89 0.0511 0.0497  
 Mercury -36646-07-07 01:11 J -11663341.59 -11663341.45 -11663341.31 0.0507 0.0086  
 Mars -36645-10-02 22:47 J -11662887.72 -11662887.55 -11662887.37 0.0491 0.0356  
 Venus -36644-07-10 16:33 J -11662607.02 -11662606.81 -11662606.61 0.0486 0.0062  
 Mercury -36640-09-05 20:52 J -11661088.71 -11661088.63 -11661088.56 0.0518 0.0452

Mercury -36640-12-04 18:28 J -11660998.86 -11660998.73 -11660998.59 0.0522 0.0254

Venus -36638-05-14 12:57 J -11660473.09 -11660472.96 -11660472.81 0.0541 0.0388

Venus -36637-01-07 23:45 J -11660234.58 -11660234.51 -11660234.43 0.0544 0.0501

Mercury -36634-04-25 04:18 J -11659031.47 -11659031.32 -11659031.18 0.0508 0.0054

Venus -36632-03-15 22:18 J -11658340.75 -11658340.57 -11658340.39 0.0487 0.0234

Venus -36632-11-06 15:06 J -11658104.98 -11658104.87 -11658104.74 0.0484 0.0389

Mercury -36628-09-22 18:57 J -11656688.86 -11656688.71 -11656688.55 0.0522 0.0083

Mars -36627-08-01 09:06 J -11656376.34 -11656376.12 -11656375.89 0.0534 0.0360

Venus -36626-09-12 12:14 J -11655969.17 -11655968.99 -11655968.81 0.0544 0.0260

Mercury -36622-02-11 07:11 J -11654721.33 -11654721.20 -11654721.07 0.0508 0.0195

Mercury -36622-05-11 18:57 J -11654631.79 -11654631.71 -11654631.61 0.0505 0.0394

Venus -36621-11-19 03:21 J -11654074.47 -11654074.36 -11654074.25 0.0488 0.0408

Venus -36620-07-12 19:40 J -11653838.86 -11653838.68 -11653838.49 0.0484 0.0215

Mercury -36616-07-11 19:40 J -11652378.84 -11652378.68 -11652378.53 0.0521 0.0086

Venus -36614-05-18 00:14 J -11651703.69 -11651703.49 -11651703.29 0.0543 0.0014

Mercury -36611-11-30 10:04 J -11650411.19 -11650411.08 -11650410.98 0.0509 0.0338

Mercury -36610-02-27 21:35 J -11650321.73 -11650321.60 -11650321.47 0.0506 0.0246

Venus -36608-03-18 01:11 J -11649572.65 -11649572.45 -11649572.24 0.0485 0.0044

Moon -36605-09-21 03:06 J -11648289.41 -11648289.37 -11648289.30 0.0510 0.0493

Mercury -36604-04-29 20:09 J -11648068.80 -11648068.66 -11648068.52 0.0519 0.0256

Mercury -36604-07-28 17:16 J -11647978.86 -11647978.78 -11647978.70 0.0523 0.0445

Venus -36602-01-20 09:35 J -11647438.28 -11647438.10 -11647437.92 0.0541 0.0239

Mercury -36599-09-18 11:59 J -11646101.03 -11646101.00 -11646100.96 0.0511 0.0495

Mercury -36599-12-16 23:30 J -11646011.67 -11646011.52 -11646011.38 0.0507 0.0088

Venus -36597-11-21 05:45 J -11645306.46 -11645306.26 -11645306.06 0.0486 0.0134

Moon -36593-09-25 17:59 J -11643902.00 -11643901.75 -11643901.51 0.0512 0.0022

Earth -36593-09-25 18:42 J -11643901.95 -11643901.72 -11643901.48 0.0512 0.0010 \*

Mercury -36592-02-15 19:54 J -11643758.76 -11643758.67 -11643758.59 0.0518 0.0435

Mercury -36592-05-16 17:30 J -11643668.90 -11643668.77 -11643668.64 0.0522 0.0270

Mars -36591-05-10 23:59 J -11643309.73 -11643309.50 -11643309.25 0.0536 0.0322

Venus -36591-09-24 18:57 J -11643172.79 -11643172.71 -11643172.62 0.0540 0.0486  
 Venus -36590-05-21 05:30 J -11642934.41 -11642934.27 -11642934.14 0.0543 0.0398  
 Moon -36587-03-24 17:59 J -11641895.99 -11641895.75 -11641895.52 0.0516 0.0029  
 Earth -36587-03-24 20:38 J -11641895.87 -11641895.64 -11641895.41 0.0516 0.0004 \*  
 Mercury -36587-10-05 01:54 J -11641701.56 -11641701.42 -11641701.27 0.0508 0.0062  
 Venus -36585-07-27 10:47 J -11641040.20 -11641040.05 -11641039.89 0.0487 0.0306  
 Venus -36584-03-20 03:50 J -11640804.49 -11640804.34 -11640804.18 0.0485 0.0317  
 Moon -36581-09-30 08:23 J -11639514.18 -11639514.15 -11639514.12 0.0514 0.0507  
 Mercury -36580-03-04 17:02 J -11639358.95 -11639358.79 -11639358.64 0.0521 0.0084  
 Venus -36578-01-23 15:06 J -11638669.06 -11638668.87 -11638668.68 0.0543 0.0149  
 Mercury -36575-07-24 05:02 J -11637391.42 -11637391.29 -11637391.15 0.0509 0.0199  
 Mercury -36575-10-21 17:02 J -11637301.88 -11637301.79 -11637301.70 0.0505 0.0391  
 Venus -36573-04-01 17:02 J -11636773.83 -11636773.79 -11636773.75 0.0488 0.0477  
 Venus -36573-11-23 09:21 J -11636538.31 -11636538.11 -11636537.91 0.0485 0.0145  
 Mercury -36569-12-21 17:16 J -11635048.94 -11635048.78 -11635048.62 0.0520 0.0091  
 Venus -36567-09-28 02:38 J -11634403.59 -11634403.39 -11634403.19 0.0543 0.0098  
 Mercury -36563-05-12 08:09 J -11633081.26 -11633081.16 -11633081.05 0.0509 0.0338  
 Mercury -36563-08-09 19:40 J -11632991.80 -11632991.68 -11632991.55 0.0506 0.0247  
 Mars -36562-06-23 00:42 J -11632674.68 -11632674.47 -11632674.25 0.0494 0.0270  
 Venus -36561-07-29 14:09 J -11632272.12 -11632271.91 -11632271.71 0.0485 0.0031  
 Mercury -36557-10-09 17:45 J -11630738.90 -11630738.76 -11630738.63 0.0520 0.0261  
 Mercury -36556-01-07 15:06 J -11630648.96 -11630648.87 -11630648.79 0.0524 0.0441  
 Venus -36555-06-02 14:09 J -11630138.06 -11630137.91 -11630137.75 0.0541 0.0342  
 Venus -36554-01-27 01:11 J -11629899.46 -11629899.45 -11629899.45 0.0544 0.0544  
 Mercury -36551-02-28 11:02 J -11628771.08 -11628771.04 -11628770.99 0.0510 0.0481  
 Mercury -36551-05-28 22:18 J -11628681.71 -11628681.57 -11628681.42 0.0507 0.0102  
 Venus -36549-04-03 19:40 J -11628005.86 -11628005.68 -11628005.49 0.0486 0.0203  
 Venus -36549-11-25 12:42 J -11627770.07 -11627769.97 -11627769.86 0.0484 0.0417  
 Mercury -36545-07-28 17:59 J -11626428.83 -11626428.75 -11626428.66 0.0518 0.0432  
 Mercury -36545-10-26 15:50 J -11626338.97 -11626338.84 -11626338.71 0.0522 0.0275

Venus -36543-10-01 11:16 J -11625634.20 -11625634.03 -11625633.86 0.0543 0.0297  
 Mercury -36539-03-17 00:14 J -11624371.63 -11624371.49 -11624371.35 0.0508 0.0058  
 Venus -36538-12-08 23:45 J -11623739.64 -11623739.51 -11623739.38 0.0488 0.0378  
 Venus -36537-07-31 16:33 J -11623503.98 -11623503.81 -11623503.62 0.0485 0.0245  
 Mercury -36533-08-14 16:04 J -11622028.99 -11622028.83 -11622028.68 0.0521 0.0099  
 Venus -36531-06-05 21:06 J -11621368.82 -11621368.62 -11621368.42 0.0542 0.0047  
 Mercury -36527-01-03 02:52 J -11620061.51 -11620061.38 -11620061.25 0.0509 0.0205  
 Mercury -36527-04-02 14:52 J -11619971.98 -11619971.88 -11619971.79 0.0505 0.0384  
 Mars -36526-03-26 06:28 J -11619614.48 -11619614.23 -11619613.98 0.0493 0.0088  
 Venus -36525-04-05 21:35 J -11619237.80 -11619237.60 -11619237.39 0.0485 0.0073  
 Mercury -36521-06-02 15:06 J -11617719.02 -11617718.87 -11617718.71 0.0520 0.0092  
 Venus -36519-02-08 05:16 J -11617103.46 -11617103.28 -11617103.09 0.0542 0.0206  
 Mercury -36516-10-22 05:59 J -11615751.35 -11615751.25 -11615751.14 0.0510 0.0343  
 Mercury -36515-01-19 17:45 J -11615661.89 -11615661.76 -11615661.63 0.0506 0.0243  
 Venus -36514-12-11 03:21 J -11614971.56 -11614971.36 -11614971.16 0.0486 0.0101  
 Moon -36510-09-25 15:50 J -11613587.06 -11613586.84 -11613586.62 0.0511 0.0097  
 Earth -36510-09-25 17:02 J -11613587.02 -11613586.79 -11613586.56 0.0511 0.0101 \*  
 Mercury -36509-03-21 15:06 J -11613409.00 -11613408.87 -11613408.73 0.0519 0.0268  
 Mercury -36509-06-19 12:28 J -11613319.06 -11613318.98 -11613318.89 0.0523 0.0433  
 Venus -36508-10-13 16:18 J -11612837.93 -11612837.82 -11612837.71 0.0540 0.0449  
 Venus -36507-06-09 03:35 J -11612599.46 -11612599.35 -11612599.23 0.0544 0.0435  
 Earth -36504-03-24 02:09 J -11611580.64 -11611580.41 -11611580.19 0.0517 0.0082  
 Moon -36504-03-24 02:52 J -11611580.60 -11611580.38 -11611580.17 0.0517 0.0108 \*  
 Mercury -36504-08-10 09:06 J -11611441.16 -11611441.12 -11611441.07 0.0511 0.0482  
 Mercury -36504-11-07 20:23 J -11611351.79 -11611351.65 -11611351.50 0.0507 0.0101  
 Venus -36502-08-16 08:23 J -11610705.32 -11610705.15 -11610704.98 0.0487 0.0275  
 Venus -36501-04-08 00:57 J -11610469.59 -11610469.46 -11610469.31 0.0484 0.0345  
 Earth -36498-09-30 12:28 J -11609199.09 -11609198.98 -11609198.86 0.0514 0.0445  
 Moon -36498-09-30 15:35 J -11609198.98 -11609198.85 -11609198.70 0.0514 0.0413 \*  
 Mercury -36497-01-08 15:35 J -11609098.94 -11609098.85 -11609098.77 0.0518 0.0441

Mercury -36497-04-07 13:11 J -11609009.08 -11609008.95 -11609008.81 0.0522 0.0267  
 Venus -36495-02-11 15:50 J -11608334.03 -11608333.84 -11608333.65 0.0544 0.0192  
 Earth -36492-03-28 18:42 J -11607192.82 -11607192.72 -11607192.61 0.0514 0.0456  
 Moon -36492-03-28 20:38 J -11607192.76 -11607192.64 -11607192.53 0.0514 0.0447 \*  
 Mercury -36492-08-26 23:16 J -11607041.68 -11607041.53 -11607041.39 0.0508 0.0046  
 Mars -36491-12-27 17:16 J -11606553.87 -11606553.78 -11606553.69 0.0491 0.0458  
 Venus -36490-04-21 13:54 J -11606439.00 -11606438.92 -11606438.84 0.0488 0.0446  
 Venus -36490-12-13 06:14 J -11606203.43 -11606203.24 -11606203.05 0.0485 0.0173  
 Mercury -36485-01-25 14:09 J -11604699.07 -11604698.91 -11604698.76 0.0521 0.0100  
 Venus -36484-10-17 02:23 J -11604068.60 -11604068.40 -11604068.20 0.0542 0.0056  
 Mercury -36480-06-15 01:11 J -11602731.58 -11602731.45 -11602731.32 0.0509 0.0203  
 Mercury -36480-09-12 12:57 J -11602642.05 -11602641.96 -11602641.86 0.0505 0.0384  
 Venus -36478-08-18 10:18 J -11601937.28 -11601937.07 -11601936.87 0.0486 0.0005  
 Mercury -36474-11-13 14:09 J -11600389.07 -11600388.91 -11600388.75 0.0520 0.0077  
 Mars -36473-10-25 07:26 J -11600042.46 -11600042.19 -11600041.90 0.0534 0.0199  
 Venus -36472-06-21 11:45 J -11599803.18 -11599803.01 -11599802.85 0.0541 0.0305  
 Mercury -36468-04-03 03:50 J -11598421.44 -11598421.34 -11598421.24 0.0510 0.0350  
 Mercury -36468-07-01 15:21 J -11598331.99 -11598331.86 -11598331.73 0.0506 0.0235  
 Venus -36466-04-23 15:35 J -11597671.04 -11597670.85 -11597670.66 0.0487 0.0174  
 Venus -36466-12-15 08:38 J -11597435.21 -11597435.14 -11597435.05 0.0484 0.0446  
 Mercury -36462-09-01 13:11 J -11596079.09 -11596078.95 -11596078.82 0.0519 0.0269  
 Mercury -36462-11-30 10:18 J -11595989.15 -11595989.07 -11595988.98 0.0523 0.0432  
 Venus -36460-10-20 06:42 J -11595299.38 -11595299.22 -11595299.06 0.0544 0.0327  
 Mercury -36456-01-20 06:57 J -11594111.24 -11594111.21 -11594111.17 0.0511 0.0488  
 Mercury -36456-04-19 18:14 J -11594021.88 -11594021.74 -11594021.59 0.0507 0.0096  
 Venus -36455-12-27 21:21 J -11593404.75 -11593404.61 -11593404.46 0.0488 0.0345  
 Venus -36454-08-20 13:54 J -11593169.08 -11593168.92 -11593168.75 0.0485 0.0275  
 Mercury -36450-06-20 12:57 J -11591769.04 -11591768.96 -11591768.88 0.0518 0.0447  
 Mercury -36450-09-18 10:47 J -11591679.18 -11591679.05 -11591678.91 0.0522 0.0259  
 Venus -36448-06-24 17:59 J -11591033.95 -11591033.75 -11591033.55 0.0543 0.0082



Mercury -36444-02-05 21:21 J -11589711.76 -11589711.61 -11589711.47 0.0508 0.0049

Venus -36442-04-25 18:57 J -11588902.91 -11588902.71 -11588902.51 0.0485 0.0101

Mercury -36438-07-07 11:16 J -11587369.18 -11587369.03 -11587368.87 0.0521 0.0091

Mars -36437-08-03 13:40 J -11586976.07 -11586975.93 -11586975.77 0.0537 0.0466

Venus -36436-02-27 05:30 J -11586768.46 -11586768.27 -11586768.07 0.0542 0.0164

Mercury -36433-11-24 23:59 J -11585401.63 -11585401.50 -11585401.36 0.0509 0.0192

Mercury -36432-02-22 11:45 J -11585312.09 -11585312.01 -11585311.92 0.0505 0.0397

Venus -36431-12-30 00:14 J -11584636.70 -11584636.49 -11584636.29 0.0486 0.0072

Earth -36427-09-24 21:21 J -11583271.83 -11583271.61 -11583271.39 0.0511 0.0182

Moon -36427-09-25 00:14 J -11583271.71 -11583271.49 -11583271.26 0.0511 0.0185 \*

Mercury -36426-04-25 11:59 J -11583059.15 -11583059.00 -11583058.84 0.0520 0.0079

Venus -36425-11-01 16:18 J -11582502.94 -11582502.82 -11582502.68 0.0540 0.0406

Venus -36424-06-28 02:52 J -11582264.47 -11582264.38 -11582264.27 0.0544 0.0474

Earth -36421-03-23 00:28 J -11581265.69 -11581265.48 -11581265.26 0.0517 0.0197

Moon -36421-03-23 01:54 J -11581265.64 -11581265.42 -11581265.21 0.0517 0.0224 \*

Mercury -36421-09-13 02:09 J -11581091.51 -11581091.41 -11581091.30 0.0510 0.0347

Mercury -36421-12-11 13:40 J -11581002.06 -11581001.93 -11581001.80 0.0506 0.0237

Venus -36419-09-04 04:04 J -11580370.50 -11580370.33 -11580370.15 0.0487 0.0247

Venus -36418-04-27 21:21 J -11580134.74 -11580134.61 -11580134.48 0.0485 0.0373

Moon -36415-09-29 12:28 J -11578884.16 -11578883.98 -11578883.80 0.0513 0.0322

Earth -36415-09-29 16:04 J -11578883.99 -11578883.83 -11578883.66 0.0513 0.0357 \*

Mercury -36414-02-11 11:59 J -11578749.13 -11578749.00 -11578748.86 0.0519 0.0255

Mercury -36414-05-12 09:21 J -11578659.18 -11578659.11 -11578659.03 0.0523 0.0447

Venus -36412-03-02 12:57 J -11577999.14 -11577998.96 -11577998.77 0.0543 0.0227

Moon -36409-03-27 13:26 J -11576878.11 -11576877.94 -11576877.77 0.0515 0.0330

Earth -36409-03-27 16:04 J -11576878.00 -11576877.83 -11576877.65 0.0515 0.0337 \*

Mercury -36409-07-02 05:02 J -11576781.33 -11576781.29 -11576781.26 0.0511 0.0493

Mercury -36409-09-29 16:04 J -11576691.97 -11576691.83 -11576691.68 0.0507 0.0089

Mars -36408-09-15 10:04 J -11576341.31 -11576341.08 -11576340.84 0.0494 0.0187

Venus -36407-05-10 09:21 J -11576104.21 -11576104.11 -11576104.00 0.0488 0.0417

Venus -36406-01-01 02:09 J -11575868.60 -11575868.41 -11575868.22 0.0485 0.0202  
 Mercury -36403-11-30 10:47 J -11574439.12 -11574439.05 -11574438.97 0.0518 0.0448  
 Mercury -36402-02-28 08:38 J -11574349.27 -11574349.14 -11574349.00 0.0522 0.0259  
 Venus -36401-11-04 20:52 J -11573733.83 -11573733.63 -11573733.42 0.0542 0.0029  
 Mercury -36397-07-18 19:11 J -11572381.85 -11572381.70 -11572381.56 0.0508 0.0054  
 Venus -36395-09-06 07:54 J -11571602.38 -11571602.17 -11571601.97 0.0486 0.0030  
 Mercury -36391-12-17 08:52 J -11570039.28 -11570039.13 -11570038.97 0.0521 0.0084  
 Venus -36389-07-10 07:26 J -11569468.36 -11569468.19 -11569468.01 0.0541 0.0273  
 Mercury -36385-05-06 22:04 J -11568071.71 -11568071.58 -11568071.45 0.0509 0.0193  
 Mercury -36385-08-04 09:50 J -11567982.18 -11567982.09 -11567982.00 0.0505 0.0395  
 Venus -36383-05-12 12:57 J -11567336.15 -11567335.96 -11567335.76 0.0486 0.0143  
 Venus -36382-01-03 05:45 J -11567100.29 -11567100.26 -11567100.21 0.0484 0.0472  
 Mercury -36379-10-05 09:21 J -11565729.27 -11565729.11 -11565728.95 0.0520 0.0088  
 Venus -36377-03-14 18:57 J -11565202.77 -11565202.71 -11565202.64 0.0540 0.0511  
 Venus -36377-11-08 06:42 J -11564964.36 -11564964.22 -11564964.06 0.0544 0.0368  
 Mercury -36373-02-24 00:57 J -11563761.56 -11563761.46 -11563761.35 0.0510 0.0336  
 Mercury -36373-05-23 12:28 J -11563672.10 -11563671.98 -11563671.85 0.0506 0.0250  
 Mars -36372-06-18 23:16 J -11563280.76 -11563280.53 -11563280.29 0.0492 0.0191  
 Venus -36371-01-15 18:28 J -11563069.88 -11563069.73 -11563069.57 0.0487 0.0315  
 Venus -36371-09-08 10:47 J -11562834.20 -11562834.05 -11562833.88 0.0484 0.0302  
 Mercury -36367-07-24 10:04 J -11561419.22 -11561419.08 -11561418.95 0.0519 0.0257  
 Mercury -36367-10-22 07:26 J -11561329.27 -11561329.19 -11561329.11 0.0523 0.0446  
 Venus -36365-07-13 18:14 J -11560698.94 -11560698.74 -11560698.55 0.0543 0.0125  
 Mercury -36362-12-13 03:21 J -11559451.40 -11559451.36 -11559451.32 0.0511 0.0488  
 Mercury -36361-03-11 14:38 J -11559362.04 -11559361.89 -11559361.75 0.0507 0.0093  
 Venus -36360-09-20 22:18 J -11558803.57 -11558803.57 -11558803.55 0.0489 0.0488  
 Venus -36359-05-14 14:52 J -11558568.07 -11558567.88 -11558567.68 0.0485 0.0130  
 Mercury -36355-05-12 09:50 J -11557109.17 -11557109.09 -11557109.00 0.0518 0.0433  
 Mercury -36355-08-10 07:40 J -11557019.31 -11557019.18 -11557019.04 0.0522 0.0274  
 Venus -36353-03-18 03:50 J -11556433.53 -11556433.34 -11556433.14 0.0542 0.0124

Mercury -36350-12-29 17:02 J -11555051.93 -11555051.79 -11555051.65 0.0508 0.0056  
 Venus -36347-01-17 20:09 J -11554301.86 -11554301.66 -11554301.46 0.0486 0.0042  
 Moon -36344-09-23 15:50 J -11552957.02 -11552956.84 -11552956.65 0.0510 0.0294  
 Earth -36344-09-23 19:26 J -11552956.87 -11552956.69 -11552956.49 0.0510 0.0289 \*  
 Mercury -36343-05-29 06:57 J -11552709.36 -11552709.21 -11552709.05 0.0521 0.0084  
 Venus -36342-11-21 11:02 J -11552168.19 -11552168.04 -11552167.90 0.0540 0.0377  
 Venus -36341-07-16 21:50 J -11551929.67 -11551929.59 -11551929.52 0.0544 0.0500  
 Moon -36338-03-22 23:45 J -11550950.68 -11550950.51 -11550950.34 0.0518 0.0326  
 Earth -36338-03-23 02:23 J -11550950.59 -11550950.40 -11550950.21 0.0518 0.0292 \*  
 Mercury -36338-10-17 20:09 J -11550741.80 -11550741.66 -11550741.53 0.0509 0.0197  
 Mercury -36337-01-15 07:54 J -11550652.26 -11550652.17 -11550652.08 0.0506 0.0392  
 Venus -36336-09-23 02:23 J -11550035.59 -11550035.40 -11550035.22 0.0487 0.0213  
 Venus -36335-05-16 19:11 J -11549799.81 -11549799.70 -11549799.59 0.0484 0.0403  
 Earth -36332-09-28 13:11 J -11548569.15 -11548568.95 -11548568.74 0.0512 0.0243  
 Moon -36332-09-28 17:16 J -11548568.99 -11548568.78 -11548568.57 0.0512 0.0212 \*  
 Mercury -36331-03-17 06:57 J -11548399.36 -11548399.21 -11548399.05 0.0520 0.0093  
 Venus -36329-03-21 09:06 J -11547664.30 -11547664.12 -11547663.95 0.0544 0.0258  
 Earth -36326-03-27 21:06 J -11546562.81 -11546562.62 -11546562.42 0.0516 0.0260  
 Moon -36326-03-28 00:57 J -11546562.66 -11546562.46 -11546562.25 0.0516 0.0259 \*  
 Mercury -36326-08-05 23:16 J -11546431.64 -11546431.53 -11546431.43 0.0510 0.0337  
 Mercury -36326-11-03 10:33 J -11546342.18 -11546342.06 -11546341.93 0.0506 0.0249  
 Venus -36324-05-29 07:40 J -11545769.30 -11545769.18 -11545769.05 0.0488 0.0385  
 Venus -36323-01-19 23:45 J -11545533.69 -11545533.51 -11545533.33 0.0485 0.0231  
 Mercury -36319-01-03 07:11 J -11544089.34 -11544089.20 -11544089.06 0.0519 0.0266  
 Mercury -36319-04-03 04:33 J -11543999.39 -11543999.31 -11543999.22 0.0523 0.0436  
 Mars -36318-01-18 14:52 J -11543709.18 -11543708.88 -11543708.58 0.0535 0.0067  
 Venus -36318-11-24 21:06 J -11543398.82 -11543398.62 -11543398.42 0.0543 0.0016  
 Mercury -36314-05-25 02:09 J -11542121.45 -11542121.41 -11542121.36 0.0511 0.0477  
 Mercury -36314-08-22 13:26 J -11542032.08 -11542031.94 -11542031.80 0.0507 0.0105  
 Venus -36312-09-25 05:16 J -11541267.48 -11541267.28 -11541267.08 0.0485 0.0060

Mercury -36308-10-22 07:40 J -11539779.26 -11539779.18 -11539779.09 0.0518 0.0435

Mercury -36307-01-20 05:45 J -11539689.39 -11539689.26 -11539689.13 0.0522 0.0273

Venus -36306-07-30 08:38 J -11539133.32 -11539133.14 -11539132.96 0.0541 0.0226

Mercury -36302-06-10 15:35 J -11537721.99 -11537721.85 -11537721.71 0.0508 0.0050

Venus -36300-05-31 09:21 J -11537001.31 -11537001.11 -11537000.91 0.0486 0.0114

Mercury -36296-11-08 05:59 J -11535379.40 -11535379.25 -11535379.09 0.0521 0.0101

Venus -36294-04-03 18:28 J -11534867.83 -11534867.73 -11534867.63 0.0540 0.0468

Venus -36294-11-28 05:30 J -11534629.40 -11534629.27 -11534629.13 0.0543 0.0405

Mercury -36290-03-29 18:14 J -11533411.87 -11533411.74 -11533411.61 0.0509 0.0197

Mercury -36290-06-27 05:59 J -11533322.34 -11533322.25 -11533322.16 0.0505 0.0391

Mars -36289-03-07 16:18 J -11533067.91 -11533067.82 -11533067.72 0.0496 0.0458

Venus -36288-02-03 14:52 J -11532735.04 -11532734.88 -11532734.71 0.0488 0.0284

Venus -36288-09-27 07:40 J -11532499.33 -11532499.18 -11532499.03 0.0485 0.0332

Mercury -36284-08-27 05:16 J -11531069.44 -11531069.28 -11531069.13 0.0520 0.0089

Venus -36282-08-02 12:57 J -11530364.15 -11530363.96 -11530363.76 0.0543 0.0152

Mercury -36278-01-15 21:06 J -11529101.72 -11529101.62 -11529101.51 0.0510 0.0339

Mercury -36278-04-15 08:38 J -11529012.26 -11529012.14 -11529012.01 0.0507 0.0248

Venus -36277-10-09 21:06 J -11528468.69 -11528468.62 -11528468.54 0.0489 0.0454

Venus -36276-06-02 13:40 J -11528233.13 -11528232.93 -11528232.74 0.0485 0.0163

Mercury -36272-06-15 05:02 J -11526759.42 -11526759.29 -11526759.15 0.0519 0.0267

Mercury -36272-09-13 02:38 J -11526669.47 -11526669.39 -11526669.31 0.0522 0.0434

Venus -36270-04-06 23:30 J -11526098.72 -11526098.52 -11526098.32 0.0542 0.0094

Mercury -36267-11-04 00:28 J -11524791.53 -11524791.48 -11524791.43 0.0511 0.0476

Mercury -36266-02-01 11:30 J -11524702.16 -11524702.02 -11524701.87 0.0507 0.0107

Venus -36264-02-05 18:42 J -11523966.92 -11523966.72 -11523966.51 0.0486 0.0010

Earth -36261-09-22 21:50 J -11522641.74 -11522641.59 -11522641.43 0.0509 0.0379

Moon -36261-09-23 01:54 J -11522641.57 -11522641.42 -11522641.27 0.0509 0.0384 \*

Mercury -36260-04-03 05:02 J -11522449.37 -11522449.29 -11522449.20 0.0518 0.0443

Mercury -36260-07-02 03:06 J -11522359.50 -11522359.37 -11522359.23 0.0522 0.0265

Venus -36259-12-10 11:16 J -11521833.19 -11521833.03 -11521832.87 0.0541 0.0334

Venus -36258-08-05 22:33 J -11521594.58 -11521594.56 -11521594.54 0.0544 0.0541  
 Earth -36255-03-22 08:23 J -11520635.31 -11520635.15 -11520634.98 0.0519 0.0368  
 Moon -36255-03-22 11:59 J -11520635.14 -11520635.00 -11520634.84 0.0519 0.0400 \*  
 Mercury -36255-11-20 14:38 J -11520392.04 -11520391.89 -11520391.75 0.0508 0.0039  
 Mars -36254-12-10 08:23 J -11520007.40 -11520007.15 -11520006.89 0.0494 0.0072  
 Venus -36253-10-12 00:28 J -11519700.67 -11519700.48 -11519700.29 0.0487 0.0181  
 Venus -36252-06-04 17:02 J -11519464.88 -11519464.79 -11519464.70 0.0484 0.0431  
 Moon -36249-09-27 14:52 J -11518254.11 -11518253.88 -11518253.65 0.0512 0.0132  
 Earth -36249-09-27 18:28 J -11518253.96 -11518253.73 -11518253.51 0.0512 0.0164 \*  
 Mercury -36248-04-20 04:04 J -11518049.49 -11518049.33 -11518049.18 0.0521 0.0100  
 Venus -36246-04-10 10:47 J -11517329.21 -11517329.05 -11517328.88 0.0543 0.0304  
 Moon -36243-03-26 20:09 J -11516247.88 -11516247.66 -11516247.44 0.0516 0.0165  
 Earth -36243-03-26 23:59 J -11516247.72 -11516247.50 -11516247.28 0.0516 0.0167 \*  
 Mercury -36243-09-08 16:47 J -11516081.93 -11516081.80 -11516081.66 0.0509 0.0189  
 Mercury -36243-12-07 04:33 J -11515992.40 -11515992.31 -11515992.22 0.0505 0.0399  
 Venus -36241-06-17 04:33 J -11515434.44 -11515434.31 -11515434.17 0.0488 0.0354  
 Venus -36240-02-07 21:06 J -11515198.79 -11515198.62 -11515198.45 0.0485 0.0261  
 Mercury -36236-02-06 04:18 J -11513739.48 -11513739.32 -11513739.16 0.0520 0.0072  
 Venus -36235-12-13 21:06 J -11513063.82 -11513063.62 -11513063.42 0.0542 0.0059  
 Mercury -36231-06-27 19:40 J -11511771.79 -11511771.68 -11511771.57 0.0510 0.0334  
 Mercury -36231-09-25 06:57 J -11511682.33 -11511682.21 -11511682.08 0.0506 0.0251  
 Venus -36229-10-14 02:38 J -11510932.59 -11510932.39 -11510932.19 0.0486 0.0092  
 Mercury -36225-11-25 03:21 J -11509429.49 -11509429.36 -11509429.22 0.0518 0.0261  
 Mercury -36224-02-23 00:57 J -11509339.54 -11509339.46 -11509339.38 0.0522 0.0440  
 Venus -36223-08-18 04:04 J -11508798.52 -11508798.33 -11508798.14 0.0541 0.0196  
 Mercury -36219-04-15 22:33 J -11507461.61 -11507461.56 -11507461.51 0.0512 0.0477  
 Mercury -36219-07-14 09:50 J -11507372.23 -11507372.09 -11507371.95 0.0508 0.0106  
 Mars -36218-09-12 16:33 J -11506947.00 -11506946.81 -11506946.60 0.0493 0.0294  
 Venus -36217-06-19 08:52 J -11506666.33 -11506666.13 -11506665.93 0.0486 0.0079  
 Mercury -36213-09-13 03:21 J -11505119.45 -11505119.36 -11505119.28 0.0517 0.0439

Mercury -36213-12-12 01:11 J -11505029.58 -11505029.45 -11505029.31 0.0521 0.0267

Venus -36211-04-22 14:23 J -11504533.02 -11504532.90 -11504532.78 0.0540 0.0438

Venus -36211-12-17 01:40 J -11504294.55 -11504294.43 -11504294.31 0.0544 0.0435

Mercury -36207-05-02 12:42 J -11503062.11 -11503061.97 -11503061.82 0.0509 0.0037

Venus -36205-02-23 14:23 J -11502400.08 -11502399.90 -11502399.73 0.0487 0.0249

Venus -36205-10-16 06:42 J -11502164.35 -11502164.22 -11502164.08 0.0484 0.0363

Mercury -36201-09-30 01:40 J -11500719.59 -11500719.43 -11500719.28 0.0521 0.0095

Venus -36199-08-21 13:54 J -11500029.11 -11500028.92 -11500028.73 0.0543 0.0196

Mercury -36195-02-18 15:50 J -11498751.97 -11498751.84 -11498751.70 0.0509 0.0175

Mercury -36195-05-19 03:35 J -11498662.43 -11498662.35 -11498662.27 0.0506 0.0413

Venus -36194-10-29 20:09 J -11498133.76 -11498133.66 -11498133.56 0.0489 0.0419

Venus -36193-06-21 11:59 J -11497898.18 -11497898.00 -11497897.81 0.0485 0.0194

Mercury -36189-07-19 02:23 J -11496409.56 -11496409.40 -11496409.24 0.0520 0.0071

Venus -36187-04-26 02:09 J -11495763.61 -11495763.41 -11495763.20 0.0542 0.0044

Mercury -36184-12-07 18:28 J -11494441.84 -11494441.73 -11494441.62 0.0510 0.0324

Mercury -36183-03-07 05:45 J -11494352.38 -11494352.26 -11494352.13 0.0506 0.0261

Venus -36181-02-25 16:33 J -11493632.01 -11493631.81 -11493631.61 0.0486 0.0022

Moon -36178-09-23 01:26 J -11492326.54 -11492326.44 -11492326.34 0.0509 0.0458

Earth -36178-09-23 04:47 J -11492326.40 -11492326.30 -11492326.18 0.0509 0.0447 \*

Mercury -36177-05-07 02:38 J -11492099.53 -11492099.39 -11492099.25 0.0519 0.0243

Mercury -36177-08-05 00:14 J -11492009.56 -11492009.49 -11492009.42 0.0523 0.0459

Venus -36176-12-29 12:28 J -11491498.15 -11491497.98 -11491497.80 0.0541 0.0287

Moon -36172-03-21 06:57 J -11490320.27 -11490320.21 -11490320.15 0.0519 0.0498

Earth -36172-03-21 10:47 J -11490320.15 -11490320.05 -11490319.94 0.0519 0.0463 \*

Mercury -36172-09-25 21:21 J -11490131.66 -11490131.61 -11490131.56 0.0511 0.0468

Mercury -36172-12-24 08:23 J -11490042.29 -11490042.15 -11490042.01 0.0507 0.0113

Venus -36170-10-31 22:18 J -11489365.76 -11489365.57 -11489365.37 0.0487 0.0148

Venus -36169-06-23 15:06 J -11489129.92 -11489129.87 -11489129.80 0.0484 0.0464

Earth -36166-09-27 20:52 J -11487938.86 -11487938.63 -11487938.39 0.0511 0.0079

Moon -36166-09-27 22:47 J -11487938.77 -11487938.55 -11487938.32 0.0511 0.0054 \*

Mercury -36165-02-24 01:40 J -11487789.51 -11487789.43 -11487789.33 0.0517 0.0430  
 Mercury -36165-05-23 23:45 J -11487699.64 -11487699.51 -11487699.37 0.0521 0.0276  
 Mars -36164-04-13 08:38 J -11487375.44 -11487375.14 -11487374.85 0.0534 0.0090  
 Venus -36164-09-02 19:26 J -11487232.71 -11487232.69 -11487232.67 0.0539 0.0535  
 Venus -36163-04-29 06:57 J -11486994.37 -11486994.21 -11486994.05 0.0543 0.0333  
 Earth -36160-03-26 02:52 J -11485932.61 -11485932.38 -11485932.15 0.0518 0.0081  
 Moon -36160-03-26 06:14 J -11485932.47 -11485932.24 -11485932.02 0.0518 0.0089 \*  
 Mercury -36160-10-12 11:02 J -11485732.18 -11485732.04 -11485731.89 0.0509 0.0034  
 Venus -36158-07-07 04:33 J -11485099.47 -11485099.31 -11485099.16 0.0488 0.0318  
 Venus -36157-02-27 21:06 J -11484863.78 -11484863.62 -11484863.46 0.0485 0.0296  
 Mercury -36153-03-11 23:59 J -11483389.65 -11483389.50 -11483389.34 0.0520 0.0102  
 Venus -36151-01-01 17:30 J -11482728.97 -11482728.77 -11482728.57 0.0543 0.0089  
 Mercury -36148-07-31 14:09 J -11481422.04 -11481421.91 -11481421.77 0.0510 0.0173  
 Mercury -36148-10-29 01:54 J -11481332.50 -11481332.42 -11481332.34 0.0506 0.0417  
 Venus -36146-03-12 10:04 J -11480833.09 -11480833.08 -11480833.05 0.0489 0.0487  
 Venus -36146-11-03 02:23 J -11480597.60 -11480597.40 -11480597.20 0.0485 0.0126  
 Mercury -36142-12-30 00:14 J -11479079.65 -11479079.49 -11479079.33 0.0520 0.0073  
 Venus -36140-09-06 05:16 J -11478463.47 -11478463.28 -11478463.08 0.0542 0.0151  
 Mercury -36136-05-19 17:16 J -11477111.88 -11477111.78 -11477111.66 0.0510 0.0312  
 Mercury -36136-08-17 04:47 J -11477022.42 -11477022.30 -11477022.18 0.0507 0.0275  
 Mars -36135-06-01 20:23 J -11476733.84 -11476733.65 -11476733.46 0.0496 0.0327  
 Venus -36134-07-09 08:09 J -11476331.37 -11476331.16 -11476330.96 0.0486 0.0044  
 Mercury -36130-10-18 00:42 J -11474769.61 -11474769.47 -11474769.32 0.0519 0.0240  
 Mercury -36129-01-15 22:18 J -11474679.64 -11474679.57 -11474679.50 0.0523 0.0462  
 Venus -36128-05-11 17:30 J -11474197.91 -11474197.77 -11474197.63 0.0540 0.0387  
 Venus -36127-01-05 05:02 J -11473959.38 -11473959.29 -11473959.20 0.0544 0.0483  
 Mercury -36124-03-07 20:09 J -11472801.72 -11472801.66 -11472801.60 0.0511 0.0456  
 Mercury -36124-06-05 07:11 J -11472712.34 -11472712.20 -11472712.06 0.0507 0.0126  
 Venus -36122-03-14 12:42 J -11472065.15 -11472064.97 -11472064.78 0.0487 0.0216  
 Venus -36122-11-05 05:16 J -11471829.39 -11471829.28 -11471829.16 0.0484 0.0395

Mercury -36118-08-06 00:57 J -11470459.55 -11470459.46 -11470459.36 0.0518 0.0412

Mercury -36118-11-03 23:02 J -11470369.66 -11470369.54 -11470369.41 0.0522 0.0296

Venus -36116-09-09 16:04 J -11469694.01 -11469693.83 -11469693.65 0.0543 0.0243

Mercury -36112-03-24 10:04 J -11468402.23 -11468402.08 -11468401.94 0.0508 0.0023

Venus -36111-11-17 18:28 J -11467798.85 -11467798.73 -11467798.60 0.0489 0.0385

Venus -36110-07-11 10:47 J -11467563.22 -11467563.05 -11467562.86 0.0485 0.0228

Mercury -36106-08-22 22:47 J -11466059.70 -11466059.55 -11466059.40 0.0520 0.0114

Venus -36104-05-14 23:16 J -11465428.73 -11465428.53 -11465428.32 0.0542 0.0013

Mercury -36100-01-10 12:42 J -11464092.11 -11464091.97 -11464091.84 0.0510 0.0168

Mercury -36100-04-10 00:14 J -11464002.56 -11464002.49 -11464002.41 0.0506 0.0423

Mars -36099-03-05 07:54 J -11463673.42 -11463673.17 -11463672.91 0.0494 0.0046

Venus -36098-03-16 17:02 J -11463296.99 -11463296.79 -11463296.58 0.0486 0.0060

Mercury -36094-06-10 22:47 J -11461749.71 -11461749.55 -11461749.39 0.0519 0.0062

Venus -36092-01-17 09:21 J -11461163.28 -11461163.11 -11461162.93 0.0541 0.0255

Mercury -36089-10-29 15:50 J -11459781.95 -11459781.84 -11459781.73 0.0511 0.0307

Mercury -36088-01-27 03:06 J -11459692.48 -11459692.37 -11459692.24 0.0507 0.0280

Venus -36087-11-19 22:47 J -11459030.75 -11459030.55 -11459030.35 0.0487 0.0112

Moon -36083-09-27 01:26 J -11457623.68 -11457623.44 -11457623.19 0.0510 0.0025

Earth -36083-09-27 01:40 J -11457623.66 -11457623.43 -11457623.19 0.0510 0.0006 \*

Mercury -36082-03-29 22:47 J -11457439.69 -11457439.55 -11457439.41 0.0518 0.0238

Mercury -36082-06-27 20:23 J -11457349.72 -11457349.65 -11457349.58 0.0522 0.0462

Venus -36081-09-21 20:38 J -11456897.72 -11456897.64 -11456897.55 0.0539 0.0491

Venus -36080-05-18 08:38 J -11456659.28 -11456659.14 -11456658.99 0.0544 0.0378

Moon -36077-03-25 10:33 J -11455617.30 -11455617.06 -11455616.82 0.0518 0.0035

Earth -36077-03-25 12:14 J -11455617.22 -11455616.99 -11455616.76 0.0518 0.0020 \*

Mercury -36077-08-17 19:11 J -11455471.77 -11455471.70 -11455471.63 0.0512 0.0444

Mercury -36077-11-15 06:14 J -11455382.38 -11455382.24 -11455382.10 0.0508 0.0139

Venus -36075-07-26 04:33 J -11454764.48 -11454764.31 -11454764.14 0.0488 0.0280

Venus -36074-03-18 20:52 J -11454528.78 -11454528.63 -11454528.48 0.0484 0.0330

Mercury -36070-01-15 23:16 J -11453129.63 -11453129.53 -11453129.43 0.0518 0.0407



Mercury -36070-04-15 21:21 J -11453039.74 -11453039.61 -11453039.48 0.0522 0.0299

Venus -36068-01-20 21:21 J -11452393.80 -11452393.61 -11452393.41 0.0543 0.0141

Mercury -36065-09-03 08:52 J -11451072.27 -11451072.13 -11451071.98 0.0508 0.0011

Mars -36064-12-06 19:40 J -11450612.82 -11450612.68 -11450612.55 0.0492 0.0413

Venus -36063-03-31 09:21 J -11450498.18 -11450498.11 -11450498.03 0.0489 0.0451

Venus -36063-11-22 01:26 J -11450262.63 -11450262.44 -11450262.24 0.0485 0.0160

Mercury -36058-02-01 22:04 J -11448729.73 -11448729.58 -11448729.43 0.0521 0.0133

Venus -36057-09-25 08:23 J -11448128.35 -11448128.15 -11448127.95 0.0542 0.0101

Mercury -36053-06-22 11:45 J -11446762.15 -11446762.01 -11446761.87 0.0509 0.0153

Mercury -36053-09-19 23:16 J -11446672.60 -11446672.53 -11446672.45 0.0506 0.0436

Venus -36051-07-28 07:26 J -11445996.40 -11445996.19 -11445995.99 0.0486 0.0011

Mercury -36047-11-20 21:50 J -11444419.75 -11444419.59 -11444419.43 0.0519 0.0047

Mars -36046-09-29 10:04 J -11444107.28 -11444107.08 -11444106.87 0.0532 0.0379

Venus -36045-05-30 15:50 J -11443863.00 -11443862.84 -11443862.69 0.0540 0.0351

Venus -36044-01-24 02:23 J -11443624.45 -11443624.40 -11443624.33 0.0544 0.0515

Mercury -36041-04-10 14:23 J -11442452.02 -11442451.90 -11442451.79 0.0511 0.0302

Mercury -36041-07-09 01:40 J -11442362.55 -11442362.43 -11442362.31 0.0507 0.0286

Venus -36039-04-02 13:26 J -11441730.12 -11441729.94 -11441729.75 0.0488 0.0179

Venus -36039-11-24 06:28 J -11441494.32 -11441494.23 -11441494.14 0.0485 0.0431

Mercury -36035-09-08 21:50 J -11440109.74 -11440109.59 -11440109.45 0.0518 0.0223

Mercury -36035-12-07 19:11 J -11440019.76 -11440019.70 -11440019.63 0.0522 0.0475

Venus -36033-09-28 13:26 J -11439359.11 -11439358.94 -11439358.76 0.0543 0.0274

Mercury -36029-01-28 17:30 J -11438141.84 -11438141.77 -11438141.70 0.0512 0.0441

Mercury -36029-04-27 04:47 J -11438052.44 -11438052.30 -11438052.16 0.0508 0.0144

Venus -36028-12-06 19:11 J -11437463.84 -11437463.70 -11437463.56 0.0489 0.0347

Venus -36027-07-30 11:30 J -11437228.19 -11437228.02 -11437227.85 0.0485 0.0263

Mercury -36023-06-27 21:35 J -11435799.70 -11435799.60 -11435799.50 0.0517 0.0403

Mercury -36023-09-25 19:26 J -11435709.81 -11435709.69 -11435709.56 0.0521 0.0303

Venus -36021-06-03 00:57 J -11435093.66 -11435093.46 -11435093.25 0.0543 0.0037

Mercury -36017-02-14 07:54 J -11433742.32 -11433742.17 -11433742.03 0.0509 0.0009

Venus -36015-04-04 17:16 J -11432961.97 -11432961.78 -11432961.57 0.0486 0.0096

Mercury -36011-07-14 20:23 J -11431399.80 -11431399.65 -11431399.50 0.0521 0.0138

Mars -36010-07-09 03:50 J -11431040.59 -11431040.34 -11431040.09 0.0535 0.0293

Venus -36009-02-06 13:11 J -11430828.13 -11430827.95 -11430827.76 0.0541 0.0203

Mercury -36006-12-03 10:47 J -11429432.19 -11429432.05 -11429431.92 0.0509 0.0141

Mercury -36005-03-01 22:18 J -11429342.63 -11429342.57 -11429342.50 0.0506 0.0449

Venus -36004-12-08 22:18 J -11428695.77 -11428695.57 -11428695.37 0.0487 0.0076

# 36TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 36th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Moon	-36000-09-26 10:04 J	-11427308.30	-11427308.08	-11427307.85	0.0510	0.0078		
Earth	-36000-09-26 11:30 J	-11427308.25	-11427308.02	-11427307.79	0.0510	0.0056	*	
Mercury	-35999-05-02 20:52 J	-11427089.79	-11427089.63	-11427089.47	0.0520	0.0032		
Venus	-35998-10-12 00:28 J	-11426562.59	-11426562.48	-11426562.36	0.0539	0.0439		
Venus	-35997-06-06 12:14 J	-11426324.11	-11426323.99	-11426323.86	0.0544	0.0426		
Earth	-35994-03-25 18:42 J	-11425301.95	-11425301.72	-11425301.49	0.0518	0.0055		
Moon	-35994-03-25 18:42 J	-11425301.94	-11425301.72	-11425301.49	0.0518	0.0032	*	
Mercury	-35994-09-21 13:40 J	-11425122.05	-11425121.93	-11425121.82	0.0510	0.0284		
Mercury	-35994-12-20 00:57 J	-11425032.58	-11425032.46	-11425032.34	0.0507	0.0302		
Venus	-35992-08-14 04:04 J	-11424429.50	-11424429.33	-11424429.15	0.0488	0.0245		
Venus	-35991-04-06 20:52 J	-11424193.76	-11424193.63	-11424193.50	0.0485	0.0364		

Earth -35988-10-01 05:45 J -11422920.34 -11422920.26 -11422920.18 0.0512 0.0481  
 Moon -35988-10-01 08:38 J -11422920.18 -11422920.14 -11422920.10 0.0512 0.0504 \*  
 Mercury -35987-02-18 20:52 J -11422779.78 -11422779.63 -11422779.49 0.0518 0.0207  
 Mercury -35987-05-19 18:14 J -11422689.79 -11422689.74 -11422689.69 0.0522 0.0491  
 Venus -35985-02-09 19:54 J -11422058.86 -11422058.67 -11422058.48 0.0542 0.0177  
 Earth -35982-03-30 08:52 J -11420914.21 -11420914.13 -11420914.04 0.0516 0.0477  
 Moon -35982-03-30 10:18 J -11420914.11 -11420914.07 -11420914.00 0.0516 0.0502 \*  
 Mercury -35982-07-10 16:04 J -11420811.90 -11420811.83 -11420811.76 0.0512 0.0434  
 Mercury -35982-10-08 03:21 J -11420722.50 -11420722.36 -11420722.23 0.0508 0.0151  
 Mars -35981-08-25 23:02 J -11420399.77 -11420399.54 -11420399.30 0.0496 0.0201  
 Venus -35980-04-19 09:50 J -11420163.19 -11420163.09 -11420162.98 0.0490 0.0414  
 Venus -35980-12-11 02:38 J -11419927.58 -11419927.39 -11419927.20 0.0486 0.0197  
 Mercury -35976-12-07 20:38 J -11418469.75 -11418469.64 -11418469.53 0.0517 0.0384  
 Mercury -35975-03-07 18:28 J -11418379.85 -11418379.73 -11418379.60 0.0521 0.0319  
 Venus -35974-10-15 06:14 J -11417793.44 -11417793.24 -11417793.04 0.0541 0.0067  
 Mercury -35970-07-27 06:14 J -11416412.38 -11416412.24 -11416412.10 0.0509 0.0008  
 Venus -35968-08-16 07:54 J -11415661.37 -11415661.17 -11415660.96 0.0486 0.0028  
 Mercury -35964-12-24 18:42 J -11414069.87 -11414069.72 -11414069.57 0.0520 0.0143  
 Venus -35962-06-19 17:02 J -11413527.96 -11413527.79 -11413527.62 0.0540 0.0305  
 Mercury -35958-05-15 09:35 J -11412102.24 -11412102.10 -11412101.97 0.0510 0.0130  
 Mercury -35958-08-12 21:06 J -11412012.67 -11412012.62 -11412012.56 0.0506 0.0461  
 Venus -35956-04-21 13:54 J -11411395.11 -11411394.92 -11411394.72 0.0487 0.0141  
 Venus -35956-12-13 06:28 J -11411159.28 -11411159.23 -11411159.17 0.0484 0.0464  
 Mercury -35952-10-12 19:11 J -11409759.86 -11409759.70 -11409759.54 0.0519 0.0026  
 Venus -35950-02-22 05:02 J -11409262.30 -11409262.29 -11409262.27 0.0539 0.0537  
 Venus -35950-10-18 17:30 J -11409023.93 -11409023.77 -11409023.61 0.0544 0.0326  
 Mercury -35946-03-03 12:28 J -11407792.10 -11407791.98 -11407791.86 0.0511 0.0272  
 Mercury -35946-05-31 23:45 J -11407702.62 -11407702.51 -11407702.39 0.0507 0.0315  
 Mars -35945-05-29 14:38 J -11407339.13 -11407338.89 -11407338.65 0.0494 0.0177  
 Venus -35945-12-25 18:57 J -11407128.86 -11407128.71 -11407128.55 0.0488 0.0311

Venus -35944-08-18 11:16 J -11406893.19 -11406893.03 -11406892.87 0.0485 0.0297  
 Mercury -35940-07-31 19:40 J -11405449.82 -11405449.68 -11405449.53 0.0518 0.0193  
 Mercury -35940-10-29 17:16 J -11405359.81 -11405359.78 -11405359.74 0.0522 0.0508  
 Venus -35938-06-23 05:02 J -11404758.49 -11404758.29 -11404758.09 0.0542 0.0086  
 Mercury -35935-12-20 15:21 J -11403481.94 -11403481.86 -11403481.77 0.0512 0.0415  
 Mercury -35934-03-20 02:38 J -11403392.53 -11403392.39 -11403392.26 0.0508 0.0169  
 Venus -35933-08-31 00:42 J -11402862.50 -11402862.47 -11402862.42 0.0490 0.0478  
 Venus -35932-04-23 17:16 J -11402626.98 -11402626.78 -11402626.58 0.0486 0.0130  
 Mercury -35928-05-19 19:40 J -11401139.79 -11401139.68 -11401139.57 0.0517 0.0368  
 Mercury -35928-08-17 17:45 J -11401049.88 -11401049.76 -11401049.64 0.0521 0.0335  
 Venus -35926-02-25 12:57 J -11400493.16 -11400492.96 -11400492.77 0.0541 0.0163  
 Mercury -35922-01-06 04:47 J -11399082.44 -11399082.30 -11399082.16 0.0509 0.0015  
 Venus -35921-12-27 22:47 J -11398360.75 -11398360.55 -11398360.35 0.0487 0.0039  
 Earth -35917-09-25 18:42 J -11396992.95 -11396992.72 -11396992.49 0.0509 0.0123  
 Moon -35917-09-25 21:35 J -11396992.83 -11396992.60 -11396992.37 0.0509 0.0136 \*  
 Mercury -35916-06-05 17:45 J -11396739.91 -11396739.76 -11396739.61 0.0520 0.0162  
 Venus -35915-10-30 22:47 J -11396227.68 -11396227.55 -11396227.41 0.0539 0.0402  
 Venus -35914-06-26 09:50 J -11395989.19 -11395989.09 -11395988.98 0.0543 0.0457  
 Earth -35911-03-24 22:04 J -11394986.80 -11394986.58 -11394986.35 0.0520 0.0145  
 Moon -35911-03-24 23:45 J -11394986.75 -11394986.51 -11394986.28 0.0520 0.0117 \*  
 Mercury -35911-10-25 07:54 J -11394772.31 -11394772.17 -11394772.04 0.0510 0.0128  
 Mercury -35910-01-22 19:26 J -11394682.74 -11394682.69 -11394682.63 0.0506 0.0465  
 Venus -35909-09-02 04:18 J -11394094.50 -11394094.32 -11394094.13 0.0488 0.0208  
 Venus -35908-04-25 21:06 J -11393858.73 -11393858.62 -11393858.50 0.0485 0.0398  
 Moon -35905-09-30 07:11 J -11392605.33 -11392605.20 -11392605.08 0.0511 0.0425  
 Earth -35905-09-30 10:47 J -11392605.19 -11392605.05 -11392604.91 0.0511 0.0400 \*  
 Mercury -35904-03-24 17:30 J -11392429.92 -11392429.77 -11392429.61 0.0519 0.0023  
 Venus -35902-02-28 21:06 J -11391723.80 -11391723.62 -11391723.43 0.0543 0.0221  
 Moon -35899-03-29 16:04 J -11390598.95 -11390598.83 -11390598.72 0.0517 0.0438  
 Earth -35899-03-29 18:42 J -11390598.85 -11390598.72 -11390598.58 0.0517 0.0417 \*

Mercury -35899-08-13 11:02 J -11390462.16 -11390462.04 -11390461.91 0.0511 0.0265

Mercury -35899-11-10 22:33 J -11390372.67 -11390372.56 -11390372.45 0.0507 0.0324

Venus -35897-05-08 10:33 J -11389828.19 -11389828.06 -11389827.93 0.0489 0.0375

Venus -35897-12-30 02:38 J -11389592.56 -11389592.39 -11389592.21 0.0485 0.0232

Mercury -35892-01-10 17:59 J -11388119.90 -11388119.75 -11388119.60 0.0518 0.0188

Mercury -35892-04-10 15:35 J -11388029.88 -11388029.85 -11388029.82 0.0522 0.0511

Mars -35892-12-24 04:18 J -11387772.59 -11387772.32 -11387772.03 0.0533 0.0182

Venus -35891-11-03 09:35 J -11387458.30 -11387458.10 -11387457.89 0.0542 0.0017

Mercury -35887-06-01 14:09 J -11386151.99 -11386151.91 -11386151.82 0.0512 0.0405

Mercury -35887-08-30 01:26 J -11386062.58 -11386062.44 -11386062.31 0.0508 0.0180

Venus -35885-09-04 07:40 J -11385326.38 -11385326.18 -11385325.98 0.0486 0.0063

Mercury -35881-10-29 18:28 J -11383809.85 -11383809.73 -11383809.62 0.0517 0.0356

Mercury -35880-01-27 16:33 J -11383719.93 -11383719.81 -11383719.69 0.0521 0.0348

Venus -35879-07-08 21:06 J -11383192.80 -11383192.62 -11383192.44 0.0540 0.0254

Mercury -35875-06-18 04:04 J -11381752.47 -11381752.33 -11381752.18 0.0509 0.0037

Venus -35873-05-10 13:40 J -11381060.13 -11381059.93 -11381059.73 0.0487 0.0105

Mercury -35869-11-15 16:47 J -11379409.95 -11379409.80 -11379409.65 0.0520 0.0177

Venus -35867-03-13 05:30 J -11378927.34 -11378927.27 -11378927.18 0.0538 0.0494

Venus -35867-11-06 16:47 J -11378688.94 -11378688.80 -11378688.65 0.0543 0.0362

Mercury -35863-04-06 06:14 J -11377442.37 -11377442.24 -11377442.10 0.0510 0.0122

Mercury -35863-07-04 17:59 J -11377352.80 -11377352.75 -11377352.70 0.0507 0.0470

Mars -35862-02-16 12:14 J -11377126.08 -11377125.99 -11377125.88 0.0498 0.0456

Venus -35861-01-14 18:42 J -11376793.88 -11376793.72 -11376793.55 0.0489 0.0276

Venus -35861-09-06 11:45 J -11376558.16 -11376558.01 -11376557.86 0.0485 0.0332

Mercury -35857-09-03 16:47 J -11375099.95 -11375099.80 -11375099.64 0.0519 0.0015

Mars -35856-10-02 13:40 J -11374706.05 -11374705.93 -11374705.80 0.0534 0.0482

Venus -35855-07-12 02:52 J -11374423.58 -11374423.38 -11374423.18 0.0542 0.0120

Mercury -35851-01-23 09:21 J -11373132.23 -11373132.11 -11373131.99 0.0511 0.0264

Mercury -35851-04-22 20:52 J -11373042.74 -11373042.63 -11373042.52 0.0508 0.0325

Venus -35850-09-20 00:28 J -11372527.56 -11372527.48 -11372527.40 0.0490 0.0443

Venus -35849-05-12 17:02 J -11372291.98 -11372291.79 -11372291.60 0.0486 0.0165  
 Mercury -35845-06-22 16:18 J -11370789.97 -11370789.82 -11370789.67 0.0518 0.0182  
 Mercury -35845-09-20 13:54 J -11370699.94 -11370699.92 -11370699.90 0.0522 0.0516  
 Venus -35843-03-16 13:11 J -11370158.15 -11370157.95 -11370157.75 0.0541 0.0120  
 Mercury -35840-11-11 12:42 J -11368822.05 -11368821.97 -11368821.88 0.0512 0.0400  
 Mercury -35839-02-08 23:59 J -11368732.64 -11368732.50 -11368732.37 0.0508 0.0186  
 Venus -35837-01-16 22:47 J -11368025.75 -11368025.55 -11368025.34 0.0487 0.0006  
 Moon -35834-09-25 20:23 J -11366677.85 -11366677.65 -11366677.43 0.0508 0.0212  
 Earth -35834-09-25 23:59 J -11366677.71 -11366677.50 -11366677.28 0.0508 0.0201 \*  
 Mercury -35833-04-10 16:33 J -11366479.92 -11366479.81 -11366479.69 0.0517 0.0353  
 Mercury -35833-07-09 14:38 J -11366390.00 -11366389.89 -11366389.77 0.0521 0.0350  
 Venus -35832-11-19 01:11 J -11365892.60 -11365892.45 -11365892.30 0.0540 0.0354  
 Venus -35831-07-15 12:42 J -11365654.04 -11365653.97 -11365653.89 0.0544 0.0505  
 Moon -35828-03-24 04:47 J -11364671.51 -11364671.30 -11364671.08 0.0520 0.0178  
 Earth -35828-03-24 07:40 J -11364671.40 -11364671.18 -11364670.97 0.0520 0.0205 \*  
 Mercury -35828-11-28 02:52 J -11364422.53 -11364422.38 -11364422.24 0.0509 0.0043  
 Mars -35827-11-20 06:28 J -11364065.48 -11364065.23 -11364064.98 0.0495 0.0070  
 Venus -35826-09-22 04:04 J -11363759.52 -11363759.33 -11363759.14 0.0488 0.0173  
 Venus -35825-05-14 20:23 J -11363523.73 -11363523.65 -11363523.55 0.0485 0.0431  
 Earth -35822-09-30 19:26 J -11362289.86 -11362289.69 -11362289.52 0.0511 0.0339  
 Moon -35822-09-30 23:02 J -11362289.70 -11362289.54 -11362289.38 0.0511 0.0372 \*  
 Mercury -35821-04-27 15:21 J -11362080.00 -11362079.86 -11362079.71 0.0520 0.0186  
 Venus -35819-03-20 00:42 J -11361388.64 -11361388.47 -11361388.29 0.0543 0.0270  
 Earth -35816-03-29 01:26 J -11360283.60 -11360283.44 -11360283.26 0.0517 0.0345  
 Moon -35816-03-29 05:16 J -11360283.44 -11360283.28 -11360283.11 0.0517 0.0358 \*  
 Mercury -35816-09-16 05:45 J -11360112.40 -11360112.26 -11360112.12 0.0510 0.0103  
 Mercury -35816-12-14 17:16 J -11360022.81 -11360022.78 -11360022.74 0.0506 0.0488  
 Venus -35814-05-28 09:35 J -11359493.24 -11359493.10 -11359492.95 0.0489 0.0341  
 Venus -35813-01-19 02:09 J -11359257.58 -11359257.41 -11359257.24 0.0485 0.0265  
 Mercury -35809-02-14 15:50 J -11357770.00 -11357769.84 -11357769.68 0.0519 0.0017

Venus -35808-11-22 09:35 J -11357123.30 -11357123.10 -11357122.89 0.0541 0.0026  
 Mercury -35804-07-05 07:54 J -11355802.29 -11355802.17 -11355802.05 0.0511 0.0259  
 Mercury -35804-10-02 19:11 J -11355712.81 -11355712.70 -11355712.59 0.0508 0.0330  
 Venus -35802-09-24 07:11 J -11354991.40 -11354991.20 -11354991.00 0.0486 0.0097  
 Mercury -35798-12-03 15:35 J -11353460.00 -11353459.85 -11353459.69 0.0518 0.0162  
 Venus -35796-07-27 19:26 J -11352857.88 -11352857.69 -11352857.51 0.0540 0.0217  
 Mercury -35792-04-23 10:47 J -11351492.13 -11351492.05 -11351491.96 0.0512 0.0402  
 Mercury -35792-07-21 22:04 J -11351402.72 -11351402.58 -11351402.45 0.0509 0.0184  
 Mars -35791-08-23 16:18 J -11351005.02 -11351004.82 -11351004.61 0.0494 0.0296  
 Venus -35790-05-30 12:42 J -11350725.17 -11350724.97 -11350724.77 0.0487 0.0072  
 Mercury -35786-09-21 14:52 J -11349150.00 -11349149.88 -11349149.76 0.0517 0.0347  
 Mercury -35786-12-20 12:57 J -11349060.07 -11349059.96 -11349059.84 0.0521 0.0355  
 Venus -35784-04-01 04:47 J -11348592.40 -11348592.30 -11348592.18 0.0538 0.0454  
 Venus -35784-11-25 16:18 J -11348353.94 -11348353.82 -11348353.67 0.0543 0.0402  
 Mercury -35780-05-10 01:11 J -11347092.59 -11347092.45 -11347092.31 0.0509 0.0045  
 Venus -35778-02-02 18:28 J -11346458.90 -11346458.73 -11346458.55 0.0488 0.0239  
 Venus -35778-09-26 11:02 J -11346223.17 -11346223.04 -11346222.90 0.0485 0.0365  
 Mercury -35774-10-08 13:26 J -11344750.09 -11344749.94 -11344749.79 0.0520 0.0186  
 Venus -35772-07-31 04:33 J -11344088.50 -11344088.31 -11344088.12 0.0543 0.0166  
 Mercury -35768-02-26 04:18 J -11342782.46 -11342782.32 -11342782.18 0.0510 0.0098  
 Mercury -35768-05-26 15:50 J -11342692.87 -11342692.84 -11342692.81 0.0506 0.0494  
 Venus -35767-10-08 23:45 J -11342192.62 -11342192.51 -11342192.40 0.0490 0.0407  
 Venus -35766-06-01 15:50 J -11341957.02 -11341956.84 -11341956.65 0.0486 0.0198  
 Mercury -35762-07-27 13:54 J -11340440.07 -11340439.92 -11340439.76 0.0519 0.0025  
 Venus -35760-04-04 16:18 J -11339823.02 -11339822.82 -11339822.61 0.0541 0.0071  
 Mercury -35757-12-15 07:11 J -11338472.33 -11338472.20 -11338472.08 0.0511 0.0241  
 Mercury -35756-03-14 18:28 J -11338382.83 -11338382.73 -11338382.62 0.0507 0.0347  
 Venus -35754-02-04 21:35 J -11337690.80 -11337690.60 -11337690.39 0.0487 0.0032  
 Earth -35751-09-25 08:38 J -11336362.34 -11336362.14 -11336361.93 0.0508 0.0261  
 Moon -35751-09-25 12:14 J -11336362.18 -11336361.99 -11336361.78 0.0508 0.0257 \*

Mercury -35750-05-15 14:23 J -11336130.05 -11336129.90 -11336129.75 0.0518 0.0150  
 Venus -35749-12-08 01:40 J -11335557.59 -11335557.43 -11335557.26 0.0539 0.0311  
 Venus -35748-08-03 12:14 J -11335319.01 -11335318.99 -11335318.97 0.0543 0.0539  
 Earth -35745-03-23 07:11 J -11334356.38 -11334356.20 -11334356.02 0.0521 0.0316  
 Moon -35745-03-23 10:33 J -11334356.25 -11334356.06 -11334355.86 0.0521 0.0284 \*  
 Mercury -35745-10-03 09:21 J -11334162.20 -11334162.11 -11334162.02 0.0512 0.0398  
 Mercury -35745-12-31 20:23 J -11334072.78 -11334072.65 -11334072.52 0.0508 0.0188  
 Venus -35743-10-11 02:23 J -11333424.60 -11333424.40 -11333424.21 0.0488 0.0140  
 Venus -35742-06-03 19:26 J -11333188.74 -11333188.69 -11333188.62 0.0485 0.0462  
 Moon -35739-09-29 23:02 J -11331974.73 -11331974.54 -11331974.33 0.0510 0.0298  
 Earth -35739-09-30 01:54 J -11331974.61 -11331974.42 -11331974.21 0.0510 0.0267 \*  
 Mercury -35738-03-03 14:09 J -11331820.03 -11331819.91 -11331819.78 0.0517 0.0328  
 Mercury -35738-06-01 12:14 J -11331730.10 -11331729.99 -11331729.88 0.0520 0.0373  
 Mars -35737-03-19 13:40 J -11331438.23 -11331437.93 -11331437.63 0.0532 0.0002  
 Venus -35736-04-07 22:18 J -11331053.74 -11331053.57 -11331053.40 0.0542 0.0302  
 Moon -35733-03-27 21:21 J -11329968.81 -11329968.61 -11329968.40 0.0518 0.0240  
 Earth -35733-03-28 00:57 J -11329968.66 -11329968.46 -11329968.25 0.0518 0.0235 \*  
 Mercury -35733-10-19 23:02 J -11329762.68 -11329762.54 -11329762.39 0.0510 0.0045  
 Venus -35731-06-16 07:40 J -11329158.34 -11329158.18 -11329158.02 0.0489 0.0308  
 Venus -35730-02-07 00:28 J -11328922.64 -11328922.48 -11328922.32 0.0485 0.0297  
 Mercury -35726-03-20 11:45 J -11327420.16 -11327420.01 -11327419.87 0.0519 0.0190  
 Venus -35725-12-11 07:54 J -11326788.37 -11326788.17 -11326787.97 0.0542 0.0062  
 Mercury -35721-08-08 02:23 J -11325452.54 -11325452.40 -11325452.26 0.0510 0.0098  
 Mercury -35721-11-05 13:54 J -11325362.94 -11325362.92 -11325362.89 0.0507 0.0495  
 Venus -35719-02-19 13:26 J -11324891.98 -11324891.94 -11324891.88 0.0491 0.0474  
 Venus -35719-10-13 06:14 J -11324656.44 -11324656.24 -11324656.05 0.0486 0.0131  
 Mercury -35714-01-06 11:59 J -11323110.16 -11323110.00 -11323109.84 0.0519 0.0020  
 Venus -35713-08-15 19:26 J -11322522.88 -11322522.69 -11322522.50 0.0541 0.0174  
 Mercury -35709-05-27 05:30 J -11321142.40 -11321142.27 -11321142.15 0.0511 0.0238  
 Mercury -35709-08-24 16:47 J -11321052.90 -11321052.80 -11321052.69 0.0507 0.0350



Mars -35708-05-12 14:23 J -11320792.08 -11320791.90 -11320791.71 0.0497 0.0334  
 Venus -35707-06-18 11:16 J -11320390.24 -11320390.03 -11320389.83 0.0487 0.0040  
 Mercury -35703-10-25 12:14 J -11318800.14 -11318799.99 -11318799.83 0.0518 0.0152  
 Venus -35701-04-20 07:11 J -11318257.33 -11318257.20 -11318257.07 0.0539 0.0406  
 Venus -35701-12-14 18:42 J -11318018.83 -11318018.72 -11318018.60 0.0543 0.0445  
 Mercury -35697-03-15 08:23 J -11316832.24 -11316832.15 -11316832.05 0.0512 0.0382  
 Mercury -35697-06-12 19:26 J -11316742.82 -11316742.69 -11316742.55 0.0508 0.0204  
 Venus -35695-02-21 16:47 J -11316123.98 -11316123.80 -11316123.62 0.0488 0.0206  
 Venus -35695-10-15 09:21 J -11315888.22 -11315888.11 -11315887.99 0.0485 0.0394  
 Mercury -35691-08-13 12:43 J -11314490.10 -11314489.97 -11314489.85 0.0517 0.0321  
 Mercury -35691-11-11 10:47 J -11314400.16 -11314400.05 -11314399.95 0.0521 0.0381  
 Venus -35689-08-19 04:19 J -11313753.50 -11313753.32 -11313753.13 0.0542 0.0206  
 Mercury -35685-03-31 21:35 J -11312432.75 -11312432.60 -11312432.46 0.0509 0.0046  
 Venus -35684-10-27 20:52 J -11311857.76 -11311857.63 -11311857.50 0.0490 0.0377  
 Venus -35683-06-20 13:55 J -11311622.10 -11311621.92 -11311621.74 0.0486 0.0227  
 Mercury -35679-06-01 12:14 J -11310180.02 -11310179.99 -11310179.95 0.0515 0.0499  
 Mercury -35679-08-30 10:47 J -11310090.19 -11310090.05 -11310089.90 0.0519 0.0206  
 Venus -35677-04-23 14:09 J -11309488.12 -11309487.91 -11309487.71 0.0541 0.0036  
 Mercury -35673-01-19 00:14 J -11308122.63 -11308122.49 -11308122.35 0.0511 0.0103  
 Mercury -35673-04-17 11:45 J -11308033.04 -11308033.01 -11308032.97 0.0507 0.0489  
 Mars -35672-02-12 23:45 J -11307731.76 -11307731.51 -11307731.25 0.0496 0.0031  
 Venus -35671-02-23 18:57 J -11307355.91 -11307355.71 -11307355.51 0.0487 0.0061  
 Moon -35668-09-24 06:14 J -11306047.40 -11306047.24 -11306047.06 0.0507 0.0353  
 Earth -35668-09-24 09:21 J -11306047.27 -11306047.11 -11306046.94 0.0507 0.0358 \*  
 Mercury -35667-06-18 10:04 J -11305780.24 -11305780.08 -11305779.92 0.0518 0.0021  
 Venus -35666-12-27 22:33 J -11305222.73 -11305222.56 -11305222.38 0.0539 0.0276  
 Moon -35662-03-23 07:26 J -11304041.34 -11304041.19 -11304041.02 0.0522 0.0374  
 Earth -35662-03-23 11:16 J -11304041.17 -11304041.03 -11304040.88 0.0522 0.0404 \*  
 Mercury -35662-11-07 03:35 J -11303812.48 -11303812.35 -11303812.23 0.0512 0.0242  
 Mercury -35661-02-04 14:52 J -11303722.98 -11303722.88 -11303722.78 0.0508 0.0348

Venus -35660-10-30 00:43 J -11303089.66 -11303089.47 -11303089.27 0.0488 0.0107  
 Earth -35656-09-29 02:23 J -11301659.62 -11301659.40 -11301659.18 0.0509 0.0166  
 Moon -35656-09-29 04:04 J -11301659.54 -11301659.33 -11301659.12 0.0509 0.0199 \*  
 Mercury -35655-04-06 10:04 J -11301470.23 -11301470.08 -11301469.93 0.0518 0.0155  
 Venus -35654-09-01 09:50 J -11300957.16 -11300957.09 -11300957.02 0.0538 0.0506  
 Venus -35653-04-26 21:35 J -11300718.76 -11300718.60 -11300718.44 0.0543 0.0341  
 Earth -35650-03-28 07:26 J -11299653.41 -11299653.19 -11299652.97 0.0519 0.0161  
 Moon -35650-03-28 10:19 J -11299653.29 -11299653.07 -11299652.86 0.0519 0.0163 \*  
 Mercury -35650-08-26 06:43 J -11299502.31 -11299502.22 -11299502.13 0.0512 0.0381  
 Mercury -35650-11-23 17:45 J -11299412.89 -11299412.76 -11299412.63 0.0508 0.0204  
 Venus -35648-07-05 05:45 J -11298823.42 -11298823.26 -11298823.09 0.0489 0.0276  
 Venus -35647-02-25 22:19 J -11298587.72 -11298587.57 -11298587.42 0.0485 0.0326  
 Mercury -35643-01-23 10:04 J -11297160.20 -11297160.08 -11297159.95 0.0517 0.0327  
 Mercury -35643-04-23 08:23 J -11297070.26 -11297070.15 -11297070.04 0.0521 0.0377  
 Venus -35642-12-31 09:21 J -11296453.31 -11296453.11 -11296452.91 0.0542 0.0107  
 Mercury -35638-09-11 20:38 J -11295102.79 -11295102.64 -11295102.50 0.0509 0.0059  
 Mars -35637-11-16 14:09 J -11294671.04 -11294670.91 -11294670.76 0.0493 0.0405  
 Venus -35636-03-10 11:16 J -11294557.11 -11294557.03 -11294556.94 0.0490 0.0442  
 Venus -35636-11-01 03:50 J -11294321.53 -11294321.34 -11294321.15 0.0486 0.0160  
 Mercury -35632-11-11 10:33 J -11292850.10 -11292850.06 -11292850.02 0.0516 0.0496  
 Mercury -35631-02-09 09:07 J -11292760.27 -11292760.12 -11292759.98 0.0520 0.0211  
 Venus -35630-09-04 19:40 J -11292187.88 -11292187.68 -11292187.48 0.0540 0.0131  
 Mercury -35626-06-30 22:33 J -11290792.70 -11290792.56 -11290792.42 0.0510 0.0101  
 Mercury -35626-09-28 10:04 J -11290703.11 -11290703.08 -11290703.04 0.0507 0.0490  
 Venus -35624-07-07 07:55 J -11290055.38 -11290055.17 -11290054.97 0.0487 0.0012  
 Mercury -35620-11-28 09:07 J -11288450.28 -11288450.12 -11288449.96 0.0518 0.0036  
 Mars -35619-09-04 09:21 J -11288170.23 -11288170.11 -11288169.99 0.0530 0.0482  
 Venus -35618-05-10 05:16 J -11287922.43 -11287922.28 -11287922.14 0.0538 0.0368  
 Venus -35617-01-03 15:35 J -11287683.94 -11287683.85 -11287683.75 0.0543 0.0475  
 Mercury -35614-04-19 01:26 J -11286482.57 -11286482.44 -11286482.32 0.0512 0.0249

Mercury -35614-07-17 12:28 J -11286393.08 -11286392.98 -11286392.87 0.0508 0.0341

Venus -35612-03-12 12:57 J -11285789.14 -11285788.96 -11285788.77 0.0489 0.0177

Venus -35612-11-03 05:59 J -11285553.34 -11285553.25 -11285553.15 0.0485 0.0422

Mercury -35608-09-16 07:55 J -11284140.32 -11284140.17 -11284140.01 0.0517 0.0155

Venus -35606-09-08 00:43 J -11283418.66 -11283418.47 -11283418.29 0.0542 0.0237

Mercury -35602-02-05 04:33 J -11282172.40 -11282172.31 -11282172.22 0.0513 0.0387

Mercury -35602-05-05 15:35 J -11282082.98 -11282082.85 -11282082.72 0.0509 0.0200

Venus -35601-11-15 18:57 J -11281522.85 -11281522.71 -11281522.57 0.0490 0.0344

Venus -35600-07-09 11:31 J -11281287.19 -11281287.02 -11281286.84 0.0486 0.0258

Mercury -35596-07-05 07:55 J -11279830.30 -11279830.17 -11279830.05 0.0516 0.0331

Mercury -35596-10-03 05:59 J -11279740.36 -11279740.25 -11279740.14 0.0520 0.0371

Venus -35594-05-13 11:45 J -11279153.21 -11279153.01 -11279152.81 0.0541 0.0004

Mercury -35590-02-21 18:43 J -11277772.87 -11277772.72 -11277772.58 0.0509 0.0058

Venus -35588-03-14 16:33 J -11277021.01 -11277020.81 -11277020.61 0.0486 0.0090

Earth -35585-09-23 12:28 J -11275732.09 -11275731.98 -11275731.86 0.0507 0.0445

Moon -35585-09-23 14:23 J -11275732.01 -11275731.90 -11275731.78 0.0507 0.0435 \*

Mercury -35584-04-23 07:40 J -11275520.20 -11275520.18 -11275520.14 0.0516 0.0505

Mercury -35584-07-22 06:28 J -11275430.37 -11275430.23 -11275430.08 0.0520 0.0203

Mars -35583-06-13 08:38 J -11275104.42 -11275104.14 -11275103.85 0.0533 0.0150

Venus -35582-01-15 23:16 J -11274887.71 -11274887.53 -11274887.34 0.0540 0.0233

Earth -35579-03-22 15:07 J -11273725.94 -11273725.87 -11273725.79 0.0522 0.0493

Moon -35579-03-22 17:59 J -11273725.85 -11273725.75 -11273725.64 0.0522 0.0460 \*

Mercury -35579-12-10 21:35 J -11273462.74 -11273462.60 -11273462.46 0.0510 0.0089

Mercury -35578-03-10 09:07 J -11273373.14 -11273373.12 -11273373.11 0.0507 0.0502

Venus -35577-11-17 22:04 J -11272754.79 -11272754.58 -11272754.38 0.0488 0.0078

Moon -35573-09-28 07:40 J -11271344.42 -11271344.18 -11271343.94 0.0509 0.0118

Earth -35573-09-28 07:55 J -11271344.40 -11271344.17 -11271343.94 0.0509 0.0089 \*

Mercury -35572-05-10 07:11 J -11271120.36 -11271120.20 -11271120.04 0.0519 0.0038

Venus -35571-09-20 10:04 J -11270622.17 -11270622.08 -11270621.97 0.0537 0.0463

Venus -35570-05-16 21:07 J -11270383.76 -11270383.62 -11270383.47 0.0542 0.0380

Moon -35567-03-27 03:35 J -11269338.59 -11269338.35 -11269338.11 0.0519 0.0043  
 Earth -35567-03-27 05:31 J -11269338.50 -11269338.27 -11269338.04 0.0519 0.0044 \*  
 Mercury -35567-09-28 23:31 J -11269152.64 -11269152.52 -11269152.39 0.0511 0.0247  
 Mercury -35567-12-27 10:47 J -11269063.15 -11269063.05 -11269062.94 0.0508 0.0342  
 Venus -35565-07-24 01:40 J -11268488.61 -11268488.43 -11268488.26 0.0489 0.0247  
 Venus -35564-03-16 18:43 J -11268252.86 -11268252.72 -11268252.58 0.0486 0.0353  
 Mercury -35560-02-26 06:57 J -11266810.36 -11266810.21 -11266810.05 0.0517 0.0140  
 Venus -35558-01-19 06:57 J -11266118.41 -11266118.21 -11266118.02 0.0541 0.0141  
 Mercury -35555-07-18 02:23 J -11264842.49 -11264842.40 -11264842.31 0.0512 0.0393  
 Mercury -35555-10-15 13:26 J -11264753.07 -11264752.94 -11264752.81 0.0509 0.0192  
 Mars -35554-08-06 00:14 J -11264458.71 -11264458.49 -11264458.27 0.0498 0.0250  
 Venus -35553-03-29 06:43 J -11264222.32 -11264222.22 -11264222.11 0.0491 0.0414  
 Venus -35553-11-19 23:45 J -11263986.70 -11263986.51 -11263986.32 0.0486 0.0188  
 Mercury -35549-12-15 05:45 J -11262500.38 -11262500.26 -11262500.13 0.0516 0.0331  
 Mercury -35548-03-15 04:04 J -11262410.44 -11262410.33 -11262410.22 0.0520 0.0370  
 Venus -35547-09-23 14:52 J -11261853.08 -11261852.88 -11261852.68 0.0540 0.0102  
 Mercury -35543-08-03 16:33 J -11260442.96 -11260442.81 -11260442.67 0.0510 0.0053  
 Venus -35541-07-26 05:31 J -11259720.48 -11259720.27 -11259720.07 0.0487 0.0023  
 Mercury -35537-10-03 05:16 J -11258190.29 -11258190.28 -11258190.25 0.0515 0.0510  
 Mercury -35536-01-01 04:04 J -11258100.47 -11258100.33 -11258100.18 0.0519 0.0197  
 Venus -35535-05-29 01:26 J -11257587.60 -11257587.44 -11257587.28 0.0539 0.0336  
 Venus -35534-01-22 12:43 J -11257349.03 -11257348.97 -11257348.90 0.0543 0.0508  
 Mercury -35531-05-22 19:26 J -11256132.83 -11256132.69 -11256132.55 0.0511 0.0092  
 Mercury -35531-08-20 06:57 J -11256043.22 -11256043.21 -11256043.18 0.0507 0.0501  
 Venus -35529-03-31 10:33 J -11255454.25 -11255454.06 -11255453.86 0.0488 0.0147  
 Venus -35529-11-22 03:07 J -11255218.44 -11255218.37 -11255218.29 0.0485 0.0449  
 Mercury -35525-10-20 04:19 J -11253790.48 -11253790.32 -11253790.16 0.0519 0.0028  
 Venus -35523-09-27 00:57 J -11253083.63 -11253083.46 -11253083.29 0.0543 0.0277  
 Mercury -35519-03-10 22:33 J -11251822.69 -11251822.56 -11251822.44 0.0511 0.0234  
 Mercury -35519-06-08 09:50 J -11251733.19 -11251733.09 -11251732.99 0.0508 0.0354

Mars -35518-05-09 17:45 J -11251398.01 -11251397.76 -11251397.52 0.0495 0.0134  
 Venus -35518-12-05 15:50 J -11251187.99 -11251187.84 -11251187.68 0.0490 0.0314  
 Venus -35517-07-28 08:23 J -11250952.31 -11250952.15 -11250951.98 0.0486 0.0285  
 Mercury -35513-08-08 04:47 J -11249480.45 -11249480.30 -11249480.14 0.0518 0.0142  
 Venus -35511-06-01 11:59 J -11248818.21 -11248818.00 -11248817.80 0.0541 0.0045  
 Mercury -35508-12-28 00:43 J -11247512.56 -11247512.47 -11247512.38 0.0512 0.0390  
 Mercury -35507-03-27 11:45 J -11247423.14 -11247423.01 -11247422.88 0.0509 0.0194  
 Venus -35506-08-10 19:11 J -11246921.73 -11246921.70 -11246921.66 0.0491 0.0483  
 Venus -35505-04-02 12:14 J -11246686.18 -11246685.99 -11246685.79 0.0487 0.0118  
 Mercury -35501-05-27 04:33 J -11245170.43 -11245170.31 -11245170.18 0.0516 0.0318  
 Mercury -35501-08-25 02:52 J -11245080.48 -11245080.38 -11245080.27 0.0520 0.0384  
 Venus -35499-02-03 21:21 J -11244552.80 -11244552.61 -11244552.42 0.0539 0.0195  
 Mercury -35495-01-13 14:23 J -11243113.05 -11243112.90 -11243112.76 0.0510 0.0046  
 Venus -35494-12-07 17:31 J -11242419.98 -11242419.77 -11242419.57 0.0488 0.0049  
 Moon -35490-09-28 04:33 J -11241029.54 -11241029.31 -11241029.08 0.0508 0.0007  
 Earth -35490-09-28 05:59 J -11241029.48 -11241029.25 -11241029.01 0.0508 0.0020 \*  
 Mercury -35489-03-15 03:07 J -11240860.38 -11240860.37 -11240860.34 0.0515 0.0510  
 Mercury -35489-06-13 01:55 J -11240770.56 -11240770.42 -11240770.27 0.0519 0.0197  
 Venus -35488-10-09 04:47 J -11240287.42 -11240287.30 -11240287.18 0.0538 0.0434  
 Venus -35487-06-04 16:04 J -11240048.96 -11240048.83 -11240048.70 0.0543 0.0406  
 Earth -35484-03-26 06:28 J -11239023.46 -11239023.23 -11239023.00 0.0521 0.0056  
 Moon -35484-03-26 06:57 J -11239023.43 -11239023.21 -11239022.99 0.0521 0.0060 \*  
 Mercury -35484-11-01 17:16 J -11238802.92 -11238802.78 -11238802.64 0.0511 0.0097  
 Mercury -35483-01-30 04:47 J -11238713.32 -11238713.30 -11238713.27 0.0507 0.0495  
 Mars -35482-02-10 01:40 J -11238337.45 -11238337.43 -11238337.39 0.0494 0.0490  
 Venus -35482-08-12 23:16 J -11238153.71 -11238153.53 -11238153.35 0.0489 0.0215  
 Venus -35481-04-04 16:19 J -11237917.95 -11237917.82 -11237917.70 0.0485 0.0382  
 Earth -35478-10-02 22:33 J -11236641.57 -11236641.56 -11236641.53 0.0510 0.0508  
 Moon -35478-10-03 02:23 J -11236641.46 -11236641.40 -11236641.35 0.0510 0.0493  
 Mercury -35477-04-01 01:55 J -11236460.58 -11236460.42 -11236460.26 0.0518 0.0023

Venus -35475-02-07 02:38 J -11235783.58 -11235783.39 -11235783.19 0.0542 0.0172  
 Earth -35472-03-31 02:09 J -11234635.46 -11234635.41 -11234635.35 0.0518 0.0503  
 Moon -35472-03-31 04:04 J -11234635.42 -11234635.33 -11234635.23 0.0518 0.0474 \*  
 Mercury -35472-08-20 20:23 J -11234492.77 -11234492.65 -11234492.52 0.0512 0.0238  
 Mercury -35472-11-18 07:40 J -11234403.28 -11234403.18 -11234403.07 0.0508 0.0351  
 Venus -35470-04-18 04:33 J -11233887.43 -11233887.31 -11233887.18 0.0490 0.0382  
 Venus -35470-12-09 21:07 J -11233651.80 -11233651.62 -11233651.44 0.0486 0.0216  
 Mercury -35465-01-19 02:09 J -11232150.57 -11232150.41 -11232150.26 0.0517 0.0153  
 Mars -35465-11-27 16:19 J -11231837.03 -11231836.82 -11231836.59 0.0531 0.0357  
 Venus -35464-10-12 14:38 J -11231518.10 -11231517.89 -11231517.69 0.0541 0.0062  
 Mercury -35460-06-08 23:31 J -11230182.61 -11230182.52 -11230182.42 0.0512 0.0380  
 Mercury -35460-09-06 10:33 J -11230093.19 -11230093.06 -11230092.93 0.0509 0.0206  
 Venus -35458-08-15 02:23 J -11229385.61 -11229385.40 -11229385.20 0.0487 0.0050  
 Mercury -35454-11-07 02:23 J -11227840.52 -11227840.40 -11227840.27 0.0516 0.0321  
 Mercury -35453-02-05 00:43 J -11227750.57 -11227750.47 -11227750.36 0.0520 0.0383  
 Venus -35452-06-17 01:55 J -11227252.59 -11227252.42 -11227252.25 0.0539 0.0291  
 Mercury -35448-06-25 12:43 J -11225783.11 -11225782.97 -11225782.83 0.0510 0.0049  
 Venus -35446-04-20 06:14 J -11225119.44 -11225119.24 -11225119.04 0.0488 0.0119  
 Venus -35446-12-11 23:16 J -11224883.57 -11224883.53 -11224883.49 0.0485 0.0475  
 Mercury -35442-08-26 02:09 J -11223530.45 -11223530.41 -11223530.37 0.0515 0.0497  
 Mercury -35442-11-24 00:57 J -11223440.60 -11223440.46 -11223440.31 0.0519 0.0210  
 Venus -35440-02-19 11:31 J -11222987.06 -11222987.02 -11222986.97 0.0537 0.0522  
 Venus -35440-10-15 23:02 J -11222748.71 -11222748.54 -11222748.38 0.0542 0.0313  
 Mercury -35436-04-13 15:21 J -11221473.00 -11221472.86 -11221472.72 0.0511 0.0101  
 Mercury -35436-07-12 02:52 J -11221383.42 -11221383.38 -11221383.35 0.0507 0.0490  
 Venus -35435-12-24 11:16 J -11220853.19 -11220853.03 -11220852.86 0.0490 0.0285  
 Venus -35434-08-17 04:04 J -11220617.48 -11220617.33 -11220617.17 0.0486 0.0313  
 Mercury -35430-09-11 23:59 J -11219130.66 -11219130.50 -11219130.34 0.0518 0.0022  
 Mars -35429-09-05 11:59 J -11218771.25 -11218771.00 -11218770.74 0.0533 0.0269  
 Venus -35428-06-20 06:14 J -11218483.44 -11218483.24 -11218483.04 0.0541 0.0070

Mercury -35424-01-30 18:28 J -11217162.86 -11217162.73 -11217162.61 0.0512 0.0243  
 Mercury -35424-04-30 05:31 J -11217073.37 -11217073.27 -11217073.16 0.0508 0.0347  
 Venus -35423-08-29 17:16 J -11216586.86 -11216586.78 -11216586.70 0.0491 0.0450  
 Venus -35422-04-22 10:04 J -11216351.27 -11216351.08 -11216350.88 0.0487 0.0149  
 Mercury -35418-06-30 23:45 J -11214820.66 -11214820.51 -11214820.36 0.0517 0.0156  
 Venus -35416-02-22 16:33 J -11214218.01 -11214217.81 -11214217.62 0.0540 0.0166  
 Mercury -35413-11-18 21:35 J -11212852.69 -11212852.60 -11212852.51 0.0513 0.0382  
 Mercury -35412-02-16 08:38 J -11212763.27 -11212763.14 -11212763.01 0.0509 0.0204  
 Venus -35411-12-26 15:21 J -11212085.07 -11212084.86 -11212084.66 0.0487 0.0019  
 Earth -35407-09-27 07:40 J -11210714.41 -11210714.18 -11210713.95 0.0507 0.0114  
 Moon -35407-09-27 10:47 J -11210714.29 -11210714.05 -11210713.81 0.0507 0.0090 \*  
 Mercury -35406-04-18 23:31 J -11210510.64 -11210510.52 -11210510.39 0.0516 0.0332  
 Mercury -35406-07-17 22:04 J -11210420.69 -11210420.58 -11210420.47 0.0520 0.0372  
 Venus -35405-10-28 04:04 J -11209952.46 -11209952.33 -11209952.19 0.0538 0.0394  
 Venus -35404-06-23 15:50 J -11209713.95 -11209713.84 -11209713.72 0.0543 0.0445  
 Earth -35401-03-25 11:16 J -11208708.25 -11208708.03 -11208707.81 0.0521 0.0141  
 Moon -35401-03-25 12:43 J -11208708.20 -11208707.97 -11208707.74 0.0521 0.0152 \*  
 Mercury -35401-12-05 11:31 J -11208453.16 -11208453.02 -11208452.88 0.0510 0.0060  
 Mars -35400-10-29 19:55 J -11208124.91 -11208124.67 -11208124.42 0.0497 0.0141  
 Venus -35399-08-31 20:38 J -11207818.82 -11207818.64 -11207818.45 0.0489 0.0185  
 Venus -35398-04-24 13:11 J -11207583.05 -11207582.95 -11207582.84 0.0485 0.0408  
 Moon -35395-10-01 22:47 J -11206326.68 -11206326.55 -11206326.40 0.0510 0.0404  
 Earth -35395-10-02 02:52 J -11206326.50 -11206326.38 -11206326.25 0.0510 0.0425 \*  
 Mercury -35394-02-04 23:45 J -11206200.54 -11206200.51 -11206200.47 0.0515 0.0501  
 Mercury -35394-05-05 22:47 J -11206110.70 -11206110.55 -11206110.40 0.0519 0.0208  
 Venus -35392-02-26 03:35 J -11205448.53 -11205448.35 -11205448.16 0.0542 0.0215  
 Moon -35389-03-29 23:45 J -11204320.67 -11204320.51 -11204320.35 0.0518 0.0371  
 Earth -35389-03-30 02:52 J -11204320.52 -11204320.38 -11204320.23 0.0518 0.0399 \*  
 Mercury -35389-09-23 13:55 J -11204143.06 -11204142.92 -11204142.78 0.0511 0.0095  
 Mercury -35389-12-22 01:11 J -11204053.47 -11204053.45 -11204053.42 0.0507 0.0495

Venus -35387-05-07 00:28 J -11203552.62 -11203552.48 -11203552.34 0.0490 0.0353  
 Venus -35387-12-28 17:02 J -11203316.96 -11203316.79 -11203316.61 0.0486 0.0244  
 Mercury -35382-02-21 23:02 J -11201800.70 -11201800.54 -11201800.38 0.0518 0.0038  
 Venus -35381-10-31 13:40 J -11201183.13 -11201182.93 -11201182.72 0.0540 0.0022  
 Mercury -35377-07-12 16:33 J -11199832.93 -11199832.81 -11199832.68 0.0512 0.0243  
 Mercury -35377-10-10 03:50 J -11199743.45 -11199743.34 -11199743.24 0.0508 0.0345  
 Venus -35375-09-02 22:33 J -11199050.76 -11199050.56 -11199050.36 0.0487 0.0079  
 Mercury -35371-12-10 21:50 J -11197490.74 -11197490.59 -11197490.43 0.0517 0.0153  
 Venus -35369-07-05 20:23 J -11196917.82 -11196917.65 -11196917.47 0.0539 0.0264  
 Mercury -35365-04-30 19:40 J -11195522.77 -11195522.68 -11195522.59 0.0513 0.0386  
 Mercury -35365-07-29 06:28 J -11195433.36 -11195433.23 -11195433.09 0.0509 0.0201  
 Mars -35364-08-02 05:59 J -11195064.47 -11195064.25 -11195064.02 0.0495 0.0225  
 Venus -35363-05-09 04:33 J -11194784.51 -11194784.31 -11194784.11 0.0488 0.0087  
 Mercury -35359-09-28 21:35 J -11193180.72 -11193180.60 -11193180.48 0.0516 0.0331  
 Mercury -35359-12-27 19:55 J -11193090.78 -11193090.67 -11193090.56 0.0520 0.0371  
 Venus -35357-03-10 06:43 J -11192652.29 -11192652.22 -11192652.14 0.0537 0.0493  
 Venus -35357-11-03 18:28 J -11192413.89 -11192413.73 -11192413.57 0.0543 0.0341  
 Mercury -35353-05-17 09:35 J -11191123.24 -11191123.10 -11191122.96 0.0510 0.0059  
 Venus -35351-01-12 10:04 J -11190518.26 -11190518.08 -11190517.91 0.0489 0.0253  
 Venus -35351-09-05 02:23 J -11190282.54 -11190282.40 -11190282.26 0.0485 0.0341  
 Mercury -35347-07-17 21:07 J -11188870.64 -11188870.62 -11188870.59 0.0515 0.0508  
 Mercury -35347-10-15 20:09 J -11188780.81 -11188780.66 -11188780.51 0.0519 0.0199  
 Venus -35345-07-09 06:14 J -11188148.44 -11188148.24 -11188148.04 0.0542 0.0110  
 Mercury -35341-03-05 12:43 J -11186813.11 -11186812.97 -11186812.83 0.0511 0.0084  
 Mercury -35341-06-03 00:14 J -11186723.49 -11186723.49 -11186723.49 0.0507 0.0507  
 Venus -35340-09-17 15:21 J -11186251.96 -11186251.86 -11186251.75 0.0491 0.0418  
 Venus -35339-05-11 07:55 J -11186016.36 -11186016.17 -11186015.98 0.0486 0.0178  
 Mercury -35335-08-03 20:38 J -11184470.79 -11184470.64 -11184470.47 0.0518 0.0037  
 Venus -35333-03-13 17:59 J -11183882.95 -11183882.75 -11183882.55 0.0540 0.0120  
 Mercury -35330-12-23 15:07 J -11182502.99 -11182502.87 -11182502.74 0.0512 0.0236



Mercury -35329-03-22 02:23 J -11182413.50 -11182413.40 -11182413.30 0.0508 0.0352  
 Venus -35327-01-14 11:59 J -11181750.20 -11181750.00 -11181749.80 0.0487 0.0011  
 Moon -35324-09-26 09:07 J -11180399.34 -11180399.12 -11180398.90 0.0507 0.0168  
 Earth -35324-09-26 13:11 J -11180399.17 -11180398.95 -11180398.73 0.0507 0.0187 \*  
 Mercury -35323-05-22 20:52 J -11180160.79 -11180160.63 -11180160.47 0.0517 0.0138  
 Venus -35322-11-17 04:19 J -11179617.47 -11179617.32 -11179617.16 0.0538 0.0351  
 Venus -35321-07-12 15:35 J -11179378.94 -11179378.85 -11179378.76 0.0543 0.0483  
 Moon -35318-03-25 08:09 J -11178393.35 -11178393.16 -11178392.96 0.0521 0.0269  
 Earth -35318-03-25 11:16 J -11178393.23 -11178393.03 -11178392.83 0.0521 0.0248 \*  
 Mercury -35318-10-11 17:59 J -11178192.84 -11178192.75 -11178192.65 0.0513 0.0382  
 Mercury -35317-01-09 04:47 J -11178103.42 -11178103.30 -11178103.16 0.0509 0.0204  
 Venus -35316-09-19 17:31 J -11177483.96 -11177483.77 -11177483.58 0.0489 0.0155  
 Venus -35315-05-13 10:04 J -11177248.16 -11177248.08 -11177247.98 0.0485 0.0438  
 Earth -35312-10-01 03:35 J -11176011.52 -11176011.35 -11176011.17 0.0509 0.0331  
 Moon -35312-10-01 07:40 J -11176011.36 -11176011.18 -11176010.99 0.0509 0.0311 \*  
 Mercury -35311-03-10 19:40 J -11175850.80 -11175850.68 -11175850.55 0.0516 0.0326  
 Mercury -35311-06-08 18:14 J -11175760.85 -11175760.74 -11175760.63 0.0520 0.0376  
 Mars -35310-02-21 03:35 J -11175503.62 -11175503.35 -11175503.07 0.0530 0.0219  
 Venus -35309-03-16 22:47 J -11175113.73 -11175113.55 -11175113.37 0.0542 0.0242  
 Earth -35306-03-30 04:19 J -11174005.50 -11174005.32 -11174005.13 0.0520 0.0304  
 Moon -35306-03-30 08:09 J -11174005.35 -11174005.16 -11174004.96 0.0520 0.0279 \*  
 Mercury -35306-10-28 07:40 J -11173793.32 -11173793.18 -11173793.04 0.0510 0.0058  
 Venus -35304-05-25 23:31 J -11173217.67 -11173217.52 -11173217.37 0.0490 0.0320  
 Venus -35303-01-16 16:19 J -11172981.99 -11172981.82 -11172981.66 0.0486 0.0275  
 Mercury -35300-12-27 19:26 J -11171540.72 -11171540.69 -11171540.66 0.0515 0.0504  
 Mercury -35299-03-27 18:14 J -11171450.88 -11171450.74 -11171450.59 0.0519 0.0202  
 Venus -35298-11-20 09:07 J -11170848.32 -11170848.12 -11170847.91 0.0541 0.0013  
 Mercury -35294-08-16 10:47 J -11169483.19 -11169483.05 -11169482.91 0.0511 0.0085  
 Venus -35292-01-29 05:02 J -11168951.32 -11168951.29 -11168951.26 0.0492 0.0484  
 Venus -35292-09-21 21:35 J -11168715.80 -11168715.60 -11168715.40 0.0487 0.0111

Mercury -35287-01-13 18:14 J -11167140.90 -11167140.74 -11167140.58 0.0518 0.0031

Venus -35286-07-25 20:38 J -11166582.83 -11166582.64 -11166582.46 0.0539 0.0224

Mercury -35282-06-04 14:09 J -11165173.04 -11165172.91 -11165172.79 0.0512 0.0224

Mercury -35282-09-02 01:11 J -11165083.55 -11165083.45 -11165083.35 0.0508 0.0365

Mars -35281-04-21 00:28 J -11164851.62 -11164851.48 -11164851.33 0.0499 0.0411

Venus -35280-05-28 03:21 J -11164449.57 -11164449.36 -11164449.16 0.0488 0.0055

Mercury -35276-11-01 18:43 J -11162830.87 -11162830.72 -11162830.56 0.0517 0.0139

Mars -35275-11-30 17:59 J -11162436.91 -11162436.75 -11162436.57 0.0533 0.0439

Venus -35274-03-30 08:52 J -11162317.24 -11162317.13 -11162317.02 0.0537 0.0446

Venus -35274-11-23 20:38 J -11162078.78 -11162078.64 -11162078.49 0.0543 0.0387

Mercury -35270-03-23 16:47 J -11160862.89 -11160862.80 -11160862.70 0.0513 0.0372

Mercury -35270-06-21 03:35 J -11160773.48 -11160773.35 -11160773.22 0.0509 0.0213

Venus -35268-01-31 07:26 J -11160183.37 -11160183.19 -11160183.01 0.0489 0.0222

Venus -35268-09-23 23:45 J -11159947.63 -11159947.51 -11159947.37 0.0485 0.0371

Mercury -35264-08-20 18:57 J -11158520.84 -11158520.71 -11158520.58 0.0516 0.0310

Mercury -35264-11-18 17:16 J -11158430.88 -11158430.78 -11158430.67 0.0520 0.0393

Venus -35262-07-29 07:11 J -11157813.39 -11157813.20 -11157813.00 0.0541 0.0153

Mercury -35258-04-09 06:28 J -11156463.37 -11156463.23 -11156463.09 0.0510 0.0066

Venus -35257-10-06 12:43 J -11155917.08 -11155916.97 -11155916.84 0.0491 0.0387

Venus -35256-05-30 05:31 J -11155681.45 -11155681.27 -11155681.08 0.0486 0.0208

Mercury -35252-06-08 17:59 J -11154210.79 -11154210.75 -11154210.71 0.0515 0.0495

Mercury -35252-09-06 16:47 J -11154120.95 -11154120.80 -11154120.66 0.0518 0.0211

Venus -35250-04-02 14:09 J -11153548.11 -11153547.91 -11153547.70 0.0540 0.0091

Mercury -35246-01-26 09:07 J -11152153.26 -11152153.12 -11152152.98 0.0511 0.0082

Mars -35245-01-23 14:38 J -11151791.15 -11151790.89 -11151790.64 0.0497 0.0035

Venus -35244-02-02 11:45 J -11151415.22 -11151415.01 -11151414.81 0.0488 0.0045

Earth -35241-09-25 15:35 J -11150084.05 -11150083.85 -11150083.65 0.0506 0.0273

Moon -35241-09-25 19:40 J -11150083.89 -11150083.68 -11150083.48 0.0506 0.0253 \*

Mercury -35240-06-25 16:47 J -11149810.96 -11149810.80 -11149810.64 0.0517 0.0036

Venus -35239-12-06 00:14 J -11149282.65 -11149282.49 -11149282.32 0.0538 0.0322

Venus -35238-08-01 11:45 J -11149044.08 -11149044.01 -11149043.94 0.0543 0.0510  
 Earth -35235-03-24 14:52 J -11148078.05 -11148077.88 -11148077.70 0.0523 0.0335  
 Moon -35235-03-24 18:43 J -11148077.88 -11148077.72 -11148077.54 0.0523 0.0360 \*  
 Mercury -35235-11-14 12:28 J -11147843.11 -11147842.98 -11147842.86 0.0512 0.0223  
 Mercury -35234-02-11 23:31 J -11147753.62 -11147753.52 -11147753.42 0.0509 0.0367  
 Venus -35233-10-08 17:16 J -11147148.97 -11147148.78 -11147148.58 0.0489 0.0121  
 Venus -35232-06-01 09:50 J -11146913.14 -11146913.09 -11146913.04 0.0485 0.0467  
 Moon -35229-09-30 04:04 J -11145696.54 -11145696.33 -11145696.11 0.0508 0.0223  
 Earth -35229-09-30 07:26 J -11145696.39 -11145696.19 -11145695.98 0.0508 0.0246 \*  
 Mercury -35228-04-13 16:33 J -11145500.96 -11145500.81 -11145500.65 0.0517 0.0140  
 Venus -35226-04-05 23:45 J -11144778.68 -11144778.51 -11144778.34 0.0542 0.0283  
 Moon -35223-03-29 08:23 J -11143690.37 -11143690.15 -11143689.94 0.0520 0.0206  
 Earth -35223-03-29 12:14 J -11143690.19 -11143689.99 -11143689.78 0.0520 0.0236 \*  
 Mercury -35223-09-02 15:35 J -11143532.94 -11143532.85 -11143532.75 0.0513 0.0361  
 Mercury -35223-12-01 02:38 J -11143443.52 -11143443.39 -11143443.26 0.0509 0.0225  
 Venus -35221-06-13 23:02 J -11142882.70 -11142882.54 -11142882.38 0.0490 0.0285  
 Venus -35220-02-04 15:07 J -11142647.02 -11142646.87 -11142646.70 0.0486 0.0307  
 Mercury -35216-01-30 16:47 J -11141190.92 -11141190.80 -11141190.67 0.0516 0.0309  
 Mercury -35216-04-30 15:21 J -11141100.96 -11141100.86 -11141100.76 0.0520 0.0394  
 Venus -35215-12-09 11:59 J -11140513.20 -11140513.00 -11140512.80 0.0541 0.0055  
 Mercury -35211-06-21 18:43 J -11139222.74 -11139222.72 -11139222.70 0.0514 0.0505  
 Mercury -35211-09-19 05:16 J -11139133.42 -11139133.28 -11139133.14 0.0510 0.0076  
 Mars -35210-10-27 05:16 J -11138730.46 -11138730.28 -11138730.09 0.0495 0.0336  
 Venus -35209-02-18 03:07 J -11138616.44 -11138616.37 -11138616.28 0.0492 0.0452  
 Venus -35209-10-10 19:55 J -11138380.87 -11138380.67 -11138380.48 0.0487 0.0142  
 Mercury -35205-11-18 16:47 J -11136880.85 -11136880.80 -11136880.74 0.0515 0.0480  
 Mercury -35204-02-16 15:50 J -11136790.98 -11136790.84 -11136790.69 0.0519 0.0228  
 Venus -35203-08-13 22:47 J -11136247.74 -11136247.55 -11136247.36 0.0539 0.0176  
 Mercury -35199-07-08 08:09 J -11134823.30 -11134823.16 -11134823.02 0.0511 0.0072  
 Venus -35197-06-16 01:40 J -11134114.64 -11134114.43 -11134114.23 0.0488 0.0024

Mercury -35193-12-05 15:21 J -11132481.02 -11132480.86 -11132480.70 0.0517 0.0048  
 Venus -35191-04-18 06:14 J -11131982.37 -11131982.24 -11131982.11 0.0537 0.0413  
 Venus -35191-12-12 17:16 J -11131743.90 -11131743.78 -11131743.64 0.0542 0.0416  
 Mercury -35187-04-26 10:47 J -11130513.18 -11130513.05 -11130512.93 0.0513 0.0219  
 Mercury -35187-07-24 21:50 J -11130423.68 -11130423.59 -11130423.49 0.0509 0.0371  
 Venus -35185-02-20 07:40 J -11129848.37 -11129848.18 -11129848.00 0.0490 0.0187  
 Venus -35185-10-13 00:14 J -11129612.60 -11129612.49 -11129612.37 0.0486 0.0404  
 Mercury -35181-09-23 15:21 J -11128171.02 -11128170.86 -11128170.71 0.0516 0.0129  
 Venus -35179-08-17 03:50 J -11127478.53 -11127478.34 -11127478.15 0.0541 0.0183  
 Mercury -35175-02-12 13:55 J -11126203.01 -11126202.92 -11126202.82 0.0514 0.0359  
 Mercury -35175-05-13 00:57 J -11126113.59 -11126113.46 -11126113.33 0.0510 0.0228  
 Venus -35174-10-26 13:11 J -11125582.09 -11125581.95 -11125581.81 0.0491 0.0351  
 Venus -35173-06-18 05:45 J -11125346.44 -11125346.26 -11125346.08 0.0486 0.0242  
 Mercury -35169-07-12 14:52 J -11123861.01 -11123860.88 -11123860.75 0.0516 0.0307  
 Mercury -35169-10-10 13:26 J -11123771.04 -11123770.94 -11123770.84 0.0520 0.0395  
 Venus -35167-04-21 15:21 J -11123213.07 -11123212.86 -11123212.66 0.0540 0.0048  
 Mercury -35164-12-01 17:31 J -11121892.80 -11121892.77 -11121892.74 0.0514 0.0495  
 Mercury -35163-03-01 04:04 J -11121803.47 -11121803.33 -11121803.19 0.0510 0.0089  
 Venus -35161-02-22 11:31 J -11121080.22 -11121080.02 -11121079.82 0.0487 0.0079  
 Moon -35158-09-25 18:43 J -11119768.90 -11119768.72 -11119768.53 0.0506 0.0328  
 Earth -35158-09-25 22:19 J -11119768.74 -11119768.57 -11119768.40 0.0506 0.0344 \*  
 Mercury -35157-04-30 15:07 J -11119550.93 -11119550.87 -11119550.81 0.0515 0.0476  
 Mercury -35157-07-29 14:09 J -11119461.05 -11119460.91 -11119460.77 0.0519 0.0231  
 Mars -35156-05-17 16:19 J -11119169.12 -11119168.82 -11119168.52 0.0531 0.0036  
 Venus -35156-12-25 03:35 J -11118947.53 -11118947.35 -11118947.18 0.0539 0.0273  
 Moon -35152-03-23 18:43 J -11117762.85 -11117762.72 -11117762.59 0.0523 0.0433  
 Earth -35152-03-23 22:33 J -11117762.70 -11117762.56 -11117762.41 0.0523 0.0404 \*  
 Mercury -35152-12-18 06:57 J -11117493.35 -11117493.21 -11117493.07 0.0511 0.0058  
 Venus -35150-10-28 16:19 J -11116814.02 -11116813.82 -11116813.62 0.0488 0.0087  
 Earth -35146-09-30 16:04 J -11115381.04 -11115380.83 -11115380.60 0.0508 0.0187

Moon -35146-09-30 17:31 J -11115380.98 -11115380.77 -11115380.55 0.0508 0.0163 \*  
 Mercury -35145-05-17 14:38 J -11115151.05 -11115150.89 -11115150.73 0.0518 0.0065  
 Venus -35144-08-29 14:52 J -11114681.95 -11114681.88 -11114681.80 0.0536 0.0496  
 Venus -35143-04-25 02:38 J -11114443.55 -11114443.39 -11114443.23 0.0542 0.0330  
 Earth -35140-03-28 17:16 J -11113375.00 -11113374.78 -11113374.55 0.0520 0.0155  
 Moon -35140-03-28 20:23 J -11113374.87 -11113374.65 -11113374.43 0.0520 0.0135 \*  
 Mercury -35140-10-06 09:50 J -11113183.22 -11113183.09 -11113182.96 0.0512 0.0204  
 Mercury -35139-01-03 20:52 J -11113093.72 -11113093.63 -11113093.53 0.0508 0.0385  
 Venus -35138-07-03 21:50 J -11112547.76 -11112547.59 -11112547.41 0.0490 0.0252  
 Venus -35137-02-24 14:23 J -11112312.04 -11112311.90 -11112311.75 0.0486 0.0339  
 Mercury -35133-03-05 14:09 J -11110841.07 -11110840.91 -11110840.75 0.0516 0.0114  
 Venus -35132-12-28 10:04 J -11110178.28 -11110178.08 -11110177.88 0.0541 0.0089  
 Mercury -35128-07-25 12:28 J -11108873.08 -11108872.98 -11108872.88 0.0514 0.0354  
 Mercury -35128-10-22 23:31 J -11108783.65 -11108783.52 -11108783.40 0.0510 0.0234  
 Mars -35127-07-16 00:14 J -11108517.69 -11108517.49 -11108517.28 0.0499 0.0291  
 Venus -35126-03-09 03:35 J -11108281.46 -11108281.35 -11108281.25 0.0492 0.0417  
 Venus -35126-10-30 20:38 J -11108045.83 -11108045.64 -11108045.45 0.0487 0.0177  
 Mercury -35122-12-23 13:55 J -11106531.05 -11106530.92 -11106530.79 0.0515 0.0290  
 Mercury -35121-03-22 12:14 J -11106441.08 -11106440.99 -11106440.89 0.0519 0.0409  
 Venus -35120-09-01 20:23 J -11105912.85 -11105912.65 -11105912.46 0.0539 0.0144  
 Mercury -35116-05-13 15:50 J -11104562.87 -11104562.84 -11104562.80 0.0515 0.0493  
 Mercury -35116-08-11 02:38 J -11104473.53 -11104473.39 -11104473.25 0.0511 0.0093  
 Venus -35114-07-06 02:09 J -11103779.61 -11103779.41 -11103779.21 0.0488 0.0014  
 Mercury -35110-10-11 13:26 J -11102221.01 -11102220.94 -11102220.88 0.0514 0.0470  
 Mercury -35109-01-09 12:14 J -11102131.13 -11102130.99 -11102130.84 0.0518 0.0235  
 Venus -35108-05-07 07:11 J -11101647.34 -11101647.20 -11101647.05 0.0538 0.0370  
 Venus -35108-12-31 18:57 J -11101408.81 -11101408.71 -11101408.60 0.0543 0.0457  
 Mercury -35104-05-30 05:45 J -11100163.40 -11100163.26 -11100163.12 0.0512 0.0048  
 Venus -35102-03-11 08:09 J -11099513.35 -11099513.16 -11099512.97 0.0489 0.0150  
 Venus -35102-11-02 00:28 J -11099277.56 -11099277.48 -11099277.39 0.0485 0.0436

Mercury -35098-10-28 12:43 J -11097821.12 -11097820.97 -11097820.81 0.0518 0.0071  
 Venus -35096-09-05 07:40 J -11097143.36 -11097143.18 -11097143.00 0.0542 0.0233  
 Mercury -35092-03-18 08:52 J -11095853.26 -11095853.13 -11095853.00 0.0512 0.0191  
 Mercury -35092-06-15 19:55 J -11095763.76 -11095763.67 -11095763.58 0.0508 0.0398  
 Mars -35091-04-18 21:07 J -11095456.87 -11095456.62 -11095456.37 0.0497 0.0094  
 Venus -35091-11-14 12:57 J -11095247.12 -11095246.96 -11095246.81 0.0491 0.0316  
 Venus -35090-07-08 05:16 J -11095011.45 -11095011.28 -11095011.11 0.0486 0.0274  
 Mercury -35086-08-16 13:11 J -11093511.11 -11093510.95 -11093510.79 0.0517 0.0098  
 Venus -35084-05-10 18:57 J -11092877.91 -11092877.71 -11092877.50 0.0540 0.0012  
 Mercury -35080-01-04 11:45 J -11091543.11 -11091543.01 -11091542.90 0.0513 0.0336  
 Mercury -35080-04-03 22:47 J -11091453.68 -11091453.55 -11091453.43 0.0509 0.0251  
 Venus -35079-07-20 18:14 J -11090980.78 -11090980.74 -11090980.70 0.0492 0.0479  
 Venus -35078-03-13 11:16 J -11090745.23 -11090745.03 -11090744.83 0.0487 0.0113  
 Earth -35075-09-25 06:43 J -11089453.35 -11089453.22 -11089453.07 0.0505 0.0400  
 Moon -35075-09-25 08:23 J -11089453.29 -11089453.15 -11089453.01 0.0505 0.0394 \*  
 Mercury -35074-06-04 12:57 J -11089201.10 -11089200.96 -11089200.82 0.0515 0.0275  
 Mercury -35074-09-02 11:16 J -11089111.12 -11089111.03 -11089110.94 0.0519 0.0424  
 Venus -35072-01-13 02:52 J -11088612.56 -11088612.38 -11088612.19 0.0538 0.0235  
 Earth -35069-03-23 00:14 J -11087447.55 -11087447.49 -11087447.43 0.0524 0.0504  
 Mercury -35069-10-23 14:23 J -11087232.94 -11087232.90 -11087232.86 0.0515 0.0487  
 Mercury -35068-01-21 00:57 J -11087143.60 -11087143.46 -11087143.32 0.0511 0.0099  
 Venus -35067-11-16 16:47 J -11086479.00 -11086478.80 -11086478.59 0.0489 0.0053  
 Earth -35063-09-29 23:16 J -11085065.75 -11085065.53 -11085065.30 0.0507 0.0120  
 Moon -35063-09-30 00:14 J -11085065.73 -11085065.49 -11085065.25 0.0507 0.0090 \*  
 Mercury -35062-03-23 12:28 J -11084891.05 -11084890.98 -11084890.90 0.0514 0.0451  
 Mercury -35062-06-21 11:31 J -11084801.16 -11084801.02 -11084800.88 0.0518 0.0252  
 Venus -35061-09-17 13:11 J -11084347.05 -11084346.95 -11084346.84 0.0536 0.0461  
 Venus -35060-05-14 00:28 J -11084108.63 -11084108.48 -11084108.33 0.0542 0.0360  
 Moon -35057-03-27 19:11 J -11083059.93 -11083059.70 -11083059.46 0.0522 0.0051  
 Earth -35057-03-27 20:52 J -11083059.86 -11083059.63 -11083059.40 0.0522 0.0066 \*

Mercury -35057-11-09 04:04 J -11082833.47 -11082833.33 -11082833.18 0.0512 0.0048  
 Mars -35055-01-20 12:43 J -11082396.05 -11082395.97 -11082395.88 0.0495 0.0466  
 Venus -35055-07-22 22:19 J -11082212.75 -11082212.57 -11082212.38 0.0490 0.0215  
 Venus -35054-03-15 15:21 J -11081976.99 -11081976.86 -11081976.73 0.0486 0.0373  
 Mercury -35050-04-09 11:16 J -11080491.19 -11080491.03 -11080490.87 0.0517 0.0076  
 Venus -35048-01-16 11:31 J -11079843.22 -11079843.02 -11079842.83 0.0541 0.0132  
 Mercury -35045-08-28 07:40 J -11078523.31 -11078523.18 -11078523.05 0.0513 0.0183  
 Mercury -35045-11-25 18:43 J -11078433.80 -11078433.72 -11078433.63 0.0509 0.0408  
 Venus -35043-03-28 04:19 J -11077946.44 -11077946.32 -11077946.19 0.0492 0.0378  
 Venus -35043-11-18 21:07 J -11077710.80 -11077710.62 -11077710.44 0.0487 0.0212  
 Mercury -35038-01-26 11:31 J -11076181.18 -11076181.02 -11076180.86 0.0517 0.0093  
 Mars -35038-11-03 02:38 J -11075900.51 -11075900.39 -11075900.27 0.0529 0.0481  
 Venus -35037-09-20 23:45 J -11075577.71 -11075577.51 -11075577.31 0.0540 0.0094  
 Mercury -35033-06-16 10:47 J -11074213.16 -11074213.05 -11074212.94 0.0513 0.0324  
 Mercury -35033-09-13 21:35 J -11074123.72 -11074123.60 -11074123.48 0.0509 0.0263  
 Venus -35031-07-25 01:55 J -11073444.62 -11073444.42 -11073444.21 0.0488 0.0049  
 Mercury -35027-11-14 11:45 J -11071871.15 -11071871.01 -11071870.87 0.0516 0.0261  
 Mercury -35026-02-12 10:19 J -11071781.15 -11071781.07 -11071780.99 0.0520 0.0440  
 Venus -35025-05-26 11:31 J -11071312.19 -11071312.02 -11071311.86 0.0538 0.0320  
 Venus -35024-01-19 23:02 J -11071073.61 -11071073.54 -11071073.46 0.0543 0.0504  
 Mercury -35021-04-04 13:55 J -11069902.98 -11069902.92 -11069902.86 0.0514 0.0466  
 Mercury -35021-07-03 00:28 J -11069813.62 -11069813.48 -11069813.34 0.0510 0.0117  
 Venus -35019-03-30 07:55 J -11069178.37 -11069178.17 -11069177.97 0.0489 0.0115  
 Venus -35019-11-21 00:28 J -11068942.53 -11068942.48 -11068942.42 0.0485 0.0468  
 Mercury -35015-09-02 11:31 J -11067561.10 -11067561.02 -11067560.93 0.0514 0.0435  
 Mercury -35015-12-01 10:33 J -11067471.20 -11067471.06 -11067470.93 0.0518 0.0269  
 Venus -35013-09-24 07:11 J -11066808.37 -11066808.20 -11066808.02 0.0541 0.0269  
 Mercury -35009-04-21 02:52 J -11065503.52 -11065503.38 -11065503.24 0.0512 0.0039  
 Venus -35008-12-03 12:57 J -11064912.13 -11064911.96 -11064911.79 0.0491 0.0280  
 Venus -35007-07-27 05:59 J -11064676.40 -11064676.25 -11064676.09 0.0486 0.0309

Mercury -35003-09-19 10:33 J -11063161.22 -11063161.06 -11063160.90 0.0517 0.0095

Mars -35002-08-12 02:52 J -11062834.66 -11062834.38 -11062834.09 0.0531 0.0147

Venus -35001-05-29 17:16 J -11062542.98 -11062542.78 -11062542.57 0.0540 0.0039

# 35TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 35th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-34997-02-08 05:59 J	-11061193.38	-11061193.25	-11061193.12	0.0513	0.0181		
Mercury	-34997-05-07 17:02 J	-11061103.87	-11061103.79	-11061103.70	0.0509	0.0412		
Venus	-34996-08-08 18:14 J	-11060645.82	-11060645.74	-11060645.65	0.0493	0.0443		
Venus	-34995-04-01 11:31 J	-11060410.21	-11060410.02	-11060409.82	0.0487	0.0149		
Earth	-34992-09-24 12:57 J	-11059138.04	-11059137.96	-11059137.88	0.0504	0.0472		
Moon	-34992-09-24 13:11 J	-11059138.02	-11059137.95	-11059137.86	0.0504	0.0475	*	
Mercury	-34991-07-08 10:04 J	-11058851.24	-11058851.08	-11058850.92	0.0516	0.0085		
Venus	-34989-02-02 03:50 J	-11058277.53	-11058277.34	-11058277.15	0.0539	0.0191		
Mercury	-34986-11-27 09:21 J	-11056883.22	-11056883.11	-11056883.00	0.0514	0.0317		
Mercury	-34985-02-24 20:09 J	-11056793.77	-11056793.66	-11056793.53	0.0510	0.0272		
Venus	-34984-12-05 17:31 J	-11056143.97	-11056143.77	-11056143.57	0.0488	0.0014		
Moon	-34980-09-29 03:35 J	-11054750.58	-11054750.35	-11054750.12	0.0506	0.0015		
Earth	-34980-09-29 05:59 J	-11054750.48	-11054750.25	-11054750.01	0.0506	0.0048	*	
Mercury	-34979-04-26 10:04 J	-11054541.22	-11054541.08	-11054540.93	0.0515	0.0256		
Mercury	-34979-07-25 08:38 J	-11054451.22	-11054451.14	-11054451.06	0.0519	0.0445		



Venus -34978-10-07 16:04 J -11054011.96 -11054011.83 -11054011.70 0.0537 0.0413

Venus -34977-06-02 03:50 J -11053773.47 -11053773.34 -11053773.21 0.0543 0.0408

Moon -34974-03-28 05:59 J -11052744.47 -11052744.25 -11052744.02 0.0522 0.0009

Earth -34974-03-28 06:43 J -11052744.45 -11052744.22 -11052743.98 0.0522 0.0012 \*

Mercury -34974-09-15 12:43 J -11052573.03 -11052572.97 -11052572.91 0.0514 0.0457

Mercury -34974-12-13 23:16 J -11052483.67 -11052483.53 -11052483.39 0.0511 0.0128

Mars -34973-10-09 11:02 J -11052183.29 -11052183.04 -11052182.80 0.0499 0.0155

Venus -34972-08-10 22:19 J -11051877.75 -11051877.57 -11051877.38 0.0490 0.0180

Venus -34971-04-03 15:07 J -11051641.98 -11051641.87 -11051641.76 0.0486 0.0405

Mercury -34967-02-12 10:19 J -11050231.16 -11050231.07 -11050230.98 0.0515 0.0424

Mercury -34967-05-13 09:21 J -11050141.25 -11050141.11 -11050140.98 0.0519 0.0281

Venus -34965-02-05 15:35 J -11049508.04 -11049507.85 -11049507.66 0.0541 0.0182

Mercury -34962-10-02 02:09 J -11048173.55 -11048173.41 -11048173.27 0.0511 0.0020

Venus -34960-04-16 04:04 J -11047611.47 -11047611.33 -11047611.18 0.0491 0.0342

Venus -34960-12-07 20:52 J -11047375.80 -11047375.63 -11047375.45 0.0487 0.0246

Mercury -34955-03-01 09:35 J -11045831.26 -11045831.10 -11045830.95 0.0517 0.0111

Venus -34954-10-11 00:28 J -11045242.69 -11045242.48 -11045242.28 0.0539 0.0054

Mercury -34950-07-21 04:33 J -11043863.44 -11043863.31 -11043863.18 0.0513 0.0174

Mercury -34950-10-18 15:35 J -11043773.93 -11043773.85 -11043773.77 0.0509 0.0418

Venus -34948-08-13 01:55 J -11043109.62 -11043109.42 -11043109.22 0.0488 0.0083

Mercury -34944-12-18 09:21 J -11041521.27 -11041521.11 -11041520.95 0.0516 0.0064

Venus -34942-06-15 10:19 J -11040977.24 -11040977.07 -11040976.89 0.0537 0.0282

Venus -34941-02-08 21:07 J -11040738.65 -11040738.62 -11040738.59 0.0542 0.0534

Mercury -34938-05-09 07:40 J -11039553.29 -11039553.18 -11039553.07 0.0514 0.0317

Mercury -34938-08-06 18:28 J -11039463.85 -11039463.73 -11039463.61 0.0510 0.0273

Mars -34937-07-13 01:55 J -11039122.65 -11039122.42 -11039122.19 0.0497 0.0218

Venus -34936-04-18 07:40 J -11038843.38 -11038843.18 -11038842.98 0.0489 0.0079

Mercury -34932-10-06 08:38 J -11037211.28 -11037211.14 -11037211.00 0.0515 0.0247

Mercury -34931-01-04 07:11 J -11037121.28 -11037121.20 -11037121.13 0.0519 0.0451

Venus -34930-02-17 20:23 J -11036711.72 -11036711.65 -11036711.59 0.0535 0.0505

Venus -34930-10-14 07:40 J -11036473.34 -11036473.18 -11036473.01 0.0542 0.0310  
 Mercury -34926-02-25 11:16 J -11035243.10 -11035243.03 -11035242.97 0.0515 0.0453  
 Mercury -34926-05-25 21:50 J -11035153.73 -11035153.59 -11035153.45 0.0511 0.0133  
 Venus -34925-12-22 13:26 J -11034577.11 -11034576.94 -11034576.76 0.0491 0.0242  
 Venus -34924-08-15 06:14 J -11034341.39 -11034341.24 -11034341.10 0.0486 0.0343  
 Mercury -34920-07-25 08:38 J -11032901.23 -11032901.14 -11032901.05 0.0514 0.0419  
 Mercury -34920-10-23 07:26 J -11032811.32 -11032811.19 -11032811.05 0.0518 0.0285  
 Venus -34918-06-18 19:55 J -11032207.87 -11032207.67 -11032207.47 0.0541 0.0084  
 Mercury -34914-03-14 00:57 J -11030843.60 -11030843.46 -11030843.32 0.0512 0.0010  
 Venus -34913-08-27 18:28 J -11030310.84 -11030310.73 -11030310.62 0.0492 0.0407  
 Venus -34912-04-20 11:16 J -11030075.22 -11030075.03 -11030074.84 0.0487 0.0181  
 Mercury -34908-08-11 08:09 J -11028501.32 -11028501.16 -11028501.01 0.0517 0.0120  
 Venus -34906-02-21 07:40 J -11027942.38 -11027942.18 -11027941.98 0.0539 0.0142  
 Mercury -34903-12-31 03:50 J -11026533.47 -11026533.34 -11026533.20 0.0513 0.0154  
 Mercury -34902-03-30 15:07 J -11026443.94 -11026443.87 -11026443.80 0.0509 0.0437  
 Venus -34901-12-24 17:02 J -11025809.00 -11025808.79 -11025808.59 0.0488 0.0020  
 Earth -34897-09-28 15:50 J -11024435.07 -11024434.84 -11024434.60 0.0506 0.0012  
 Moon -34897-09-28 19:40 J -11024434.92 -11024434.68 -11024434.44 0.0506 0.0037 \*  
 Mercury -34896-05-30 08:23 J -11024191.31 -11024191.15 -11024190.99 0.0516 0.0051  
 Venus -34895-10-26 17:16 J -11023676.92 -11023676.78 -11023676.63 0.0536 0.0369  
 Venus -34894-06-22 04:04 J -11023438.44 -11023438.33 -11023438.22 0.0542 0.0445  
 Earth -34891-03-27 07:26 J -11022429.42 -11022429.19 -11022428.96 0.0523 0.0099  
 Moon -34891-03-27 09:50 J -11022429.32 -11022429.09 -11022428.86 0.0523 0.0095 \*  
 Mercury -34891-10-19 06:14 J -11022223.35 -11022223.24 -11022223.13 0.0514 0.0311  
 Mercury -34890-01-16 17:02 J -11022133.91 -11022133.79 -11022133.67 0.0510 0.0278  
 Venus -34889-08-29 21:35 J -11021542.80 -11021542.60 -11021542.41 0.0490 0.0146  
 Venus -34888-04-22 14:52 J -11021306.96 -11021306.88 -11021306.79 0.0486 0.0437  
 Mercury -34884-03-18 08:09 J -11019881.31 -11019881.16 -11019881.02 0.0515 0.0226  
 Mercury -34884-06-16 06:28 J -11019791.29 -11019791.23 -11019791.17 0.0519 0.0471  
 Mars -34883-01-27 17:45 J -11019566.01 -11019565.76 -11019565.51 0.0528 0.0295

Venus -34882-02-24 13:55 J -11019173.10 -11019172.92 -11019172.73 0.0540 0.0216  
 Moon -34879-03-31 23:02 J -11018041.60 -11018041.54 -11018041.46 0.0521 0.0493  
 Earth -34879-04-01 02:23 J -11018041.50 -11018041.40 -11018041.29 0.0521 0.0461 \*  
 Mercury -34879-08-07 09:21 J -11017913.17 -11017913.11 -11017913.05 0.0515 0.0454  
 Mercury -34879-11-04 19:55 J -11017823.81 -11017823.67 -11017823.53 0.0511 0.0132  
 Venus -34877-05-05 02:52 J -11017276.53 -11017276.38 -11017276.22 0.0492 0.0308  
 Venus -34877-12-26 20:09 J -11017040.83 -11017040.66 -11017040.50 0.0487 0.0279  
 Mercury -34872-01-04 06:57 J -11015571.30 -11015571.21 -11015571.11 0.0514 0.0412  
 Mercury -34872-04-04 05:59 J -11015481.38 -11015481.25 -11015481.12 0.0518 0.0291  
 Venus -34871-10-29 23:59 J -11014907.71 -11014907.50 -11014907.30 0.0539 0.0018  
 Mercury -34867-08-23 23:16 J -11013513.67 -11013513.53 -11013513.39 0.0512 0.0007  
 Venus -34865-01-09 08:38 J -11013010.20 -11013010.14 -11013010.08 0.0493 0.0470  
 Venus -34865-09-01 01:55 J -11012774.62 -11012774.42 -11012774.22 0.0488 0.0118  
 Mercury -34860-01-21 06:14 J -11011171.40 -11011171.24 -11011171.08 0.0517 0.0122  
 Venus -34859-07-04 11:31 J -11010642.20 -11010642.02 -11010641.84 0.0538 0.0238  
 Mercury -34855-06-12 02:23 J -11009203.53 -11009203.40 -11009203.26 0.0513 0.0149  
 Mercury -34855-09-09 13:40 J -11009114.00 -11009113.93 -11009113.86 0.0509 0.0443  
 Mars -34854-04-01 18:57 J -11008909.85 -11008909.71 -11008909.57 0.0501 0.0419  
 Venus -34853-05-07 06:57 J -11008508.41 -11008508.21 -11008508.00 0.0489 0.0047  
 Mercury -34849-11-09 06:28 J -11006861.39 -11006861.23 -11006861.07 0.0516 0.0046  
 Mars -34848-11-05 21:50 J -11006499.81 -11006499.59 -11006499.35 0.0531 0.0338  
 Venus -34847-03-08 23:31 J -11006376.62 -11006376.52 -11006376.41 0.0536 0.0457  
 Venus -34847-11-02 11:02 J -11006138.18 -11006138.04 -11006137.88 0.0542 0.0356  
 Mercury -34843-03-31 05:31 J -11004893.38 -11004893.27 -11004893.15 0.0514 0.0292  
 Mercury -34843-06-28 16:19 J -11004803.93 -11004803.82 -11004803.70 0.0510 0.0297  
 Venus -34841-01-11 12:28 J -11004242.16 -11004241.98 -11004241.79 0.0490 0.0209  
 Venus -34841-09-03 05:02 J -11004006.41 -11004006.29 -11004006.15 0.0486 0.0374  
 Mercury -34837-08-28 06:43 J -11002551.37 -11002551.22 -11002551.07 0.0515 0.0215  
 Mercury -34837-11-26 05:02 J -11002461.34 -11002461.29 -11002461.23 0.0519 0.0483  
 Venus -34835-07-07 20:38 J -11001872.84 -11001872.64 -11001872.44 0.0540 0.0125

Mercury -34831-01-17 07:40 J -11000583.24 -11000583.18 -11000583.11 0.0515 0.0450  
 Mercury -34831-04-16 18:28 J -11000493.87 -11000493.73 -11000493.60 0.0511 0.0137  
 Venus -34830-09-16 16:19 J -10999975.94 -10999975.82 -10999975.68 0.0493 0.0375  
 Venus -34829-05-09 09:50 J -10999740.27 -10999740.09 -10999739.90 0.0488 0.0214  
 Mercury -34825-06-16 06:14 J -10998241.34 -10998241.24 -10998241.13 0.0514 0.0392  
 Mercury -34825-09-14 05:16 J -10998151.41 -10998151.28 -10998151.15 0.0518 0.0310  
 Venus -34823-03-12 06:28 J -10997607.43 -10997607.23 -10997607.03 0.0538 0.0105  
 Mercury -34819-02-02 21:21 J -10996183.75 -10996183.61 -10996183.47 0.0512 0.0013  
 Mars -34818-01-03 09:21 J -10995849.36 -10995849.11 -10995848.85 0.0499 0.0048  
 Venus -34817-01-13 15:07 J -10995474.07 -10995473.87 -10995473.67 0.0489 0.0052  
 Moon -34814-09-28 15:07 J -10994120.09 -10994119.87 -10994119.64 0.0505 0.0126  
 Earth -34814-09-28 19:11 J -10994119.93 -10994119.70 -10994119.47 0.0505 0.0093 \*  
 Mercury -34813-07-03 04:33 J -10993841.47 -10993841.31 -10993841.16 0.0517 0.0127  
 Venus -34812-11-14 15:35 J -10993342.01 -10993341.85 -10993341.69 0.0537 0.0331  
 Venus -34811-07-11 02:38 J -10993103.48 -10993103.39 -10993103.30 0.0542 0.0480  
 Moon -34808-03-26 09:50 J -10992114.31 -10992114.09 -10992113.88 0.0524 0.0177  
 Earth -34808-03-26 12:57 J -10992114.17 -10992113.96 -10992113.74 0.0524 0.0181 \*  
 Mercury -34808-11-22 00:43 J -10991873.61 -10991873.47 -10991873.34 0.0513 0.0149  
 Mercury -34807-02-19 11:45 J -10991784.08 -10991784.01 -10991783.94 0.0509 0.0443  
 Venus -34806-09-18 21:07 J -10991207.82 -10991207.62 -10991207.42 0.0490 0.0110  
 Venus -34805-05-11 13:55 J -10990971.97 -10990971.92 -10990971.86 0.0486 0.0469  
 Earth -34802-10-03 11:16 J -10989732.15 -10989732.03 -10989731.90 0.0507 0.0427  
 Moon -34802-10-03 14:38 J -10989732.00 -10989731.89 -10989731.77 0.0507 0.0439 \*  
 Mercury -34801-04-21 04:33 J -10989531.47 -10989531.31 -10989531.15 0.0516 0.0046  
 Venus -34799-03-15 14:23 J -10988838.08 -10988837.90 -10988837.72 0.0541 0.0257  
 Earth -34796-03-31 10:19 J -10987726.21 -10987726.07 -10987725.91 0.0521 0.0393  
 Moon -34796-03-31 14:23 J -10987726.03 -10987725.90 -10987725.77 0.0521 0.0427 \*  
 Mercury -34796-09-10 03:50 J -10987563.45 -10987563.34 -10987563.22 0.0514 0.0290  
 Mercury -34796-12-08 14:38 J -10987474.00 -10987473.89 -10987473.77 0.0510 0.0300  
 Venus -34794-05-25 02:09 J -10986941.58 -10986941.41 -10986941.24 0.0491 0.0274

Venus -34793-01-15 18:43 J -10986705.87 -10986705.72 -10986705.56 0.0486 0.0309  
 Mercury -34789-02-08 04:33 J -10985221.45 -10985221.31 -10985221.16 0.0515 0.0216  
 Mercury -34789-05-08 03:07 J -10985131.42 -10985131.37 -10985131.31 0.0519 0.0483  
 Venus -34788-11-18 02:23 J -10984572.60 -10984572.40 -10984572.20 0.0540 0.0033  
 Mercury -34784-06-29 07:11 J -10983253.28 -10983253.20 -10983253.13 0.0515 0.0432  
 Mercury -34784-09-26 17:45 J -10983163.90 -10983163.76 -10983163.63 0.0511 0.0154  
 Mars -34783-10-07 05:16 J -10982788.46 -10982788.28 -10982788.08 0.0496 0.0336  
 Venus -34782-01-28 07:11 J -10982675.29 -10982675.20 -10982675.10 0.0493 0.0437  
 Venus -34782-09-21 00:28 J -10982439.68 -10982439.48 -10982439.29 0.0488 0.0149  
 Mercury -34778-11-27 04:47 J -10980911.41 -10980911.30 -10980911.19 0.0514 0.0384  
 Mercury -34777-02-25 03:50 J -10980821.47 -10980821.34 -10980821.22 0.0518 0.0319  
 Venus -34776-07-23 12:28 J -10980307.17 -10980306.98 -10980306.79 0.0537 0.0194  
 Mercury -34772-07-15 19:40 J -10978853.82 -10978853.68 -10978853.54 0.0512 0.0009  
 Venus -34770-05-27 04:33 J -10978173.52 -10978173.31 -10978173.11 0.0489 0.0016  
 Mercury -34766-12-14 03:35 J -10976511.50 -10976511.35 -10976511.19 0.0517 0.0146  
 Venus -34764-03-27 22:33 J -10976041.69 -10976041.56 -10976041.43 0.0535 0.0417  
 Venus -34764-11-21 09:07 J -10975803.26 -10975803.12 -10975802.98 0.0541 0.0388  
 Mercury -34760-05-03 22:33 J -10974543.69 -10974543.56 -10974543.42 0.0513 0.0154  
 Mercury -34760-08-01 09:35 J -10974454.17 -10974454.10 -10974454.02 0.0509 0.0438  
 Venus -34758-01-30 09:35 J -10973907.29 -10973907.10 -10973906.91 0.0491 0.0178  
 Venus -34758-09-23 02:38 J -10973671.49 -10973671.39 -10973671.27 0.0486 0.0404  
 Mercury -34754-10-02 02:38 J -10972201.55 -10972201.39 -10972201.22 0.0516 0.0044  
 Venus -34752-07-26 17:45 J -10971537.95 -10971537.76 -10971537.56 0.0540 0.0160  
 Mercury -34748-02-20 01:55 J -10970233.53 -10970233.42 -10970233.30 0.0514 0.0293  
 Mercury -34748-05-20 12:43 J -10970144.08 -10970143.97 -10970143.85 0.0510 0.0297  
 Venus -34747-10-05 15:21 J -10969641.00 -10969640.86 -10969640.71 0.0492 0.0340  
 Venus -34746-05-29 08:23 J -10969405.32 -10969405.15 -10969404.97 0.0487 0.0245  
 Mercury -34742-07-21 02:38 J -10967891.54 -10967891.39 -10967891.25 0.0515 0.0217  
 Mercury -34742-10-19 00:57 J -10967801.51 -10967801.46 -10967801.40 0.0519 0.0481  
 Venus -34740-03-31 05:02 J -10967272.49 -10967272.29 -10967272.08 0.0539 0.0067

Mercury -34737-12-09 05:16 J -10965923.35 -10965923.28 -10965923.20 0.0515 0.0432

Mercury -34736-03-08 15:50 J -10965833.97 -10965833.84 -10965833.70 0.0511 0.0154

Venus -34734-02-01 13:26 J -10965139.14 -10965138.94 -10965138.73 0.0488 0.0083

Earth -34731-09-27 23:59 J -10963804.72 -10963804.50 -10963804.28 0.0505 0.0172

Moon -34731-09-28 03:21 J -10963804.57 -10963804.36 -10963804.14 0.0505 0.0196 \*

Mercury -34730-05-09 02:23 J -10963581.50 -10963581.40 -10963581.29 0.0514 0.0389

Mercury -34730-08-07 01:26 J -10963491.56 -10963491.44 -10963491.31 0.0518 0.0315

Mars -34729-04-22 20:38 J -10963231.92 -10963231.64 -10963231.35 0.0529 0.0138

Venus -34729-12-03 17:02 J -10963006.96 -10963006.79 -10963006.62 0.0537 0.0288

Venus -34728-07-30 04:19 J -10962768.37 -10962768.32 -10962768.26 0.0542 0.0521

Earth -34725-03-25 18:14 J -10961798.94 -10961798.74 -10961798.54 0.0524 0.0264

Moon -34725-03-25 22:04 J -10961798.78 -10961798.58 -10961798.38 0.0524 0.0252 \*

Mercury -34725-12-25 18:43 J -10961523.86 -10961523.72 -10961523.57 0.0512 0.0019

Venus -34723-10-07 18:57 J -10960872.91 -10960872.71 -10960872.51 0.0490 0.0080

Moon -34719-10-02 16:33 J -10959416.97 -10959416.81 -10959416.65 0.0507 0.0373

Earth -34719-10-02 18:28 J -10959416.90 -10959416.73 -10959416.56 0.0507 0.0357 \*

Mercury -34718-05-26 01:55 J -10959181.57 -10959181.42 -10959181.26 0.0517 0.0150

Venus -34717-08-08 04:04 J -10958741.39 -10958741.33 -10958741.26 0.0534 0.0504

Venus -34716-04-03 14:38 J -10958503.05 -10958502.89 -10958502.72 0.0541 0.0297

Moon -34713-03-30 05:16 J -10957411.46 -10957411.28 -10957411.08 0.0521 0.0305

Earth -34713-03-30 08:52 J -10957411.32 -10957411.13 -10957410.93 0.0521 0.0276 \*

Mercury -34713-10-13 20:52 J -10957213.76 -10957213.63 -10957213.49 0.0513 0.0152

Mercury -34712-01-11 07:55 J -10957124.24 -10957124.17 -10957124.10 0.0509 0.0440

Venus -34711-06-12 22:19 J -10956606.74 -10956606.57 -10956606.39 0.0492 0.0246

Venus -34710-02-03 15:35 J -10956370.99 -10956370.85 -10956370.70 0.0487 0.0337

Mercury -34706-03-14 01:55 J -10954871.59 -10954871.42 -10954871.26 0.0516 0.0029

Venus -34705-12-07 00:28 J -10954237.68 -10954237.48 -10954237.28 0.0539 0.0069

Mercury -34701-08-01 23:45 J -10952903.62 -10952903.51 -10952903.39 0.0514 0.0299

Mercury -34701-10-30 10:33 J -10952814.17 -10952814.06 -10952813.94 0.0510 0.0290

Mars -34700-06-25 07:26 J -10952576.37 -10952576.19 -10952575.99 0.0501 0.0330

Venus -34699-02-16 03:07 J -10952340.47 -10952340.37 -10952340.25 0.0493 0.0408

Venus -34699-10-09 20:52 J -10952104.82 -10952104.63 -10952104.44 0.0488 0.0178

Mercury -34695-12-31 00:28 J -10950561.62 -10950561.48 -10950561.33 0.0515 0.0215

Mercury -34694-03-30 23:02 J -10950471.59 -10950471.54 -10950471.48 0.0518 0.0482

Mars -34693-01-30 11:16 J -10950166.16 -10950166.03 -10950165.88 0.0531 0.0467

Venus -34693-08-11 08:38 J -10949972.33 -10949972.14 -10949971.95 0.0538 0.0162

Mercury -34689-05-21 03:07 J -10948593.44 -10948593.37 -10948593.29 0.0515 0.0438

Mercury -34689-08-18 13:40 J -10948504.06 -10948503.93 -10948503.79 0.0511 0.0149

Venus -34687-06-15 02:38 J -10947838.59 -10947838.39 -10947838.18 0.0489 0.0018

Mercury -34683-10-19 00:14 J -10946251.60 -10946251.49 -10946251.39 0.0514 0.0392

Mercury -34682-01-16 23:16 J -10946161.66 -10946161.53 -10946161.41 0.0518 0.0311

Venus -34681-04-15 19:40 J -10945706.82 -10945706.68 -10945706.54 0.0536 0.0383

Venus -34681-12-10 06:43 J -10945468.34 -10945468.22 -10945468.09 0.0542 0.0423

Mercury -34677-06-06 17:02 J -10944193.94 -10944193.79 -10944193.65 0.0512 0.0017

Venus -34675-02-18 07:40 J -10943572.37 -10943572.18 -10943571.98 0.0490 0.0147

Venus -34675-10-12 00:28 J -10943336.57 -10943336.48 -10943336.39 0.0486 0.0430

Mercury -34671-11-04 23:31 J -10941851.68 -10941851.52 -10941851.37 0.0517 0.0142

Venus -34669-08-14 18:43 J -10941202.91 -10941202.72 -10941202.53 0.0541 0.0200

Mercury -34665-03-25 19:55 J -10939883.80 -10939883.67 -10939883.53 0.0513 0.0138

Mercury -34665-06-23 06:57 J -10939794.27 -10939794.21 -10939794.14 0.0509 0.0453

Mars -34664-03-29 07:11 J -10939515.45 -10939515.20 -10939514.94 0.0498 0.0062

Venus -34664-10-24 12:57 J -10939306.12 -10939305.96 -10939305.80 0.0492 0.0309

Venus -34663-06-17 05:45 J -10939070.42 -10939070.26 -10939070.09 0.0487 0.0272

Mercury -34659-08-23 23:45 J -10937541.67 -10937541.51 -10937541.34 0.0516 0.0027

Venus -34657-04-19 05:45 J -10936937.47 -10936937.26 -10936937.06 0.0538 0.0024

Mercury -34653-01-12 22:04 J -10935573.69 -10935573.58 -10935573.46 0.0514 0.0297

Mercury -34653-04-11 08:52 J -10935484.24 -10935484.13 -10935484.01 0.0510 0.0292

Venus -34652-06-29 15:35 J -10935039.90 -10935039.85 -10935039.79 0.0494 0.0475

Venus -34651-02-20 09:35 J -10934804.30 -10934804.10 -10934803.90 0.0489 0.0110

Moon -34648-09-27 03:21 J -10933489.57 -10933489.36 -10933489.16 0.0504 0.0268

Earth -34648-09-27 05:31 J -10933489.48 -10933489.27 -10933489.07 0.0504 0.0248 \*  
 Mercury -34647-06-11 23:31 J -10933231.67 -10933231.52 -10933231.37 0.0515 0.0201  
 Mercury -34647-09-09 22:04 J -10933141.62 -10933141.58 -10933141.54 0.0519 0.0496  
 Venus -34646-12-23 15:21 J -10932672.04 -10932671.86 -10932671.68 0.0536 0.0249  
 Moon -34642-03-25 10:04 J -10931484.23 -10931484.08 -10931483.91 0.0524 0.0386  
 Earth -34642-03-25 13:55 J -10931484.07 -10931483.92 -10931483.77 0.0524 0.0396 \*  
 Mercury -34642-11-01 00:57 J -10931263.52 -10931263.46 -10931263.38 0.0515 0.0445  
 Mercury -34641-01-29 11:31 J -10931174.15 -10931174.02 -10931173.88 0.0511 0.0142  
 Venus -34640-10-26 14:38 J -10930538.09 -10930537.89 -10930537.69 0.0490 0.0052  
 Earth -34636-10-01 17:45 J -10929101.97 -10929101.76 -10929101.56 0.0506 0.0254  
 Moon -34636-10-01 17:59 J -10929101.93 -10929101.75 -10929101.56 0.0506 0.0278 \*  
 Mercury -34635-03-30 22:04 J -10928921.68 -10928921.58 -10928921.47 0.0513 0.0391  
 Mercury -34635-06-28 21:07 J -10928831.74 -10928831.62 -10928831.49 0.0517 0.0311  
 Venus -34634-08-27 23:16 J -10928406.62 -10928406.53 -10928406.43 0.0534 0.0474  
 Venus -34633-04-22 10:04 J -10928168.24 -10928168.08 -10928167.92 0.0541 0.0325  
 Earth -34630-03-30 10:04 J -10927096.29 -10927096.08 -10927095.86 0.0523 0.0177  
 Moon -34630-03-30 12:28 J -10927096.19 -10927095.98 -10927095.78 0.0523 0.0205 \*  
 Mercury -34630-11-17 14:38 J -10926864.03 -10926863.89 -10926863.74 0.0513 0.0016  
 Mars -34629-12-30 18:28 J -10926454.85 -10926454.73 -10926454.59 0.0497 0.0423  
 Venus -34628-07-01 20:23 J -10926271.83 -10926271.65 -10926271.47 0.0491 0.0213  
 Venus -34627-02-22 13:26 J -10926036.07 -10926035.94 -10926035.80 0.0487 0.0366  
 Mercury -34623-04-16 21:07 J -10924521.78 -10924521.62 -10924521.47 0.0516 0.0137  
 Venus -34622-12-26 20:52 J -10923902.83 -10923902.63 -10923902.43 0.0540 0.0100  
 Mercury -34618-09-05 17:59 J -10922553.89 -10922553.75 -10922553.62 0.0513 0.0141  
 Mercury -34618-12-04 05:02 J -10922464.36 -10922464.29 -10922464.23 0.0509 0.0450  
 Venus -34616-03-07 01:26 J -10922005.57 -10922005.44 -10922005.31 0.0493 0.0376  
 Venus -34616-10-28 18:28 J -10921769.91 -10921769.73 -10921769.54 0.0488 0.0206  
 Mercury -34611-02-02 21:07 J -10920211.78 -10920211.62 -10920211.46 0.0516 0.0036  
 Venus -34610-08-31 08:38 J -10919637.34 -10919637.14 -10919636.94 0.0538 0.0122  
 Mercury -34606-06-24 21:07 J -10918243.74 -10918243.62 -10918243.50 0.0514 0.0285



Mercury -34606-09-22 07:40 J -10918154.29 -10918154.18 -10918154.06 0.0510 0.0305  
 Venus -34604-07-03 23:45 J -10917503.71 -10917503.51 -10917503.31 0.0489 0.0045  
 Mercury -34600-11-21 21:21 J -10915901.76 -10915901.61 -10915901.46 0.0515 0.0202  
 Mercury -34599-02-19 19:55 J -10915811.71 -10915811.67 -10915811.62 0.0519 0.0496  
 Venus -34598-05-05 20:09 J -10915371.81 -10915371.66 -10915371.50 0.0536 0.0340  
 Venus -34598-12-30 06:57 J -10915133.31 -10915133.21 -10915133.10 0.0541 0.0461  
 Mercury -34594-04-12 23:31 J -10913933.59 -10913933.52 -10913933.45 0.0515 0.0441  
 Mercury -34594-07-11 09:50 J -10913844.22 -10913844.09 -10913843.95 0.0511 0.0144  
 Venus -34592-03-09 03:07 J -10913237.56 -10913237.37 -10913237.17 0.0491 0.0120  
 Venus -34592-10-30 20:23 J -10913001.72 -10913001.65 -10913001.58 0.0486 0.0456  
 Mercury -34588-09-09 20:52 J -10911591.74 -10911591.63 -10911591.52 0.0514 0.0379  
 Mercury -34588-12-08 19:55 J -10911501.79 -10911501.67 -10911501.54 0.0518 0.0325  
 Venus -34586-09-03 16:47 J -10910867.98 -10910867.80 -10910867.62 0.0540 0.0236  
 Mercury -34582-04-29 12:43 J -10909534.11 -10909533.97 -10909533.83 0.0512 0.0015  
 Venus -34581-11-12 07:55 J -10908971.33 -10908971.17 -10908971.00 0.0492 0.0282  
 Venus -34580-07-06 01:26 J -10908735.60 -10908735.44 -10908735.28 0.0487 0.0298  
 Mercury -34576-09-26 18:57 J -10907191.86 -10907191.71 -10907191.55 0.0516 0.0137  
 Mars -34575-07-17 03:07 J -10906898.66 -10906898.37 -10906898.07 0.0529 0.0021  
 Venus -34574-05-09 00:14 J -10906602.69 -10906602.49 -10906602.28 0.0539 0.0005  
 Mercury -34570-02-15 15:50 J -10905223.98 -10905223.84 -10905223.71 0.0514 0.0149  
 Mercury -34570-05-16 02:38 J -10905134.45 -10905134.39 -10905134.32 0.0510 0.0444  
 Venus -34569-07-18 13:26 J -10904705.02 -10904704.94 -10904704.85 0.0494 0.0443  
 Venus -34568-03-11 07:11 J -10904469.39 -10904469.20 -10904469.00 0.0488 0.0140  
 Earth -34565-09-26 03:50 J -10903174.50 -10903174.34 -10903174.17 0.0503 0.0352  
 Moon -34565-09-26 04:33 J -10903174.46 -10903174.31 -10903174.16 0.0503 0.0367 \*  
 Mercury -34564-07-15 18:43 J -10902881.88 -10902881.72 -10902881.56 0.0515 0.0040  
 Venus -34562-01-11 10:33 J -10902337.24 -10902337.06 -10902336.87 0.0537 0.0221  
 Earth -34559-03-24 16:33 J -10901168.88 -10901168.81 -10901168.72 0.0525 0.0489  
 Moon -34559-03-24 19:26 J -10901168.79 -10901168.69 -10901168.59 0.0525 0.0467 \*  
 Mercury -34559-12-04 18:57 J -10900913.82 -10900913.71 -10900913.59 0.0514 0.0290

Mercury -34558-03-04 05:45 J -10900824.37 -10900824.26 -10900824.14 0.0511 0.0300  
 Venus -34557-11-14 12:28 J -10900203.18 -10900202.98 -10900202.78 0.0489 0.0022  
 Earth -34553-09-30 19:11 J -10898786.93 -10898786.70 -10898786.48 0.0506 0.0159  
 Moon -34553-09-30 19:55 J -10898786.89 -10898786.67 -10898786.43 0.0506 0.0185 \*  
 Mercury -34552-05-03 18:28 J -10898571.88 -10898571.73 -10898571.58 0.0515 0.0214  
 Mercury -34552-08-01 17:16 J -10898481.84 -10898481.78 -10898481.73 0.0519 0.0485  
 Venus -34551-09-15 22:19 J -10898071.68 -10898071.57 -10898071.45 0.0535 0.0437  
 Venus -34550-05-12 09:50 J -10897833.24 -10897833.09 -10897832.94 0.0541 0.0362  
 Moon -34547-03-29 13:11 J -10896781.18 -10896780.95 -10896780.71 0.0523 0.0111  
 Earth -34547-03-29 14:09 J -10896781.14 -10896780.91 -10896780.69 0.0523 0.0088 \*  
 Mercury -34547-09-22 22:19 J -10896603.64 -10896603.57 -10896603.50 0.0515 0.0431  
 Mercury -34547-12-21 08:52 J -10896514.27 -10896514.13 -10896514.00 0.0511 0.0156  
 Mars -34546-09-19 03:07 J -10896242.60 -10896242.37 -10896242.14 0.0500 0.0223  
 Venus -34545-07-20 17:31 J -10895936.96 -10895936.77 -10895936.58 0.0491 0.0184  
 Venus -34544-03-13 10:19 J -10895701.19 -10895701.07 -10895700.95 0.0486 0.0392  
 Mercury -34540-02-19 18:28 J -10894261.83 -10894261.73 -10894261.61 0.0514 0.0383  
 Mercury -34540-05-20 17:45 J -10894171.88 -10894171.76 -10894171.63 0.0518 0.0322  
 Venus -34538-01-14 21:21 J -10893567.81 -10893567.61 -10893567.42 0.0540 0.0142  
 Mercury -34535-10-09 11:02 J -10892204.18 -10892204.04 -10892203.90 0.0512 0.0004  
 Venus -34533-03-25 20:38 J -10891670.78 -10891670.64 -10891670.49 0.0493 0.0349  
 Venus -34533-11-16 14:09 J -10891435.09 -10891434.91 -10891434.73 0.0488 0.0232  
 Mercury -34528-03-08 17:45 J -10889861.91 -10889861.76 -10889861.60 0.0517 0.0150  
 Venus -34527-09-19 07:11 J -10889302.40 -10889302.20 -10889301.99 0.0538 0.0085  
 Mercury -34523-07-28 13:40 J -10887894.06 -10887893.93 -10887893.79 0.0513 0.0153  
 Mercury -34523-10-26 00:43 J -10887804.54 -10887804.47 -10887804.40 0.0510 0.0438  
 Venus -34521-07-22 19:11 J -10887168.91 -10887168.70 -10887168.50 0.0489 0.0072  
 Mercury -34517-12-25 16:47 J -10885551.97 -10885551.80 -10885551.64 0.0515 0.0041  
 Venus -34515-05-24 14:23 J -10885037.06 -10885036.90 -10885036.73 0.0536 0.0314  
 Venus -34514-01-18 01:11 J -10884798.53 -10884798.45 -10884798.36 0.0542 0.0485  
 Mercury -34511-05-16 16:47 J -10883583.91 -10883583.80 -10883583.68 0.0515 0.0296

Mercury -34511-08-14 03:35 J -10883494.46 -10883494.35 -10883494.23 0.0511 0.0294

Mars -34510-06-22 16:19 J -10883182.06 -10883181.82 -10883181.57 0.0499 0.0148

Venus -34509-03-28 00:57 J -10882902.65 -10882902.46 -10882902.26 0.0490 0.0090

Venus -34509-11-18 17:59 J -10882666.76 -10882666.75 -10882666.72 0.0486 0.0483

Mercury -34505-10-13 16:04 J -10881241.97 -10881241.83 -10881241.68 0.0514 0.0217

Mercury -34504-01-11 14:52 J -10881151.93 -10881151.88 -10881151.82 0.0518 0.0481

Venus -34503-01-27 00:57 J -10880771.48 -10880771.46 -10880771.43 0.0534 0.0529

Venus -34503-09-22 11:59 J -10880533.18 -10880533.00 -10880532.82 0.0540 0.0262

Mercury -34499-03-04 20:23 J -10879273.73 -10879273.65 -10879273.58 0.0516 0.0435

Mercury -34499-06-02 06:43 J -10879184.35 -10879184.22 -10879184.08 0.0512 0.0151

Venus -34498-12-02 05:59 J -10878636.42 -10878636.25 -10878636.07 0.0492 0.0251

Venus -34497-07-24 23:02 J -10878400.69 -10878400.54 -10878400.39 0.0487 0.0326

Mercury -34493-08-01 15:50 J -10876931.95 -10876931.84 -10876931.74 0.0513 0.0393

Mercury -34493-10-30 15:07 J -10876842.00 -10876841.87 -10876841.75 0.0517 0.0311

Venus -34491-05-27 23:31 J -10876267.72 -10876267.52 -10876267.32 0.0539 0.0041

Mercury -34487-03-21 09:50 J -10874874.23 -10874874.09 -10874873.95 0.0512 0.0008

Venus -34486-08-07 11:02 J -10874370.15 -10874370.04 -10874369.93 0.0494 0.0412

Venus -34485-03-30 04:33 J -10874134.50 -10874134.31 -10874134.12 0.0488 0.0168

Earth -34482-09-26 07:40 J -10872859.30 -10872859.18 -10872859.06 0.0503 0.0435

Moon -34482-09-26 08:23 J -10872859.26 -10872859.15 -10872859.03 0.0503 0.0445 \*

Mercury -34481-08-18 15:35 J -10872532.01 -10872531.85 -10872531.70 0.0517 0.0146

Venus -34479-01-30 11:31 J -10872002.22 -10872002.02 -10872001.83 0.0537 0.0178

Mercury -34475-01-07 12:14 J -10870564.12 -10870563.99 -10870563.85 0.0513 0.0147

Mercury -34475-04-06 23:02 J -10870474.60 -10870474.54 -10870474.47 0.0509 0.0443

Venus -34474-12-04 08:09 J -10869868.37 -10869868.16 -10869867.96 0.0490 0.0006

Moon -34470-09-30 21:35 J -10868471.83 -10868471.60 -10868471.38 0.0505 0.0106

Earth -34470-09-30 23:45 J -10868471.74 -10868471.51 -10868471.27 0.0505 0.0080 \*

Mercury -34469-06-06 15:21 J -10868222.02 -10868221.86 -10868221.69 0.0516 0.0030

Venus -34468-10-04 21:50 J -10867736.72 -10867736.59 -10867736.45 0.0535 0.0397

Venus -34467-05-31 08:38 J -10867498.27 -10867498.14 -10867498.00 0.0541 0.0398

Moon -34464-03-28 11:16 J -10866466.25 -10866466.03 -10866465.80 0.0523 0.0010  
 Earth -34464-03-28 11:45 J -10866466.24 -10866466.01 -10866465.78 0.0523 0.0032 \*  
 Mercury -34464-10-26 15:07 J -10866253.98 -10866253.87 -10866253.76 0.0514 0.0295  
 Mercury -34463-01-24 01:40 J -10866164.54 -10866164.43 -10866164.31 0.0511 0.0293  
 Venus -34462-08-09 12:57 J -10865602.15 -10865601.96 -10865601.77 0.0491 0.0157  
 Venus -34461-04-01 06:14 J -10865366.34 -10865366.24 -10865366.13 0.0487 0.0417  
 Mercury -34457-03-25 14:09 J -10863912.05 -10863911.91 -10863911.76 0.0514 0.0215  
 Mercury -34457-06-23 12:57 J -10863822.01 -10863821.96 -10863821.90 0.0518 0.0483  
 Mars -34456-01-01 01:26 J -10863630.55 -10863630.44 -10863630.32 0.0526 0.0482  
 Venus -34455-02-02 15:35 J -10863233.04 -10863232.85 -10863232.65 0.0540 0.0168  
 Moon -34452-04-02 07:55 J -10862078.21 -10862078.17 -10862078.11 0.0522 0.0507  
 Mercury -34452-08-14 18:14 J -10861943.81 -10861943.74 -10861943.67 0.0516 0.0440  
 Mercury -34452-11-12 04:33 J -10861854.44 -10861854.31 -10861854.17 0.0512 0.0147  
 Venus -34450-04-14 18:43 J -10861335.87 -10861335.72 -10861335.56 0.0493 0.0318  
 Venus -34450-12-06 12:14 J -10861100.16 -10861099.99 -10861099.82 0.0488 0.0261  
 Mercury -34445-01-12 13:40 J -10859602.03 -10859601.93 -10859601.82 0.0513 0.0392  
 Mercury -34445-04-11 12:57 J -10859512.09 -10859511.96 -10859511.83 0.0517 0.0310  
 Venus -34444-10-08 02:09 J -10858967.61 -10858967.41 -10858967.21 0.0538 0.0058  
 Mercury -34440-08-31 07:55 J -10857544.31 -10857544.17 -10857544.03 0.0513 0.0011  
 Venus -34439-12-18 23:45 J -10857069.56 -10857069.51 -10857069.46 0.0495 0.0478  
 Venus -34438-08-11 17:16 J -10856833.97 -10856833.78 -10856833.58 0.0489 0.0103  
 Mercury -34433-01-29 12:57 J -10855202.12 -10855201.96 -10855201.81 0.0516 0.0137  
 Venus -34432-06-12 13:26 J -10854702.11 -10854701.94 -10854701.76 0.0536 0.0276  
 Venus -34431-02-06 00:57 J -10854463.51 -10854463.46 -10854463.40 0.0542 0.0521  
 Mercury -34428-06-19 11:02 J -10853234.17 -10853234.04 -10853233.90 0.0514 0.0137  
 Mercury -34428-09-16 22:04 J -10853144.65 -10853144.58 -10853144.52 0.0510 0.0454  
 Venus -34426-04-16 22:47 J -10852567.75 -10852567.55 -10852567.34 0.0490 0.0060  
 Mercury -34422-11-17 13:11 J -10850892.11 -10850891.95 -10850891.79 0.0515 0.0030  
 Mars -34421-10-10 02:23 J -10850564.69 -10850564.40 -10850564.11 0.0529 0.0130  
 Venus -34420-02-15 01:55 J -10850436.50 -10850436.42 -10850436.34 0.0534 0.0487

Venus -34420-10-11 13:11 J -10850198.12 -10850197.95 -10850197.78 0.0541 0.0305  
 Mercury -34416-04-07 13:40 J -10848924.04 -10848923.93 -10848923.81 0.0514 0.0288  
 Mercury -34416-07-06 00:14 J -10848834.60 -10848834.49 -10848834.37 0.0510 0.0299  
 Venus -34415-12-21 02:23 J -10848301.58 -10848301.40 -10848301.22 0.0492 0.0222  
 Venus -34414-08-13 19:26 J -10848065.83 -10848065.69 -10848065.55 0.0487 0.0352  
 Mercury -34410-09-05 13:11 J -10846582.10 -10846581.95 -10846581.80 0.0515 0.0202  
 Mercury -34410-12-04 11:59 J -10846492.04 -10846492.00 -10846491.96 0.0518 0.0497  
 Venus -34408-06-15 23:31 J -10845932.72 -10845932.52 -10845932.32 0.0539 0.0081  
 Mercury -34404-01-24 16:47 J -10844613.87 -10844613.80 -10844613.73 0.0515 0.0435  
 Mercury -34404-04-24 03:07 J -10844524.51 -10844524.37 -10844524.24 0.0512 0.0150  
 Venus -34403-08-26 07:11 J -10844035.32 -10844035.20 -10844035.07 0.0494 0.0384  
 Venus -34402-04-19 00:43 J -10843799.65 -10843799.47 -10843799.28 0.0488 0.0196  
 Mercury -34398-06-24 11:45 J -10842272.11 -10842272.01 -10842271.90 0.0513 0.0388  
 Mercury -34398-09-22 11:02 J -10842182.16 -10842182.04 -10842181.91 0.0517 0.0315  
 Venus -34396-02-18 06:28 J -10841667.42 -10841667.23 -10841667.03 0.0537 0.0151  
 Mercury -34392-02-10 05:59 J -10840214.39 -10840214.25 -10840214.11 0.0513 0.0013  
 Mars -34392-12-12 16:04 J -10839909.08 -10839908.83 -10839908.59 0.0501 0.0127  
 Venus -34391-12-23 06:43 J -10839533.42 -10839533.22 -10839533.02 0.0490 0.0036  
 Earth -34387-09-30 00:28 J -10838156.71 -10838156.48 -10838156.24 0.0504 0.0017  
 Moon -34387-09-30 04:04 J -10838156.57 -10838156.33 -10838156.09 0.0504 0.0017 \*  
 Mercury -34386-07-11 11:02 J -10837872.20 -10837872.04 -10837871.89 0.0516 0.0140  
 Venus -34385-10-23 17:02 J -10837401.93 -10837401.79 -10837401.64 0.0535 0.0369  
 Venus -34384-06-19 04:04 J -10837163.46 -10837163.33 -10837163.21 0.0541 0.0424  
 Earth -34381-03-27 14:09 J -10836151.13 -10836150.91 -10836150.68 0.0525 0.0125  
 Moon -34381-03-27 16:04 J -10836151.06 -10836150.83 -10836150.59 0.0525 0.0106 \*  
 Mercury -34381-11-29 09:07 J -10835904.25 -10835904.12 -10835903.98 0.0514 0.0139  
 Mercury -34380-02-26 20:09 J -10835814.72 -10835814.66 -10835814.60 0.0510 0.0453  
 Venus -34379-08-28 11:59 J -10835267.19 -10835267.00 -10835266.80 0.0491 0.0125  
 Venus -34378-04-21 05:02 J -10835031.37 -10835031.29 -10835031.21 0.0486 0.0446  
 Moon -34375-10-04 11:45 J -10833769.02 -10833769.01 -10833769.00 0.0506 0.0506

Earth -34375-10-04 15:21 J -10833768.88 -10833768.86 -10833768.81 0.0506 0.0500  
 Mercury -34374-04-29 10:47 J -10833562.22 -10833562.05 -10833561.89 0.0515 0.0036  
 Venus -34372-02-21 15:35 J -10832898.04 -10832897.85 -10832897.66 0.0540 0.0205  
 Moon -34369-04-01 08:52 J -10831763.26 -10831763.13 -10831763.00 0.0522 0.0424  
 Earth -34369-04-01 12:14 J -10831763.11 -10831762.99 -10831762.88 0.0522 0.0451 \*  
 Mercury -34369-09-17 12:28 J -10831594.09 -10831593.98 -10831593.86 0.0515 0.0279  
 Mercury -34369-12-15 23:16 J -10831504.65 -10831504.53 -10831504.42 0.0511 0.0310  
 Venus -34367-05-03 17:31 J -10831000.93 -10831000.77 -10831000.60 0.0493 0.0285  
 Venus -34367-12-25 10:33 J -10830765.22 -10830765.06 -10830764.90 0.0487 0.0290  
 Mercury -34362-02-15 10:47 J -10829252.19 -10829252.05 -10829251.89 0.0514 0.0204  
 Mercury -34362-05-16 09:50 J -10829162.13 -10829162.09 -10829162.05 0.0518 0.0496  
 Venus -34361-10-27 03:50 J -10828632.54 -10828632.34 -10828632.13 0.0538 0.0016  
 Mercury -34357-07-06 15:21 J -10827283.93 -10827283.86 -10827283.78 0.0515 0.0427  
 Mercury -34357-10-04 01:40 J -10827194.56 -10827194.43 -10827194.29 0.0512 0.0159  
 Mars -34356-09-15 10:33 J -10826848.29 -10826848.06 -10826847.84 0.0498 0.0249  
 Venus -34355-01-06 21:07 J -10826734.71 -10826734.62 -10826734.54 0.0494 0.0448  
 Venus -34355-08-30 14:23 J -10826499.09 -10826498.90 -10826498.70 0.0489 0.0131  
 Mercury -34351-12-04 10:47 J -10824942.16 -10824942.05 -10824941.94 0.0513 0.0375  
 Mercury -34350-03-04 10:04 J -10824852.20 -10824852.08 -10824851.95 0.0517 0.0329  
 Venus -34349-07-01 14:38 J -10824367.07 -10824366.89 -10824366.70 0.0536 0.0233  
 Mercury -34345-07-23 04:33 J -10822884.45 -10822884.31 -10822884.17 0.0513 0.0010  
 Venus -34343-05-05 19:55 J -10822232.87 -10822232.67 -10822232.46 0.0490 0.0030  
 Mercury -34339-12-21 09:21 J -10820542.26 -10820542.11 -10820541.95 0.0516 0.0148  
 Venus -34337-03-05 22:19 J -10820101.67 -10820101.57 -10820101.46 0.0534 0.0457  
 Venus -34337-10-30 09:07 J -10819863.28 -10819863.12 -10819862.96 0.0540 0.0331  
 Mercury -34333-05-11 07:26 J -10818574.33 -10818574.19 -10818574.06 0.0514 0.0139  
 Mercury -34333-08-08 18:14 J -10818484.80 -10818484.74 -10818484.67 0.0510 0.0454  
 Venus -34331-01-09 01:40 J -10817966.62 -10817966.43 -10817966.25 0.0492 0.0190  
 Venus -34331-09-01 18:43 J -10817730.84 -10817730.72 -10817730.59 0.0487 0.0383  
 Mercury -34327-10-09 09:07 J -10816232.28 -10816232.12 -10816231.96 0.0515 0.0028

Venus -34325-07-04 19:11 J -10815597.90 -10815597.70 -10815597.50 0.0539 0.0109  
 Mercury -34321-02-28 10:47 J -10814264.17 -10814264.05 -10814263.94 0.0515 0.0280  
 Mercury -34321-05-27 21:21 J -10814174.72 -10814174.61 -10814174.50 0.0511 0.0311  
 Venus -34320-09-14 06:57 J -10813700.35 -10813700.21 -10813700.07 0.0494 0.0350  
 Venus -34319-05-08 00:28 J -10813464.66 -10813464.48 -10813464.30 0.0488 0.0227  
 Mercury -34315-07-28 08:38 J -10811922.29 -10811922.14 -10811921.99 0.0514 0.0205  
 Mercury -34315-10-26 07:26 J -10811832.23 -10811832.19 -10811832.14 0.0518 0.0493  
 Venus -34313-03-09 06:28 J -10811332.43 -10811332.23 -10811332.03 0.0537 0.0111  
 Mercury -34310-12-17 14:09 J -10809953.99 -10809953.91 -10809953.83 0.0516 0.0418  
 Mercury -34309-03-16 00:28 J -10809864.61 -10809864.48 -10809864.34 0.0512 0.0169  
 Venus -34307-01-11 05:59 J -10809198.45 -10809198.25 -10809198.05 0.0489 0.0069  
 Moon -34304-09-29 02:23 J -10807841.64 -10807841.40 -10807841.17 0.0504 0.0060  
 Earth -34304-09-29 06:14 J -10807841.48 -10807841.24 -10807841.01 0.0504 0.0090 \*  
 Mercury -34303-05-16 08:38 J -10807612.25 -10807612.14 -10807612.02 0.0513 0.0374  
 Mercury -34303-08-14 08:09 J -10807522.28 -10807522.16 -10807522.04 0.0517 0.0329  
 Mars -34302-03-28 04:47 J -10807296.53 -10807296.30 -10807296.06 0.0527 0.0324  
 Venus -34302-11-12 19:11 J -10807066.86 -10807066.70 -10807066.54 0.0535 0.0324  
 Venus -34301-07-08 06:28 J -10806828.32 -10806828.23 -10806828.12 0.0542 0.0468  
 Moon -34298-03-27 17:02 J -10805836.00 -10805835.79 -10805835.58 0.0525 0.0194  
 Earth -34298-03-27 20:09 J -10805835.87 -10805835.66 -10805835.45 0.0525 0.0203 \*  
 Mercury -34297-01-03 03:21 J -10805554.50 -10805554.36 -10805554.22 0.0513 0.0021  
 Venus -34296-09-16 10:19 J -10804932.27 -10804932.07 -10804931.88 0.0491 0.0094  
 Venus -34295-05-10 02:52 J -10804696.41 -10804696.38 -10804696.33 0.0486 0.0474  
 Earth -34292-10-03 22:47 J -10803453.66 -10803453.55 -10803453.42 0.0506 0.0434  
 Moon -34292-10-04 01:55 J -10803453.52 -10803453.42 -10803453.29 0.0506 0.0438 \*  
 Mercury -34291-06-02 08:23 J -10803212.30 -10803212.15 -10803212.00 0.0516 0.0163  
 Venus -34289-03-12 17:31 J -10802562.95 -10802562.77 -10802562.59 0.0540 0.0248  
 Earth -34286-04-01 15:21 J -10801448.03 -10801447.86 -10801447.69 0.0522 0.0361  
 Moon -34286-04-01 19:11 J -10801447.88 -10801447.70 -10801447.53 0.0522 0.0331 \*  
 Mercury -34286-10-22 06:14 J -10801244.37 -10801244.24 -10801244.10 0.0514 0.0128

Mercury -34285-01-19 17:16 J -10801154.84 -10801154.78 -10801154.73 0.0510 0.0464

Venus -34284-05-22 15:21 J -10800666.03 -10800665.86 -10800665.68 0.0493 0.0254

Venus -34283-01-13 08:23 J -10800430.30 -10800430.15 -10800429.99 0.0487 0.0320

Mercury -34279-03-21 07:40 J -10798902.34 -10798902.18 -10798902.01 0.0515 0.0022

Venus -34278-11-16 00:57 J -10798297.66 -10798297.46 -10798297.25 0.0538 0.0021

Mercury -34274-08-10 09:07 J -10796934.24 -10796934.12 -10796934.00 0.0515 0.0277

Mercury -34274-11-07 19:40 J -10796844.79 -10796844.68 -10796844.57 0.0511 0.0313

Mars -34273-06-03 16:33 J -10796635.95 -10796635.81 -10796635.64 0.0503 0.0398

Venus -34272-01-25 20:23 J -10796399.75 -10796399.65 -10796399.54 0.0495 0.0415

Venus -34272-09-18 14:23 J -10796164.09 -10796163.90 -10796163.70 0.0489 0.0163

Mercury -34267-01-07 07:26 J -10794592.34 -10794592.19 -10794592.04 0.0514 0.0192

Mercury -34267-04-07 06:14 J -10794502.27 -10794502.24 -10794502.21 0.0517 0.0503

Mars -34266-01-03 17:16 J -10794231.03 -10794230.78 -10794230.52 0.0529 0.0274

Venus -34266-07-21 11:16 J -10794032.22 -10794032.03 -10794031.84 0.0536 0.0203

Mercury -34262-05-29 12:28 J -10792624.06 -10792623.98 -10792623.90 0.0516 0.0417

Mercury -34262-08-26 22:47 J -10792534.68 -10792534.55 -10792534.41 0.0512 0.0171

Venus -34260-05-24 20:09 J -10791897.86 -10791897.66 -10791897.46 0.0490 0.0006

Mercury -34256-10-26 06:43 J -10790282.33 -10790282.22 -10790282.10 0.0513 0.0372

Mercury -34255-01-24 05:59 J -10790192.37 -10790192.25 -10790192.12 0.0517 0.0331

Venus -34254-03-25 22:33 J -10789766.69 -10789766.56 -10789766.43 0.0534 0.0416

Venus -34254-11-19 09:50 J -10789528.24 -10789528.09 -10789527.94 0.0541 0.0371

Mercury -34250-06-15 02:09 J -10788224.55 -10788224.41 -10788224.27 0.0513 0.0032

Venus -34248-01-28 01:40 J -10787631.62 -10787631.43 -10787631.24 0.0492 0.0155

Venus -34248-09-20 18:28 J -10787395.83 -10787395.73 -10787395.62 0.0487 0.0414

Mercury -34244-11-12 06:28 J -10785882.38 -10785882.23 -10785882.07 0.0516 0.0166

Venus -34242-07-24 22:04 J -10785262.77 -10785262.58 -10785262.38 0.0540 0.0155

Mercury -34238-04-03 05:16 J -10783914.42 -10783914.28 -10783914.15 0.0514 0.0116

Mercury -34238-07-01 16:04 J -10783824.88 -10783824.83 -10783824.78 0.0510 0.0475

Mars -34237-03-07 18:57 J -10783574.97 -10783574.71 -10783574.45 0.0500 0.0006

Venus -34237-10-03 05:59 J -10783365.40 -10783365.25 -10783365.09 0.0493 0.0316



Venus -34236-05-26 23:16 J -10783129.71 -10783129.53 -10783129.36 0.0488 0.0257  
 Mercury -34232-08-31 06:43 J -10781572.38 -10781572.22 -10781572.05 0.0515 0.0008  
 Venus -34230-03-29 09:35 J -10780997.30 -10780997.10 -10780996.90 0.0538 0.0065  
 Mercury -34226-01-20 08:09 J -10779604.27 -10779604.16 -10779604.04 0.0515 0.0261  
 Mercury -34226-04-19 18:43 J -10779514.82 -10779514.72 -10779514.61 0.0511 0.0328  
 Venus -34225-06-08 10:47 J -10779099.10 -10779099.05 -10779098.99 0.0495 0.0476  
 Venus -34224-01-30 04:47 J -10778863.50 -10778863.30 -10778863.10 0.0489 0.0100  
 Earth -34221-09-28 13:26 J -10777526.16 -10777525.94 -10777525.71 0.0503 0.0153  
 Moon -34221-09-28 16:47 J -10777526.03 -10777525.80 -10777525.58 0.0503 0.0121 \*  
 Mercury -34220-06-19 06:14 J -10777262.39 -10777262.24 -10777262.09 0.0514 0.0179  
 Mercury -34220-09-17 05:02 J -10777172.30 -10777172.29 -10777172.28 0.0517 0.0516  
 Venus -34219-12-01 17:45 J -10776731.93 -10776731.76 -10776731.59 0.0535 0.0289  
 Venus -34218-07-28 04:19 J -10776493.39 -10776493.32 -10776493.24 0.0541 0.0497  
 Earth -34215-03-26 20:52 J -10775520.81 -10775520.63 -10775520.44 0.0526 0.0308  
 Moon -34215-03-27 00:43 J -10775520.65 -10775520.47 -10775520.28 0.0526 0.0305 \*  
 Mercury -34215-11-08 11:02 J -10775294.12 -10775294.04 -10775293.96 0.0516 0.0413  
 Mercury -34214-02-05 21:21 J -10775204.74 -10775204.61 -10775204.48 0.0512 0.0175  
 Venus -34213-10-05 10:19 J -10774597.27 -10774597.07 -10774596.87 0.0491 0.0060  
 Moon -34209-10-03 03:07 J -10773138.54 -10773138.37 -10773138.20 0.0505 0.0359  
 Earth -34209-10-03 05:16 J -10773138.44 -10773138.28 -10773138.11 0.0505 0.0362 \*  
 Mercury -34208-04-07 05:45 J -10772952.38 -10772952.26 -10772952.14 0.0512 0.0355  
 Mercury -34208-07-06 05:02 J -10772862.41 -10772862.29 -10772862.17 0.0516 0.0345  
 Venus -34207-08-06 04:33 J -10772466.38 -10772466.31 -10772466.25 0.0533 0.0501  
 Venus -34206-04-01 14:38 J -10772228.06 -10772227.89 -10772227.71 0.0540 0.0278  
 Moon -34203-03-31 15:07 J -10771133.08 -10771132.87 -10771132.66 0.0524 0.0234  
 Earth -34203-03-31 18:28 J -10771132.92 -10771132.73 -10771132.53 0.0524 0.0270 \*  
 Mercury -34203-11-25 00:28 J -10770894.62 -10770894.48 -10770894.34 0.0514 0.0034  
 Mars -34202-12-10 15:07 J -10770514.04 -10770513.87 -10770513.70 0.0498 0.0373  
 Venus -34201-06-10 15:50 J -10770331.02 -10770330.84 -10770330.66 0.0493 0.0218  
 Venus -34200-02-01 09:07 J -10770095.26 -10770095.12 -10770094.98 0.0487 0.0352

Mercury -34196-04-24 04:47 J -10768552.45 -10768552.30 -10768552.15 0.0516 0.0170  
 Venus -34195-12-05 01:55 J -10767962.63 -10767962.42 -10767962.22 0.0539 0.0059  
 Mercury -34191-09-13 04:04 J -10766584.47 -10766584.33 -10766584.20 0.0514 0.0107  
 Mercury -34191-12-11 14:52 J -10766494.92 -10766494.88 -10766494.84 0.0510 0.0486  
 Venus -34189-02-14 21:21 J -10766064.74 -10766064.61 -10766064.48 0.0494 0.0377  
 Venus -34189-10-07 14:52 J -10765829.06 -10765828.88 -10765828.69 0.0488 0.0197  
 Mercury -34184-02-10 05:02 J -10764242.45 -10764242.29 -10764242.13 0.0515 0.0005  
 Venus -34183-08-09 14:23 J -10763697.10 -10763696.90 -10763696.71 0.0537 0.0156  
 Mercury -34179-07-02 07:11 J -10762274.32 -10762274.20 -10762274.08 0.0515 0.0249  
 Mercury -34179-09-29 17:45 J -10762184.86 -10762184.76 -10762184.65 0.0511 0.0340  
 Venus -34177-06-12 19:40 J -10761562.88 -10761562.68 -10761562.48 0.0490 0.0038  
 Mercury -34173-11-29 05:16 J -10759932.44 -10759932.28 -10759932.13 0.0514 0.0165  
 Venus -34171-04-14 02:23 J -10759431.55 -10759431.40 -10759431.25 0.0535 0.0369  
 Venus -34171-12-08 13:26 J -10759193.07 -10759192.94 -10759192.81 0.0541 0.0416  
 Mercury -34167-04-20 10:19 J -10757964.16 -10757964.07 -10757963.98 0.0516 0.0393  
 Mercury -34167-07-18 20:38 J -10757874.77 -10757874.64 -10757874.51 0.0512 0.0193  
 Venus -34165-02-17 01:11 J -10757296.65 -10757296.45 -10757296.26 0.0491 0.0121  
 Venus -34165-10-09 17:59 J -10757060.82 -10757060.75 -10757060.66 0.0487 0.0445  
 Mercury -34161-09-17 04:47 J -10755622.42 -10755622.30 -10755622.18 0.0513 0.0340  
 Mercury -34161-12-16 04:04 J -10755532.44 -10755532.33 -10755532.22 0.0516 0.0360  
 Venus -34159-08-12 21:21 J -10754927.80 -10754927.61 -10754927.42 0.0539 0.0190  
 Mercury -34155-05-06 23:02 J -10753564.68 -10753564.54 -10753564.40 0.0514 0.0041  
 Venus -34154-10-23 05:59 J -10753030.41 -10753030.25 -10753030.08 0.0494 0.0282  
 Venus -34153-06-14 23:45 J -10752794.67 -10752794.51 -10752794.34 0.0488 0.0291  
 Mercury -34149-10-04 04:04 J -10751222.48 -10751222.33 -10751222.18 0.0515 0.0188  
 Mars -34148-06-21 11:16 J -10750962.31 -10750962.03 -10750961.74 0.0526 0.0154  
 Venus -34147-04-17 07:55 J -10750662.38 -10750662.17 -10750661.97 0.0537 0.0031  
 Mercury -34143-02-23 02:23 J -10749254.54 -10749254.40 -10749254.26 0.0515 0.0104  
 Mercury -34143-05-23 13:11 J -10749164.98 -10749164.95 -10749164.91 0.0511 0.0490  
 Venus -34142-06-28 11:02 J -10748764.12 -10748764.04 -10748763.94 0.0496 0.0441

Venus -34141-02-19 05:31 J -10748528.47 -10748528.27 -10748528.08 0.0489 0.0135  
 Moon -34138-09-28 17:45 J -10747210.98 -10747210.76 -10747210.53 0.0502 0.0194  
 Earth -34138-09-28 20:09 J -10747210.88 -10747210.66 -10747210.45 0.0502 0.0224 \*  
 Mercury -34137-07-23 03:35 J -10746912.52 -10746912.35 -10746912.19 0.0514 0.0016  
 Venus -34136-12-20 18:28 J -10746396.91 -10746396.73 -10746396.54 0.0535 0.0248  
 Venus -34135-08-16 05:31 J -10746158.28 -10746158.27 -10746158.24 0.0542 0.0537  
 Moon -34132-03-26 02:23 J -10745205.56 -10745205.40 -10745205.24 0.0527 0.0380  
 Earth -34132-03-26 05:45 J -10745205.41 -10745205.26 -10745205.09 0.0527 0.0375 \*  
 Mercury -34132-12-12 05:45 J -10744944.38 -10744944.26 -10744944.13 0.0515 0.0243  
 Mercury -34131-03-11 16:33 J -10744854.91 -10744854.81 -10744854.71 0.0512 0.0349  
 Venus -34130-10-25 11:16 J -10744262.23 -10744262.03 -10744261.82 0.0491 0.0023  
 Earth -34126-10-03 12:14 J -10742823.18 -10742822.99 -10742822.80 0.0505 0.0294  
 Moon -34126-10-03 12:43 J -10742823.15 -10742822.97 -10742822.78 0.0505 0.0287 \*  
 Mercury -34125-05-11 03:35 J -10742602.51 -10742602.35 -10742602.19 0.0514 0.0159  
 Venus -34124-08-25 07:11 J -10742131.30 -10742131.20 -10742131.09 0.0533 0.0455  
 Venus -34123-04-20 18:14 J -10741892.90 -10741892.74 -10741892.57 0.0540 0.0325  
 Earth -34120-03-31 04:19 J -10740817.53 -10740817.32 -10740817.11 0.0524 0.0211  
 Moon -34120-03-31 06:28 J -10740817.43 -10740817.23 -10740817.01 0.0524 0.0179 \*  
 Mercury -34120-09-30 09:21 J -10740634.21 -10740634.11 -10740634.02 0.0516 0.0382  
 Mercury -34120-12-28 19:40 J -10740544.81 -10740544.68 -10740544.55 0.0512 0.0205  
 Mars -34119-08-29 02:52 J -10740301.59 -10740301.38 -10740301.15 0.0502 0.0261  
 Venus -34118-06-30 16:04 J -10739996.02 -10739995.83 -10739995.64 0.0492 0.0183  
 Venus -34117-02-21 08:52 J -10739760.25 -10739760.13 -10739760.00 0.0487 0.0384  
 Mercury -34113-02-28 03:35 J -10738292.47 -10738292.35 -10738292.22 0.0513 0.0327  
 Mercury -34113-05-28 02:52 J -10738202.48 -10738202.38 -10738202.26 0.0517 0.0375  
 Mars -34112-03-30 16:04 J -10737895.96 -10737895.83 -10737895.69 0.0530 0.0471  
 Venus -34112-12-24 05:59 J -10737627.45 -10737627.25 -10737627.05 0.0539 0.0107  
 Mercury -34108-10-16 22:33 J -10736234.70 -10736234.56 -10736234.42 0.0513 0.0059  
 Venus -34106-03-05 21:07 J -10735729.76 -10735729.62 -10735729.47 0.0494 0.0342  
 Venus -34106-10-27 14:52 J -10735494.06 -10735493.88 -10735493.70 0.0488 0.0230

Mercury -34102-12-17 03:07 J -10733982.39 -10733982.37 -10733982.33 0.0512 0.0500  
 Mercury -34101-03-16 03:07 J -10733892.52 -10733892.37 -10733892.22 0.0515 0.0204  
 Venus -34100-08-28 14:52 J -10733362.07 -10733361.88 -10733361.67 0.0536 0.0116  
 Mercury -34096-08-05 00:57 J -10731924.60 -10731924.46 -10731924.32 0.0515 0.0097  
 Mercury -34096-11-02 11:45 J -10731835.03 -10731835.01 -10731834.97 0.0511 0.0497  
 Venus -34094-07-02 19:55 J -10731227.87 -10731227.67 -10731227.47 0.0490 0.0073  
 Mercury -34089-01-03 02:52 J -10729582.54 -10729582.38 -10729582.22 0.0514 0.0031  
 Venus -34088-05-03 01:26 J -10729096.59 -10729096.44 -10729096.27 0.0534 0.0332  
 Venus -34088-12-27 11:45 J -10728858.12 -10728858.01 -10728857.90 0.0540 0.0447  
 Mercury -34084-05-24 04:04 J -10727614.45 -10727614.33 -10727614.20 0.0516 0.0241  
 Mercury -34084-08-21 14:52 J -10727524.98 -10727524.88 -10727524.78 0.0512 0.0352  
 Mars -34083-06-01 23:59 J -10727240.74 -10727240.50 -10727240.25 0.0500 0.0121  
 Venus -34082-03-08 01:26 J -10726961.64 -10726961.44 -10726961.24 0.0492 0.0086  
 Venus -34082-10-29 18:43 J -10726725.75 -10726725.72 -10726725.68 0.0487 0.0478  
 Mercury -34078-10-22 02:09 J -10725272.57 -10725272.41 -10725272.25 0.0513 0.0149  
 Venus -34076-08-31 22:33 J -10724592.75 -10724592.56 -10724592.38 0.0539 0.0231  
 Mercury -34072-03-12 07:55 J -10723304.27 -10723304.17 -10723304.08 0.0517 0.0377  
 Mercury -34072-06-09 18:14 J -10723214.87 -10723214.74 -10723214.61 0.0513 0.0212  
 Venus -34071-11-11 07:11 J -10722695.37 -10722695.20 -10722695.02 0.0493 0.0244  
 Venus -34070-07-05 00:43 J -10722459.62 -10722459.47 -10722459.32 0.0488 0.0325  
 Mercury -34066-08-10 01:55 J -10720962.54 -10720962.42 -10720962.29 0.0513 0.0320  
 Mercury -34066-11-08 01:26 J -10720872.55 -10720872.44 -10720872.33 0.0517 0.0380  
 Venus -34064-05-06 10:47 J -10720327.25 -10720327.05 -10720326.84 0.0538 0.0016  
 Mercury -34061-12-29 11:16 J -10718994.04 -10718994.03 -10718994.02 0.0517 0.0515  
 Mercury -34060-03-28 21:21 J -10718904.75 -10718904.61 -10718904.47 0.0513 0.0070  
 Venus -34059-07-17 11:45 J -10718429.12 -10718429.01 -10718428.90 0.0495 0.0403  
 Venus -34058-03-10 05:31 J -10718193.46 -10718193.27 -10718193.07 0.0489 0.0169  
 Earth -34055-09-28 05:45 J -10716895.45 -10716895.26 -10716895.06 0.0502 0.0278  
 Moon -34055-09-28 06:14 J -10716895.43 -10716895.24 -10716895.04 0.0502 0.0254 \*  
 Mercury -34054-05-29 01:55 J -10716652.46 -10716652.42 -10716652.37 0.0512 0.0490

Mercury -34054-08-27 01:40 J -10716562.57 -10716562.43 -10716562.28 0.0516 0.0217  
 Venus -34052-01-08 22:47 J -10716061.74 -10716061.55 -10716061.36 0.0536 0.0199  
 Earth -34049-03-25 13:26 J -10714890.05 -10714889.94 -10714889.81 0.0527 0.0446  
 Moon -34049-03-25 16:04 J -10714889.94 -10714889.83 -10714889.72 0.0527 0.0455 \*  
 Mercury -34048-01-15 00:28 J -10714594.62 -10714594.48 -10714594.34 0.0514 0.0076  
 Venus -34047-11-13 11:16 J -10713927.23 -10713927.03 -10713926.83 0.0491 0.0011  
 Earth -34043-10-02 22:47 J -10712507.75 -10712507.55 -10712507.34 0.0504 0.0242  
 Moon -34043-10-03 00:43 J -10712507.69 -10712507.47 -10712507.25 0.0504 0.0224 \*  
 Mercury -34042-06-15 01:55 J -10712252.58 -10712252.42 -10712252.26 0.0514 0.0047  
 Venus -34041-09-13 08:52 J -10711796.25 -10711796.13 -10711796.00 0.0533 0.0412  
 Venus -34040-05-09 18:57 J -10711557.86 -10711557.71 -10711557.56 0.0540 0.0362  
 Moon -34037-03-30 04:33 J -10710502.54 -10710502.31 -10710502.07 0.0525 0.0075  
 Earth -34037-03-30 05:31 J -10710502.49 -10710502.27 -10710502.04 0.0525 0.0107 \*  
 Mercury -34037-11-03 02:52 J -10710284.50 -10710284.38 -10710284.26 0.0516 0.0233  
 Mercury -34036-01-31 13:26 J -10710195.04 -10710194.94 -10710194.84 0.0512 0.0359  
 Venus -34035-07-19 15:35 J -10709661.04 -10709660.85 -10709660.66 0.0493 0.0149  
 Venus -34034-03-12 09:21 J -10709425.21 -10709425.11 -10709425.00 0.0488 0.0417  
 Mercury -34030-04-03 01:40 J -10707942.59 -10707942.43 -10707942.27 0.0513 0.0127  
 Venus -34028-01-12 05:02 J -10707292.48 -10707292.29 -10707292.09 0.0538 0.0143  
 Mercury -34025-08-22 05:59 J -10705974.34 -10705974.25 -10705974.15 0.0517 0.0377  
 Mercury -34025-11-19 16:33 J -10705884.94 -10705884.81 -10705884.68 0.0513 0.0213  
 Venus -34023-03-24 20:52 J -10705394.79 -10705394.63 -10705394.47 0.0495 0.0307  
 Venus -34023-11-15 14:52 J -10705159.05 -10705158.88 -10705158.71 0.0489 0.0264  
 Mercury -34018-01-20 00:28 J -10703632.60 -10703632.48 -10703632.34 0.0512 0.0311  
 Mercury -34018-04-19 23:59 J -10703542.61 -10703542.50 -10703542.40 0.0516 0.0389  
 Venus -34017-09-16 15:21 J -10703027.06 -10703026.86 -10703026.66 0.0537 0.0075  
 Mercury -34013-06-10 09:50 J -10701664.11 -10701664.09 -10701664.08 0.0518 0.0512  
 Mercury -34013-09-07 19:55 J -10701574.81 -10701574.67 -10701574.53 0.0514 0.0074  
 Venus -34012-11-28 02:09 J -10701128.48 -10701128.41 -10701128.34 0.0496 0.0464  
 Venus -34011-07-21 20:38 J -10700892.84 -10700892.64 -10700892.44 0.0490 0.0109

Mercury -34007-11-08 00:14 J -10699322.54 -10699322.49 -10699322.43 0.0512 0.0483

Mercury -34006-02-06 00:14 J -10699232.64 -10699232.49 -10699232.35 0.0515 0.0222

Venus -34005-05-22 03:35 J -10698761.53 -10698761.35 -10698761.18 0.0535 0.0287

Venus -34004-01-15 14:23 J -10698522.97 -10698522.90 -10698522.81 0.0541 0.0491

Mercury -34001-06-26 23:16 J -10697264.67 -10697264.53 -10697264.39 0.0514 0.0068

# 34TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 34th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Venus	-33999-03-27 01:40 J	-10696626.63	-10696626.43	-10696626.23	0.0491	0.0051		
Mercury	-33995-11-25 00:28 J	-10694922.64	-10694922.48	-10694922.32	0.0515	0.0056		
Mars	-33994-09-16 08:52 J	-10694627.42	-10694627.13	-10694626.83	0.0527	0.0035		
Venus	-33993-01-25 15:50 J	-10694495.91	-10694495.84	-10694495.76	0.0532	0.0493		
Venus	-33993-09-20 02:38 J	-10694257.56	-10694257.39	-10694257.22	0.0540	0.0278		
Mercury	-33989-04-15 02:23 J	-10692954.53	-10692954.40	-10692954.27	0.0515	0.0211		
Mercury	-33989-07-13 12:57 J	-10692865.05	-10692864.96	-10692864.86	0.0511	0.0380		
Venus	-33988-11-30 06:57 J	-10692360.39	-10692360.21	-10692360.03	0.0493	0.0209		
Venus	-33987-07-24 00:14 J	-10692124.62	-10692124.49	-10692124.35	0.0488	0.0357		
Mercury	-33983-09-13 00:28 J	-10690612.64	-10690612.48	-10690612.32	0.0513	0.0113		
Venus	-33981-05-25 12:14 J	-10689992.19	-10689991.99	-10689991.79	0.0537	0.0058		
Mercury	-33977-02-02 04:47 J	-10688644.40	-10688644.30	-10688644.21	0.0517	0.0370		
Mercury	-33977-05-01 15:07 J	-10688555.00	-10688554.87	-10688554.74	0.0513	0.0219		

Venus -33976-08-05 10:19 J -10688094.20 -10688094.07 -10688093.93 0.0496 0.0371  
 Venus -33975-03-29 05:02 J -10687858.47 -10687858.29 -10687858.10 0.0489 0.0201  
 Earth -33972-09-27 15:50 J -10686580.01 -10686579.84 -10686579.66 0.0501 0.0332  
 Moon -33972-09-27 17:31 J -10686579.96 -10686579.77 -10686579.58 0.0501 0.0315 \*  
 Mercury -33971-07-01 23:59 J -10686302.63 -10686302.50 -10686302.36 0.0512 0.0288  
 Mercury -33971-09-29 23:16 J -10686212.62 -10686212.53 -10686212.43 0.0516 0.0410  
 Venus -33969-01-28 22:33 J -10685726.76 -10685726.56 -10685726.37 0.0535 0.0159  
 Mercury -33966-11-21 07:55 J -10684334.18 -10684334.17 -10684334.15 0.0518 0.0513  
 Mercury -33965-02-18 17:59 J -10684244.88 -10684244.75 -10684244.61 0.0514 0.0075  
 Mars -33965-11-22 04:47 J -10683967.54 -10683967.30 -10683967.05 0.0503 0.0147  
 Venus -33964-12-02 10:19 J -10683592.27 -10683592.07 -10683591.87 0.0491 0.0046  
 Moon -33960-10-02 00:57 J -10682192.68 -10682192.46 -10682192.23 0.0503 0.0140  
 Earth -33960-10-02 04:19 J -10682192.54 -10682192.32 -10682192.10 0.0503 0.0165 \*  
 Mercury -33959-04-19 22:47 J -10681992.60 -10681992.55 -10681992.48 0.0511 0.0473  
 Mercury -33959-07-18 22:33 J -10681902.70 -10681902.56 -10681902.41 0.0515 0.0230  
 Venus -33958-10-03 08:23 J -10681461.29 -10681461.15 -10681461.00 0.0533 0.0373  
 Venus -33957-05-28 18:43 J -10681222.85 -10681222.72 -10681222.58 0.0540 0.0399  
 Moon -33954-03-30 11:31 J -10680187.24 -10680187.02 -10680186.80 0.0526 0.0008  
 Earth -33954-03-30 12:43 J -10680187.20 -10680186.97 -10680186.74 0.0526 0.0033 \*  
 Mercury -33954-12-07 21:35 J -10679934.74 -10679934.60 -10679934.46 0.0515 0.0066  
 Venus -33952-08-07 16:04 J -10679326.03 -10679325.83 -10679325.64 0.0492 0.0112  
 Venus -33951-03-31 09:21 J -10679090.18 -10679090.11 -10679090.02 0.0487 0.0449  
 Mercury -33947-05-06 22:47 J -10677592.72 -10677592.55 -10677592.39 0.0514 0.0061  
 Venus -33945-02-01 06:43 J -10676957.41 -10676957.22 -10676957.03 0.0539 0.0186  
 Mercury -33942-09-26 00:57 J -10675624.59 -10675624.46 -10675624.33 0.0515 0.0206  
 Mercury -33942-12-24 11:31 J -10675535.11 -10675535.02 -10675534.93 0.0512 0.0386  
 Venus -33940-04-12 20:52 J -10675059.79 -10675059.63 -10675059.46 0.0494 0.0271  
 Venus -33940-12-04 14:23 J -10674824.05 -10674823.90 -10674823.73 0.0488 0.0296  
 Mercury -33935-02-22 22:47 J -10673282.71 -10673282.55 -10673282.39 0.0514 0.0109  
 Venus -33934-10-06 18:57 J -10672691.92 -10672691.71 -10672691.51 0.0537 0.0030

Mercury -33930-07-15 04:04 J -10671314.43 -10671314.33 -10671314.22 0.0516 0.0349

Mercury -33930-10-12 14:23 J -10671225.02 -10671224.90 -10671224.77 0.0512 0.0240

Mars -33929-08-26 07:40 J -10670906.40 -10670906.18 -10670905.95 0.0500 0.0247

Venus -33929-12-17 01:26 J -10670793.53 -10670793.44 -10670793.33 0.0496 0.0430

Venus -33928-08-09 19:55 J -10670557.86 -10670557.67 -10670557.47 0.0490 0.0141

Mercury -33924-12-11 22:47 J -10668972.69 -10668972.55 -10668972.41 0.0512 0.0277

Mercury -33923-03-11 22:04 J -10668882.67 -10668882.58 -10668882.49 0.0516 0.0422

Venus -33922-06-11 05:31 J -10668426.46 -10668426.27 -10668426.09 0.0534 0.0242

Venus -33921-02-04 15:21 J -10668187.89 -10668187.86 -10668187.81 0.0540 0.0529

Mercury -33918-05-03 06:28 J -10667004.25 -10667004.23 -10667004.20 0.0518 0.0508

Mercury -33918-07-31 16:33 J -10666914.94 -10666914.81 -10666914.67 0.0514 0.0081

Venus -33916-04-14 23:59 J -10666291.70 -10666291.50 -10666291.30 0.0492 0.0019

Mercury -33912-09-29 22:19 J -10664662.64 -10664662.57 -10664662.49 0.0511 0.0452

Mercury -33912-12-28 22:04 J -10664572.72 -10664572.58 -10664572.44 0.0515 0.0250

Venus -33910-02-13 16:04 J -10664160.94 -10664160.83 -10664160.73 0.0532 0.0451

Venus -33910-10-10 01:26 J -10663922.60 -10663922.44 -10663922.27 0.0539 0.0313

Mercury -33906-05-19 19:40 J -10662604.82 -10662604.68 -10662604.54 0.0515 0.0068

Venus -33905-12-19 04:47 J -10662025.48 -10662025.30 -10662025.11 0.0493 0.0177

Venus -33904-08-11 22:47 J -10661789.67 -10661789.55 -10661789.43 0.0488 0.0388

Mercury -33900-10-16 21:07 J -10660262.78 -10660262.62 -10660262.46 0.0514 0.0067

Venus -33898-06-14 10:47 J -10659657.25 -10659657.05 -10659656.84 0.0538 0.0096

Mercury -33894-03-07 23:02 J -10658294.66 -10658294.54 -10658294.41 0.0516 0.0208

Mercury -33894-06-05 09:50 J -10658205.18 -10658205.09 -10658205.00 0.0512 0.0385

Venus -33893-08-24 10:19 J -10657759.21 -10657759.07 -10657758.92 0.0495 0.0334

Venus -33892-04-17 04:33 J -10657523.48 -10657523.31 -10657523.12 0.0489 0.0236

Moon -33889-09-26 16:33 J -10656264.93 -10656264.81 -10656264.67 0.0501 0.0405

Earth -33889-09-26 19:55 J -10656264.80 -10656264.67 -10656264.53 0.0501 0.0413 \*

Mercury -33888-08-04 20:52 J -10655952.79 -10655952.63 -10655952.47 0.0513 0.0106

Venus -33886-02-16 22:33 J -10655391.76 -10655391.56 -10655391.36 0.0536 0.0119

Mercury -33883-12-25 02:38 J -10653984.49 -10653984.39 -10653984.29 0.0517 0.0346



Mercury -33882-03-24 12:57 J -10653895.08 -10653894.96 -10653894.84 0.0513 0.0243  
 Venus -33881-04-29 14:52 J -10653492.90 -10653492.88 -10653492.85 0.0497 0.0492  
 Venus -33881-12-21 09:35 J -10653257.30 -10653257.10 -10653256.90 0.0490 0.0079  
 Earth -33877-10-01 11:16 J -10651877.27 -10651877.03 -10651876.80 0.0503 0.0096  
 Moon -33877-10-01 15:21 J -10651877.10 -10651876.86 -10651876.63 0.0503 0.0067 \*  
 Mercury -33876-05-23 20:52 J -10651642.77 -10651642.63 -10651642.49 0.0513 0.0277  
 Mercury -33876-08-21 20:09 J -10651552.75 -10651552.66 -10651552.57 0.0516 0.0423  
 Mars -33875-03-04 01:40 J -10651358.62 -10651358.43 -10651358.24 0.0525 0.0395  
 Venus -33875-10-22 10:47 J -10651126.20 -10651126.05 -10651125.88 0.0534 0.0328  
 Venus -33874-06-17 21:35 J -10650887.71 -10650887.60 -10650887.48 0.0540 0.0442  
 Earth -33871-03-29 19:11 J -10649871.93 -10649871.70 -10649871.47 0.0526 0.0045  
 Moon -33871-03-29 22:04 J -10649871.81 -10649871.58 -10649871.34 0.0526 0.0066 \*  
 Mercury -33871-10-13 05:59 J -10649674.29 -10649674.25 -10649674.21 0.0517 0.0488  
 Mercury -33870-01-10 16:04 J -10649584.97 -10649584.83 -10649584.69 0.0514 0.0098  
 Venus -33869-08-26 14:52 J -10648991.08 -10648990.88 -10648990.68 0.0492 0.0080  
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 Mercury -33864-06-09 20:38 J -10647242.78 -10647242.64 -10647242.50 0.0515 0.0259  
 Venus -33863-06-26 22:33 J -10646860.56 -10646860.56 -10646860.55 0.0531 0.0530  
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 Mercury -33776-09-04 02:09 J -10615014.45 -10615014.41 -10615014.38 0.0518 0.0495  
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 Mercury -33769-05-01 16:04 J -10612582.97 -10612582.83 -10612582.69 0.0515 0.0253  
 Venus -33768-11-13 15:35 J -10612022.06 -10612021.85 -10612021.65 0.0537 0.0045  
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 Venus -33756-07-19 03:21 J -10607756.55 -10607756.36 -10607756.16 0.0535 0.0167

Mercury -33752-07-09 18:43 J -10606304.85 -10606304.72 -10606304.59 0.0516 0.0194  
 Mercury -33752-10-07 05:02 J -10606215.37 -10606215.29 -10606215.20 0.0512 0.0398  
 Venus -33750-05-23 20:52 J -10605621.84 -10605621.63 -10605621.43 0.0491 0.0045  
 Mercury -33746-12-07 16:19 J -10603962.98 -10603962.82 -10603962.66 0.0513 0.0083  
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 Mercury -33734-12-24 15:07 J -10599562.94 -10599562.87 -10599562.78 0.0516 0.0440  
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 Mercury -33728-05-14 10:04 J -10597595.22 -10597595.08 -10597594.94 0.0514 0.0086  
 Venus -33727-10-02 04:04 J -10597089.49 -10597089.33 -10597089.16 0.0495 0.0274  
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 Mercury -33722-10-12 14:09 J -10595253.05 -10595252.91 -10595252.77 0.0515 0.0255  
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 Venus -33714-01-29 04:19 J -10592587.52 -10592587.32 -10592587.13 0.0491 0.0136  
 Earth -33711-09-30 17:59 J -10591246.98 -10591246.75 -10591246.51 0.0501 0.0073  
 Moon -33711-09-30 21:07 J -10591246.84 -10591246.62 -10591246.39 0.0501 0.0101 \*  
 Mercury -33710-07-31 13:55 J -10590943.09 -10590942.92 -10590942.76 0.0514 0.0081  
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Moon -33705-03-27 23:16 J -10589241.72 -10589241.53 -10589241.33 0.0527 0.0282 \*  
 Mercury -33705-12-19 16:33 J -10588974.93 -10588974.81 -10588974.68 0.0516 0.0199  
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 Earth -33699-10-05 08:23 J -10586859.25 -10586859.15 -10586859.02 0.0504 0.0436 \*  
 Mercury -33698-05-19 13:26 J -10586633.10 -10586632.94 -10586632.77 0.0513 0.0094  
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 Venus -33696-03-30 04:19 J -10585952.49 -10585952.32 -10585952.15 0.0539 0.0295  
 Moon -33693-04-01 13:40 J -10584854.10 -10584853.93 -10584853.74 0.0525 0.0338  
 Earth -33693-04-01 17:16 J -10584853.96 -10584853.78 -10584853.59 0.0525 0.0316 \*  
 Mercury -33693-10-07 19:55 J -10584664.77 -10584664.67 -10584664.57 0.0517 0.0341  
 Mercury -33692-01-05 06:14 J -10584575.37 -10584575.24 -10584575.12 0.0513 0.0248  
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 Mercury -33686-06-05 12:57 J -10582233.03 -10582232.96 -10582232.87 0.0516 0.0439  
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 Venus -33685-12-02 16:04 J -10581687.03 -10581686.83 -10581686.63 0.0537 0.0085  
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 Venus -33679-10-06 11:02 J -10579553.22 -10579553.04 -10579552.86 0.0490 0.0226  
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 Venus -33667-06-11 15:50 J -10575287.04 -10575286.84 -10575286.64 0.0491 0.0070

Mercury -33662-01-10 11:45 J -10573613.17 -10573613.01 -10573612.85 0.0514 0.0080  
 Venus -33661-04-11 10:19 J -10573156.23 -10573156.07 -10573155.92 0.0532 0.0345  
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 Mercury -33645-03-19 17:45 J -10567334.86 -10567334.76 -10567334.65 0.0517 0.0347  
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 Venus -33644-10-21 02:23 J -10566754.58 -10566754.40 -10566754.23 0.0495 0.0244  
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 Mercury -33633-01-06 21:07 J -10563024.66 -10563024.62 -10563024.57 0.0518 0.0488  
 Mercury -33633-04-05 07:11 J -10562935.34 -10562935.20 -10562935.06 0.0514 0.0098  
 Venus -33632-06-26 06:43 J -10562488.33 -10562488.22 -10562488.10 0.0497 0.0401  
 Venus -33631-02-17 01:26 J -10562252.63 -10562252.44 -10562252.25 0.0490 0.0163  
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 Earth -33628-09-29 22:04 J -10560931.81 -10560931.58 -10560931.36 0.0501 0.0155 \*  
 Mercury -33627-06-05 10:33 J -10560683.14 -10560683.06 -10560682.97 0.0511 0.0441  
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 Venus -33626-12-19 06:28 J -10560121.41 -10560121.23 -10560121.04 0.0534 0.0217  
 Moon -33622-03-27 14:23 J -10558927.04 -10558926.90 -10558926.74 0.0527 0.0399  
 Earth -33622-03-27 18:14 J -10558926.90 -10558926.74 -10558926.58 0.0527 0.0378 \*  
 Mercury -33621-01-23 09:35 J -10558625.24 -10558625.10 -10558624.96 0.0515 0.0059  
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Venus -33620-10-23 04:33 J -10557986.51 -10557986.31 -10557986.11 0.0492 0.0005  
 Moon -33616-10-04 12:14 J -10556544.15 -10556543.99 -10556543.83 0.0503 0.0358  
 Earth -33616-10-04 12:57 J -10556544.12 -10556543.96 -10556543.79 0.0503 0.0356 \*  
 Mercury -33615-06-22 10:33 J -10556283.22 -10556283.06 -10556282.90 0.0514 0.0092  
 Venus -33614-08-23 17:31 J -10555855.89 -10555855.77 -10555855.65 0.0531 0.0422  
 Venus -33613-04-18 02:52 J -10555617.53 -10555617.38 -10555617.21 0.0538 0.0330  
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 Moon -33610-04-01 15:21 J -10554539.06 -10554538.86 -10554538.65 0.0525 0.0216 \*  
 Mercury -33610-11-11 12:28 J -10554315.10 -10554314.98 -10554314.85 0.0516 0.0209  
 Mercury -33609-02-08 22:47 J -10554225.64 -10554225.55 -10554225.45 0.0512 0.0382  
 Venus -33608-06-28 08:52 J -10553720.32 -10553720.13 -10553719.93 0.0494 0.0153  
 Venus -33607-02-19 02:52 J -10553484.49 -10553484.38 -10553484.26 0.0488 0.0405  
 Mercury -33603-04-10 09:07 J -10551973.28 -10551973.12 -10551972.96 0.0513 0.0096  
 Venus -33602-12-22 10:19 J -10551352.27 -10551352.07 -10551351.87 0.0537 0.0109  
 Mercury -33598-08-30 15:35 J -10550004.95 -10550004.85 -10550004.75 0.0517 0.0354  
 Mercury -33598-11-28 01:55 J -10549915.55 -10549915.42 -10549915.30 0.0514 0.0236  
 Venus -33596-03-03 14:09 J -10549454.06 -10549453.91 -10549453.75 0.0496 0.0310  
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 Venus -33585-11-06 18:43 J -10545187.78 -10545187.72 -10545187.65 0.0498 0.0466  
 Venus -33584-06-30 13:55 J -10544952.12 -10544951.92 -10544951.72 0.0491 0.0099  
 Mercury -33580-11-15 07:40 J -10543353.25 -10543353.18 -10543353.10 0.0511 0.0452  
 Mercury -33579-02-13 07:55 J -10543263.31 -10543263.17 -10543263.03 0.0515 0.0252  
 Venus -33578-05-01 08:38 J -10542821.30 -10542821.14 -10542820.97 0.0533 0.0310  
 Venus -33578-12-25 19:11 J -10542582.81 -10542582.70 -10542582.59 0.0540 0.0447  
 Mercury -33574-07-05 08:23 J -10541295.29 -10541295.15 -10541295.01 0.0515 0.0051

Venus -33572-03-05 18:57 J -10540685.91 -10540685.71 -10540685.51 0.0493 0.0057  
 Mercury -33568-12-02 08:09 J -10538953.32 -10538953.16 -10538953.00 0.0514 0.0087  
 Mars -33567-08-21 10:47 J -10538691.33 -10538691.05 -10538690.76 0.0525 0.0134  
 Venus -33566-01-03 21:35 J -10538555.66 -10538555.60 -10538555.54 0.0530 0.0507  
 Venus -33566-08-30 06:57 J -10538317.38 -10538317.21 -10538317.02 0.0538 0.0242  
 Mercury -33562-04-23 11:02 J -10536985.17 -10536985.04 -10536984.92 0.0516 0.0205  
 Mercury -33562-07-21 21:21 J -10536895.70 -10536895.61 -10536895.52 0.0512 0.0385  
 Venus -33561-11-08 21:50 J -10536419.77 -10536419.59 -10536419.41 0.0495 0.0217  
 Venus -33560-07-02 15:50 J -10536183.98 -10536183.84 -10536183.69 0.0489 0.0341  
 Mercury -33556-09-20 07:55 J -10534643.34 -10534643.17 -10534643.01 0.0513 0.0086  
 Venus -33554-05-04 17:45 J -10534051.97 -10534051.76 -10534051.56 0.0536 0.0029  
 Mercury -33550-02-09 13:55 J -10532675.02 -10532674.92 -10532674.82 0.0517 0.0353  
 Mercury -33550-05-09 23:59 J -10532585.62 -10532585.50 -10532585.37 0.0513 0.0234  
 Venus -33549-07-15 01:40 J -10532153.55 -10532153.43 -10532153.29 0.0497 0.0376  
 Venus -33548-03-07 20:52 J -10531917.82 -10531917.63 -10531917.45 0.0490 0.0189  
 Moon -33545-09-28 22:19 J -10530616.76 -10530616.57 -10530616.38 0.0500 0.0274  
 Earth -33545-09-28 22:33 J -10530616.76 -10530616.56 -10530616.35 0.0500 0.0247 \*  
 Mercury -33544-07-09 06:28 J -10530333.37 -10530333.23 -10530333.09 0.0511 0.0272  
 Mercury -33544-10-07 05:59 J -10530243.34 -10530243.25 -10530243.16 0.0515 0.0426  
 Venus -33542-01-07 01:11 J -10529786.64 -10529786.45 -10529786.26 0.0534 0.0191  
 Earth -33539-03-26 16:04 J -10528611.91 -10528611.83 -10528611.76 0.0529 0.0498  
 Moon -33539-03-26 18:28 J -10528611.78 -10528611.73 -10528611.67 0.0529 0.0511 \*  
 Mercury -33539-11-28 17:02 J -10528364.82 -10528364.79 -10528364.76 0.0518 0.0499  
 Mercury -33538-02-26 02:52 J -10528275.51 -10528275.38 -10528275.24 0.0515 0.0089  
 Mars -33538-11-01 06:43 J -10528027.45 -10528027.22 -10528026.99 0.0504 0.0233  
 Venus -33537-11-11 02:23 J -10527651.60 -10527651.40 -10527651.20 0.0492 0.0034  
 Earth -33533-10-03 12:43 J -10526229.18 -10526228.97 -10526228.77 0.0502 0.0256  
 Moon -33533-10-03 14:52 J -10526229.08 -10526228.88 -10526228.67 0.0502 0.0262 \*  
 Mercury -33532-04-27 05:31 J -10526023.34 -10526023.27 -10526023.19 0.0510 0.0451  
 Mercury -33532-07-26 05:45 J -10525933.40 -10525933.26 -10525933.12 0.0514 0.0252



Mars -33531-05-29 09:21 J -10525626.27 -10525626.11 -10525625.94 0.0527 0.0432  
 Venus -33531-09-11 11:59 J -10525521.13 -10525521.00 -10525520.86 0.0531 0.0397  
 Venus -33530-05-07 21:35 J -10525282.75 -10525282.60 -10525282.44 0.0539 0.0354  
 Moon -33527-03-31 14:23 J -10524224.13 -10524223.90 -10524223.66 0.0527 0.0119  
 Earth -33527-03-31 14:52 J -10524224.11 -10524223.88 -10524223.65 0.0527 0.0090 \*  
 Mercury -33527-12-15 06:14 J -10523965.37 -10523965.24 -10523965.10 0.0516 0.0057  
 Venus -33525-07-17 07:26 J -10523385.39 -10523385.19 -10523384.99 0.0494 0.0122  
 Venus -33524-03-10 00:57 J -10523149.54 -10523149.46 -10523149.36 0.0488 0.0431  
 Mercury -33520-05-14 05:16 J -10521623.44 -10521623.28 -10521623.11 0.0514 0.0078  
 Venus -33518-01-10 09:07 J -10521017.32 -10521017.12 -10521016.92 0.0537 0.0144  
 Mercury -33515-10-03 09:35 J -10519655.22 -10519655.10 -10519654.97 0.0516 0.0197  
 Mercury -33515-12-31 20:09 J -10519565.75 -10519565.66 -10519565.57 0.0512 0.0394  
 Venus -33513-03-22 12:14 J -10519119.15 -10519118.99 -10519118.82 0.0496 0.0279  
 Venus -33513-11-13 06:28 J -10518883.40 -10518883.23 -10518883.06 0.0489 0.0280  
 Mercury -33508-03-02 05:31 J -10517313.43 -10517313.27 -10517313.11 0.0513 0.0090  
 Venus -33507-09-14 21:35 J -10516751.80 -10516751.60 -10516751.39 0.0535 0.0062  
 Mercury -33503-07-22 12:28 J -10515345.08 -10515344.98 -10515344.88 0.0517 0.0347  
 Mercury -33503-10-19 22:33 J -10515255.68 -10515255.56 -10515255.43 0.0513 0.0240  
 Mars -33502-08-05 05:59 J -10514966.49 -10514966.25 -10514966.00 0.0502 0.0150  
 Venus -33502-11-26 14:52 J -10514852.97 -10514852.88 -10514852.79 0.0498 0.0438  
 Venus -33501-07-19 09:50 J -10514617.28 -10514617.09 -10514616.89 0.0491 0.0125  
 Mercury -33497-12-19 05:02 J -10513003.43 -10513003.29 -10513003.14 0.0512 0.0262  
 Mercury -33496-03-19 04:47 J -10512913.38 -10512913.30 -10512913.21 0.0516 0.0438  
 Venus -33495-05-20 08:38 J -10512486.31 -10512486.14 -10512485.96 0.0533 0.0270  
 Venus -33494-01-13 18:43 J -10512247.80 -10512247.72 -10512247.63 0.0540 0.0483  
 Mercury -33491-05-10 15:35 J -10511034.89 -10511034.85 -10511034.81 0.0518 0.0495  
 Mercury -33491-08-08 01:26 J -10510945.58 -10510945.44 -10510945.30 0.0514 0.0090  
 Venus -33489-03-24 14:52 J -10510351.09 -10510350.88 -10510350.68 0.0493 0.0032  
 Mercury -33485-10-07 03:50 J -10508693.42 -10508693.34 -10508693.26 0.0510 0.0447  
 Mercury -33484-01-05 03:50 J -10508603.48 -10508603.34 -10508603.20 0.0514 0.0256

Venus -33483-01-22 17:02 J -10508220.88 -10508220.79 -10508220.71 0.0530 0.0479  
 Venus -33483-09-18 01:55 J -10507982.59 -10507982.42 -10507982.23 0.0538 0.0265  
 Mercury -33479-05-27 04:19 J -10506635.46 -10506635.32 -10506635.18 0.0516 0.0059  
 Venus -33478-11-28 19:55 J -10506084.85 -10506084.67 -10506084.48 0.0495 0.0188  
 Venus -33477-07-21 14:09 J -10505849.04 -10505848.91 -10505848.77 0.0489 0.0369  
 Mercury -33473-10-24 03:21 J -10504293.52 -10504293.36 -10504293.19 0.0513 0.0082  
 Venus -33471-05-23 12:28 J -10503717.18 -10503716.98 -10503716.78 0.0536 0.0052  
 Mercury -33467-03-15 07:40 J -10502325.31 -10502325.18 -10502325.05 0.0517 0.0201  
 Mercury -33467-06-12 17:59 J -10502235.83 -10502235.75 -10502235.66 0.0513 0.0392  
 Venus -33466-08-04 00:43 J -10501818.61 -10501818.47 -10501818.32 0.0497 0.0343  
 Venus -33465-03-26 19:26 J -10501582.86 -10501582.69 -10501582.50 0.0490 0.0218  
 Earth -33462-09-29 00:57 J -10500301.63 -10500301.46 -10500301.28 0.0500 0.0335  
 Moon -33462-09-29 03:21 J -10500301.53 -10500301.36 -10500301.19 0.0500 0.0360 \*  
 Mercury -33461-08-12 02:52 J -10499983.54 -10499983.38 -10499983.22 0.0512 0.0096  
 Venus -33459-01-25 23:59 J -10499451.70 -10499451.50 -10499451.31 0.0534 0.0156  
 Mercury -33455-01-01 11:16 J -10498015.14 -10498015.03 -10498014.93 0.0517 0.0341  
 Mercury -33455-03-31 21:21 J -10497925.73 -10497925.61 -10497925.49 0.0514 0.0249  
 Venus -33454-04-09 05:16 J -10497552.28 -10497552.28 -10497552.28 0.0499 0.0499  
 Venus -33454-12-01 00:57 J -10497316.67 -10497316.46 -10497316.26 0.0492 0.0065  
 Moon -33450-10-03 13:26 J -10495914.15 -10495913.94 -10495913.72 0.0502 0.0180  
 Earth -33450-10-03 16:47 J -10495914.02 -10495913.80 -10495913.58 0.0502 0.0173 \*  
 Mercury -33449-05-31 02:52 J -10495673.52 -10495673.38 -10495673.24 0.0512 0.0265  
 Mercury -33449-08-29 02:38 J -10495583.48 -10495583.39 -10495583.31 0.0516 0.0435  
 Venus -33448-09-30 12:57 J -10495186.11 -10495185.96 -10495185.81 0.0532 0.0356  
 Venus -33447-05-26 23:02 J -10494947.67 -10494947.54 -10494947.40 0.0539 0.0394  
 Moon -33444-03-30 16:47 J -10493909.02 -10493908.80 -10493908.57 0.0527 0.0032  
 Earth -33444-03-30 18:14 J -10493908.97 -10493908.74 -10493908.51 0.0527 0.0003 \*  
 Mercury -33444-10-20 14:09 J -10493704.95 -10493704.91 -10493704.86 0.0518 0.0487  
 Mercury -33443-01-17 23:59 J -10493615.63 -10493615.50 -10493615.36 0.0514 0.0098  
 Venus -33442-08-06 04:19 J -10493050.52 -10493050.32 -10493050.12 0.0493 0.0094

Venus -33441-03-28 22:04 J -10492814.65 -10492814.58 -10492814.51 0.0488 0.0456

Mercury -33437-03-19 02:23 J -10491363.48 -10491363.40 -10491363.31 0.0511 0.0437

Mercury -33437-06-17 02:38 J -10491273.53 -10491273.39 -10491273.25 0.0515 0.0268

Venus -33435-01-29 09:50 J -10490682.28 -10490682.09 -10490681.89 0.0537 0.0184

Mercury -33432-11-06 02:52 J -10489305.51 -10489305.38 -10489305.24 0.0515 0.0055

Venus -33430-04-11 08:52 J -10488784.30 -10488784.13 -10488783.96 0.0495 0.0251

Venus -33430-12-03 03:07 J -10488548.52 -10488548.37 -10488548.21 0.0489 0.0307

Mercury -33425-04-05 01:55 J -10486963.59 -10486963.42 -10486963.26 0.0513 0.0088

Venus -33424-10-03 17:45 J -10486416.97 -10486416.76 -10486416.56 0.0535 0.0035

Mercury -33420-08-25 05:45 J -10484995.38 -10484995.26 -10484995.13 0.0517 0.0202

Mercury -33420-11-22 16:19 J -10484905.91 -10484905.82 -10484905.73 0.0513 0.0391

Venus -33419-12-15 13:11 J -10484518.06 -10484517.95 -10484517.83 0.0498 0.0408

Venus -33418-08-08 08:38 J -10484282.33 -10484282.14 -10484281.94 0.0491 0.0156

Mercury -33413-01-23 01:26 J -10482653.61 -10482653.44 -10482653.28 0.0512 0.0089

Mars -33413-11-13 18:43 J -10482358.01 -10482357.72 -10482357.42 0.0525 0.0010

Venus -33412-06-08 04:19 J -10482151.50 -10482151.32 -10482151.14 0.0533 0.0243

Venus -33411-02-01 14:09 J -10481912.97 -10481912.91 -10481912.84 0.0540 0.0506

Mercury -33408-06-13 09:21 J -10480685.21 -10480685.11 -10480685.01 0.0518 0.0343

Mercury -33408-09-10 19:26 J -10480595.81 -10480595.69 -10480595.57 0.0514 0.0248

Venus -33406-04-13 14:09 J -10480016.11 -10480015.91 -10480015.70 0.0493 0.0006

Mercury -33402-11-11 00:28 J -10478343.62 -10478343.48 -10478343.33 0.0511 0.0267

Mercury -33401-02-09 00:14 J -10478253.57 -10478253.49 -10478253.40 0.0515 0.0432

Venus -33400-02-10 15:50 J -10477885.95 -10477885.84 -10477885.72 0.0531 0.0444

Venus -33400-10-07 01:40 J -10477647.60 -10477647.43 -10477647.26 0.0538 0.0300

Mercury -33396-04-01 12:57 J -10476375.01 -10476374.96 -10476374.91 0.0519 0.0481

Mercury -33396-06-29 22:47 J -10476285.69 -10476285.55 -10476285.41 0.0515 0.0106

Venus -33395-12-17 19:11 J -10475749.89 -10475749.70 -10475749.50 0.0494 0.0154

Venus -33394-08-10 12:57 J -10475514.07 -10475513.96 -10475513.84 0.0489 0.0398

Mercury -33390-08-30 00:14 J -10474033.57 -10474033.49 -10474033.40 0.0511 0.0437

Mercury -33390-11-28 00:43 J -10473943.61 -10473943.47 -10473943.34 0.0514 0.0268

Venus -33388-06-11 14:09 J -10473382.11 -10473381.91 -10473381.70 0.0537 0.0096  
 Mercury -33384-04-18 01:40 J -10471975.56 -10471975.43 -10471975.29 0.0515 0.0045  
 Mars -33383-01-25 05:02 J -10471693.54 -10471693.29 -10471693.04 0.0504 0.0120  
 Venus -33383-08-22 22:33 J -10471483.71 -10471483.56 -10471483.40 0.0496 0.0313  
 Venus -33382-04-15 17:16 J -10471247.95 -10471247.78 -10471247.60 0.0490 0.0245  
 Moon -33379-09-28 04:47 J -10469986.41 -10469986.30 -10469986.18 0.0500 0.0431  
 Earth -33379-09-28 07:55 J -10469986.30 -10469986.17 -10469986.03 0.0500 0.0401 \*  
 Mercury -33378-09-16 00:43 J -10469633.63 -10469633.47 -10469633.31 0.0514 0.0100  
 Venus -33376-02-14 01:40 J -10469116.63 -10469116.43 -10469116.23 0.0534 0.0113  
 Mercury -33372-02-04 04:47 J -10467665.43 -10467665.30 -10467665.17 0.0516 0.0190  
 Mercury -33372-05-04 15:07 J -10467575.95 -10467575.87 -10467575.78 0.0512 0.0401  
 Venus -33371-04-28 02:52 J -10467217.44 -10467217.38 -10467217.31 0.0499 0.0469  
 Venus -33371-12-19 22:19 J -10466981.77 -10466981.57 -10466981.37 0.0492 0.0093  
 Earth -33367-10-02 22:04 J -10465598.81 -10465598.58 -10465598.35 0.0501 0.0101  
 Moon -33367-10-03 01:55 J -10465598.65 -10465598.42 -10465598.19 0.0501 0.0115 \*  
 Mercury -33366-07-04 23:45 J -10465323.67 -10465323.51 -10465323.34 0.0512 0.0080  
 Venus -33365-10-19 10:19 J -10464851.22 -10464851.07 -10464850.90 0.0531 0.0325  
 Venus -33364-06-14 19:55 J -10464612.79 -10464612.67 -10464612.54 0.0539 0.0421  
 Earth -33361-03-29 17:31 J -10463593.99 -10463593.77 -10463593.54 0.0528 0.0114  
 Moon -33361-03-29 20:09 J -10463593.89 -10463593.66 -10463593.43 0.0528 0.0078 \*  
 Mercury -33361-11-23 07:40 J -10463355.28 -10463355.18 -10463355.08 0.0518 0.0341  
 Mercury -33360-02-20 17:45 J -10463265.88 -10463265.76 -10463265.64 0.0514 0.0249  
 Venus -33359-08-25 03:35 J -10462715.55 -10462715.35 -10462715.15 0.0494 0.0063  
 Venus -33358-04-17 21:35 J -10462479.61 -10462479.60 -10462479.57 0.0488 0.0485  
 Mercury -33354-04-22 23:16 J -10461013.67 -10461013.53 -10461013.38 0.0511 0.0254  
 Mercury -33354-07-21 23:02 J -10460923.62 -10460923.54 -10460923.46 0.0515 0.0442  
 Venus -33353-06-23 21:35 J -10460585.62 -10460585.60 -10460585.57 0.0529 0.0523  
 Venus -33352-02-17 06:14 J -10460347.43 -10460347.24 -10460347.05 0.0537 0.0211  
 Moon -33349-04-03 12:14 J -10459206.08 -10459205.99 -10459205.89 0.0526 0.0473  
 Earth -33349-04-03 15:35 J -10459205.94 -10459205.85 -10459205.74 0.0526 0.0470 \*

Mercury -33349-09-11 11:02 J -10459045.08 -10459045.04 -10459044.99 0.0519 0.0482

Mercury -33349-12-09 21:07 J -10458955.76 -10458955.62 -10458955.49 0.0515 0.0107

Mars -33348-10-29 06:43 J -10458632.43 -10458632.22 -10458631.99 0.0502 0.0266

Venus -33347-04-30 08:38 J -10458449.32 -10458449.14 -10458448.95 0.0496 0.0217

Venus -33347-12-22 03:07 J -10458213.52 -10458213.37 -10458213.22 0.0489 0.0338

Mercury -33342-02-08 22:19 J -10456703.65 -10456703.57 -10456703.48 0.0510 0.0434

Mercury -33342-05-09 22:33 J -10456613.70 -10456613.56 -10456613.42 0.0514 0.0268

Venus -33341-10-22 17:31 J -10456081.97 -10456081.77 -10456081.56 0.0535 0.0009

Mercury -33337-09-28 00:28 J -10454645.62 -10454645.48 -10454645.34 0.0516 0.0034

Venus -33335-01-03 13:26 J -10454183.07 -10454182.94 -10454182.80 0.0498 0.0372

Venus -33335-08-27 08:38 J -10453947.33 -10453947.14 -10453946.96 0.0491 0.0187

Mercury -33330-02-25 22:47 J -10452303.71 -10452303.55 -10452303.39 0.0513 0.0102

Venus -33329-06-27 06:14 J -10451816.43 -10451816.24 -10451816.05 0.0533 0.0200

Mercury -33325-07-17 03:35 J -10450335.48 -10450335.35 -10450335.22 0.0516 0.0179

Mercury -33325-10-14 13:55 J -10450246.00 -10450245.92 -10450245.83 0.0513 0.0412

Venus -33323-05-02 12:57 J -10449681.16 -10449680.96 -10449680.76 0.0492 0.0033

Mercury -33319-12-14 22:47 J -10447993.72 -10447993.55 -10447993.39 0.0513 0.0067

Venus -33317-03-01 18:28 J -10447550.86 -10447550.73 -10447550.59 0.0531 0.0400

Venus -33317-10-26 04:33 J -10447312.47 -10447312.31 -10447312.15 0.0538 0.0343

Mercury -33313-05-05 06:43 J -10446025.32 -10446025.22 -10446025.11 0.0517 0.0325

Mercury -33313-08-02 16:47 J -10445935.92 -10445935.80 -10445935.68 0.0514 0.0264

Venus -33311-01-05 17:45 J -10445414.96 -10445414.76 -10445414.57 0.0494 0.0123

Venus -33311-08-29 11:31 J -10445179.11 -10445179.02 -10445178.92 0.0489 0.0426

Mercury -33307-10-02 22:04 J -10443683.73 -10443683.58 -10443683.44 0.0511 0.0243

Mercury -33307-12-31 21:50 J -10443593.67 -10443593.59 -10443593.52 0.0515 0.0454

Venus -33305-06-30 12:28 J -10443047.17 -10443046.98 -10443046.78 0.0536 0.0128

Mercury -33301-02-22 09:35 J -10441715.15 -10441715.10 -10441715.05 0.0519 0.0478

Mercury -33301-05-21 19:26 J -10441625.82 -10441625.69 -10441625.55 0.0515 0.0110

Venus -33300-09-10 22:04 J -10441148.74 -10441148.58 -10441148.41 0.0497 0.0280

Venus -33299-05-04 17:16 J -10440912.94 -10440912.78 -10440912.61 0.0490 0.0277

Earth -33296-09-27 15:35 J -10439670.93 -10439670.85 -10439670.77 0.0499 0.0464  
 Moon -33296-09-27 19:26 J -10439670.73 -10439670.69 -10439670.64 0.0499 0.0486  
 Mercury -33295-07-21 21:21 J -10439373.70 -10439373.61 -10439373.51 0.0510 0.0418  
 Mercury -33295-10-19 21:35 J -10439283.74 -10439283.60 -10439283.47 0.0514 0.0283  
 Mars -33294-05-02 20:23 J -10439088.82 -10439088.65 -10439088.47 0.0522 0.0413  
 Venus -33293-03-04 23:16 J -10438781.74 -10438781.53 -10438781.33 0.0534 0.0082  
 Mercury -33289-03-09 22:47 J -10437315.69 -10437315.55 -10437315.41 0.0516 0.0034  
 Venus -33288-05-17 02:52 J -10436882.48 -10436882.38 -10436882.28 0.0499 0.0434  
 Venus -33287-01-07 22:33 J -10436646.75 -10436646.56 -10436646.36 0.0492 0.0127  
 Moon -33284-10-02 00:28 J -10435283.72 -10435283.48 -10435283.24 0.0500 0.0043  
 Earth -33284-10-02 04:04 J -10435283.57 -10435283.33 -10435283.09 0.0500 0.0027 \*  
 Mercury -33283-08-07 20:52 J -10434973.79 -10434973.63 -10434973.46 0.0513 0.0108  
 Venus -33282-11-08 10:33 J -10434516.23 -10434516.06 -10434515.89 0.0532 0.0285  
 Venus -33281-07-03 20:38 J -10434277.75 -10434277.64 -10434277.54 0.0539 0.0459  
 Moon -33278-03-29 22:04 J -10433278.79 -10433278.58 -10433278.36 0.0528 0.0153  
 Earth -33278-03-30 01:26 J -10433278.65 -10433278.44 -10433278.22 0.0528 0.0186 \*  
 Mercury -33278-12-28 02:23 J -10433005.53 -10433005.40 -10433005.27 0.0517 0.0172  
 Mercury -33277-03-26 12:43 J -10432916.05 -10432915.97 -10432915.89 0.0513 0.0421  
 Venus -33276-09-13 04:04 J -10432380.53 -10432380.33 -10432380.12 0.0493 0.0028  
 Mercury -33271-05-26 20:52 J -10430663.79 -10430663.63 -10430663.46 0.0512 0.0063  
 Venus -33270-07-13 23:31 J -10430250.60 -10430250.52 -10430250.43 0.0530 0.0481  
 Venus -33269-03-08 09:07 J -10430012.30 -10430012.12 -10430011.94 0.0538 0.0255  
 Earth -33266-04-04 00:28 J -10428890.62 -10428890.48 -10428890.33 0.0526 0.0405  
 Moon -33266-04-04 04:19 J -10428890.47 -10428890.32 -10428890.18 0.0526 0.0400 \*  
 Mercury -33266-10-16 05:45 J -10428695.37 -10428695.26 -10428695.15 0.0518 0.0314  
 Mercury -33265-01-13 15:50 J -10428605.96 -10428605.84 -10428605.72 0.0514 0.0275  
 Mars -33265-07-17 04:47 J -10428420.46 -10428420.30 -10428420.13 0.0506 0.0389  
 Venus -33264-05-19 08:23 J -10428114.34 -10428114.15 -10428113.96 0.0495 0.0183  
 Venus -33263-01-10 02:23 J -10427878.53 -10427878.40 -10427878.27 0.0489 0.0367  
 Mercury -33259-03-14 20:52 J -10426353.78 -10426353.63 -10426353.48 0.0511 0.0230

Mercury -33259-06-12 20:38 J -10426263.70 -10426263.64 -10426263.57 0.0515 0.0469  
 Mars -33258-02-08 11:02 J -10426023.31 -10426023.04 -10426022.76 0.0525 0.0166  
 Venus -33258-11-11 21:07 J -10425746.82 -10425746.62 -10425746.41 0.0536 0.0049  
 Mercury -33254-08-04 08:52 J -10424385.19 -10424385.13 -10424385.06 0.0518 0.0459  
 Mercury -33254-11-01 18:43 J -10424295.85 -10424295.72 -10424295.58 0.0515 0.0130  
 Venus -33252-01-22 12:43 J -10423848.11 -10423847.97 -10423847.82 0.0497 0.0340  
 Venus -33252-09-15 07:40 J -10423612.35 -10423612.18 -10423611.99 0.0491 0.0218  
 Mercury -33248-12-31 20:09 J -10422043.75 -10422043.66 -10422043.55 0.0510 0.0404  
 Mercury -33247-03-31 20:23 J -10421953.78 -10421953.65 -10421953.51 0.0514 0.0297  
 Venus -33246-07-17 06:14 J -10421481.44 -10421481.24 -10421481.04 0.0533 0.0162  
 Mercury -33242-08-20 21:21 J -10419985.75 -10419985.61 -10419985.47 0.0516 0.0028  
 Venus -33241-09-27 16:19 J -10419581.84 -10419581.82 -10419581.80 0.0500 0.0496  
 Venus -33240-05-21 12:57 J -10419346.16 -10419345.96 -10419345.76 0.0493 0.0066  
 Mercury -33235-01-17 20:09 J -10417643.82 -10417643.66 -10417643.50 0.0513 0.0126  
 Venus -33234-03-21 17:16 J -10417215.92 -10417215.78 -10417215.62 0.0530 0.0365  
 Venus -33234-11-15 02:23 J -10416977.54 -10416977.40 -10416977.25 0.0538 0.0373  
 Mercury -33230-06-09 00:43 J -10415675.60 -10415675.47 -10415675.34 0.0517 0.0171  
 Mercury -33230-09-06 11:02 J -10415586.12 -10415586.04 -10415585.96 0.0513 0.0423  
 Mars -33229-04-20 09:35 J -10415359.36 -10415359.10 -10415358.85 0.0504 0.0008  
 Venus -33228-01-24 17:59 J -10415079.95 -10415079.75 -10415079.55 0.0495 0.0088  
 Venus -33228-09-17 12:14 J -10414844.06 -10414843.99 -10414843.92 0.0489 0.0458  
 Mercury -33224-11-05 19:26 J -10413333.85 -10413333.69 -10413333.52 0.0512 0.0053  
 Venus -33222-07-20 13:11 J -10412712.14 -10412711.95 -10412711.75 0.0537 0.0167  
 Mercury -33218-03-28 04:19 J -10411365.43 -10411365.32 -10411365.21 0.0518 0.0308  
 Mercury -33218-06-25 14:23 J -10411276.01 -10411275.90 -10411275.78 0.0514 0.0283  
 Venus -33217-09-29 23:16 J -10410813.70 -10410813.53 -10410813.35 0.0496 0.0242  
 Venus -33216-05-23 17:59 J -10410577.90 -10410577.75 -10410577.59 0.0490 0.0311  
 Mercury -33212-08-24 19:11 J -10409023.84 -10409023.70 -10409023.55 0.0511 0.0223  
 Mercury -33212-11-22 18:57 J -10408933.77 -10408933.71 -10408933.65 0.0515 0.0474  
 Venus -33210-03-25 01:55 J -10408446.62 -10408446.42 -10408446.21 0.0535 0.0037

Mercury -33206-01-14 07:55 J -10407055.24 -10407055.17 -10407055.11 0.0519 0.0448

Mercury -33206-04-13 17:45 J -10406965.90 -10406965.76 -10406965.63 0.0515 0.0139

Venus -33205-06-05 03:21 J -10406547.47 -10406547.36 -10406547.24 0.0498 0.0399

Venus -33204-01-26 22:33 J -10406311.75 -10406311.56 -10406311.36 0.0491 0.0159

Earth -33201-10-01 13:40 J -10404968.17 -10404967.93 -10404967.69 0.0500 0.0028

Moon -33201-10-01 16:04 J -10404968.06 -10404967.83 -10404967.60 0.0500 0.0006 \*

Mercury -33200-06-12 18:57 J -10404713.81 -10404713.71 -10404713.60 0.0510 0.0392

Mercury -33200-09-10 19:11 J -10404623.82 -10404623.70 -10404623.56 0.0514 0.0311

Venus -33199-11-27 14:23 J -10404181.08 -10404180.90 -10404180.71 0.0532 0.0239

Venus -33198-07-24 00:43 J -10403942.54 -10403942.47 -10403942.40 0.0540 0.0502

Earth -33195-03-29 08:52 J -10402963.33 -10402963.13 -10402962.93 0.0529 0.0258

Moon -33195-03-29 12:43 J -10402963.18 -10402962.97 -10402962.76 0.0529 0.0227 \*

Mercury -33194-01-30 20:52 J -10402655.77 -10402655.63 -10402655.49 0.0516 0.0007

Mars -33193-01-23 15:07 J -10402298.03 -10402297.87 -10402297.71 0.0501 0.0393

Venus -33193-10-02 04:04 J -10402045.54 -10402045.33 -10402045.13 0.0493 0.0009

Earth -33189-10-06 05:45 J -10400580.32 -10400580.26 -10400580.20 0.0502 0.0485

Mercury -33188-06-29 19:11 J -10400313.86 -10400313.70 -10400313.54 0.0513 0.0141

Venus -33187-08-02 01:11 J -10399915.57 -10399915.45 -10399915.34 0.0529 0.0439

Venus -33186-03-28 09:35 J -10399677.27 -10399677.10 -10399676.93 0.0537 0.0292

Moon -33183-04-02 22:33 J -10398575.75 -10398575.56 -10398575.35 0.0527 0.0286

Earth -33183-04-03 01:40 J -10398575.61 -10398575.43 -10398575.24 0.0527 0.0300 \*

Mercury -33183-11-18 23:16 J -10398345.66 -10398345.53 -10398345.40 0.0517 0.0164

Mercury -33182-02-16 09:35 J -10398256.17 -10398256.10 -10398256.02 0.0513 0.0430

Venus -33181-06-07 08:09 J -10397779.35 -10397779.16 -10397778.97 0.0496 0.0150

Venus -33180-01-29 02:38 J -10397543.50 -10397543.39 -10397543.27 0.0490 0.0400

Mercury -33176-04-17 18:57 J -10396003.88 -10396003.71 -10396003.55 0.0512 0.0033

Venus -33175-11-30 20:09 J -10395411.86 -10395411.66 -10395411.46 0.0535 0.0084

Mercury -33171-09-07 02:38 J -10394035.50 -10394035.39 -10394035.28 0.0518 0.0307

Mercury -33171-12-05 12:43 J -10393946.08 -10393945.97 -10393945.85 0.0514 0.0285

Venus -33169-02-11 12:57 J -10393513.12 -10393512.96 -10393512.80 0.0498 0.0303



Venus -33169-10-04 08:23 J -10393277.33 -10393277.15 -10393276.98 0.0491 0.0252  
 Mercury -33164-02-03 17:59 J -10391693.90 -10391693.75 -10391693.60 0.0511 0.0213  
 Mercury -33164-05-04 17:45 J -10391603.82 -10391603.76 -10391603.71 0.0515 0.0483  
 Venus -33163-08-05 06:57 J -10391146.41 -10391146.21 -10391146.01 0.0533 0.0122  
 Mercury -33159-06-26 06:28 J -10389725.30 -10389725.23 -10389725.16 0.0519 0.0444  
 Mercury -33159-09-23 16:19 J -10389635.95 -10389635.82 -10389635.69 0.0515 0.0145  
 Venus -33158-10-17 17:45 J -10389246.83 -10389246.76 -10389246.68 0.0500 0.0457  
 Venus -33157-06-09 14:09 J -10389011.11 -10389010.91 -10389010.72 0.0492 0.0102  
 Mercury -33153-11-22 17:31 J -10387383.88 -10387383.77 -10387383.66 0.0510 0.0384  
 Mercury -33152-02-20 17:45 J -10387293.89 -10387293.76 -10387293.63 0.0514 0.0317  
 Venus -33151-04-09 19:40 J -10386880.84 -10386880.68 -10386880.51 0.0531 0.0320  
 Venus -33151-12-04 05:31 J -10386642.40 -10386642.27 -10386642.14 0.0539 0.0416  
 Mercury -33147-07-12 19:40 J -10385325.82 -10385325.68 -10385325.54 0.0516 0.0006  
 Venus -33145-02-13 18:43 J -10384744.92 -10384744.72 -10384744.52 0.0494 0.0053  
 Venus -33145-10-06 12:28 J -10384508.99 -10384508.98 -10384508.97 0.0488 0.0488  
 Mercury -33141-12-09 17:59 J -10382983.91 -10382983.75 -10382983.59 0.0513 0.0152  
 Mars -33140-07-27 17:31 J -10382754.04 -10382753.77 -10382753.51 0.0523 0.0235  
 Venus -33140-12-13 08:52 J -10382615.17 -10382615.13 -10382615.08 0.0529 0.0513  
 Venus -33139-08-08 17:31 J -10382376.95 -10382376.77 -10382376.58 0.0537 0.0213  
 Mercury -33135-04-30 23:02 J -10381015.68 -10381015.54 -10381015.41 0.0517 0.0142  
 Mercury -33135-07-29 09:07 J -10380926.18 -10380926.12 -10380926.05 0.0513 0.0452  
 Venus -33134-10-19 23:31 J -10380478.70 -10380478.52 -10380478.33 0.0496 0.0208  
 Venus -33133-06-11 17:59 J -10380242.89 -10380242.75 -10380242.60 0.0490 0.0342  
 Mercury -33129-09-27 17:59 J -10378673.92 -10378673.75 -10378673.59 0.0512 0.0020  
 Venus -33127-04-13 03:35 J -10378111.55 -10378111.35 -10378111.14 0.0534 0.0010  
 Mercury -33123-02-17 01:26 J -10376705.55 -10376705.44 -10376705.33 0.0518 0.0300  
 Mercury -33123-05-17 11:31 J -10376616.13 -10376616.02 -10376615.90 0.0514 0.0292  
 Venus -33122-06-25 02:38 J -10376212.53 -10376212.39 -10376212.26 0.0499 0.0365  
 Venus -33121-02-15 22:33 J -10375976.74 -10375976.56 -10375976.37 0.0492 0.0192  
 Moon -33118-10-01 23:45 J -10374652.75 -10374652.51 -10374652.26 0.0500 0.0051

Earth -33118-10-02 00:28 J -10374652.71 -10374652.48 -10374652.24 0.0500 0.0080 \*  
 Mercury -33117-07-16 17:31 J -10374363.93 -10374363.77 -10374363.62 0.0511 0.0189  
 Mercury -33117-10-14 17:02 J -10374273.81 -10374273.79 -10374273.76 0.0514 0.0505  
 Venus -33116-12-16 14:38 J -10373846.08 -10373845.89 -10373845.70 0.0532 0.0200  
 Venus -33115-08-11 23:31 J -10373607.54 -10373607.52 -10373607.49 0.0539 0.0534  
 Moon -33112-03-28 05:59 J -10372648.42 -10372648.25 -10372648.07 0.0530 0.0344  
 Earth -33112-03-28 09:21 J -10372648.28 -10372648.11 -10372647.95 0.0530 0.0370 \*  
 Mercury -33112-12-06 04:47 J -10372395.37 -10372395.30 -10372395.23 0.0519 0.0443  
 Mercury -33111-03-05 14:38 J -10372306.02 -10372305.89 -10372305.76 0.0516 0.0146  
 Mars -33111-10-11 09:35 J -10372086.32 -10372086.10 -10372085.88 0.0506 0.0270  
 Venus -33110-10-22 03:50 J -10371710.54 -10371710.34 -10371710.14 0.0494 0.0042  
 Moon -33106-10-06 11:45 J -10370265.12 -10370265.01 -10370264.89 0.0501 0.0433  
 Earth -33106-10-06 12:28 J -10370265.10 -10370264.98 -10370264.84 0.0501 0.0416 \*  
 Mercury -33105-05-04 16:19 J -10370053.93 -10370053.82 -10370053.71 0.0510 0.0372  
 Mercury -33105-08-02 16:19 J -10369963.94 -10369963.82 -10369963.69 0.0513 0.0328  
 Mars -33104-05-04 18:14 J -10369688.96 -10369688.74 -10369688.49 0.0525 0.0321  
 Venus -33104-08-21 01:11 J -10369580.58 -10369580.45 -10369580.31 0.0529 0.0400  
 Venus -33103-04-16 10:04 J -10369342.24 -10369342.08 -10369341.92 0.0538 0.0330  
 Earth -33100-04-02 09:35 J -10368260.30 -10368260.10 -10368259.89 0.0528 0.0230  
 Moon -33100-04-02 11:16 J -10368260.24 -10368260.03 -10368259.83 0.0528 0.0211 \*  
 Mercury -33100-12-22 18:14 J -10367995.88 -10367995.74 -10367995.60 0.0516 0.0009  
 Venus -33098-06-27 09:21 J -10367444.31 -10367444.11 -10367443.91 0.0495 0.0112  
 Venus -33097-02-18 03:35 J -10367208.44 -10367208.35 -10367208.25 0.0489 0.0433  
 Mercury -33093-05-21 16:19 J -10365653.97 -10365653.82 -10365653.66 0.0513 0.0160  
 Venus -33092-12-19 22:19 J -10365076.77 -10365076.57 -10365076.37 0.0536 0.0127  
 Mercury -33088-10-10 21:35 J -10363685.73 -10363685.60 -10363685.46 0.0517 0.0134  
 Mercury -33087-01-08 07:55 J -10363596.23 -10363596.17 -10363596.11 0.0513 0.0461  
 Venus -33086-03-02 13:40 J -10363178.09 -10363177.93 -10363177.75 0.0497 0.0267  
 Venus -33086-10-24 08:38 J -10362942.30 -10362942.14 -10362941.97 0.0490 0.0284  
 Mercury -33081-03-09 16:19 J -10361343.98 -10361343.82 -10361343.65 0.0512 0.0016

Venus -33080-08-24 11:02 J -10360811.25 -10360811.04 -10360810.84 0.0534 0.0075  
 Mercury -33076-07-30 00:57 J -10359375.57 -10359375.46 -10359375.34 0.0518 0.0277  
 Mercury -33076-10-27 11:02 J -10359286.15 -10359286.04 -10359285.93 0.0514 0.0314  
 Mars -33075-07-15 20:38 J -10359024.89 -10359024.64 -10359024.39 0.0503 0.0136  
 Venus -33075-11-05 17:59 J -10358911.85 -10358911.75 -10358911.64 0.0499 0.0422  
 Venus -33074-06-29 13:55 J -10358676.11 -10358675.92 -10358675.72 0.0492 0.0134  
 Mercury -33070-12-27 16:19 J -10357033.97 -10357033.82 -10357033.66 0.0511 0.0176  
 Venus -33068-04-28 22:04 J -10356545.75 -10356545.58 -10356545.40 0.0531 0.0276  
 Venus -33068-12-23 06:57 J -10356307.31 -10356307.21 -10356307.10 0.0538 0.0455  
 Mercury -33064-05-18 03:21 J -10355065.43 -10355065.36 -10355065.28 0.0519 0.0436  
 Mercury -33064-08-15 13:11 J -10354976.08 -10354975.95 -10354975.81 0.0515 0.0154  
 Venus -33062-03-04 17:45 J -10354409.96 -10354409.76 -10354409.56 0.0494 0.0020  
 Mercury -33058-10-15 15:50 J -10352723.96 -10352723.84 -10352723.72 0.0510 0.0349  
 Mercury -33057-01-13 15:50 J -10352633.95 -10352633.84 -10352633.72 0.0513 0.0350  
 Venus -33056-01-01 09:35 J -10352280.18 -10352280.10 -10352280.00 0.0528 0.0471  
 Venus -33056-08-27 17:31 J -10352041.95 -10352041.77 -10352041.59 0.0536 0.0250  
 Mercury -33052-06-03 16:19 J -10350665.95 -10350665.82 -10350665.68 0.0516 0.0019  
 Venus -33051-11-07 22:33 J -10350143.75 -10350143.56 -10350143.37 0.0496 0.0174  
 Venus -33050-07-01 17:31 J -10349907.90 -10349907.77 -10349907.64 0.0490 0.0374  
 Mercury -33046-11-01 15:07 J -10348324.03 -10348323.87 -10348323.72 0.0512 0.0169  
 Venus -33044-05-02 03:21 J -10347776.56 -10347776.36 -10347776.15 0.0534 0.0044  
 Mercury -33040-03-22 19:55 J -10346355.80 -10346355.67 -10346355.53 0.0517 0.0133  
 Mercury -33040-06-20 06:28 J -10346266.29 -10346266.23 -10346266.17 0.0514 0.0463  
 Venus -33039-07-14 03:21 J -10345877.51 -10345877.36 -10345877.20 0.0498 0.0327  
 Venus -33038-03-06 23:16 J -10345641.71 -10345641.53 -10345641.35 0.0491 0.0227  
 Moon -33035-10-01 05:45 J -10344337.48 -10344337.26 -10344337.04 0.0499 0.0121  
 Earth -33035-10-01 06:28 J -10344337.45 -10344337.23 -10344337.00 0.0499 0.0151 \*  
 Mercury -33034-08-20 14:52 J -10344014.05 -10344013.88 -10344013.72 0.0512 0.0005  
 Venus -33032-01-04 15:35 J -10343511.05 -10343510.85 -10343510.65 0.0532 0.0159  
 Earth -33029-03-27 18:28 J -10342332.86 -10342332.73 -10342332.59 0.0530 0.0433

Moon -33029-03-27 20:23 J -10342332.79 -10342332.65 -10342332.51 0.0530 0.0413 \*  
 Mercury -33028-01-08 23:31 J -10342045.63 -10342045.52 -10342045.40 0.0518 0.0272  
 Mercury -33028-04-08 09:35 J -10341956.20 -10341956.10 -10341955.99 0.0514 0.0321  
 Venus -33027-03-19 07:40 J -10341611.23 -10341611.18 -10341611.13 0.0500 0.0481  
 Venus -33027-11-10 04:19 J -10341375.52 -10341375.32 -10341375.12 0.0493 0.0075  
 Earth -33023-10-05 21:07 J -10339949.78 -10339949.62 -10339949.45 0.0501 0.0354  
 Moon -33023-10-05 23:31 J -10339949.68 -10339949.52 -10339949.35 0.0501 0.0363 \*  
 Mercury -33022-06-08 14:38 J -10339704.05 -10339703.89 -10339703.73 0.0511 0.0171  
 Venus -33021-09-09 04:47 J -10339245.45 -10339245.30 -10339245.15 0.0530 0.0354  
 Venus -33020-05-05 13:55 J -10339007.06 -10339006.92 -10339006.77 0.0538 0.0374  
 Moon -33017-04-01 17:31 J -10337945.00 -10337944.77 -10337944.54 0.0528 0.0134  
 Earth -33017-04-01 17:31 J -10337944.98 -10337944.77 -10337944.55 0.0528 0.0159 \*  
 Mercury -33017-10-28 02:52 J -10337735.46 -10337735.38 -10337735.29 0.0519 0.0414  
 Mercury -33016-01-25 12:57 J -10337646.10 -10337645.96 -10337645.83 0.0515 0.0176  
 Venus -33015-07-16 09:07 J -10337109.32 -10337109.12 -10337108.92 0.0495 0.0079  
 Venus -33014-03-09 03:21 J -10336873.42 -10336873.36 -10336873.30 0.0489 0.0462  
 Mercury -33010-03-27 14:38 J -10335394.02 -10335393.89 -10335393.77 0.0510 0.0338  
 Mercury -33010-06-25 14:52 J -10335304.00 -10335303.88 -10335303.77 0.0514 0.0362  
 Venus -33008-01-08 00:28 J -10334741.67 -10334741.48 -10334741.29 0.0535 0.0170  
 Mercury -33005-11-13 15:07 J -10333336.01 -10333335.87 -10333335.73 0.0516 0.0014  
 Venus -33003-03-21 11:45 J -10332843.18 -10332843.01 -10332842.83 0.0497 0.0235  
 Venus -33003-11-12 07:26 J -10332607.34 -10332607.19 -10332607.04 0.0491 0.0315

# 33RD MILLENNIUM BCE

This is a list of transits visible from Jupiter in the 33rd millennium BCE.

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-32998-04-13 14:23 J	-10330994.05	-10330993.90	-10330993.74	0.0512	0.0192		
Venus	-32997-09-12 11:16 J	-10330476.24	-10330476.03	-10330475.83	0.0533	0.0035		
Mercury	-32993-09-01 18:14 J	-10329025.87	-10329025.74	-10329025.61	0.0517	0.0134		
Mercury	-32993-11-30 04:33 J	-10328936.37	-10328936.31	-10328936.25	0.0514	0.0461		
Venus	-32992-11-24 15:35 J	-10328576.96	-10328576.85	-10328576.72	0.0500	0.0390		
Venus	-32991-07-18 12:14 J	-10328341.17	-10328340.99	-10328340.79	0.0493	0.0167		
Mercury	-32986-01-30 13:26 J	-10326684.11	-10326683.94	-10326683.78	0.0511	0.0009		
Mars	-32986-10-21 23:59 J	-10326419.79	-10326419.50	-10326419.21	0.0523	0.0086		
Venus	-32985-05-17 20:52 J	-10326210.81	-10326210.63	-10326210.44	0.0531	0.0240		
Venus	-32984-01-11 05:59 J	-10325972.33	-10325972.25	-10325972.16	0.0538	0.0489		
Mercury	-32981-06-20 21:50 J	-10324715.71	-10324715.59	-10324715.48	0.0518	0.0273		
Mercury	-32981-09-18 07:55 J	-10324626.28	-10324626.17	-10324626.06	0.0515	0.0320		
Venus	-32979-03-23 17:59 J	-10324074.95	-10324074.75	-10324074.55	0.0494	0.0015		
Mercury	-32975-11-18 12:57 J	-10322374.12	-10322373.96	-10322373.80	0.0511	0.0165		
Venus	-32973-01-21 09:21 J	-10321945.22	-10321945.11	-10321944.99	0.0529	0.0433		
Venus	-32973-09-15 17:45 J	-10321706.93	-10321706.76	-10321706.58	0.0537	0.0288		
Mercury	-32969-04-09 01:26 J	-10320405.52	-10320405.44	-10320405.36	0.0519	0.0411		
Mercury	-32969-07-07 11:16 J	-10320316.16	-10320316.03	-10320315.90	0.0515	0.0178		
Venus	-32968-11-26 22:33 J	-10319808.75	-10319808.56	-10319808.36	0.0496	0.0139		
Venus	-32967-07-20 17:02 J	-10319572.90	-10319572.79	-10319572.67	0.0490	0.0404		
Mercury	-32963-09-06 12:28 J	-10318064.10	-10318063.98	-10318063.85	0.0510	0.0337		
Mercury	-32963-12-05 12:43 J	-10317974.08	-10317973.97	-10317973.85	0.0514	0.0364		
Venus	-32961-05-21 06:14 J	-10317441.44	-10317441.24	-10317441.03	0.0535	0.0087		
Mercury	-32957-04-25 14:23 J	-10316006.03	-10316005.90	-10316005.76	0.0516	0.0036		
Mars	-32956-01-04 18:28 J	-10315751.97	-10315751.73	-10315751.47	0.0506	0.0141		
Venus	-32956-08-02 02:52 J	-10315542.54	-10315542.38	-10315542.22	0.0498	0.0293		

Venus -32955-03-25 22:19 J -10315306.73 -10315306.57 -10315306.39 0.0491 0.0257  
 Earth -32952-09-30 15:50 J -10314022.05 -10314021.84 -10314021.63 0.0499 0.0209  
 Moon -32952-09-30 18:14 J -10314021.97 -10314021.74 -10314021.51 0.0499 0.0177 \*  
 Mercury -32951-06-25 12:28 J -10313754.00 -10313753.98 -10313753.96 0.0509 0.0504  
 Mercury -32951-09-23 13:11 J -10313664.11 -10313663.95 -10313663.80 0.0513 0.0200  
 Mars -32950-07-30 16:33 J -10313353.90 -10313353.81 -10313353.71 0.0525 0.0497  
 Venus -32949-01-24 17:45 J -10313175.95 -10313175.76 -10313175.55 0.0532 0.0114  
 Moon -32946-03-27 17:16 J -10312017.79 -10312017.78 -10312017.75 0.0530 0.0527  
 Mercury -32945-02-12 16:47 J -10311695.93 -10311695.80 -10311695.67 0.0517 0.0128  
 Mercury -32945-05-12 03:07 J -10311606.43 -10311606.37 -10311606.31 0.0514 0.0465  
 Venus -32944-04-07 04:33 J -10311276.39 -10311276.31 -10311276.22 0.0501 0.0451  
 Venus -32944-11-29 01:40 J -10311040.63 -10311040.43 -10311040.23 0.0493 0.0105  
 Moon -32940-10-05 02:38 J -10309634.57 -10309634.39 -10309634.19 0.0501 0.0295  
 Earth -32940-10-05 06:14 J -10309634.42 -10309634.24 -10309634.04 0.0501 0.0295 \*  
 Mercury -32939-07-12 12:43 J -10309354.13 -10309353.97 -10309353.80 0.0511 0.0027  
 Venus -32938-09-29 05:16 J -10308910.45 -10308910.28 -10308910.12 0.0529 0.0313  
 Venus -32937-05-24 13:26 J -10308672.07 -10308671.94 -10308671.81 0.0537 0.0409  
 Moon -32934-04-01 13:55 J -10307630.14 -10307629.92 -10307629.70 0.0528 0.0011  
 Earth -32934-04-01 15:07 J -10307630.10 -10307629.87 -10307629.64 0.0528 0.0035 \*  
 Mercury -32934-12-01 19:55 J -10307385.79 -10307385.67 -10307385.56 0.0518 0.0276  
 Mercury -32933-02-29 05:59 J -10307296.36 -10307296.25 -10307296.14 0.0515 0.0316  
 Venus -32932-08-04 06:14 J -10306774.44 -10306774.24 -10306774.04 0.0495 0.0048  
 Mercury -32927-04-30 11:16 J -10305044.18 -10305044.03 -10305043.87 0.0510 0.0158  
 Venus -32926-06-03 14:52 J -10304644.92 -10304644.88 -10304644.82 0.0527 0.0509  
 Venus -32925-01-27 22:19 J -10304406.76 -10304406.57 -10304406.38 0.0536 0.0203  
 Mercury -32922-09-19 23:31 J -10303075.60 -10303075.52 -10303075.44 0.0520 0.0415  
 Mercury -32922-12-18 09:21 J -10302986.24 -10302986.11 -10302985.98 0.0516 0.0175  
 Mars -32921-10-08 18:57 J -10302690.93 -10302690.71 -10302690.48 0.0504 0.0239  
 Venus -32920-04-09 11:16 J -10302508.21 -10302508.03 -10302507.84 0.0497 0.0201  
 Venus -32920-12-01 06:43 J -10302272.36 -10302272.22 -10302272.07 0.0491 0.0346

Mercury -32915-02-16 10:33 J -10300734.18 -10300734.06 -10300733.93 0.0510 0.0334

Mercury -32915-05-17 10:47 J -10300644.16 -10300644.05 -10300643.93 0.0513 0.0365

Venus -32914-10-02 10:04 J -10300141.29 -10300141.08 -10300140.87 0.0534 0.0001

Mercury -32910-10-06 12:43 J -10298676.11 -10298675.97 -10298675.83 0.0516 0.0034

Venus -32909-12-13 15:35 J -10298241.99 -10298241.85 -10298241.71 0.0499 0.0355

Venus -32908-08-06 11:31 J -10298006.20 -10298006.02 -10298005.83 0.0492 0.0197

Mercury -32904-12-05 10:04 J -10296424.09 -10296424.08 -10296424.07 0.0509 0.0507

Mercury -32903-03-05 10:47 J -10296334.20 -10296334.05 -10296333.90 0.0513 0.0197

Venus -32902-06-06 22:33 J -10295875.75 -10295875.56 -10295875.36 0.0531 0.0198

Venus -32901-01-31 08:09 J -10295637.19 -10295637.16 -10295637.12 0.0539 0.0528

Mercury -32898-07-25 16:04 J -10294365.97 -10294365.83 -10294365.70 0.0517 0.0111

Mercury -32898-10-23 02:23 J -10294276.45 -10294276.40 -10294276.36 0.0513 0.0483

Venus -32896-04-11 16:33 J -10293740.01 -10293739.81 -10293739.60 0.0494 0.0047

Mercury -32892-12-22 11:02 J -10292024.21 -10292024.04 -10292023.88 0.0512 0.0032

Venus -32890-02-09 11:16 J -10291610.16 -10291610.03 -10291609.89 0.0529 0.0389

Venus -32890-10-05 19:26 J -10291371.85 -10291371.69 -10291371.53 0.0536 0.0329

Mercury -32886-05-13 18:28 J -10290055.85 -10290055.73 -10290055.62 0.0518 0.0271

Mercury -32886-08-11 04:19 J -10289966.42 -10289966.32 -10289966.21 0.0514 0.0321

Venus -32885-12-15 18:57 J -10289473.91 -10289473.71 -10289473.51 0.0496 0.0110

Venus -32884-08-08 14:09 J -10289238.01 -10289237.91 -10289237.82 0.0490 0.0431

Mercury -32880-10-10 10:33 J -10287714.22 -10287714.06 -10287713.90 0.0511 0.0141

Venus -32878-06-10 05:45 J -10287106.45 -10287106.26 -10287106.06 0.0534 0.0125

Mercury -32874-03-01 21:35 J -10285745.68 -10285745.60 -10285745.52 0.0519 0.0420

Mercury -32874-05-30 07:11 J -10285656.33 -10285656.20 -10285656.06 0.0516 0.0171

Venus -32873-08-20 22:47 J -10285207.72 -10285207.55 -10285207.38 0.0498 0.0265

Venus -32872-04-13 18:57 J -10284971.87 -10284971.71 -10284971.54 0.0492 0.0285

Moon -32869-09-29 15:35 J -10283707.04 -10283706.85 -10283706.65 0.0498 0.0263

Earth -32869-09-29 18:57 J -10283706.90 -10283706.71 -10283706.51 0.0498 0.0290 \*

Mercury -32868-07-29 08:52 J -10283404.25 -10283404.13 -10283404.00 0.0509 0.0328

Mercury -32868-10-27 09:07 J -10283314.23 -10283314.12 -10283314.01 0.0513 0.0370

Mars -32867-04-09 03:21 J -10283150.46 -10283150.36 -10283150.26 0.0520 0.0486  
 Venus -32866-02-12 14:38 J -10282841.09 -10282840.89 -10282840.69 0.0532 0.0083  
 Mercury -32862-03-18 10:33 J -10281346.19 -10281346.06 -10281345.92 0.0517 0.0033  
 Venus -32861-04-26 03:21 J -10280941.46 -10280941.36 -10280941.24 0.0501 0.0418  
 Venus -32861-12-18 00:28 J -10280705.68 -10280705.48 -10280705.29 0.0493 0.0136  
 Earth -32857-10-04 08:09 J -10279319.38 -10279319.16 -10279318.95 0.0500 0.0204  
 Moon -32857-10-04 11:59 J -10279319.22 -10279319.00 -10279318.79 0.0500 0.0197 \*  
 Mercury -32856-05-17 08:09 J -10279094.18 -10279094.16 -10279094.15 0.0508 0.0506  
 Mercury -32856-08-15 08:52 J -10279004.29 -10279004.13 -10279003.98 0.0512 0.0197  
 Venus -32855-10-18 02:23 J -10278575.57 -10278575.40 -10278575.22 0.0530 0.0281  
 Venus -32854-06-13 11:16 J -10278337.15 -10278337.03 -10278336.92 0.0538 0.0441  
 Earth -32851-03-31 20:09 J -10277314.89 -10277314.66 -10277314.43 0.0529 0.0048  
 Moon -32851-03-31 23:02 J -10277314.78 -10277314.54 -10277314.31 0.0529 0.0076 \*  
 Mercury -32850-01-04 14:09 J -10277036.04 -10277035.91 -10277035.78 0.0518 0.0114  
 Mercury -32850-04-04 00:28 J -10276946.53 -10276946.48 -10276946.43 0.0514 0.0481  
 Venus -32849-08-23 05:02 J -10276439.49 -10276439.29 -10276439.09 0.0495 0.0017  
 Mercury -32844-06-03 08:23 J -10274694.31 -10274694.15 -10274693.98 0.0512 0.0027  
 Venus -32843-06-22 15:07 J -10274309.95 -10274309.87 -10274309.77 0.0528 0.0471  
 Venus -32842-02-15 23:16 J -10274071.71 -10274071.53 -10274071.35 0.0536 0.0242  
 Moon -32839-04-05 15:07 J -10272926.87 -10272926.87 -10272926.86 0.0527 0.0526  
 Mercury -32839-10-23 17:31 J -10272725.89 -10272725.77 -10272725.65 0.0518 0.0257  
 Mercury -32838-01-21 03:35 J -10272636.46 -10272636.35 -10272636.25 0.0514 0.0334  
 Mars -32838-06-27 05:02 J -10272479.41 -10272479.29 -10272479.15 0.0508 0.0438  
 Venus -32837-04-28 09:35 J -10272173.29 -10272173.10 -10272172.91 0.0497 0.0169  
 Venus -32837-12-20 04:33 J -10271937.44 -10271937.31 -10271937.18 0.0490 0.0373  
 Mercury -32832-03-22 08:23 J -10270384.31 -10270384.15 -10270383.99 0.0511 0.0141  
 Mars -32831-01-15 10:19 J -10270085.36 -10270085.07 -10270084.78 0.0523 0.0067  
 Venus -32831-10-21 11:31 J -10269806.23 -10269806.02 -10269805.82 0.0534 0.0044  
 Mercury -32827-08-11 19:55 J -10268415.75 -10268415.67 -10268415.59 0.0519 0.0416  
 Mercury -32827-11-09 05:45 J -10268326.39 -10268326.26 -10268326.13 0.0515 0.0173



Venus -32825-01-02 11:02 J -10267907.18 -10267907.04 -10267906.88 0.0499 0.0328  
 Venus -32825-08-25 07:26 J -10267671.37 -10267671.19 -10267671.01 0.0492 0.0223  
 Mercury -32820-01-08 07:55 J -10266074.30 -10266074.17 -10266074.04 0.0510 0.0315  
 Mercury -32820-04-08 08:09 J -10265984.27 -10265984.16 -10265984.05 0.0513 0.0384  
 Venus -32819-06-25 22:04 J -10265540.77 -10265540.58 -10265540.38 0.0531 0.0159  
 Mercury -32815-08-28 08:38 J -10264016.28 -10264016.14 -10264016.00 0.0516 0.0022  
 Venus -32814-09-07 14:23 J -10263640.95 -10263640.90 -10263640.85 0.0502 0.0482  
 Venus -32813-04-30 11:59 J -10263405.20 -10263405.00 -10263404.80 0.0494 0.0073  
 Mercury -32809-10-27 06:14 J -10261764.26 -10261764.24 -10261764.22 0.0508 0.0503  
 Mercury -32808-01-25 06:57 J -10261674.36 -10261674.21 -10261674.06 0.0512 0.0200  
 Venus -32807-02-28 06:57 J -10261275.35 -10261275.21 -10261275.05 0.0529 0.0361  
 Venus -32807-10-24 15:07 J -10261037.02 -10261036.87 -10261036.71 0.0537 0.0356  
 Mercury -32803-06-16 11:59 J -10259706.13 -10259706.00 -10259705.87 0.0518 0.0121  
 Mercury -32803-09-13 22:04 J -10259616.62 -10259616.58 -10259616.52 0.0514 0.0474  
 Mars -32802-03-31 07:26 J -10259418.45 -10259418.19 -10259417.93 0.0506 0.0051  
 Venus -32801-01-04 17:02 J -10259138.98 -10259138.79 -10259138.59 0.0496 0.0080  
 Venus -32801-08-27 11:59 J -10258903.06 -10258903.00 -10258902.93 0.0490 0.0458  
 Mercury -32797-11-13 06:14 J -10257364.40 -10257364.24 -10257364.07 0.0511 0.0025  
 Venus -32795-06-29 02:09 J -10256771.61 -10256771.41 -10256771.21 0.0535 0.0154  
 Mercury -32791-04-04 15:21 J -10255395.97 -10255395.86 -10255395.74 0.0519 0.0263  
 Mercury -32791-07-03 01:26 J -10255306.54 -10255306.44 -10255306.33 0.0515 0.0330  
 Venus -32790-09-09 21:35 J -10254872.78 -10254872.60 -10254872.42 0.0498 0.0233  
 Venus -32789-05-02 17:16 J -10254636.94 -10254636.78 -10254636.63 0.0491 0.0313  
 Earth -32786-09-29 21:50 J -10253391.74 -10253391.59 -10253391.43 0.0498 0.0377  
 Moon -32786-09-30 01:26 J -10253391.59 -10253391.44 -10253391.26 0.0498 0.0350 \*  
 Mercury -32785-09-01 05:45 J -10253054.42 -10253054.26 -10253054.10 0.0510 0.0150  
 Venus -32783-03-03 14:09 J -10252506.11 -10252505.91 -10252505.70 0.0533 0.0046  
 Mercury -32779-01-21 18:57 J -10251085.79 -10251085.71 -10251085.63 0.0519 0.0404  
 Mercury -32779-04-21 04:33 J -10250996.43 -10250996.31 -10250996.17 0.0516 0.0186  
 Venus -32778-05-16 01:26 J -10250606.56 -10250606.44 -10250606.31 0.0500 0.0386

Venus -32777-01-06 21:50 J -10250370.78 -10250370.59 -10250370.40 0.0493 0.0164  
 Moon -32774-10-04 09:50 J -10249004.33 -10249004.09 -10249003.86 0.0500 0.0113  
 Earth -32774-10-04 13:11 J -10249004.18 -10249003.95 -10249003.72 0.0500 0.0126 \*  
 Mercury -32773-06-20 05:31 J -10248744.40 -10248744.27 -10248744.14 0.0510 0.0317  
 Mercury -32773-09-18 05:59 J -10248654.36 -10248654.25 -10248654.14 0.0513 0.0383  
 Venus -32772-11-06 03:07 J -10248240.55 -10248240.37 -10248240.18 0.0530 0.0239  
 Venus -32771-07-02 11:45 J -10248002.09 -10248002.01 -10248001.91 0.0538 0.0480  
 Moon -32768-03-30 15:21 J -10247000.07 -10246999.86 -10246999.65 0.0529 0.0198  
 Earth -32768-03-30 18:57 J -10246999.93 -10246999.71 -10246999.49 0.0529 0.0164 \*  
 Mercury -32767-02-07 07:11 J -10246686.34 -10246686.20 -10246686.07 0.0516 0.0031  
 Mars -32766-01-02 06:57 J -10246357.40 -10246357.21 -10246357.01 0.0503 0.0324  
 Venus -32766-09-12 00:28 J -10246104.68 -10246104.48 -10246104.28 0.0495 0.0012  
 Mercury -32761-04-08 04:47 J -10244434.34 -10244434.30 -10244434.26 0.0509 0.0492  
 Mercury -32761-07-07 05:45 J -10244344.41 -10244344.26 -10244344.11 0.0512 0.0212  
 Venus -32760-07-11 14:38 J -10243975.00 -10243974.89 -10243974.77 0.0527 0.0432  
 Venus -32759-03-06 22:04 J -10243736.75 -10243736.58 -10243736.40 0.0536 0.0277  
 Earth -32756-04-04 14:38 J -10242612.03 -10242611.89 -10242611.74 0.0527 0.0408  
 Moon -32756-04-04 18:28 J -10242611.87 -10242611.73 -10242611.58 0.0527 0.0403 \*  
 Mercury -32756-11-26 10:04 J -10242376.22 -10242376.08 -10242375.95 0.0517 0.0126  
 Mercury -32755-02-23 20:09 J -10242286.71 -10242286.66 -10242286.60 0.0514 0.0467  
 Venus -32754-05-18 04:19 J -10241838.51 -10241838.32 -10241838.12 0.0497 0.0144  
 Venus -32753-01-08 23:45 J -10241602.63 -10241602.51 -10241602.39 0.0491 0.0397  
 Mercury -32749-04-25 04:19 J -10240034.49 -10240034.32 -10240034.16 0.0511 0.0026  
 Venus -32748-11-09 06:14 J -10239471.44 -10239471.24 -10239471.03 0.0533 0.0069  
 Mercury -32744-09-14 13:11 J -10238066.06 -10238065.95 -10238065.83 0.0519 0.0271  
 Mercury -32744-12-12 23:16 J -10237976.64 -10237976.53 -10237976.42 0.0515 0.0322  
 Venus -32742-01-21 08:52 J -10237572.29 -10237572.13 -10237571.96 0.0499 0.0298  
 Venus -32742-09-14 05:16 J -10237336.45 -10237336.28 -10237336.11 0.0492 0.0251  
 Mercury -32737-02-12 03:21 J -10235724.51 -10235724.36 -10235724.19 0.0510 0.0152  
 Venus -32736-07-14 17:16 J -10235205.98 -10235205.78 -10235205.58 0.0531 0.0132

Mercury -32732-07-03 16:47 J -10233755.88 -10233755.80 -10233755.72 0.0520 0.0411

Mercury -32732-10-01 02:38 J -10233666.52 -10233666.39 -10233666.26 0.0516 0.0179

Venus -32731-09-26 12:57 J -10233306.04 -10233305.96 -10233305.87 0.0501 0.0450

Venus -32730-05-20 10:04 J -10233070.27 -10233070.08 -10233069.88 0.0494 0.0102

Mercury -32726-12-01 02:38 J -10231414.51 -10231414.39 -10231414.26 0.0509 0.0328

Mercury -32725-02-29 03:07 J -10231324.48 -10231324.37 -10231324.26 0.0513 0.0372

Venus -32724-03-19 05:45 J -10230940.42 -10230940.26 -10230940.10 0.0529 0.0325

Venus -32724-11-12 14:23 J -10230702.04 -10230701.90 -10230701.76 0.0537 0.0390

Mercury -32720-07-20 05:45 J -10229356.39 -10229356.26 -10229356.12 0.0517 0.0038

Venus -32718-01-23 14:38 J -10228804.09 -10228803.89 -10228803.69 0.0496 0.0051

Venus -32718-09-16 09:21 J -10228568.15 -10228568.11 -10228568.08 0.0490 0.0482

Mercury -32714-09-19 02:23 J -10227104.43 -10227104.40 -10227104.37 0.0509 0.0497

Mercury -32714-12-18 03:21 J -10227014.51 -10227014.36 -10227014.21 0.0512 0.0207

Mars -32713-07-03 01:40 J -10226816.64 -10226816.43 -10226816.22 0.0521 0.0355

Venus -32713-11-21 19:26 J -10226674.74 -10226674.69 -10226674.64 0.0526 0.0510

Venus -32712-07-18 02:38 J -10226436.58 -10226436.39 -10226436.20 0.0535 0.0193

Mercury -32708-05-08 08:23 J -10225046.28 -10225046.15 -10225046.02 0.0517 0.0123

Mercury -32708-08-05 18:28 J -10224956.78 -10224956.73 -10224956.67 0.0514 0.0470

Venus -32707-09-28 16:47 J -10224537.98 -10224537.80 -10224537.62 0.0498 0.0207

Venus -32706-05-22 12:14 J -10224302.13 -10224301.99 -10224301.84 0.0491 0.0336

Moon -32703-09-28 23:16 J -10223076.66 -10223076.53 -10223076.41 0.0498 0.0428

Earth -32703-09-29 02:23 J -10223076.49 -10223076.40 -10223076.30 0.0498 0.0453 \*

Mercury -32702-10-06 02:52 J -10222704.54 -10222704.38 -10222704.21 0.0511 0.0036

Venus -32700-03-22 13:26 J -10222171.15 -10222170.94 -10222170.73 0.0533 0.0009

Mercury -32696-02-24 11:16 J -10220736.14 -10220736.03 -10220735.91 0.0518 0.0273

Mercury -32696-05-24 21:21 J -10220646.72 -10220646.61 -10220646.50 0.0515 0.0318

Venus -32695-06-03 19:55 J -10220271.80 -10220271.67 -10220271.53 0.0500 0.0362

Venus -32694-01-25 16:47 J -10220035.99 -10220035.80 -10220035.61 0.0493 0.0187

Earth -32691-10-03 13:40 J -10218689.17 -10218688.93 -10218688.69 0.0499 0.0034

Moon -32691-10-03 16:04 J -10218689.06 -10218688.83 -10218688.60 0.0499 0.0021 \*

Mercury -32690-07-25 01:26 J -10218394.60 -10218394.44 -10218394.28 0.0510 0.0151  
 Venus -32689-11-24 21:50 J -10217905.78 -10217905.59 -10217905.40 0.0530 0.0214  
 Venus -32688-07-21 06:14 J -10217667.31 -10217667.24 -10217667.17 0.0538 0.0501  
 Earth -32685-03-29 16:33 J -10216685.00 -10216684.81 -10216684.62 0.0530 0.0285  
 Moon -32685-03-29 20:23 J -10216684.83 -10216684.65 -10216684.47 0.0530 0.0318 \*  
 Mercury -32685-12-13 14:38 J -10216425.97 -10216425.89 -10216425.81 0.0520 0.0419  
 Mercury -32684-03-13 00:14 J -10216336.62 -10216336.49 -10216336.35 0.0516 0.0172  
 Mars -32684-09-19 12:28 J -10216146.16 -10216145.98 -10216145.79 0.0508 0.0354  
 Venus -32683-09-30 22:04 J -10215769.78 -10215769.58 -10215769.38 0.0495 0.0038  
 Mercury -32678-05-13 00:28 J -10214084.61 -10214084.48 -10214084.35 0.0509 0.0329  
 Mercury -32678-08-11 00:43 J -10213994.57 -10213994.47 -10213994.35 0.0513 0.0370  
 Mars -32677-04-09 11:02 J -10213752.32 -10213752.04 -10213751.76 0.0523 0.0171  
 Venus -32677-07-30 09:07 J -10213640.24 -10213640.12 -10213639.98 0.0527 0.0407  
 Venus -32676-03-25 16:47 J -10213401.97 -10213401.80 -10213401.63 0.0536 0.0300  
 Moon -32673-04-03 12:43 J -10212297.16 -10212296.97 -10212296.78 0.0528 0.0298  
 Earth -32673-04-03 16:04 J -10212297.02 -10212296.83 -10212296.64 0.0528 0.0307 \*  
 Mercury -32673-12-30 03:50 J -10212026.48 -10212026.34 -10212026.21 0.0517 0.0032  
 Venus -32671-06-06 02:38 J -10211503.58 -10211503.39 -10211503.19 0.0497 0.0114  
 Venus -32670-01-27 21:35 J -10211267.70 -10211267.60 -10211267.50 0.0490 0.0422  
 Mercury -32666-02-28 23:31 J -10209774.52 -10209774.52 -10209774.52 0.0508 0.0508  
 Mercury -32666-05-30 00:28 J -10209684.63 -10209684.48 -10209684.33 0.0512 0.0196  
 Venus -32665-11-28 04:33 J -10209136.51 -10209136.31 -10209136.10 0.0534 0.0103  
 Mercury -32661-10-18 07:11 J -10207716.34 -10207716.20 -10207716.07 0.0518 0.0116  
 Mercury -32660-01-15 17:16 J -10207626.83 -10207626.78 -10207626.73 0.0514 0.0478  
 Venus -32659-02-09 06:43 J -10207237.38 -10207237.22 -10207237.05 0.0499 0.0267  
 Venus -32659-10-03 02:38 J -10207001.56 -10207001.39 -10207001.22 0.0492 0.0277  
 Mercury -32654-03-18 00:28 J -10205374.65 -10205374.48 -10205374.32 0.0511 0.0030  
 Venus -32653-08-02 17:31 J -10204870.98 -10204870.77 -10204870.57 0.0532 0.0093  
 Mercury -32649-08-06 09:50 J -10203406.20 -10203406.09 -10203405.97 0.0518 0.0269  
 Mercury -32649-11-03 19:40 J -10203316.78 -10203316.68 -10203316.57 0.0515 0.0322

Mars -32648-06-23 18:14 J -10203085.00 -10203084.74 -10203084.48 0.0505 0.0038  
 Venus -32648-10-15 08:23 J -10202971.25 -10202971.15 -10202971.04 0.0501 0.0424  
 Venus -32647-06-08 05:31 J -10202735.47 -10202735.27 -10202735.08 0.0494 0.0125  
 Mercury -32642-01-03 23:59 J -10201064.66 -10201064.50 -10201064.34 0.0510 0.0143  
 Venus -32641-04-07 05:16 J -10200605.46 -10200605.28 -10200605.11 0.0529 0.0288  
 Venus -32641-12-01 13:26 J -10200367.06 -10200366.94 -10200366.81 0.0537 0.0423  
 Mercury -32637-05-25 12:57 J -10199096.04 -10199095.96 -10199095.88 0.0519 0.0418  
 Mercury -32637-08-22 22:33 J -10199006.69 -10199006.56 -10199006.43 0.0516 0.0170  
 Venus -32635-02-11 09:35 J -10198469.30 -10198469.10 -10198468.90 0.0496 0.0027  
 Mercury -32631-10-22 22:19 J -10196754.69 -10196754.57 -10196754.44 0.0509 0.0328  
 Mercury -32630-01-20 22:47 J -10196664.66 -10196664.55 -10196664.43 0.0513 0.0371  
 Venus -32630-12-11 14:09 J -10196339.98 -10196339.91 -10196339.83 0.0526 0.0484  
 Venus -32629-08-05 20:52 J -10196101.81 -10196101.63 -10196101.44 0.0535 0.0216  
 Mercury -32625-06-11 01:40 J -10194696.57 -10194696.43 -10194696.30 0.0517 0.0024  
 Venus -32624-10-17 14:23 J -10194203.09 -10194202.90 -10194202.71 0.0498 0.0179  
 Venus -32623-06-10 10:04 J -10193967.22 -10193967.08 -10193966.94 0.0491 0.0362  
 Mercury -32619-08-10 21:21 J -10192444.62 -10192444.61 -10192444.60 0.0508 0.0506  
 Mercury -32619-11-08 22:19 J -10192354.72 -10192354.57 -10192354.42 0.0512 0.0196  
 Venus -32617-04-10 07:55 J -10191836.38 -10191836.17 -10191835.97 0.0533 0.0017  
 Mercury -32613-03-30 05:02 J -10190386.42 -10190386.29 -10190386.16 0.0518 0.0121  
 Mercury -32613-06-27 15:07 J -10190296.92 -10190296.87 -10190296.81 0.0514 0.0473  
 Mars -32612-03-27 23:59 J -10190023.63 -10190023.50 -10190023.36 0.0503 0.0424  
 Venus -32612-06-22 18:28 J -10189936.87 -10189936.73 -10189936.58 0.0500 0.0332  
 Venus -32611-02-13 14:52 J -10189701.05 -10189700.88 -10189700.69 0.0493 0.0216  
 Moon -32608-10-02 14:09 J -10188374.15 -10188373.91 -10188373.67 0.0498 0.0075  
 Earth -32608-10-02 15:07 J -10188374.10 -10188373.87 -10188373.63 0.0498 0.0059 \*  
 Mercury -32607-08-27 21:35 J -10188044.76 -10188044.60 -10188044.43 0.0511 0.0021  
 Venus -32606-12-14 19:40 J -10187570.87 -10187570.68 -10187570.48 0.0531 0.0181  
 Venus -32605-08-09 04:47 J -10187332.32 -10187332.30 -10187332.27 0.0538 0.0532  
 Moon -32602-03-29 16:33 J -10186369.95 -10186369.81 -10186369.66 0.0531 0.0415

Earth -32602-03-29 20:09 J -10186369.82 -10186369.66 -10186369.50 0.0531 0.0379 \*  
 Mercury -32601-01-17 08:23 J -10186076.26 -10186076.15 -10186076.03 0.0519 0.0263  
 Mercury -32601-04-15 18:28 J -10185986.84 -10185986.73 -10185986.63 0.0515 0.0329  
 Venus -32600-02-25 22:19 J -10185670.62 -10185670.57 -10185670.52 0.0502 0.0483  
 Venus -32600-10-19 19:55 J -10185434.87 -10185434.67 -10185434.47 0.0494 0.0066  
 Moon -32596-10-07 04:47 J -10183986.42 -10183986.30 -10183986.18 0.0501 0.0423  
 Earth -32596-10-07 05:45 J -10183986.35 -10183986.26 -10183986.14 0.0501 0.0446 \*  
 Mercury -32595-06-15 21:21 J -10183734.76 -10183734.61 -10183734.44 0.0510 0.0149  
 Venus -32594-08-19 09:07 J -10183305.26 -10183305.12 -10183304.97 0.0528 0.0369  
 Venus -32593-04-13 17:31 J -10183066.93 -10183066.77 -10183066.62 0.0536 0.0339  
 Earth -32590-04-03 17:16 J -10181981.98 -10181981.78 -10181981.56 0.0528 0.0207  
 Moon -32590-04-03 19:26 J -10181981.89 -10181981.69 -10181981.48 0.0528 0.0205 \*  
 Mercury -32590-11-05 11:31 J -10181766.10 -10181766.02 -10181765.94 0.0519 0.0413  
 Mercury -32589-02-02 21:07 J -10181676.75 -10181676.62 -10181676.49 0.0516 0.0175  
 Venus -32588-06-24 22:33 J -10181168.76 -10181168.56 -10181168.36 0.0496 0.0089  
 Venus -32587-02-15 17:16 J -10180932.86 -10180932.78 -10180932.69 0.0490 0.0445  
 Mercury -32583-04-03 20:52 J -10179424.76 -10179424.63 -10179424.50 0.0509 0.0320  
 Mercury -32583-07-02 21:21 J -10179334.71 -10179334.61 -10179334.50 0.0513 0.0381  
 Venus -32582-12-18 04:33 J -10178801.51 -10178801.31 -10178801.11 0.0534 0.0139  
 Mercury -32578-11-21 23:59 J -10177366.64 -10177366.50 -10177366.36 0.0517 0.0025  
 Venus -32576-02-28 02:23 J -10176902.58 -10176902.40 -10176902.23 0.0499 0.0242  
 Venus -32576-10-21 22:19 J -10176666.73 -10176666.57 -10176666.41 0.0492 0.0300  
 Mercury -32571-01-20 19:26 J -10175114.71 -10175114.69 -10175114.67 0.0508 0.0504  
 Mercury -32571-04-20 20:23 J -10175024.80 -10175024.65 -10175024.50 0.0512 0.0199  
 Venus -32570-08-22 12:43 J -10174536.18 -10174535.97 -10174535.77 0.0531 0.0068  
 Mercury -32566-09-10 02:52 J -10173056.51 -10173056.38 -10173056.24 0.0518 0.0127  
 Mercury -32566-12-08 13:11 J -10172967.01 -10172966.95 -10172966.90 0.0514 0.0469  
 Venus -32565-11-03 05:59 J -10172636.36 -10172636.25 -10172636.12 0.0501 0.0396  
 Venus -32564-06-27 03:35 J -10172400.55 -10172400.35 -10172400.16 0.0494 0.0153  
 Mercury -32559-02-06 19:40 J -10170714.84 -10170714.68 -10170714.51 0.0511 0.0025

Mars -32559-09-26 04:33 J -10170483.56 -10170483.31 -10170483.05 0.0520 0.0246  
 Venus -32558-04-26 23:59 J -10170270.68 -10170270.50 -10170270.32 0.0529 0.0263  
 Venus -32558-12-21 07:55 J -10170032.28 -10170032.17 -10170032.05 0.0537 0.0445  
 Mercury -32554-06-29 06:28 J -10168746.35 -10168746.23 -10168746.11 0.0519 0.0268  
 Mercury -32554-09-26 16:19 J -10168656.92 -10168656.82 -10168656.71 0.0515 0.0324  
 Venus -32552-03-02 08:23 J -10168134.35 -10168134.15 -10168133.95 0.0496 0.0004  
 Mercury -32548-11-25 18:57 J -10166404.87 -10166404.71 -10166404.55 0.0510 0.0154  
 Venus -32547-12-30 11:59 J -10166005.10 -10166005.00 -10166004.89 0.0527 0.0452  
 Venus -32546-08-25 19:26 J -10165766.87 -10165766.69 -10165766.50 0.0535 0.0249  
 Mercury -32542-04-17 10:04 J -10164436.16 -10164436.08 -10164436.00 0.0520 0.0408  
 Mercury -32542-07-15 19:40 J -10164346.81 -10164346.68 -10164346.55 0.0516 0.0181  
 Venus -32541-11-05 12:57 J -10163868.15 -10163867.96 -10163867.77 0.0497 0.0148  
 Venus -32540-06-29 08:09 J -10163632.28 -10163632.16 -10163632.03 0.0491 0.0388  
 Mercury -32536-09-13 18:28 J -10162094.85 -10162094.73 -10162094.60 0.0509 0.0324  
 Mercury -32536-12-12 19:11 J -10162004.81 -10162004.70 -10162004.59 0.0513 0.0377  
 Venus -32534-04-30 08:23 J -10161501.35 -10161501.15 -10161500.94 0.0533 0.0055  
 Mercury -32530-05-03 22:33 J -10160036.69 -10160036.56 -10160036.42 0.0517 0.0034  
 Mars -32530-12-14 05:31 J -10159812.49 -10159812.27 -10159812.04 0.0507 0.0250  
 Venus -32529-07-11 15:21 J -10159602.02 -10159601.86 -10159601.70 0.0500 0.0303  
 Venus -32528-03-04 11:31 J -10159366.19 -10159366.02 -10159365.84 0.0492 0.0241  
 Moon -32525-10-01 19:26 J -10158058.91 -10158058.69 -10158058.47 0.0498 0.0154  
 Earth -32525-10-01 20:23 J -10158058.88 -10158058.65 -10158058.42 0.0498 0.0132 \*  
 Mercury -32524-07-02 17:45 J -10157784.78 -10157784.76 -10157784.72 0.0508 0.0497  
 Mercury -32524-09-30 18:57 J -10157694.86 -10157694.71 -10157694.56 0.0512 0.0209  
 Mars -32523-07-04 10:33 J -10157418.29 -10157418.06 -10157417.82 0.0524 0.0311  
 Venus -32522-01-02 20:23 J -10157235.85 -10157235.65 -10157235.46 0.0531 0.0143  
 Earth -32519-03-28 20:09 J -10156054.74 -10156054.66 -10156054.56 0.0531 0.0487  
 Moon -32519-03-28 22:47 J -10156054.59 -10156054.55 -10156054.50 0.0531 0.0519 \*  
 Mercury -32518-02-20 01:40 J -10155726.56 -10155726.43 -10155726.30 0.0518 0.0118  
 Mercury -32518-05-20 11:45 J -10155637.06 -10155637.01 -10155636.96 0.0514 0.0474

Venus -32517-03-16 18:43 J -10155335.80 -10155335.72 -10155335.64 0.0502 0.0457  
 Venus -32517-11-07 16:19 J -10155100.02 -10155099.82 -10155099.62 0.0494 0.0092  
 Earth -32513-10-06 09:07 J -10153671.27 -10153671.12 -10153670.95 0.0500 0.0364  
 Moon -32513-10-06 12:14 J -10153671.16 -10153670.99 -10153670.81 0.0500 0.0347 \*  
 Mercury -32512-07-19 17:59 J -10153384.91 -10153384.75 -10153384.58 0.0511 0.0029  
 Venus -32511-09-07 05:31 J -10152970.42 -10152970.27 -10152970.11 0.0528 0.0341  
 Venus -32510-05-03 13:11 J -10152732.10 -10152731.95 -10152731.80 0.0536 0.0363  
 Moon -32507-04-02 14:38 J -10151667.12 -10151666.89 -10151666.65 0.0529 0.0088  
 Earth -32507-04-02 15:07 J -10151667.09 -10151666.87 -10151666.64 0.0529 0.0085 \*  
 Mercury -32507-12-09 04:33 J -10151416.42 -10151416.31 -10151416.19 0.0519 0.0270  
 Mercury -32506-03-08 14:23 J -10151327.00 -10151326.90 -10151326.79 0.0516 0.0323  
 Venus -32505-07-13 20:52 J -10150833.83 -10150833.63 -10150833.43 0.0497 0.0059  
 Venus -32504-03-06 16:04 J -10150597.88 -10150597.83 -10150597.77 0.0490 0.0472  
 Mercury -32500-05-07 17:16 J -10149074.94 -10149074.78 -10149074.62 0.0510 0.0147  
 Venus -32498-01-05 23:45 J -10148466.71 -10148466.51 -10148466.31 0.0534 0.0163  
 Mercury -32495-09-27 08:09 J -10147106.24 -10147106.16 -10147106.08 0.0520 0.0412  
 Mercury -32495-12-25 17:45 J -10147016.89 -10147016.76 -10147016.63 0.0517 0.0178  
 Mars -32494-09-17 13:55 J -10146751.17 -10146750.92 -10146750.67 0.0506 0.0145  
 Venus -32493-03-19 01:26 J -10146567.62 -10146567.44 -10146567.26 0.0499 0.0210  
 Venus -32493-11-09 21:21 J -10146331.75 -10146331.61 -10146331.46 0.0492 0.0329  
 Mercury -32488-02-23 16:19 J -10144764.95 -10144764.82 -10144764.69 0.0509 0.0326  
 Mercury -32488-05-24 16:47 J -10144674.91 -10144674.80 -10144674.69 0.0513 0.0373  
 Venus -32487-09-10 11:16 J -10144201.23 -10144201.03 -10144200.82 0.0532 0.0035  
 Mercury -32483-10-13 21:21 J -10142706.75 -10142706.61 -10142706.48 0.0517 0.0039  
 Venus -32482-11-23 05:31 J -10142301.40 -10142301.27 -10142301.13 0.0501 0.0362  
 Venus -32481-07-16 02:23 J -10142065.58 -10142065.40 -10142065.21 0.0493 0.0184  
 Mercury -32477-12-12 15:35 J -10140454.87 -10140454.85 -10140454.81 0.0508 0.0497  
 Mercury -32476-03-12 16:47 J -10140364.95 -10140364.80 -10140364.65 0.0512 0.0208  
 Venus -32475-05-16 00:43 J -10139935.66 -10139935.47 -10139935.28 0.0530 0.0224  
 Venus -32474-01-09 09:21 J -10139697.19 -10139697.11 -10139697.01 0.0538 0.0484



Mercury -32471-08-02 00:28 J -10138396.62 -10138396.48 -10138396.35 0.0518 0.0111

Mercury -32471-10-30 10:33 J -10138307.11 -10138307.06 -10138307.02 0.0514 0.0482

Venus -32469-03-21 05:59 J -10137799.45 -10137799.25 -10137799.04 0.0495 0.0033

Mercury -32465-12-29 16:33 J -10136054.97 -10136054.81 -10136054.64 0.0511 0.0041

Venus -32463-01-18 13:26 J -10135670.06 -10135669.94 -10135669.81 0.0527 0.0412

Venus -32463-09-13 21:07 J -10135431.79 -10135431.62 -10135431.44 0.0535 0.0287

Mercury -32459-05-21 03:35 J -10134086.47 -10134086.35 -10134086.23 0.0519 0.0258

Mercury -32459-08-18 13:26 J -10133997.05 -10133996.94 -10133996.84 0.0515 0.0333

Venus -32458-11-25 10:04 J -10133533.27 -10133533.08 -10133532.88 0.0497 0.0121

Venus -32457-07-18 05:31 J -10133297.38 -10133297.27 -10133297.16 0.0491 0.0413

Mercury -32453-10-17 15:35 J -10131745.00 -10131744.85 -10131744.68 0.0510 0.0140

Venus -32451-05-19 05:45 J -10131166.47 -10131166.26 -10131166.06 0.0533 0.0083

Mercury -32447-03-09 06:28 J -10129776.31 -10129776.23 -10129776.15 0.0520 0.0412

Mercury -32447-06-06 16:04 J -10129686.96 -10129686.83 -10129686.70 0.0517 0.0179

Venus -32446-07-31 13:55 J -10129267.09 -10129266.92 -10129266.75 0.0500 0.0273

Venus -32445-03-23 10:47 J -10129031.22 -10129031.05 -10129030.88 0.0493 0.0270

Earth -32442-10-02 02:09 J -10127743.63 -10127743.41 -10127743.20 0.0497 0.0204

Moon -32442-10-02 05:02 J -10127743.50 -10127743.29 -10127743.07 0.0497 0.0231 \*

Mercury -32441-08-05 14:52 J -10127435.01 -10127434.88 -10127434.74 0.0508 0.0314

Mercury -32441-11-03 15:35 J -10127344.96 -10127344.85 -10127344.75 0.0512 0.0383

Venus -32439-01-21 16:47 J -10126901.00 -10126900.80 -10126900.60 0.0530 0.0114

Mercury -32435-03-25 19:26 J -10125376.83 -10125376.69 -10125376.55 0.0518 0.0035

Venus -32434-04-05 17:59 J -10125000.85 -10125000.75 -10125000.64 0.0502 0.0424

Venus -32434-11-27 15:50 J -10124765.03 -10124764.84 -10124764.64 0.0495 0.0124

Moon -32430-10-06 09:50 J -10123356.28 -10123356.09 -10123355.89 0.0499 0.0266

Earth -32430-10-06 13:55 J -10123356.11 -10123355.92 -10123355.73 0.0499 0.0283 \*

Mercury -32429-05-24 13:40 J -10123124.96 -10123124.93 -10123124.89 0.0508 0.0495

Mercury -32429-08-22 14:52 J -10123035.03 -10123034.88 -10123034.73 0.0511 0.0208

Venus -32428-09-26 04:47 J -10122635.47 -10122635.30 -10122635.13 0.0528 0.0305

Venus -32427-05-22 12:43 J -10122397.10 -10122396.97 -10122396.83 0.0536 0.0397

Moon -32424-04-01 19:40 J -10121351.90 -10121351.68 -10121351.46 0.0530 0.0020  
 Earth -32424-04-01 21:21 J -10121351.84 -10121351.61 -10121351.38 0.0530 0.0006 \*  
 Mercury -32423-01-11 23:02 J -10121066.67 -10121066.54 -10121066.41 0.0518 0.0105  
 Mercury -32423-04-11 09:07 J -10120977.16 -10120977.12 -10120977.08 0.0515 0.0490  
 Venus -32422-08-02 20:38 J -10120498.84 -10120498.64 -10120498.43 0.0496 0.0029  
 Mercury -32417-06-10 14:38 J -10118725.05 -10118724.89 -10118724.72 0.0511 0.0042  
 Venus -32416-05-31 18:28 J -10118369.80 -10118369.73 -10118369.65 0.0526 0.0487  
 Venus -32415-01-25 01:26 J -10118131.63 -10118131.44 -10118131.25 0.0535 0.0204  
 Mercury -32412-10-31 02:23 J -10116756.52 -10116756.40 -10116756.28 0.0519 0.0249  
 Mercury -32411-01-28 12:14 J -10116667.09 -10116666.99 -10116666.89 0.0515 0.0342  
 Venus -32410-04-08 00:14 J -10116232.67 -10116232.49 -10116232.30 0.0498 0.0179  
 Venus -32410-11-29 19:55 J -10115996.81 -10115996.67 -10115996.53 0.0491 0.0356  
 Mercury -32405-03-29 14:23 J -10114415.06 -10114414.90 -10114414.74 0.0510 0.0128  
 Mars -32405-12-20 11:31 J -10114149.30 -10114149.02 -10114148.73 0.0521 0.0094  
 Venus -32404-09-29 13:55 J -10113866.13 -10113865.92 -10113865.72 0.0532 0.0009  
 Mercury -32400-08-19 05:31 J -10112446.35 -10112446.27 -10112446.18 0.0520 0.0395  
 Mercury -32400-11-16 15:07 J -10112356.99 -10112356.87 -10112356.74 0.0516 0.0195  
 Venus -32399-12-12 03:50 J -10111966.49 -10111966.34 -10111966.19 0.0501 0.0331  
 Venus -32398-08-05 00:43 J -10111730.65 -10111730.47 -10111730.29 0.0493 0.0211  
 Mercury -32393-01-16 13:40 J -10110105.07 -10110104.93 -10110104.80 0.0509 0.0304  
 Mercury -32393-04-15 14:09 J -10110015.01 -10110014.91 -10110014.80 0.0512 0.0394  
 Venus -32392-06-03 23:31 J -10109600.71 -10109600.52 -10109600.32 0.0529 0.0190  
 Venus -32391-01-28 07:40 J -10109362.24 -10109362.18 -10109362.12 0.0537 0.0511  
 Mercury -32388-09-04 17:59 J -10108046.89 -10108046.75 -10108046.62 0.0518 0.0041  
 Venus -32387-08-17 06:28 J -10107700.28 -10107700.23 -10107700.18 0.0504 0.0485  
 Venus -32386-04-10 05:16 J -10107464.48 -10107464.28 -10107464.07 0.0496 0.0064  
 Mercury -32382-11-04 12:43 J -10105795.02 -10105794.97 -10105794.91 0.0507 0.0479  
 Mercury -32381-02-02 13:55 J -10105705.07 -10105704.92 -10105704.78 0.0511 0.0223  
 Venus -32380-02-06 11:31 J -10105335.16 -10105335.02 -10105334.88 0.0526 0.0379  
 Venus -32380-10-02 18:28 J -10105096.90 -10105096.73 -10105096.57 0.0535 0.0315

Mercury -32376-06-23 21:21 J -10103736.75 -10103736.61 -10103736.48 0.0519 0.0106  
 Mercury -32376-09-21 07:26 J -10103647.23 -10103647.19 -10103647.15 0.0515 0.0490  
 Mars -32375-03-09 05:45 J -10103478.50 -10103478.26 -10103478.00 0.0508 0.0135  
 Venus -32375-12-14 10:04 J -10103198.28 -10103198.08 -10103197.88 0.0498 0.0086  
 Venus -32374-08-07 05:45 J -10102962.35 -10102962.26 -10102962.18 0.0491 0.0444  
 Mercury -32370-11-21 12:57 J -10101395.12 -10101394.96 -10101394.79 0.0510 0.0046  
 Mars -32369-09-27 03:07 J -10101084.52 -10101084.37 -10101084.21 0.0523 0.0438  
 Venus -32368-06-07 05:31 J -10100831.47 -10100831.27 -10100831.07 0.0533 0.0120  
 Mercury -32364-04-12 00:57 J -10099426.58 -10099426.46 -10099426.34 0.0520 0.0244  
 Mercury -32364-07-10 10:47 J -10099337.15 -10099337.05 -10099336.95 0.0516 0.0349  
 Venus -32363-08-19 14:38 J -10098932.07 -10098931.89 -10098931.71 0.0500 0.0237  
 Venus -32362-04-12 11:16 J -10098696.19 -10098696.03 -10098695.87 0.0492 0.0302  
 Moon -32359-10-01 04:33 J -10097428.48 -10097428.31 -10097428.12 0.0497 0.0307  
 Earth -32359-10-01 08:38 J -10097428.33 -10097428.14 -10097427.94 0.0497 0.0273 \*  
 Mercury -32358-09-09 12:43 J -10097085.13 -10097084.97 -10097084.81 0.0510 0.0123  
 Venus -32356-02-09 18:43 J -10096565.93 -10096565.72 -10096565.52 0.0531 0.0073  
 Mercury -32352-01-29 04:33 J -10095116.40 -10095116.31 -10095116.22 0.0520 0.0385  
 Mercury -32352-04-28 14:09 J -10095027.04 -10095026.91 -10095026.79 0.0516 0.0204  
 Venus -32351-04-24 17:59 J -10094665.87 -10094665.75 -10094665.63 0.0502 0.0389  
 Venus -32351-12-16 15:21 J -10094430.05 -10094429.86 -10094429.67 0.0494 0.0154  
 Earth -32347-10-05 22:33 J -10093040.77 -10093040.56 -10093040.35 0.0499 0.0223  
 Moon -32347-10-06 02:38 J -10093040.60 -10093040.39 -10093040.18 0.0499 0.0213 \*  
 Mercury -32346-06-28 12:14 J -10092775.12 -10092774.99 -10092774.85 0.0509 0.0293  
 Mercury -32346-09-26 12:57 J -10092685.06 -10092684.96 -10092684.86 0.0513 0.0407  
 Venus -32345-10-15 07:55 J -10092300.35 -10092300.17 -10092299.99 0.0529 0.0262  
 Venus -32344-06-10 16:04 J -10092061.94 -10092061.83 -10092061.71 0.0537 0.0438  
 Earth -32341-04-01 03:35 J -10091036.58 -10091036.35 -10091036.13 0.0530 0.0075  
 Moon -32341-04-01 06:43 J -10091036.45 -10091036.22 -10091035.98 0.0530 0.0051 \*  
 Mercury -32340-02-14 17:16 J -10090716.92 -10090716.78 -10090716.64 0.0517 0.0057  
 Mars -32340-12-11 17:59 J -10090416.97 -10090416.75 -10090416.53 0.0505 0.0266

Venus -32339-08-21 19:55 J -10090163.87 -10090163.67 -10090163.47 0.0496 0.0008  
 Mercury -32334-04-16 11:31 J -10088465.08 -10088465.02 -10088464.95 0.0508 0.0466  
 Mercury -32334-07-15 12:43 J -10088375.12 -10088374.97 -10088374.83 0.0511 0.0236  
 Venus -32333-06-19 19:11 J -10088034.81 -10088034.70 -10088034.60 0.0525 0.0448  
 Venus -32332-02-13 01:11 J -10087796.63 -10087796.45 -10087796.26 0.0534 0.0238  
 Moon -32329-04-05 17:02 J -10086648.83 -10086648.79 -10086648.74 0.0529 0.0517  
 Earth -32329-04-05 20:52 J -10086648.71 -10086648.63 -10086648.54 0.0528 0.0487  
 Mercury -32329-12-03 19:55 J -10086406.81 -10086406.67 -10086406.54 0.0519 0.0101  
 Mercury -32328-03-03 05:59 J -10086317.29 -10086317.25 -10086317.22 0.0515 0.0495  
 Venus -32327-04-26 23:31 J -10085897.71 -10085897.52 -10085897.33 0.0499 0.0146  
 Venus -32327-12-18 19:55 J -10085661.79 -10085661.67 -10085661.55 0.0492 0.0387  
 Mercury -32322-05-03 12:14 J -10084065.16 -10084064.99 -10084064.83 0.0510 0.0064  
 Venus -32321-10-18 12:28 J -10083531.19 -10083530.98 -10083530.78 0.0532 0.0042  
 Mercury -32317-09-21 23:16 J -10082096.65 -10082096.53 -10082096.41 0.0520 0.0244  
 Mercury -32317-12-20 09:07 J -10082007.22 -10082007.12 -10082007.02 0.0516 0.0350  
 Venus -32316-12-31 03:35 J -10081631.51 -10081631.35 -10081631.18 0.0501 0.0297  
 Venus -32315-08-24 00:57 J -10081395.63 -10081395.46 -10081395.28 0.0494 0.0245  
 Mercury -32310-02-19 11:16 J -10079755.20 -10079755.03 -10079754.87 0.0509 0.0115  
 Venus -32309-06-22 23:45 J -10079265.71 -10079265.51 -10079265.31 0.0530 0.0152  
 Mercury -32305-07-11 03:07 J -10077786.46 -10077786.37 -10077786.28 0.0521 0.0381  
 Mercury -32305-10-08 12:43 J -10077697.10 -10077696.97 -10077696.84 0.0517 0.0210  
 Venus -32304-09-05 07:40 J -10077365.26 -10077365.18 -10077365.08 0.0503 0.0448  
 Venus -32303-04-29 06:28 J -10077129.43 -10077129.23 -10077129.04 0.0495 0.0099  
 Mercury -32299-12-08 10:47 J -10075445.19 -10075445.05 -10075444.91 0.0509 0.0285  
 Mercury -32298-03-08 11:16 J -10075355.12 -10075355.03 -10075354.93 0.0512 0.0413  
 Venus -32297-02-26 13:11 J -10075000.11 -10074999.95 -10074999.79 0.0527 0.0338  
 Venus -32297-10-21 20:52 J -10074761.78 -10074761.63 -10074761.47 0.0536 0.0357  
 Mercury -32293-04-29 06:43 J -10073476.22 -10073476.22 -10073476.21 0.0521 0.0520  
 Mercury -32293-07-27 16:04 J -10073386.97 -10073386.83 -10073386.69 0.0517 0.0068  
 Venus -32291-01-02 10:19 J -10072863.27 -10072863.07 -10072862.87 0.0497 0.0053

Venus -32291-08-26 05:31 J -10072627.32 -10072627.27 -10072627.22 0.0491 0.0473  
 Mercury -32287-09-26 10:19 J -10071135.14 -10071135.07 -10071135.00 0.0508 0.0455  
 Mercury -32287-12-25 11:16 J -10071045.17 -10071045.03 -10071044.88 0.0512 0.0249  
 Mars -32286-06-09 03:50 J -10070879.46 -10070879.34 -10070879.21 0.0519 0.0466  
 Venus -32286-11-01 03:21 J -10070734.39 -10070734.36 -10070734.33 0.0525 0.0517  
 Venus -32285-06-26 09:35 J -10070496.30 -10070496.10 -10070495.91 0.0534 0.0164  
 Mercury -32281-05-15 19:26 J -10069076.83 -10069076.69 -10069076.56 0.0518 0.0078  
 Venus -32280-09-07 14:38 J -10068597.08 -10068596.89 -10068596.71 0.0499 0.0203  
 Venus -32279-05-01 11:02 J -10068361.19 -10068361.04 -10068360.90 0.0492 0.0332  
 Earth -32276-09-30 19:11 J -10067112.88 -10067112.70 -10067112.52 0.0496 0.0325  
 Moon -32276-09-30 23:02 J -10067112.70 -10067112.54 -10067112.37 0.0496 0.0356 \*  
 Mercury -32275-10-13 11:16 J -10066735.20 -10066735.03 -10066734.87 0.0510 0.0080  
 Venus -32273-02-29 19:55 J -10066230.88 -10066230.67 -10066230.47 0.0531 0.0033  
 Mercury -32269-03-03 21:50 J -10064766.71 -10064766.59 -10064766.46 0.0520 0.0238  
 Mercury -32269-06-01 07:55 J -10064677.27 -10064677.17 -10064677.07 0.0516 0.0357  
 Venus -32268-05-13 17:02 J -10064330.93 -10064330.79 -10064330.65 0.0502 0.0356  
 Venus -32267-01-04 15:07 J -10064095.06 -10064094.87 -10064094.69 0.0495 0.0187  
 Moon -32264-10-05 05:45 J -10062725.48 -10062725.26 -10062725.03 0.0498 0.0162  
 Earth -32264-10-05 09:07 J -10062725.34 -10062725.12 -10062724.89 0.0498 0.0171 \*  
 Mercury -32263-08-01 10:33 J -10062425.22 -10062425.06 -10062424.89 0.0509 0.0094  
 Venus -32262-11-04 07:40 J -10061965.36 -10061965.18 -10061964.99 0.0528 0.0224  
 Venus -32261-06-29 15:07 J -10061726.97 -10061726.87 -10061726.77 0.0536 0.0469  
 Moon -32258-03-31 23:59 J -10060721.71 -10060721.50 -10060721.28 0.0531 0.0165  
 Earth -32258-04-01 03:50 J -10060721.55 -10060721.34 -10060721.12 0.0531 0.0187 \*  
 Mercury -32258-12-22 01:26 J -10060456.53 -10060456.44 -10060456.35 0.0521 0.0381  
 Mercury -32257-03-20 11:02 J -10060367.16 -10060367.04 -10060366.91 0.0517 0.0211  
 Mars -32257-08-28 20:52 J -10060205.77 -10060205.63 -10060205.47 0.0510 0.0420  
 Venus -32256-09-09 19:55 J -10059828.87 -10059828.67 -10059828.47 0.0496 0.0040  
 Mercury -32251-05-20 09:35 J -10058115.24 -10058115.10 -10058114.96 0.0508 0.0274  
 Mercury -32251-08-18 10:04 J -10058025.17 -10058025.08 -10058024.99 0.0512 0.0423

Mars -32250-03-16 15:50 J -10057815.12 -10057814.84 -10057814.55 0.0521 0.0050  
 Venus -32250-07-09 19:11 J -10057699.82 -10057699.70 -10057699.56 0.0526 0.0411  
 Venus -32249-03-04 01:55 J -10057461.60 -10057461.42 -10057461.25 0.0534 0.0276  
 Earth -32246-04-06 05:02 J -10056333.43 -10056333.29 -10056333.15 0.0529 0.0418  
 Moon -32246-04-06 08:52 J -10056333.25 -10056333.13 -10056333.01 0.0529 0.0446 \*  
 Mercury -32246-10-10 05:16 J -10056146.29 -10056146.28 -10056146.27 0.0522 0.0517  
 Mercury -32245-01-07 14:38 J -10056057.02 -10056056.89 -10056056.75 0.0518 0.0073  
 Venus -32244-05-16 00:57 J -10055562.65 -10055562.46 -10055562.26 0.0498 0.0109  
 Venus -32243-01-06 20:38 J -10055326.73 -10055326.64 -10055326.52 0.0492 0.0421  
 Mercury -32239-03-08 08:52 J -10053805.21 -10053805.13 -10053805.05 0.0508 0.0445  
 Mercury -32239-06-06 09:50 J -10053715.23 -10053715.09 -10053714.94 0.0511 0.0257  
 Venus -32238-11-07 14:38 J -10053196.09 -10053195.89 -10053195.68 0.0532 0.0084  
 Mercury -32234-10-26 18:14 J -10051746.88 -10051746.74 -10051746.60 0.0518 0.0069  
 Venus -32232-01-19 04:47 J -10051296.47 -10051296.30 -10051296.13 0.0500 0.0260  
 Venus -32232-09-12 01:26 J -10051060.60 -10051060.44 -10051060.27 0.0493 0.0276  
 Mercury -32227-03-25 09:50 J -10049405.25 -10049405.09 -10049404.93 0.0511 0.0090  
 Venus -32226-07-13 03:50 J -10048930.55 -10048930.34 -10048930.14 0.0530 0.0107  
 Mercury -32222-08-14 21:35 J -10047436.72 -10047436.60 -10047436.48 0.0519 0.0213  
 Mercury -32222-11-12 07:26 J -10047347.28 -10047347.19 -10047347.10 0.0516 0.0380  
 Mars -32221-06-02 17:02 J -10047144.05 -10047143.79 -10047143.53 0.0507 0.0002  
 Venus -32221-09-24 08:23 J -10047030.26 -10047030.15 -10047030.03 0.0503 0.0411  
 Venus -32220-05-18 06:28 J -10046794.42 -10046794.23 -10046794.03 0.0495 0.0131  
 Mercury -32215-01-11 09:35 J -10045095.26 -10045095.10 -10045094.93 0.0509 0.0079  
 Venus -32214-03-17 15:50 J -10044665.01 -10044664.84 -10044664.67 0.0527 0.0294  
 Venus -32214-11-10 22:33 J -10044426.69 -10044426.56 -10044426.42 0.0535 0.0395  
 Mercury -32210-06-03 00:14 J -10043126.59 -10043126.49 -10043126.40 0.0521 0.0373  
 Mercury -32210-08-31 09:50 J -10043037.22 -10043037.09 -10043036.97 0.0517 0.0219  
 Venus -32208-01-21 09:50 J -10042528.30 -10042528.09 -10042527.89 0.0498 0.0022  
 Mercury -32204-10-30 09:07 J -10040785.27 -10040785.12 -10040784.98 0.0508 0.0250  
 Mercury -32203-01-28 09:35 J -10040695.18 -10040695.10 -10040695.02 0.0512 0.0445

Venus -32203-11-20 04:19 J -10040399.40 -10040399.32 -10040399.23 0.0524 0.0476  
 Venus -32202-07-16 09:35 J -10040161.29 -10040161.10 -10040160.91 0.0533 0.0200  
 Mercury -32198-03-22 03:35 J -10038816.36 -10038816.35 -10038816.33 0.0522 0.0516  
 Mercury -32198-06-19 12:57 J -10038727.09 -10038726.96 -10038726.82 0.0518 0.0074  
 Venus -32197-09-26 13:55 J -10038262.10 -10038261.92 -10038261.72 0.0500 0.0169  
 Venus -32196-05-20 10:47 J -10038026.18 -10038026.05 -10038025.91 0.0493 0.0365  
 Moon -32193-09-29 23:45 J -10036797.63 -10036797.51 -10036797.37 0.0496 0.0417  
 Earth -32193-09-30 03:21 J -10036797.50 -10036797.36 -10036797.21 0.0496 0.0385 \*  
 Mercury -32192-08-18 07:40 J -10036475.27 -10036475.18 -10036475.09 0.0507 0.0433  
 Mercury -32192-11-16 08:38 J -10036385.28 -10036385.14 -10036385.00 0.0511 0.0268  
 Venus -32190-03-20 20:09 J -10035895.86 -10035895.66 -10035895.45 0.0531 0.0011  
 Mercury -32186-04-07 16:47 J -10034416.94 -10034416.80 -10034416.67 0.0519 0.0068  
 Mars -32185-03-07 01:55 J -10034082.58 -10034082.42 -10034082.25 0.0505 0.0388  
 Venus -32185-06-01 18:28 J -10033995.88 -10033995.73 -10033995.57 0.0502 0.0318  
 Venus -32184-01-23 16:19 J -10033760.00 -10033759.82 -10033759.64 0.0494 0.0221  
 Earth -32181-10-04 16:33 J -10032410.04 -10032409.81 -10032409.58 0.0498 0.0105  
 Moon -32181-10-04 17:59 J -10032409.97 -10032409.75 -10032409.52 0.0498 0.0109 \*  
 Mercury -32180-09-04 08:23 J -10032075.31 -10032075.15 -10032074.99 0.0510 0.0098  
 Venus -32179-11-23 09:21 J -10031630.30 -10031630.11 -10031629.92 0.0529 0.0183  
 Venus -32178-07-19 17:31 J -10031391.83 -10031391.77 -10031391.71 0.0537 0.0509  
 Earth -32175-03-31 14:09 J -10030406.12 -10030405.91 -10030405.71 0.0532 0.0246  
 Moon -32175-03-31 17:59 J -10030405.96 -10030405.75 -10030405.54 0.0532 0.0217 \*  
 Mercury -32174-01-24 20:23 J -10030106.78 -10030106.65 -10030106.53 0.0520 0.0206  
 Mercury -32174-04-24 06:14 J -10030017.33 -10030017.24 -10030017.15 0.0516 0.0388  
 Venus -32173-02-05 22:04 J -10029729.65 -10029729.58 -10029729.51 0.0504 0.0468  
 Venus -32173-09-28 20:52 J -10029493.83 -10029493.63 -10029493.43 0.0496 0.0074  
 Mercury -32168-06-23 08:09 J -10027765.32 -10027765.16 -10027764.99 0.0510 0.0070  
 Venus -32167-07-28 23:02 J -10027364.68 -10027364.54 -10027364.39 0.0526 0.0366  
 Venus -32166-03-24 05:59 J -10027126.41 -10027126.25 -10027126.08 0.0535 0.0320  
 Moon -32163-04-05 11:16 J -10026018.20 -10026018.03 -10026017.86 0.0529 0.0367

Earth -32163-04-05 13:55 J -10026018.09 -10026017.92 -10026017.75 0.0529 0.0350 \*  
 Mercury -32163-11-12 23:45 J -10025796.61 -10025796.51 -10025796.41 0.0520 0.0349  
 Mercury -32162-02-10 09:21 J -10025707.23 -10025707.11 -10025706.98 0.0517 0.0242  
 Venus -32161-06-04 01:26 J -10025227.64 -10025227.44 -10025227.24 0.0498 0.0075  
 Venus -32160-01-25 20:52 J -10024991.70 -10024991.63 -10024991.54 0.0491 0.0450  
 Mercury -32156-04-11 07:55 J -10023455.32 -10023455.17 -10023455.02 0.0508 0.0237  
 Mercury -32156-07-10 08:38 J -10023365.21 -10023365.14 -10023365.07 0.0512 0.0459  
 Venus -32155-11-26 17:16 J -10022860.98 -10022860.78 -10022860.58 0.0532 0.0127  
 Mercury -32151-09-01 02:23 J -10021486.43 -10021486.40 -10021486.37 0.0522 0.0508  
 Mercury -32151-11-29 11:45 J -10021397.15 -10021397.01 -10021396.87 0.0518 0.0081  
 Venus -32149-02-08 03:21 J -10020961.53 -10020961.36 -10020961.18 0.0501 0.0228  
 Venus -32149-10-01 00:43 J -10020725.62 -10020725.47 -10020725.31 0.0494 0.0308  
 Mercury -32144-01-28 07:11 J -10019145.29 -10019145.20 -10019145.10 0.0507 0.0410  
 Mercury -32144-04-28 08:09 J -10019055.29 -10019055.16 -10019055.02 0.0511 0.0291  
 Venus -32143-08-01 04:33 J -10018595.51 -10018595.31 -10018595.10 0.0529 0.0067  
 Mercury -32139-09-17 15:07 J -10017087.01 -10017086.87 -10017086.74 0.0519 0.0068  
 Venus -32138-10-14 06:57 J -10016695.34 -10016695.21 -10016695.08 0.0503 0.0378  
 Venus -32137-06-06 05:45 J -10016459.45 -10016459.26 -10016459.07 0.0495 0.0164  
 Mercury -32132-02-14 07:11 J -10014745.36 -10014745.20 -10014745.04 0.0510 0.0110  
 Mars -32132-09-02 13:40 J -10014545.15 -10014544.93 -10014544.69 0.0518 0.0318  
 Venus -32131-04-05 15:35 J -10014330.03 -10014329.85 -10014329.67 0.0527 0.0257  
 Venus -32131-11-29 22:33 J -10014091.67 -10014091.56 -10014091.43 0.0535 0.0430  
 Mercury -32127-07-06 18:43 J -10012776.85 -10012776.72 -10012776.60 0.0520 0.0205  
 Mercury -32127-10-04 04:33 J -10012687.40 -10012687.31 -10012687.22 0.0516 0.0390  
 Venus -32125-02-10 10:47 J -10012193.25 -10012193.05 -10012192.85 0.0497 0.0018  
 Mercury -32121-12-03 06:43 J -10010435.39 -10010435.22 -10010435.05 0.0509 0.0061  
 Venus -32120-12-09 05:02 J -10010064.40 -10010064.29 -10010064.18 0.0525 0.0438  
 Venus -32119-08-04 10:47 J -10009826.23 -10009826.05 -10009825.86 0.0534 0.0240  
 Mercury -32115-04-24 22:19 J -10008466.67 -10008466.57 -10008466.46 0.0521 0.0344  
 Mercury -32115-07-23 07:55 J -10008377.29 -10008377.17 -10008377.04 0.0517 0.0249



Venus -32114-10-16 15:07 J -10007927.06 -10007926.87 -10007926.67 0.0499 0.0132  
 Venus -32113-06-08 11:16 J -10007691.15 -10007691.03 -10007690.91 0.0492 0.0395  
 Earth -32110-09-30 12:14 J -10006482.09 -10006481.99 -10006481.88 0.0496 0.0444  
 Moon -32110-09-30 13:55 J -10006481.99 -10006481.92 -10006481.85 0.0496 0.0470 \*  
 Mercury -32109-09-21 06:14 J -10006125.39 -10006125.24 -10006125.09 0.0508 0.0231  
 Mercury -32109-12-20 06:57 J -10006035.28 -10006035.21 -10006035.15 0.0512 0.0466  
 Venus -32107-04-08 23:59 J -10005560.71 -10005560.50 -10005560.30 0.0531 0.0050  
 Mercury -32103-02-11 01:55 J -10004156.46 -10004156.42 -10004156.37 0.0521 0.0486  
 Mercury -32103-05-11 11:16 J -10004067.16 -10004067.03 -10004066.89 0.0518 0.0104  
 Mars -32103-11-23 10:04 J -10003871.29 -10003871.08 -10003870.85 0.0509 0.0281  
 Venus -32102-06-21 18:57 J -10003660.87 -10003660.71 -10003660.54 0.0501 0.0283  
 Venus -32101-02-12 16:19 J -10003424.99 -10003424.82 -10003424.65 0.0494 0.0253  
 Earth -32098-10-05 03:21 J -10002094.59 -10002094.36 -10002094.12 0.0497 0.0053  
 Moon -32098-10-05 04:04 J -10002094.57 -10002094.33 -10002094.08 0.0497 0.0068 \*  
 Mercury -32097-07-10 05:59 J -10001815.35 -10001815.25 -10001815.14 0.0507 0.0398  
 Mercury -32097-10-08 06:57 J -10001725.34 -10001725.21 -10001725.07 0.0511 0.0303  
 Mars -32096-06-10 16:33 J -10001480.06 -10001479.81 -10001479.54 0.0521 0.0224  
 Venus -32096-12-12 12:14 J -10001295.19 -10001294.99 -10001294.79 0.0528 0.0138  
 Moon -32092-03-30 11:31 J -10000091.20 -10000091.02 -10000090.83 0.0532 0.0330  
 Earth -32092-03-30 14:38 J -10000091.05 -10000090.89 -10000090.71 0.0532 0.0356 \*  
 Mercury -32091-02-27 13:40 J -9999757.06 -9999756.93 -9999756.79 0.0519 0.0059  
 Venus -32090-02-24 19:55 J -9999394.77 -9999394.67 -9999394.57 0.0504 0.0436  
 Venus -32090-10-18 19:11 J -9999158.89 -9999158.70 -9999158.50 0.0496 0.0106  
 Mercury -32085-07-27 06:43 J -9997415.38 -9997415.22 -9997415.06 0.0510 0.0132  
 Venus -32084-08-17 00:28 J -9997029.64 -9997029.48 -9997029.31 0.0526 0.0323  
 Venus -32083-04-12 06:28 J -9996791.38 -9996791.23 -9996791.08 0.0534 0.0357  
 Earth -32080-04-04 12:43 J -9995703.18 -9995702.97 -9995702.76 0.0530 0.0231  
 Moon -32080-04-04 13:40 J -9995703.12 -9995702.93 -9995702.73 0.0530 0.0242 \*  
 Mercury -32080-12-16 17:02 J -9995446.92 -9995446.79 -9995446.67 0.0520 0.0207  
 Mercury -32079-03-16 02:52 J -9995357.47 -9995357.38 -9995357.29 0.0516 0.0388

Venus	-32078-06-23 23:31 J	-9994892.72	-9994892.52	-9994892.32	0.0498	0.0043
Venus	-32077-02-14 19:40 J	-9994656.72	-9994656.68	-9994656.64	0.0492	0.0480
Mercury	-32073-05-15 05:16 J	-9993105.44	-9993105.28	-9993105.11	0.0509	0.0052
Venus	-32072-04-21 11:45 J	-9992764.05	-9992764.01	-9992763.96	0.0523	0.0506
Venus	-32072-12-15 16:19 J	-9992526.01	-9992525.82	-9992525.62	0.0532	0.0162
Mercury	-32068-10-04 20:38 J	-9991136.74	-9991136.64	-9991136.54	0.0521	0.0345
Mercury	-32067-01-02 06:14 J	-9991047.36	-9991047.24	-9991047.12	0.0517	0.0247
Mars	-32067-08-27 19:26 J	-9990809.94	-9990809.69	-9990809.43	0.0507	0.0114
Venus	-32066-02-27 04:04 J	-9990626.51	-9990626.33	-9990626.14	0.0501	0.0191
Venus	-32066-10-21 01:11 J	-9990390.59	-9990390.45	-9990390.30	0.0493	0.0341
Mercury	-32061-03-03 04:33 J	-9988795.45	-9988795.31	-9988795.15	0.0508	0.0224
Mercury	-32061-06-01 05:16 J	-9988705.34	-9988705.28	-9988705.22	0.0512	0.0471
Venus	-32060-08-20 04:47 J	-9988260.51	-9988260.30	-9988260.10	0.0530	0.0029
Mercury	-32056-07-24 00:28 J	-9986826.53	-9986826.48	-9986826.43	0.0522	0.0483
Mercury	-32056-10-21 09:50 J	-9986737.23	-9986737.09	-9986736.96	0.0518	0.0106
Venus	-32055-11-02 07:55 J	-9986360.31	-9986360.17	-9986360.02	0.0503	0.0342
Venus	-32054-06-26 05:59 J	-9986124.43	-9986124.25	-9986124.06	0.0495	0.0196
Mercury	-32050-12-21 04:04 J	-9984485.43	-9984485.33	-9984485.23	0.0507	0.0396
Mercury	-32049-03-20 05:02 J	-9984395.42	-9984395.29	-9984395.15	0.0511	0.0305
Venus	-32048-04-24 18:14 J	-9983994.93	-9983994.74	-9983994.55	0.0528	0.0214
Venus	-32048-12-19 01:40 J	-9983756.52	-9983756.43	-9983756.33	0.0536	0.0471
Mercury	-32044-08-09 13:11 J	-9982427.09	-9982426.95	-9982426.81	0.0519	0.0038
Venus	-32043-07-08 11:02 J	-9982094.08	-9982094.04	-9982094.00	0.0505	0.0491
Venus	-32042-03-01 10:33 J	-9981858.26	-9981858.06	-9981857.86	0.0497	0.0050
Mercury	-32037-01-07 05:16 J	-9980085.44	-9980085.28	-9980085.12	0.0510	0.0141
Venus	-32037-12-28 07:40 J	-9979729.31	-9979729.18	-9979729.04	0.0525	0.0393
Venus	-32036-08-23 13:26 J	-9979491.12	-9979490.94	-9979490.77	0.0533	0.0282
Mercury	-32032-05-28 15:35 J	-9978116.98	-9978116.85	-9978116.72	0.0520	0.0200
Mercury	-32032-08-26 01:26 J	-9978027.53	-9978027.44	-9978027.35	0.0516	0.0394
Mars	-32031-05-31 23:45 J	-9977748.56	-9977748.51	-9977748.44	0.0505	0.0489

Venus	-32031-11-04 12:28 J	-9977592.18	-9977591.98	-9977591.78	0.0499	0.0102
Venus	-32030-06-28 09:07 J	-9977356.22	-9977356.12	-9977356.01	0.0493	0.0424
Mercury	-32026-10-26 04:47 J	-9975775.47	-9975775.30	-9975775.13	0.0509	0.0030
Venus	-32024-04-28 00:43 J	-9975225.68	-9975225.47	-9975225.27	0.0531	0.0090
Mercury	-32020-03-16 18:43 J	-9973806.81	-9973806.72	-9973806.62	0.0521	0.0348
Mercury	-32020-06-14 04:19 J	-9973717.44	-9973717.32	-9973717.19	0.0517	0.0245
Venus	-32019-07-10 15:50 J	-9973326.01	-9973325.84	-9973325.67	0.0502	0.0252
Venus	-32018-03-03 13:55 J	-9973090.09	-9973089.92	-9973089.76	0.0494	0.0283
Moon	-32015-10-04 06:43 J	-9971779.45	-9971779.22	-9971778.99	0.0497	0.0009
Earth	-32015-10-04 08:52 J	-9971779.36	-9971779.13	-9971778.89	0.0497	0.0020 *
Mercury	-32014-08-14 03:07 J	-9971465.52	-9971465.37	-9971465.21	0.0508	0.0215
Mercury	-32014-11-12 03:50 J	-9971375.39	-9971375.34	-9971375.29	0.0512	0.0479
Venus	-32013-12-31 10:33 J	-9970960.27	-9970960.06	-9970959.86	0.0529	0.0105
Earth	-32009-03-29 17:59 J	-9969775.87	-9969775.75	-9969775.63	0.0533	0.0450
Moon	-32009-03-29 19:26 J	-9969775.82	-9969775.69	-9969775.55	0.0533	0.0421 *
Mercury	-32008-01-02 22:33 J	-9969496.61	-9969496.56	-9969496.52	0.0522	0.0487
Mercury	-32008-04-02 07:55 J	-9969407.31	-9969407.17	-9969407.04	0.0518	0.0103
Venus	-32007-03-15 19:55 J	-9969059.79	-9969059.67	-9969059.55	0.0504	0.0402
Venus	-32007-11-06 19:11 J	-9968823.90	-9968823.70	-9968823.51	0.0496	0.0138
Earth	-32003-10-08 21:21 J	-9967391.67	-9967391.61	-9967391.53	0.0498	0.0474
Mercury	-32002-06-02 02:23 J	-9967155.51	-9967155.40	-9967155.29	0.0507	0.0390
Mercury	-32002-08-31 03:21 J	-9967065.49	-9967065.36	-9967065.23	0.0511	0.0309
Venus	-32001-09-04 23:16 J	-9966694.70	-9966694.53	-9966694.36	0.0526	0.0289

# 32ND MILLENNIUM BCE

This is a list of transits visible from Jupiter in the 32nd millennium

## BCE.

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Venus	-32000-05-01 05:45 J		-9966456.40	-9966456.26	-9966456.12	0.0535	0.0390	
Earth	-31997-04-03 19:40 J		-9965387.90	-9965387.68	-9965387.46	0.0531	0.0157	
Moon	-31997-04-03 20:23 J		-9965387.87	-9965387.65	-9965387.42	0.0531	0.0159	*
Mercury	-31996-01-19 11:31 J		-9965097.16	-9965097.02	-9965096.88	0.0519	0.0038	
Venus	-31995-07-12 23:31 J		-9964557.72	-9964557.52	-9964557.32	0.0498	0.0010	
Mercury	-31990-06-19 03:07 J		-9962755.53	-9962755.37	-9962755.21	0.0510	0.0140	
Venus	-31989-05-10 12:57 J		-9962429.04	-9962428.96	-9962428.86	0.0524	0.0467	
Venus	-31988-01-03 18:14 J		-9962190.92	-9962190.74	-9962190.54	0.0533	0.0202	
Mercury	-31985-11-07 14:52 J		-9960787.01	-9960786.88	-9960786.75	0.0520	0.0182	
Mercury	-31984-02-05 00:43 J		-9960697.55	-9960697.47	-9960697.39	0.0516	0.0412	
Venus	-31983-03-18 03:35 J		-9960291.54	-9960291.35	-9960291.16	0.0500	0.0159	
Venus	-31983-11-09 00:14 J		-9960055.62	-9960055.49	-9960055.35	0.0493	0.0369	
Mercury	-31978-04-07 03:07 J		-9958445.54	-9958445.37	-9958445.20	0.0509	0.0026	
Mars	-31978-11-28 06:14 J		-9958210.51	-9958210.24	-9958209.96	0.0519	0.0161	
Venus	-31977-09-08 06:57 J		-9957925.41	-9957925.21	-9957925.00	0.0530	0.0020	
Mercury	-31973-08-26 17:31 J		-9956476.87	-9956476.77	-9956476.67	0.0521	0.0342	
Mercury	-31973-11-24 02:52 J		-9956387.50	-9956387.38	-9956387.25	0.0517	0.0250	
Venus	-31972-11-21 04:19 J		-9956025.47	-9956025.32	-9956025.16	0.0503	0.0312	
Venus	-31971-07-15 02:38 J		-9955789.56	-9955789.39	-9955789.20	0.0495	0.0225	
Mercury	-31966-01-24 02:23 J		-9954135.55	-9954135.40	-9954135.24	0.0508	0.0198	
Mercury	-31966-04-24 02:52 J		-9954045.41	-9954045.38	-9954045.34	0.0512	0.0497	
Venus	-31965-05-13 18:57 J		-9953659.91	-9953659.71	-9953659.52	0.0527	0.0174	
Venus	-31964-01-07 01:26 J		-9953421.50	-9953421.44	-9953421.37	0.0535	0.0505	
Mercury	-31961-06-14 20:38 J		-9952166.68	-9952166.64	-9952166.60	0.0522	0.0490	
Mercury	-31961-09-12 05:59 J		-9952077.39	-9952077.25	-9952077.12	0.0518	0.0099	

Venus	-31960-07-27 06:43 J	-9951759.30	-9951759.22	-9951759.14	0.0505	0.0463
Venus	-31959-03-20 06:57 J	-9951523.41	-9951523.21	-9951523.01	0.0497	0.0078
Mercury	-31955-11-12 00:43 J	-9949825.58	-9949825.47	-9949825.36	0.0507	0.0384
Mercury	-31954-02-10 01:40 J	-9949735.56	-9949735.43	-9949735.30	0.0511	0.0315
Venus	-31953-01-17 05:02 J	-9949394.44	-9949394.29	-9949394.14	0.0525	0.0361
Venus	-31953-09-11 10:33 J	-9949156.22	-9949156.06	-9949155.89	0.0533	0.0311
Mercury	-31949-07-01 09:21 J	-9947767.24	-9947767.11	-9947766.97	0.0519	0.0045
Mars	-31948-02-16 03:21 J	-9947537.60	-9947537.36	-9947537.11	0.0510	0.0182
Venus	-31948-11-23 11:31 J	-9947257.22	-9947257.02	-9947256.82	0.0499	0.0071
Venus	-31947-07-17 08:09 J	-9947021.23	-9947021.16	-9947021.08	0.0492	0.0452
Mercury	-31943-11-29 01:11 J	-9945425.61	-9945425.45	-9945425.29	0.0510	0.0142
Mars	-31942-09-04 12:28 J	-9945146.19	-9945145.98	-9945145.77	0.0521	0.0352
Venus	-31941-05-16 22:19 J	-9944890.77	-9944890.57	-9944890.37	0.0531	0.0121
Mercury	-31937-04-19 12:57 J	-9943457.08	-9943456.96	-9943456.83	0.0520	0.0185
Mercury	-31937-07-17 22:47 J	-9943367.63	-9943367.55	-9943367.46	0.0516	0.0410
Venus	-31936-07-29 15:21 J	-9942991.04	-9942990.86	-9942990.68	0.0501	0.0219
Venus	-31935-03-22 12:57 J	-9942755.11	-9942754.96	-9942754.80	0.0494	0.0311
Earth	-31932-10-03 13:26 J	-9941464.17	-9941463.94	-9941463.71	0.0496	0.0096
Moon	-31932-10-03 17:02 J	-9941464.03	-9941463.79	-9941463.55	0.0496	0.0071 *
Mercury	-31931-09-17 00:28 J	-9941115.64	-9941115.48	-9941115.31	0.0509	0.0032
Venus	-31929-01-20 11:02 J	-9940625.24	-9940625.04	-9940624.83	0.0529	0.0066
Moon	-31926-03-29 23:59 J	-9939460.58	-9939460.50	-9939460.42	0.0533	0.0501
Mercury	-31925-02-06 16:33 J	-9939146.92	-9939146.81	-9939146.71	0.0521	0.0327
Mercury	-31925-05-06 02:09 J	-9939057.53	-9939057.41	-9939057.29	0.0517	0.0264
Venus	-31924-04-03 18:43 J	-9938724.85	-9938724.72	-9938724.58	0.0504	0.0369
Venus	-31924-11-25 17:31 J	-9938488.96	-9938488.77	-9938488.58	0.0496	0.0167
Moon	-31920-10-08 00:28 J	-9937076.60	-9937076.48	-9937076.36	0.0498	0.0427
Earth	-31920-10-08 04:19 J	-9937076.45	-9937076.32	-9937076.18	0.0498	0.0403 *
Mercury	-31919-07-06 00:28 J	-9936805.64	-9936805.48	-9936805.33	0.0508	0.0197
Mercury	-31919-10-04 00:57 J	-9936715.49	-9936715.46	-9936715.42	0.0512	0.0499

Venus	-31918-09-25 00:43 J	-9936359.65	-9936359.47	-9936359.28	0.0526	0.0248
Venus	-31917-05-20 07:11 J	-9936121.31	-9936121.20	-9936121.07	0.0535	0.0430
Moon	-31914-04-03 16:47 J	-9935073.02	-9935072.80	-9935072.57	0.0531	0.0044
Earth	-31914-04-03 18:57 J	-9935072.94	-9935072.71	-9935072.48	0.0531	0.0044 *
Mercury	-31914-11-25 19:11 J	-9934836.75	-9934836.70	-9934836.65	0.0522	0.0485
Mercury	-31913-02-23 04:33 J	-9934747.45	-9934747.31	-9934747.18	0.0518	0.0104
Mars	-31913-11-20 11:31 J	-9934476.26	-9934476.02	-9934475.78	0.0507	0.0206
Venus	-31912-07-31 19:11 J	-9934222.90	-9934222.70	-9934222.50	0.0498	0.0019
Mercury	-31907-04-23 23:31 J	-9932495.63	-9932495.52	-9932495.40	0.0507	0.0371
Mercury	-31907-07-23 00:43 J	-9932405.59	-9932405.47	-9932405.34	0.0511	0.0329
Venus	-31906-05-30 13:26 J	-9932094.06	-9932093.94	-9932093.82	0.0524	0.0427
Venus	-31905-01-23 18:14 J	-9931855.93	-9931855.74	-9931855.56	0.0532	0.0239
Mercury	-31902-12-12 07:26 J	-9930437.32	-9930437.19	-9930437.05	0.0519	0.0049
Venus	-31900-04-05 22:47 J	-9929956.75	-9929956.55	-9929956.36	0.0500	0.0132
Venus	-31900-11-27 19:55 J	-9929720.79	-9929720.67	-9929720.55	0.0493	0.0394
Mercury	-31895-05-10 23:16 J	-9928095.69	-9928095.53	-9928095.37	0.0510	0.0146
Venus	-31894-09-28 03:07 J	-9927590.57	-9927590.37	-9927590.16	0.0530	0.0043
Mercury	-31890-09-30 10:47 J	-9926127.17	-9926127.05	-9926126.92	0.0520	0.0193
Mercury	-31890-12-28 20:38 J	-9926037.72	-9926037.64	-9926037.55	0.0517	0.0403
Venus	-31889-12-10 02:38 J	-9925690.55	-9925690.39	-9925690.22	0.0503	0.0282
Venus	-31888-08-03 00:57 J	-9925454.63	-9925454.46	-9925454.28	0.0495	0.0253
Mercury	-31883-02-26 22:33 J	-9923785.73	-9923785.56	-9923785.40	0.0509	0.0031
Venus	-31882-06-02 15:07 J	-9923325.07	-9923324.87	-9923324.67	0.0528	0.0146
Venus	-31881-01-26 22:04 J	-9923086.60	-9923086.58	-9923086.55	0.0536	0.0532
Mercury	-31878-07-19 14:23 J	-9921817.00	-9921816.90	-9921816.79	0.0521	0.0333
Mercury	-31878-10-16 23:59 J	-9921727.61	-9921727.50	-9921727.38	0.0517	0.0260
Venus	-31877-08-15 05:45 J	-9921424.35	-9921424.26	-9921424.15	0.0505	0.0431
Venus	-31876-04-08 05:45 J	-9921188.46	-9921188.26	-9921188.07	0.0497	0.0108
Mercury	-31872-12-15 21:35 J	-9919475.75	-9919475.60	-9919475.44	0.0508	0.0205
Mercury	-31871-03-15 22:19 J	-9919385.61	-9919385.57	-9919385.52	0.0512	0.0490

Venus	-31870-02-05 04:04 J	-9919059.49	-9919059.33	-9919059.16	0.0525	0.0326
Venus	-31870-10-01 10:33 J	-9918821.22	-9918821.06	-9918820.91	0.0534	0.0346
Mercury	-31866-05-07 17:59 J	-9917506.80	-9917506.75	-9917506.69	0.0522	0.0475
Mercury	-31866-08-05 03:21 J	-9917417.49	-9917417.36	-9917417.22	0.0518	0.0115
Venus	-31865-12-12 09:35 J	-9916922.30	-9916922.10	-9916921.90	0.0499	0.0040
Venus	-31864-08-05 05:45 J	-9916686.30	-9916686.26	-9916686.21	0.0492	0.0477
Mercury	-31860-10-03 21:21 J	-9915165.72	-9915165.61	-9915165.50	0.0507	0.0373
Mercury	-31859-01-01 22:33 J	-9915075.69	-9915075.56	-9915075.43	0.0511	0.0328
Venus	-31859-10-10 18:57 J	-9914793.77	-9914793.71	-9914793.65	0.0522	0.0498
Venus	-31858-06-05 23:16 J	-9914555.73	-9914555.53	-9914555.34	0.0531	0.0161
Mercury	-31854-05-24 05:59 J	-9913107.39	-9913107.25	-9913107.12	0.0519	0.0045
Venus	-31853-08-17 10:47 J	-9912656.24	-9912656.05	-9912655.87	0.0501	0.0193
Venus	-31852-04-10 08:23 J	-9912420.30	-9912420.15	-9912420.00	0.0494	0.0335
Moon	-31849-10-02 15:21 J	-9911149.09	-9911148.86	-9911148.64	0.0496	0.0144
Earth	-31849-10-02 19:11 J	-9911148.92	-9911148.70	-9911148.48	0.0496	0.0167 *
Mercury	-31848-10-20 22:04 J	-9910765.74	-9910765.58	-9910765.42	0.0510	0.0157
Venus	-31846-02-08 10:47 J	-9910290.26	-9910290.05	-9910289.85	0.0529	0.0031
Mercury	-31842-03-12 08:52 J	-9908797.25	-9908797.13	-9908797.00	0.0520	0.0196
Mercury	-31842-06-09 18:43 J	-9908707.81	-9908707.72	-9908707.63	0.0516	0.0397
Venus	-31841-04-22 13:11 J	-9908390.09	-9908389.95	-9908389.80	0.0504	0.0344
Venus	-31841-12-14 12:14 J	-9908154.17	-9908153.99	-9908153.80	0.0496	0.0192
Earth	-31837-10-07 05:45 J	-9906761.44	-9906761.26	-9906761.07	0.0498	0.0315
Moon	-31837-10-07 09:21 J	-9906761.28	-9906761.11	-9906760.94	0.0498	0.0334 *
Mercury	-31836-08-08 20:23 J	-9906455.81	-9906455.65	-9906455.48	0.0509	0.0031
Venus	-31835-10-13 20:09 J	-9906024.85	-9906024.66	-9906024.47	0.0526	0.0221
Venus	-31834-06-09 02:23 J	-9905786.50	-9905786.40	-9905786.29	0.0535	0.0452
Earth	-31831-04-02 17:02 J	-9904758.02	-9904757.79	-9904757.56	0.0532	0.0075
Moon	-31831-04-02 20:09 J	-9904757.89	-9904757.66	-9904757.43	0.0532	0.0077 *
Mercury	-31831-12-29 12:14 J	-9904487.09	-9904486.99	-9904486.88	0.0521	0.0341
Mercury	-31830-03-28 21:50 J	-9904397.71	-9904397.59	-9904397.47	0.0518	0.0251

Mars	-31830-08-08 00:28 J	-9904265.53	-9904265.48	-9904265.41	0.0512	0.0496
Venus	-31830-12-27 16:19 J	-9904123.86	-9904123.82	-9904123.78	0.0506	0.0494
Venus	-31829-08-19 17:02 J	-9903887.99	-9903887.79	-9903887.59	0.0498	0.0046
Mercury	-31824-05-27 19:26 J	-9902145.84	-9902145.69	-9902145.53	0.0508	0.0206
Mercury	-31824-08-25 20:09 J	-9902055.70	-9902055.66	-9902055.61	0.0511	0.0489
Mars	-31823-02-20 12:57 J	-9901877.24	-9901876.96	-9901876.67	0.0519	0.0054
Venus	-31823-06-18 08:23 J	-9901759.28	-9901759.15	-9901759.01	0.0524	0.0401
Venus	-31822-02-11 13:26 J	-9901521.12	-9901520.94	-9901520.76	0.0533	0.0263
Moon	-31819-04-07 13:26 J	-9900370.02	-9900369.94	-9900369.84	0.0530	0.0489
Earth	-31819-04-07 17:16 J	-9900369.81	-9900369.78	-9900369.74	0.0530	0.0522
Mercury	-31819-10-17 16:04 J	-9900176.88	-9900176.83	-9900176.78	0.0522	0.0482
Mercury	-31818-01-15 01:11 J	-9900087.58	-9900087.45	-9900087.31	0.0518	0.0109
Venus	-31817-04-24 21:07 J	-9899621.81	-9899621.62	-9899621.42	0.0500	0.0102
Venus	-31817-12-16 17:59 J	-9899385.85	-9899385.75	-9899385.64	0.0493	0.0419
Mercury	-31812-03-15 18:28 J	-9897835.84	-9897835.73	-9897835.62	0.0507	0.0383
Mercury	-31812-06-13 19:40 J	-9897745.81	-9897745.68	-9897745.55	0.0511	0.0317
Venus	-31811-10-17 01:55 J	-9897255.63	-9897255.42	-9897255.22	0.0531	0.0077
Mercury	-31807-11-03 04:47 J	-9895777.44	-9895777.30	-9895777.17	0.0519	0.0039
Venus	-31806-12-30 00:28 J	-9895355.65	-9895355.48	-9895355.30	0.0502	0.0251
Venus	-31805-08-21 22:33 J	-9895119.73	-9895119.56	-9895119.40	0.0495	0.0279
Mercury	-31800-04-01 19:40 J	-9893435.84	-9893435.68	-9893435.52	0.0510	0.0152
Venus	-31799-06-21 15:21 J	-9892990.07	-9892989.86	-9892989.66	0.0528	0.0107
Mercury	-31795-08-22 07:26 J	-9891467.32	-9891467.19	-9891467.06	0.0520	0.0192
Mercury	-31795-11-19 17:02 J	-9891377.87	-9891377.79	-9891377.70	0.0516	0.0400
Mars	-31794-05-12 14:38 J	-9891204.14	-9891203.89	-9891203.63	0.0509	0.0092
Venus	-31794-09-04 00:57 J	-9891089.57	-9891089.46	-9891089.33	0.0505	0.0406
Venus	-31793-04-27 00:43 J	-9890853.66	-9890853.47	-9890853.28	0.0497	0.0131
Mercury	-31788-01-18 18:57 J	-9889125.87	-9889125.71	-9889125.54	0.0509	0.0022
Mars	-31788-11-28 12:14 J	-9888812.10	-9888811.99	-9888811.88	0.0522	0.0483
Venus	-31787-02-24 03:35 J	-9888724.52	-9888724.35	-9888724.17	0.0525	0.0290



Venus	-31787-10-20 09:35 J	-9888486.24	-9888486.10	-9888485.95	0.0534	0.0379
Mercury	-31783-06-10 10:33 J	-9887157.16	-9887157.06	-9887156.96	0.0521	0.0343
Mercury	-31783-09-07 19:55 J	-9887067.79	-9887067.67	-9887067.55	0.0517	0.0248
Venus	-31781-01-01 04:04 J	-9886587.53	-9886587.33	-9886587.13	0.0499	0.0017
Mercury	-31777-11-06 17:16 J	-9884815.93	-9884815.78	-9884815.62	0.0508	0.0206
Mercury	-31776-02-04 18:14 J	-9884725.79	-9884725.74	-9884725.70	0.0511	0.0489
Venus	-31776-10-29 13:55 J	-9884459.00	-9884458.92	-9884458.83	0.0522	0.0472
Venus	-31775-06-24 17:45 J	-9884220.95	-9884220.76	-9884220.56	0.0531	0.0184
Mercury	-31771-03-29 13:40 J	-9882846.97	-9882846.93	-9882846.88	0.0522	0.0490
Mercury	-31771-06-26 23:02 J	-9882757.67	-9882757.54	-9882757.40	0.0519	0.0100
Venus	-31770-09-06 07:55 J	-9882321.35	-9882321.17	-9882320.97	0.0501	0.0167
Venus	-31769-04-29 05:59 J	-9882085.39	-9882085.25	-9882085.12	0.0494	0.0360
Earth	-31766-10-02 19:55 J	-9880833.87	-9880833.67	-9880833.47	0.0495	0.0260
Moon	-31766-10-02 23:16 J	-9880833.73	-9880833.53	-9880833.32	0.0495	0.0232 *
Mercury	-31765-08-25 16:04 J	-9880505.93	-9880505.83	-9880505.71	0.0507	0.0384
Mercury	-31765-11-23 17:31 J	-9880415.90	-9880415.77	-9880415.64	0.0510	0.0316
Venus	-31763-02-27 05:16 J	-9879955.49	-9879955.28	-9879955.08	0.0529	0.0013
Mercury	-31759-04-15 02:38 J	-9878447.53	-9878447.39	-9878447.26	0.0519	0.0045
Mars	-31758-02-14 04:19 J	-9878142.52	-9878142.32	-9878142.10	0.0507	0.0306
Venus	-31758-05-12 11:45 J	-9878055.17	-9878055.01	-9878054.86	0.0504	0.0314
Venus	-31757-01-03 10:33 J	-9877819.25	-9877819.06	-9877818.88	0.0496	0.0219
Moon	-31754-10-07 04:47 J	-9876446.51	-9876446.30	-9876446.08	0.0497	0.0232
Earth	-31754-10-07 07:11 J	-9876446.41	-9876446.20	-9876445.99	0.0497	0.0222 *
Mercury	-31753-09-11 16:47 J	-9876105.96	-9876105.80	-9876105.64	0.0510	0.0141
Venus	-31752-11-01 17:45 J	-9875689.95	-9875689.76	-9875689.56	0.0527	0.0189
Venus	-31751-06-28 00:43 J	-9875451.55	-9875451.47	-9875451.38	0.0535	0.0483
Moon	-31748-04-01 16:33 J	-9874443.02	-9874442.81	-9874442.60	0.0532	0.0181
Earth	-31748-04-01 20:09 J	-9874442.88	-9874442.66	-9874442.44	0.0532	0.0171 *
Mercury	-31747-02-01 05:59 J	-9874137.37	-9874137.25	-9874137.12	0.0520	0.0187
Mercury	-31747-05-01 15:50 J	-9874047.93	-9874047.84	-9874047.76	0.0516	0.0407

Venus	-31746-01-15 14:23 J	-9873788.97	-9873788.90	-9873788.82	0.0506	0.0463
Venus	-31746-09-08 14:38 J	-9873553.09	-9873552.89	-9873552.69	0.0498	0.0073
Mercury	-31741-06-30 16:33 J	-9871795.98	-9871795.81	-9871795.64	0.0509	0.0026
Venus	-31740-07-07 07:55 J	-9871424.31	-9871424.17	-9871424.02	0.0524	0.0365
Venus	-31739-03-02 13:26 J	-9871186.10	-9871185.94	-9871185.76	0.0533	0.0300
Earth	-31736-04-06 17:31 J	-9870054.92	-9870054.77	-9870054.63	0.0530	0.0414
Moon	-31736-04-06 20:38 J	-9870054.79	-9870054.64	-9870054.48	0.0530	0.0386 *
Mercury	-31736-11-20 08:52 J	-9869827.23	-9869827.13	-9869827.02	0.0521	0.0340
Mercury	-31735-02-17 18:28 J	-9869737.85	-9869737.73	-9869737.61	0.0517	0.0251
Venus	-31734-05-14 16:33 J	-9869287.01	-9869286.81	-9869286.62	0.0500	0.0078
Venus	-31733-01-05 12:57 J	-9869051.04	-9869050.96	-9869050.86	0.0493	0.0441
Mercury	-31729-04-18 15:50 J	-9867486.00	-9867485.84	-9867485.69	0.0508	0.0199
Mercury	-31729-07-17 16:33 J	-9867395.84	-9867395.81	-9867395.77	0.0512	0.0498
Venus	-31728-11-05 01:11 J	-9866920.65	-9866920.45	-9866920.25	0.0530	0.0111
Mercury	-31724-09-08 11:59 J	-9865517.04	-9865517.00	-9865516.95	0.0522	0.0489
Mercury	-31724-12-06 21:21 J	-9865427.75	-9865427.61	-9865427.48	0.0518	0.0099
Venus	-31722-01-17 19:11 J	-9865020.88	-9865020.70	-9865020.52	0.0502	0.0228
Venus	-31722-09-10 17:16 J	-9864784.94	-9864784.78	-9864784.62	0.0495	0.0300
Mercury	-31717-02-05 14:09 J	-9863176.02	-9863175.91	-9863175.80	0.0507	0.0383
Mercury	-31717-05-05 15:21 J	-9863085.99	-9863085.86	-9863085.73	0.0510	0.0316
Venus	-31716-07-10 10:04 J	-9862655.28	-9862655.08	-9862654.88	0.0528	0.0083
Mercury	-31712-09-25 00:28 J	-9861117.62	-9861117.48	-9861117.35	0.0520	0.0053
Venus	-31711-09-22 22:19 J	-9860754.70	-9860754.57	-9860754.44	0.0505	0.0378
Venus	-31710-05-16 22:04 J	-9860518.77	-9860518.58	-9860518.39	0.0497	0.0157
Mercury	-31705-02-22 14:38 J	-9858776.05	-9858775.89	-9858775.73	0.0509	0.0141
Mars	-31705-08-08 18:14 J	-9858607.89	-9858607.74	-9858607.59	0.0516	0.0440
Venus	-31704-03-14 22:04 J	-9858389.76	-9858389.58	-9858389.40	0.0525	0.0266
Venus	-31704-11-08 03:50 J	-9858151.47	-9858151.34	-9858151.20	0.0534	0.0400
Mercury	-31700-07-14 03:50 J	-9856807.46	-9856807.34	-9856807.21	0.0521	0.0195
Mercury	-31700-10-11 13:40 J	-9856718.02	-9856717.93	-9856717.85	0.0517	0.0400

Venus	-31698-01-20 02:23 J	-9856252.60	-9856252.40	-9856252.20	0.0499	0.0013
Mercury	-31694-12-11 13:40 J	-9854466.10	-9854465.93	-9854465.76	0.0509	0.0036
Venus	-31693-11-17 11:02 J	-9854124.14	-9854124.04	-9854123.93	0.0523	0.0442
Venus	-31692-07-13 15:35 J	-9853886.04	-9853885.85	-9853885.66	0.0532	0.0215
Mercury	-31688-05-02 07:26 J	-9852497.29	-9852497.19	-9852497.08	0.0521	0.0336
Mercury	-31688-07-30 17:02 J	-9852407.91	-9852407.79	-9852407.67	0.0518	0.0256
Venus	-31687-09-25 06:14 J	-9851986.43	-9851986.24	-9851986.05	0.0501	0.0136
Venus	-31686-05-19 03:21 J	-9851750.48	-9851750.36	-9851750.23	0.0493	0.0386
Moon	-31683-10-01 20:09 J	-9850518.83	-9850518.66	-9850518.46	0.0495	0.0317
Earth	-31683-10-01 22:47 J	-9850518.71	-9850518.55	-9850518.38	0.0495	0.0345 *
Mercury	-31682-09-29 13:11 J	-9850156.10	-9850155.95	-9850155.79	0.0508	0.0205
Mercury	-31682-12-28 14:09 J	-9850065.95	-9850065.91	-9850065.87	0.0512	0.0492
Venus	-31680-03-18 05:02 J	-9849620.50	-9849620.29	-9849620.08	0.0530	0.0031
Mercury	-31676-02-18 10:33 J	-9848187.10	-9848187.06	-9848187.01	0.0522	0.0485
Mercury	-31676-05-18 19:55 J	-9848097.81	-9848097.67	-9848097.54	0.0518	0.0104
Mars	-31676-10-31 14:09 J	-9847932.06	-9847931.91	-9847931.74	0.0511	0.0398
Venus	-31675-05-31 07:40 J	-9847720.34	-9847720.18	-9847720.02	0.0503	0.0288
Venus	-31674-01-22 05:59 J	-9847484.42	-9847484.25	-9847484.07	0.0495	0.0241
Earth	-31671-10-06 11:16 J	-9846131.26	-9846131.03	-9846130.80	0.0497	0.0143
Moon	-31671-10-06 11:59 J	-9846131.21	-9846131.00	-9846130.78	0.0497	0.0150 *
Mercury	-31670-07-18 12:28 J	-9845846.09	-9845845.98	-9845845.87	0.0507	0.0378
Mercury	-31670-10-16 13:55 J	-9845756.05	-9845755.92	-9845755.79	0.0511	0.0324
Mars	-31669-05-16 08:09 J	-9845543.45	-9845543.16	-9845542.87	0.0519	0.0072
Venus	-31669-11-20 17:31 J	-9845354.97	-9845354.77	-9845354.57	0.0527	0.0154
Venus	-31668-07-17 00:14 J	-9845116.53	-9845116.49	-9845116.43	0.0535	0.0516
Earth	-31665-03-31 18:28 J	-9844127.93	-9844127.73	-9844127.54	0.0532	0.0289
Moon	-31665-03-31 21:50 J	-9844127.77	-9844127.59	-9844127.40	0.0532	0.0305 *
Mercury	-31664-03-06 22:47 J	-9843787.68	-9843787.55	-9843787.41	0.0519	0.0049
Venus	-31663-02-03 09:35 J	-9843454.19	-9843454.10	-9843454.00	0.0506	0.0439
Venus	-31663-09-27 09:50 J	-9843218.29	-9843218.09	-9843217.89	0.0497	0.0096

Mercury	-31658-08-04 12:43 J	-9841446.13	-9841445.97	-9841445.81	0.0509	0.0143
Venus	-31657-07-26 03:35 J	-9841089.51	-9841089.35	-9841089.19	0.0524	0.0339
Venus	-31656-03-21 08:23 J	-9840851.31	-9840851.15	-9840850.98	0.0533	0.0322
Moon	-31653-04-05 11:16 J	-9839740.23	-9839740.03	-9839739.82	0.0531	0.0255
Earth	-31653-04-05 13:55 J	-9839740.11	-9839739.92	-9839739.73	0.0531	0.0287 *
Mercury	-31653-12-24 01:55 J	-9839477.55	-9839477.42	-9839477.30	0.0521	0.0200
Mercury	-31652-03-23 11:31 J	-9839388.11	-9839388.02	-9839387.93	0.0517	0.0394
Venus	-31651-06-02 13:55 J	-9838952.12	-9838951.92	-9838951.72	0.0500	0.0050
Venus	-31650-01-24 10:47 J	-9838716.11	-9838716.05	-9838715.98	0.0493	0.0465
Mercury	-31646-05-23 11:45 J	-9837136.18	-9837136.01	-9837135.84	0.0508	0.0033
Venus	-31645-03-30 16:33 J	-9836823.84	-9836823.81	-9836823.77	0.0521	0.0512
Venus	-31645-11-23 19:40 J	-9836585.88	-9836585.68	-9836585.48	0.0530	0.0134
Mercury	-31641-10-12 05:31 J	-9835167.37	-9835167.27	-9835167.17	0.0522	0.0343
Mercury	-31640-01-09 14:52 J	-9835078.00	-9835077.88	-9835077.76	0.0518	0.0250
Mars	-31640-08-05 06:28 J	-9834870.49	-9834870.23	-9834869.97	0.0509	0.0009
Venus	-31639-02-05 17:45 J	-9834685.95	-9834685.76	-9834685.58	0.0502	0.0198
Venus	-31639-09-29 15:35 J	-9834449.99	-9834449.85	-9834449.69	0.0495	0.0328
Mercury	-31634-03-11 10:33 J	-9832826.21	-9832826.06	-9832825.90	0.0507	0.0212
Mercury	-31634-06-09 11:31 J	-9832736.07	-9832736.02	-9832735.97	0.0511	0.0484
Venus	-31633-07-29 07:40 J	-9832320.39	-9832320.18	-9832319.98	0.0528	0.0052
Mercury	-31629-07-31 09:07 J	-9830857.17	-9830857.12	-9830857.07	0.0522	0.0482
Mercury	-31629-10-28 18:28 J	-9830767.87	-9830767.73	-9830767.60	0.0519	0.0108
Venus	-31628-10-11 20:52 J	-9830419.76	-9830419.63	-9830419.48	0.0504	0.0347
Venus	-31627-06-04 20:23 J	-9830183.84	-9830183.65	-9830183.46	0.0496	0.0186
Mercury	-31623-12-28 10:04 J	-9828516.19	-9828516.08	-9828515.97	0.0507	0.0382
Mercury	-31622-03-28 11:31 J	-9828426.15	-9828426.02	-9828425.89	0.0510	0.0319
Venus	-31621-04-02 21:35 J	-9828054.78	-9828054.60	-9828054.41	0.0526	0.0231
Venus	-31621-11-27 04:04 J	-9827816.44	-9827816.33	-9827816.20	0.0534	0.0437
Mercury	-31617-08-16 21:21 J	-9826457.74	-9826457.61	-9826457.47	0.0519	0.0045
Venus	-31616-06-16 22:04 J	-9826153.61	-9826153.58	-9826153.54	0.0507	0.0498

Venus	-31615-02-07 22:47 J	-9825917.75	-9825917.55	-9825917.34	0.0498	0.0039
Mercury	-31610-01-14 11:02 J	-9824116.20	-9824116.04	-9824115.88	0.0510	0.0150
Venus	-31610-12-07 11:16 J	-9823789.16	-9823789.03	-9823788.90	0.0523	0.0406
Venus	-31609-08-01 15:50 J	-9823551.02	-9823550.84	-9823550.65	0.0532	0.0250
Mercury	-31605-06-05 00:28 J	-9822147.60	-9822147.48	-9822147.35	0.0520	0.0193
Mercury	-31605-09-02 10:04 J	-9822058.16	-9822058.08	-9822057.99	0.0516	0.0401
Mars	-31604-05-09 16:04 J	-9821808.99	-9821808.83	-9821808.67	0.0506	0.0396
Venus	-31604-10-14 02:09 J	-9821651.60	-9821651.41	-9821651.21	0.0501	0.0111
Venus	-31603-06-06 23:16 J	-9821415.64	-9821415.53	-9821415.41	0.0493	0.0408
Earth	-31600-10-01 02:38 J	-9820203.52	-9820203.39	-9820203.27	0.0495	0.0423
Moon	-31600-10-01 03:21 J	-9820203.50	-9820203.36	-9820203.22	0.0495	0.0394 *
Mercury	-31599-11-02 09:50 J	-9819806.25	-9819806.09	-9819805.92	0.0508	0.0031
Venus	-31597-04-06 00:57 J	-9819285.66	-9819285.46	-9819285.25	0.0529	0.0059
Mercury	-31593-03-24 03:35 J	-9817837.45	-9817837.35	-9817837.25	0.0522	0.0346
Mercury	-31593-06-21 12:57 J	-9817748.08	-9817747.96	-9817747.84	0.0518	0.0247
Venus	-31592-06-19 05:16 J	-9817385.45	-9817385.28	-9817385.11	0.0504	0.0260
Venus	-31591-02-10 04:04 J	-9817149.50	-9817149.33	-9817149.16	0.0496	0.0268
Earth	-31588-10-05 14:52 J	-9815816.11	-9815815.88	-9815815.64	0.0496	0.0062
Moon	-31588-10-05 15:35 J	-9815816.09	-9815815.85	-9815815.61	0.0496	0.0064 *
Mercury	-31587-08-21 08:52 J	-9815496.28	-9815496.13	-9815495.97	0.0507	0.0205
Mercury	-31587-11-19 09:50 J	-9815406.13	-9815406.09	-9815406.04	0.0511	0.0490
Venus	-31586-12-10 12:43 J	-9815020.16	-9815019.97	-9815019.76	0.0527	0.0129
Moon	-31582-03-31 13:26 J	-9813813.06	-9813812.94	-9813812.79	0.0533	0.0434
Earth	-31582-03-31 16:33 J	-9813812.95	-9813812.81	-9813812.66	0.0533	0.0412 *
Mercury	-31581-01-11 07:11 J	-9813527.25	-9813527.20	-9813527.16	0.0523	0.0488
Mercury	-31581-04-09 16:19 J	-9813437.95	-9813437.82	-9813437.68	0.0519	0.0102
Venus	-31580-02-22 08:23 J	-9813119.26	-9813119.15	-9813119.03	0.0506	0.0407
Venus	-31580-10-16 08:52 J	-9812883.33	-9812883.13	-9812882.94	0.0498	0.0127
Mercury	-31575-06-09 07:40 J	-9811186.29	-9811186.18	-9811186.07	0.0506	0.0385
Mercury	-31575-09-07 09:07 J	-9811096.25	-9811096.12	-9811095.99	0.0510	0.0315

Venus	-31574-08-15 01:26 J	-9810754.61	-9810754.44	-9810754.27	0.0524	0.0307
Venus	-31573-04-09 06:43 J	-9810516.37	-9810516.22	-9810516.06	0.0533	0.0353
Earth	-31570-04-05 18:14 J	-9809424.95	-9809424.74	-9809424.52	0.0532	0.0198
Moon	-31570-04-05 19:26 J	-9809424.89	-9809424.69	-9809424.47	0.0532	0.0173 *
Mercury	-31569-01-27 19:55 J	-9809127.81	-9809127.67	-9809127.53	0.0520	0.0040
Venus	-31568-06-21 12:57 J	-9808617.16	-9808616.96	-9808616.76	0.0500	0.0021
Venus	-31567-02-12 09:35 J	-9808381.11	-9808381.10	-9808381.09	0.0493	0.0491
Mercury	-31563-06-26 08:52 J	-9806786.29	-9806786.13	-9806785.97	0.0509	0.0148
Venus	-31562-04-19 16:04 J	-9806488.91	-9806488.83	-9806488.74	0.0522	0.0477
Venus	-31562-12-13 20:09 J	-9806250.86	-9806250.66	-9806250.47	0.0531	0.0170
Mercury	-31558-11-15 23:16 J	-9804817.66	-9804817.53	-9804817.40	0.0520	0.0186
Mercury	-31557-02-13 08:52 J	-9804728.21	-9804728.13	-9804728.05	0.0517	0.0407
Venus	-31556-02-24 15:35 J	-9804351.04	-9804350.85	-9804350.66	0.0502	0.0169
Venus	-31556-10-18 12:57 J	-9804115.09	-9804114.96	-9804114.81	0.0494	0.0352
Mercury	-31551-04-14 08:23 J	-9802476.32	-9802476.15	-9802475.98	0.0509	0.0022
Mars	-31551-11-02 16:47 J	-9802274.03	-9802273.80	-9802273.57	0.0517	0.0311
Venus	-31550-08-18 08:52 J	-9801985.34	-9801985.13	-9801984.93	0.0529	0.0018
Mercury	-31546-09-04 02:23 J	-9800507.50	-9800507.40	-9800507.29	0.0521	0.0334
Mercury	-31546-12-02 11:45 J	-9800418.12	-9800418.01	-9800417.89	0.0518	0.0258
Venus	-31545-10-30 18:14 J	-9800084.89	-9800084.74	-9800084.58	0.0504	0.0318
Venus	-31544-06-23 17:16 J	-9799848.96	-9799848.78	-9799848.60	0.0496	0.0210
Mercury	-31539-01-31 07:11 J	-9798166.35	-9798166.20	-9798166.04	0.0507	0.0199
Mercury	-31539-05-01 08:09 J	-9798076.19	-9798076.16	-9798076.12	0.0511	0.0496
Venus	-31538-04-22 19:11 J	-9797719.89	-9797719.70	-9797719.50	0.0525	0.0200
Venus	-31538-12-17 00:57 J	-9797481.56	-9797481.46	-9797481.35	0.0534	0.0461
Mercury	-31534-06-23 05:16 J	-9796197.32	-9796197.28	-9796197.23	0.0523	0.0489
Mercury	-31534-09-20 14:38 J	-9796108.03	-9796107.89	-9796107.76	0.0519	0.0102
Venus	-31533-07-05 19:55 J	-9795818.74	-9795818.67	-9795818.60	0.0507	0.0469
Venus	-31532-02-26 21:21 J	-9795582.81	-9795582.61	-9795582.41	0.0499	0.0067
Mercury	-31528-11-19 06:14 J	-9793856.35	-9793856.24	-9793856.12	0.0506	0.0374

Mercury	-31527-02-17 07:40 J	-9793766.30	-9793766.18	-9793766.05	0.0510	0.0325
Venus	-31527-12-26 07:55 J	-9793454.31	-9793454.17	-9793454.02	0.0523	0.0377
Venus	-31526-08-21 11:59 J	-9793216.17	-9793216.00	-9793215.82	0.0532	0.0275
Mercury	-31522-07-09 17:59 J	-9791797.88	-9791797.75	-9791797.61	0.0520	0.0044
Mars	-31521-01-25 09:35 J	-9791598.31	-9791598.10	-9791597.88	0.0512	0.0292
Venus	-31521-11-02 01:26 J	-9791316.64	-9791316.44	-9791316.24	0.0501	0.0079
Venus	-31520-06-25 22:47 J	-9791080.64	-9791080.55	-9791080.45	0.0494	0.0436
Moon	-31517-09-30 07:55 J	-9789888.24	-9789888.17	-9789888.09	0.0494	0.0466
Mercury	-31516-12-06 06:43 J	-9789456.38	-9789456.22	-9789456.06	0.0509	0.0149
Mars	-31515-08-09 17:31 J	-9789210.04	-9789209.77	-9789209.50	0.0519	0.0180
Venus	-31514-04-25 23:45 J	-9788950.71	-9788950.51	-9788950.30	0.0530	0.0091
Mercury	-31510-04-27 21:50 J	-9787487.72	-9787487.59	-9787487.47	0.0521	0.0183
Mercury	-31510-07-26 07:26 J	-9787398.27	-9787398.19	-9787398.11	0.0517	0.0412
Venus	-31509-07-08 05:16 J	-9787050.46	-9787050.28	-9787050.10	0.0503	0.0226
Venus	-31508-03-01 03:50 J	-9786814.50	-9786814.34	-9786814.18	0.0495	0.0298
Moon	-31505-10-04 17:59 J	-9785500.98	-9785500.75	-9785500.52	0.0496	0.0018
Earth	-31505-10-04 20:09 J	-9785500.90	-9785500.66	-9785500.43	0.0496	0.0015 *
Mercury	-31504-09-24 06:28 J	-9785146.40	-9785146.23	-9785146.06	0.0508	0.0022
Venus	-31503-12-29 13:26 J	-9784685.14	-9784684.94	-9784684.73	0.0527	0.0091
Earth	-31499-03-30 23:02 J	-9783497.63	-9783497.54	-9783497.45	0.0534	0.0489
Moon	-31499-03-31 00:43 J	-9783497.52	-9783497.47	-9783497.42	0.0534	0.0516 *
Mercury	-31498-02-14 01:11 J	-9783177.55	-9783177.45	-9783177.34	0.0521	0.0326
Mercury	-31498-05-14 10:33 J	-9783088.17	-9783088.06	-9783087.94	0.0518	0.0265
Venus	-31497-03-13 07:40 J	-9782784.32	-9782784.18	-9782784.05	0.0505	0.0376
Venus	-31497-11-04 07:11 J	-9782548.38	-9782548.20	-9782548.00	0.0497	0.0155
Earth	-31493-10-09 08:52 J	-9781113.19	-9781113.13	-9781113.06	0.0498	0.0478
Moon	-31493-10-09 12:14 J	-9781113.08	-9781112.99	-9781112.88	0.0498	0.0450 *
Mercury	-31492-07-13 05:45 J	-9780836.41	-9780836.26	-9780836.10	0.0508	0.0190
Mercury	-31492-10-11 06:57 J	-9780746.23	-9780746.21	-9780746.19	0.0511	0.0506
Venus	-31491-09-03 03:21 J	-9780419.54	-9780419.36	-9780419.18	0.0525	0.0268

Venus	-31490-04-29 09:07 J	-9780181.26	-9780181.12	-9780180.98	0.0533	0.0390
Earth	-31487-04-04 22:19 J	-9779109.79	-9779109.57	-9779109.34	0.0532	0.0108
Moon	-31487-04-04 22:33 J	-9779109.79	-9779109.56	-9779109.32	0.0532	0.0085 *
Mercury	-31487-12-03 04:33 J	-9778867.36	-9778867.31	-9778867.25	0.0522	0.0472
Mercury	-31486-03-02 13:40 J	-9778778.06	-9778777.93	-9778777.79	0.0519	0.0118
Mars	-31486-10-30 05:16 J	-9778536.53	-9778536.28	-9778536.02	0.0509	0.0121
Venus	-31485-07-10 11:02 J	-9778282.24	-9778282.04	-9778281.83	0.0499	0.0014
Mercury	-31480-05-01 04:47 J	-9776526.41	-9776526.30	-9776526.18	0.0506	0.0365
Mercury	-31480-07-30 06:14 J	-9776436.36	-9776436.24	-9776436.11	0.0510	0.0335
Venus	-31479-05-08 15:21 J	-9776153.96	-9776153.86	-9776153.75	0.0521	0.0443
Venus	-31478-01-01 18:28 J	-9775915.91	-9775915.73	-9775915.53	0.0531	0.0202
Mercury	-31475-12-19 16:33 J	-9774467.95	-9774467.81	-9774467.68	0.0520	0.0041
Venus	-31473-03-15 14:09 J	-9774016.11	-9774015.91	-9774015.72	0.0502	0.0139
Venus	-31473-11-06 12:14 J	-9773780.11	-9773779.99	-9773779.86	0.0495	0.0381
Mercury	-31468-05-18 05:45 J	-9772126.42	-9772126.26	-9772126.10	0.0509	0.0163
Venus	-31467-09-06 06:28 J	-9771650.44	-9771650.23	-9771650.03	0.0528	0.0018
Mercury	-31463-10-07 19:55 J	-9770157.79	-9770157.67	-9770157.54	0.0521	0.0185
Mercury	-31462-01-05 05:31 J	-9770068.35	-9770068.27	-9770068.18	0.0517	0.0411
Venus	-31462-11-19 17:31 J	-9769749.93	-9769749.77	-9769749.60	0.0505	0.0285
Venus	-31461-07-12 17:02 J	-9769513.96	-9769513.79	-9769513.61	0.0496	0.0242
Mercury	-31456-03-06 04:33 J	-9767816.47	-9767816.31	-9767816.14	0.0508	0.0019
Venus	-31455-05-11 18:28 J	-9767384.92	-9767384.73	-9767384.53	0.0526	0.0165
Venus	-31454-01-05 00:28 J	-9767146.55	-9767146.48	-9767146.39	0.0534	0.0494
Mercury	-31451-07-26 23:45 J	-9765847.61	-9765847.51	-9765847.40	0.0522	0.0323
Mercury	-31451-10-24 09:07 J	-9765758.23	-9765758.12	-9765758.00	0.0518	0.0270
Venus	-31450-07-25 20:38 J	-9765483.74	-9765483.64	-9765483.53	0.0507	0.0432
Venus	-31449-03-17 21:50 J	-9765247.79	-9765247.59	-9765247.39	0.0498	0.0100
Mercury	-31445-12-23 04:04 J	-9763506.49	-9763506.33	-9763506.17	0.0507	0.0185
Mercury	-31444-03-23 05:02 J	-9763416.29	-9763416.29	-9763416.28	0.0511	0.0510
Venus	-31443-01-14 08:52 J	-9763119.29	-9763119.13	-9763118.98	0.0523	0.0339



Venus	-31443-09-09 13:40 J	-9762881.09	-9762880.93	-9762880.76	0.0532	0.0314
Mercury	-31439-05-15 03:21 J	-9761537.42	-9761537.36	-9761537.30	0.0523	0.0464
Mercury	-31439-08-12 12:28 J	-9761448.11	-9761447.98	-9761447.84	0.0519	0.0127
Venus	-31438-11-22 01:11 J	-9760981.65	-9760981.45	-9760981.25	0.0500	0.0047
Venus	-31437-07-14 22:04 J	-9760745.64	-9760745.58	-9760745.51	0.0493	0.0462
Mercury	-31433-10-11 03:21 J	-9759196.48	-9759196.36	-9759196.23	0.0507	0.0356
Mercury	-31432-01-09 05:02 J	-9759106.41	-9759106.29	-9759106.17	0.0510	0.0345
Venus	-31432-09-18 23:31 J	-9758853.56	-9758853.52	-9758853.47	0.0521	0.0507
Venus	-31431-05-15 02:52 J	-9758615.58	-9758615.38	-9758615.18	0.0530	0.0131
Mercury	-31427-05-31 15:50 J	-9757137.97	-9757137.84	-9757137.70	0.0520	0.0022
Venus	-31426-07-28 04:19 J	-9756715.50	-9756715.32	-9756715.13	0.0503	0.0194
Venus	-31425-03-20 02:52 J	-9756479.53	-9756479.38	-9756479.23	0.0495	0.0326
Earth	-31422-10-05 04:47 J	-9755185.53	-9755185.30	-9755185.06	0.0495	0.0073
Moon	-31422-10-05 08:23 J	-9755185.39	-9755185.15	-9755184.91	0.0495	0.0084 *
Mercury	-31421-10-28 04:33 J	-9754796.47	-9754796.31	-9754796.15	0.0509	0.0175
Venus	-31419-01-17 13:40 J	-9754350.13	-9754349.93	-9754349.72	0.0527	0.0054
Mercury	-31415-03-19 18:28 J	-9752827.85	-9752827.73	-9752827.60	0.0521	0.0180
Mercury	-31415-06-17 04:04 J	-9752738.41	-9752738.33	-9752738.24	0.0517	0.0416
Venus	-31414-04-02 05:59 J	-9752449.39	-9752449.25	-9752449.10	0.0506	0.0344
Venus	-31414-11-24 06:28 J	-9752213.41	-9752213.23	-9752213.04	0.0498	0.0186
Moon	-31410-10-09 14:23 J	-9750798.04	-9750797.90	-9750797.75	0.0497	0.0390
Earth	-31410-10-09 18:14 J	-9750797.86	-9750797.74	-9750797.61	0.0497	0.0420 *
Mercury	-31409-08-16 03:50 J	-9750486.51	-9750486.34	-9750486.17	0.0508	0.0011
Venus	-31408-09-22 02:38 J	-9750084.58	-9750084.39	-9750084.21	0.0524	0.0232
Venus	-31407-05-18 07:26 J	-9749846.31	-9749846.19	-9749846.07	0.0533	0.0420
Moon	-31404-04-03 20:09 J	-9748794.88	-9748794.66	-9748794.44	0.0533	0.0026
Earth	-31404-04-03 21:50 J	-9748794.82	-9748794.59	-9748794.36	0.0533	0.0012 *
Mercury	-31403-01-05 22:04 J	-9748517.68	-9748517.58	-9748517.48	0.0522	0.0324
Mercury	-31403-04-05 07:26 J	-9748428.30	-9748428.19	-9748428.07	0.0519	0.0270
Venus	-31403-12-06 08:38 J	-9748183.19	-9748183.14	-9748183.09	0.0508	0.0491

Venus	-31402-07-30 10:47 J	-9747947.25	-9747947.05	-9747946.85	0.0500	0.0044
Mercury	-31397-06-04 02:38 J	-9746176.55	-9746176.39	-9746176.23	0.0507	0.0176
Mars	-31396-01-26 16:19 J	-9745940.09	-9745939.82	-9745939.55	0.0517	0.0184
Venus	-31396-05-27 15:07 J	-9745819.00	-9745818.87	-9745818.74	0.0522	0.0406
Venus	-31395-01-20 18:28 J	-9745580.91	-9745580.73	-9745580.54	0.0531	0.0237
Mercury	-31392-10-25 01:55 J	-9744207.48	-9744207.42	-9744207.36	0.0523	0.0461
Mercury	-31391-01-22 11:02 J	-9744118.17	-9744118.04	-9744117.90	0.0519	0.0131
Venus	-31390-04-04 15:21 J	-9743681.06	-9743680.86	-9743680.67	0.0502	0.0102
Venus	-31390-11-26 13:11 J	-9743445.06	-9743444.95	-9743444.84	0.0494	0.0412
Mercury	-31385-03-23 01:55 J	-9741866.54	-9741866.42	-9741866.29	0.0506	0.0347
Mercury	-31385-06-21 03:21 J	-9741776.48	-9741776.36	-9741776.24	0.0510	0.0352
Venus	-31384-09-25 08:09 J	-9741315.37	-9741315.16	-9741314.96	0.0529	0.0056
Mercury	-31380-11-10 14:38 J	-9739808.02	-9739807.89	-9739807.75	0.0520	0.0018
Venus	-31379-12-08 18:14 J	-9739414.91	-9739414.74	-9739414.56	0.0504	0.0250
Venus	-31378-08-01 17:16 J	-9739178.95	-9739178.78	-9739178.61	0.0496	0.0273
Mercury	-31373-04-09 03:07 J	-9737466.52	-9737466.37	-9737466.21	0.0509	0.0186
Venus	-31372-05-30 21:50 J	-9737049.79	-9737049.59	-9737049.39	0.0526	0.0123
Venus	-31371-01-24 04:33 J	-9736811.32	-9736811.31	-9736811.30	0.0535	0.0533
Mercury	-31368-08-29 18:14 J	-9735497.87	-9735497.74	-9735497.61	0.0521	0.0158
Mercury	-31368-11-27 03:50 J	-9735408.42	-9735408.34	-9735408.27	0.0517	0.0437
Mars	-31367-04-20 19:26 J	-9735263.94	-9735263.69	-9735263.44	0.0511	0.0159
Venus	-31367-08-13 20:52 J	-9735148.75	-9735148.63	-9735148.51	0.0506	0.0398
Venus	-31366-04-06 21:35 J	-9734912.79	-9734912.60	-9734912.40	0.0498	0.0132
Mercury	-31361-01-27 02:52 J	-9733156.55	-9733156.38	-9733156.21	0.0508	0.0018
Mars	-31361-11-03 10:33 J	-9732875.28	-9732875.06	-9732874.84	0.0519	0.0337
Venus	-31360-02-02 10:33 J	-9732784.23	-9732784.06	-9732783.89	0.0523	0.0297
Venus	-31360-09-28 14:52 J	-9732546.03	-9732545.88	-9732545.72	0.0532	0.0350
Mercury	-31356-06-17 20:38 J	-9731187.74	-9731187.64	-9731187.53	0.0522	0.0318
Mercury	-31356-09-15 06:14 J	-9731098.36	-9731098.24	-9731098.13	0.0518	0.0277
Venus	-31355-12-11 00:14 J	-9730646.69	-9730646.49	-9730646.29	0.0501	0.0016

Venus	-31354-08-03 21:50 J	-9730410.59	-9730410.59	-9730410.57	0.0494	0.0493
Mercury	-31350-11-15 02:09 J	-9728846.57	-9728846.41	-9728846.25	0.0507	0.0154
Venus	-31349-10-08 00:14 J	-9728518.57	-9728518.49	-9728518.39	0.0520	0.0467
Venus	-31348-06-03 02:38 J	-9728280.59	-9728280.39	-9728280.20	0.0529	0.0166
Mercury	-31344-04-06 00:14 J	-9726877.55	-9726877.49	-9726877.43	0.0523	0.0461
Mercury	-31344-07-04 09:35 J	-9726788.24	-9726788.10	-9726787.97	0.0520	0.0131
Venus	-31343-08-16 03:50 J	-9726380.53	-9726380.34	-9726380.15	0.0503	0.0160
Venus	-31342-04-09 02:52 J	-9726144.51	-9726144.38	-9726144.24	0.0495	0.0359
Moon	-31339-10-04 09:35 J	-9724870.33	-9724870.10	-9724869.88	0.0495	0.0153
Earth	-31339-10-04 13:26 J	-9724870.17	-9724869.94	-9724869.71	0.0495	0.0131 *
Mercury	-31338-09-03 00:43 J	-9724536.59	-9724536.47	-9724536.34	0.0506	0.0335
Mercury	-31338-12-02 02:09 J	-9724446.53	-9724446.41	-9724446.29	0.0509	0.0362
Venus	-31336-02-05 13:55 J	-9724015.12	-9724014.92	-9724014.71	0.0527	0.0020
Mercury	-31332-04-22 13:11 J	-9722478.08	-9722477.95	-9722477.81	0.0520	0.0011
Mars	-31331-01-23 13:40 J	-9722202.16	-9722201.93	-9722201.70	0.0509	0.0242
Venus	-31331-04-21 07:40 J	-9722114.33	-9722114.18	-9722114.02	0.0506	0.0306
Venus	-31331-12-13 07:55 J	-9721878.35	-9721878.17	-9721877.99	0.0497	0.0220
Earth	-31327-10-09 01:55 J	-9720482.58	-9720482.42	-9720482.25	0.0496	0.0355
Moon	-31327-10-09 05:16 J	-9720482.45	-9720482.28	-9720482.11	0.0496	0.0331 *
Mercury	-31326-09-20 01:40 J	-9720136.58	-9720136.43	-9720136.27	0.0509	0.0196
Venus	-31325-10-11 04:04 J	-9719749.52	-9719749.33	-9719749.14	0.0525	0.0193
Venus	-31324-06-06 09:35 J	-9719511.20	-9719511.10	-9719510.99	0.0534	0.0459
Earth	-31321-04-03 07:55 J	-9718479.39	-9718479.17	-9718478.94	0.0533	0.0069
Moon	-31321-04-03 11:31 J	-9718479.25	-9718479.02	-9718478.79	0.0533	0.0071 *
Mercury	-31320-02-08 17:02 J	-9718167.92	-9718167.79	-9718167.66	0.0521	0.0149
Mercury	-31320-05-09 02:38 J	-9718078.46	-9718078.39	-9718078.33	0.0517	0.0446
Venus	-31320-12-25 10:19 J	-9717848.15	-9717848.07	-9717847.98	0.0508	0.0453
Venus	-31319-08-18 11:45 J	-9717612.20	-9717612.01	-9717611.81	0.0499	0.0078
Mercury	-31314-07-09 01:26 J	-9715826.61	-9715826.44	-9715826.27	0.0508	0.0027
Venus	-31313-06-15 18:43 J	-9715483.87	-9715483.72	-9715483.57	0.0522	0.0364

Venus	-31312-02-08 22:47 J	-9715245.73	-9715245.55	-9715245.38	0.0531	0.0279
Earth	-31309-04-08 08:23 J	-9714091.16	-9714091.15	-9714091.14	0.0531	0.0529
Mercury	-31309-11-27 20:23 J	-9713857.76	-9713857.65	-9713857.54	0.0522	0.0293
Mercury	-31308-02-25 05:45 J	-9713768.37	-9713768.26	-9713768.15	0.0518	0.0300
Venus	-31307-04-23 15:50 J	-9713346.04	-9713345.84	-9713345.64	0.0501	0.0068
Venus	-31307-12-15 13:26 J	-9713110.03	-9713109.94	-9713109.85	0.0494	0.0441
Mercury	-31302-04-27 01:11 J	-9711516.62	-9711516.45	-9711516.29	0.0507	0.0140
Venus	-31301-10-14 10:33 J	-9710980.26	-9710980.06	-9710979.86	0.0528	0.0098
Mercury	-31297-09-15 23:02 J	-9709547.60	-9709547.54	-9709547.47	0.0523	0.0452
Mercury	-31297-12-14 08:09 J	-9709458.29	-9709458.16	-9709458.02	0.0519	0.0140
Venus	-31296-12-27 17:02 J	-9709079.97	-9709079.79	-9709079.61	0.0504	0.0217
Venus	-31295-08-20 16:47 J	-9708843.96	-9708843.80	-9708843.64	0.0496	0.0304
Mercury	-31290-02-13 00:14 J	-9707206.62	-9707206.49	-9707206.35	0.0506	0.0312
Mercury	-31290-05-14 01:40 J	-9707116.53	-9707116.43	-9707116.32	0.0509	0.0385
Venus	-31289-06-18 23:02 J	-9706714.75	-9706714.54	-9706714.34	0.0526	0.0082
Mercury	-31285-10-02 11:31 J	-9705148.15	-9705148.02	-9705147.88	0.0520	0.0018
Venus	-31284-09-01 19:55 J	-9704813.81	-9704813.67	-9704813.53	0.0507	0.0364
Venus	-31283-04-25 21:21 J	-9704577.80	-9704577.61	-9704577.42	0.0498	0.0165
Mercury	-31279-12-01 22:47 J	-9702896.58	-9702896.55	-9702896.52	0.0505	0.0493
Mercury	-31278-03-02 00:43 J	-9702806.63	-9702806.47	-9702806.32	0.0508	0.0208
Venus	-31277-02-22 10:47 J	-9702449.22	-9702449.05	-9702448.87	0.0523	0.0261
Venus	-31277-10-17 15:21 J	-9702211.00	-9702210.86	-9702210.72	0.0532	0.0385
Mercury	-31273-07-21 15:21 J	-9700837.99	-9700837.86	-9700837.73	0.0521	0.0147
Mercury	-31273-10-19 00:57 J	-9700748.52	-9700748.46	-9700748.39	0.0518	0.0450
Venus	-31272-12-30 01:55 J	-9700311.62	-9700311.42	-9700311.22	0.0501	0.0024
Mercury	-31267-12-19 00:14 J	-9698496.66	-9698496.49	-9698496.33	0.0508	0.0040
Venus	-31266-10-28 01:26 J	-9698183.55	-9698183.44	-9698183.32	0.0521	0.0429
Venus	-31265-06-22 04:19 J	-9697945.51	-9697945.32	-9697945.13	0.0530	0.0206
Mercury	-31261-05-09 19:11 J	-9696527.81	-9696527.70	-9696527.59	0.0522	0.0285
Mercury	-31261-08-07 04:33 J	-9696438.42	-9696438.31	-9696438.20	0.0518	0.0308

Venus	-31260-09-04 05:31 J	-9696045.46	-9696045.27	-9696045.08	0.0503	0.0123
Venus	-31259-04-28 03:50 J	-9695809.46	-9695809.34	-9695809.21	0.0495	0.0390
Earth	-31256-10-03 22:47 J	-9694554.76	-9694554.55	-9694554.33	0.0495	0.0188
Moon	-31256-10-04 02:09 J	-9694554.62	-9694554.41	-9694554.20	0.0495	0.0213 *
Mercury	-31255-10-06 23:31 J	-9694186.68	-9694186.52	-9694186.35	0.0507	0.0132
Venus	-31253-02-25 17:59 J	-9693679.96	-9693679.75	-9693679.54	0.0528	0.0027
Mercury	-31249-02-26 22:47 J	-9692217.62	-9692217.55	-9692217.47	0.0523	0.0428
Mercury	-31249-05-26 07:55 J	-9692128.30	-9692128.17	-9692128.04	0.0519	0.0163
Mars	-31249-10-10 05:59 J	-9691991.37	-9691991.25	-9691991.12	0.0513	0.0449
Venus	-31248-05-10 08:38 J	-9691779.31	-9691779.14	-9691778.97	0.0505	0.0270
Venus	-31247-01-01 08:23 J	-9691543.32	-9691543.15	-9691542.97	0.0497	0.0252
Moon	-31244-10-08 11:16 J	-9690167.22	-9690167.03	-9690166.82	0.0496	0.0282
Earth	-31244-10-08 13:26 J	-9690167.12	-9690166.94	-9690166.75	0.0496	0.0307 *
Mercury	-31243-07-25 23:16 J	-9689876.67	-9689876.53	-9689876.39	0.0506	0.0298
Mercury	-31243-10-24 00:43 J	-9689786.57	-9689786.47	-9689786.37	0.0510	0.0399
Mars	-31242-04-23 17:02 J	-9689605.08	-9689604.79	-9689604.50	0.0517	0.0019
Venus	-31242-10-31 07:11 J	-9689414.39	-9689414.20	-9689414.00	0.0525	0.0148
Venus	-31241-06-25 12:14 J	-9689176.05	-9689175.99	-9689175.91	0.0533	0.0498
Moon	-31238-04-03 05:02 J	-9688164.50	-9688164.29	-9688164.07	0.0533	0.0180
Earth	-31238-04-03 09:07 J	-9688164.34	-9688164.12	-9688163.90	0.0533	0.0177 *
Mercury	-31237-03-14 10:19 J	-9687818.20	-9687818.07	-9687817.93	0.0520	0.0017
Venus	-31236-01-13 08:38 J	-9687513.25	-9687513.14	-9687513.03	0.0508	0.0421
Venus	-31236-09-06 10:47 J	-9687277.25	-9687277.05	-9687276.85	0.0500	0.0109
Mercury	-31231-05-13 22:19 J	-9685566.62	-9685566.57	-9685566.50	0.0505	0.0470
Mercury	-31231-08-12 00:14 J	-9685476.64	-9685476.49	-9685476.34	0.0508	0.0231
Venus	-31230-07-05 20:38 J	-9685148.80	-9685148.64	-9685148.48	0.0522	0.0321
Venus	-31229-02-28 23:45 J	-9684910.67	-9684910.51	-9684910.34	0.0531	0.0317
Earth	-31226-04-08 07:55 J	-9683776.31	-9683776.17	-9683776.02	0.0531	0.0415
Moon	-31226-04-08 11:16 J	-9683776.14	-9683776.03	-9683775.90	0.0531	0.0453 *
Mercury	-31225-01-01 13:40 J	-9683508.06	-9683507.93	-9683507.80	0.0521	0.0147

Mercury -31225-03-30 23:16 J -9683418.59 -9683418.53 -9683418.46 0.0518 0.0451

Venus -31224-05-12 14:38 J -9683011.09 -9683010.89 -9683010.69 0.0502 0.0036

Venus -31223-01-03 12:43 J -9682775.02 -9682774.97 -9682774.91 0.0494 0.0473

Mercury -31219-05-30 23:02 J -9681166.71 -9681166.54 -9681166.37 0.0507 0.0051

Venus -31218-03-10 09:07 J -9680883.18 -9680883.12 -9680883.05 0.0519 0.0491

Venus -31218-11-03 10:33 J -9680645.25 -9680645.06 -9680644.85 0.0529 0.0135

Mercury -31214-10-20 17:31 J -9679197.88 -9679197.77 -9679197.66 0.0522 0.0285

Mercury -31213-01-18 02:52 J -9679108.48 -9679108.38 -9679108.27 0.0519 0.0310

Mars -31213-07-15 01:55 J -9678929.68 -9678929.42 -9678929.16 0.0511 0.0040

Venus -31212-01-15 18:28 J -9678744.91 -9678744.73 -9678744.54 0.0504 0.0180

Venus -31212-09-08 17:59 J -9678508.90 -9678508.75 -9678508.60 0.0496 0.0337

Mercury -31207-03-18 22:19 J -9676856.74 -9676856.57 -9676856.41 0.0507 0.0121

Mars -31206-01-28 23:31 J -9676540.60 -9676540.52 -9676540.41 0.0520 0.0488

Venus -31206-07-08 23:59 J -9676379.71 -9676379.50 -9676379.30 0.0526 0.0045

Mercury -31202-08-08 21:21 J -9674887.68 -9674887.61 -9674887.53 0.0523 0.0423

Mercury -31202-11-06 06:43 J -9674798.35 -9674798.22 -9674798.10 0.0519 0.0170

Venus -31201-09-20 21:35 J -9674478.74 -9674478.60 -9674478.44 0.0506 0.0327

Venus -31200-05-14 22:19 J -9674242.75 -9674242.57 -9674242.38 0.0498 0.0199

Mercury -31195-01-04 21:35 J -9672546.74 -9672546.60 -9672546.46 0.0506 0.0292

Mercury -31195-04-04 23:02 J -9672456.64 -9672456.54 -9672456.44 0.0510 0.0406

Venus -31194-03-13 14:09 J -9672114.09 -9672113.91 -9672113.72 0.0524 0.0218

Venus -31194-11-06 19:11 J -9671875.81 -9671875.70 -9671875.57 0.0533 0.0427

Mercury -31190-08-25 10:04 J -9670488.22 -9670488.08 -9670487.95 0.0520 0.0025

Venus -31189-05-26 23:59 J -9670212.57 -9670212.50 -9670212.42 0.0509 0.0473

Venus -31188-01-18 02:23 J -9669976.60 -9669976.40 -9669976.20 0.0500 0.0056

Mercury -31184-10-23 21:07 J -9668236.69 -9668236.62 -9668236.55 0.0505 0.0458

Mercury -31183-01-21 23:02 J -9668146.68 -9668146.54 -9668146.39 0.0509 0.0244

Venus -31183-11-16 05:02 J -9667848.43 -9667848.29 -9667848.15 0.0521 0.0384

Venus -31182-07-12 07:26 J -9667610.37 -9667610.19 -9667610.00 0.0530 0.0249

Mercury -31178-06-13 12:28 J -9666178.11 -9666177.98 -9666177.85 0.0521 0.0138

Mercury	-31178-09-10 22:04 J	-9666088.64	-9666088.58	-9666088.51	0.0518	0.0458
Mars	-31177-04-18 16:33 J	-9665867.99	-9665867.81	-9665867.62	0.0509	0.0351
Venus	-31177-09-23 03:35 J	-9665710.54	-9665710.35	-9665710.15	0.0503	0.0092
Venus	-31176-05-17 02:38 J	-9665474.50	-9665474.39	-9665474.29	0.0495	0.0419
Moon	-31173-10-03 08:52 J	-9664239.34	-9664239.13	-9664238.92	0.0494	0.0259
Earth	-31173-10-03 11:02 J	-9664239.25	-9664239.04	-9664238.83	0.0494	0.0232 *
Mercury	-31172-11-09 22:33 J	-9663836.73	-9663836.56	-9663836.39	0.0508	0.0074
Venus	-31170-03-16 19:40 J	-9663344.89	-9663344.68	-9663344.48	0.0527	0.0068
Mercury	-31166-04-01 15:50 J	-9661867.95	-9661867.84	-9661867.73	0.0522	0.0285
Mercury	-31166-06-30 01:11 J	-9661778.56	-9661778.45	-9661778.34	0.0519	0.0310
Venus	-31165-05-29 06:28 J	-9661444.41	-9661444.23	-9661444.05	0.0505	0.0238
Venus	-31164-01-20 06:43 J	-9661208.38	-9661208.22	-9661208.05	0.0497	0.0283
Earth	-31161-10-07 21:21 J	-9659851.81	-9659851.61	-9659851.40	0.0496	0.0246
Moon	-31161-10-07 21:35 J	-9659851.80	-9659851.60	-9659851.39	0.0496	0.0231 *
Mercury	-31160-08-28 21:07 J	-9659526.79	-9659526.62	-9659526.45	0.0507	0.0108
Venus	-31159-11-19 06:43 J	-9659079.42	-9659079.22	-9659079.01	0.0525	0.0114
Venus	-31158-07-15 11:59 J	-9658841.02	-9658841.00	-9658840.98	0.0533	0.0530
Earth	-31155-04-02 14:09 J	-9657849.10	-9657848.91	-9657848.70	0.0534	0.0262
Moon	-31155-04-02 17:59 J	-9657848.95	-9657848.75	-9657848.55	0.0534	0.0256 *
Mercury	-31154-01-18 19:40 J	-9657557.76	-9657557.68	-9657557.60	0.0523	0.0424
Mercury	-31154-04-18 04:47 J	-9657468.43	-9657468.30	-9657468.17	0.0520	0.0168
Venus	-31153-02-02 09:50 J	-9657178.22	-9657178.09	-9657177.96	0.0508	0.0384
Venus	-31153-09-25 11:45 J	-9656942.21	-9656942.01	-9656941.82	0.0499	0.0143
Mercury	-31148-06-16 20:09 J	-9655216.80	-9655216.66	-9655216.52	0.0506	0.0282
Mercury	-31148-09-14 21:35 J	-9655126.69	-9655126.60	-9655126.50	0.0509	0.0414
Venus	-31147-07-24 20:23 J	-9654813.82	-9654813.65	-9654813.47	0.0522	0.0286
Venus	-31146-03-20 00:14 J	-9654575.64	-9654575.49	-9654575.34	0.0531	0.0352
Moon	-31143-04-07 14:23 J	-9653461.06	-9653460.90	-9653460.73	0.0532	0.0381
Earth	-31143-04-07 16:47 J	-9653460.96	-9653460.80	-9653460.62	0.0532	0.0350 *
Mercury	-31142-02-04 08:38 J	-9653158.28	-9653158.14	-9653158.01	0.0520	0.0029

Venus	-31141-05-31 15:35 J	-9652676.05	-9652675.85	-9652675.65	0.0501	0.0009
Mercury	-31136-04-04 19:11 J	-9650906.77	-9650906.70	-9650906.62	0.0505	0.0455
Mercury	-31136-07-03 21:21 J	-9650816.76	-9650816.61	-9650816.47	0.0509	0.0247
Venus	-31135-03-29 11:31 J	-9650548.12	-9650548.02	-9650547.92	0.0520	0.0450
Venus	-31135-11-22 13:40 J	-9650310.12	-9650309.93	-9650309.73	0.0529	0.0175
Mercury	-31131-11-23 11:59 J	-9648848.13	-9648848.00	-9648847.86	0.0521	0.0117
Mercury	-31130-02-20 21:35 J	-9648758.64	-9648758.60	-9648758.55	0.0517	0.0480
Venus	-31129-02-04 18:57 J	-9648409.90	-9648409.71	-9648409.51	0.0504	0.0145
Venus	-31129-09-27 17:59 J	-9648173.88	-9648173.75	-9648173.61	0.0496	0.0367
Mercury	-31124-04-21 21:07 J	-9646506.78	-9646506.62	-9646506.45	0.0508	0.0084
Mars	-31124-10-11 02:23 J	-9646334.59	-9646334.40	-9646334.19	0.0515	0.0361
Venus	-31123-07-28 03:07 J	-9646044.58	-9646044.37	-9646044.16	0.0526	0.0002
Mercury	-31119-09-11 14:38 J	-9644538.00	-9644537.89	-9644537.78	0.0522	0.0277
Mercury	-31119-12-09 23:59 J	-9644448.61	-9644448.50	-9644448.39	0.0518	0.0316
Venus	-31118-10-10 19:11 J	-9644143.86	-9644143.70	-9644143.54	0.0506	0.0295
Venus	-31117-06-02 19:55 J	-9643907.84	-9643907.67	-9643907.48	0.0498	0.0229
Mercury	-31112-02-07 20:38 J	-9642196.81	-9642196.64	-9642196.48	0.0507	0.0088
Venus	-31111-04-01 16:04 J	-9641779.02	-9641778.83	-9641778.63	0.0523	0.0176
Venus	-31111-11-25 20:09 J	-9641540.75	-9641540.66	-9641540.55	0.0532	0.0463
Mercury	-31107-06-30 17:59 J	-9640227.83	-9640227.75	-9640227.67	0.0523	0.0425
Mercury	-31107-09-28 03:07 J	-9640138.50	-9640138.37	-9640138.24	0.0520	0.0167
Venus	-31106-06-15 20:52 J	-9639877.73	-9639877.63	-9639877.53	0.0509	0.0443
Venus	-31105-02-06 23:45 J	-9639641.71	-9639641.51	-9639641.31	0.0500	0.0086
Mercury	-31101-11-26 18:57 J	-9637886.86	-9637886.71	-9637886.57	0.0506	0.0271
Mercury	-31100-02-24 20:23 J	-9637796.74	-9637796.65	-9637796.56	0.0509	0.0425
Venus	-31100-12-05 03:35 J	-9637513.50	-9637513.35	-9637513.19	0.0521	0.0351
Venus	-31099-07-31 06:14 J	-9637275.42	-9637275.24	-9637275.07	0.0530	0.0280
Mercury	-31095-07-17 06:43 J	-9635828.36	-9635828.22	-9635828.08	0.0521	0.0025
Mars	-31094-01-04 05:16 J	-9635657.46	-9635657.28	-9635657.07	0.0514	0.0341
Venus	-31094-10-13 03:50 J	-9635375.53	-9635375.34	-9635375.14	0.0503	0.0059



Venus	-31093-06-05 02:38 J	-9635139.47	-9635139.39	-9635139.31	0.0495	0.0449
Earth	-31090-10-03 16:33 J	-9633923.99	-9633923.81	-9633923.62	0.0494	0.0301
Moon	-31090-10-03 17:02 J	-9633923.96	-9633923.79	-9633923.63	0.0494	0.0330 *
Mercury	-31089-09-14 17:45 J	-9633576.84	-9633576.76	-9633576.68	0.0505	0.0446
Mercury	-31089-12-13 19:40 J	-9633486.83	-9633486.68	-9633486.54	0.0508	0.0253
Mars	-31088-07-17 22:19 J	-9633270.84	-9633270.57	-9633270.28	0.0517	0.0119
Venus	-31088-08-09 17:59 J	-9633247.77	-9633247.75	-9633247.72	0.0518	0.0514
Venus	-31087-04-04 18:43 J	-9633009.92	-9633009.72	-9633009.52	0.0528	0.0101
Mercury	-31083-05-05 10:19 J	-9631518.20	-9631518.07	-9631517.93	0.0521	0.0117
Mercury	-31083-08-02 19:55 J	-9631428.71	-9631428.67	-9631428.62	0.0518	0.0481
Venus	-31082-06-18 07:26 J	-9631109.38	-9631109.19	-9631109.01	0.0505	0.0203
Venus	-31081-02-09 06:57 J	-9630873.36	-9630873.21	-9630873.05	0.0497	0.0314
Earth	-31078-10-08 04:04 J	-9629536.55	-9629536.33	-9629536.11	0.0495	0.0177
Moon	-31078-10-08 05:45 J	-9629536.48	-9629536.26	-9629536.02	0.0495	0.0172 *
Mercury	-31077-10-01 18:57 J	-9629176.87	-9629176.71	-9629176.54	0.0508	0.0084
Venus	-31076-12-08 08:38 J	-9628744.35	-9628744.14	-9628743.94	0.0525	0.0074
Moon	-31072-04-01 18:57 J	-9627533.89	-9627533.71	-9627533.52	0.0534	0.0332
Earth	-31072-04-01 21:50 J	-9627533.77	-9627533.59	-9627533.41	0.0534	0.0337 *
Mercury	-31071-02-21 13:55 J	-9627208.03	-9627207.92	-9627207.80	0.0522	0.0259
Mercury	-31071-05-21 23:16 J	-9627118.63	-9627118.53	-9627118.42	0.0518	0.0335
Venus	-31070-02-21 09:50 J	-9626843.23	-9626843.09	-9626842.94	0.0507	0.0349
Venus	-31070-10-15 11:16 J	-9626607.22	-9626607.03	-9626606.84	0.0499	0.0174
Mercury	-31065-07-20 18:57 J	-9624866.88	-9624866.71	-9624866.55	0.0507	0.0082
Venus	-31064-08-12 23:02 J	-9624478.72	-9624478.54	-9624478.35	0.0522	0.0243
Venus	-31063-04-08 02:52 J	-9624240.51	-9624240.38	-9624240.24	0.0531	0.0393
Earth	-31060-04-06 17:31 J	-9623145.98	-9623145.77	-9623145.57	0.0532	0.0241
Moon	-31060-04-06 17:59 J	-9623145.93	-9623145.75	-9623145.56	0.0532	0.0271 *
Mercury	-31060-12-10 16:33 J	-9622897.88	-9622897.81	-9622897.73	0.0523	0.0418
Mercury	-31059-03-10 01:40 J	-9622808.56	-9622808.43	-9622808.30	0.0519	0.0173
Mars	-31059-10-09 00:14 J	-9622595.75	-9622595.49	-9622595.23	0.0511	0.0064

Venus	-31059-10-27 08:52 J	-9622577.16	-9622577.13	-9622577.09	0.0510	0.0500
Venus	-31058-06-20 12:28 J	-9622341.18	-9622340.98	-9622340.78	0.0501	0.0028
Mercury	-31053-05-08 17:59 J	-9620556.89	-9620556.75	-9620556.60	0.0506	0.0254
Mercury	-31053-08-06 19:26 J	-9620466.77	-9620466.69	-9620466.61	0.0509	0.0443
Venus	-31052-04-17 13:11 J	-9620213.08	-9620212.95	-9620212.82	0.0520	0.0410
Venus	-31052-12-11 14:38 J	-9619975.08	-9619974.89	-9619974.70	0.0529	0.0214
Mercury	-31048-12-27 04:47 J	-9618498.43	-9618498.30	-9618498.16	0.0520	0.0025
Venus	-31046-02-23 15:07 J	-9618075.06	-9618074.87	-9618074.67	0.0504	0.0117
Venus	-31046-10-17 14:38 J	-9617839.01	-9617838.89	-9617838.77	0.0496	0.0394
Mercury	-31041-02-25 16:19 J	-9616246.91	-9616246.82	-9616246.74	0.0505	0.0438
Mercury	-31041-05-25 17:59 J	-9616156.89	-9616156.75	-9616156.60	0.0508	0.0262
Venus	-31040-08-16 00:43 J	-9615709.67	-9615709.47	-9615709.26	0.0526	0.0032
Mercury	-31036-10-15 08:23 J	-9614188.28	-9614188.15	-9614188.02	0.0522	0.0121
Mercury	-31035-01-12 17:59 J	-9614098.80	-9614098.75	-9614098.70	0.0518	0.0475
Venus	-31035-10-29 18:28 J	-9613808.89	-9613808.73	-9613808.55	0.0506	0.0264
Venus	-31034-06-22 19:26 J	-9613572.86	-9613572.69	-9613572.51	0.0498	0.0257
Mercury	-31029-03-13 17:16 J	-9611846.95	-9611846.78	-9611846.61	0.0507	0.0088
Venus	-31028-04-20 13:40 J	-9611444.12	-9611443.93	-9611443.72	0.0524	0.0146
Venus	-31028-12-14 18:14 J	-9611205.81	-9611205.74	-9611205.66	0.0533	0.0492
Mercury	-31024-08-03 12:14 J	-9609878.11	-9609877.99	-9609877.88	0.0522	0.0261
Mercury	-31024-10-31 21:35 J	-9609788.71	-9609788.60	-9609788.50	0.0519	0.0333
Venus	-31023-07-04 21:07 J	-9609542.73	-9609542.62	-9609542.50	0.0509	0.0409
Mars	-31023-07-13 21:35 J	-9609533.69	-9609533.60	-9609533.49	0.0508	0.0469
Venus	-31022-02-25 23:31 J	-9609306.71	-9609306.52	-9609306.32	0.0500	0.0118
Mercury	-31018-12-31 16:19 J	-9607536.98	-9607536.82	-9607536.65	0.0507	0.0087
Venus	-31017-12-24 03:50 J	-9607178.50	-9607178.34	-9607178.17	0.0521	0.0315
Venus	-31016-08-19 07:11 J	-9606940.37	-9606940.20	-9606940.04	0.0531	0.0317
Mercury	-31012-05-22 15:50 J	-9605567.92	-9605567.84	-9605567.76	0.0523	0.0403
Mercury	-31012-08-20 00:57 J	-9605478.59	-9605478.46	-9605478.33	0.0519	0.0188
Venus	-31011-11-01 03:07 J	-9605040.57	-9605040.37	-9605040.17	0.0502	0.0027

Venus	-31010-06-25 01:26 J	-9604804.49	-9604804.44	-9604804.39	0.0495	0.0475
Earth	-31007-10-02 23:31 J	-9603608.67	-9603608.52	-9603608.36	0.0494	0.0368
Moon	-31007-10-03 01:11 J	-9603608.59	-9603608.45	-9603608.29	0.0494	0.0395 *
Mercury	-31006-10-19 16:04 J	-9603226.98	-9603226.83	-9603226.68	0.0506	0.0252
Mercury	-31005-01-17 17:31 J	-9603136.84	-9603136.77	-9603136.69	0.0509	0.0445
Venus	-31005-08-28 19:55 J	-9602912.75	-9602912.67	-9602912.59	0.0519	0.0474
Venus	-31004-04-23 20:52 J	-9602674.83	-9602674.63	-9602674.43	0.0528	0.0143

# 31ST MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 31st millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-31000-06-08 03:21 J	-9601168.49	-9601168.36	-9601168.22	0.0520	0.0032		
Venus	-30999-07-07 03:21 J	-9600774.54	-9600774.36	-9600774.17	0.0505	0.0176		
Venus	-30998-02-28 03:21 J	-9600538.51	-9600538.36	-9600538.21	0.0497	0.0339		
Moon	-30995-10-07 08:23 J	-9599221.37	-9599221.15	-9599220.92	0.0495	0.0116		
Earth	-30995-10-07 11:45 J	-9599221.24	-9599221.01	-9599220.78	0.0495	0.0115 *		
Mercury	-30994-08-07 15:07 J	-9598916.96	-9598916.87	-9598916.78	0.0505	0.0425		
Mercury	-30994-11-05 17:02 J	-9598826.93	-9598826.79	-9598826.65	0.0509	0.0276		
Venus	-30993-12-27 09:21 J	-9598409.32	-9598409.11	-9598408.91	0.0525	0.0036		
Earth	-30989-03-31 18:14 J	-9597218.84	-9597218.74	-9597218.62	0.0534	0.0464		
Moon	-30989-03-31 19:40 J	-9597218.79	-9597218.68	-9597218.56	0.0534	0.0454 *		
Mercury	-30988-03-27 06:28 J	-9596858.36	-9596858.23	-9596858.09	0.0521	0.0125		

Mercury	-30988-06-24 16:04 J	-9596768.88	-9596768.83	-9596768.77	0.0518	0.0471
Venus	-30987-03-12 05:02 J	-9596508.44	-9596508.29	-9596508.13	0.0507	0.0324
Venus	-30987-11-03 06:57 J	-9596272.40	-9596272.21	-9596272.03	0.0499	0.0199
Mercury	-30982-08-24 15:35 J	-9594517.02	-9594516.85	-9594516.69	0.0507	0.0093
Venus	-30981-08-31 19:55 J	-9594143.86	-9594143.67	-9594143.48	0.0522	0.0214
Venus	-30980-04-26 23:31 J	-9593905.65	-9593905.52	-9593905.40	0.0531	0.0419
Earth	-30977-04-05 17:16 J	-9592831.00	-9592830.78	-9592830.56	0.0533	0.0132
Moon	-30977-04-05 18:28 J	-9592830.95	-9592830.73	-9592830.50	0.0533	0.0158 *
Mercury	-30976-01-13 10:04 J	-9592548.19	-9592548.08	-9592547.97	0.0523	0.0268
Mercury	-30976-04-12 19:26 J	-9592458.80	-9592458.69	-9592458.58	0.0519	0.0326
Venus	-30976-11-15 07:26 J	-9592242.26	-9592242.19	-9592242.11	0.0510	0.0470
Venus	-30975-07-09 11:02 J	-9592006.24	-9592006.04	-9592005.84	0.0501	0.0058
Mercury	-30970-06-12 14:23 J	-9590207.06	-9590206.90	-9590206.73	0.0506	0.0084
Mars	-30969-01-04 19:11 J	-9590000.94	-9590000.70	-9590000.44	0.0515	0.0245
Venus	-30969-05-06 09:21 J	-9589878.24	-9589878.11	-9589877.96	0.0520	0.0383
Venus	-30969-12-30 11:16 J	-9589640.21	-9589640.03	-9589639.85	0.0529	0.0240
Mercury	-30965-11-01 13:55 J	-9588238.00	-9588237.92	-9588237.84	0.0523	0.0409
Mercury	-30964-01-29 23:02 J	-9588148.67	-9588148.54	-9588148.42	0.0520	0.0184
Venus	-30963-03-14 14:38 J	-9587740.08	-9587739.89	-9587739.69	0.0503	0.0086
Venus	-30963-11-05 13:40 J	-9587504.03	-9587503.93	-9587503.82	0.0496	0.0421
Mercury	-30958-03-31 13:26 J	-9585897.09	-9585896.94	-9585896.79	0.0506	0.0259
Mercury	-30958-06-29 14:52 J	-9585806.96	-9585806.88	-9585806.79	0.0509	0.0437
Venus	-30957-09-04 00:28 J	-9585374.69	-9585374.48	-9585374.28	0.0527	0.0066
Mercury	-30953-11-18 02:23 J	-9583838.53	-9583838.40	-9583838.26	0.0520	0.0039
Venus	-30952-11-17 17:16 J	-9583473.95	-9583473.78	-9583473.60	0.0506	0.0232
Venus	-30951-07-11 17:45 J	-9583237.92	-9583237.76	-9583237.59	0.0498	0.0285
Mercury	-30946-01-17 12:43 J	-9581587.05	-9581586.97	-9581586.87	0.0505	0.0427
Mercury	-30946-04-17 14:52 J	-9581497.02	-9581496.88	-9581496.74	0.0509	0.0274
Venus	-30945-05-09 14:52 J	-9581109.08	-9581108.88	-9581108.68	0.0524	0.0106
Venus	-30944-01-02 19:40 J	-9580870.70	-9580870.68	-9580870.66	0.0533	0.0528

Mercury	-30941-09-06 05:02 J	-9579528.42	-9579528.29	-9579528.16	0.0521	0.0120
Mercury	-30941-12-04 14:38 J	-9579438.94	-9579438.89	-9579438.84	0.0518	0.0474
Mars	-30940-03-29 21:35 J	-9579323.83	-9579323.60	-9579323.36	0.0513	0.0242
Venus	-30940-07-23 16:47 J	-9579207.93	-9579207.80	-9579207.67	0.0508	0.0382
Venus	-30939-03-16 19:11 J	-9578971.89	-9578971.70	-9578971.51	0.0500	0.0142
Mercury	-30934-02-03 14:09 J	-9577187.07	-9577186.91	-9577186.74	0.0508	0.0104
Mars	-30934-10-12 04:19 J	-9576936.56	-9576936.32	-9576936.06	0.0518	0.0254
Venus	-30933-01-13 04:04 J	-9576843.50	-9576843.33	-9576843.15	0.0521	0.0278
Venus	-30933-09-07 06:57 J	-9576605.36	-9576605.21	-9576605.05	0.0530	0.0352
Mercury	-30929-06-25 08:09 J	-9575218.27	-9575218.16	-9575218.04	0.0522	0.0271
Mercury	-30929-09-22 17:31 J	-9575128.88	-9575128.77	-9575128.66	0.0519	0.0322
Venus	-30928-11-19 21:50 J	-9574705.79	-9574705.59	-9574705.39	0.0502	0.0007
Moon	-30924-10-01 23:02 J	-9573293.59	-9573293.54	-9573293.48	0.0493	0.0478
Earth	-30924-10-02 02:09 J	-9573293.50	-9573293.41	-9573293.30	0.0493	0.0449 *
Mercury	-30923-11-22 12:28 J	-9572877.14	-9572876.98	-9572876.81	0.0506	0.0081
Venus	-30922-09-17 15:50 J	-9572577.94	-9572577.84	-9572577.73	0.0518	0.0447
Venus	-30921-05-12 16:19 J	-9572340.01	-9572339.82	-9572339.62	0.0528	0.0168
Mercury	-30917-04-13 11:31 J	-9570908.09	-9570908.02	-9570907.93	0.0524	0.0418
Mercury	-30917-07-11 20:38 J	-9570818.76	-9570818.64	-9570818.51	0.0520	0.0175
Venus	-30916-07-26 01:11 J	-9570439.64	-9570439.45	-9570439.26	0.0505	0.0147
Venus	-30915-03-19 01:11 J	-9570203.58	-9570203.45	-9570203.31	0.0497	0.0364
Earth	-30912-10-06 13:26 J	-9568906.18	-9568905.94	-9568905.70	0.0494	0.0027
Moon	-30912-10-06 17:31 J	-9568906.01	-9568905.77	-9568905.53	0.0494	0.0036 *
Mercury	-30911-09-10 11:16 J	-9568567.17	-9568567.03	-9568566.88	0.0505	0.0258
Mercury	-30911-12-09 12:57 J	-9568477.05	-9568476.96	-9568476.88	0.0509	0.0437
Venus	-30909-01-16 04:33 J	-9568074.52	-9568074.31	-9568074.10	0.0525	0.0011
Mercury	-30905-04-30 00:14 J	-9566508.62	-9566508.49	-9566508.35	0.0521	0.0034
Mars	-30904-01-01 20:52 J	-9566261.87	-9566261.63	-9566261.38	0.0511	0.0170
Venus	-30904-03-31 04:04 J	-9566173.49	-9566173.33	-9566173.17	0.0507	0.0292
Venus	-30904-11-22 05:31 J	-9565937.45	-9565937.27	-9565937.09	0.0499	0.0227

Mercury	-30899-06-29 09:50 J	-9564257.17	-9564257.09	-9564257.00	0.0505	0.0437
Mercury	-30899-09-27 11:59 J	-9564167.14	-9564167.00	-9564166.85	0.0508	0.0265
Venus	-30898-09-20 18:14 J	-9563808.94	-9563808.74	-9563808.55	0.0523	0.0182
Venus	-30897-05-15 22:19 J	-9563570.68	-9563570.57	-9563570.46	0.0532	0.0450
Moon	-30894-04-05 18:14 J	-9562515.96	-9562515.74	-9562515.52	0.0533	0.0062
Earth	-30894-04-05 20:52 J	-9562515.86	-9562515.63	-9562515.40	0.0533	0.0040 *
Mercury	-30893-02-17 03:50 J	-9562198.47	-9562198.34	-9562198.21	0.0522	0.0112
Mercury	-30893-05-16 13:11 J	-9562108.99	-9562108.95	-9562108.90	0.0518	0.0484
Venus	-30893-12-04 05:59 J	-9561907.35	-9561907.25	-9561907.15	0.0510	0.0438
Venus	-30892-07-28 09:07 J	-9561671.32	-9561671.12	-9561670.92	0.0501	0.0087
Mercury	-30887-07-16 11:45 J	-9559857.17	-9559857.01	-9559856.84	0.0508	0.0099
Venus	-30886-05-26 09:21 J	-9559543.26	-9559543.11	-9559542.95	0.0520	0.0346
Venus	-30885-01-19 11:31 J	-9559305.19	-9559305.02	-9559304.84	0.0529	0.0277
Mercury	-30882-12-06 06:43 J	-9557888.33	-9557888.22	-9557888.10	0.0522	0.0267
Mercury	-30881-03-04 15:50 J	-9557798.94	-9557798.84	-9557798.73	0.0518	0.0325
Venus	-30880-04-02 09:50 J	-9557405.29	-9557405.09	-9557404.89	0.0503	0.0062
Venus	-30880-11-24 08:52 J	-9557169.22	-9557169.13	-9557169.04	0.0496	0.0442
Mercury	-30875-05-04 11:02 J	-9555547.21	-9555547.04	-9555546.87	0.0507	0.0073
Venus	-30874-01-28 23:45 J	-9555277.54	-9555277.51	-9555277.47	0.0517	0.0507
Venus	-30874-09-23 23:59 J	-9555039.70	-9555039.50	-9555039.30	0.0527	0.0100
Mercury	-30870-09-24 09:50 J	-9553578.16	-9553578.09	-9553578.01	0.0523	0.0418
Mercury	-30870-12-22 18:57 J	-9553488.84	-9553488.71	-9553488.58	0.0519	0.0172
Venus	-30869-12-06 11:45 J	-9553139.19	-9553139.01	-9553138.83	0.0506	0.0208
Venus	-30868-07-30 12:14 J	-9552903.14	-9552902.99	-9552902.83	0.0498	0.0306
Mercury	-30863-02-20 09:07 J	-9551237.26	-9551237.12	-9551236.97	0.0505	0.0258
Mercury	-30863-05-21 10:47 J	-9551147.13	-9551147.05	-9551146.96	0.0509	0.0438
Venus	-30862-05-29 10:04 J	-9550774.29	-9550774.08	-9550773.88	0.0524	0.0082
Mercury	-30858-10-10 22:04 J	-9549178.71	-9549178.58	-9549178.44	0.0521	0.0023
Venus	-30857-08-11 13:40 J	-9548873.06	-9548872.93	-9548872.78	0.0509	0.0356
Venus	-30856-04-04 16:33 J	-9548637.00	-9548636.81	-9548636.62	0.0500	0.0167

Mercury	-30852-12-09 07:55 J	-9546927.26	-9546927.17	-9546927.09	0.0505	0.0436
Mercury	-30851-03-09 09:50 J	-9546837.23	-9546837.09	-9546836.94	0.0508	0.0264
Venus	-30850-01-31 22:47 J	-9546508.73	-9546508.55	-9546508.37	0.0521	0.0253
Venus	-30850-09-27 01:40 J	-9546270.57	-9546270.43	-9546270.28	0.0530	0.0372
Mercury	-30846-07-30 01:40 J	-9544868.56	-9544868.43	-9544868.30	0.0522	0.0120
Mercury	-30846-10-27 11:02 J	-9544779.09	-9544779.04	-9544778.98	0.0518	0.0476
Venus	-30845-04-16 15:50 J	-9544606.87	-9544606.84	-9544606.80	0.0511	0.0499
Venus	-30845-12-08 20:09 J	-9544370.86	-9544370.66	-9544370.46	0.0502	0.0027
Mercury	-30840-12-26 08:52 J	-9542527.29	-9542527.13	-9542526.96	0.0507	0.0088
Venus	-30839-10-06 12:57 J	-9542243.08	-9542242.96	-9542242.84	0.0519	0.0417
Venus	-30838-06-01 14:09 J	-9542005.10	-9542004.91	-9542004.72	0.0528	0.0197
Mercury	-30834-05-18 05:16 J	-9540558.39	-9540558.28	-9540558.16	0.0523	0.0263
Mercury	-30834-08-15 14:38 J	-9540469.00	-9540468.89	-9540468.79	0.0519	0.0331
Venus	-30833-08-13 23:02 J	-9540104.73	-9540104.54	-9540104.34	0.0504	0.0118
Venus	-30832-04-06 22:47 J	-9539868.67	-9539868.55	-9539868.42	0.0496	0.0389
Moon	-30829-10-05 12:28 J	-9538591.22	-9538590.98	-9538590.75	0.0494	0.0053
Earth	-30829-10-05 16:33 J	-9538591.05	-9538590.81	-9538590.58	0.0494	0.0058 *
Mercury	-30828-10-14 08:23 J	-9538217.32	-9538217.15	-9538216.98	0.0507	0.0080
Venus	-30826-02-04 04:19 J	-9537739.53	-9537739.32	-9537739.12	0.0526	0.0027
Mercury	-30822-03-06 08:23 J	-9536248.23	-9536248.15	-9536248.07	0.0523	0.0415
Mercury	-30822-06-03 17:16 J	-9536158.91	-9536158.78	-9536158.65	0.0519	0.0175
Venus	-30821-04-18 23:31 J	-9535838.69	-9535838.52	-9535838.35	0.0507	0.0267
Venus	-30821-12-11 00:28 J	-9535602.65	-9535602.48	-9535602.30	0.0498	0.0250
Earth	-30817-10-10 04:04 J	-9534203.45	-9534203.33	-9534203.21	0.0496	0.0425
Moon	-30817-10-10 07:11 J	-9534203.29	-9534203.20	-9534203.11	0.0496	0.0456 *
Mercury	-30816-08-02 07:26 J	-9533907.34	-9533907.19	-9533907.04	0.0506	0.0253
Mercury	-30816-10-31 09:07 J	-9533817.19	-9533817.12	-9533817.04	0.0509	0.0445
Mars	-30815-03-30 14:23 J	-9533667.17	-9533666.90	-9533666.62	0.0515	0.0126
Venus	-30815-10-09 17:31 J	-9533473.97	-9533473.77	-9533473.57	0.0523	0.0148
Venus	-30814-06-04 21:35 J	-9533235.68	-9533235.60	-9533235.51	0.0532	0.0481

Earth	-30811-04-04 17:45 J	-9532200.98	-9532200.76	-9532200.53	0.0533	0.0087
Moon	-30811-04-04 21:35 J	-9532200.84	-9532200.60	-9532200.37	0.0533	0.0061 *
Mercury	-30810-03-22 20:23 J	-9531848.79	-9531848.65	-9531848.51	0.0520	0.0023
Venus	-30810-12-24 00:28 J	-9531572.59	-9531572.48	-9531572.37	0.0509	0.0415
Venus	-30809-08-16 03:21 J	-9531336.55	-9531336.36	-9531336.16	0.0501	0.0108
Mercury	-30804-05-21 05:31 J	-9529597.35	-9529597.27	-9529597.18	0.0505	0.0437
Mercury	-30804-08-19 07:55 J	-9529507.32	-9529507.17	-9529507.03	0.0508	0.0264
Venus	-30803-06-14 04:33 J	-9529208.47	-9529208.31	-9529208.14	0.0520	0.0321
Venus	-30802-02-07 06:14 J	-9528970.40	-9528970.24	-9528970.06	0.0529	0.0299
Moon	-30799-04-09 10:04 J	-9527813.18	-9527813.08	-9527812.97	0.0532	0.0472
Earth	-30799-04-09 13:55 J	-9527813.00	-9527812.92	-9527812.83	0.0532	0.0493 *
Mercury	-30798-01-08 23:31 J	-9527538.65	-9527538.52	-9527538.39	0.0522	0.0129
Mercury	-30798-04-08 08:52 J	-9527449.18	-9527449.13	-9527449.07	0.0518	0.0468
Venus	-30797-04-21 06:57 J	-9527070.41	-9527070.21	-9527070.01	0.0503	0.0036
Venus	-30797-12-13 06:14 J	-9526834.31	-9526834.24	-9526834.18	0.0496	0.0465
Mercury	-30792-06-07 06:43 J	-9525197.38	-9525197.22	-9525197.05	0.0507	0.0089
Venus	-30791-02-16 18:28 J	-9524942.80	-9524942.73	-9524942.66	0.0517	0.0483
Venus	-30791-10-12 18:14 J	-9524704.94	-9524704.74	-9524704.54	0.0527	0.0121
Mercury	-30787-10-28 03:07 J	-9523228.48	-9523228.37	-9523228.26	0.0523	0.0272
Mercury	-30786-01-25 12:28 J	-9523139.09	-9523138.98	-9523138.88	0.0519	0.0323
Mars	-30786-06-23 11:31 J	-9522990.27	-9522990.02	-9522989.76	0.0513	0.0144
Venus	-30786-12-26 09:50 J	-9522804.28	-9522804.09	-9522803.90	0.0506	0.0179
Venus	-30785-08-18 10:19 J	-9522568.22	-9522568.07	-9522567.92	0.0498	0.0332
Mercury	-30780-03-26 05:31 J	-9520887.44	-9520887.27	-9520887.10	0.0506	0.0090
Mars	-30779-01-04 05:02 J	-9520603.50	-9520603.29	-9520603.07	0.0518	0.0342
Venus	-30779-06-17 06:57 J	-9520439.41	-9520439.21	-9520439.00	0.0524	0.0053
Mercury	-30775-08-16 06:43 J	-9518918.29	-9518918.22	-9518918.13	0.0524	0.0414
Mercury	-30775-11-13 15:50 J	-9518828.97	-9518828.84	-9518828.71	0.0520	0.0178
Venus	-30774-08-31 12:14 J	-9518538.14	-9518537.99	-9518537.84	0.0508	0.0324
Venus	-30773-04-23 14:23 J	-9518302.08	-9518301.90	-9518301.72	0.0500	0.0195



Mercury	-30768-01-12 04:47 J	-9516577.44	-9516577.30	-9516577.15	0.0506	0.0260
Mercury	-30768-04-12 06:43 J	-9516487.30	-9516487.22	-9516487.14	0.0509	0.0438
Venus	-30767-02-19 21:50 J	-9516173.78	-9516173.59	-9516173.40	0.0522	0.0220
Venus	-30767-10-16 01:26 J	-9515935.57	-9515935.44	-9515935.31	0.0531	0.0406
Mercury	-30763-09-01 18:57 J	-9514518.85	-9514518.71	-9514518.58	0.0520	0.0028
Venus	-30762-05-06 12:14 J	-9514272.06	-9514271.99	-9514271.92	0.0510	0.0473
Venus	-30762-12-28 15:50 J	-9514036.04	-9514035.84	-9514035.64	0.0502	0.0050
Mercury	-30757-10-31 03:50 J	-9512267.43	-9512267.34	-9512267.25	0.0505	0.0433
Mercury	-30756-01-29 05:59 J	-9512177.39	-9512177.25	-9512177.10	0.0508	0.0270
Venus	-30756-10-25 12:14 J	-9511908.13	-9511907.99	-9511907.85	0.0519	0.0384
Venus	-30755-06-20 13:40 J	-9511670.11	-9511669.93	-9511669.74	0.0528	0.0230
Mercury	-30751-06-20 22:04 J	-9510208.71	-9510208.58	-9510208.45	0.0521	0.0125
Mercury	-30751-09-18 07:26 J	-9510119.25	-9510119.19	-9510119.14	0.0518	0.0469
Mars	-30750-03-28 04:47 J	-9509928.52	-9509928.30	-9509928.06	0.0510	0.0255
Venus	-30750-09-02 17:59 J	-9509769.94	-9509769.75	-9509769.55	0.0504	0.0096
Venus	-30749-04-25 17:45 J	-9509533.87	-9509533.76	-9509533.65	0.0496	0.0409
Earth	-30746-10-05 18:14 J	-9508275.96	-9508275.74	-9508275.51	0.0494	0.0144
Moon	-30746-10-05 21:35 J	-9508275.82	-9508275.60	-9508275.38	0.0494	0.0132 *
Mercury	-30745-11-17 04:47 J	-9507867.47	-9507867.30	-9507867.14	0.0507	0.0089
Venus	-30743-02-22 23:31 J	-9507404.73	-9507404.52	-9507404.31	0.0525	0.0049
Mercury	-30739-04-09 00:57 J	-9505898.57	-9505898.46	-9505898.34	0.0523	0.0279
Mercury	-30739-07-07 10:19 J	-9505809.18	-9505809.07	-9505808.96	0.0519	0.0316
Venus	-30738-05-08 20:09 J	-9505503.83	-9505503.66	-9505503.48	0.0507	0.0241
Venus	-30738-12-30 21:50 J	-9505267.76	-9505267.59	-9505267.42	0.0499	0.0274
Moon	-30734-10-10 04:47 J	-9503888.47	-9503888.30	-9503888.13	0.0495	0.0361
Earth	-30734-10-10 06:14 J	-9503888.41	-9503888.24	-9503888.06	0.0495	0.0336 *
Mercury	-30733-09-05 03:35 J	-9503557.52	-9503557.35	-9503557.18	0.0506	0.0087
Venus	-30732-10-28 12:14 J	-9503139.19	-9503138.99	-9503138.79	0.0523	0.0124
Venus	-30731-06-23 15:50 J	-9502900.90	-9502900.84	-9502900.77	0.0532	0.0500
Moon	-30728-04-03 11:02 J	-9501886.25	-9501886.04	-9501885.82	0.0535	0.0190

Earth	-30728-04-03 15:07 J	-9501886.08	-9501885.87	-9501885.66	0.0535	0.0213	*
Mercury	-30727-01-26 04:33 J	-9501588.38	-9501588.31	-9501588.23	0.0524	0.0422	
Mercury	-30727-04-25 13:40 J	-9501499.06	-9501498.93	-9501498.80	0.0520	0.0171	
Venus	-30726-01-11 22:19 J	-9501237.69	-9501237.57	-9501237.43	0.0510	0.0386	
Venus	-30726-09-05 01:40 J	-9501001.62	-9501001.43	-9501001.24	0.0501	0.0136	
Mercury	-30721-06-24 02:09 J	-9499247.55	-9499247.41	-9499247.26	0.0505	0.0267	
Mercury	-30721-09-22 03:50 J	-9499157.42	-9499157.34	-9499157.25	0.0509	0.0430	
Venus	-30720-07-03 01:26 J	-9498873.61	-9498873.44	-9498873.27	0.0520	0.0292	
Venus	-30719-02-26 03:50 J	-9498635.50	-9498635.34	-9498635.18	0.0530	0.0327	
Earth	-30716-04-08 16:47 J	-9497497.95	-9497497.80	-9497497.64	0.0533	0.0397	
Moon	-30716-04-08 20:09 J	-9497497.82	-9497497.66	-9497497.50	0.0533	0.0375	*
Mercury	-30715-02-11 17:16 J	-9497188.91	-9497188.78	-9497188.64	0.0521	0.0028	
Venus	-30714-05-11 05:16 J	-9496735.48	-9496735.28	-9496735.08	0.0503	0.0006	
Venus	-30713-01-02 03:50 J	-9496499.36	-9496499.34	-9496499.30	0.0495	0.0490	
Mercury	-30709-04-12 01:26 J	-9494937.53	-9494937.44	-9494937.36	0.0505	0.0438	
Mercury	-30709-07-11 03:35 J	-9494847.49	-9494847.35	-9494847.21	0.0508	0.0264	
Venus	-30708-03-07 17:02 J	-9494607.89	-9494607.79	-9494607.69	0.0518	0.0451	
Venus	-30708-10-31 17:45 J	-9494369.96	-9494369.76	-9494369.56	0.0527	0.0155	
Mercury	-30704-11-30 20:38 J	-9492878.78	-9492878.64	-9492878.51	0.0521	0.0122	
Mercury	-30703-02-28 05:45 J	-9492789.31	-9492789.26	-9492789.20	0.0518	0.0473	
Venus	-30702-01-14 06:28 J	-9492469.42	-9492469.23	-9492469.04	0.0505	0.0153	
Venus	-30702-09-07 06:28 J	-9492233.37	-9492233.23	-9492233.09	0.0497	0.0354	
Mercury	-30697-04-29 02:52 J	-9490537.54	-9490537.38	-9490537.21	0.0507	0.0094	
Mars	-30697-09-16 07:40 J	-9490397.26	-9490397.18	-9490397.08	0.0513	0.0485	
Venus	-30696-07-06 06:57 J	-9490104.42	-9490104.21	-9490104.00	0.0525	0.0018	
Mercury	-30692-09-18 23:45 J	-9488568.62	-9488568.51	-9488568.39	0.0522	0.0271	
Mercury	-30692-12-17 08:52 J	-9488479.23	-9488479.13	-9488479.02	0.0519	0.0321	
Venus	-30691-09-19 08:09 J	-9488203.32	-9488203.16	-9488203.00	0.0508	0.0299	
Venus	-30690-05-13 09:50 J	-9487967.26	-9487967.09	-9487966.90	0.0499	0.0217	
Mercury	-30685-02-16 01:40 J	-9486227.60	-9486227.43	-9486227.26	0.0506	0.0085	

Venus	-30684-03-10 17:59 J	-9485838.94	-9485838.75	-9485838.55	0.0522	0.0193
Venus	-30684-11-03 21:07 J	-9485600.74	-9485600.62	-9485600.50	0.0530	0.0428
Mercury	-30680-07-08 02:38 J	-9484258.46	-9484258.39	-9484258.31	0.0524	0.0426
Mercury	-30680-10-05 11:45 J	-9484169.14	-9484169.01	-9484168.88	0.0520	0.0166
Venus	-30679-05-25 08:52 J	-9483937.22	-9483937.13	-9483937.03	0.0511	0.0446
Venus	-30678-01-16 13:11 J	-9483701.15	-9483700.95	-9483700.75	0.0502	0.0077
Mercury	-30674-12-05 00:28 J	-9481917.62	-9481917.48	-9481917.33	0.0505	0.0261
Mercury	-30673-03-04 02:09 J	-9481827.49	-9481827.41	-9481827.32	0.0508	0.0435
Venus	-30673-11-13 07:55 J	-9481573.32	-9481573.17	-9481573.02	0.0519	0.0357
Venus	-30672-07-09 08:38 J	-9481335.32	-9481335.14	-9481334.96	0.0528	0.0253
Mercury	-30668-07-24 15:07 J	-9479859.00	-9479858.87	-9479858.73	0.0521	0.0027
Mars	-30668-12-11 23:45 J	-9479718.62	-9479718.51	-9479718.40	0.0516	0.0466
Venus	-30667-09-21 16:33 J	-9479435.01	-9479434.81	-9479434.61	0.0504	0.0065
Venus	-30666-05-15 16:19 J	-9479198.91	-9479198.82	-9479198.72	0.0496	0.0436
Moon	-30663-10-04 19:55 J	-9477960.89	-9477960.67	-9477960.44	0.0493	0.0211
Earth	-30663-10-04 21:50 J	-9477960.80	-9477960.59	-9477960.38	0.0493	0.0226 *
Mercury	-30662-09-22 23:02 J	-9477607.62	-9477607.54	-9477607.46	0.0504	0.0442
Mercury	-30662-12-22 01:11 J	-9477517.59	-9477517.45	-9477517.31	0.0508	0.0259
Mars	-30661-06-22 17:45 J	-9477334.05	-9477333.76	-9477333.48	0.0515	0.0035
Venus	-30661-07-18 22:04 J	-9477307.59	-9477307.58	-9477307.58	0.0516	0.0516
Venus	-30660-03-13 20:52 J	-9477069.83	-9477069.63	-9477069.42	0.0526	0.0080
Mercury	-30656-05-12 18:57 J	-9475548.84	-9475548.71	-9475548.58	0.0522	0.0120
Mercury	-30656-08-10 04:19 J	-9475459.37	-9475459.32	-9475459.27	0.0519	0.0476
Venus	-30655-05-27 19:26 J	-9475168.87	-9475168.69	-9475168.51	0.0507	0.0209
Venus	-30654-01-18 20:23 J	-9474932.80	-9474932.65	-9474932.48	0.0498	0.0302
Moon	-30651-10-09 09:21 J	-9473573.30	-9473573.11	-9473572.92	0.0495	0.0277
Earth	-30651-10-09 09:50 J	-9473573.29	-9473573.09	-9473572.88	0.0495	0.0254 *
Mercury	-30650-10-10 00:43 J	-9473207.64	-9473207.47	-9473207.30	0.0507	0.0091
Venus	-30649-11-16 11:31 J	-9472804.22	-9472804.02	-9472803.82	0.0523	0.0090
Earth	-30645-04-02 19:26 J	-9471570.88	-9471570.69	-9471570.50	0.0535	0.0302

Moon	-30645-04-02 23:02 J	-9471570.73	-9471570.54	-9471570.35	0.0535	0.0283 *
Mercury	-30644-02-28 22:19 J	-9471238.68	-9471238.57	-9471238.45	0.0523	0.0266
Mercury	-30644-05-29 07:26 J	-9471149.29	-9471149.19	-9471149.08	0.0519	0.0327
Venus	-30643-01-30 20:23 J	-9470902.79	-9470902.65	-9470902.50	0.0509	0.0356
Venus	-30643-09-23 23:02 J	-9470666.73	-9470666.54	-9470666.35	0.0500	0.0161
Mercury	-30638-07-28 23:59 J	-9468897.67	-9468897.50	-9468897.33	0.0506	0.0080
Venus	-30637-07-22 01:40 J	-9468538.60	-9468538.43	-9468538.24	0.0521	0.0257
Venus	-30636-03-17 04:33 J	-9468300.46	-9468300.31	-9468300.16	0.0530	0.0361
Moon	-30633-04-07 16:47 J	-9467183.01	-9467182.80	-9467182.60	0.0533	0.0265
Earth	-30633-04-07 18:43 J	-9467182.91	-9467182.72	-9467182.53	0.0533	0.0294 *
Mercury	-30633-12-18 01:40 J	-9466928.51	-9466928.43	-9466928.35	0.0523	0.0414
Mercury	-30632-03-17 10:47 J	-9466839.18	-9466839.05	-9466838.93	0.0520	0.0177
Mars	-30632-09-16 03:35 J	-9466656.61	-9466656.35	-9466656.08	0.0512	0.0042
Venus	-30632-10-05 21:21 J	-9466636.64	-9466636.61	-9466636.57	0.0512	0.0502
Venus	-30631-05-30 01:55 J	-9466400.62	-9466400.42	-9466400.22	0.0503	0.0021
Mercury	-30626-05-16 22:33 J	-9464587.70	-9464587.56	-9464587.41	0.0505	0.0257
Mercury	-30626-08-15 00:28 J	-9464497.56	-9464497.48	-9464497.40	0.0509	0.0440
Venus	-30625-03-26 14:52 J	-9464273.00	-9464272.88	-9464272.76	0.0517	0.0420
Mars	-30625-03-29 21:35 J	-9464269.72	-9464269.60	-9464269.46	0.0518	0.0459
Venus	-30625-11-19 14:52 J	-9464035.07	-9464034.88	-9464034.69	0.0527	0.0183
Mercury	-30620-01-03 13:26 J	-9462529.07	-9462528.94	-9462528.80	0.0521	0.0020
Venus	-30619-02-02 04:04 J	-9462134.53	-9462134.33	-9462134.14	0.0506	0.0125
Venus	-30619-09-26 04:33 J	-9461898.43	-9461898.31	-9461898.18	0.0498	0.0380
Mercury	-30614-03-04 21:35 J	-9460277.69	-9460277.60	-9460277.51	0.0504	0.0431
Mercury	-30614-06-02 23:45 J	-9460187.65	-9460187.51	-9460187.37	0.0507	0.0268
Venus	-30613-07-25 03:07 J	-9459769.57	-9459769.37	-9459769.16	0.0524	0.0012
Mercury	-30609-10-22 17:02 J	-9458218.92	-9458218.79	-9458218.66	0.0522	0.0126
Mercury	-30608-01-20 02:23 J	-9458129.45	-9458129.40	-9458129.34	0.0519	0.0471
Venus	-30608-10-08 06:28 J	-9457868.39	-9457868.23	-9457868.05	0.0508	0.0268
Venus	-30607-06-01 08:52 J	-9457632.30	-9457632.13	-9457631.95	0.0500	0.0246

Mercury	-30602-03-21 22:33 J	-9455877.73	-9455877.56	-9455877.39	0.0507	0.0091
Venus	-30601-03-29 16:04 J	-9455504.02	-9455503.83	-9455503.63	0.0522	0.0161
Venus	-30601-11-22 19:26 J	-9455265.79	-9455265.69	-9455265.58	0.0531	0.0458
Mercury	-30597-08-10 20:38 J	-9453908.75	-9453908.64	-9453908.52	0.0523	0.0267
Mercury	-30597-11-08 05:59 J	-9453819.36	-9453819.25	-9453819.15	0.0520	0.0329
Venus	-30596-06-13 08:52 J	-9453602.24	-9453602.13	-9453602.01	0.0511	0.0412
Mars	-30596-06-21 02:38 J	-9453594.56	-9453594.39	-9453594.19	0.0510	0.0363
Venus	-30595-02-04 12:43 J	-9453366.16	-9453365.97	-9453365.77	0.0502	0.0108
Mercury	-30590-01-07 21:50 J	-9451567.76	-9451567.59	-9451567.42	0.0506	0.0079
Venus	-30590-12-03 07:11 J	-9451238.35	-9451238.20	-9451238.03	0.0519	0.0324
Venus	-30589-07-28 08:52 J	-9451000.30	-9451000.13	-9450999.95	0.0529	0.0288
Mercury	-30585-05-30 00:28 J	-9449598.56	-9449598.48	-9449598.40	0.0524	0.0408
Mercury	-30585-08-27 09:21 J	-9449509.24	-9449509.11	-9449508.98	0.0520	0.0183
Venus	-30584-10-10 15:21 J	-9449100.06	-9449099.86	-9449099.66	0.0504	0.0037
Venus	-30583-06-03 14:23 J	-9448863.97	-9448863.90	-9448863.83	0.0496	0.0459
Moon	-30580-10-04 03:21 J	-9447645.55	-9447645.36	-9447645.17	0.0493	0.0275
Earth	-30580-10-04 03:35 J	-9447645.53	-9447645.35	-9447645.15	0.0493	0.0297 *
Mercury	-30579-10-26 21:07 J	-9447257.77	-9447257.62	-9447257.47	0.0505	0.0250
Mercury	-30578-01-24 22:47 J	-9447167.62	-9447167.55	-9447167.46	0.0509	0.0448
Venus	-30578-08-07 22:47 J	-9446972.62	-9446972.55	-9446972.47	0.0517	0.0480
Venus	-30577-04-01 22:33 J	-9446734.76	-9446734.56	-9446734.36	0.0526	0.0116
Mercury	-30573-06-15 12:43 J	-9445199.11	-9445198.97	-9445198.84	0.0521	0.0037
Venus	-30572-06-15 17:31 J	-9444833.96	-9444833.77	-9444833.58	0.0506	0.0180
Venus	-30571-02-06 18:14 J	-9444597.89	-9444597.74	-9444597.59	0.0498	0.0326
Earth	-30568-10-08 16:19 J	-9443258.03	-9443257.82	-9443257.59	0.0494	0.0186
Moon	-30568-10-08 18:43 J	-9443257.94	-9443257.72	-9443257.49	0.0494	0.0206 *
Mercury	-30567-08-14 19:55 J	-9442947.76	-9442947.67	-9442947.58	0.0504	0.0425
Mercury	-30567-11-12 22:19 J	-9442857.71	-9442857.57	-9442857.43	0.0508	0.0276
Venus	-30566-12-06 10:19 J	-9442469.28	-9442469.07	-9442468.86	0.0523	0.0057
Moon	-30562-04-02 13:40 J	-9441256.07	-9441255.93	-9441255.78	0.0535	0.0420

Earth	-30562-04-02 16:19 J	-9441255.94	-9441255.82	-9441255.67	0.0535	0.0432 *
Mercury	-30561-04-03 15:21 J	-9440888.99	-9440888.86	-9440888.73	0.0522	0.0124
Mercury	-30561-07-02 00:43 J	-9440799.52	-9440799.47	-9440799.41	0.0519	0.0472
Venus	-30560-02-18 17:59 J	-9440567.89	-9440567.75	-9440567.59	0.0509	0.0327
Venus	-30560-10-12 21:21 J	-9440331.79	-9440331.61	-9440331.42	0.0501	0.0191
Mercury	-30555-08-31 21:21 J	-9438547.77	-9438547.61	-9438547.44	0.0506	0.0105
Venus	-30554-08-10 23:45 J	-9438203.69	-9438203.51	-9438203.32	0.0520	0.0224
Venus	-30553-04-05 01:40 J	-9437965.57	-9437965.43	-9437965.29	0.0529	0.0388
Earth	-30550-04-07 16:47 J	-9436868.02	-9436867.80	-9436867.58	0.0534	0.0171
Moon	-30550-04-07 17:16 J	-9436867.99	-9436867.78	-9436867.57	0.0534	0.0140 *
Mercury	-30549-01-21 18:57 J	-9436578.83	-9436578.71	-9436578.60	0.0523	0.0269
Mercury	-30549-04-20 04:04 J	-9436489.43	-9436489.33	-9436489.22	0.0520	0.0326
Venus	-30549-10-24 19:55 J	-9436301.75	-9436301.67	-9436301.60	0.0512	0.0470
Venus	-30548-06-18 01:11 J	-9436065.65	-9436065.45	-9436065.25	0.0503	0.0052
Mercury	-30543-06-19 20:09 J	-9434237.83	-9434237.66	-9434237.49	0.0506	0.0075
Mars	-30543-12-10 23:02 J	-9434063.72	-9434063.54	-9434063.33	0.0513	0.0378
Venus	-30542-04-15 13:40 J	-9433938.07	-9433937.93	-9433937.80	0.0518	0.0387
Venus	-30542-12-09 13:40 J	-9433700.12	-9433699.93	-9433699.74	0.0527	0.0215
Mercury	-30538-11-09 22:47 J	-9432268.63	-9432268.55	-9432268.47	0.0524	0.0407
Mercury	-30537-02-07 07:55 J	-9432179.30	-9432179.17	-9432179.05	0.0521	0.0186
Venus	-30536-02-21 04:33 J	-9431799.50	-9431799.31	-9431799.11	0.0505	0.0090
Venus	-30536-10-15 04:47 J	-9431563.41	-9431563.30	-9431563.18	0.0497	0.0410
Mercury	-30531-04-07 19:26 J	-9429927.84	-9429927.69	-9429927.54	0.0505	0.0246
Mercury	-30531-07-06 21:07 J	-9429837.69	-9429837.62	-9429837.54	0.0508	0.0451
Venus	-30530-08-14 03:50 J	-9429434.55	-9429434.34	-9429434.14	0.0525	0.0046
Mercury	-30526-11-26 11:16 J	-9427869.16	-9427869.03	-9427868.89	0.0521	0.0045
Venus	-30525-10-27 06:43 J	-9427533.39	-9427533.22	-9427533.04	0.0508	0.0235
Venus	-30524-06-20 08:09 J	-9427297.32	-9427297.16	-9427296.99	0.0499	0.0275
Mercury	-30519-01-24 18:14 J	-9425617.83	-9425617.74	-9425617.64	0.0504	0.0418
Mercury	-30519-04-24 20:38 J	-9425527.77	-9425527.64	-9425527.50	0.0508	0.0285

Venus	-30518-04-18 18:14 J	-9425168.94	-9425168.74	-9425168.53	0.0522	0.0122
Venus	-30518-12-12 22:04 J	-9424930.65	-9424930.58	-9424930.50	0.0531	0.0494
Mercury	-30514-09-14 14:52 J	-9423559.02	-9423558.88	-9423558.75	0.0522	0.0106
Mercury	-30514-12-12 23:59 J	-9423469.53	-9423469.50	-9423469.45	0.0518	0.0491
Mars	-30513-03-07 04:19 J	-9423384.52	-9423384.32	-9423384.12	0.0515	0.0342
Venus	-30513-07-02 08:09 J	-9423267.29	-9423267.16	-9423267.02	0.0510	0.0380
Venus	-30512-02-23 11:45 J	-9423031.20	-9423031.01	-9423030.82	0.0501	0.0137
Mercury	-30507-02-10 20:09 J	-9421217.83	-9421217.66	-9421217.49	0.0507	0.0115
Mars	-30507-09-17 00:43 J	-9420999.75	-9420999.47	-9420999.19	0.0515	0.0100
Venus	-30507-12-22 07:55 J	-9420903.35	-9420903.17	-9420903.00	0.0519	0.0286
Venus	-30506-08-17 08:52 J	-9420665.29	-9420665.13	-9420664.97	0.0528	0.0321
Mercury	-30502-07-03 17:31 J	-9419248.88	-9419248.77	-9419248.65	0.0523	0.0264
Mercury	-30502-10-01 02:38 J	-9419159.49	-9419159.39	-9419159.28	0.0520	0.0330
Venus	-30501-10-29 13:40 J	-9418765.13	-9418764.93	-9418764.73	0.0504	0.0010
Venus	-30500-06-22 13:26 J	-9418528.97	-9418528.94	-9418528.90	0.0496	0.0488
Earth	-30497-10-03 13:40 J	-9417330.09	-9417329.93	-9417329.76	0.0492	0.0350
Moon	-30497-10-03 16:19 J	-9417330.01	-9417329.82	-9417329.64	0.0492	0.0319 *
Mercury	-30496-11-29 19:26 J	-9416907.86	-9416907.69	-9416907.52	0.0506	0.0057
Venus	-30495-08-26 22:47 J	-9416637.66	-9416637.55	-9416637.45	0.0516	0.0443
Venus	-30494-04-21 21:21 J	-9416399.81	-9416399.61	-9416399.41	0.0526	0.0149
Mercury	-30490-04-21 21:07 J	-9414938.70	-9414938.62	-9414938.54	0.0524	0.0409
Mercury	-30490-07-20 05:59 J	-9414849.37	-9414849.25	-9414849.12	0.0521	0.0185
Venus	-30489-07-04 16:33 J	-9414499.00	-9414498.81	-9414498.62	0.0507	0.0147
Venus	-30488-02-25 17:59 J	-9414262.89	-9414262.75	-9414262.61	0.0498	0.0358
Moon	-30485-10-07 20:38 J	-9412942.86	-9412942.64	-9412942.41	0.0494	0.0139
Earth	-30485-10-07 23:59 J	-9412942.73	-9412942.50	-9412942.27	0.0494	0.0122 *
Mercury	-30484-09-17 17:45 J	-9412597.91	-9412597.76	-9412597.60	0.0505	0.0237
Mercury	-30484-12-16 19:40 J	-9412507.75	-9412507.68	-9412507.61	0.0508	0.0458
Venus	-30483-12-25 09:50 J	-9412134.30	-9412134.09	-9412133.88	0.0523	0.0023
Earth	-30479-04-01 22:04 J	-9410940.63	-9410940.58	-9410940.51	0.0536	0.0515

Moon	-30479-04-01 23:02 J	-9410940.59	-9410940.54	-9410940.48	0.0536	0.0514 *
Mercury	-30478-05-08 09:50 J	-9410539.22	-9410539.09	-9410538.95	0.0522	0.0044
Mars	-30478-12-11 07:40 J	-9410322.45	-9410322.18	-9410321.92	0.0513	0.0074
Venus	-30477-03-09 19:26 J	-9410232.85	-9410232.69	-9410232.52	0.0509	0.0290
Venus	-30477-10-31 22:33 J	-9409996.74	-9409996.56	-9409996.38	0.0500	0.0223
Mercury	-30472-07-06 17:02 J	-9408287.89	-9408287.79	-9408287.69	0.0504	0.0408
Mercury	-30472-10-04 19:11 J	-9408197.84	-9408197.70	-9408197.56	0.0507	0.0291
Venus	-30471-08-30 00:28 J	-9407868.67	-9407868.48	-9407868.28	0.0521	0.0188
Venus	-30470-04-25 03:07 J	-9407630.48	-9407630.37	-9407630.24	0.0530	0.0424
Earth	-30467-04-07 01:40 J	-9406552.65	-9406552.43	-9406552.20	0.0534	0.0106
Moon	-30467-04-07 02:52 J	-9406552.61	-9406552.38	-9406552.14	0.0534	0.0073 *
Mercury	-30466-02-24 13:40 J	-9406229.07	-9406228.93	-9406228.80	0.0522	0.0098
Mercury	-30466-05-24 23:02 J	-9406139.58	-9406139.54	-9406139.51	0.0519	0.0499
Venus	-30466-11-13 21:07 J	-9405966.72	-9405966.62	-9405966.51	0.0511	0.0434
Venus	-30465-07-07 01:40 J	-9405730.63	-9405730.43	-9405730.23	0.0502	0.0084
Mercury	-30460-07-23 18:43 J	-9403887.88	-9403887.72	-9403887.56	0.0507	0.0124
Venus	-30459-05-04 16:04 J	-9403602.98	-9403602.83	-9403602.67	0.0518	0.0348
Venus	-30459-12-28 16:47 J	-9403364.98	-9403364.80	-9403364.62	0.0528	0.0255
Mercury	-30455-12-13 17:02 J	-9401918.91	-9401918.79	-9401918.67	0.0523	0.0242
Mercury	-30454-03-13 02:09 J	-9401829.51	-9401829.41	-9401829.31	0.0519	0.0352
Venus	-30453-03-12 04:33 J	-9401464.51	-9401464.31	-9401464.11	0.0505	0.0058
Venus	-30453-11-03 04:33 J	-9401228.40	-9401228.31	-9401228.21	0.0497	0.0437
Mercury	-30448-05-11 18:14 J	-9399577.91	-9399577.74	-9399577.57	0.0506	0.0045
Venus	-30447-01-07 07:26 J	-9399337.23	-9399337.19	-9399337.14	0.0515	0.0500
Venus	-30447-09-02 05:16 J	-9399099.48	-9399099.28	-9399099.07	0.0525	0.0085
Mercury	-30443-10-01 19:40 J	-9397608.76	-9397608.68	-9397608.59	0.0524	0.0403
Mercury	-30443-12-30 04:47 J	-9397519.43	-9397519.30	-9397519.17	0.0521	0.0190
Mars	-30442-09-15 01:55 J	-9397260.51	-9397260.42	-9397260.30	0.0510	0.0466
Venus	-30442-11-16 05:16 J	-9397198.47	-9397198.28	-9397198.10	0.0508	0.0203
Venus	-30441-07-09 07:26 J	-9396962.35	-9396962.19	-9396962.03	0.0500	0.0305



Mercury	-30436-02-27 17:16 J	-9395267.93	-9395267.78	-9395267.62	0.0505	0.0216
Mercury	-30436-05-28 19:11 J	-9395177.76	-9395177.70	-9395177.65	0.0508	0.0478
Venus	-30435-05-07 18:57 J	-9394833.92	-9394833.71	-9394833.51	0.0522	0.0085
Venus	-30435-12-31 21:35 J	-9394595.62	-9394595.60	-9394595.57	0.0531	0.0525
Mercury	-30431-10-18 08:09 J	-9393209.29	-9393209.16	-9393209.02	0.0522	0.0044
Venus	-30430-07-22 06:57 J	-9392932.35	-9392932.21	-9392932.06	0.0511	0.0346
Venus	-30429-03-14 11:16 J	-9392696.22	-9392696.03	-9392695.84	0.0502	0.0170
Mercury	-30425-12-16 15:35 J	-9390957.95	-9390957.85	-9390957.74	0.0504	0.0396
Mercury	-30424-03-16 17:59 J	-9390867.88	-9390867.75	-9390867.62	0.0507	0.0302
Venus	-30423-01-10 07:55 J	-9390568.35	-9390568.17	-9390567.99	0.0519	0.0250
Venus	-30423-09-05 09:07 J	-9390330.27	-9390330.12	-9390329.97	0.0529	0.0355
Mercury	-30419-08-06 11:59 J	-9388899.13	-9388899.00	-9388898.87	0.0523	0.0095
Mercury	-30419-11-03 21:21 J	-9388809.64	-9388809.61	-9388809.58	0.0519	0.0502
Venus	-30418-03-27 09:07 J	-9388666.17	-9388666.12	-9388666.06	0.0513	0.0489
Venus	-30418-11-18 15:21 J	-9388430.06	-9388429.86	-9388429.66	0.0504	0.0032
Moon	-30414-10-03 18:28 J	-9387014.87	-9387014.73	-9387014.58	0.0492	0.0381
Earth	-30414-10-03 21:50 J	-9387014.71	-9387014.59	-9387014.46	0.0492	0.0410 *
Mercury	-30412-01-02 17:16 J	-9386557.94	-9386557.78	-9386557.61	0.0506	0.0134
Venus	-30412-09-14 23:31 J	-9386302.64	-9386302.52	-9386302.39	0.0517	0.0407
Venus	-30411-05-10 22:47 J	-9386064.74	-9386064.55	-9386064.35	0.0526	0.0186
Mercury	-30407-05-25 15:50 J	-9384588.96	-9384588.84	-9384588.72	0.0523	0.0235
Mercury	-30407-08-23 00:57 J	-9384499.55	-9384499.46	-9384499.36	0.0520	0.0360
Venus	-30406-07-24 17:59 J	-9384163.94	-9384163.75	-9384163.55	0.0506	0.0111
Venus	-30405-03-16 18:57 J	-9383927.83	-9383927.71	-9383927.59	0.0498	0.0388
Earth	-30402-10-08 09:07 J	-9382627.35	-9382627.12	-9382626.88	0.0494	0.0064
Moon	-30402-10-08 12:57 J	-9382627.19	-9382626.96	-9382626.72	0.0494	0.0078 *
Mercury	-30401-10-21 16:47 J	-9382247.97	-9382247.80	-9382247.63	0.0506	0.0036
Venus	-30399-01-13 13:11 J	-9381799.16	-9381798.95	-9381798.74	0.0524	0.0019
Mercury	-30395-03-13 19:26 J	-9380278.78	-9380278.69	-9380278.60	0.0524	0.0378
Mercury	-30395-06-11 04:33 J	-9380189.44	-9380189.31	-9380189.19	0.0520	0.0215

Venus	-30394-03-29 20:23 J	-9379897.82	-9379897.65	-9379897.48	0.0509	0.0254
Venus	-30394-11-20 22:47 J	-9379661.72	-9379661.55	-9379661.37	0.0500	0.0255
Mercury	-30389-08-09 16:19 J	-9377937.98	-9377937.82	-9377937.67	0.0505	0.0202
Mercury	-30389-11-07 17:59 J	-9377847.78	-9377847.75	-9377847.71	0.0508	0.0492
Mars	-30388-03-06 17:45 J	-9377729.01	-9377728.76	-9377728.50	0.0513	0.0229
Venus	-30388-09-18 03:21 J	-9377533.56	-9377533.36	-9377533.16	0.0521	0.0145
Venus	-30387-05-14 05:31 J	-9377295.37	-9377295.27	-9377295.17	0.0530	0.0461
Moon	-30384-04-06 00:14 J	-9376237.71	-9376237.49	-9376237.27	0.0534	0.0040
Earth	-30384-04-06 02:23 J	-9376237.63	-9376237.40	-9376237.17	0.0534	0.0009 *
Mercury	-30383-03-30 06:57 J	-9375879.34	-9375879.21	-9375879.07	0.0522	0.0053
Venus	-30383-12-02 19:26 J	-9375631.81	-9375631.69	-9375631.57	0.0512	0.0401
Venus	-30382-07-27 00:28 J	-9375395.67	-9375395.48	-9375395.28	0.0503	0.0116
Mercury	-30377-05-28 15:21 J	-9373627.97	-9373627.86	-9373627.75	0.0504	0.0373
Mercury	-30377-08-26 17:31 J	-9373537.89	-9373537.77	-9373537.64	0.0507	0.0325
Venus	-30376-05-23 17:59 J	-9373267.92	-9373267.75	-9373267.58	0.0518	0.0306
Venus	-30375-01-16 17:45 J	-9373029.93	-9373029.76	-9373029.59	0.0527	0.0291
Mercury	-30371-01-16 10:33 J	-9371569.20	-9371569.06	-9371568.93	0.0523	0.0096
Mercury	-30371-04-15 19:40 J	-9371479.70	-9371479.68	-9371479.64	0.0519	0.0504
Venus	-30370-04-01 03:35 J	-9371129.55	-9371129.35	-9371129.15	0.0505	0.0025
Venus	-30370-11-23 04:19 J	-9370893.38	-9370893.32	-9370893.25	0.0497	0.0468
Mercury	-30365-06-14 16:19 J	-9369227.98	-9369227.82	-9369227.66	0.0506	0.0147
Venus	-30364-01-26 07:40 J	-9369002.26	-9369002.18	-9369002.08	0.0515	0.0464
Venus	-30364-09-21 05:45 J	-9368764.46	-9368764.26	-9368764.06	0.0525	0.0120
Mercury	-30360-11-04 14:23 J	-9367259.02	-9367258.90	-9367258.78	0.0524	0.0234
Mercury	-30359-02-01 23:31 J	-9367169.62	-9367169.52	-9367169.42	0.0520	0.0362
Mars	-30359-06-01 10:04 J	-9367050.32	-9367050.08	-9367049.84	0.0515	0.0222
Venus	-30359-12-05 06:57 J	-9366863.40	-9366863.21	-9366863.02	0.0508	0.0166
Venus	-30358-07-29 08:52 J	-9366627.27	-9366627.13	-9366626.98	0.0499	0.0338
Mercury	-30353-04-02 15:35 J	-9364918.02	-9364917.85	-9364917.68	0.0505	0.0025
Mars	-30353-12-11 12:28 J	-9364665.23	-9364664.98	-9364664.73	0.0516	0.0241

Venus	-30352-05-26 19:55 J	-9364498.87	-9364498.67	-9364498.46	0.0522	0.0047
Mercury	-30348-08-23 18:14 J	-9362948.83	-9362948.74	-9362948.65	0.0524	0.0371
Mercury	-30348-11-21 03:07 J	-9362859.49	-9362859.37	-9362859.24	0.0521	0.0222
Venus	-30347-08-10 09:07 J	-9362597.27	-9362597.12	-9362596.96	0.0510	0.0309
Venus	-30346-04-03 12:57 J	-9362361.15	-9362360.96	-9362360.78	0.0501	0.0203
Mercury	-30341-01-20 14:38 J	-9360608.04	-9360607.89	-9360607.73	0.0505	0.0194
Mercury	-30341-04-19 16:33 J	-9360517.83	-9360517.81	-9360517.78	0.0508	0.0501
Venus	-30340-01-29 11:02 J	-9360233.23	-9360233.04	-9360232.85	0.0520	0.0209
Venus	-30340-09-24 13:11 J	-9359995.09	-9359994.95	-9359994.82	0.0529	0.0395
Mercury	-30336-06-11 22:04 J	-9358638.61	-9358638.58	-9358638.56	0.0525	0.0513
Mercury	-30336-09-09 06:43 J	-9358549.35	-9358549.22	-9358549.09	0.0521	0.0077
Venus	-30335-04-15 10:33 J	-9358331.15	-9358331.06	-9358330.96	0.0513	0.0452
Venus	-30335-12-07 16:19 J	-9358095.02	-9358094.82	-9358094.63	0.0503	0.0066
Earth	-30331-10-03 09:07 J	-9356699.20	-9356699.12	-9356699.03	0.0492	0.0458
Moon	-30331-10-03 13:11 J	-9356699.07	-9356698.95	-9356698.83	0.0492	0.0425 *
Mercury	-30330-11-08 14:09 J	-9356298.03	-9356297.91	-9356297.79	0.0504	0.0360
Mercury	-30329-02-06 16:19 J	-9356207.94	-9356207.82	-9356207.69	0.0507	0.0340
Venus	-30329-10-04 02:52 J	-9355967.52	-9355967.38	-9355967.23	0.0517	0.0364
Venus	-30328-05-30 02:09 J	-9355729.60	-9355729.41	-9355729.23	0.0526	0.0228
Mercury	-30324-06-28 09:21 J	-9354239.25	-9354239.11	-9354238.98	0.0523	0.0086
Mercury	-30324-09-25 18:43 J	-9354149.74	-9354149.72	-9354149.70	0.0519	0.0511
Mars	-30323-03-06 11:45 J	-9353988.26	-9353988.01	-9353987.77	0.0513	0.0185
Venus	-30323-08-12 16:33 J	-9353829.01	-9353828.81	-9353828.61	0.0506	0.0079
Venus	-30322-04-05 17:59 J	-9353592.85	-9353592.75	-9353592.64	0.0498	0.0418
Moon	-30319-10-07 18:28 J	-9352311.97	-9352311.73	-9352311.49	0.0493	0.0026
Earth	-30319-10-07 22:04 J	-9352311.82	-9352311.58	-9352311.35	0.0493	0.0025 *
Mercury	-30318-11-25 15:50 J	-9351897.99	-9351897.84	-9351897.68	0.0506	0.0172
Venus	-30316-02-01 15:21 J	-9351464.07	-9351463.86	-9351463.66	0.0523	0.0060
Mercury	-30312-04-16 12:43 J	-9349929.09	-9349928.97	-9349928.85	0.0524	0.0232
Mercury	-30312-07-14 21:50 J	-9349839.68	-9349839.59	-9349839.49	0.0520	0.0363

Venus	-30311-04-17 18:43 J	-9349562.90	-9349562.72	-9349562.54	0.0509	0.0222
Venus	-30311-12-09 21:50 J	-9349326.75	-9349326.59	-9349326.42	0.0501	0.0286
Moon	-30307-10-12 10:04 J	-9347924.14	-9347924.08	-9347924.00	0.0494	0.0470
Mercury	-30306-09-13 14:23 J	-9347588.07	-9347587.90	-9347587.73	0.0505	0.0014
Venus	-30305-10-07 03:50 J	-9347198.55	-9347198.34	-9347198.14	0.0521	0.0110
Venus	-30304-06-02 05:45 J	-9346960.32	-9346960.26	-9346960.18	0.0530	0.0494
Earth	-30301-04-05 08:23 J	-9345922.37	-9345922.15	-9345921.92	0.0535	0.0087
Moon	-30301-04-05 11:59 J	-9345922.23	-9345922.00	-9345921.77	0.0535	0.0116 *
Mercury	-30300-02-02 16:33 J	-9345618.90	-9345618.81	-9345618.72	0.0525	0.0372
Mercury	-30300-05-03 01:26 J	-9345529.56	-9345529.44	-9345529.31	0.0521	0.0224
Venus	-30300-12-21 20:52 J	-9345296.76	-9345296.63	-9345296.48	0.0512	0.0365
Venus	-30299-08-15 01:55 J	-9345060.61	-9345060.42	-9345060.22	0.0503	0.0151
Mercury	-30294-07-02 13:26 J	-9343278.10	-9343277.94	-9343277.78	0.0505	0.0181
Venus	-30293-06-11 18:28 J	-9342932.90	-9342932.73	-9342932.55	0.0518	0.0271
Venus	-30292-02-04 18:57 J	-9342694.87	-9342694.71	-9342694.55	0.0528	0.0327
Earth	-30289-04-10 11:45 J	-9341534.03	-9341534.01	-9341533.98	0.0533	0.0529
Mercury	-30289-11-21 20:38 J	-9341308.67	-9341308.64	-9341308.61	0.0525	0.0508
Mercury	-30288-02-19 05:16 J	-9341219.41	-9341219.28	-9341219.14	0.0522	0.0083
Venus	-30288-08-26 22:47 J	-9341030.58	-9341030.55	-9341030.52	0.0514	0.0506
Venus	-30287-04-20 05:31 J	-9340794.47	-9340794.27	-9340794.07	0.0505	0.0013
Mercury	-30282-04-20 12:28 J	-9338968.10	-9338967.98	-9338967.85	0.0504	0.0353
Mercury	-30282-07-19 14:52 J	-9338878.00	-9338877.88	-9338877.76	0.0507	0.0346
Venus	-30281-02-15 10:33 J	-9338667.17	-9338667.06	-9338666.94	0.0516	0.0424
Venus	-30281-10-10 09:07 J	-9338429.31	-9338429.12	-9338428.92	0.0525	0.0162
Mercury	-30277-12-08 08:52 J	-9336909.26	-9336909.13	-9336908.99	0.0522	0.0063
Venus	-30276-12-24 08:09 J	-9336528.36	-9336528.16	-9336527.97	0.0507	0.0130
Venus	-30275-08-17 09:35 J	-9336292.23	-9336292.10	-9336291.96	0.0499	0.0369
Mercury	-30270-05-07 14:52 J	-9334568.04	-9334567.88	-9334567.73	0.0506	0.0184
Venus	-30269-06-14 23:31 J	-9334163.72	-9334163.52	-9334163.31	0.0522	0.0012
Mercury	-30265-09-26 11:31 J	-9332599.14	-9332599.02	-9332598.90	0.0523	0.0223

Mercury	-30265-12-24 20:38 J	-9332509.73	-9332509.64	-9332509.54	0.0520	0.0372
Venus	-30264-08-29 07:11 J	-9332262.36	-9332262.20	-9332262.03	0.0510	0.0277
Venus	-30263-04-22 11:16 J	-9332026.21	-9332026.03	-9332025.85	0.0501	0.0234
Mercury	-30258-02-23 14:09 J	-9330258.08	-9330257.91	-9330257.74	0.0505	0.0015
Venus	-30257-02-18 13:40 J	-9329898.12	-9329897.93	-9329897.73	0.0520	0.0167
Venus	-30257-10-13 14:52 J	-9329659.99	-9329659.88	-9329659.76	0.0529	0.0432
Mercury	-30253-07-15 15:07 J	-9328288.97	-9328288.87	-9328288.78	0.0524	0.0370
Mercury	-30253-10-12 23:59 J	-9328199.62	-9328199.50	-9328199.38	0.0521	0.0223
Venus	-30252-05-04 08:09 J	-9327996.27	-9327996.16	-9327996.05	0.0513	0.0421
Venus	-30252-12-26 14:09 J	-9327760.10	-9327759.91	-9327759.71	0.0504	0.0096
Moon	-30248-10-02 14:52 J	-9326383.91	-9326383.88	-9326383.83	0.0492	0.0483
Mercury	-30247-12-12 12:28 J	-9325948.14	-9325947.98	-9325947.82	0.0504	0.0167
Venus	-30246-10-24 02:52 J	-9325632.53	-9325632.38	-9325632.22	0.0517	0.0329
Venus	-30245-06-18 01:55 J	-9325394.60	-9325394.42	-9325394.24	0.0526	0.0261
Mercury	-30241-05-03 18:57 J	-9323978.74	-9323978.71	-9323978.68	0.0526	0.0510
Mercury	-30241-08-01 03:35 J	-9323889.48	-9323889.35	-9323889.21	0.0522	0.0082
Venus	-30240-08-31 17:45 J	-9323493.96	-9323493.76	-9323493.56	0.0506	0.0044
Venus	-30239-04-24 18:57 J	-9323257.79	-9323257.71	-9323257.62	0.0498	0.0449
Earth	-30236-10-07 05:31 J	-9321996.51	-9321996.27	-9321996.04	0.0493	0.0039
Moon	-30236-10-07 07:26 J	-9321996.42	-9321996.19	-9321995.97	0.0493	0.0046 *
Mercury	-30235-09-30 11:16 J	-9321638.15	-9321638.03	-9321637.90	0.0504	0.0341
Mercury	-30235-12-29 13:40 J	-9321548.05	-9321547.93	-9321547.81	0.0507	0.0356
Mars	-30234-06-01 04:19 J	-9321394.60	-9321394.32	-9321394.04	0.0513	0.0090
Venus	-30234-06-28 18:28 J	-9321366.79	-9321366.73	-9321366.65	0.0514	0.0482
Venus	-30233-02-21 15:21 J	-9321129.06	-9321128.86	-9321128.65	0.0524	0.0095
Mercury	-30229-05-20 07:26 J	-9319579.32	-9319579.19	-9319579.05	0.0523	0.0059
Venus	-30228-05-06 20:38 J	-9319227.83	-9319227.64	-9319227.46	0.0509	0.0185
Venus	-30228-12-28 23:02 J	-9318991.69	-9318991.54	-9318991.38	0.0500	0.0319
Moon	-30224-10-11 16:19 J	-9317608.95	-9317608.82	-9317608.68	0.0494	0.0405
Earth	-30224-10-11 16:33 J	-9317608.91	-9317608.81	-9317608.69	0.0494	0.0438 *

Mercury	-30223-10-17 12:57 J	-9317238.12	-9317237.96	-9317237.80	0.0506	0.0187
Venus	-30222-10-27 06:14 J	-9316863.44	-9316863.24	-9316863.03	0.0521	0.0070
Moon	-30218-04-05 13:55 J	-9315607.13	-9315606.92	-9315606.70	0.0535	0.0183
Earth	-30218-04-05 17:45 J	-9315606.98	-9315606.76	-9315606.54	0.0535	0.0153 *
Mercury	-30217-03-08 11:16 J	-9315269.16	-9315269.03	-9315268.91	0.0523	0.0202
Mercury	-30217-06-05 20:23 J	-9315179.74	-9315179.65	-9315179.57	0.0520	0.0394
Venus	-30216-01-09 22:19 J	-9314961.72	-9314961.57	-9314961.42	0.0511	0.0328
Venus	-30216-09-03 02:38 J	-9314725.58	-9314725.39	-9314725.20	0.0502	0.0183
Mercury	-30211-08-05 12:43 J	-9312928.14	-9312927.97	-9312927.80	0.0506	0.0024
Venus	-30210-07-01 22:04 J	-9312597.77	-9312597.58	-9312597.40	0.0519	0.0227
Venus	-30209-02-24 22:19 J	-9312359.71	-9312359.57	-9312359.42	0.0528	0.0369
Earth	-30206-04-10 13:26 J	-9311219.08	-9311218.94	-9311218.80	0.0533	0.0425
Moon	-30206-04-10 16:19 J	-9311218.94	-9311218.82	-9311218.70	0.0533	0.0446 *
Mercury	-30206-12-26 13:55 J	-9310959.02	-9310958.92	-9310958.83	0.0524	0.0361
Mercury	-30205-03-24 22:47 J	-9310869.67	-9310869.55	-9310869.43	0.0521	0.0231
Mars	-30205-08-25 12:57 J	-9310716.22	-9310715.96	-9310715.70	0.0515	0.0110
Venus	-30205-09-14 20:23 J	-9310695.72	-9310695.65	-9310695.58	0.0514	0.0475
Venus	-30204-05-09 03:07 J	-9310459.57	-9310459.37	-9310459.17	0.0505	0.0042
Mercury	-30199-05-24 11:59 J	-9308618.17	-9308618.00	-9308617.84	0.0505	0.0146
Venus	-30198-03-06 13:11 J	-9308332.08	-9308331.95	-9308331.81	0.0516	0.0383
Mars	-30198-03-08 09:50 J	-9308330.27	-9308330.09	-9308329.90	0.0516	0.0394
Venus	-30198-10-30 11:16 J	-9308094.22	-9308094.03	-9308093.83	0.0525	0.0201
Mercury	-30194-10-14 17:16 J	-9306648.81	-9306648.78	-9306648.75	0.0525	0.0509
Mercury	-30193-01-12 01:55 J	-9306559.55	-9306559.42	-9306559.28	0.0522	0.0082
Venus	-30192-01-12 05:02 J	-9306193.48	-9306193.29	-9306193.09	0.0507	0.0101
Venus	-30192-09-05 07:11 J	-9305957.32	-9305957.20	-9305957.08	0.0499	0.0397
Mercury	-30187-03-12 10:04 J	-9304308.21	-9304308.08	-9304307.95	0.0504	0.0328
Mercury	-30187-06-10 12:28 J	-9304218.10	-9304217.98	-9304217.87	0.0507	0.0368
Venus	-30186-07-04 22:47 J	-9303828.76	-9303828.55	-9303828.34	0.0522	0.0030
Mercury	-30182-10-31 05:45 J	-9302249.40	-9302249.26	-9302249.13	0.0523	0.0063

Venus	-30181-09-17 07:40 J	-9301927.35	-9301927.18	-9301927.00	0.0510	0.0243
Venus	-30180-05-11 11:45 J	-9301691.18	-9301691.01	-9301690.84	0.0501	0.0265
Mercury	-30175-03-29 11:31 J	-9299908.18	-9299908.02	-9299907.86	0.0506	0.0197
Venus	-30174-03-09 12:57 J	-9299563.16	-9299562.96	-9299562.76	0.0520	0.0134
Venus	-30174-11-02 14:23 J	-9299324.99	-9299324.90	-9299324.80	0.0529	0.0463
Mercury	-30170-08-19 09:35 J	-9297939.23	-9297939.10	-9297938.98	0.0524	0.0201
Mercury	-30170-11-16 18:43 J	-9297849.81	-9297849.72	-9297849.64	0.0520	0.0395
Venus	-30169-05-23 09:35 J	-9297661.22	-9297661.10	-9297660.96	0.0512	0.0385
Mars	-30169-05-30 22:47 J	-9297653.76	-9297653.55	-9297653.34	0.0512	0.0314
Venus	-30168-01-14 15:07 J	-9297425.06	-9297424.87	-9297424.67	0.0503	0.0130
Mercury	-30163-01-15 10:33 J	-9295598.23	-9295598.06	-9295597.88	0.0506	0.0029
Venus	-30163-11-12 04:19 J	-9295297.49	-9295297.32	-9295297.15	0.0517	0.0291
Venus	-30162-07-08 04:04 J	-9295059.50	-9295059.33	-9295059.16	0.0527	0.0299
Mercury	-30158-06-07 13:11 J	-9293629.05	-9293628.95	-9293628.85	0.0524	0.0343
Mercury	-30158-09-04 22:04 J	-9293539.70	-9293539.58	-9293539.46	0.0521	0.0251
Venus	-30157-09-19 18:14 J	-9293158.94	-9293158.74	-9293158.54	0.0506	0.0014
Venus	-30156-05-13 18:57 J	-9292922.76	-9292922.71	-9292922.66	0.0498	0.0477
Moon	-30153-10-06 14:23 J	-9291681.14	-9291680.90	-9291680.66	0.0493	0.0110
Earth	-30153-10-06 14:38 J	-9291681.12	-9291680.89	-9291680.66	0.0493	0.0096 *
Mercury	-30152-11-03 10:19 J	-9291288.24	-9291288.07	-9291287.91	0.0505	0.0140
Venus	-30151-07-17 21:07 J	-9291031.72	-9291031.62	-9291031.51	0.0515	0.0441
Venus	-30150-03-12 18:28 J	-9290793.93	-9290793.73	-9290793.53	0.0524	0.0136
Mercury	-30146-03-26 16:04 J	-9289318.87	-9289318.83	-9289318.79	0.0525	0.0501
Mercury	-30146-06-24 00:43 J	-9289229.60	-9289229.47	-9289229.34	0.0522	0.0089
Venus	-30145-05-25 17:31 J	-9288892.96	-9288892.77	-9288892.58	0.0508	0.0156
Venus	-30144-01-16 20:09 J	-9288656.80	-9288656.66	-9288656.51	0.0500	0.0345
Moon	-30141-10-11 01:26 J	-9287293.58	-9287293.44	-9287293.27	0.0494	0.0358
Earth	-30141-10-11 02:52 J	-9287293.53	-9287293.38	-9287293.23	0.0494	0.0386 *
Mercury	-30140-08-22 09:21 J	-9286978.25	-9286978.11	-9286977.98	0.0504	0.0311
Mercury	-30140-11-20 11:45 J	-9286888.12	-9286888.01	-9286887.91	0.0507	0.0387

Venus	-30139-11-15 08:23 J	-9286528.36	-9286528.15	-9286527.95	0.0521	0.0030
Earth	-30135-04-04 15:35 J	-9285292.04	-9285291.85	-9285291.65	0.0535	0.0273
Moon	-30135-04-04 18:57 J	-9285291.90	-9285291.71	-9285291.53	0.0535	0.0297 *
Mercury	-30134-04-12 03:50 J	-9284919.47	-9284919.34	-9284919.20	0.0523	0.0065
Venus	-30133-01-29 18:28 J	-9284626.89	-9284626.73	-9284626.57	0.0511	0.0300
Venus	-30133-09-21 23:02 J	-9284390.72	-9284390.54	-9284390.35	0.0502	0.0210
Mercury	-30128-06-10 07:11 J	-9282668.22	-9282668.20	-9282668.16	0.0503	0.0495
Mercury	-30128-09-08 10:04 J	-9282578.23	-9282578.08	-9282577.92	0.0506	0.0206
Venus	-30127-07-20 20:23 J	-9282262.84	-9282262.65	-9282262.46	0.0518	0.0196
Venus	-30126-03-15 20:38 J	-9282024.78	-9282024.64	-9282024.51	0.0528	0.0397
Moon	-30123-04-09 13:40 J	-9280904.11	-9280903.93	-9280903.75	0.0534	0.0344
Earth	-30123-04-09 15:35 J	-9280904.03	-9280903.85	-9280903.67	0.0534	0.0326 *
Mercury	-30122-01-29 07:40 J	-9280609.31	-9280609.18	-9280609.06	0.0524	0.0206
Mercury	-30122-04-28 16:47 J	-9280519.89	-9280519.80	-9280519.71	0.0520	0.0391
Venus	-30122-10-04 19:55 J	-9280360.77	-9280360.67	-9280360.57	0.0514	0.0443
Venus	-30121-05-28 02:52 J	-9280124.58	-9280124.38	-9280124.19	0.0505	0.0073
Mercury	-30116-06-27 09:07 J	-9278268.29	-9278268.12	-9278267.95	0.0505	0.0033
Mars	-30116-11-18 20:38 J	-9278123.79	-9278123.64	-9278123.47	0.0511	0.0413
Venus	-30115-03-25 11:16 J	-9277997.18	-9277997.03	-9277996.88	0.0516	0.0353
Venus	-30115-11-18 09:21 J	-9277759.29	-9277759.11	-9277758.92	0.0525	0.0231
Mercury	-30111-11-17 11:31 J	-9276299.12	-9276299.02	-9276298.92	0.0525	0.0345
Mercury	-30110-02-14 20:23 J	-9276209.77	-9276209.65	-9276209.53	0.0521	0.0248
Venus	-30109-02-01 05:45 J	-9275858.46	-9275858.26	-9275858.06	0.0507	0.0067
Venus	-30109-09-24 07:11 J	-9275622.30	-9275622.20	-9275622.09	0.0499	0.0426
Mercury	-30104-04-15 07:55 J	-9273958.33	-9273958.17	-9273958.00	0.0505	0.0142
Venus	-30104-11-28 03:21 J	-9273731.40	-9273731.36	-9273731.32	0.0513	0.0502
Venus	-30103-07-23 23:31 J	-9273493.73	-9273493.52	-9273493.32	0.0523	0.0066
Mercury	-30099-09-05 15:07 J	-9271988.91	-9271988.87	-9271988.82	0.0525	0.0487
Mercury	-30099-12-03 23:59 J	-9271899.64	-9271899.50	-9271899.37	0.0522	0.0105
Venus	-30098-10-07 07:55 J	-9271592.35	-9271592.17	-9271591.99	0.0509	0.0209



Venus	-30097-05-30 11:02 J	-9271356.20	-9271356.04	-9271355.88	0.0501	0.0294
Mercury	-30092-02-01 07:26 J	-9269648.33	-9269648.19	-9269648.06	0.0504	0.0309
Mercury	-30092-05-02 09:50 J	-9269558.20	-9269558.09	-9269557.99	0.0507	0.0389
Venus	-30091-03-28 14:52 J	-9269228.08	-9269227.88	-9269227.67	0.0520	0.0094
Venus	-30091-11-21 16:47 J	-9268989.86	-9268989.80	-9268989.74	0.0529	0.0501
Mercury	-30087-09-22 02:38 J	-9267589.52	-9267589.39	-9267589.26	0.0522	0.0056
Mars	-30086-02-14 04:19 J	-9267444.47	-9267444.32	-9267444.17	0.0517	0.0422
Venus	-30086-06-12 06:14 J	-9267326.38	-9267326.24	-9267326.10	0.0512	0.0357
Venus	-30085-02-03 11:31 J	-9267090.21	-9267090.02	-9267089.83	0.0503	0.0155
Mercury	-30081-11-20 06:14 J	-9265338.29	-9265338.24	-9265338.19	0.0503	0.0481
Mercury	-30080-02-18 09:07 J	-9265248.27	-9265248.12	-9265247.97	0.0506	0.0221
Mars	-30080-08-25 17:16 J	-9265060.07	-9265059.78	-9265059.50	0.0514	0.0050
Venus	-30080-12-01 05:45 J	-9264962.44	-9264962.26	-9264962.08	0.0517	0.0254
Venus	-30079-07-27 05:16 J	-9264724.44	-9264724.28	-9264724.13	0.0527	0.0335
Mercury	-30075-07-11 05:45 J	-9263279.38	-9263279.26	-9263279.13	0.0523	0.0207
Mercury	-30075-10-08 14:52 J	-9263189.97	-9263189.88	-9263189.79	0.0520	0.0388
Venus	-30074-02-15 05:45 J	-9263060.29	-9263060.26	-9263060.20	0.0515	0.0501
Venus	-30074-10-09 13:40 J	-9262824.13	-9262823.93	-9262823.73	0.0506	0.0015
Moon	-30070-10-06 18:14 J	-9261365.95	-9261365.74	-9261365.52	0.0492	0.0185
Earth	-30070-10-06 19:26 J	-9261365.91	-9261365.69	-9261365.47	0.0492	0.0167 *
Mercury	-30069-12-07 07:26 J	-9260938.36	-9260938.19	-9260938.02	0.0505	0.0039
Venus	-30068-08-05 18:43 J	-9260696.84	-9260696.72	-9260696.59	0.0515	0.0412
Venus	-30067-03-31 15:35 J	-9260459.04	-9260458.85	-9260458.65	0.0524	0.0164
Mercury	-30063-04-29 09:21 J	-9258969.21	-9258969.11	-9258969.01	0.0525	0.0352
Mercury	-30063-07-27 18:14 J	-9258879.86	-9258879.74	-9258879.62	0.0521	0.0242
Venus	-30062-06-14 16:19 J	-9258558.02	-9258557.82	-9258557.63	0.0508	0.0126
Venus	-30061-02-05 18:57 J	-9258321.84	-9258321.71	-9258321.58	0.0500	0.0372
Earth	-30058-10-11 06:28 J	-9256978.42	-9256978.23	-9256978.05	0.0494	0.0306
Moon	-30058-10-11 09:07 J	-9256978.32	-9256978.12	-9256977.92	0.0494	0.0280 *
Mercury	-30057-09-25 05:59 J	-9256628.41	-9256628.25	-9256628.08	0.0504	0.0139

Venus	-30056-12-04 05:02 J	-9256193.50	-9256193.29	-9256193.08	0.0521	0.0002
Moon	-30052-04-03 16:19 J	-9254976.98	-9254976.82	-9254976.66	0.0536	0.0394
Earth	-30052-04-03 18:28 J	-9254976.89	-9254976.73	-9254976.56	0.0536	0.0371 *
Mercury	-30051-02-15 13:11 J	-9254658.99	-9254658.95	-9254658.90	0.0526	0.0492
Mercury	-30051-05-15 21:50 J	-9254569.72	-9254569.59	-9254569.45	0.0522	0.0101
Mars	-30051-11-19 15:35 J	-9254382.11	-9254381.85	-9254381.58	0.0514	0.0012
Venus	-30050-02-17 18:28 J	-9254291.90	-9254291.73	-9254291.56	0.0511	0.0267
Venus	-30050-10-11 22:47 J	-9254055.73	-9254055.55	-9254055.37	0.0502	0.0240
Mercury	-30045-07-14 04:47 J	-9252318.43	-9252318.30	-9252318.17	0.0504	0.0315
Mercury	-30045-10-12 07:11 J	-9252228.31	-9252228.20	-9252228.09	0.0507	0.0383
Mars	-30044-06-01 04:19 J	-9251996.37	-9251996.32	-9251996.27	0.0516	0.0508
Venus	-30044-08-08 19:26 J	-9251927.88	-9251927.69	-9251927.49	0.0519	0.0163
Venus	-30043-04-03 20:23 J	-9251689.76	-9251689.65	-9251689.53	0.0528	0.0429
Earth	-30040-04-08 20:52 J	-9250588.83	-9250588.63	-9250588.42	0.0534	0.0241
Moon	-30040-04-08 21:21 J	-9250588.80	-9250588.61	-9250588.42	0.0534	0.0265 *
Mercury	-30039-03-04 01:40 J	-9250259.57	-9250259.43	-9250259.30	0.0523	0.0046
Venus	-30039-10-23 19:26 J	-9250025.80	-9250025.69	-9250025.56	0.0513	0.0410
Venus	-30038-06-17 01:40 J	-9249789.62	-9249789.43	-9249789.23	0.0504	0.0104
Mercury	-30033-05-02 03:50 J	-9248008.38	-9248008.34	-9248008.29	0.0503	0.0484
Mercury	-30033-07-31 06:57 J	-9247918.36	-9247918.21	-9247918.06	0.0506	0.0219
Venus	-30032-04-13 11:59 J	-9247662.16	-9247662.00	-9247661.83	0.0516	0.0316
Venus	-30032-12-07 10:47 J	-9247424.23	-9247424.05	-9247423.87	0.0526	0.0267
Mercury	-30028-12-21 04:19 J	-9245949.44	-9245949.32	-9245949.19	0.0523	0.0203
Mercury	-30027-03-20 13:26 J	-9245860.03	-9245859.94	-9245859.85	0.0520	0.0392
Venus	-30026-02-20 01:40 J	-9245523.63	-9245523.43	-9245523.23	0.0507	0.0042
Venus	-30026-10-14 02:52 J	-9245287.46	-9245287.38	-9245287.29	0.0499	0.0448
Mercury	-30021-05-19 05:59 J	-9243608.42	-9243608.25	-9243608.08	0.0506	0.0049
Venus	-30021-12-17 03:50 J	-9243396.43	-9243396.34	-9243396.26	0.0514	0.0467
Venus	-30020-08-11 23:59 J	-9243158.70	-9243158.50	-9243158.30	0.0523	0.0101
Mercury	-30016-10-09 07:40 J	-9241639.28	-9241639.18	-9241639.08	0.0524	0.0352

Mercury	-30015-01-06 16:33 J	-9241549.93	-9241549.81	-9241549.69	0.0521	0.0239
Mars	-30015-08-24 09:21 J	-9241320.27	-9241320.11	-9241319.94	0.0512	0.0399
Venus	-30015-10-26 02:38 J	-9241257.57	-9241257.39	-9241257.20	0.0509	0.0185
Venus	-30014-06-19 05:59 J	-9241021.40	-9241021.25	-9241021.09	0.0501	0.0316
Mercury	-30009-03-07 04:19 J	-9239298.49	-9239298.32	-9239298.16	0.0504	0.0135
Venus	-30008-04-16 11:31 J	-9238893.23	-9238893.02	-9238892.82	0.0520	0.0068
Venus	-30008-12-10 12:57 J	-9238654.99	-9238654.96	-9238654.94	0.0529	0.0523
Mercury	-30004-07-28 11:02 J	-9237329.07	-9237329.04	-9237329.00	0.0526	0.0500
Mercury	-30004-10-25 19:55 J	-9237239.81	-9237239.67	-9237239.54	0.0522	0.0092
Venus	-30003-07-01 03:50 J	-9236991.49	-9236991.34	-9236991.18	0.0512	0.0329
Venus	-30002-02-22 09:35 J	-9236755.29	-9236755.10	-9236754.91	0.0503	0.0182

# 30TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 30th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-29998-12-25 02:38 J	-9234988.52	-9234988.39	-9234988.25	0.0503	0.0313		
Mercury	-29997-03-24 05:16 J	-9234898.39	-9234898.28	-9234898.17	0.0507	0.0385		
Venus	-29997-12-20 01:11 J	-9234627.63	-9234627.45	-9234627.26	0.0517	0.0229		
Venus	-29996-08-15 00:43 J	-9234389.62	-9234389.47	-9234389.32	0.0527	0.0358		
Mercury	-29992-08-13 23:31 J	-9232929.65	-9232929.52	-9232929.39	0.0523	0.0052		
Venus	-29991-03-06 05:02 J	-9232725.36	-9232725.29	-9232725.20	0.0515	0.0470		
Venus	-29991-10-28 12:43 J	-9232489.17	-9232488.97	-9232488.77	0.0506	0.0045		

Earth	-29987-10-05 22:19 J	-9231050.77	-9231050.57	-9231050.36	0.0492	0.0250
Moon	-29987-10-06 00:57 J	-9231050.66	-9231050.46	-9231050.26	0.0492	0.0269 *
Mercury	-29986-10-13 01:11 J	-9230678.48	-9230678.45	-9230678.41	0.0503	0.0491
Mercury	-29985-01-11 04:04 J	-9230588.48	-9230588.33	-9230588.17	0.0506	0.0211
Venus	-29985-08-24 16:33 J	-9230361.95	-9230361.81	-9230361.67	0.0515	0.0381
Venus	-29984-04-19 14:09 J	-9230124.10	-9230123.91	-9230123.72	0.0525	0.0194
Mercury	-29980-06-02 03:07 J	-9228619.49	-9228619.37	-9228619.24	0.0524	0.0195
Mercury	-29980-08-30 12:14 J	-9228530.08	-9228529.99	-9228529.90	0.0520	0.0400
Venus	-29979-07-03 14:52 J	-9228223.07	-9228222.88	-9228222.68	0.0508	0.0096
Venus	-29978-02-24 17:02 J	-9227986.90	-9227986.79	-9227986.66	0.0500	0.0397
Moon	-29975-10-10 06:57 J	-9226663.42	-9226663.21	-9226663.00	0.0493	0.0204
Earth	-29975-10-10 10:33 J	-9226663.27	-9226663.06	-9226662.85	0.0493	0.0227 *
Mercury	-29974-10-30 03:35 J	-9226278.52	-9226278.35	-9226278.18	0.0505	0.0045
Venus	-29973-12-23 05:16 J	-9225858.49	-9225858.28	-9225858.08	0.0522	0.0035
Earth	-29969-04-02 19:11 J	-9224661.79	-9224661.70	-9224661.59	0.0536	0.0476
Moon	-29969-04-02 20:09 J	-9224661.73	-9224661.66	-9224661.57	0.0536	0.0497 *
Mercury	-29968-03-21 06:14 J	-9224309.34	-9224309.24	-9224309.14	0.0524	0.0349
Mercury	-29968-06-18 14:52 J	-9224220.00	-9224219.88	-9224219.76	0.0521	0.0243
Venus	-29967-03-08 14:09 J	-9223957.09	-9223956.91	-9223956.73	0.0510	0.0242
Venus	-29967-10-30 17:59 J	-9223720.92	-9223720.75	-9223720.57	0.0502	0.0262
Mercury	-29962-08-18 02:38 J	-9221968.56	-9221968.39	-9221968.22	0.0505	0.0128
Mars	-29961-02-12 19:55 J	-9221789.89	-9221789.67	-9221789.43	0.0511	0.0295
Venus	-29961-08-27 19:26 J	-9221592.89	-9221592.69	-9221592.49	0.0519	0.0129
Venus	-29960-04-22 20:23 J	-9221354.75	-9221354.65	-9221354.55	0.0528	0.0460
Earth	-29957-04-07 17:45 J	-9220273.98	-9220273.76	-9220273.53	0.0534	0.0115
Moon	-29957-04-07 18:57 J	-9220273.94	-9220273.71	-9220273.48	0.0534	0.0141 *
Mercury	-29956-01-07 09:21 J	-9219999.14	-9219999.11	-9219999.06	0.0525	0.0499
Mercury	-29956-04-06 17:59 J	-9219909.88	-9219909.75	-9219909.61	0.0522	0.0090
Venus	-29956-11-11 13:55 J	-9219691.04	-9219690.92	-9219690.78	0.0513	0.0387
Venus	-29955-07-05 20:09 J	-9219454.85	-9219454.66	-9219454.46	0.0504	0.0124

Mercury	-29950-06-06 00:43 J	-9217658.60	-9217658.47	-9217658.33	0.0504	0.0312
Mercury	-29950-09-04 03:07 J	-9217568.48	-9217568.37	-9217568.26	0.0507	0.0386
Venus	-29949-05-02 07:55 J	-9217327.34	-9217327.17	-9217327.00	0.0516	0.0291
Venus	-29949-12-26 06:14 J	-9217089.41	-9217089.24	-9217089.07	0.0525	0.0290
Mercury	-29944-01-23 21:21 J	-9215599.75	-9215599.61	-9215599.48	0.0523	0.0061
Venus	-29943-03-10 22:47 J	-9215188.75	-9215188.55	-9215188.35	0.0507	0.0016
Venus	-29943-11-02 00:28 J	-9214952.54	-9214952.48	-9214952.41	0.0499	0.0471
Mercury	-29938-03-24 23:16 J	-9213348.57	-9213348.53	-9213348.50	0.0503	0.0490
Mercury	-29938-06-23 01:55 J	-9213258.57	-9213258.42	-9213258.26	0.0506	0.0212
Venus	-29937-01-05 22:33 J	-9213061.65	-9213061.56	-9213061.45	0.0513	0.0443
Venus	-29937-08-30 18:43 J	-9212823.92	-9212823.72	-9212823.51	0.0523	0.0125
Mercury	-29933-11-12 00:57 J	-9211289.58	-9211289.46	-9211289.34	0.0524	0.0204
Mercury	-29932-02-09 10:04 J	-9211200.17	-9211200.08	-9211199.99	0.0521	0.0392
Mars	-29932-05-09 20:23 J	-9211110.85	-9211110.65	-9211110.43	0.0517	0.0319
Venus	-29932-11-14 01:11 J	-9210922.64	-9210922.45	-9210922.26	0.0509	0.0155
Venus	-29931-07-08 04:19 J	-9210686.46	-9210686.32	-9210686.17	0.0501	0.0342
Mercury	-29926-04-11 00:43 J	-9208948.64	-9208948.47	-9208948.30	0.0505	0.0034
Mars	-29926-11-18 22:19 J	-9208726.83	-9208726.57	-9208726.29	0.0514	0.0141
Venus	-29925-05-05 08:38 J	-9208558.35	-9208558.14	-9208557.93	0.0521	0.0039
Mercury	-29921-08-31 04:47 J	-9206979.40	-9206979.30	-9206979.20	0.0525	0.0346
Mercury	-29921-11-28 13:40 J	-9206890.05	-9206889.93	-9206889.82	0.0521	0.0247
Venus	-29920-07-20 02:23 J	-9206656.56	-9206656.40	-9206656.23	0.0512	0.0297
Venus	-29919-03-13 07:40 J	-9206420.36	-9206420.18	-9206420.00	0.0503	0.0209
Mercury	-29914-01-27 23:59 J	-9204638.66	-9204638.50	-9204638.33	0.0505	0.0135
Venus	-29913-01-09 00:14 J	-9204292.68	-9204292.49	-9204292.29	0.0518	0.0195
Venus	-29913-09-03 00:28 J	-9204054.61	-9204054.48	-9204054.34	0.0527	0.0391
Mercury	-29909-06-19 07:55 J	-9202669.21	-9202669.17	-9202669.13	0.0525	0.0496
Mercury	-29909-09-16 16:33 J	-9202579.95	-9202579.81	-9202579.68	0.0522	0.0092
Venus	-29908-03-25 01:11 J	-9202390.55	-9202390.45	-9202390.35	0.0514	0.0444
Venus	-29908-11-16 08:09 J	-9202154.36	-9202154.16	-9202153.96	0.0505	0.0068

Moon	-29904-10-04 22:19 J	-9200735.73	-9200735.57	-9200735.41	0.0492	0.0355
Earth	-29904-10-05 01:40 J	-9200735.60	-9200735.43	-9200735.25	0.0492	0.0329 *
Mercury	-29903-11-15 22:47 J	-9200328.68	-9200328.55	-9200328.41	0.0504	0.0308
Mercury	-29902-02-14 01:26 J	-9200238.55	-9200238.44	-9200238.33	0.0507	0.0391
Venus	-29902-09-13 15:50 J	-9200026.99	-9200026.84	-9200026.69	0.0515	0.0349
Venus	-29901-05-08 13:40 J	-9199789.12	-9199788.93	-9199788.74	0.0525	0.0226
Mercury	-29897-07-05 19:40 J	-9198269.81	-9198269.68	-9198269.55	0.0523	0.0060
Mars	-29896-02-11 22:47 J	-9198048.81	-9198048.55	-9198048.29	0.0514	0.0092
Venus	-29896-07-22 09:21 J	-9197888.31	-9197888.11	-9197887.91	0.0508	0.0074
Venus	-29895-03-15 11:31 J	-9197652.13	-9197652.02	-9197651.91	0.0500	0.0416
Earth	-29892-10-09 11:59 J	-9196348.22	-9196348.00	-9196347.77	0.0493	0.0140
Moon	-29892-10-09 15:50 J	-9196348.06	-9196347.84	-9196347.61	0.0493	0.0126 *
Mercury	-29891-09-03 20:52 J	-9196018.66	-9196018.63	-9196018.59	0.0503	0.0491
Mercury	-29891-12-02 23:45 J	-9195928.66	-9195928.51	-9195928.35	0.0506	0.0211
Venus	-29890-05-19 05:31 J	-9195761.31	-9195761.27	-9195761.22	0.0512	0.0500
Venus	-29889-01-12 00:28 J	-9195523.69	-9195523.48	-9195523.28	0.0522	0.0057
Mercury	-29885-04-23 22:47 J	-9193959.67	-9193959.55	-9193959.43	0.0524	0.0212
Mercury	-29885-07-22 07:55 J	-9193870.26	-9193870.17	-9193870.08	0.0521	0.0383
Venus	-29884-03-27 10:33 J	-9193622.23	-9193622.06	-9193621.87	0.0511	0.0217
Venus	-29884-11-18 15:07 J	-9193386.03	-9193385.87	-9193385.70	0.0502	0.0285
Mercury	-29879-09-20 22:33 J	-9191618.73	-9191618.56	-9191618.38	0.0505	0.0037
Venus	-29878-09-16 13:55 J	-9191258.12	-9191257.92	-9191257.71	0.0519	0.0106
Venus	-29877-05-11 14:38 J	-9191019.97	-9191019.89	-9191019.81	0.0528	0.0480
Moon	-29874-04-07 12:28 J	-9189959.21	-9189958.98	-9189958.76	0.0535	0.0019
Earth	-29874-04-07 15:07 J	-9189959.10	-9189958.87	-9189958.64	0.0535	0.0011 *
Mercury	-29873-02-11 02:38 J	-9189649.49	-9189649.39	-9189649.30	0.0525	0.0356
Mercury	-29873-05-10 11:16 J	-9189560.15	-9189560.03	-9189559.91	0.0522	0.0238
Venus	-29873-11-30 11:59 J	-9189356.14	-9189356.00	-9189355.86	0.0513	0.0357
Venus	-29872-07-24 18:14 J	-9189119.93	-9189119.74	-9189119.55	0.0504	0.0152
Mercury	-29867-07-09 21:07 J	-9187308.78	-9187308.62	-9187308.45	0.0504	0.0144

Venus	-29866-05-22 04:19 J	-9186992.50	-9186992.32	-9186992.14	0.0517	0.0263
Venus	-29865-01-15 03:07 J	-9186754.53	-9186754.37	-9186754.20	0.0526	0.0317
Mercury	-29862-11-30 06:14 J	-9185339.27	-9185339.24	-9185339.19	0.0526	0.0497
Mercury	-29861-02-27 14:52 J	-9185250.01	-9185249.88	-9185249.74	0.0522	0.0095
Venus	-29861-08-05 12:28 J	-9185090.03	-9185089.98	-9185089.93	0.0516	0.0499
Mars	-29861-11-17 03:50 J	-9184986.38	-9184986.34	-9184986.27	0.0512	0.0500
Venus	-29860-03-29 21:07 J	-9184853.82	-9184853.62	-9184853.42	0.0507	0.0017
Venus	-29860-11-20 22:19 J	-9184617.59	-9184617.57	-9184617.55	0.0498	0.0494
Mercury	-29855-04-27 20:09 J	-9182998.79	-9182998.66	-9182998.52	0.0504	0.0315
Mercury	-29855-07-26 22:47 J	-9182908.66	-9182908.55	-9182908.44	0.0507	0.0384
Venus	-29854-01-24 20:52 J	-9182726.75	-9182726.63	-9182726.51	0.0514	0.0411
Venus	-29854-09-19 17:45 J	-9182488.95	-9182488.76	-9182488.56	0.0524	0.0156
Mercury	-29850-12-16 18:14 J	-9180939.88	-9180939.74	-9180939.61	0.0523	0.0060
Venus	-29849-12-02 21:07 J	-9180587.81	-9180587.62	-9180587.43	0.0509	0.0130
Venus	-29848-07-26 23:45 J	-9180351.64	-9180351.51	-9180351.37	0.0500	0.0363
Mercury	-29843-02-13 18:43 J	-9178688.75	-9178688.72	-9178688.68	0.0503	0.0491
Mercury	-29843-05-14 22:04 J	-9178598.74	-9178598.58	-9178598.43	0.0506	0.0214
Venus	-29842-05-25 07:55 J	-9178223.38	-9178223.17	-9178222.96	0.0521	0.0008
Mercury	-29838-10-04 21:21 J	-9176629.73	-9176629.61	-9176629.49	0.0523	0.0208
Mercury	-29837-01-02 06:14 J	-9176540.33	-9176540.24	-9176540.15	0.0520	0.0385
Venus	-29837-08-07 21:21 J	-9176321.77	-9176321.61	-9176321.44	0.0511	0.0274
Venus	-29836-04-01 02:23 J	-9176085.58	-9176085.40	-9176085.22	0.0503	0.0229
Mercury	-29831-03-02 20:23 J	-9174288.82	-9174288.65	-9174288.47	0.0505	0.0036
Venus	-29830-01-27 19:55 J	-9173957.86	-9173957.67	-9173957.47	0.0518	0.0170
Venus	-29830-09-22 19:40 J	-9173719.80	-9173719.68	-9173719.55	0.0527	0.0412
Mercury	-29826-07-24 00:28 J	-9172319.57	-9172319.48	-9172319.39	0.0525	0.0363
Mercury	-29826-10-21 09:07 J	-9172230.24	-9172230.12	-9172229.99	0.0522	0.0231
Venus	-29825-04-12 21:21 J	-9172055.73	-9172055.61	-9172055.50	0.0515	0.0418
Venus	-29825-12-05 04:47 J	-9171819.49	-9171819.30	-9171819.10	0.0506	0.0093
Earth	-29821-10-04 04:47 J	-9170420.43	-9170420.30	-9170420.17	0.0491	0.0412

Moon	-29821-10-04 08:23 J	-9170420.25	-9170420.15	-9170420.04	0.0491	0.0440 *
Mercury	-29820-12-19 19:11 J	-9169978.87	-9169978.70	-9169978.53	0.0504	0.0142
Venus	-29819-10-02 10:47 J	-9169692.21	-9169692.05	-9169691.89	0.0515	0.0324
Venus	-29818-05-28 07:55 J	-9169454.35	-9169454.17	-9169453.98	0.0524	0.0248
Mercury	-29814-05-12 04:04 J	-9168009.36	-9168009.33	-9168009.29	0.0526	0.0507
Mercury	-29814-08-09 12:43 J	-9167920.10	-9167919.97	-9167919.84	0.0523	0.0085
Venus	-29813-08-10 07:11 J	-9167553.40	-9167553.20	-9167553.00	0.0508	0.0045
Venus	-29812-04-03 09:35 J	-9167317.18	-9167317.10	-9167317.00	0.0500	0.0441
Moon	-29809-10-08 10:47 J	-9166033.29	-9166033.05	-9166032.81	0.0492	0.0036
Earth	-29809-10-08 14:09 J	-9166033.14	-9166032.91	-9166032.67	0.0492	0.0052 *
Mercury	-29808-10-07 17:31 J	-9165668.90	-9165668.77	-9165668.64	0.0503	0.0323
Mercury	-29807-01-05 19:55 J	-9165578.77	-9165578.67	-9165578.55	0.0507	0.0376
Mars	-29807-05-07 21:07 J	-9165456.87	-9165456.62	-9165456.36	0.0511	0.0212
Venus	-29807-06-07 01:55 J	-9165426.50	-9165426.42	-9165426.34	0.0512	0.0473
Venus	-29806-01-30 21:07 J	-9165188.83	-9165188.62	-9165188.42	0.0522	0.0085
Mercury	-29802-05-28 16:33 J	-9163609.95	-9163609.81	-9163609.68	0.0523	0.0059
Venus	-29801-04-15 09:21 J	-9163287.30	-9163287.11	-9163286.93	0.0510	0.0186
Venus	-29801-12-07 13:11 J	-9163051.10	-9163050.95	-9163050.79	0.0502	0.0312
Mercury	-29796-07-26 16:19 J	-9161358.84	-9161358.82	-9161358.79	0.0503	0.0495
Mercury	-29796-10-24 19:26 J	-9161268.84	-9161268.69	-9161268.53	0.0506	0.0208
Venus	-29795-10-05 12:28 J	-9160923.19	-9160922.98	-9160922.78	0.0520	0.0074
Venus	-29794-05-31 13:55 J	-9160684.97	-9160684.92	-9160684.87	0.0529	0.0510
Earth	-29791-04-06 17:31 J	-9159643.99	-9159643.77	-9159643.54	0.0535	0.0108
Moon	-29791-04-06 21:21 J	-9159643.84	-9159643.61	-9159643.38	0.0535	0.0072 *
Mercury	-29790-03-16 19:55 J	-9159299.80	-9159299.67	-9159299.55	0.0524	0.0206
Mercury	-29790-06-14 04:47 J	-9159210.39	-9159210.30	-9159210.21	0.0520	0.0387
Venus	-29790-12-20 08:52 J	-9159021.28	-9159021.13	-9159020.97	0.0513	0.0330
Venus	-29789-08-12 14:38 J	-9158785.08	-9158784.89	-9158784.70	0.0504	0.0175
Mercury	-29784-08-12 18:28 J	-9156958.90	-9156958.73	-9156958.56	0.0505	0.0037
Venus	-29783-06-10 03:35 J	-9156657.54	-9156657.35	-9156657.17	0.0517	0.0230



Venus	-29782-02-03 02:52 J	-9156419.53	-9156419.38	-9156419.23	0.0526	0.0348
Moon	-29779-04-11 12:28 J	-9155256.06	-9155255.98	-9155255.89	0.0534	0.0493
Earth	-29779-04-11 16:33 J	-9155255.90	-9155255.81	-9155255.71	0.0534	0.0484 *
Mercury	-29778-01-02 23:16 J	-9154989.63	-9154989.53	-9154989.44	0.0524	0.0355
Mercury	-29778-04-02 07:55 J	-9154900.29	-9154900.17	-9154900.05	0.0521	0.0236
Mars	-29778-08-03 07:11 J	-9154777.44	-9154777.20	-9154776.96	0.0516	0.0225
Venus	-29778-08-25 08:23 J	-9154755.22	-9154755.15	-9154755.07	0.0515	0.0474
Venus	-29777-04-17 16:33 J	-9154519.01	-9154518.81	-9154518.61	0.0506	0.0037
Mercury	-29772-05-31 17:02 J	-9152648.95	-9152648.79	-9152648.62	0.0504	0.0142
Mars	-29771-02-11 10:19 J	-9152393.32	-9152393.07	-9152392.82	0.0514	0.0242
Venus	-29771-02-12 17:16 J	-9152391.91	-9152391.78	-9152391.63	0.0514	0.0384
Venus	-29771-10-08 13:55 J	-9152154.11	-9152153.92	-9152153.73	0.0523	0.0181
Mercury	-29767-10-22 02:09 J	-9150679.43	-9150679.41	-9150679.38	0.0526	0.0511
Mercury	-29766-01-19 10:47 J	-9150590.18	-9150590.05	-9150589.92	0.0523	0.0079
Venus	-29766-12-22 17:31 J	-9150252.96	-9150252.77	-9150252.57	0.0509	0.0104
Venus	-29765-08-14 21:07 J	-9150016.75	-9150016.62	-9150016.50	0.0501	0.0387
Mercury	-29760-03-19 15:35 J	-9148338.98	-9148338.85	-9148338.71	0.0503	0.0318
Mercury	-29760-06-17 18:14 J	-9148248.85	-9148248.74	-9148248.62	0.0506	0.0380
Venus	-29759-06-13 03:07 J	-9147888.58	-9147888.37	-9147888.16	0.0520	0.0019
Mercury	-29755-11-07 14:23 J	-9146280.03	-9146279.90	-9146279.77	0.0524	0.0067
Venus	-29754-08-27 19:11 J	-9145986.88	-9145986.70	-9145986.53	0.0512	0.0245
Venus	-29753-04-20 00:28 J	-9145750.65	-9145750.48	-9145750.30	0.0503	0.0257
Mercury	-29748-01-05 13:55 J	-9144028.93	-9144028.92	-9144028.90	0.0502	0.0499
Mercury	-29748-04-05 17:02 J	-9143938.95	-9143938.79	-9143938.63	0.0506	0.0202
Venus	-29747-02-15 16:47 J	-9143623.00	-9143622.80	-9143622.60	0.0518	0.0141
Venus	-29747-10-11 17:02 J	-9143384.90	-9143384.79	-9143384.68	0.0527	0.0439
Mercury	-29743-08-26 18:14 J	-9141969.87	-9141969.74	-9141969.62	0.0524	0.0208
Mercury	-29743-11-24 03:07 J	-9141880.46	-9141880.37	-9141880.28	0.0521	0.0388
Venus	-29742-05-02 20:23 J	-9141720.78	-9141720.65	-9141720.52	0.0514	0.0386
Mars	-29742-05-08 16:33 J	-9141715.05	-9141714.81	-9141714.56	0.0514	0.0194

Venus	-29742-12-25 03:35 J	-9141484.54	-9141484.35	-9141484.16	0.0505	0.0122
Mercury	-29736-01-22 16:19 J	-9139628.99	-9139628.82	-9139628.65	0.0505	0.0034
Venus	-29736-10-21 09:07 J	-9139357.29	-9139357.12	-9139356.95	0.0516	0.0293
Venus	-29735-06-16 07:11 J	-9139119.38	-9139119.20	-9139119.03	0.0525	0.0279
Mercury	-29731-06-14 21:50 J	-9137659.69	-9137659.59	-9137659.50	0.0525	0.0352
Mercury	-29731-09-12 06:28 J	-9137570.35	-9137570.23	-9137570.11	0.0521	0.0240
Venus	-29730-08-30 04:47 J	-9137218.50	-9137218.30	-9137218.10	0.0507	0.0018
Venus	-29729-04-22 06:43 J	-9136982.29	-9136982.22	-9136982.15	0.0499	0.0462
Earth	-29726-10-08 17:59 J	-9135717.98	-9135717.75	-9135717.51	0.0492	0.0028
Moon	-29726-10-08 20:23 J	-9135717.88	-9135717.65	-9135717.42	0.0492	0.0038 *
Mercury	-29725-11-10 15:07 J	-9135319.03	-9135318.87	-9135318.70	0.0504	0.0139
Venus	-29724-06-26 01:11 J	-9135091.55	-9135091.45	-9135091.34	0.0513	0.0441
Venus	-29723-02-18 21:07 J	-9134853.82	-9134853.62	-9134853.42	0.0523	0.0118
Mercury	-29719-04-03 01:11 J	-9133349.49	-9133349.45	-9133349.41	0.0525	0.0499
Mercury	-29719-07-01 09:50 J	-9133260.23	-9133260.09	-9133259.96	0.0522	0.0091
Venus	-29718-05-05 05:59 J	-9132952.44	-9132952.25	-9132952.06	0.0510	0.0159
Venus	-29718-12-27 09:35 J	-9132716.25	-9132716.10	-9132715.95	0.0501	0.0334
Moon	-29714-10-13 05:16 J	-9131330.34	-9131330.28	-9131330.20	0.0494	0.0471
Earth	-29714-10-13 05:59 J	-9131330.34	-9131330.25	-9131330.15	0.0494	0.0449 *
Mercury	-29713-08-29 13:55 J	-9131009.06	-9131008.92	-9131008.79	0.0503	0.0316
Mercury	-29713-11-27 16:33 J	-9130918.92	-9130918.81	-9130918.70	0.0506	0.0382
Venus	-29712-10-24 09:50 J	-9130588.30	-9130588.09	-9130587.88	0.0519	0.0044
Moon	-29708-04-05 08:52 J	-9129329.34	-9129329.13	-9129328.92	0.0536	0.0213
Earth	-29708-04-05 12:57 J	-9129329.17	-9129328.96	-9129328.76	0.0536	0.0246 *
Mercury	-29707-04-19 12:28 J	-9128950.11	-9128949.98	-9128949.84	0.0524	0.0070
Venus	-29706-01-08 05:31 J	-9128686.43	-9128686.27	-9128686.11	0.0513	0.0303
Venus	-29706-09-01 11:45 J	-9128450.19	-9128450.01	-9128449.82	0.0504	0.0202
Mercury	-29701-06-17 12:28 J	-9126699.01	-9126698.98	-9126698.95	0.0502	0.0490
Mercury	-29701-09-15 15:35 J	-9126609.01	-9126608.85	-9126608.70	0.0505	0.0211
Venus	-29700-06-29 00:14 J	-9126322.68	-9126322.49	-9126322.30	0.0516	0.0201

Venus	-29699-02-21 22:47 J	-9126084.70	-9126084.55	-9126084.41	0.0526	0.0372
Earth	-29696-04-10 12:57 J	-9124941.12	-9124940.96	-9124940.78	0.0535	0.0355
Moon	-29696-04-10 16:33 J	-9124940.97	-9124940.81	-9124940.65	0.0535	0.0365 *
Mercury	-29695-02-05 16:04 J	-9124639.95	-9124639.83	-9124639.71	0.0525	0.0215
Mercury	-29695-05-06 00:57 J	-9124550.54	-9124550.46	-9124550.36	0.0521	0.0382
Venus	-29695-09-13 05:59 J	-9124420.34	-9124420.25	-9124420.14	0.0516	0.0444
Venus	-29694-05-07 14:52 J	-9124184.08	-9124183.88	-9124183.69	0.0507	0.0067
Mercury	-29689-07-04 14:09 J	-9122299.09	-9122298.91	-9122298.74	0.0505	0.0034
Venus	-29688-03-03 14:52 J	-9122057.03	-9122056.88	-9122056.73	0.0514	0.0354
Venus	-29688-10-27 11:31 J	-9121819.21	-9121819.02	-9121818.83	0.0523	0.0210
Mercury	-29684-11-24 19:55 J	-9120329.76	-9120329.67	-9120329.57	0.0525	0.0354
Mercury	-29683-02-22 04:47 J	-9120240.42	-9120240.30	-9120240.18	0.0522	0.0240
Venus	-29682-01-10 17:16 J	-9119917.98	-9119917.78	-9119917.59	0.0509	0.0072
Venus	-29682-09-03 20:09 J	-9119681.77	-9119681.66	-9119681.54	0.0500	0.0414
Mercury	-29677-04-22 13:11 J	-9117989.12	-9117988.95	-9117988.79	0.0504	0.0139
Venus	-29677-11-06 07:55 J	-9117791.21	-9117791.17	-9117791.12	0.0512	0.0497
Venus	-29676-07-02 02:23 J	-9117553.61	-9117553.40	-9117553.20	0.0521	0.0052
Mercury	-29672-09-12 23:45 J	-9116019.55	-9116019.51	-9116019.47	0.0526	0.0495
Mercury	-29672-12-11 08:23 J	-9115930.29	-9115930.15	-9115930.02	0.0522	0.0095
Venus	-29671-09-15 18:14 J	-9115651.92	-9115651.74	-9115651.56	0.0511	0.0214
Venus	-29670-05-09 22:47 J	-9115415.71	-9115415.55	-9115415.38	0.0502	0.0283
Mercury	-29665-02-09 11:59 J	-9113679.14	-9113679.00	-9113678.86	0.0503	0.0312
Mercury	-29665-05-09 14:38 J	-9113588.99	-9113588.89	-9113588.78	0.0507	0.0388
Venus	-29664-03-06 17:31 J	-9113287.98	-9113287.77	-9113287.57	0.0519	0.0106
Venus	-29664-10-30 18:14 J	-9113049.83	-9113049.74	-9113049.65	0.0528	0.0471
Mercury	-29660-09-29 11:45 J	-9111620.14	-9111620.01	-9111619.88	0.0523	0.0054
Venus	-29659-05-21 18:28 J	-9111385.87	-9111385.73	-9111385.58	0.0514	0.0356
Venus	-29658-01-13 01:11 J	-9111149.64	-9111149.45	-9111149.26	0.0505	0.0148
Mercury	-29654-11-28 10:47 J	-9109369.09	-9109369.05	-9109369.01	0.0502	0.0485
Mercury	-29653-02-26 13:55 J	-9109279.07	-9109278.92	-9109278.77	0.0505	0.0216

Mars	-29653-07-31 19:26 J	-9109122.96	-9109122.69	-9109122.41	0.0511	0.0099
Venus	-29653-11-09 07:55 J	-9109022.34	-9109022.17	-9109021.99	0.0515	0.0260
Venus	-29652-07-05 05:31 J	-9108784.43	-9108784.27	-9108784.10	0.0525	0.0309
Mercury	-29648-07-18 14:38 J	-9107310.02	-9107309.89	-9107309.77	0.0525	0.0214
Mercury	-29648-10-15 23:31 J	-9107220.61	-9107220.52	-9107220.43	0.0521	0.0382
Venus	-29647-01-24 16:33 J	-9107119.85	-9107119.81	-9107119.76	0.0517	0.0500
Venus	-29647-09-18 02:23 J	-9106883.60	-9106883.40	-9106883.20	0.0508	0.0016
Venus	-29646-05-12 04:47 J	-9106647.34	-9106647.30	-9106647.26	0.0500	0.0489
Moon	-29643-10-08 01:26 J	-9105402.68	-9105402.44	-9105402.20	0.0492	0.0096
Earth	-29643-10-08 02:09 J	-9105402.64	-9105402.41	-9105402.18	0.0492	0.0090 *
Mercury	-29642-12-15 12:57 J	-9104969.13	-9104968.96	-9104968.79	0.0504	0.0045
Venus	-29641-07-14 23:45 J	-9104756.63	-9104756.51	-9104756.38	0.0512	0.0408
Venus	-29640-03-09 18:43 J	-9104518.92	-9104518.72	-9104518.52	0.0522	0.0147
Mercury	-29636-05-06 18:14 J	-9102999.84	-9102999.74	-9102999.65	0.0526	0.0359
Mercury	-29636-08-04 02:52 J	-9102910.50	-9102910.38	-9102910.26	0.0522	0.0235
Venus	-29635-05-24 04:19 J	-9102617.52	-9102617.32	-9102617.13	0.0510	0.0129
Venus	-29634-01-15 08:23 J	-9102381.28	-9102381.15	-9102381.01	0.0502	0.0363
Moon	-29631-10-12 10:47 J	-9101015.18	-9101015.05	-9101014.92	0.0493	0.0405
Earth	-29631-10-12 11:59 J	-9101015.14	-9101015.00	-9101014.84	0.0493	0.0378 *
Mercury	-29630-10-03 11:16 J	-9100659.19	-9100659.03	-9100658.86	0.0504	0.0135
Venus	-29629-11-12 08:09 J	-9100253.37	-9100253.16	-9100252.95	0.0519	0.0013
Earth	-29625-04-04 16:47 J	-9099013.97	-9099013.80	-9099013.62	0.0537	0.0339
Moon	-29625-04-04 20:23 J	-9099013.83	-9099013.65	-9099013.46	0.0537	0.0303 *
Mercury	-29624-02-22 22:04 J	-9098689.62	-9098689.58	-9098689.54	0.0526	0.0497
Mercury	-29624-05-23 06:43 J	-9098600.35	-9098600.22	-9098600.09	0.0523	0.0095
Mars	-29624-10-27 06:14 J	-9098443.50	-9098443.24	-9098442.97	0.0517	0.0118
Venus	-29623-01-27 05:59 J	-9098351.42	-9098351.25	-9098351.08	0.0513	0.0268
Venus	-29623-09-20 11:59 J	-9098115.17	-9098115.00	-9098114.82	0.0504	0.0233
Mercury	-29618-07-22 10:19 J	-9096349.21	-9096349.07	-9096348.93	0.0503	0.0306
Mercury	-29618-10-20 12:57 J	-9096259.06	-9096258.96	-9096258.85	0.0506	0.0391

Mars	-29617-05-07 07:11 J	-9096059.40	-9096059.20	-9096059.00	0.0514	0.0354
Venus	-29617-07-17 23:45 J	-9095987.71	-9095987.51	-9095987.31	0.0517	0.0168
Venus	-29616-03-12 23:02 J	-9095749.67	-9095749.54	-9095749.41	0.0526	0.0405
Moon	-29613-04-09 18:14 J	-9094625.94	-9094625.74	-9094625.53	0.0535	0.0281
Earth	-29613-04-09 20:23 J	-9094625.84	-9094625.65	-9094625.45	0.0535	0.0280 *
Mercury	-29612-03-11 10:19 J	-9094290.20	-9094290.07	-9094289.93	0.0523	0.0051
Venus	-29612-10-02 06:43 J	-9094085.34	-9094085.22	-9094085.10	0.0515	0.0409
Venus	-29611-05-26 14:23 J	-9093849.09	-9093848.90	-9093848.70	0.0506	0.0097
Mercury	-29606-05-10 09:07 J	-9092039.17	-9092039.12	-9092039.07	0.0503	0.0480
Mercury	-29606-08-08 12:14 J	-9091949.14	-9091948.99	-9091948.84	0.0506	0.0223
Venus	-29605-03-22 16:04 J	-9091721.99	-9091721.83	-9091721.66	0.0515	0.0318
Venus	-29605-11-15 13:26 J	-9091484.12	-9091483.94	-9091483.76	0.0524	0.0246
Mercury	-29601-12-28 13:55 J	-9089980.04	-9089979.92	-9089979.79	0.0524	0.0194
Mercury	-29600-03-27 22:47 J	-9089890.63	-9089890.55	-9089890.46	0.0521	0.0400
Venus	-29599-01-29 16:19 J	-9089583.02	-9089582.82	-9089582.62	0.0508	0.0042
Venus	-29599-09-22 18:57 J	-9089346.81	-9089346.71	-9089346.62	0.0500	0.0439
Mercury	-29594-05-27 11:31 J	-9087639.19	-9087639.02	-9087638.85	0.0505	0.0054
Venus	-29594-11-26 08:23 J	-9087456.23	-9087456.15	-9087456.06	0.0511	0.0461
Venus	-29593-07-21 02:23 J	-9087218.60	-9087218.40	-9087218.19	0.0521	0.0087
Mercury	-29589-10-16 16:47 J	-9085669.90	-9085669.80	-9085669.70	0.0525	0.0354
Mercury	-29588-01-14 01:26 J	-9085580.56	-9085580.44	-9085580.32	0.0522	0.0239
Mars	-29588-08-01 10:19 J	-9085381.29	-9085381.07	-9085380.85	0.0514	0.0288
Venus	-29588-10-04 15:50 J	-9085317.02	-9085316.84	-9085316.65	0.0512	0.0184
Venus	-29587-05-28 21:07 J	-9085080.77	-9085080.62	-9085080.46	0.0503	0.0312
Mercury	-29582-03-15 10:33 J	-9083329.23	-9083329.06	-9083328.89	0.0504	0.0118
Venus	-29581-03-25 17:02 J	-9082953.00	-9082952.79	-9082952.59	0.0518	0.0072
Venus	-29581-11-18 16:33 J	-9082714.86	-9082714.81	-9082714.74	0.0527	0.0500
Mercury	-29577-08-04 20:23 J	-9081359.69	-9081359.65	-9081359.61	0.0526	0.0499
Mercury	-29577-11-02 05:02 J	-9081270.43	-9081270.29	-9081270.16	0.0523	0.0093
Venus	-29576-06-09 16:47 J	-9081050.95	-9081050.80	-9081050.65	0.0514	0.0324

Venus	-29575-01-31 23:59 J	-9080814.68	-9080814.50	-9080814.31	0.0505	0.0181
Mercury	-29570-01-01 08:38 J	-9079019.27	-9079019.14	-9079018.99	0.0503	0.0298
Mercury	-29570-04-01 11:31 J	-9078929.12	-9078929.02	-9078928.92	0.0506	0.0399
Venus	-29570-11-29 07:11 J	-9078687.39	-9078687.20	-9078687.01	0.0515	0.0227
Venus	-29569-07-24 04:47 J	-9078449.46	-9078449.30	-9078449.14	0.0525	0.0340
Mercury	-29565-08-21 08:52 J	-9076960.27	-9076960.13	-9076960.00	0.0524	0.0050
Venus	-29564-02-12 17:45 J	-9076784.84	-9076784.76	-9076784.67	0.0517	0.0464
Venus	-29564-10-07 03:21 J	-9076548.56	-9076548.36	-9076548.16	0.0508	0.0045
Moon	-29560-10-07 07:55 J	-9075087.39	-9075087.17	-9075086.95	0.0491	0.0152
Earth	-29560-10-07 09:07 J	-9075087.34	-9075087.12	-9075086.89	0.0491	0.0155 *
Mercury	-29559-10-20 07:40 J	-9074709.24	-9074709.18	-9074709.12	0.0502	0.0470
Mercury	-29558-01-18 10:47 J	-9074619.20	-9074619.05	-9074618.90	0.0505	0.0231
Venus	-29558-08-03 23:45 J	-9074421.65	-9074421.51	-9074421.37	0.0513	0.0374
Venus	-29557-03-28 19:26 J	-9074183.89	-9074183.69	-9074183.50	0.0523	0.0182
Mercury	-29553-06-09 12:43 J	-9072650.10	-9072649.97	-9072649.85	0.0524	0.0188
Mercury	-29553-09-06 21:35 J	-9072560.68	-9072560.60	-9072560.52	0.0521	0.0407
Venus	-29552-06-12 05:16 J	-9072282.47	-9072282.28	-9072282.08	0.0510	0.0094
Venus	-29551-02-03 08:52 J	-9072046.26	-9072046.13	-9072046.01	0.0501	0.0392
Earth	-29548-10-11 19:55 J	-9070699.85	-9070699.67	-9070699.49	0.0493	0.0315
Moon	-29548-10-11 23:02 J	-9070699.70	-9070699.54	-9070699.36	0.0493	0.0345 *
Mercury	-29547-11-06 09:50 J	-9070309.26	-9070309.09	-9070308.92	0.0505	0.0062
Venus	-29546-12-02 10:33 J	-9069918.27	-9069918.06	-9069917.85	0.0520	0.0025
Moon	-29542-04-04 21:50 J	-9068698.75	-9068698.59	-9068698.42	0.0537	0.0382
Earth	-29542-04-05 00:28 J	-9068698.62	-9068698.48	-9068698.33	0.0537	0.0414 *
Mercury	-29541-03-28 16:19 J	-9068339.92	-9068339.82	-9068339.72	0.0525	0.0332
Mercury	-29541-06-26 00:57 J	-9068250.57	-9068250.46	-9068250.34	0.0522	0.0261
Venus	-29540-02-15 06:28 J	-9068016.41	-9068016.23	-9068016.05	0.0512	0.0234
Venus	-29540-10-09 11:59 J	-9067780.17	-9067780.00	-9067779.83	0.0503	0.0262
Mercury	-29535-08-25 09:07 J	-9065999.28	-9065999.12	-9065998.95	0.0504	0.0108
Mars	-29534-01-19 21:07 J	-9065851.78	-9065851.62	-9065851.45	0.0509	0.0408

Venus	-29534-08-07 01:26 J	-9065652.64	-9065652.44	-9065652.24	0.0517	0.0129
Venus	-29533-04-01 00:14 J	-9065414.60	-9065414.49	-9065414.37	0.0526	0.0440
Earth	-29530-04-09 19:55 J	-9064310.89	-9064310.67	-9064310.45	0.0535	0.0163
Moon	-29530-04-09 20:09 J	-9064310.87	-9064310.66	-9064310.45	0.0535	0.0156 *
Mercury	-29529-01-15 19:11 J	-9064029.75	-9064029.70	-9064029.66	0.0526	0.0492
Mercury	-29529-04-14 03:35 J	-9063940.48	-9063940.35	-9063940.22	0.0523	0.0099
Venus	-29529-10-21 04:33 J	-9063750.44	-9063750.31	-9063750.17	0.0515	0.0378
Venus	-29528-06-14 12:57 J	-9063514.16	-9063513.96	-9063513.77	0.0506	0.0127
Mercury	-29523-06-13 08:09 J	-9061689.30	-9061689.16	-9061689.01	0.0503	0.0277
Mercury	-29523-09-11 10:47 J	-9061599.14	-9061599.05	-9061598.95	0.0506	0.0419
Venus	-29522-04-11 17:16 J	-9061386.95	-9061386.78	-9061386.60	0.0514	0.0279
Venus	-29522-12-05 13:40 J	-9061149.10	-9061148.93	-9061148.76	0.0523	0.0281
Mercury	-29517-02-01 07:11 J	-9059630.34	-9059630.20	-9059630.07	0.0524	0.0049
Venus	-29516-02-17 15:07 J	-9059248.07	-9059247.87	-9059247.67	0.0509	0.0009
Venus	-29516-10-11 18:28 J	-9059011.80	-9059011.73	-9059011.66	0.0501	0.0470
Mercury	-29511-04-01 06:14 J	-9057379.30	-9057379.24	-9057379.16	0.0502	0.0458
Mercury	-29511-06-30 09:35 J	-9057289.25	-9057289.10	-9057288.95	0.0505	0.0242
Venus	-29511-12-15 08:23 J	-9057121.26	-9057121.15	-9057121.03	0.0511	0.0427
Venus	-29510-08-10 02:23 J	-9056883.60	-9056883.40	-9056883.20	0.0521	0.0120
Mercury	-29506-11-20 11:02 J	-9055320.16	-9055320.04	-9055319.91	0.0525	0.0188
Mercury	-29505-02-17 19:55 J	-9055230.75	-9055230.67	-9055230.58	0.0521	0.0410
Mars	-29505-04-16 20:23 J	-9055171.79	-9055171.65	-9055171.50	0.0519	0.0432
Venus	-29505-10-23 17:31 J	-9054981.96	-9054981.77	-9054981.58	0.0511	0.0147
Venus	-29504-06-16 22:33 J	-9054745.71	-9054745.56	-9054745.42	0.0503	0.0344
Mercury	-29499-04-18 08:38 J	-9052979.31	-9052979.14	-9052978.97	0.0504	0.0073
Mars	-29499-10-26 03:07 J	-9052788.65	-9052788.37	-9052788.09	0.0512	0.0028
Venus	-29498-04-14 17:45 J	-9052617.97	-9052617.76	-9052617.55	0.0519	0.0036
Mercury	-29494-09-08 15:07 J	-9051009.97	-9051009.87	-9051009.77	0.0525	0.0326
Mercury	-29494-12-06 23:45 J	-9050920.62	-9050920.51	-9050920.39	0.0522	0.0268
Venus	-29493-06-28 18:57 J	-9050715.87	-9050715.71	-9050715.54	0.0514	0.0287

Venus	-29492-02-20 01:40 J	-9050479.61	-9050479.43	-9050479.25	0.0505	0.0213
Mercury	-29487-02-04 07:40 J	-9048669.35	-9048669.18	-9048669.01	0.0504	0.0098
Venus	-29487-12-18 09:50 J	-9048352.28	-9048352.09	-9048351.90	0.0516	0.0188
Venus	-29486-08-13 08:09 J	-9048114.30	-9048114.16	-9048114.01	0.0526	0.0378
Mercury	-29482-06-27 18:57 J	-9046699.77	-9046699.71	-9046699.66	0.0526	0.0469
Mercury	-29482-09-25 03:21 J	-9046610.49	-9046610.36	-9046610.23	0.0523	0.0123
Venus	-29481-03-03 19:11 J	-9046449.80	-9046449.70	-9046449.58	0.0516	0.0427
Venus	-29481-10-26 04:04 J	-9046213.52	-9046213.33	-9046213.13	0.0507	0.0079
Earth	-29477-10-06 19:55 J	-9044771.89	-9044771.67	-9044771.45	0.0491	0.0205
Moon	-29477-10-06 23:16 J	-9044771.75	-9044771.53	-9044771.31	0.0491	0.0188 *
Mercury	-29476-11-23 06:57 J	-9044359.35	-9044359.21	-9044359.06	0.0503	0.0265
Mercury	-29475-02-21 09:50 J	-9044269.18	-9044269.09	-9044269.00	0.0506	0.0432
Venus	-29475-08-23 02:38 J	-9044086.55	-9044086.39	-9044086.23	0.0513	0.0332
Venus	-29474-04-17 22:04 J	-9043848.77	-9043848.58	-9043848.39	0.0522	0.0222
Mercury	-29470-07-14 05:59 J	-9042300.38	-9042300.25	-9042300.12	0.0524	0.0040
Mars	-29469-01-21 09:07 J	-9042109.38	-9042109.12	-9042108.85	0.0516	0.0011
Venus	-29469-07-01 03:35 J	-9041947.54	-9041947.35	-9041947.15	0.0510	0.0063
Venus	-29468-02-22 07:40 J	-9041711.28	-9041711.18	-9041711.07	0.0502	0.0422
Moon	-29465-10-11 04:19 J	-9040384.49	-9040384.32	-9040384.12	0.0493	0.0303
Earth	-29465-10-11 08:38 J	-9040384.34	-9040384.14	-9040383.94	0.0493	0.0273 *
Mercury	-29464-09-11 05:59 J	-9040049.33	-9040049.25	-9040049.16	0.0502	0.0435
Mercury	-29464-12-10 09:07 J	-9039959.26	-9039959.12	-9039958.97	0.0505	0.0265
Venus	-29463-04-27 19:40 J	-9039820.75	-9039820.68	-9039820.60	0.0510	0.0474
Mars	-29463-08-02 00:43 J	-9039724.55	-9039724.47	-9039724.39	0.0514	0.0492
Venus	-29463-12-21 12:14 J	-9039583.19	-9039582.99	-9039582.78	0.0520	0.0065
Moon	-29459-04-04 00:14 J	-9038383.55	-9038383.49	-9038383.41	0.0537	0.0505
Earth	-29459-04-03 23:31 J	-9038383.54	-9038383.52	-9038383.49	0.0537	0.0532 *
Mercury	-29458-05-02 09:35 J	-9037990.23	-9037990.10	-9037989.98	0.0525	0.0187
Mercury	-29458-07-30 18:28 J	-9037900.81	-9037900.73	-9037900.65	0.0521	0.0410
Venus	-29457-03-06 04:47 J	-9037681.48	-9037681.30	-9037681.11	0.0513	0.0202



Venus	-29457-10-28 11:02 J	-9037445.20	-9037445.04	-9037444.87	0.0504	0.0294
Mercury	-29452-09-28 07:40 J	-9035649.35	-9035649.18	-9035649.01	0.0504	0.0087
Venus	-29451-08-26 01:55 J	-9035317.62	-9035317.42	-9035317.21	0.0517	0.0094
Venus	-29450-04-21 00:43 J	-9035079.55	-9035079.47	-9035079.38	0.0526	0.0472
Earth	-29447-04-09 02:09 J	-9033995.64	-9033995.41	-9033995.18	0.0536	0.0083
Moon	-29447-04-09 04:04 J	-9033995.57	-9033995.33	-9033995.10	0.0536	0.0067 *
Mercury	-29446-02-18 13:26 J	-9033680.04	-9033679.94	-9033679.84	0.0526	0.0326
Mercury	-29446-05-18 22:04 J	-9033590.69	-9033590.58	-9033590.46	0.0522	0.0270
Venus	-29446-11-10 06:28 J	-9033415.38	-9033415.23	-9033415.08	0.0515	0.0341
Venus	-29445-07-03 14:38 J	-9033179.08	-9033178.89	-9033178.70	0.0506	0.0162
Mercury	-29440-07-17 06:43 J	-9031339.39	-9031339.22	-9031339.05	0.0503	0.0085
Venus	-29439-04-30 17:59 J	-9031051.93	-9031051.75	-9031051.56	0.0514	0.0244
Venus	-29439-12-24 14:52 J	-9030814.04	-9030813.88	-9030813.72	0.0524	0.0315
Mercury	-29435-12-07 17:31 J	-9029369.83	-9029369.77	-9029369.71	0.0526	0.0463
Mercury	-29434-03-07 02:09 J	-9029280.54	-9029280.41	-9029280.28	0.0523	0.0130
Venus	-29434-07-16 06:57 J	-9029149.28	-9029149.21	-9029149.13	0.0518	0.0480
Mars	-29434-10-27 03:35 J	-9029046.50	-9029046.35	-9029046.20	0.0514	0.0422
Venus	-29433-03-08 17:16 J	-9028912.98	-9028912.78	-9028912.58	0.0508	0.0029
Venus	-29433-10-30 19:55 J	-9028676.67	-9028676.67	-9028676.66	0.0500	0.0499
Mercury	-29428-05-05 05:31 J	-9027029.42	-9027029.27	-9027029.12	0.0503	0.0256
Mercury	-29428-08-03 08:23 J	-9026939.23	-9026939.15	-9026939.07	0.0506	0.0440
Venus	-29427-01-03 11:02 J	-9026786.17	-9026786.04	-9026785.90	0.0512	0.0388
Venus	-29427-08-29 05:45 J	-9026548.45	-9026548.26	-9026548.06	0.0522	0.0160
Mercury	-29423-12-24 05:45 J	-9024970.40	-9024970.26	-9024970.13	0.0524	0.0016
Venus	-29422-11-12 19:11 J	-9024646.90	-9024646.70	-9024646.51	0.0511	0.0111
Venus	-29421-07-05 23:31 J	-9024410.65	-9024410.52	-9024410.38	0.0502	0.0374
Mercury	-29416-02-21 04:47 J	-9022719.39	-9022719.30	-9022719.20	0.0502	0.0423
Mercury	-29416-05-22 07:55 J	-9022629.31	-9022629.17	-9022629.02	0.0505	0.0278
Venus	-29415-05-03 21:21 J	-9022282.82	-9022282.61	-9022282.40	0.0519	0.0008
Mercury	-29411-10-12 08:23 J	-9020660.27	-9020660.15	-9020660.02	0.0525	0.0177

Mercury	-29410-01-09 17:16 J	-9020570.86	-9020570.78	-9020570.70	0.0521	0.0419
Venus	-29410-07-18 17:16 J	-9020380.95	-9020380.78	-9020380.61	0.0514	0.0255
Venus	-29409-03-11 00:14 J	-9020144.66	-9020144.49	-9020144.31	0.0505	0.0244
Mercury	-29404-03-10 07:26 J	-9018319.36	-9018319.19	-9018319.03	0.0504	0.0111
Venus	-29403-01-06 12:43 J	-9018017.17	-9018016.97	-9018016.77	0.0516	0.0146
Venus	-29403-09-01 10:19 J	-9017779.19	-9017779.07	-9017778.94	0.0525	0.0415
Mercury	-29399-07-31 11:59 J	-9016350.10	-9016350.00	-9016349.90	0.0526	0.0324
Mercury	-29399-10-28 20:38 J	-9016260.75	-9016260.64	-9016260.52	0.0522	0.0271
Venus	-29398-03-23 17:16 J	-9016114.90	-9016114.78	-9016114.65	0.0517	0.0396
Venus	-29398-11-15 02:38 J	-9015878.58	-9015878.39	-9015878.19	0.0507	0.0110
Moon	-29394-10-07 02:09 J	-9014456.62	-9014456.41	-9014456.20	0.0491	0.0235
Earth	-29394-10-07 06:14 J	-9014456.44	-9014456.24	-9014456.04	0.0491	0.0253 *
Mercury	-29393-12-27 05:45 J	-9014009.43	-9014009.26	-9014009.09	0.0503	0.0069
Venus	-29392-09-11 03:07 J	-9013751.53	-9013751.37	-9013751.19	0.0513	0.0298
Venus	-29391-05-06 22:33 J	-9013513.74	-9013513.56	-9013513.38	0.0522	0.0255
Mercury	-29387-05-19 15:50 J	-9012039.90	-9012039.84	-9012039.78	0.0527	0.0463
Mercury	-29387-08-17 00:28 J	-9011950.61	-9011950.48	-9011950.35	0.0523	0.0130
Venus	-29386-07-21 05:31 J	-9011612.47	-9011612.27	-9011612.07	0.0510	0.0027
Venus	-29385-03-13 09:35 J	-9011376.19	-9011376.10	-9011376.02	0.0501	0.0453
Earth	-29382-10-11 17:02 J	-9010069.00	-9010068.79	-9010068.57	0.0492	0.0216
Moon	-29382-10-11 21:07 J	-9010068.82	-9010068.62	-9010068.42	0.0492	0.0246 *
Mercury	-29381-10-15 04:33 J	-9009699.46	-9009699.31	-9009699.16	0.0503	0.0242
Mercury	-29380-01-13 07:11 J	-9009609.27	-9009609.20	-9009609.13	0.0506	0.0453
Mars	-29380-04-15 09:35 J	-9009517.34	-9009517.10	-9009516.86	0.0509	0.0274
Venus	-29380-05-16 19:55 J	-9009485.76	-9009485.67	-9009485.56	0.0511	0.0441
Venus	-29379-01-09 13:11 J	-9009248.15	-9009247.95	-9009247.75	0.0520	0.0099
Mercury	-29375-06-05 04:19 J	-9007640.45	-9007640.32	-9007640.18	0.0524	0.0016
Venus	-29374-03-26 07:40 J	-9007346.37	-9007346.18	-9007345.99	0.0512	0.0164
Venus	-29374-11-17 13:11 J	-9007110.10	-9007109.95	-9007109.80	0.0503	0.0326
Mercury	-29369-08-03 03:07 J	-9005389.46	-9005389.37	-9005389.26	0.0502	0.0416

Mercury	-29369-11-01 06:28 J	-9005299.37	-9005299.23	-9005299.09	0.0505	0.0285
Venus	-29368-09-14 05:02 J	-9004982.50	-9004982.29	-9004982.08	0.0518	0.0054
Venus	-29367-05-10 04:33 J	-9004744.36	-9004744.31	-9004744.26	0.0527	0.0510
Moon	-29364-04-08 09:07 J	-9003680.34	-9003680.12	-9003679.89	0.0536	0.0006
Earth	-29364-04-08 12:14 J	-9003680.22	-9003679.99	-9003679.76	0.0536	0.0021 *
Mercury	-29363-03-24 08:09 J	-9003330.29	-9003330.16	-9003330.03	0.0525	0.0152
Mercury	-29363-06-21 17:02 J	-9003240.86	-9003240.79	-9003240.72	0.0521	0.0444
Venus	-29363-11-29 08:23 J	-9003080.31	-9003080.15	-9003079.99	0.0515	0.0303
Venus	-29362-07-23 16:04 J	-9002844.01	-9002843.83	-9002843.65	0.0506	0.0196
Mercury	-29357-08-20 06:14 J	-9000989.41	-9000989.24	-9000989.08	0.0504	0.0123
Venus	-29356-05-19 21:50 J	-9000716.78	-9000716.59	-9000716.40	0.0515	0.0201
Venus	-29355-01-12 18:43 J	-9000478.87	-9000478.72	-9000478.57	0.0524	0.0357
Mercury	-29351-01-10 10:47 J	-8999020.15	-8999020.05	-8999019.94	0.0525	0.0314
Mercury	-29351-04-09 19:26 J	-8998930.80	-8998930.69	-8998930.57	0.0522	0.0281
Mars	-29351-07-12 02:52 J	-8998837.59	-8998837.38	-8998837.16	0.0518	0.0313
Venus	-29351-08-04 05:16 J	-8998814.38	-8998814.28	-8998814.18	0.0518	0.0448
Venus	-29350-03-28 15:35 J	-8998578.04	-8998577.85	-8998577.65	0.0508	0.0059
Mercury	-29345-06-08 05:16 J	-8996679.45	-8996679.28	-8996679.10	0.0504	0.0047
Mars	-29344-01-20 02:52 J	-8996453.64	-8996453.38	-8996453.11	0.0512	0.0176
Venus	-29344-01-22 14:23 J	-8996451.05	-8996450.90	-8996450.75	0.0512	0.0346
Venus	-29344-09-17 08:38 J	-8996213.32	-8996213.14	-8996212.94	0.0521	0.0201
Mercury	-29340-10-29 14:23 J	-8994709.96	-8994709.90	-8994709.84	0.0526	0.0460
Mercury	-29339-01-26 23:02 J	-8994620.67	-8994620.54	-8994620.41	0.0523	0.0133
Venus	-29339-12-01 16:47 J	-8994311.99	-8994311.80	-8994311.60	0.0511	0.0081
Venus	-29338-07-25 21:50 J	-8994075.70	-8994075.59	-8994075.47	0.0503	0.0404
Mercury	-29333-03-27 03:35 J	-8992369.50	-8992369.35	-8992369.20	0.0503	0.0226
Mercury	-29333-06-25 06:14 J	-8992279.30	-8992279.24	-8992279.18	0.0506	0.0468
Venus	-29333-09-27 05:59 J	-8992185.30	-8992185.25	-8992185.19	0.0509	0.0489
Venus	-29332-05-22 21:35 J	-8991947.81	-8991947.60	-8991947.39	0.0519	0.0040
Mercury	-29328-11-15 02:38 J	-8990310.52	-8990310.39	-8990310.25	0.0524	0.0014

Venus	-29327-08-06 18:28 J	-8990045.90	-8990045.73	-8990045.54	0.0514	0.0220
Venus	-29326-03-31 01:55 J	-8989809.59	-8989809.42	-8989809.26	0.0505	0.0276
Mercury	-29321-01-14 02:09 J	-8988059.51	-8988059.41	-8988059.30	0.0502	0.0400
Mercury	-29321-04-13 05:16 J	-8987969.41	-8987969.28	-8987969.14	0.0505	0.0298
Venus	-29320-01-25 12:43 J	-8987682.17	-8987681.97	-8987681.76	0.0516	0.0113
Venus	-29320-09-20 10:47 J	-8987444.15	-8987444.05	-8987443.93	0.0525	0.0448
Mercury	-29316-09-03 06:43 J	-8986000.35	-8986000.22	-8986000.09	0.0525	0.0149
Mercury	-29316-12-01 15:35 J	-8985910.92	-8985910.85	-8985910.78	0.0521	0.0447
Venus	-29315-04-11 19:55 J	-8985779.81	-8985779.67	-8985779.53	0.0516	0.0357
Mars	-29315-04-17 02:52 J	-8985774.64	-8985774.38	-8985774.12	0.0516	0.0131
Venus	-29315-12-04 04:47 J	-8985543.49	-8985543.30	-8985543.11	0.0507	0.0145
Earth	-29311-10-06 14:52 J	-8984141.06	-8984140.88	-8984140.69	0.0491	0.0311
Moon	-29311-10-06 18:57 J	-8984140.90	-8984140.71	-8984140.52	0.0491	0.0286 *
Mercury	-29309-01-31 04:19 J	-8983659.48	-8983659.32	-8983659.15	0.0504	0.0129
Venus	-29309-09-30 05:31 J	-8983416.45	-8983416.27	-8983416.09	0.0514	0.0260
Venus	-29308-05-26 01:40 J	-8983178.60	-8983178.43	-8983178.26	0.0523	0.0293
Mercury	-29304-06-22 10:33 J	-8981690.17	-8981690.06	-8981689.95	0.0526	0.0291
Mercury	-29304-09-19 19:11 J	-8981600.81	-8981600.70	-8981600.59	0.0522	0.0303
Venus	-29304-12-15 19:40 J	-8981513.73	-8981513.68	-8981513.62	0.0519	0.0496
Venus	-29303-08-09 06:57 J	-8981277.41	-8981277.21	-8981277.01	0.0509	0.0012
Venus	-29302-04-02 10:19 J	-8981041.11	-8981041.07	-8981041.01	0.0501	0.0482
Moon	-29299-10-11 00:43 J	-8979753.69	-8979753.47	-8979753.24	0.0492	0.0189
Earth	-29299-10-11 03:50 J	-8979753.56	-8979753.34	-8979753.11	0.0492	0.0166 *
Mercury	-29298-11-19 04:04 J	-8979349.50	-8979349.33	-8979349.16	0.0504	0.0036
Venus	-29297-06-04 23:31 J	-8979150.65	-8979150.52	-8979150.39	0.0511	0.0399
Venus	-29296-01-28 17:02 J	-8978912.99	-8978912.79	-8978912.59	0.0520	0.0142
Mercury	-29292-04-10 13:11 J	-8977380.01	-8977379.95	-8977379.88	0.0526	0.0451
Mercury	-29292-07-08 21:50 J	-8977290.72	-8977290.59	-8977290.46	0.0523	0.0141
Venus	-29291-04-14 05:31 J	-8977011.47	-8977011.27	-8977011.08	0.0512	0.0134
Venus	-29291-12-06 11:02 J	-8976775.18	-8976775.04	-8976774.89	0.0503	0.0355

Mercury	-29286-09-07 03:07 J	-8975039.53	-8975039.37	-8975039.21	0.0503	0.0205
Mercury	-29286-12-06 05:45 J	-8974949.30	-8974949.26	-8974949.22	0.0506	0.0490
Venus	-29285-10-03 08:09 J	-8974647.37	-8974647.16	-8974646.96	0.0517	0.0015
Earth	-29281-04-07 11:31 J	-8973365.24	-8973365.02	-8973364.79	0.0536	0.0093
Moon	-29281-04-07 15:21 J	-8973365.09	-8973364.86	-8973364.63	0.0536	0.0115 *
Mercury	-29280-04-27 01:11 J	-8972980.59	-8972980.45	-8972980.32	0.0524	0.0010
Venus	-29280-12-18 05:16 J	-8972745.44	-8972745.28	-8972745.11	0.0515	0.0274
Venus	-29279-08-11 13:26 J	-8972509.12	-8972508.94	-8972508.76	0.0506	0.0224
Mercury	-29274-06-26 00:57 J	-8970729.56	-8970729.46	-8970729.34	0.0502	0.0387
Mercury	-29274-09-24 04:19 J	-8970639.46	-8970639.32	-8970639.19	0.0505	0.0312
Venus	-29273-06-07 21:35 J	-8970381.79	-8970381.60	-8970381.40	0.0515	0.0168
Venus	-29272-01-31 18:14 J	-8970143.87	-8970143.74	-8970143.60	0.0524	0.0387
Moon	-29269-04-12 08:38 J	-8968977.24	-8968977.14	-8968977.04	0.0535	0.0482
Earth	-29269-04-12 12:14 J	-8968977.05	-8968976.99	-8968976.92	0.0535	0.0509 *
Mercury	-29268-02-13 04:47 J	-8968670.42	-8968670.30	-8968670.17	0.0525	0.0152
Mercury	-29268-05-13 13:55 J	-8968580.99	-8968580.92	-8968580.86	0.0522	0.0446
Venus	-29268-08-23 05:45 J	-8968479.37	-8968479.26	-8968479.13	0.0518	0.0415
Venus	-29267-04-16 16:19 J	-8968243.01	-8968242.82	-8968242.62	0.0508	0.0092
Mercury	-29262-07-13 03:07 J	-8966329.53	-8966329.37	-8966329.20	0.0504	0.0140
Venus	-29261-02-11 13:40 J	-8966116.09	-8966115.93	-8966115.76	0.0512	0.0315
Venus	-29261-10-06 08:23 J	-8965878.34	-8965878.15	-8965877.97	0.0522	0.0231
Mercury	-29257-12-02 08:52 J	-8964360.24	-8964360.13	-8964360.02	0.0526	0.0290
Mercury	-29256-03-01 17:31 J	-8964270.88	-8964270.77	-8964270.66	0.0522	0.0305
Venus	-29256-12-20 18:43 J	-8963976.92	-8963976.72	-8963976.52	0.0511	0.0045
Venus	-29255-08-13 23:16 J	-8963740.63	-8963740.53	-8963740.43	0.0502	0.0434
Mercury	-29250-05-01 02:09 J	-8962019.59	-8962019.41	-8962019.24	0.0504	0.0034
Venus	-29250-10-17 06:57 J	-8961850.30	-8961850.21	-8961850.11	0.0510	0.0454
Venus	-29249-06-10 23:16 J	-8961612.73	-8961612.53	-8961612.32	0.0519	0.0079
Mercury	-29245-09-20 12:43 J	-8960050.04	-8960049.97	-8960049.89	0.0526	0.0431
Mercury	-29245-12-18 21:21 J	-8959960.74	-8959960.61	-8959960.49	0.0523	0.0161

Venus	-29244-08-25 19:55 J	-8959710.86	-8959710.67	-8959710.48	0.0513	0.0183
Venus	-29243-04-19 02:23 J	-8959474.55	-8959474.40	-8959474.24	0.0504	0.0307
Mercury	-29238-02-17 01:26 J	-8957709.60	-8957709.44	-8957709.28	0.0503	0.0198
Mercury	-29238-05-18 04:19 J	-8957619.35	-8957619.32	-8957619.29	0.0506	0.0497
Venus	-29237-02-14 15:50 J	-8957347.04	-8957346.84	-8957346.63	0.0516	0.0072
Venus	-29237-10-09 14:23 J	-8957108.97	-8957108.90	-8957108.82	0.0526	0.0486
Mercury	-29233-10-06 23:59 J	-8955650.63	-8955650.50	-8955650.37	0.0524	0.0002
Venus	-29232-04-30 17:16 J	-8955444.93	-8955444.78	-8955444.62	0.0516	0.0328
Venus	-29232-12-23 01:55 J	-8955208.60	-8955208.42	-8955208.23	0.0507	0.0173
Moon	-29228-10-05 22:04 J	-8953825.75	-8953825.58	-8953825.39	0.0491	0.0336
Earth	-29228-10-06 01:11 J	-8953825.61	-8953825.45	-8953825.28	0.0491	0.0359 *
Mercury	-29227-12-06 00:14 J	-8953399.60	-8953399.49	-8953399.37	0.0502	0.0369
Mercury	-29226-03-06 03:35 J	-8953309.48	-8953309.35	-8953309.22	0.0505	0.0331
Mars	-29226-07-11 05:16 J	-8953182.55	-8953182.28	-8953182.01	0.0510	0.0132
Venus	-29226-10-20 08:09 J	-8953081.35	-8953081.16	-8953080.97	0.0514	0.0220
Venus	-29225-06-14 03:50 J	-8952843.49	-8952843.34	-8952843.17	0.0523	0.0331
Mercury	-29221-07-26 03:21 J	-8951340.49	-8951340.36	-8951340.23	0.0525	0.0150
Mercury	-29221-10-23 12:14 J	-8951251.06	-8951250.99	-8951250.92	0.0521	0.0445
Venus	-29220-01-03 15:50 J	-8951178.91	-8951178.84	-8951178.75	0.0518	0.0470
Venus	-29220-08-28 03:21 J	-8950942.56	-8950942.36	-8950942.16	0.0509	0.0036
Earth	-29216-10-10 11:02 J	-8949438.27	-8949438.04	-8949437.81	0.0492	0.0106
Moon	-29216-10-10 11:59 J	-8949438.22	-8949438.00	-8949437.78	0.0492	0.0122 *
Mercury	-29215-12-23 01:55 J	-8948999.59	-8948999.42	-8948999.26	0.0504	0.0151
Venus	-29214-06-24 22:33 J	-8948815.70	-8948815.56	-8948815.41	0.0511	0.0368
Venus	-29213-02-17 15:50 J	-8948578.04	-8948577.84	-8948577.65	0.0520	0.0171
Mercury	-29209-05-14 06:57 J	-8947030.32	-8947030.21	-8947030.10	0.0526	0.0295
Mercury	-29209-08-11 15:35 J	-8946940.96	-8946940.85	-8946940.74	0.0522	0.0301
Venus	-29208-05-03 05:16 J	-8946676.48	-8946676.28	-8946676.09	0.0512	0.0101
Venus	-29208-12-25 11:02 J	-8946440.17	-8946440.04	-8946439.91	0.0503	0.0383
Mercury	-29203-10-11 00:43 J	-8944689.65	-8944689.47	-8944689.30	0.0503	0.0027

Venus	-29202-02-27 15:35 J	-8944549.86	-8944549.85	-8944549.83	0.0508	0.0506
Venus	-29202-10-23 06:28 J	-8944312.44	-8944312.23	-8944312.03	0.0518	0.0018
Moon	-29198-04-07 12:57 J	-8943050.17	-8943049.96	-8943049.74	0.0537	0.0205
Earth	-29198-04-07 16:47 J	-8943050.01	-8943049.80	-8943049.58	0.0537	0.0178 *
Mercury	-29197-03-02 11:02 J	-8942720.11	-8942720.04	-8942719.97	0.0527	0.0434
Mercury	-29197-05-30 19:26 J	-8942630.81	-8942630.69	-8942630.56	0.0523	0.0159
Mars	-29197-10-05 14:09 J	-8942503.17	-8942502.91	-8942502.66	0.0518	0.0181
Venus	-29196-01-06 06:28 J	-8942410.40	-8942410.23	-8942410.05	0.0515	0.0240
Venus	-29196-08-30 14:09 J	-8942174.08	-8942173.91	-8942173.73	0.0505	0.0255
Mercury	-29191-07-29 23:16 J	-8940379.69	-8940379.53	-8940379.37	0.0503	0.0199
Mercury	-29191-10-28 01:55 J	-8940289.45	-8940289.42	-8940289.39	0.0506	0.0496
Mars	-29190-04-16 05:59 J	-8940119.47	-8940119.25	-8940119.02	0.0512	0.0297
Venus	-29190-06-27 22:04 J	-8940046.78	-8940046.58	-8940046.38	0.0515	0.0133
Venus	-29189-02-20 19:26 J	-8939808.81	-8939808.69	-8939808.57	0.0525	0.0421
Earth	-29186-04-12 19:40 J	-8938661.81	-8938661.68	-8938661.55	0.0535	0.0434
Moon	-29186-04-12 22:04 J	-8938661.71	-8938661.58	-8938661.44	0.0535	0.0422 *
Mercury	-29185-03-18 23:16 J	-8938320.67	-8938320.53	-8938320.40	0.0524	0.0020
Venus	-29185-09-11 06:43 J	-8938144.35	-8938144.22	-8938144.08	0.0517	0.0379
Venus	-29184-05-05 16:33 J	-8937908.00	-8937907.81	-8937907.61	0.0508	0.0124
Mercury	-29179-05-17 22:33 J	-8936069.68	-8936069.56	-8936069.44	0.0502	0.0366
Mercury	-29179-08-16 01:40 J	-8935979.56	-8935979.43	-8935979.30	0.0505	0.0334
Venus	-29178-03-02 15:35 J	-8935781.02	-8935780.85	-8935780.67	0.0513	0.0277
Venus	-29178-10-26 10:47 J	-8935543.22	-8935543.05	-8935542.87	0.0522	0.0270
Mercury	-29173-01-06 01:55 J	-8934010.54	-8934010.42	-8934010.29	0.0524	0.0145
Mercury	-29173-04-04 10:47 J	-8933921.11	-8933921.05	-8933920.98	0.0521	0.0451
Venus	-29172-01-08 15:21 J	-8933642.06	-8933641.86	-8933641.66	0.0510	0.0018
Venus	-29172-09-01 19:40 J	-8933405.76	-8933405.68	-8933405.60	0.0502	0.0457
Mercury	-29167-06-04 00:57 J	-8931669.63	-8931669.46	-8931669.30	0.0504	0.0166
Venus	-29167-11-05 08:38 J	-8931515.25	-8931515.14	-8931515.01	0.0510	0.0419
Venus	-29166-07-01 01:11 J	-8931277.65	-8931277.45	-8931277.25	0.0519	0.0115

Mercury	-29162-10-25 05:31 J	-8929700.38	-8929700.27	-8929700.16	0.0525	0.0294
Mercury	-29161-01-22 13:55 J	-8929611.03	-8929610.92	-8929610.81	0.0522	0.0300
Mars	-29161-07-10 19:11 J	-8929440.93	-8929440.70	-8929440.45	0.0516	0.0227
Venus	-29161-09-13 15:35 J	-8929376.04	-8929375.85	-8929375.66	0.0513	0.0158
Venus	-29160-05-07 22:04 J	-8929139.73	-8929139.58	-8929139.42	0.0504	0.0331
Mercury	-29155-03-22 23:02 J	-8927359.71	-8927359.54	-8927359.37	0.0503	0.0016
Venus	-29154-03-05 13:55 J	-8927012.13	-8927011.92	-8927011.71	0.0516	0.0043
Venus	-29154-10-29 12:14 J	-8926774.04	-8926773.99	-8926773.95	0.0525	0.0511
Mercury	-29150-08-13 08:52 J	-8925390.19	-8925390.13	-8925390.05	0.0527	0.0440
Mercury	-29150-11-10 17:31 J	-8925300.90	-8925300.77	-8925300.64	0.0523	0.0153
Venus	-29149-05-19 16:04 J	-8925109.99	-8925109.83	-8925109.67	0.0516	0.0298
Venus	-29148-01-11 00:57 J	-8924873.64	-8924873.46	-8924873.27	0.0507	0.0200
Earth	-29145-10-05 06:28 J	-8923510.34	-8923510.23	-8923510.12	0.0490	0.0430
Moon	-29145-10-05 07:26 J	-8923510.31	-8923510.19	-8923510.06	0.0490	0.0405 *
Mercury	-29143-01-08 21:35 J	-8923049.76	-8923049.60	-8923049.44	0.0502	0.0192
Mercury	-29143-04-09 00:14 J	-8922959.50	-8922959.49	-8922959.47	0.0506	0.0501
Venus	-29143-11-08 05:16 J	-8922746.47	-8922746.28	-8922746.09	0.0514	0.0192
Venus	-29142-07-04 00:57 J	-8922508.60	-8922508.46	-8922508.30	0.0523	0.0357
Mercury	-29138-08-29 21:21 J	-8920990.75	-8920990.61	-8920990.48	0.0524	0.0015
Venus	-29137-01-23 16:19 J	-8920843.92	-8920843.82	-8920843.71	0.0518	0.0436
Venus	-29137-09-16 03:35 J	-8920607.55	-8920607.35	-8920607.16	0.0509	0.0068
Earth	-29133-10-09 15:50 J	-8919123.07	-8919122.84	-8919122.60	0.0491	0.0031
Moon	-29133-10-09 17:02 J	-8919123.04	-8919122.79	-8919122.55	0.0491	0.0040 *
Mercury	-29132-10-27 19:55 J	-8918739.78	-8918739.67	-8918739.55	0.0502	0.0370
Mercury	-29131-01-25 23:16 J	-8918649.66	-8918649.53	-8918649.40	0.0505	0.0329
Venus	-29131-07-13 21:35 J	-8918480.76	-8918480.60	-8918480.45	0.0511	0.0336
Venus	-29130-03-08 15:21 J	-8918243.05	-8918242.86	-8918242.67	0.0521	0.0203
Mercury	-29126-06-18 00:57 J	-8916680.58	-8916680.46	-8916680.33	0.0525	0.0133
Mercury	-29126-09-15 09:50 J	-8916591.15	-8916591.09	-8916591.03	0.0521	0.0464
Venus	-29125-05-22 05:02 J	-8916341.49	-8916341.29	-8916341.09	0.0512	0.0069



Venus	-29124-01-13 10:04 J	-8916105.19	-8916105.08	-8916104.96	0.0503	0.0410
Moon	-29121-10-14 01:26 J	-8914735.48	-8914735.44	-8914735.38	0.0493	0.0479
Mercury	-29120-11-13 22:47 J	-8914339.71	-8914339.55	-8914339.39	0.0504	0.0165
Venus	-29119-03-18 16:04 J	-8914214.90	-8914214.83	-8914214.75	0.0509	0.0472
Venus	-29119-11-11 07:40 J	-8913977.39	-8913977.18	-8913976.98	0.0518	0.0054
Earth	-29115-04-06 18:28 J	-8912734.92	-8912734.73	-8912734.53	0.0536	0.0277
Moon	-29115-04-06 21:35 J	-8912734.78	-8912734.60	-8912734.42	0.0536	0.0306 *
Mercury	-29114-04-06 04:04 J	-8912370.44	-8912370.33	-8912370.22	0.0525	0.0288
Mercury	-29114-07-04 12:43 J	-8912281.08	-8912280.97	-8912280.86	0.0522	0.0304
Venus	-29113-01-26 02:52 J	-8912075.56	-8912075.38	-8912075.19	0.0514	0.0213
Venus	-29113-09-18 10:04 J	-8911839.24	-8911839.08	-8911838.91	0.0505	0.0278
Mercury	-29108-09-01 21:35 J	-8910029.77	-8910029.60	-8910029.42	0.0504	0.0013
Mars	-29108-12-29 03:21 J	-8909911.49	-8909911.36	-8909911.21	0.0508	0.0438
Venus	-29107-07-16 23:02 J	-8909711.75	-8909711.54	-8909711.34	0.0515	0.0099
Venus	-29106-03-11 20:09 J	-8909473.75	-8909473.66	-8909473.55	0.0525	0.0454
Moon	-29103-04-11 16:19 J	-8908347.02	-8908346.82	-8908346.63	0.0535	0.0302
Earth	-29103-04-11 17:31 J	-8908346.95	-8908346.77	-8908346.59	0.0535	0.0314 *
Mercury	-29102-01-23 07:26 J	-8908060.26	-8908060.19	-8908060.12	0.0526	0.0438
Mercury	-29102-04-22 15:50 J	-8907970.97	-8907970.84	-8907970.71	0.0523	0.0152
Venus	-29102-10-01 01:55 J	-8907809.56	-8907809.42	-8907809.27	0.0517	0.0355
Venus	-29101-05-24 11:31 J	-8907573.21	-8907573.02	-8907572.82	0.0508	0.0145
Mercury	-29096-06-20 19:40 J	-8905719.84	-8905719.68	-8905719.52	0.0503	0.0188
Mercury	-29096-09-18 22:33 J	-8905629.56	-8905629.56	-8905629.56	0.0506	0.0506
Venus	-29095-03-21 12:43 J	-8905446.15	-8905445.97	-8905445.78	0.0513	0.0250
Venus	-29095-11-14 07:26 J	-8905208.35	-8905208.19	-8905208.01	0.0522	0.0295
Mercury	-29090-02-08 19:11 J	-8903660.83	-8903660.70	-8903660.57	0.0524	0.0003
Venus	-29090-06-06 00:57 J	-8903543.51	-8903543.46	-8903543.40	0.0520	0.0495
Venus	-29089-01-28 13:26 J	-8903307.14	-8903306.94	-8903306.74	0.0511	0.0014
Venus	-29089-09-20 17:59 J	-8903070.81	-8903070.75	-8903070.70	0.0502	0.0481
Mercury	-29084-04-08 17:59 J	-8901409.86	-8901409.75	-8901409.63	0.0502	0.0366

Mercury	-29084-07-07 21:21 J	-8901319.74	-8901319.61	-8901319.48	0.0505	0.0332
Venus	-29084-11-24 05:02 J	-8901180.42	-8901180.29	-8901180.16	0.0510	0.0392
Venus	-29083-07-19 21:07 J	-8900942.82	-8900942.62	-8900942.42	0.0519	0.0139
Mercury	-29079-11-27 23:02 J	-8899350.67	-8899350.54	-8899350.41	0.0525	0.0140
Mercury	-29078-02-25 07:40 J	-8899261.24	-8899261.18	-8899261.11	0.0522	0.0457
Mars	-29078-03-26 11:16 J	-8899232.05	-8899232.03	-8899232.00	0.0521	0.0518
Venus	-29078-10-03 14:52 J	-8899041.07	-8899040.88	-8899040.68	0.0513	0.0127
Venus	-29077-05-26 21:21 J	-8898804.75	-8898804.61	-8898804.47	0.0504	0.0358
Mercury	-29072-04-25 19:55 J	-8897009.83	-8897009.67	-8897009.50	0.0504	0.0158
Mars	-29072-10-03 18:57 J	-8896848.99	-8896848.71	-8896848.43	0.0510	0.0033
Venus	-29071-03-24 11:59 J	-8896677.21	-8896677.00	-8896676.79	0.0517	0.0013
Mercury	-29067-09-16 02:52 J	-8895040.49	-8895040.38	-8895040.27	0.0526	0.0282
Mercury	-29067-12-14 11:16 J	-8894951.13	-8894951.03	-8894950.92	0.0522	0.0313
Venus	-29066-06-08 15:21 J	-8894775.02	-8894774.86	-8894774.68	0.0515	0.0266
Venus	-29065-01-30 23:45 J	-8894538.69	-8894538.51	-8894538.33	0.0506	0.0228
Moon	-29062-10-05 11:45 J	-8893195.06	-8893195.01	-8893194.95	0.0490	0.0475
Mercury	-29060-02-11 19:11 J	-8892699.87	-8892699.70	-8892699.52	0.0504	0.0015
Venus	-29060-11-27 05:02 J	-8892411.49	-8892411.29	-8892411.09	0.0514	0.0159
Venus	-29059-07-23 01:26 J	-8892173.57	-8892173.44	-8892173.30	0.0524	0.0390
Mercury	-29055-07-05 05:59 J	-8890730.32	-8890730.25	-8890730.18	0.0526	0.0434
Mercury	-29055-10-02 14:23 J	-8890641.03	-8890640.90	-8890640.78	0.0523	0.0156
Venus	-29054-02-11 12:43 J	-8890509.08	-8890508.97	-8890508.84	0.0518	0.0410
Venus	-29054-10-05 23:16 J	-8890272.73	-8890272.53	-8890272.33	0.0509	0.0091
Moon	-29050-10-09 17:59 J	-8888807.98	-8888807.75	-8888807.52	0.0492	0.0039
Earth	-29050-10-09 20:38 J	-8888807.88	-8888807.64	-8888807.41	0.0492	0.0043 *
Mercury	-29049-11-30 17:59 J	-8888389.91	-8888389.75	-8888389.59	0.0503	0.0183
Venus	-29048-08-01 21:21 J	-8888145.77	-8888145.61	-8888145.44	0.0512	0.0304
Venus	-29047-03-27 15:35 J	-8887908.04	-8887907.85	-8887907.67	0.0521	0.0235
Mercury	-29043-07-21 17:31 J	-8886330.90	-8886330.77	-8886330.64	0.0524	0.0004
Mars	-29043-12-30 00:14 J	-8886169.76	-8886169.49	-8886169.22	0.0518	0.0091

Venus	-29042-06-10 23:31 J	-8886006.71	-8886006.52	-8886006.32	0.0511	0.0049
Venus	-29041-02-02 04:33 J	-8885770.41	-8885770.31	-8885770.20	0.0503	0.0429
Earth	-29038-10-14 06:43 J	-8884420.34	-8884420.22	-8884420.10	0.0492	0.0424
Moon	-29038-10-14 10:04 J	-8884420.22	-8884420.08	-8884419.93	0.0492	0.0395 *
Mercury	-29037-09-18 15:50 J	-8884079.95	-8884079.84	-8884079.71	0.0502	0.0366
Mercury	-29037-12-17 19:11 J	-8883989.82	-8883989.70	-8883989.57	0.0505	0.0334
Venus	-29036-04-06 12:28 J	-8883880.07	-8883879.98	-8883879.87	0.0509	0.0446
Mars	-29036-07-10 00:28 J	-8883785.64	-8883785.48	-8883785.30	0.0512	0.0406
Venus	-29036-11-30 03:35 J	-8883642.55	-8883642.35	-8883642.14	0.0518	0.0078
Moon	-29032-04-05 12:43 J	-8882420.10	-8882419.97	-8882419.83	0.0537	0.0441
Earth	-29032-04-05 14:38 J	-8882420.03	-8882419.89	-8882419.74	0.0537	0.0410 *
Mercury	-29031-05-09 20:52 J	-8882020.76	-8882020.63	-8882020.50	0.0525	0.0148
Mercury	-29031-08-07 05:31 J	-8881931.33	-8881931.27	-8881931.20	0.0522	0.0448
Venus	-29030-02-13 23:59 J	-8881740.68	-8881740.50	-8881740.31	0.0514	0.0186
Venus	-29030-10-08 07:26 J	-8881504.34	-8881504.19	-8881504.02	0.0505	0.0303
Mercury	-29025-10-05 17:59 J	-8879679.91	-8879679.75	-8879679.59	0.0504	0.0158
Venus	-29024-08-04 18:14 J	-8879376.95	-8879376.74	-8879376.54	0.0515	0.0075
Venus	-29023-03-30 15:21 J	-8879138.94	-8879138.86	-8879138.77	0.0524	0.0473
Earth	-29020-04-10 16:04 J	-8878032.04	-8878031.83	-8878031.62	0.0536	0.0195
Moon	-29020-04-10 16:04 J	-8878032.04	-8878031.83	-8878031.63	0.0536	0.0188 *
Mercury	-29019-02-26 00:43 J	-8877710.58	-8877710.47	-8877710.36	0.0526	0.0292
Mercury	-29019-05-26 09:07 J	-8877621.22	-8877621.12	-8877621.01	0.0523	0.0303
Venus	-29019-10-20 00:28 J	-8877474.63	-8877474.48	-8877474.33	0.0517	0.0325
Venus	-29018-06-13 10:04 J	-8877238.27	-8877238.08	-8877237.89	0.0508	0.0173
Mercury	-29013-07-24 16:19 J	-8875369.99	-8875369.82	-8875369.64	0.0503	0.0024
Venus	-29012-04-09 09:35 J	-8875111.28	-8875111.10	-8875110.91	0.0513	0.0222
Venus	-29012-12-03 04:47 J	-8874873.46	-8874873.30	-8874873.13	0.0522	0.0322
Mercury	-29008-12-15 04:33 J	-8873400.39	-8873400.31	-8873400.24	0.0527	0.0433
Mercury	-29007-03-14 12:57 J	-8873311.09	-8873310.96	-8873310.84	0.0523	0.0159
Venus	-29007-06-24 23:59 J	-8873208.59	-8873208.50	-8873208.41	0.0519	0.0463

Mars	-29007-10-04 17:16 J	-8873106.97	-8873106.78	-8873106.56	0.0515	0.0335
Venus	-29006-02-16 11:59 J	-8872972.20	-8872972.00	-8872971.81	0.0510	0.0040
Mercury	-29001-05-12 15:21 J	-8871060.02	-8871059.86	-8871059.69	0.0503	0.0189
Venus	-29001-12-13 03:21 J	-8870845.50	-8870845.36	-8870845.21	0.0511	0.0362

# 29TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 29th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Venus	-29000-08-07 20:23 J	-8870607.85	-8870607.65	-8870607.46	0.0520	0.0171		
Mercury	-28996-12-31 16:04 J	-8869000.97	-8869000.83	-8869000.70	0.0524	0.0014		
Venus	-28995-10-22 10:47 J	-8868706.24	-8868706.05	-8868705.85	0.0512	0.0103		
Venus	-28994-06-15 16:33 J	-8868469.94	-8868469.81	-8868469.68	0.0504	0.0378		
Mercury	-28989-02-29 13:55 J	-8866750.03	-8866749.92	-8866749.80	0.0502	0.0364		
Mercury	-28989-05-29 17:31 J	-8866659.90	-8866659.77	-8866659.65	0.0505	0.0337		
Venus	-28989-08-17 20:52 J	-8866579.66	-8866579.63	-8866579.58	0.0508	0.0498		
Venus	-28988-04-12 11:31 J	-8866342.23	-8866342.02	-8866341.82	0.0517	0.0020		
Mercury	-28984-10-19 19:11 J	-8864690.82	-8864690.70	-8864690.57	0.0524	0.0147		
Mercury	-28983-01-17 03:50 J	-8864601.40	-8864601.34	-8864601.27	0.0521	0.0447		
Venus	-28983-06-27 10:04 J	-8864440.25	-8864440.08	-8864439.90	0.0515	0.0244		
Venus	-28982-02-18 18:14 J	-8864203.92	-8864203.74	-8864203.57	0.0506	0.0248		
Mercury	-28977-03-17 15:50 J	-8862350.00	-8862349.84	-8862349.68	0.0504	0.0157		
Venus	-28977-12-16 00:43 J	-8862076.67	-8862076.47	-8862076.27	0.0514	0.0134		

Venus	-28976-08-10 20:52 J	-8861838.75	-8861838.63	-8861838.50	0.0523	0.0411
Mercury	-28972-08-07 22:33 J	-8860380.67	-8860380.56	-8860380.45	0.0526	0.0300
Mercury	-28972-11-05 06:57 J	-8860291.32	-8860291.21	-8860291.09	0.0523	0.0294
Venus	-28971-03-02 08:52 J	-8860174.26	-8860174.13	-8860173.99	0.0518	0.0384
Venus	-28971-10-24 19:55 J	-8859937.87	-8859937.67	-8859937.48	0.0509	0.0116
Earth	-28967-10-08 23:02 J	-8858492.77	-8858492.54	-8858492.31	0.0491	0.0127
Moon	-28967-10-09 02:38 J	-8858492.63	-8858492.39	-8858492.16	0.0491	0.0124 *
Mercury	-28965-01-04 14:23 J	-8858040.08	-8858039.90	-8858039.73	0.0503	0.0020
Venus	-28965-08-20 16:19 J	-8857810.99	-8857810.82	-8857810.64	0.0511	0.0280
Venus	-28964-04-15 10:04 J	-8857573.26	-8857573.08	-8857572.90	0.0521	0.0257
Mercury	-28960-05-27 02:09 J	-8856070.47	-8856070.41	-8856070.34	0.0527	0.0444
Mercury	-28960-08-24 10:33 J	-8855981.19	-8855981.06	-8855980.93	0.0524	0.0149
Venus	-28959-06-29 21:35 J	-8855671.80	-8855671.60	-8855671.40	0.0512	0.0022
Venus	-28958-02-21 02:38 J	-8855435.47	-8855435.39	-8855435.30	0.0503	0.0454
Moon	-28955-10-13 04:33 J	-8854105.49	-8854105.31	-8854105.12	0.0492	0.0304
Earth	-28955-10-13 08:23 J	-8854105.32	-8854105.15	-8854104.97	0.0492	0.0335 *
Mercury	-28954-10-23 12:28 J	-8853730.14	-8853729.98	-8853729.82	0.0502	0.0199
Mercury	-28953-01-21 15:21 J	-8853639.88	-8853639.86	-8853639.82	0.0506	0.0496
Mars	-28953-03-23 06:28 J	-8853578.43	-8853578.23	-8853578.04	0.0508	0.0357
Venus	-28953-04-25 08:38 J	-8853545.25	-8853545.14	-8853545.02	0.0509	0.0419
Venus	-28953-12-18 23:59 J	-8853307.70	-8853307.50	-8853307.29	0.0518	0.0104
Earth	-28949-04-04 16:04 J	-8852104.89	-8852104.83	-8852104.76	0.0538	0.0515
Mercury	-28948-06-12 14:23 J	-8851671.03	-8851670.90	-8851670.77	0.0524	0.0007
Venus	-28947-03-04 22:33 J	-8851405.75	-8851405.56	-8851405.37	0.0514	0.0156
Venus	-28947-10-27 05:31 J	-8851169.42	-8851169.27	-8851169.11	0.0505	0.0329
Mercury	-28942-08-11 11:16 J	-8849420.14	-8849420.03	-8849419.91	0.0502	0.0371
Mercury	-28942-11-09 14:52 J	-8849330.01	-8849329.88	-8849329.75	0.0505	0.0330
Venus	-28941-08-23 16:19 J	-8849042.03	-8849041.82	-8849041.61	0.0516	0.0044
Venus	-28940-04-18 14:23 J	-8848803.96	-8848803.90	-8848803.84	0.0525	0.0503
Earth	-28937-04-09 17:31 J	-8847716.99	-8847716.77	-8847716.54	0.0536	0.0094

Moon	-28937-04-09 18:57 J	-8847716.94	-8847716.71	-8847716.47	0.0536	0.0090 *
Mercury	-28936-03-31 17:45 J	-8847360.89	-8847360.76	-8847360.63	0.0525	0.0146
Mercury	-28936-06-29 02:23 J	-8847271.47	-8847271.40	-8847271.33	0.0521	0.0448
Venus	-28936-11-07 20:52 J	-8847139.79	-8847139.63	-8847139.46	0.0516	0.0299
Venus	-28935-07-02 05:45 J	-8846903.44	-8846903.26	-8846903.07	0.0507	0.0195
Mercury	-28930-08-28 13:40 J	-8845020.09	-8845019.93	-8845019.76	0.0504	0.0159
Venus	-28929-04-28 08:23 J	-8844776.34	-8844776.15	-8844775.95	0.0513	0.0192
Venus	-28929-12-22 04:04 J	-8844538.48	-8844538.33	-8844538.17	0.0523	0.0351
Mercury	-28924-01-17 21:07 J	-8843050.73	-8843050.62	-8843050.51	0.0525	0.0296
Mercury	-28924-04-17 05:31 J	-8842961.38	-8842961.27	-8842961.16	0.0522	0.0296
Mars	-28924-06-18 18:57 J	-8842898.85	-8842898.71	-8842898.54	0.0520	0.0427
Venus	-28924-07-13 19:11 J	-8842873.80	-8842873.70	-8842873.59	0.0519	0.0439
Venus	-28923-03-07 06:43 J	-8842637.42	-8842637.22	-8842637.02	0.0510	0.0060
Mercury	-28918-06-16 11:59 J	-8840710.17	-8840710.00	-8840709.82	0.0503	0.0023
Mars	-28918-12-28 06:14 J	-8840515.51	-8840515.24	-8840514.96	0.0510	0.0062
Venus	-28917-01-01 23:16 J	-8840510.68	-8840510.53	-8840510.37	0.0510	0.0335
Venus	-28917-08-26 15:50 J	-8840273.03	-8840272.84	-8840272.64	0.0519	0.0195
Mercury	-28913-11-06 00:14 J	-8838740.56	-8838740.49	-8838740.43	0.0527	0.0451
Mercury	-28912-02-03 08:23 J	-8838651.27	-8838651.15	-8838651.02	0.0524	0.0142
Venus	-28912-11-10 06:57 J	-8838371.41	-8838371.21	-8838371.01	0.0513	0.0077
Venus	-28911-07-04 13:11 J	-8838135.07	-8838134.95	-8838134.83	0.0504	0.0400
Mercury	-28906-04-04 10:33 J	-8836400.22	-8836400.06	-8836399.90	0.0502	0.0197
Mercury	-28906-07-03 13:26 J	-8836309.96	-8836309.94	-8836309.91	0.0505	0.0497
Venus	-28906-09-06 16:19 J	-8836244.89	-8836244.82	-8836244.74	0.0508	0.0471
Venus	-28905-05-01 06:14 J	-8836007.45	-8836007.24	-8836007.03	0.0517	0.0042
Mercury	-28901-11-22 12:14 J	-8834341.13	-8834340.99	-8834340.86	0.0525	0.0016
Venus	-28900-07-16 07:26 J	-8834105.37	-8834105.19	-8834105.01	0.0515	0.0215
Venus	-28899-03-09 15:50 J	-8833869.00	-8833868.84	-8833868.67	0.0506	0.0275
Mercury	-28894-01-21 08:38 J	-8832090.25	-8832090.14	-8832090.03	0.0501	0.0379
Mercury	-28894-04-21 11:59 J	-8832000.13	-8832000.00	-8831999.87	0.0505	0.0321

Venus	-28893-01-04 20:52 J	-8831741.84	-8831741.63	-8831741.43	0.0514	0.0108
Venus	-28893-08-29 17:16 J	-8831503.89	-8831503.78	-8831503.66	0.0524	0.0436
Mercury	-28889-09-10 15:50 J	-8830030.96	-8830030.84	-8830030.71	0.0525	0.0149
Mercury	-28889-12-09 00:43 J	-8829941.54	-8829941.47	-8829941.40	0.0522	0.0448
Venus	-28888-03-21 07:26 J	-8829839.33	-8829839.19	-8829839.04	0.0518	0.0354
Mars	-28888-03-24 16:19 J	-8829836.09	-8829835.82	-8829835.55	0.0518	0.0008
Venus	-28888-11-12 18:14 J	-8829602.93	-8829602.74	-8829602.55	0.0509	0.0143
Moon	-28884-10-07 21:21 J	-8828177.82	-8828177.61	-8828177.39	0.0491	0.0214
Earth	-28884-10-08 01:11 J	-8828177.66	-8828177.45	-8828177.23	0.0491	0.0212 *
Mercury	-28882-02-07 11:16 J	-8827690.20	-8827690.03	-8827689.87	0.0504	0.0152
Venus	-28882-09-09 13:55 J	-8827476.10	-8827475.92	-8827475.74	0.0512	0.0250
Mars	-28882-10-03 10:47 J	-8827452.10	-8827452.05	-8827451.97	0.0513	0.0497
Venus	-28881-05-04 08:23 J	-8827238.32	-8827238.15	-8827237.98	0.0521	0.0286
Mercury	-28877-06-29 19:26 J	-8825720.80	-8825720.69	-8825720.58	0.0526	0.0295
Mercury	-28877-09-27 03:50 J	-8825631.45	-8825631.34	-8825631.23	0.0522	0.0298
Venus	-28877-11-24 05:31 J	-8825573.32	-8825573.27	-8825573.21	0.0520	0.0493
Venus	-28876-07-18 18:14 J	-8825336.94	-8825336.74	-8825336.54	0.0511	0.0010
Venus	-28875-03-11 22:33 J	-8825100.61	-8825100.56	-8825100.49	0.0502	0.0474
Earth	-28872-10-12 10:33 J	-8823790.26	-8823790.06	-8823789.85	0.0492	0.0250
Moon	-28872-10-12 14:09 J	-8823790.11	-8823789.91	-8823789.70	0.0492	0.0222 *
Mercury	-28871-11-26 09:50 J	-8823380.26	-8823380.09	-8823379.91	0.0503	0.0024
Venus	-28870-05-15 07:11 J	-8823210.33	-8823210.20	-8823210.07	0.0510	0.0390
Venus	-28869-01-07 23:02 J	-8822972.74	-8822972.54	-8822972.34	0.0519	0.0134
Mercury	-28865-04-17 23:02 J	-8821410.61	-8821410.54	-8821410.47	0.0526	0.0444
Mercury	-28865-07-16 07:11 J	-8821321.33	-8821321.20	-8821321.07	0.0523	0.0146
Venus	-28864-03-23 18:14 J	-8821070.93	-8821070.74	-8821070.55	0.0513	0.0133
Venus	-28864-11-15 00:57 J	-8820834.61	-8820834.46	-8820834.32	0.0505	0.0348
Mercury	-28859-09-14 08:23 J	-8819070.31	-8819070.15	-8819069.99	0.0502	0.0199
Mercury	-28859-12-13 11:16 J	-8818980.05	-8818980.03	-8818980.00	0.0505	0.0496
Venus	-28858-09-12 12:43 J	-8818707.18	-8818706.97	-8818706.76	0.0516	0.0018

Venus	-28857-05-07 10:04 J	-8818469.08	-8818469.08	-8818469.07	0.0525	0.0524
Moon	-28854-04-09 09:07 J	-8817402.34	-8817402.12	-8817401.90	0.0536	0.0055
Earth	-28854-04-09 11:31 J	-8817402.25	-8817402.02	-8817401.79	0.0536	0.0052 *
Mercury	-28853-05-04 10:04 J	-8817011.21	-8817011.08	-8817010.94	0.0525	0.0019
Venus	-28853-11-26 16:47 J	-8816804.97	-8816804.80	-8816804.63	0.0517	0.0273
Mars	-28853-12-27 20:38 J	-8816773.79	-8816773.64	-8816773.47	0.0515	0.0407
Venus	-28852-07-21 02:23 J	-8816568.58	-8816568.40	-8816568.22	0.0508	0.0220
Mercury	-28847-07-03 06:43 J	-8814760.33	-8814760.22	-8814760.10	0.0501	0.0375
Mercury	-28847-10-01 10:04 J	-8814670.20	-8814670.08	-8814669.94	0.0504	0.0325
Venus	-28846-05-18 04:04 J	-8814441.53	-8814441.33	-8814441.13	0.0513	0.0165
Venus	-28845-01-10 23:02 J	-8814203.69	-8814203.54	-8814203.40	0.0522	0.0372
Mercury	-28841-02-21 13:40 J	-8812701.05	-8812700.93	-8812700.80	0.0526	0.0159
Mercury	-28841-05-20 22:33 J	-8812611.63	-8812611.56	-8812611.49	0.0522	0.0438
Venus	-28841-08-01 15:50 J	-8812538.95	-8812538.84	-8812538.71	0.0519	0.0411
Venus	-28840-03-26 04:19 J	-8812302.52	-8812302.32	-8812302.13	0.0510	0.0088
Mercury	-28835-07-20 08:38 J	-8810360.31	-8810360.14	-8810359.97	0.0504	0.0146
Venus	-28834-01-20 19:26 J	-8810175.85	-8810175.69	-8810175.52	0.0510	0.0309
Venus	-28834-09-15 12:28 J	-8809938.17	-8809937.98	-8809937.79	0.0520	0.0221
Mercury	-28830-12-10 17:45 J	-8808390.87	-8808390.76	-8808390.66	0.0526	0.0299
Mercury	-28829-03-09 02:09 J	-8808301.52	-8808301.41	-8808301.30	0.0523	0.0295
Venus	-28829-11-29 05:45 J	-8808036.46	-8808036.26	-8808036.06	0.0512	0.0048
Venus	-28828-07-23 11:31 J	-8807800.12	-8807800.02	-8807799.91	0.0504	0.0426
Mercury	-28823-05-08 07:40 J	-8806050.36	-8806050.18	-8806050.01	0.0503	0.0028
Venus	-28823-09-25 13:40 J	-8805910.03	-8805909.93	-8805909.83	0.0508	0.0443
Venus	-28822-05-21 04:04 J	-8805672.53	-8805672.33	-8805672.12	0.0517	0.0072
Mercury	-28818-09-28 21:21 J	-8804080.68	-8804080.61	-8804080.54	0.0527	0.0442
Mercury	-28818-12-27 05:45 J	-8803991.39	-8803991.26	-8803991.13	0.0523	0.0148
Venus	-28817-08-04 05:16 J	-8803770.46	-8803770.28	-8803770.09	0.0515	0.0186
Venus	-28816-03-28 13:11 J	-8803534.11	-8803533.95	-8803533.79	0.0506	0.0298
Mercury	-28811-02-24 06:14 J	-8801740.40	-8801740.24	-8801740.08	0.0503	0.0199



Mercury	-28811-05-25 09:21 J	-8801650.14	-8801650.11	-8801650.08	0.0506	0.0498
Venus	-28810-01-23 19:55 J	-8801406.87	-8801406.67	-8801406.46	0.0515	0.0076
Venus	-28810-09-18 17:02 J	-8801168.88	-8801168.79	-8801168.69	0.0524	0.0465
Mercury	-28806-10-15 09:07 J	-8799681.26	-8799681.12	-8799680.99	0.0524	0.0012
Venus	-28805-04-09 04:19 J	-8799504.47	-8799504.32	-8799504.16	0.0517	0.0326
Venus	-28805-12-01 14:23 J	-8799268.08	-8799267.90	-8799267.71	0.0508	0.0167
Earth	-28801-10-07 04:33 J	-8797862.49	-8797862.31	-8797862.11	0.0490	0.0294
Moon	-28801-10-07 08:09 J	-8797862.34	-8797862.16	-8797861.97	0.0490	0.0301 *
Mercury	-28800-12-13 04:33 J	-8797430.42	-8797430.31	-8797430.19	0.0501	0.0375
Mercury	-28799-03-13 08:09 J	-8797340.29	-8797340.16	-8797340.03	0.0504	0.0325
Mars	-28799-06-16 20:52 J	-8797244.87	-8797244.63	-8797244.39	0.0508	0.0263
Venus	-28799-09-28 11:16 J	-8797141.21	-8797141.03	-8797140.84	0.0512	0.0221
Venus	-28798-05-24 05:16 J	-8796903.44	-8796903.28	-8796903.11	0.0521	0.0313
Mercury	-28794-08-03 11:59 J	-8795371.13	-8795371.00	-8795370.88	0.0525	0.0161
Mercury	-28794-10-31 20:38 J	-8795281.71	-8795281.64	-8795281.57	0.0522	0.0434
Venus	-28794-12-14 01:11 J	-8795238.53	-8795238.45	-8795238.36	0.0520	0.0467
Venus	-28793-08-06 14:23 J	-8795002.10	-8795001.90	-8795001.70	0.0511	0.0034
Venus	-28792-03-30 19:55 J	-8794765.70	-8794765.67	-8794765.64	0.0503	0.0497
Moon	-28789-10-11 13:55 J	-8793475.15	-8793474.92	-8793474.68	0.0491	0.0147
Earth	-28789-10-11 16:19 J	-8793475.04	-8793474.82	-8793474.60	0.0491	0.0177 *
Mercury	-28788-12-30 06:57 J	-8793030.37	-8793030.21	-8793030.04	0.0503	0.0153
Venus	-28787-06-03 04:04 J	-8792875.47	-8792875.33	-8792875.18	0.0509	0.0360
Venus	-28786-01-26 19:11 J	-8792637.89	-8792637.70	-8792637.50	0.0518	0.0161
Mercury	-28782-05-22 15:35 J	-8791060.96	-8791060.85	-8791060.74	0.0526	0.0307
Mercury	-28782-08-19 23:59 J	-8790971.61	-8790971.50	-8790971.38	0.0523	0.0288
Venus	-28781-04-11 15:21 J	-8790736.05	-8790735.86	-8790735.66	0.0514	0.0104
Venus	-28781-12-03 22:47 J	-8790499.68	-8790499.55	-8790499.41	0.0505	0.0375
Mercury	-28776-10-18 05:16 J	-8788720.45	-8788720.28	-8788720.10	0.0503	0.0027
Venus	-28775-02-05 20:38 J	-8788609.67	-8788609.64	-8788609.59	0.0507	0.0495
Venus	-28775-10-01 09:35 J	-8788372.31	-8788372.10	-8788371.89	0.0516	0.0011

Earth	-28771-04-08 13:26 J	-8787087.16	-8787086.94	-8787086.72	0.0537	0.0154
Moon	-28771-04-08 17:02 J	-8787087.01	-8787086.79	-8787086.56	0.0537	0.0143 *
Mercury	-28770-03-10 19:26 J	-8786750.75	-8786750.69	-8786750.62	0.0527	0.0447
Mercury	-28770-06-08 03:50 J	-8786661.47	-8786661.34	-8786661.21	0.0524	0.0146
Mars	-28770-09-12 11:45 J	-8786565.21	-8786565.01	-8786564.79	0.0520	0.0330
Venus	-28770-12-16 16:04 J	-8786470.01	-8786469.83	-8786469.65	0.0516	0.0240
Venus	-28769-08-09 01:26 J	-8786233.61	-8786233.44	-8786233.26	0.0507	0.0249
Mercury	-28764-08-06 04:04 J	-8784410.49	-8784410.33	-8784410.17	0.0502	0.0199
Mercury	-28764-11-04 07:11 J	-8784320.23	-8784320.20	-8784320.17	0.0505	0.0497
Mars	-28763-03-22 18:28 J	-8784181.99	-8784181.73	-8784181.46	0.0510	0.0155
Venus	-28763-06-06 02:09 J	-8784106.61	-8784106.41	-8784106.21	0.0513	0.0135
Venus	-28762-01-29 21:50 J	-8783868.72	-8783868.59	-8783868.46	0.0523	0.0402
Moon	-28759-04-13 12:57 J	-8782699.04	-8782698.96	-8782698.86	0.0536	0.0491
Earth	-28759-04-13 16:47 J	-8782698.91	-8782698.80	-8782698.68	0.0536	0.0459 *
Mercury	-28758-03-27 07:40 J	-8782351.32	-8782351.18	-8782351.05	0.0524	0.0013
Venus	-28758-08-21 15:07 J	-8782203.99	-8782203.87	-8782203.73	0.0519	0.0380
Venus	-28757-04-14 02:38 J	-8781967.58	-8781967.39	-8781967.19	0.0509	0.0117
Mercury	-28752-05-25 02:38 J	-8780100.50	-8780100.39	-8780100.27	0.0502	0.0374
Mercury	-28752-08-23 06:14 J	-8780010.37	-8780010.24	-8780010.11	0.0505	0.0328
Venus	-28751-02-08 19:11 J	-8779840.88	-8779840.70	-8779840.53	0.0511	0.0276
Venus	-28751-10-04 12:43 J	-8779603.15	-8779602.97	-8779602.79	0.0520	0.0253
Mercury	-28746-01-13 11:02 J	-8778041.16	-8778041.04	-8778040.91	0.0525	0.0148
Mercury	-28746-04-12 19:40 J	-8777951.74	-8777951.68	-8777951.61	0.0522	0.0447
Venus	-28746-04-26 13:26 J	-8777937.95	-8777937.94	-8777937.91	0.0521	0.0517
Venus	-28746-12-19 03:21 J	-8777701.56	-8777701.36	-8777701.16	0.0512	0.0019
Venus	-28745-08-11 08:52 J	-8777465.22	-8777465.13	-8777465.04	0.0503	0.0448
Mercury	-28740-06-11 05:16 J	-8775700.45	-8775700.28	-8775700.12	0.0504	0.0156
Venus	-28740-10-14 12:28 J	-8775575.10	-8775574.98	-8775574.86	0.0508	0.0410
Venus	-28739-06-09 02:38 J	-8775337.59	-8775337.39	-8775337.19	0.0517	0.0103
Mercury	-28735-11-01 13:55 J	-8773731.02	-8773730.92	-8773730.81	0.0526	0.0307

Mercury	-28734-01-29 22:33 J	-8773641.68	-8773641.56	-8773641.45	0.0523	0.0287
Mars	-28734-06-18 01:26 J	-8773502.71	-8773502.44	-8773502.17	0.0518	0.0090
Venus	-28734-08-24 01:55 J	-8773435.61	-8773435.42	-8773435.23	0.0515	0.0158
Venus	-28733-04-16 10:19 J	-8773199.22	-8773199.07	-8773198.91	0.0506	0.0324
Mercury	-28728-03-30 04:04 J	-8771390.50	-8771390.33	-8771390.16	0.0503	0.0016
Venus	-28727-02-11 17:59 J	-8771071.96	-8771071.75	-8771071.54	0.0514	0.0045
Venus	-28727-10-07 14:09 J	-8770833.97	-8770833.91	-8770833.83	0.0524	0.0491
Mercury	-28723-08-20 17:45 J	-8769420.83	-8769420.76	-8769420.70	0.0527	0.0453
Mercury	-28723-11-18 01:55 J	-8769331.55	-8769331.42	-8769331.29	0.0524	0.0140
Venus	-28722-04-29 01:40 J	-8769169.59	-8769169.43	-8769169.27	0.0518	0.0296
Venus	-28722-12-21 12:28 J	-8768933.16	-8768932.98	-8768932.80	0.0509	0.0196
Moon	-28718-10-07 08:38 J	-8767547.29	-8767547.14	-8767546.98	0.0490	0.0375
Earth	-28718-10-07 11:02 J	-8767547.19	-8767547.04	-8767546.87	0.0490	0.0360 *
Mercury	-28716-01-16 02:09 J	-8767080.57	-8767080.41	-8767080.24	0.0502	0.0196
Mercury	-28716-04-16 05:16 J	-8766990.30	-8766990.28	-8766990.25	0.0505	0.0499
Venus	-28716-10-17 09:07 J	-8766806.31	-8766806.12	-8766805.92	0.0512	0.0191
Venus	-28715-06-12 03:07 J	-8766568.52	-8766568.37	-8766568.21	0.0521	0.0341
Mercury	-28711-09-06 05:45 J	-8765021.39	-8765021.26	-8765021.12	0.0525	0.0016
Venus	-28710-01-02 01:26 J	-8764903.55	-8764903.44	-8764903.33	0.0520	0.0434
Venus	-28710-08-26 14:23 J	-8764667.09	-8764666.90	-8764666.70	0.0511	0.0065
Earth	-28706-10-11 21:35 J	-8763159.83	-8763159.60	-8763159.37	0.0491	0.0104
Moon	-28706-10-11 22:19 J	-8763159.79	-8763159.57	-8763159.34	0.0491	0.0078 *
Mercury	-28705-11-04 00:57 J	-8762770.58	-8762770.46	-8762770.34	0.0501	0.0368
Mercury	-28704-02-02 04:19 J	-8762680.44	-8762680.32	-8762680.18	0.0504	0.0331
Venus	-28704-06-22 02:38 J	-8762540.54	-8762540.39	-8762540.23	0.0509	0.0329
Venus	-28703-02-14 18:28 J	-8762302.92	-8762302.73	-8762302.54	0.0519	0.0192
Mercury	-28699-06-25 09:35 J	-8760711.22	-8760711.10	-8760710.97	0.0525	0.0144
Mercury	-28699-09-22 18:28 J	-8760621.80	-8760621.73	-8760621.67	0.0522	0.0452
Venus	-28698-05-01 15:21 J	-8760401.05	-8760400.86	-8760400.66	0.0513	0.0072
Venus	-28698-12-23 22:04 J	-8760164.70	-8760164.58	-8760164.46	0.0504	0.0402

Mercury	-28693-11-21 03:21 J	-8758370.52	-8758370.36	-8758370.19	0.0504	0.0161
Venus	-28692-02-24 20:52 J	-8758274.71	-8758274.63	-8758274.54	0.0507	0.0462
Venus	-28692-10-20 10:33 J	-8758037.27	-8758037.06	-8758036.86	0.0516	0.0046
Moon	-28688-04-07 15:07 J	-8756772.08	-8756771.87	-8756771.66	0.0537	0.0227
Earth	-28688-04-07 18:57 J	-8756771.92	-8756771.71	-8756771.51	0.0537	0.0241 *
Mercury	-28687-04-13 13:26 J	-8756401.05	-8756400.94	-8756400.83	0.0526	0.0289
Mercury	-28687-07-11 21:50 J	-8756311.70	-8756311.59	-8756311.48	0.0523	0.0304
Venus	-28686-01-04 15:21 J	-8756135.04	-8756134.86	-8756134.68	0.0516	0.0209
Venus	-28686-08-28 23:59 J	-8755898.66	-8755898.50	-8755898.33	0.0507	0.0276
Mercury	-28681-09-09 02:23 J	-8754060.57	-8754060.40	-8754060.22	0.0503	0.0014
Venus	-28680-06-25 02:09 J	-8753771.61	-8753771.41	-8753771.20	0.0513	0.0099
Venus	-28679-02-17 21:35 J	-8753533.71	-8753533.60	-8753533.49	0.0522	0.0434
Earth	-28676-04-12 14:09 J	-8752384.08	-8752383.91	-8752383.73	0.0536	0.0333
Moon	-28676-04-12 17:16 J	-8752383.94	-8752383.78	-8752383.62	0.0536	0.0368 *
Mercury	-28675-01-30 16:19 J	-8752090.89	-8752090.82	-8752090.76	0.0527	0.0449
Mercury	-28675-04-30 00:28 J	-8752001.61	-8752001.48	-8752001.35	0.0524	0.0142
Venus	-28675-09-09 12:14 J	-8751869.13	-8751868.99	-8751868.84	0.0519	0.0350
Venus	-28674-05-04 00:14 J	-8751632.68	-8751632.49	-8751632.30	0.0510	0.0145
Mercury	-28669-06-28 01:11 J	-8749750.61	-8749750.45	-8749750.28	0.0502	0.0181
Venus	-28668-02-27 18:57 J	-8749505.89	-8749505.71	-8749505.52	0.0511	0.0241
Venus	-28668-10-23 11:45 J	-8749268.18	-8749268.01	-8749267.84	0.0520	0.0284
Mercury	-28663-02-16 04:04 J	-8747691.46	-8747691.33	-8747691.20	0.0525	0.0005
Venus	-28663-05-15 10:47 J	-8747603.12	-8747603.05	-8747602.98	0.0522	0.0487
Venus	-28662-01-07 01:11 J	-8747366.65	-8747366.45	-8747366.25	0.0513	0.0015
Venus	-28662-08-31 07:26 J	-8747130.24	-8747130.19	-8747130.12	0.0504	0.0477
Mercury	-28657-04-15 23:31 J	-8745440.64	-8745440.52	-8745440.40	0.0501	0.0360
Mercury	-28657-07-15 02:52 J	-8745350.50	-8745350.38	-8745350.25	0.0504	0.0338
Venus	-28657-11-02 11:16 J	-8745240.16	-8745240.03	-8745239.89	0.0508	0.0379
Venus	-28656-06-28 01:26 J	-8745002.64	-8745002.44	-8745002.24	0.0517	0.0134
Mercury	-28652-12-05 07:55 J	-8743381.29	-8743381.17	-8743381.04	0.0526	0.0146

Mercury	-28651-03-04 16:47 J	-8743291.87	-8743291.80	-8743291.74	0.0523	0.0452
Venus	-28651-09-12 02:38 J	-8743100.58	-8743100.39	-8743100.20	0.0515	0.0124
Venus	-28650-05-06 11:02 J	-8742864.18	-8742864.04	-8742863.90	0.0506	0.0355
Mercury	-28645-05-03 01:55 J	-8741040.58	-8741040.42	-8741040.26	0.0503	0.0169
Mars	-28645-09-09 20:23 J	-8740910.91	-8740910.65	-8740910.38	0.0508	0.0155
Venus	-28644-03-02 17:31 J	-8740736.97	-8740736.77	-8740736.56	0.0515	0.0015
Venus	-28644-10-26 14:23 J	-8740498.91	-8740498.90	-8740498.87	0.0524	0.0521
Mercury	-28640-09-23 11:59 J	-8739071.11	-8739071.00	-8739070.89	0.0526	0.0284
Mercury	-28640-12-21 20:23 J	-8738981.75	-8738981.65	-8738981.54	0.0523	0.0310
Venus	-28639-05-18 03:07 J	-8738834.54	-8738834.37	-8738834.20	0.0517	0.0260
Venus	-28638-01-09 12:57 J	-8738598.13	-8738597.96	-8738597.78	0.0508	0.0228
Earth	-28635-10-06 18:14 J	-8737231.85	-8737231.74	-8737231.62	0.0490	0.0425
Moon	-28635-10-06 18:57 J	-8737231.79	-8737231.71	-8737231.61	0.0490	0.0448 *
Mercury	-28633-02-20 00:57 J	-8736730.64	-8736730.46	-8736730.29	0.0503	0.0014
Venus	-28633-11-05 10:33 J	-8736471.25	-8736471.06	-8736470.86	0.0513	0.0155
Venus	-28632-07-01 05:16 J	-8736233.42	-8736233.28	-8736233.13	0.0522	0.0376
Mercury	-28628-07-12 15:50 J	-8734760.92	-8734760.84	-8734760.77	0.0527	0.0428
Mercury	-28628-10-09 23:59 J	-8734671.62	-8734671.50	-8734671.37	0.0524	0.0164
Venus	-28627-01-21 02:09 J	-8734568.54	-8734568.41	-8734568.28	0.0520	0.0398
Venus	-28627-09-14 14:38 J	-8734332.09	-8734331.89	-8734331.70	0.0511	0.0096
Earth	-28623-10-11 06:28 J	-8732844.47	-8732844.23	-8732843.99	0.0491	0.0045
Moon	-28623-10-11 07:11 J	-8732844.44	-8732844.20	-8732843.95	0.0491	0.0021 *
Mercury	-28622-12-08 23:59 J	-8732420.67	-8732420.50	-8732420.34	0.0502	0.0171
Venus	-28621-07-11 04:04 J	-8732205.49	-8732205.33	-8732205.15	0.0510	0.0291
Venus	-28620-03-05 19:55 J	-8731967.86	-8731967.67	-8731967.49	0.0519	0.0229
Mercury	-28616-07-29 02:52 J	-8730361.52	-8730361.38	-8730361.25	0.0525	0.0015
Mars	-28616-12-06 08:38 J	-8730231.38	-8730231.14	-8730230.89	0.0520	0.0229
Venus	-28615-05-20 13:11 J	-8730066.15	-8730065.95	-8730065.75	0.0514	0.0041
Venus	-28614-01-11 20:23 J	-8729829.75	-8729829.65	-8729829.55	0.0505	0.0430
Mercury	-28610-09-26 22:47 J	-8728110.68	-8728110.55	-8728110.42	0.0501	0.0341

Mercury	-28610-12-26 02:09 J	-8728020.52	-8728020.41	-8728020.28	0.0504	0.0357
Venus	-28609-03-15 22:19 J	-8727939.67	-8727939.57	-8727939.45	0.0507	0.0424
Mars	-28609-06-16 03:07 J	-8727847.60	-8727847.37	-8727847.13	0.0510	0.0273
Venus	-28609-11-08 11:16 J	-8727702.23	-8727702.03	-8727701.82	0.0516	0.0082
Earth	-28605-04-06 16:47 J	-8726456.97	-8726456.80	-8726456.63	0.0537	0.0365
Moon	-28605-04-06 19:55 J	-8726456.83	-8726456.67	-8726456.49	0.0537	0.0345 *
Mercury	-28604-05-17 06:28 J	-8726051.36	-8726051.23	-8726051.11	0.0526	0.0147
Mercury	-28604-08-14 15:07 J	-8725961.94	-8725961.87	-8725961.81	0.0523	0.0451
Venus	-28603-01-23 13:11 J	-8725800.13	-8725799.95	-8725799.76	0.0516	0.0178
Venus	-28603-09-16 22:47 J	-8725563.71	-8725563.55	-8725563.39	0.0507	0.0306
Mercury	-28598-10-14 00:43 J	-8723710.63	-8723710.47	-8723710.31	0.0503	0.0180
Venus	-28597-07-14 01:55 J	-8723436.62	-8723436.42	-8723436.21	0.0513	0.0067
Venus	-28596-03-08 21:07 J	-8723198.71	-8723198.62	-8723198.52	0.0523	0.0464
Moon	-28593-04-11 17:31 J	-8722068.97	-8722068.77	-8722068.57	0.0537	0.0277
Earth	-28593-04-11 19:26 J	-8722068.89	-8722068.69	-8722068.48	0.0537	0.0249 *
Mercury	-28592-03-05 10:19 J	-8721741.18	-8721741.07	-8721740.96	0.0527	0.0286
Mercury	-28592-06-02 18:43 J	-8721651.82	-8721651.72	-8721651.61	0.0524	0.0311
Venus	-28592-09-28 13:40 J	-8721534.09	-8721533.93	-8721533.77	0.0519	0.0314
Venus	-28591-05-23 01:26 J	-8721297.63	-8721297.44	-8721297.25	0.0510	0.0178
Mercury	-28586-08-01 23:31 J	-8719400.69	-8719400.52	-8719400.34	0.0502	0.0015
Venus	-28585-03-18 19:11 J	-8719170.89	-8719170.70	-8719170.51	0.0511	0.0207
Venus	-28585-11-11 12:14 J	-8718933.15	-8718932.99	-8718932.82	0.0520	0.0317
Mercury	-28581-12-22 14:23 J	-8717430.97	-8717430.90	-8717430.82	0.0527	0.0423
Mercury	-28580-03-21 22:47 J	-8717341.68	-8717341.55	-8717341.42	0.0524	0.0169
Venus	-28580-06-03 13:11 J	-8717268.04	-8717267.95	-8717267.84	0.0521	0.0451
Mars	-28580-09-11 15:07 J	-8717168.11	-8717167.87	-8717167.62	0.0517	0.0220
Venus	-28579-01-26 03:07 J	-8717031.56	-8717031.37	-8717031.17	0.0512	0.0048
Mercury	-28574-05-20 22:19 J	-8715090.73	-8715090.57	-8715090.40	0.0502	0.0163
Venus	-28574-11-22 13:11 J	-8714905.10	-8714904.95	-8714904.80	0.0509	0.0343
Venus	-28573-07-17 04:04 J	-8714667.53	-8714667.33	-8714667.14	0.0518	0.0171

Mercury	-28568-01-08 02:23 J	-8713031.53	-8713031.40	-8713031.26	0.0525	0.0026
Venus	-28568-10-01 04:04 J	-8712765.53	-8712765.33	-8712765.14	0.0514	0.0089
Venus	-28567-05-25 11:31 J	-8712529.14	-8712529.02	-8712528.89	0.0505	0.0385
Mercury	-28562-03-08 21:35 J	-8710780.73	-8710780.60	-8710780.47	0.0501	0.0330
Mercury	-28562-06-07 01:11 J	-8710690.57	-8710690.45	-8710690.34	0.0504	0.0369
Venus	-28562-07-28 08:23 J	-8710639.22	-8710639.15	-8710639.07	0.0506	0.0470
Venus	-28561-03-21 20:23 J	-8710401.86	-8710401.65	-8710401.45	0.0515	0.0029
Mercury	-28557-10-27 05:16 J	-8708721.41	-8708721.28	-8708721.15	0.0526	0.0138
Mercury	-28556-01-24 13:55 J	-8708631.98	-8708631.92	-8708631.86	0.0522	0.0459
Venus	-28556-06-06 00:57 J	-8708499.63	-8708499.46	-8708499.28	0.0517	0.0230
Venus	-28555-01-28 11:31 J	-8708263.19	-8708263.02	-8708262.85	0.0508	0.0257
Earth	-28552-10-06 06:43 J	-8706916.28	-8706916.22	-8706916.14	0.0490	0.0464
Moon	-28552-10-06 07:55 J	-8706916.18	-8706916.17	-8706916.15	0.0490	0.0488 *
Mercury	-28551-12-25 20:23 J	-8706470.66	-8706470.65	-8706470.65	0.0500	0.0500
Mercury	-28550-03-26 00:14 J	-8706380.64	-8706380.49	-8706380.33	0.0503	0.0202
Venus	-28550-11-25 12:57 J	-8706136.16	-8706135.96	-8706135.75	0.0512	0.0115
Venus	-28549-07-20 06:57 J	-8705898.33	-8705898.21	-8705898.08	0.0521	0.0411
Mercury	-28545-08-15 08:52 J	-8704411.24	-8704411.13	-8704411.02	0.0527	0.0284
Mercury	-28545-11-12 17:16 J	-8704321.89	-8704321.78	-8704321.67	0.0523	0.0311
Venus	-28544-02-08 23:59 J	-8704233.64	-8704233.50	-8704233.36	0.0520	0.0367
Venus	-28544-10-03 12:57 J	-8703997.15	-8703996.96	-8703996.76	0.0511	0.0128
Moon	-28540-10-10 14:38 J	-8702529.12	-8702528.89	-8702528.66	0.0490	0.0025
Earth	-28540-10-10 16:47 J	-8702529.04	-8702528.80	-8702528.56	0.0490	0.0005 *
Mercury	-28538-01-11 22:33 J	-8702070.73	-8702070.56	-8702070.38	0.0502	0.0026
Venus	-28538-07-31 04:33 J	-8701870.48	-8701870.31	-8701870.12	0.0510	0.0258
Venus	-28537-03-24 20:23 J	-8701632.83	-8701632.65	-8701632.47	0.0519	0.0261
Mercury	-28533-06-03 12:43 J	-8700101.04	-8700100.97	-8700100.89	0.0528	0.0424
Mercury	-28533-08-31 21:07 J	-8700011.75	-8700011.62	-8700011.49	0.0524	0.0170
Venus	-28533-10-14 23:16 J	-8699967.57	-8699967.53	-8699967.47	0.0523	0.0504
Venus	-28532-06-08 14:52 J	-8699731.08	-8699730.88	-8699730.68	0.0514	0.0007

Venus	-28531-01-30 21:50 J	-8699494.66	-8699494.59	-8699494.50	0.0505	0.0461
Earth	-28528-10-15 03:35 J	-8698141.42	-8698141.35	-8698141.26	0.0491	0.0462
Moon	-28528-10-15 07:11 J	-8698141.22	-8698141.20	-8698141.16	0.0491	0.0486
Mercury	-28527-10-30 21:21 J	-8697760.78	-8697760.61	-8697760.44	0.0502	0.0148
Mars	-28526-03-01 11:59 J	-8697639.13	-8697639.00	-8697638.86	0.0506	0.0436
Venus	-28526-04-04 22:47 J	-8697604.67	-8697604.55	-8697604.41	0.0507	0.0391
Venus	-28526-11-28 11:59 J	-8697367.20	-8697367.00	-8697366.79	0.0516	0.0115
Moon	-28522-04-06 23:45 J	-8696141.65	-8696141.51	-8696141.35	0.0538	0.0409
Earth	-28522-04-07 02:23 J	-8696141.54	-8696141.40	-8696141.27	0.0538	0.0429 *
Mercury	-28521-06-20 01:11 J	-8695701.58	-8695701.45	-8695701.32	0.0525	0.0031
Venus	-28520-02-11 16:04 J	-8695465.02	-8695464.83	-8695464.64	0.0516	0.0139
Venus	-28520-10-06 00:57 J	-8695228.61	-8695228.46	-8695228.31	0.0507	0.0339
Mercury	-28515-08-18 20:09 J	-8693450.80	-8693450.66	-8693450.53	0.0501	0.0322
Mercury	-28515-11-16 23:31 J	-8693360.63	-8693360.52	-8693360.40	0.0504	0.0378
Venus	-28514-08-03 04:33 J	-8693101.51	-8693101.31	-8693101.10	0.0514	0.0030
Venus	-28513-03-28 00:43 J	-8692863.53	-8692863.47	-8692863.41	0.0523	0.0500
Earth	-28510-04-12 05:31 J	-8691753.48	-8691753.27	-8691753.05	0.0537	0.0185
Moon	-28510-04-12 05:45 J	-8691753.47	-8691753.26	-8691753.06	0.0537	0.0209 *
Mercury	-28509-04-08 05:02 J	-8691391.42	-8691391.29	-8691391.16	0.0526	0.0113
Mercury	-28509-07-06 13:40 J	-8691301.98	-8691301.93	-8691301.88	0.0522	0.0483
Venus	-28509-10-17 16:04 J	-8691199.00	-8691198.83	-8691198.67	0.0518	0.0276
Venus	-28508-06-11 03:07 J	-8690962.56	-8690962.37	-8690962.19	0.0509	0.0212
Mercury	-28503-06-06 19:11 J	-8689140.74	-8689140.70	-8689140.66	0.0500	0.0488
Mercury	-28503-09-04 23:16 J	-8689050.69	-8689050.53	-8689050.38	0.0503	0.0215
Venus	-28502-04-07 22:33 J	-8688835.75	-8688835.56	-8688835.36	0.0511	0.0166
Venus	-28502-12-01 15:50 J	-8688597.99	-8688597.84	-8688597.69	0.0520	0.0357
Mercury	-28497-01-26 07:40 J	-8687081.29	-8687081.18	-8687081.06	0.0526	0.0274
Mercury	-28497-04-24 16:19 J	-8686991.93	-8686991.82	-8686991.72	0.0523	0.0321
Venus	-28497-06-22 11:45 J	-8686933.13	-8686933.01	-8686932.89	0.0521	0.0418
Venus	-28496-02-14 01:40 J	-8686696.63	-8686696.43	-8686696.23	0.0512	0.0077



Mercury	-28491-06-23 22:19 J	-8684740.74	-8684740.57	-8684740.40	0.0503	0.0048
Mars	-28491-12-05 16:47 J	-8684576.08	-8684575.80	-8684575.52	0.0508	0.0019
Venus	-28491-12-11 16:33 J	-8684569.98	-8684569.81	-8684569.64	0.0509	0.0302
Venus	-28490-08-06 06:57 J	-8684332.40	-8684332.21	-8684332.02	0.0517	0.0210
Mercury	-28486-11-14 11:31 J	-8682771.10	-8682771.02	-8682770.95	0.0527	0.0420
Mercury	-28485-02-11 19:40 J	-8682681.81	-8682681.68	-8682681.55	0.0524	0.0172
Venus	-28485-10-20 02:09 J	-8682430.61	-8682430.41	-8682430.21	0.0515	0.0058
Venus	-28484-06-13 10:19 J	-8682194.18	-8682194.07	-8682193.96	0.0506	0.0414
Mercury	-28479-04-11 20:38 J	-8680430.81	-8680430.64	-8680430.48	0.0502	0.0132
Venus	-28479-08-16 09:35 J	-8680304.20	-8680304.10	-8680304.00	0.0506	0.0436
Venus	-28478-04-10 21:07 J	-8680066.82	-8680066.62	-8680066.41	0.0515	0.0062
Mercury	-28474-11-30 23:31 J	-8678371.65	-8678371.52	-8678371.39	0.0525	0.0032
Venus	-28473-06-25 02:52 J	-8678164.56	-8678164.38	-8678164.19	0.0517	0.0194
Venus	-28472-02-16 13:11 J	-8677928.11	-8677927.95	-8677927.78	0.0508	0.0291
Mercury	-28467-01-28 19:11 J	-8676120.84	-8676120.70	-8676120.56	0.0501	0.0305
Mercury	-28467-04-28 22:33 J	-8676030.66	-8676030.56	-8676030.45	0.0504	0.0392
Venus	-28467-12-14 13:40 J	-8675801.14	-8675800.93	-8675800.72	0.0512	0.0082
Venus	-28466-08-09 07:55 J	-8675563.27	-8675563.17	-8675563.06	0.0522	0.0443
Mercury	-28462-09-19 03:35 J	-8674061.48	-8674061.35	-8674061.22	0.0526	0.0108
Mercury	-28462-12-17 12:14 J	-8673972.03	-8673971.99	-8673971.94	0.0523	0.0489
Venus	-28461-02-29 03:21 J	-8673898.51	-8673898.36	-8673898.21	0.0520	0.0328
Mars	-28461-03-02 04:33 J	-8673896.58	-8673896.31	-8673896.04	0.0520	0.0085
Venus	-28461-10-22 15:50 J	-8673662.03	-8673661.84	-8673661.65	0.0510	0.0163
Earth	-28457-10-10 02:23 J	-8672213.64	-8672213.40	-8672213.17	0.0490	0.0057
Moon	-28457-10-10 05:59 J	-8672213.49	-8672213.25	-8672213.01	0.0490	0.0066 *
Mercury	-28456-11-16 17:31 J	-8671810.81	-8671810.77	-8671810.72	0.0500	0.0480
Mercury	-28455-02-14 21:35 J	-8671720.75	-8671720.60	-8671720.44	0.0503	0.0223
Venus	-28455-08-19 07:11 J	-8671535.39	-8671535.20	-8671535.01	0.0510	0.0219
Mars	-28455-09-10 16:47 J	-8671512.97	-8671512.80	-8671512.63	0.0511	0.0403
Venus	-28454-04-13 23:31 J	-8671297.69	-8671297.52	-8671297.35	0.0519	0.0299

Mercury	-28450-07-08 07:26 J	-8669751.30	-8669751.19	-8669751.07	0.0527	0.0250
Mercury	-28450-10-05 15:50 J	-8669661.93	-8669661.84	-8669661.73	0.0523	0.0346
Venus	-28450-11-04 02:09 J	-8669632.49	-8669632.41	-8669632.32	0.0522	0.0465
Venus	-28449-06-27 17:02 J	-8669395.99	-8669395.79	-8669395.59	0.0513	0.0031
Venus	-28448-02-18 23:16 J	-8669159.56	-8669159.53	-8669159.48	0.0504	0.0491
Moon	-28445-10-14 11:16 J	-8667826.13	-8667826.03	-8667825.92	0.0491	0.0441
Earth	-28445-10-14 15:07 J	-8667825.99	-8667825.87	-8667825.74	0.0491	0.0415 *
Mercury	-28444-12-03 21:07 J	-8667410.79	-8667410.62	-8667410.45	0.0503	0.0060
Venus	-28443-04-24 02:23 J	-8667269.54	-8667269.40	-8667269.24	0.0508	0.0351
Venus	-28443-12-17 16:04 J	-8667032.03	-8667031.83	-8667031.63	0.0517	0.0157
Earth	-28439-04-06 05:31 J	-8665826.31	-8665826.27	-8665826.21	0.0538	0.0522
Moon	-28439-04-06 06:14 J	-8665826.31	-8665826.24	-8665826.15	0.0538	0.0500 *
Mercury	-28438-04-26 10:19 J	-8665441.15	-8665441.07	-8665440.98	0.0527	0.0409
Mercury	-28438-07-24 18:43 J	-8665351.85	-8665351.72	-8665351.60	0.0524	0.0183
Venus	-28437-03-02 14:23 J	-8665130.09	-8665129.90	-8665129.70	0.0516	0.0109
Venus	-28437-10-24 23:16 J	-8664893.66	-8664893.53	-8664893.38	0.0507	0.0368
Mercury	-28432-09-21 20:09 J	-8663100.83	-8663100.66	-8663100.49	0.0502	0.0108
Venus	-28432-12-27 21:35 J	-8663003.66	-8663003.60	-8663003.53	0.0505	0.0479
Venus	-28431-08-22 08:23 J	-8662766.36	-8662766.15	-8662765.94	0.0514	0.0014
Earth	-28427-04-11 05:59 J	-8661438.48	-8661438.25	-8661438.02	0.0537	0.0076
Moon	-28427-04-11 07:40 J	-8661438.41	-8661438.18	-8661437.94	0.0537	0.0093 *
Mercury	-28426-05-12 22:04 J	-8661041.71	-8661041.58	-8661041.45	0.0525	0.0034
Venus	-28426-11-06 13:40 J	-8660864.10	-8660863.93	-8660863.75	0.0518	0.0246
Mars	-28426-12-06 17:31 J	-8660833.98	-8660833.77	-8660833.56	0.0517	0.0326
Venus	-28425-06-30 01:11 J	-8660627.63	-8660627.45	-8660627.28	0.0509	0.0241
Mercury	-28420-07-10 18:14 J	-8658790.88	-8658790.74	-8658790.59	0.0501	0.0288
Mercury	-28420-10-08 21:50 J	-8658700.69	-8658700.59	-8658700.49	0.0504	0.0408
Venus	-28419-04-26 23:31 J	-8658500.72	-8658500.52	-8658500.32	0.0511	0.0132
Venus	-28419-12-20 16:19 J	-8658262.95	-8658262.82	-8658262.68	0.0520	0.0388
Mercury	-28414-03-01 01:55 J	-8656731.55	-8656731.42	-8656731.29	0.0526	0.0108

Mercury	-28414-05-29 10:33 J	-8656642.10	-8656642.06	-8656642.01	0.0523	0.0489
Venus	-28414-07-12 13:11 J	-8656598.08	-8656597.95	-8656597.81	0.0521	0.0383
Venus	-28413-03-05 03:21 J	-8656361.56	-8656361.36	-8656361.17	0.0512	0.0111
Mercury	-28408-04-28 16:47 J	-8654480.87	-8654480.80	-8654480.74	0.0500	0.0463
Mercury	-28408-07-27 20:38 J	-8654390.79	-8654390.64	-8654390.49	0.0503	0.0238
Venus	-28408-12-30 16:47 J	-8654234.97	-8654234.80	-8654234.62	0.0509	0.0270
Venus	-28407-08-25 07:26 J	-8653997.37	-8653997.19	-8653997.01	0.0518	0.0242
Mercury	-28403-12-18 05:59 J	-8652421.36	-8652421.25	-8652421.13	0.0527	0.0247
Venus	-28402-03-17 12:43 J	-8652332.00	-8652331.97	-8652331.94	0.0523	0.0517
Mercury	-28402-03-17 14:38 J	-8652331.99	-8652331.89	-8652331.79	0.0523	0.0349 *
Venus	-28402-11-09 05:02 J	-8652095.49	-8652095.29	-8652095.09	0.0514	0.0021
Venus	-28401-07-02 12:28 J	-8651859.07	-8651858.98	-8651858.88	0.0505	0.0445
Mercury	-28396-05-15 19:26 J	-8650080.86	-8650080.69	-8650080.51	0.0503	0.0067
Venus	-28396-09-04 11:16 J	-8649969.15	-8649969.03	-8649968.90	0.0507	0.0401
Venus	-28395-04-29 23:45 J	-8649731.72	-8649731.51	-8649731.31	0.0516	0.0099
Mercury	-28391-10-06 10:04 J	-8648111.17	-8648111.08	-8648110.99	0.0527	0.0387
Mercury	-28390-01-03 18:14 J	-8648021.86	-8648021.74	-8648021.61	0.0524	0.0206
Venus	-28390-07-15 05:16 J	-8647829.47	-8647829.28	-8647829.09	0.0517	0.0156
Venus	-28389-03-07 15:07 J	-8647593.02	-8647592.87	-8647592.72	0.0508	0.0323
Mercury	-28384-03-03 18:57 J	-8645770.88	-8645770.71	-8645770.54	0.0502	0.0098
Venus	-28383-01-02 17:16 J	-8645465.98	-8645465.78	-8645465.57	0.0513	0.0042
Venus	-28383-08-28 11:59 J	-8645228.07	-8645228.00	-8645227.92	0.0522	0.0482
Mercury	-28379-10-22 21:07 J	-8643711.75	-8643711.62	-8643711.49	0.0525	0.0045
Venus	-28378-03-20 01:40 J	-8643563.59	-8643563.43	-8643563.27	0.0519	0.0297
Venus	-28378-11-11 13:55 J	-8643327.10	-8643326.92	-8643326.73	0.0510	0.0192
Moon	-28374-10-10 10:47 J	-8641898.29	-8641898.05	-8641897.82	0.0491	0.0101
Earth	-28374-10-10 14:38 J	-8641898.13	-8641897.89	-8641897.66	0.0491	0.0097 *
Mercury	-28373-12-20 17:45 J	-8641460.91	-8641460.76	-8641460.61	0.0501	0.0267
Mercury	-28372-03-20 21:21 J	-8641370.70	-8641370.61	-8641370.52	0.0504	0.0430
Mars	-28372-05-26 10:33 J	-8641304.28	-8641304.06	-8641303.84	0.0506	0.0296

Venus	-28372-09-07 10:47 J	-8641200.24	-8641200.05	-8641199.85	0.0510	0.0180
Venus	-28371-05-03 02:52 J	-8640962.53	-8640962.38	-8640962.22	0.0519	0.0338
Mercury	-28367-08-11 00:28 J	-8639401.61	-8639401.48	-8639401.35	0.0526	0.0105
Mercury	-28367-11-08 09:07 J	-8639312.16	-8639312.12	-8639312.07	0.0522	0.0491
Venus	-28367-11-22 23:16 J	-8639297.63	-8639297.53	-8639297.41	0.0522	0.0436
Venus	-28366-07-17 14:23 J	-8639061.10	-8639060.90	-8639060.70	0.0513	0.0059
Earth	-28362-10-15 00:43 J	-8637510.63	-8637510.47	-8637510.31	0.0491	0.0365
Moon	-28362-10-15 03:50 J	-8637510.48	-8637510.34	-8637510.21	0.0491	0.0397 *
Mercury	-28361-10-08 15:35 J	-8637150.92	-8637150.85	-8637150.77	0.0500	0.0448
Mercury	-28360-01-06 19:40 J	-8637060.83	-8637060.68	-8637060.53	0.0503	0.0253
Venus	-28360-05-13 03:07 J	-8636934.53	-8636934.37	-8636934.21	0.0507	0.0318
Venus	-28359-01-05 16:19 J	-8636697.01	-8636696.82	-8636696.63	0.0516	0.0188
Mercury	-28355-05-30 04:19 J	-8635091.43	-8635091.32	-8635091.20	0.0527	0.0248
Mercury	-28355-08-27 12:43 J	-8635002.06	-8635001.97	-8635001.87	0.0524	0.0348
Venus	-28354-03-22 15:35 J	-8634795.05	-8634794.85	-8634794.66	0.0516	0.0075
Venus	-28354-11-14 00:28 J	-8634558.60	-8634558.48	-8634558.35	0.0507	0.0397
Mercury	-28349-10-25 18:28 J	-8632750.90	-8632750.73	-8632750.56	0.0502	0.0080
Venus	-28348-01-15 21:21 J	-8632668.70	-8632668.61	-8632668.52	0.0505	0.0447
Venus	-28348-09-10 08:09 J	-8632431.37	-8632431.16	-8632430.95	0.0514	0.0044
Moon	-28344-04-10 10:04 J	-8631123.30	-8631123.08	-8631122.86	0.0537	0.0010
Earth	-28344-04-10 13:26 J	-8631123.17	-8631122.94	-8631122.71	0.0537	0.0006 *
Mercury	-28343-03-18 08:23 J	-8630781.23	-8630781.15	-8630781.06	0.0528	0.0386
Mercury	-28343-06-15 16:47 J	-8630691.92	-8630691.80	-8630691.68	0.0524	0.0207
Mars	-28343-08-21 08:09 J	-8630625.33	-8630625.16	-8630624.99	0.0522	0.0406
Venus	-28343-11-25 16:04 J	-8630529.01	-8630528.83	-8630528.64	0.0518	0.0209
Venus	-28342-07-20 03:07 J	-8630292.53	-8630292.37	-8630292.20	0.0509	0.0274
Mercury	-28337-08-13 17:02 J	-8628440.96	-8628440.79	-8628440.62	0.0502	0.0094
Mars	-28336-03-01 01:26 J	-8628241.71	-8628241.44	-8628241.16	0.0509	0.0106
Venus	-28336-05-16 00:57 J	-8628165.66	-8628165.46	-8628165.25	0.0512	0.0097
Venus	-28335-01-08 18:43 J	-8627927.84	-8627927.72	-8627927.60	0.0521	0.0423

Mercury	-28331-01-04 12:28 J	-8626470.99	-8626470.98	-8626470.97	0.0528	0.0526
Mercury	-28331-04-03 20:38 J	-8626381.78	-8626381.64	-8626381.51	0.0525	0.0066
Venus	-28331-07-31 15:21 J	-8626263.00	-8626262.86	-8626262.71	0.0521	0.0346
Venus	-28330-03-25 05:02 J	-8626026.49	-8626026.29	-8626026.10	0.0511	0.0146
Mercury	-28325-06-01 16:19 J	-8624130.97	-8624130.82	-8624130.67	0.0501	0.0259
Mercury	-28325-08-30 19:55 J	-8624040.75	-8624040.67	-8624040.59	0.0504	0.0438
Venus	-28324-01-18 19:40 J	-8623899.86	-8623899.68	-8623899.49	0.0509	0.0231
Venus	-28324-09-13 11:02 J	-8623662.21	-8623662.04	-8623661.86	0.0518	0.0282
Mercury	-28319-01-20 23:31 J	-8622071.65	-8622071.52	-8622071.39	0.0525	0.0096
Venus	-28319-04-05 10:47 J	-8621997.12	-8621997.05	-8621996.98	0.0523	0.0487
Mercury	-28319-04-20 07:55 J	-8621982.20	-8621982.17	-8621982.13	0.0522	0.0500
Venus	-28319-11-28 02:38 J	-8621760.59	-8621760.39	-8621760.19	0.0514	0.0011
Venus	-28318-07-22 10:04 J	-8621524.14	-8621524.08	-8621524.00	0.0505	0.0470
Mercury	-28313-03-20 14:52 J	-8619820.96	-8619820.88	-8619820.78	0.0501	0.0430
Mercury	-28313-06-18 18:57 J	-8619730.85	-8619730.71	-8619730.56	0.0503	0.0272
Venus	-28313-09-23 14:23 J	-8619634.04	-8619633.90	-8619633.75	0.0507	0.0363
Venus	-28312-05-19 02:52 J	-8619396.58	-8619396.38	-8619396.18	0.0516	0.0137
Mercury	-28308-11-09 02:52 J	-8617761.49	-8617761.38	-8617761.26	0.0526	0.0244
Mercury	-28307-02-06 11:16 J	-8617672.13	-8617672.03	-8617671.93	0.0523	0.0349
Mars	-28307-05-27 02:38 J	-8617562.66	-8617562.39	-8617562.11	0.0519	0.0024
Venus	-28307-08-03 01:55 J	-8617494.61	-8617494.42	-8617494.23	0.0517	0.0129
Venus	-28306-03-27 11:59 J	-8617258.15	-8617258.00	-8617257.86	0.0508	0.0348
Mercury	-28301-04-06 17:16 J	-8615420.95	-8615420.78	-8615420.61	0.0502	0.0093
Venus	-28301-05-29 07:26 J	-8615368.22	-8615368.19	-8615368.14	0.0504	0.0493
Venus	-28300-01-21 17:02 J	-8615131.00	-8615130.79	-8615130.58	0.0513	0.0010
Venus	-28300-09-16 11:31 J	-8614893.06	-8614893.02	-8614892.97	0.0522	0.0509
Mercury	-28296-08-28 06:43 J	-8613451.31	-8613451.22	-8613451.13	0.0528	0.0389
Mercury	-28296-11-25 14:52 J	-8613362.00	-8613361.88	-8613361.76	0.0524	0.0204
Venus	-28295-04-08 01:40 J	-8613228.60	-8613228.43	-8613228.26	0.0519	0.0265
Venus	-28295-11-30 14:09 J	-8612992.09	-8612991.91	-8612991.73	0.0510	0.0222

Earth	-28291-10-09 21:50 J	-8611582.81	-8611582.59	-8611582.36	0.0490	0.0159
Moon	-28291-10-10 00:43 J	-8611582.68	-8611582.47	-8611582.24	0.0490	0.0154 *
Mercury	-28289-01-24 15:50 J	-8611111.01	-8611110.84	-8611110.67	0.0502	0.0082
Venus	-28289-09-26 09:35 J	-8610865.29	-8610865.10	-8610864.89	0.0510	0.0150
Venus	-28288-05-22 01:55 J	-8610627.57	-8610627.42	-8610627.27	0.0519	0.0365
Mercury	-28284-06-16 10:47 J	-8609141.05	-8609141.05	-8609141.05	0.0528	0.0527
Mercury	-28284-09-13 18:57 J	-8609051.85	-8609051.71	-8609051.58	0.0525	0.0065
Venus	-28284-12-12 01:11 J	-8608962.58	-8608962.45	-8608962.33	0.0522	0.0400
Venus	-28283-08-05 15:50 J	-8608726.03	-8608725.84	-8608725.64	0.0513	0.0094
Moon	-28279-10-14 05:31 J	-8607195.44	-8607195.27	-8607195.08	0.0491	0.0329
Earth	-28279-10-14 07:40 J	-8607195.36	-8607195.18	-8607194.99	0.0491	0.0300 *
Mercury	-28278-11-12 14:09 J	-8606801.06	-8606800.91	-8606800.76	0.0501	0.0258
Mercury	-28277-02-10 17:45 J	-8606710.84	-8606710.76	-8606710.68	0.0504	0.0439
Venus	-28277-06-01 03:07 J	-8606599.54	-8606599.37	-8606599.19	0.0508	0.0285
Venus	-28276-01-24 17:02 J	-8606361.97	-8606361.79	-8606361.60	0.0517	0.0222
Mercury	-28272-07-02 22:47 J	-8604741.68	-8604741.55	-8604741.42	0.0526	0.0080
Mercury	-28272-09-30 07:11 J	-8604652.21	-8604652.20	-8604652.18	0.0523	0.0518
Mars	-28271-03-02 08:38 J	-8604499.25	-8604499.14	-8604499.01	0.0517	0.0460
Venus	-28271-04-10 16:47 J	-8604460.00	-8604459.80	-8604459.60	0.0515	0.0040
Venus	-28271-12-03 01:11 J	-8604223.55	-8604223.45	-8604223.34	0.0506	0.0426
Mercury	-28266-08-31 13:11 J	-8602491.04	-8602490.95	-8602490.86	0.0500	0.0425
Mercury	-28266-11-29 17:16 J	-8602400.92	-8602400.78	-8602400.63	0.0503	0.0277
Venus	-28265-02-04 23:02 J	-8602333.66	-8602333.54	-8602333.42	0.0506	0.0412
Venus	-28265-09-29 10:33 J	-8602096.26	-8602096.06	-8602095.85	0.0515	0.0082
Earth	-28261-04-09 16:47 J	-8600808.03	-8600807.80	-8600807.57	0.0537	0.0088
Moon	-28261-04-09 20:52 J	-8600807.86	-8600807.63	-8600807.40	0.0537	0.0082 *
Mercury	-28260-04-21 01:40 J	-8600431.54	-8600431.43	-8600431.31	0.0526	0.0236
Mercury	-28260-07-19 10:04 J	-8600342.18	-8600342.08	-8600341.98	0.0523	0.0357
Venus	-28260-12-14 13:26 J	-8600194.12	-8600193.94	-8600193.75	0.0518	0.0181
Venus	-28259-08-08 00:14 J	-8599957.65	-8599957.49	-8599957.33	0.0509	0.0299

Mercury	-28254-09-17 16:19 J	-8598090.99	-8598090.82	-8598090.65	0.0503	0.0108
Venus	-28253-06-04 03:21 J	-8597830.57	-8597830.36	-8597830.15	0.0512	0.0060
Venus	-28252-01-27 20:52 J	-8597592.72	-8597592.63	-8597592.52	0.0521	0.0457
Moon	-28249-04-14 12:14 J	-8596420.10	-8596419.99	-8596419.88	0.0535	0.0467
Earth	-28249-04-14 16:04 J	-8596419.90	-8596419.83	-8596419.75	0.0535	0.0502 *
Mercury	-28248-02-07 05:16 J	-8596121.37	-8596121.28	-8596121.19	0.0527	0.0386
Mercury	-28248-05-07 13:26 J	-8596032.06	-8596031.94	-8596031.82	0.0524	0.0206
Venus	-28248-08-19 11:31 J	-8595928.17	-8595928.02	-8595927.86	0.0520	0.0320
Venus	-28247-04-13 00:57 J	-8595691.65	-8595691.46	-8595691.27	0.0511	0.0169
Mercury	-28242-07-06 14:23 J	-8593781.08	-8593780.90	-8593780.73	0.0502	0.0073
Venus	-28241-02-07 18:43 J	-8593564.92	-8593564.72	-8593564.53	0.0509	0.0202
Venus	-28241-10-02 09:35 J	-8593327.26	-8593327.10	-8593326.93	0.0518	0.0309
Mercury	-28236-02-23 17:02 J	-8591721.93	-8591721.79	-8591721.66	0.0525	0.0060
Venus	-28236-04-24 09:50 J	-8591662.19	-8591662.09	-8591662.00	0.0523	0.0457
Venus	-28236-12-17 01:55 J	-8591425.62	-8591425.42	-8591425.22	0.0514	0.0038
Venus	-28235-08-10 09:35 J	-8591189.13	-8591189.10	-8591189.07	0.0505	0.0496
Mercury	-28230-04-24 12:43 J	-8589471.12	-8589470.97	-8589470.82	0.0501	0.0249
Mercury	-28230-07-23 16:19 J	-8589380.90	-8589380.82	-8589380.74	0.0504	0.0447
Venus	-28230-10-13 12:14 J	-8589299.15	-8589298.99	-8589298.84	0.0507	0.0335
Venus	-28229-06-07 00:28 J	-8589061.68	-8589061.48	-8589061.28	0.0516	0.0164
Mercury	-28225-12-12 20:52 J	-8587411.76	-8587411.63	-8587411.50	0.0526	0.0083
Mercury	-28224-03-12 05:31 J	-8587322.29	-8587322.27	-8587322.25	0.0523	0.0513
Venus	-28224-08-22 02:38 J	-8587159.59	-8587159.39	-8587159.20	0.0517	0.0096
Venus	-28223-04-15 12:28 J	-8586923.11	-8586922.98	-8586922.85	0.0508	0.0377
Mercury	-28218-02-10 10:47 J	-8585161.14	-8585161.05	-8585160.96	0.0500	0.0427
Mercury	-28218-05-11 14:52 J	-8585071.02	-8585070.88	-8585070.73	0.0503	0.0274
Venus	-28218-06-18 06:28 J	-8585033.31	-8585033.23	-8585033.15	0.0505	0.0463
Mars	-28218-08-20 08:52 J	-8584970.38	-8584970.13	-8584969.87	0.0507	0.0189
Venus	-28217-02-10 16:19 J	-8584796.02	-8584795.82	-8584795.61	0.0513	0.0024
Mercury	-28213-10-01 00:43 J	-8583101.59	-8583101.47	-8583101.35	0.0527	0.0225

Mercury	-28213-12-29 09:07 J	-8583012.21	-8583012.12	-8583012.02	0.0523	0.0370
Venus	-28212-04-27 02:23 J	-8582893.58	-8582893.40	-8582893.22	0.0519	0.0231
Venus	-28212-12-19 14:09 J	-8582657.08	-8582656.91	-8582656.73	0.0510	0.0252
Moon	-28208-10-09 02:23 J	-8581267.62	-8581267.40	-8581267.18	0.0490	0.0219
Earth	-28208-10-09 04:19 J	-8581267.52	-8581267.32	-8581267.10	0.0490	0.0225 *
Mercury	-28206-02-27 14:09 J	-8580761.08	-8580760.91	-8580760.74	0.0503	0.0109
Venus	-28206-10-16 10:33 J	-8580530.26	-8580530.06	-8580529.85	0.0511	0.0115
Venus	-28205-06-10 03:35 J	-8580292.48	-8580292.35	-8580292.22	0.0520	0.0399
Mercury	-28201-07-20 03:50 J	-8578791.43	-8578791.34	-8578791.25	0.0527	0.0380
Mercury	-28201-10-17 11:59 J	-8578702.12	-8578702.00	-8578701.88	0.0524	0.0211
Venus	-28201-12-30 22:33 J	-8578627.70	-8578627.56	-8578627.43	0.0521	0.0372
Venus	-28200-08-24 12:28 J	-8578391.17	-8578390.98	-8578390.79	0.0512	0.0118
Earth	-28196-10-13 14:23 J	-8576880.10	-8576879.90	-8576879.69	0.0491	0.0237
Moon	-28196-10-13 14:38 J	-8576880.08	-8576879.89	-8576879.70	0.0491	0.0266 *
Mercury	-28195-12-16 12:57 J	-8576451.13	-8576450.96	-8576450.79	0.0502	0.0063
Venus	-28194-06-21 04:19 J	-8576264.50	-8576264.32	-8576264.14	0.0508	0.0251
Venus	-28193-02-13 18:43 J	-8576026.90	-8576026.72	-8576026.54	0.0517	0.0256
Mercury	-28189-08-05 15:21 J	-8574391.99	-8574391.86	-8574391.73	0.0525	0.0059
Venus	-28189-09-04 19:26 J	-8574361.74	-8574361.69	-8574361.65	0.0524	0.0510
Mars	-28189-11-14 00:28 J	-8574291.70	-8574291.48	-8574291.26	0.0521	0.0302
Venus	-28188-04-29 11:59 J	-8574125.20	-8574125.00	-8574124.80	0.0515	0.0020
Venus	-28188-12-21 20:23 J	-8573888.74	-8573888.65	-8573888.56	0.0506	0.0446
Mercury	-28183-10-04 10:47 J	-8572141.20	-8572141.05	-8572140.89	0.0501	0.0245
Mercury	-28182-01-02 14:38 J	-8572050.97	-8572050.89	-8572050.82	0.0504	0.0452
Venus	-28182-02-23 20:52 J	-8571998.76	-8571998.63	-8571998.49	0.0506	0.0385
Mars	-28182-05-26 04:47 J	-8571907.55	-8571907.30	-8571907.05	0.0509	0.0222
Venus	-28182-10-19 08:09 J	-8571761.36	-8571761.16	-8571760.95	0.0514	0.0109
Moon	-28178-04-09 11:02 J	-8570493.25	-8570493.04	-8570492.82	0.0537	0.0204
Earth	-28178-04-09 15:07 J	-8570493.08	-8570492.87	-8570492.66	0.0537	0.0209 *
Mercury	-28177-05-24 18:43 J	-8570081.85	-8570081.72	-8570081.58	0.0526	0.0092



Mercury	-28177-08-22 03:21 J	-8569992.39	-8569992.36	-8569992.33	0.0523	0.0506
Venus	-28176-01-02 11:31 J	-8569859.21	-8569859.02	-8569858.83	0.0518	0.0153
Venus	-28176-08-26 22:19 J	-8569622.72	-8569622.57	-8569622.41	0.0509	0.0325
Mercury	-28171-07-23 09:07 J	-8567831.21	-8567831.12	-8567831.03	0.0500	0.0422
Mercury	-28171-10-21 13:11 J	-8567741.09	-8567740.95	-8567740.81	0.0503	0.0278
Venus	-28170-06-23 23:59 J	-8567495.71	-8567495.50	-8567495.30	0.0512	0.0035
Venus	-28169-02-16 17:16 J	-8567257.85	-8567257.78	-8567257.69	0.0521	0.0480
Earth	-28166-04-14 17:02 J	-8566104.95	-8566104.79	-8566104.64	0.0536	0.0396
Moon	-28166-04-14 19:40 J	-8566104.84	-8566104.68	-8566104.52	0.0536	0.0366 *
Mercury	-28165-03-12 22:47 J	-8565771.67	-8565771.55	-8565771.44	0.0527	0.0233
Mercury	-28165-06-10 07:11 J	-8565682.30	-8565682.20	-8565682.11	0.0524	0.0363
Venus	-28165-09-07 11:02 J	-8565593.20	-8565593.04	-8565592.87	0.0520	0.0288
Venus	-28164-05-02 00:28 J	-8565356.66	-8565356.48	-8565356.30	0.0511	0.0199
Mercury	-28159-08-09 11:31 J	-8563431.19	-8563431.02	-8563430.85	0.0502	0.0103
Venus	-28158-02-26 16:33 J	-8563230.01	-8563229.81	-8563229.62	0.0510	0.0172
Venus	-28158-10-22 07:55 J	-8562992.32	-8562992.17	-8562992.01	0.0519	0.0338
Mercury	-28154-12-31 02:38 J	-8561461.48	-8561461.39	-8561461.30	0.0527	0.0374
Mercury	-28153-03-29 10:47 J	-8561372.17	-8561372.05	-8561371.93	0.0524	0.0219
Venus	-28153-05-13 09:50 J	-8561327.21	-8561327.09	-8561326.98	0.0523	0.0424
Mars	-28153-08-20 07:55 J	-8561228.43	-8561228.17	-8561227.91	0.0519	0.0143
Venus	-28152-01-05 01:26 J	-8561090.64	-8561090.44	-8561090.25	0.0514	0.0069
Mercury	-28147-05-28 10:33 J	-8559121.23	-8559121.06	-8559120.88	0.0502	0.0066
Venus	-28147-11-01 11:31 J	-8558964.18	-8558964.02	-8558963.85	0.0507	0.0304
Venus	-28146-06-27 00:43 J	-8558726.66	-8558726.47	-8558726.28	0.0516	0.0197
Mercury	-28142-10-19 05:59 J	-8557151.26	-8557151.25	-8557151.24	0.0528	0.0524
Mercury	-28141-01-16 13:55 J	-8557062.05	-8557061.92	-8557061.79	0.0525	0.0063
Venus	-28141-09-09 23:02 J	-8556824.73	-8556824.54	-8556824.34	0.0516	0.0071
Venus	-28140-05-04 08:09 J	-8556588.28	-8556588.16	-8556588.03	0.0507	0.0398
Mercury	-28135-03-16 09:07 J	-8554811.27	-8554811.12	-8554810.96	0.0501	0.0239
Mercury	-28135-06-14 12:57 J	-8554721.03	-8554720.96	-8554720.89	0.0504	0.0459

Venus	-28135-07-07 05:59 J	-8554698.35	-8554698.25	-8554698.14	0.0505	0.0433
Venus	-28134-03-01 16:47 J	-8554461.01	-8554460.80	-8554460.60	0.0514	0.0054
Mercury	-28130-11-04 17:16 J	-8552751.91	-8552751.78	-8552751.65	0.0525	0.0089
Mercury	-28129-02-02 01:40 J	-8552662.46	-8552662.43	-8552662.40	0.0522	0.0506
Venus	-28129-05-15 21:21 J	-8552558.79	-8552558.61	-8552558.42	0.0518	0.0208
Venus	-28128-01-07 08:52 J	-8552322.30	-8552322.13	-8552321.96	0.0510	0.0272
Earth	-28125-10-08 07:26 J	-8550952.37	-8550952.19	-8550952.00	0.0490	0.0304
Moon	-28125-10-08 07:55 J	-8550952.36	-8550952.17	-8550951.99	0.0490	0.0294 *
Mercury	-28123-01-02 06:57 J	-8550501.30	-8550501.21	-8550501.11	0.0500	0.0421
Mercury	-28123-04-02 11:02 J	-8550411.18	-8550411.04	-8550410.89	0.0503	0.0280
Venus	-28123-11-04 07:26 J	-8550195.39	-8550195.19	-8550194.98	0.0511	0.0089
Venus	-28122-06-29 23:45 J	-8549957.62	-8549957.51	-8549957.38	0.0520	0.0423
Mercury	-28118-08-23 20:38 J	-8548441.76	-8548441.64	-8548441.52	0.0527	0.0240
Mercury	-28118-11-21 05:02 J	-8548352.39	-8548352.29	-8548352.19	0.0524	0.0354
Venus	-28117-01-19 19:11 J	-8548292.84	-8548292.70	-8548292.55	0.0521	0.0346
Venus	-28117-09-12 09:50 J	-8548056.28	-8548056.09	-8548055.90	0.0512	0.0143
Earth	-28113-10-12 17:45 J	-8546564.98	-8546564.76	-8546564.53	0.0491	0.0157
Moon	-28113-10-12 19:26 J	-8546564.91	-8546564.69	-8546564.45	0.0491	0.0183 *
Mercury	-28111-01-19 09:35 J	-8546101.27	-8546101.10	-8546100.93	0.0502	0.0105
Venus	-28111-07-10 00:14 J	-8545929.68	-8545929.49	-8545929.30	0.0508	0.0226
Venus	-28110-03-04 14:09 J	-8545692.09	-8545691.91	-8545691.74	0.0517	0.0278
Mercury	-28106-06-12 00:28 J	-8544131.57	-8544131.48	-8544131.39	0.0528	0.0383
Mercury	-28106-09-09 08:38 J	-8544042.26	-8544042.14	-8544042.02	0.0525	0.0210
Venus	-28106-09-24 17:31 J	-8544026.84	-8544026.77	-8544026.69	0.0524	0.0480
Venus	-28105-05-18 10:33 J	-8543790.26	-8543790.06	-8543789.86	0.0515	0.0014
Venus	-28104-01-09 18:57 J	-8543553.77	-8543553.71	-8543553.64	0.0506	0.0472
Mercury	-28100-11-07 07:55 J	-8541791.35	-8541791.17	-8541791.00	0.0502	0.0075
Mars	-28099-02-07 11:59 J	-8541699.08	-8541699.00	-8541698.92	0.0505	0.0482
Venus	-28099-03-14 17:31 J	-8541663.91	-8541663.77	-8541663.62	0.0506	0.0358
Venus	-28099-11-07 05:16 J	-8541426.48	-8541426.28	-8541426.08	0.0515	0.0136

Earth	-28095-04-08 17:45 J	-8540177.95	-8540177.76	-8540177.57	0.0538	0.0307
Moon	-28095-04-08 20:52 J	-8540177.81	-8540177.63	-8540177.44	0.0538	0.0306 *
Mercury	-28094-03-31 04:33 J	-8539821.32	-8539821.31	-8539821.30	0.0528	0.0524
Mercury	-28094-06-28 12:28 J	-8539732.11	-8539731.98	-8539731.85	0.0525	0.0066
Venus	-28093-01-22 10:33 J	-8539524.25	-8539524.06	-8539523.86	0.0517	0.0122
Venus	-28093-09-14 21:07 J	-8539287.77	-8539287.62	-8539287.48	0.0508	0.0350
Mercury	-28088-08-26 06:28 J	-8537481.38	-8537481.23	-8537481.07	0.0501	0.0245
Venus	-28088-11-17 13:26 J	-8537397.99	-8537397.94	-8537397.88	0.0504	0.0482
Mercury	-28088-11-24 10:19 J	-8537391.14	-8537391.07	-8537390.99	0.0504	0.0453
Venus	-28087-07-12 22:33 J	-8537160.77	-8537160.56	-8537160.35	0.0512	0.0004
Venus	-28086-03-07 16:47 J	-8536922.83	-8536922.80	-8536922.75	0.0521	0.0509
Moon	-28083-04-13 17:45 J	-8535789.97	-8535789.76	-8535789.55	0.0536	0.0265
Earth	-28083-04-13 18:57 J	-8535789.90	-8535789.71	-8535789.52	0.0536	0.0296 *
Mercury	-28082-04-16 15:50 J	-8535421.97	-8535421.84	-8535421.71	0.0525	0.0087
Mercury	-28082-07-15 00:14 J	-8535332.52	-8535332.49	-8535332.46	0.0522	0.0507
Venus	-28082-09-27 07:55 J	-8535258.34	-8535258.17	-8535258.00	0.0519	0.0262
Venus	-28081-05-20 20:09 J	-8535021.83	-8535021.66	-8535021.47	0.0511	0.0222
Mercury	-28076-06-14 04:47 J	-8533171.39	-8533171.30	-8533171.20	0.0501	0.0421
Mercury	-28076-09-12 09:07 J	-8533081.26	-8533081.12	-8533080.97	0.0504	0.0283
Venus	-28075-03-17 15:35 J	-8532895.05	-8532894.85	-8532894.65	0.0510	0.0142
Venus	-28075-11-10 07:40 J	-8532657.32	-8532657.18	-8532657.03	0.0519	0.0367
Mercury	-28070-02-02 19:11 J	-8531111.82	-8531111.70	-8531111.58	0.0526	0.0238
Mercury	-28070-05-03 03:21 J	-8531022.46	-8531022.36	-8531022.26	0.0523	0.0355
Venus	-28070-06-02 05:02 J	-8530992.41	-8530992.29	-8530992.16	0.0522	0.0400
Venus	-28069-01-24 19:55 J	-8530755.86	-8530755.67	-8530755.47	0.0513	0.0089
Mercury	-28064-07-01 07:26 J	-8528771.36	-8528771.19	-8528771.02	0.0502	0.0103
Mars	-28064-11-13 00:43 J	-8528636.74	-8528636.47	-8528636.20	0.0507	0.0092
Venus	-28064-11-20 07:40 J	-8528629.35	-8528629.18	-8528629.00	0.0507	0.0278
Venus	-28063-07-15 20:38 J	-8528391.83	-8528391.64	-8528391.45	0.0516	0.0221
Mercury	-28059-11-21 22:19 J	-8526801.65	-8526801.57	-8526801.48	0.0528	0.0392

Mercury	-28058-02-19 06:28 J	-8526712.35	-8526712.23	-8526712.10	0.0524	0.0201
Venus	-28058-09-29 19:26 J	-8526489.89	-8526489.69	-8526489.49	0.0516	0.0045
Venus	-28057-05-23 04:47 J	-8526253.40	-8526253.30	-8526253.18	0.0507	0.0421
Mercury	-28052-04-19 05:45 J	-8524461.43	-8524461.26	-8524461.09	0.0501	0.0073
Venus	-28052-07-26 01:40 J	-8524363.55	-8524363.43	-8524363.30	0.0505	0.0407
Venus	-28051-03-20 11:45 J	-8524126.21	-8524126.01	-8524125.80	0.0513	0.0078
Mercury	-28047-12-08 10:19 J	-8522402.21	-8522402.07	-8522401.94	0.0525	0.0057
Venus	-28046-06-04 18:57 J	-8522223.89	-8522223.71	-8522223.52	0.0519	0.0179
Venus	-28045-01-27 06:43 J	-8521987.38	-8521987.22	-8521987.05	0.0510	0.0299
Earth	-28042-10-08 09:50 J	-8520637.23	-8520637.09	-8520636.94	0.0489	0.0387
Moon	-28042-10-08 11:16 J	-8520637.18	-8520637.03	-8520636.86	0.0489	0.0369 *
Mercury	-28040-02-05 03:50 J	-8520151.49	-8520151.34	-8520151.19	0.0501	0.0254
Mercury	-28040-05-06 07:26 J	-8520061.26	-8520061.19	-8520061.11	0.0504	0.0443
Venus	-28040-11-23 03:35 J	-8519860.56	-8519860.35	-8519860.14	0.0511	0.0063
Venus	-28039-07-18 20:23 J	-8519622.75	-8519622.65	-8519622.54	0.0520	0.0446
Mercury	-28035-09-26 14:09 J	-8518092.04	-8518091.91	-8518091.78	0.0526	0.0089
Mercury	-28035-12-24 22:33 J	-8518002.59	-8518002.56	-8518002.53	0.0523	0.0508
Mars	-28034-02-07 18:57 J	-8517957.96	-8517957.71	-8517957.46	0.0521	0.0199
Venus	-28034-02-07 17:59 J	-8517957.90	-8517957.75	-8517957.59	0.0521	0.0315 *
Venus	-28034-10-02 08:09 J	-8517721.35	-8517721.16	-8517720.97	0.0512	0.0171
Moon	-28030-10-12 17:02 J	-8516250.02	-8516249.79	-8516249.56	0.0490	0.0095
Earth	-28030-10-12 20:09 J	-8516249.89	-8516249.66	-8516249.42	0.0490	0.0073 *
Mercury	-28029-11-24 02:23 J	-8515841.49	-8515841.40	-8515841.31	0.0500	0.0427
Mercury	-28028-02-22 06:43 J	-8515751.37	-8515751.22	-8515751.08	0.0503	0.0276
Venus	-28028-07-28 21:35 J	-8515594.79	-8515594.60	-8515594.40	0.0509	0.0198
Mars	-28028-08-18 17:16 J	-8515573.99	-8515573.78	-8515573.55	0.0509	0.0313
Venus	-28027-03-23 12:14 J	-8515357.15	-8515356.99	-8515356.82	0.0518	0.0307
Mercury	-28023-07-15 17:31 J	-8513781.88	-8513781.77	-8513781.65	0.0526	0.0237
Mercury	-28023-10-13 01:55 J	-8513692.52	-8513692.42	-8513692.33	0.0523	0.0355
Venus	-28023-10-13 14:52 J	-8513691.98	-8513691.88	-8513691.78	0.0523	0.0453

Venus	-28022-06-07 06:57 J	-8513455.41	-8513455.21	-8513455.01	0.0514	0.0036
Venus	-28021-01-29 14:38 J	-8513218.94	-8513218.89	-8513218.85	0.0506	0.0490
Mercury	-28017-12-11 05:16 J	-8511441.45	-8511441.28	-8511441.11	0.0503	0.0103
Venus	-28016-04-02 15:50 J	-8511328.99	-8511328.84	-8511328.68	0.0507	0.0329
Venus	-28016-11-26 04:04 J	-8511091.53	-8511091.33	-8511091.13	0.0515	0.0165
Moon	-28012-04-07 14:52 J	-8509863.02	-8509862.88	-8509862.74	0.0537	0.0428
Earth	-28012-04-07 16:47 J	-8509862.94	-8509862.80	-8509862.66	0.0537	0.0423 *
Mercury	-28011-05-03 21:07 J	-8509471.71	-8509471.62	-8509471.54	0.0527	0.0387
Mercury	-28011-08-01 05:02 J	-8509382.41	-8509382.29	-8509382.17	0.0524	0.0203
Venus	-28010-02-10 05:45 J	-8509189.46	-8509189.26	-8509189.06	0.0517	0.0099
Venus	-28010-10-04 15:35 J	-8508952.98	-8508952.85	-8508952.71	0.0508	0.0369
Mercury	-28005-09-29 03:21 J	-8507131.53	-8507131.36	-8507131.18	0.0502	0.0077
Venus	-28005-12-06 09:35 J	-8507063.18	-8507063.10	-8507063.01	0.0504	0.0456
Venus	-28004-07-31 18:28 J	-8506825.94	-8506825.73	-8506825.52	0.0512	0.0022

# 28TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 28th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Moon	-28000-04-12 12:28 J	-8505475.20	-8505474.98	-8505474.77	0.0537	0.0122		
Earth	-28000-04-12 12:57 J	-8505475.18	-8505474.96	-8505474.74	0.0537	0.0152 *		
Mercury	-27999-05-20 08:09 J	-8505072.29	-8505072.16	-8505072.03	0.0525	0.0047		
Venus	-27999-10-16 03:21 J	-8504923.53	-8504923.36	-8504923.18	0.0520	0.0236		

Mars	-27999-11-13 09:21 J	-8504895.36	-8504895.11	-8504894.86	0.0519	0.0215
Venus	-27998-06-09 16:19 J	-8504686.99	-8504686.82	-8504686.64	0.0511	0.0245
Mercury	-27993-07-18 01:40 J	-8502821.58	-8502821.43	-8502821.28	0.0501	0.0253
Mercury	-27993-10-16 05:31 J	-8502731.35	-8502731.27	-8502731.19	0.0504	0.0444
Venus	-27992-04-05 11:02 J	-8502560.25	-8502560.04	-8502559.84	0.0510	0.0117
Venus	-27992-11-29 02:09 J	-8502322.54	-8502322.41	-8502322.27	0.0519	0.0388
Mercury	-27987-03-08 11:45 J	-8500762.14	-8500762.01	-8500761.88	0.0526	0.0101
Mercury	-27987-06-05 20:23 J	-8500672.69	-8500672.65	-8500672.61	0.0523	0.0496
Venus	-27987-06-21 01:40 J	-8500657.57	-8500657.43	-8500657.29	0.0523	0.0372
Venus	-27986-02-12 17:16 J	-8500420.97	-8500420.78	-8500420.59	0.0514	0.0116
Mercury	-27981-05-05 23:31 J	-8498511.60	-8498511.52	-8498511.43	0.0500	0.0435
Mercury	-27981-08-04 03:50 J	-8498421.49	-8498421.34	-8498421.19	0.0503	0.0266
Venus	-27981-12-09 03:35 J	-8498294.53	-8498294.35	-8498294.17	0.0507	0.0252
Venus	-27980-08-03 16:33 J	-8498056.99	-8498056.81	-8498056.63	0.0516	0.0245
Mercury	-27976-12-25 15:50 J	-8496451.96	-8496451.84	-8496451.73	0.0527	0.0242
Venus	-27975-02-23 23:31 J	-8496391.56	-8496391.52	-8496391.46	0.0525	0.0507
Mercury	-27975-03-24 23:59 J	-8496362.59	-8496362.50	-8496362.40	0.0524	0.0353
Venus	-27975-10-18 17:45 J	-8496154.96	-8496154.76	-8496154.56	0.0516	0.0017
Venus	-27974-06-12 02:52 J	-8495918.47	-8495918.38	-8495918.28	0.0507	0.0445
Mercury	-27969-05-23 02:38 J	-8494111.56	-8494111.39	-8494111.22	0.0502	0.0096
Venus	-27969-08-13 22:33 J	-8494028.69	-8494028.56	-8494028.42	0.0505	0.0380
Venus	-27968-04-08 09:21 J	-8493791.32	-8493791.11	-8493790.91	0.0514	0.0106
Mercury	-27964-10-13 19:26 J	-8492141.78	-8492141.69	-8492141.60	0.0527	0.0387
Mercury	-27963-01-11 03:21 J	-8492052.48	-8492052.36	-8492052.23	0.0524	0.0204
Venus	-27963-06-23 16:04 J	-8491889.01	-8491888.83	-8491888.63	0.0518	0.0153
Venus	-27962-02-15 03:07 J	-8491652.52	-8491652.37	-8491652.21	0.0509	0.0320
Moon	-27959-10-07 08:09 J	-8490322.23	-8490322.16	-8490322.07	0.0490	0.0455
Earth	-27959-10-07 11:16 J	-8490322.07	-8490322.03	-8490321.97	0.0490	0.0476 *
Mercury	-27957-03-11 01:11 J	-8489801.63	-8489801.45	-8489801.28	0.0502	0.0079
Venus	-27957-12-12 01:55 J	-8489525.63	-8489525.42	-8489525.21	0.0512	0.0034

Venus	-27956-08-06 19:11 J	-8489287.77	-8489287.70	-8489287.61	0.0521	0.0474
Mercury	-27952-10-30 06:57 J	-8487742.35	-8487742.21	-8487742.08	0.0525	0.0055
Venus	-27951-02-26 13:55 J	-8487623.08	-8487622.92	-8487622.75	0.0520	0.0290
Venus	-27951-10-21 03:35 J	-8487386.54	-8487386.35	-8487386.17	0.0512	0.0193
Earth	-27947-10-11 21:50 J	-8485934.82	-8485934.59	-8485934.35	0.0490	0.0018
Moon	-27947-10-12 01:55 J	-8485934.66	-8485934.42	-8485934.18	0.0490	0.0009 *
Mercury	-27946-12-28 23:16 J	-8485491.68	-8485491.53	-8485491.38	0.0501	0.0257
Mercury	-27945-03-28 03:07 J	-8485401.45	-8485401.37	-8485401.28	0.0504	0.0441
Mars	-27945-05-02 23:02 J	-8485365.70	-8485365.54	-8485365.37	0.0505	0.0398
Venus	-27945-08-16 18:14 J	-8485259.94	-8485259.74	-8485259.55	0.0509	0.0170
Venus	-27944-04-11 08:23 J	-8485022.31	-8485022.15	-8485021.99	0.0517	0.0331
Mercury	-27940-08-18 09:50 J	-8483432.22	-8483432.09	-8483431.96	0.0526	0.0106
Venus	-27940-11-01 09:50 J	-8483357.20	-8483357.09	-8483356.97	0.0524	0.0428
Mercury	-27940-11-15 18:14 J	-8483342.78	-8483342.74	-8483342.69	0.0523	0.0489
Venus	-27939-06-26 02:38 J	-8483120.59	-8483120.39	-8483120.19	0.0515	0.0062
Moon	-27935-10-16 05:02 J	-8481547.39	-8481547.29	-8481547.17	0.0491	0.0433
Earth	-27935-10-16 09:07 J	-8481547.21	-8481547.12	-8481547.02	0.0491	0.0449 *
Mercury	-27934-10-16 21:35 J	-8481181.68	-8481181.60	-8481181.51	0.0500	0.0433
Mercury	-27933-01-15 01:55 J	-8481091.57	-8481091.42	-8481091.27	0.0503	0.0268
Venus	-27933-04-21 11:45 J	-8480994.17	-8480994.01	-8480993.84	0.0506	0.0302
Venus	-27933-12-14 23:16 J	-8480756.72	-8480756.53	-8480756.33	0.0515	0.0189
Mercury	-27928-06-06 13:26 J	-8479122.05	-8479121.94	-8479121.82	0.0527	0.0253
Mercury	-27928-09-03 21:50 J	-8479032.69	-8479032.59	-8479032.49	0.0524	0.0342
Venus	-27927-03-01 02:23 J	-8478854.59	-8478854.40	-8478854.20	0.0517	0.0072
Venus	-27927-10-23 12:57 J	-8478618.08	-8478617.96	-8478617.83	0.0508	0.0395
Mercury	-27922-11-02 23:59 J	-8476781.67	-8476781.50	-8476781.33	0.0502	0.0089
Venus	-27922-12-26 05:31 J	-8476728.37	-8476728.27	-8476728.16	0.0504	0.0430
Venus	-27921-08-19 14:23 J	-8476491.10	-8476490.90	-8476490.69	0.0512	0.0049
Earth	-27917-04-11 13:26 J	-8475160.17	-8475159.94	-8475159.71	0.0537	0.0043
Moon	-27917-04-11 15:21 J	-8475160.09	-8475159.86	-8475159.62	0.0537	0.0015 *

Mercury	-27916-03-25 17:31 J	-8474811.86	-8474811.77	-8474811.68	0.0528	0.0393
Mercury	-27916-06-23 01:40 J	-8474722.56	-8474722.43	-8474722.31	0.0525	0.0199
Venus	-27916-11-04 02:09 J	-8474588.59	-8474588.41	-8474588.23	0.0520	0.0206
Venus	-27915-06-28 14:38 J	-8474352.05	-8474351.89	-8474351.71	0.0511	0.0272
Mercury	-27910-08-21 22:47 J	-8472471.73	-8472471.55	-8472471.38	0.0501	0.0084
Mars	-27909-02-06 08:52 J	-8472303.41	-8472303.13	-8472302.86	0.0507	0.0012
Venus	-27909-04-24 08:09 J	-8472225.37	-8472225.16	-8472224.96	0.0510	0.0089
Venus	-27909-12-17 23:59 J	-8471987.62	-8471987.50	-8471987.37	0.0519	0.0414
Mercury	-27904-04-11 05:16 J	-8470412.41	-8470412.28	-8470412.15	0.0525	0.0053
Venus	-27904-07-09 23:59 J	-8470322.65	-8470322.50	-8470322.35	0.0522	0.0342
Venus	-27903-03-03 14:52 J	-8470086.07	-8470085.88	-8470085.69	0.0513	0.0142
Mercury	-27898-06-09 21:07 J	-8468161.77	-8468161.62	-8468161.47	0.0501	0.0259
Mercury	-27898-09-08 00:57 J	-8468071.54	-8468071.46	-8468071.37	0.0504	0.0440
Venus	-27898-12-29 01:40 J	-8467959.61	-8467959.43	-8467959.24	0.0508	0.0223
Venus	-27897-08-22 15:21 J	-8467722.03	-8467721.86	-8467721.68	0.0517	0.0275
Mercury	-27892-01-28 08:38 J	-8466102.27	-8466102.14	-8466102.01	0.0526	0.0098
Venus	-27892-03-14 20:52 J	-8466056.70	-8466056.63	-8466056.54	0.0524	0.0478
Mercury	-27892-04-27 17:02 J	-8466012.82	-8466012.79	-8466012.75	0.0523	0.0497
Venus	-27892-11-06 14:23 J	-8465820.10	-8465819.90	-8465819.70	0.0515	0.0010
Venus	-27891-06-30 22:47 J	-8465583.62	-8465583.55	-8465583.47	0.0507	0.0464
Mercury	-27886-03-28 19:26 J	-8463851.78	-8463851.69	-8463851.61	0.0500	0.0435
Mercury	-27886-06-26 23:45 J	-8463761.66	-8463761.51	-8463761.36	0.0503	0.0267
Venus	-27886-09-02 19:55 J	-8463693.82	-8463693.67	-8463693.52	0.0505	0.0350
Venus	-27885-04-27 06:14 J	-8463456.44	-8463456.24	-8463456.04	0.0514	0.0134
Mercury	-27881-11-16 11:45 J	-8461792.13	-8461792.01	-8461791.90	0.0527	0.0257
Mercury	-27880-02-13 19:55 J	-8461702.77	-8461702.67	-8461702.57	0.0524	0.0337
Mars	-27880-05-02 21:21 J	-8461624.87	-8461624.61	-8461624.34	0.0521	0.0127
Venus	-27880-07-12 11:45 J	-8461554.20	-8461554.01	-8461553.82	0.0518	0.0126
Venus	-27879-03-05 23:31 J	-8461317.67	-8461317.52	-8461317.38	0.0510	0.0345
Mercury	-27874-04-14 22:19 J	-8459451.74	-8459451.57	-8459451.40	0.0502	0.0095



Venus	-27874-05-08 14:52 J	-8459427.94	-8459427.88	-8459427.80	0.0503	0.0474
Mars	-27874-11-12 02:38 J	-8459240.55	-8459240.39	-8459240.20	0.0509	0.0392
Venus	-27874-12-31 22:33 J	-8459190.77	-8459190.56	-8459190.35	0.0511	0.0008
Venus	-27873-08-25 15:07 J	-8458952.92	-8458952.87	-8458952.81	0.0520	0.0496
Mercury	-27869-09-04 15:21 J	-8457481.94	-8457481.86	-8457481.77	0.0528	0.0403
Mercury	-27869-12-02 23:31 J	-8457392.64	-8457392.52	-8457392.40	0.0525	0.0190
Venus	-27868-03-17 10:19 J	-8457288.24	-8457288.07	-8457287.89	0.0521	0.0262
Venus	-27868-11-09 00:43 J	-8457051.65	-8457051.47	-8457051.29	0.0512	0.0220
Moon	-27864-10-10 22:04 J	-8455619.81	-8455619.58	-8455619.34	0.0490	0.0071
Earth	-27864-10-11 02:09 J	-8455619.64	-8455619.41	-8455619.17	0.0490	0.0092 *
Mercury	-27862-01-31 20:23 J	-8455141.82	-8455141.65	-8455141.48	0.0501	0.0086
Venus	-27862-09-05 14:38 J	-8454925.09	-8454924.89	-8454924.69	0.0509	0.0143
Venus	-27861-04-30 05:02 J	-8454687.44	-8454687.29	-8454687.14	0.0518	0.0356
Mercury	-27857-09-21 03:21 J	-8453082.49	-8453082.36	-8453082.23	0.0526	0.0048
Venus	-27857-11-20 08:52 J	-8453022.25	-8453022.13	-8453022.00	0.0524	0.0397
Venus	-27856-07-15 01:40 J	-8452785.63	-8452785.43	-8452785.23	0.0515	0.0091
Earth	-27852-10-15 12:28 J	-8451232.13	-8451231.98	-8451231.82	0.0491	0.0368
Moon	-27852-10-15 15:50 J	-8451232.00	-8451231.84	-8451231.68	0.0491	0.0352 *
Mercury	-27851-11-19 18:57 J	-8450831.86	-8450831.71	-8450831.56	0.0501	0.0259
Mercury	-27850-02-17 22:47 J	-8450741.63	-8450741.55	-8450741.46	0.0503	0.0439
Venus	-27850-05-11 09:07 J	-8450659.29	-8450659.12	-8450658.94	0.0506	0.0274
Venus	-27849-01-03 21:07 J	-8450421.81	-8450421.62	-8450421.43	0.0515	0.0217
Mercury	-27845-07-10 07:11 J	-8448772.33	-8448772.20	-8448772.07	0.0526	0.0096
Mercury	-27845-10-07 15:35 J	-8448682.89	-8448682.85	-8448682.81	0.0523	0.0499
Mars	-27844-02-06 05:31 J	-8448561.48	-8448561.27	-8448561.05	0.0518	0.0315
Venus	-27844-03-20 01:26 J	-8448519.64	-8448519.44	-8448519.24	0.0517	0.0041
Venus	-27844-11-11 11:02 J	-8448283.14	-8448283.04	-8448282.92	0.0508	0.0419
Mercury	-27839-09-07 17:02 J	-8446521.87	-8446521.79	-8446521.70	0.0500	0.0436
Mercury	-27839-12-06 21:35 J	-8446431.74	-8446431.60	-8446431.45	0.0503	0.0267
Venus	-27838-01-14 04:04 J	-8446393.46	-8446393.33	-8446393.21	0.0504	0.0400

Venus	-27838-09-08 13:40 J	-8446156.13	-8446155.93	-8446155.72	0.0513	0.0079
Moon	-27834-04-11 13:26 J	-8444845.16	-8444844.94	-8444844.72	0.0537	0.0088
Earth	-27834-04-11 16:19 J	-8444845.05	-8444844.82	-8444844.59	0.0537	0.0056 *
Mercury	-27833-04-28 10:47 J	-8444462.16	-8444462.05	-8444461.93	0.0527	0.0243
Mercury	-27833-07-26 18:57 J	-8444372.81	-8444372.71	-8444372.61	0.0524	0.0350
Venus	-27833-11-22 23:59 J	-8444253.69	-8444253.50	-8444253.31	0.0519	0.0177
Venus	-27832-07-17 11:59 J	-8444017.16	-8444017.00	-8444016.83	0.0510	0.0296
Mercury	-27827-09-24 20:23 J	-8442121.82	-8442121.65	-8442121.48	0.0502	0.0095
Venus	-27826-05-14 06:28 J	-8441890.44	-8441890.23	-8441890.03	0.0510	0.0058
Venus	-27825-01-06 22:04 J	-8441652.68	-8441652.58	-8441652.47	0.0519	0.0442
Earth	-27822-04-16 11:31 J	-8440457.08	-8440457.02	-8440456.95	0.0536	0.0514
Moon	-27822-04-16 15:21 J	-8440456.89	-8440456.86	-8440456.83	0.0536	0.0530
Mercury	-27821-02-15 13:40 J	-8440152.01	-8440151.93	-8440151.84	0.0528	0.0404
Mercury	-27821-05-14 21:50 J	-8440062.71	-8440062.59	-8440062.47	0.0525	0.0188
Venus	-27821-07-28 19:40 J	-8439987.83	-8439987.68	-8439987.52	0.0522	0.0315
Venus	-27820-03-22 11:16 J	-8439751.22	-8439751.03	-8439750.84	0.0513	0.0169
Mercury	-27815-07-13 18:57 J	-8437811.88	-8437811.71	-8437811.53	0.0501	0.0077
Venus	-27814-01-16 23:59 J	-8437624.69	-8437624.50	-8437624.31	0.0507	0.0191
Venus	-27814-09-11 12:57 J	-8437387.12	-8437386.96	-8437386.79	0.0516	0.0303
Mercury	-27809-03-03 01:26 J	-8435752.57	-8435752.44	-8435752.31	0.0526	0.0041
Venus	-27809-04-02 17:16 J	-8435721.88	-8435721.78	-8435721.68	0.0525	0.0450
Venus	-27809-11-25 11:16 J	-8435485.23	-8435485.03	-8435484.83	0.0516	0.0039
Venus	-27808-07-19 20:38 J	-8435248.68	-8435248.64	-8435248.59	0.0507	0.0491
Mercury	-27803-05-01 17:02 J	-8433501.94	-8433501.79	-8433501.64	0.0500	0.0257
Mercury	-27803-07-30 20:52 J	-8433411.71	-8433411.63	-8433411.55	0.0503	0.0440
Venus	-27803-09-21 17:31 J	-8433358.93	-8433358.77	-8433358.61	0.0505	0.0322
Venus	-27802-05-17 03:50 J	-8433121.54	-8433121.34	-8433121.14	0.0514	0.0161
Mercury	-27798-12-21 05:16 J	-8431442.41	-8431442.28	-8431442.15	0.0527	0.0102
Mercury	-27797-03-19 13:55 J	-8431352.96	-8431352.92	-8431352.88	0.0523	0.0496
Venus	-27797-07-31 11:31 J	-8431219.22	-8431219.02	-8431218.83	0.0518	0.0094

Venus	-27796-03-24 23:02 J	-8430982.67	-8430982.54	-8430982.40	0.0509	0.0373
Mercury	-27791-02-17 15:21 J	-8429191.95	-8429191.86	-8429191.77	0.0500	0.0431
Mercury	-27791-05-18 19:40 J	-8429101.82	-8429101.68	-8429101.53	0.0503	0.0271
Venus	-27791-05-27 12:57 J	-8429093.05	-8429092.96	-8429092.86	0.0503	0.0445
Mars	-27791-07-27 14:52 J	-8429032.09	-8429031.88	-8429031.66	0.0505	0.0309
Venus	-27790-01-19 20:38 J	-8428855.84	-8428855.64	-8428855.43	0.0511	0.0026
Mercury	-27786-10-09 09:21 J	-8427132.23	-8427132.11	-8427131.99	0.0527	0.0241
Mercury	-27785-01-06 17:31 J	-8427042.87	-8427042.77	-8427042.67	0.0524	0.0352
Venus	-27785-04-05 10:47 J	-8426953.23	-8426953.05	-8426952.87	0.0521	0.0228
Venus	-27785-11-28 00:14 J	-8426716.66	-8426716.49	-8426716.31	0.0511	0.0249
Earth	-27781-10-10 06:43 J	-8425304.44	-8425304.22	-8425303.99	0.0490	0.0168
Moon	-27781-10-10 10:04 J	-8425304.30	-8425304.08	-8425303.86	0.0490	0.0149 *
Mercury	-27779-03-06 18:28 J	-8424791.90	-8424791.73	-8424791.56	0.0502	0.0098
Venus	-27779-09-24 14:23 J	-8424590.10	-8424589.90	-8424589.69	0.0509	0.0111
Venus	-27778-05-20 05:31 J	-8424352.40	-8424352.27	-8424352.13	0.0518	0.0387
Mercury	-27774-07-28 13:11 J	-8422822.04	-8422821.95	-8422821.87	0.0528	0.0387
Mercury	-27774-10-25 21:07 J	-8422732.74	-8422732.62	-8422732.50	0.0525	0.0205
Venus	-27774-12-10 08:23 J	-8422687.29	-8422687.15	-8422687.00	0.0523	0.0363
Venus	-27773-08-03 00:28 J	-8422450.67	-8422450.48	-8422450.29	0.0514	0.0121
Moon	-27769-10-14 16:47 J	-8420916.99	-8420916.80	-8420916.59	0.0491	0.0276
Earth	-27769-10-14 18:43 J	-8420916.90	-8420916.72	-8420916.53	0.0491	0.0298 *
Mercury	-27768-12-23 17:16 J	-8420481.95	-8420481.78	-8420481.61	0.0501	0.0072
Venus	-27767-05-30 08:52 J	-8420324.31	-8420324.13	-8420323.95	0.0506	0.0239
Venus	-27766-01-22 20:38 J	-8420086.82	-8420086.64	-8420086.45	0.0515	0.0250
Mercury	-27762-08-13 23:59 J	-8418422.63	-8418422.50	-8418422.37	0.0526	0.0044
Venus	-27762-08-15 02:38 J	-8418421.44	-8418421.39	-8418421.33	0.0526	0.0501
Mars	-27762-10-21 10:47 J	-8418354.17	-8418354.05	-8418353.93	0.0523	0.0473
Venus	-27761-04-07 22:04 J	-8418184.78	-8418184.58	-8418184.38	0.0517	0.0013
Venus	-27761-11-30 08:23 J	-8417948.24	-8417948.15	-8417948.05	0.0508	0.0445
Mercury	-27756-10-11 15:50 J	-8416171.99	-8416171.84	-8416171.68	0.0500	0.0244

Mercury	-27755-01-09 19:55 J	-8416081.74	-8416081.67	-8416081.60	0.0503	0.0453
Venus	-27755-02-02 04:04 J	-8416058.47	-8416058.33	-8416058.19	0.0504	0.0365
Mars	-27755-05-02 07:40 J	-8415969.45	-8415969.18	-8415968.91	0.0507	0.0086
Venus	-27755-09-27 13:11 J	-8415821.15	-8415820.95	-8415820.75	0.0512	0.0111
Earth	-27751-04-10 12:14 J	-8414530.20	-8414529.99	-8414529.77	0.0538	0.0189
Moon	-27751-04-10 15:50 J	-8414530.05	-8414529.84	-8414529.62	0.0538	0.0215 *
Mercury	-27750-06-02 03:35 J	-8414112.48	-8414112.35	-8414112.22	0.0527	0.0105
Mercury	-27750-08-30 11:59 J	-8414023.04	-8414023.00	-8414022.96	0.0524	0.0491
Venus	-27750-12-12 20:52 J	-8413918.82	-8413918.63	-8413918.44	0.0520	0.0147
Venus	-27749-08-05 09:50 J	-8413682.24	-8413682.09	-8413681.93	0.0511	0.0325
Mercury	-27744-07-30 13:55 J	-8411862.01	-8411861.92	-8411861.83	0.0499	0.0424
Venus	-27744-10-07 22:47 J	-8411792.59	-8411792.55	-8411792.50	0.0502	0.0488
Mercury	-27744-10-28 18:14 J	-8411771.89	-8411771.74	-8411771.60	0.0502	0.0277
Venus	-27743-06-02 05:02 J	-8411555.50	-8411555.29	-8411555.09	0.0510	0.0029
Venus	-27742-01-25 20:23 J	-8411317.73	-8411317.65	-8411317.56	0.0519	0.0469
Moon	-27739-04-15 11:16 J	-8410142.16	-8410142.03	-8410141.89	0.0537	0.0437
Earth	-27739-04-15 14:52 J	-8410142.02	-8410141.88	-8410141.73	0.0537	0.0419 *
Mercury	-27738-03-21 07:40 J	-8409802.30	-8409802.18	-8409802.07	0.0528	0.0246
Mercury	-27738-06-18 15:50 J	-8409712.94	-8409712.84	-8409712.74	0.0524	0.0350
Venus	-27738-08-17 20:09 J	-8409652.83	-8409652.66	-8409652.49	0.0522	0.0281
Venus	-27737-04-10 11:31 J	-8409416.20	-8409416.02	-8409415.83	0.0513	0.0201
Mercury	-27732-08-16 17:02 J	-8407461.96	-8407461.79	-8407461.62	0.0502	0.0106
Venus	-27731-02-04 22:47 J	-8407289.74	-8407289.55	-8407289.35	0.0508	0.0161
Venus	-27731-09-30 12:28 J	-8407052.14	-8407051.98	-8407051.83	0.0517	0.0332
Mercury	-27726-01-07 11:45 J	-8405492.10	-8405492.01	-8405491.92	0.0528	0.0384
Mercury	-27726-04-06 19:40 J	-8405402.80	-8405402.68	-8405402.56	0.0525	0.0209
Venus	-27726-04-22 18:43 J	-8405386.84	-8405386.72	-8405386.60	0.0524	0.0414
Mars	-27726-07-28 05:16 J	-8405290.56	-8405290.28	-8405290.01	0.0521	0.0008
Venus	-27726-12-15 12:14 J	-8405150.18	-8405149.99	-8405149.79	0.0515	0.0072
Mercury	-27720-06-04 15:35 J	-8403152.03	-8403151.85	-8403151.68	0.0501	0.0068

Venus	-27720-10-10 17:45 J	-8403023.93	-8403023.76	-8403023.59	0.0506	0.0288
Mars	-27719-02-05 02:09 J	-8402906.46	-8402906.41	-8402906.33	0.0510	0.0495
Venus	-27719-06-05 04:47 J	-8402786.49	-8402786.30	-8402786.11	0.0514	0.0195
Mercury	-27715-10-26 15:35 J	-8401181.86	-8401181.85	-8401181.84	0.0529	0.0526
Mercury	-27714-01-23 23:31 J	-8401092.65	-8401092.52	-8401092.39	0.0526	0.0064
Venus	-27714-08-20 11:45 J	-8400884.21	-8400884.01	-8400883.81	0.0518	0.0061
Venus	-27713-04-12 22:47 J	-8400647.67	-8400647.55	-8400647.43	0.0509	0.0400
Mercury	-27708-03-23 14:23 J	-8398842.05	-8398841.90	-8398841.74	0.0500	0.0236
Venus	-27708-06-15 13:55 J	-8398758.04	-8398757.92	-8398757.80	0.0503	0.0409
Mercury	-27708-06-21 18:14 J	-8398751.80	-8398751.74	-8398751.67	0.0503	0.0462
Venus	-27707-02-07 21:50 J	-8398520.80	-8398520.59	-8398520.38	0.0511	0.0061
Mercury	-27703-11-12 02:09 J	-8396782.54	-8396782.41	-8396782.28	0.0527	0.0101
Mercury	-27702-02-09 10:33 J	-8396693.10	-8396693.06	-8396693.02	0.0523	0.0496
Venus	-27702-04-25 07:55 J	-8396618.35	-8396618.17	-8396617.99	0.0521	0.0198
Venus	-27702-12-17 21:35 J	-8396381.76	-8396381.60	-8396381.42	0.0512	0.0278
Moon	-27698-10-10 16:04 J	-8394989.05	-8394988.83	-8394988.60	0.0490	0.0206
Earth	-27698-10-10 17:59 J	-8394988.97	-8394988.75	-8394988.54	0.0490	0.0214 *
Mercury	-27696-01-09 12:57 J	-8394532.05	-8394531.96	-8394531.85	0.0500	0.0407
Mercury	-27696-04-09 17:31 J	-8394441.91	-8394441.77	-8394441.63	0.0502	0.0294
Venus	-27696-10-13 15:35 J	-8394255.05	-8394254.85	-8394254.64	0.0509	0.0074
Venus	-27695-06-08 05:59 J	-8394017.37	-8394017.25	-8394017.13	0.0518	0.0420
Mercury	-27691-08-31 05:59 J	-8392472.37	-8392472.25	-8392472.14	0.0528	0.0247
Mercury	-27691-11-28 14:09 J	-8392383.01	-8392382.91	-8392382.81	0.0524	0.0348
Venus	-27691-12-29 05:31 J	-8392352.42	-8392352.27	-8392352.12	0.0523	0.0334
Mars	-27690-05-02 23:45 J	-8392227.67	-8392227.51	-8392227.33	0.0519	0.0406
Venus	-27690-08-22 22:19 J	-8392115.76	-8392115.57	-8392115.38	0.0514	0.0151
Moon	-27686-10-15 03:21 J	-8390601.57	-8390601.36	-8390601.16	0.0490	0.0218
Earth	-27686-10-15 03:35 J	-8390601.55	-8390601.35	-8390601.14	0.0490	0.0245 *
Mercury	-27684-01-26 15:35 J	-8390132.02	-8390131.85	-8390131.68	0.0501	0.0117
Venus	-27684-06-18 08:38 J	-8389989.33	-8389989.14	-8389988.95	0.0506	0.0207

Venus	-27683-02-10 20:09 J	-8389751.83	-8389751.66	-8389751.48	0.0515	0.0280
Mercury	-27679-06-19 09:50 J	-8388162.17	-8388162.09	-8388162.00	0.0528	0.0387
Venus	-27679-09-03 03:35 J	-8388086.43	-8388086.35	-8388086.26	0.0526	0.0468
Mercury	-27679-09-16 17:59 J	-8388072.87	-8388072.75	-8388072.63	0.0525	0.0207
Venus	-27678-04-27 23:02 J	-8387849.73	-8387849.54	-8387849.34	0.0517	0.0024
Venus	-27678-12-20 09:21 J	-8387613.17	-8387613.11	-8387613.03	0.0508	0.0474
Mercury	-27673-11-14 14:23 J	-8385822.08	-8385821.90	-8385821.73	0.0501	0.0056
Venus	-27672-02-21 03:35 J	-8385723.50	-8385723.35	-8385723.19	0.0504	0.0334
Venus	-27672-10-16 12:57 J	-8385486.16	-8385485.96	-8385485.76	0.0513	0.0143
Moon	-27668-04-09 16:47 J	-8384214.99	-8384214.80	-8384214.60	0.0538	0.0284
Earth	-27668-04-09 20:23 J	-8384214.84	-8384214.65	-8384214.44	0.0538	0.0260 *
Mercury	-27667-04-07 14:09 J	-8383851.92	-8383851.91	-8383851.89	0.0529	0.0523
Mercury	-27667-07-05 22:04 J	-8383762.71	-8383762.58	-8383762.45	0.0526	0.0067
Venus	-27667-12-31 23:02 J	-8383583.73	-8383583.54	-8383583.34	0.0519	0.0111
Venus	-27666-08-25 11:16 J	-8383347.16	-8383347.03	-8383346.88	0.0510	0.0357
Mercury	-27661-09-02 12:43 J	-8381512.12	-8381511.97	-8381511.81	0.0500	0.0229
Venus	-27661-10-26 23:31 J	-8381457.60	-8381457.52	-8381457.43	0.0502	0.0454
Mercury	-27661-12-01 16:47 J	-8381421.86	-8381421.80	-8381421.74	0.0503	0.0468
Venus	-27660-06-21 06:28 J	-8381220.44	-8381220.23	-8381220.02	0.0511	0.0008
Venus	-27659-02-13 22:47 J	-8380982.59	-8380982.55	-8380982.50	0.0520	0.0503
Earth	-27656-04-14 23:31 J	-8379826.69	-8379826.52	-8379826.35	0.0537	0.0349
Moon	-27656-04-15 01:40 J	-8379826.58	-8379826.43	-8379826.26	0.0537	0.0380 *
Mercury	-27655-04-24 01:55 J	-8379452.55	-8379452.42	-8379452.29	0.0526	0.0077
Mercury	-27655-07-22 10:19 J	-8379363.08	-8379363.07	-8379363.06	0.0523	0.0519
Venus	-27655-09-05 21:50 J	-8379317.76	-8379317.59	-8379317.41	0.0522	0.0245
Venus	-27654-04-30 12:43 J	-8379081.15	-8379080.97	-8379080.80	0.0513	0.0233
Mercury	-27649-06-21 11:45 J	-8377202.12	-8377202.01	-8377201.90	0.0500	0.0397
Mercury	-27649-09-19 16:04 J	-8377111.96	-8377111.83	-8377111.69	0.0503	0.0305
Venus	-27648-02-24 01:11 J	-8376954.65	-8376954.45	-8376954.25	0.0508	0.0122
Venus	-27648-10-19 14:38 J	-8376717.02	-8376716.89	-8376716.74	0.0517	0.0370

Mercury	-27643-02-10 04:47 J	-8375142.42	-8375142.30	-8375142.18	0.0527	0.0238
Mercury	-27643-05-10 12:57 J	-8375053.06	-8375052.96	-8375052.86	0.0524	0.0356
Venus	-27643-05-11 16:33 J	-8375051.94	-8375051.81	-8375051.68	0.0524	0.0383
Venus	-27642-01-03 10:04 J	-8374815.27	-8374815.08	-8374814.88	0.0515	0.0102
Mercury	-27637-07-08 15:07 J	-8372802.03	-8372801.87	-8372801.70	0.0502	0.0139
Mars	-27637-10-21 04:47 J	-8372697.55	-8372697.30	-8372697.04	0.0505	0.0191
Venus	-27637-10-29 20:23 J	-8372688.83	-8372688.65	-8372688.47	0.0505	0.0250
Venus	-27636-06-24 06:57 J	-8372451.39	-8372451.21	-8372451.02	0.0514	0.0232
Mercury	-27632-11-29 08:23 J	-8370832.23	-8370832.15	-8370832.06	0.0528	0.0385
Venus	-27631-01-14 12:57 J	-8370785.99	-8370785.96	-8370785.92	0.0527	0.0518
Mercury	-27631-02-26 16:33 J	-8370742.93	-8370742.81	-8370742.69	0.0525	0.0208
Venus	-27631-09-08 09:35 J	-8370549.30	-8370549.10	-8370548.90	0.0518	0.0031
Venus	-27630-05-02 21:07 J	-8370312.72	-8370312.62	-8370312.51	0.0509	0.0430
Mercury	-27625-04-26 13:26 J	-8368492.12	-8368491.94	-8368491.77	0.0501	0.0041
Venus	-27625-07-04 14:23 J	-8368423.03	-8368422.90	-8368422.75	0.0503	0.0377
Venus	-27624-02-26 22:19 J	-8368185.77	-8368185.57	-8368185.36	0.0511	0.0093
Mercury	-27620-09-17 12:28 J	-8366521.99	-8366521.98	-8366521.96	0.0529	0.0524
Mercury	-27620-12-15 20:23 J	-8366432.78	-8366432.65	-8366432.52	0.0526	0.0067
Venus	-27619-05-14 09:21 J	-8366283.30	-8366283.11	-8366282.92	0.0521	0.0163
Venus	-27618-01-05 23:16 J	-8366046.69	-8366046.53	-8366046.37	0.0512	0.0309
Moon	-27615-10-10 02:23 J	-8364673.58	-8364673.40	-8364673.21	0.0489	0.0271
Earth	-27615-10-10 03:07 J	-8364673.57	-8364673.37	-8364673.17	0.0489	0.0267 *
Mercury	-27613-02-13 11:59 J	-8364182.16	-8364182.00	-8364181.85	0.0500	0.0214
Venus	-27613-03-09 10:33 J	-8364157.08	-8364157.06	-8364157.02	0.0501	0.0496
Mercury	-27613-05-13 15:50 J	-8364091.89	-8364091.84	-8364091.79	0.0503	0.0482
Venus	-27613-11-01 16:04 J	-8363920.04	-8363919.83	-8363919.62	0.0509	0.0042
Venus	-27612-06-27 06:43 J	-8363682.32	-8363682.22	-8363682.12	0.0518	0.0450
Mercury	-27608-10-04 00:28 J	-8362122.61	-8362122.48	-8362122.34	0.0527	0.0074
Mars	-27607-01-15 05:16 J	-8362019.49	-8362019.28	-8362019.07	0.0523	0.0332
Venus	-27607-01-17 08:38 J	-8362017.30	-8362017.14	-8362016.97	0.0523	0.0295

Venus	-27607-09-11 00:43 J	-8361780.65	-8361780.47	-8361780.28	0.0514	0.0186
Earth	-27603-10-14 12:43 J	-8360286.19	-8360285.97	-8360285.75	0.0490	0.0188
Moon	-27603-10-14 15:07 J	-8360286.10	-8360285.87	-8360285.64	0.0490	0.0158 *
Mercury	-27602-12-02 10:19 J	-8359872.18	-8359872.07	-8359871.96	0.0500	0.0388
Mercury	-27601-03-01 14:38 J	-8359782.02	-8359781.89	-8359781.75	0.0503	0.0313
Venus	-27601-07-07 10:19 J	-8359654.26	-8359654.07	-8359653.87	0.0507	0.0172
Mars	-27601-07-26 17:16 J	-8359635.03	-8359634.78	-8359634.53	0.0508	0.0202
Venus	-27600-03-01 22:47 J	-8359416.71	-8359416.55	-8359416.38	0.0516	0.0316
Mercury	-27596-07-23 04:33 J	-8357812.43	-8357812.31	-8357812.19	0.0527	0.0214
Venus	-27596-09-22 06:28 J	-8357751.34	-8357751.23	-8357751.11	0.0525	0.0429
Mercury	-27596-10-20 12:43 J	-8357723.06	-8357722.97	-8357722.88	0.0524	0.0380
Venus	-27595-05-17 01:11 J	-8357514.65	-8357514.45	-8357514.25	0.0516	0.0057
Venus	-27594-01-08 10:47 J	-8357278.07	-8357278.05	-8357278.02	0.0507	0.0503
Mercury	-27590-12-19 14:09 J	-8355472.08	-8355471.91	-8355471.75	0.0502	0.0150
Venus	-27589-03-12 06:28 J	-8355388.39	-8355388.23	-8355388.05	0.0505	0.0296
Venus	-27589-11-04 16:19 J	-8355151.01	-8355150.82	-8355150.62	0.0513	0.0183
Earth	-27585-04-08 23:02 J	-8353899.70	-8353899.54	-8353899.36	0.0538	0.0356
Moon	-27585-04-09 01:55 J	-8353899.58	-8353899.42	-8353899.25	0.0538	0.0369 *
Mercury	-27584-05-11 07:26 J	-8353502.28	-8353502.19	-8353502.10	0.0528	0.0374
Mercury	-27584-08-08 15:21 J	-8353412.98	-8353412.86	-8353412.74	0.0525	0.0218
Venus	-27583-01-19 21:21 J	-8353248.80	-8353248.61	-8353248.41	0.0519	0.0080
Venus	-27583-09-13 09:50 J	-8353012.22	-8353012.09	-8353011.96	0.0510	0.0384
Mercury	-27578-10-07 12:57 J	-8351162.13	-8351161.96	-8351161.78	0.0501	0.0019
Venus	-27578-11-16 03:07 J	-8351122.48	-8351122.37	-8351122.25	0.0502	0.0417
Venus	-27577-07-10 09:50 J	-8350885.30	-8350885.09	-8350884.88	0.0510	0.0048
Moon	-27573-04-13 22:19 J	-8349511.77	-8349511.57	-8349511.36	0.0537	0.0269
Earth	-27573-04-13 23:45 J	-8349511.72	-8349511.51	-8349511.31	0.0537	0.0240 *
Mercury	-27572-02-27 11:02 J	-8349192.05	-8349192.04	-8349192.01	0.0529	0.0521
Mercury	-27572-05-27 18:57 J	-8349102.84	-8349102.71	-8349102.58	0.0526	0.0070
Venus	-27572-09-24 19:40 J	-8348982.86	-8348982.68	-8348982.50	0.0522	0.0214



Mars	-27572-10-21 06:43 J	-8348956.48	-8348956.22	-8348955.95	0.0521	0.0099
Venus	-27571-05-19 10:47 J	-8348746.22	-8348746.05	-8348745.88	0.0513	0.0262
Mercury	-27566-07-26 11:02 J	-8346852.20	-8346852.04	-8346851.88	0.0500	0.0196
Mercury	-27566-10-24 14:52 J	-8346761.89	-8346761.88	-8346761.86	0.0503	0.0499
Venus	-27565-03-15 02:23 J	-8346619.61	-8346619.40	-8346619.20	0.0508	0.0088
Venus	-27565-11-07 15:35 J	-8346381.98	-8346381.85	-8346381.72	0.0517	0.0400
Mercury	-27560-03-15 23:02 J	-8344792.67	-8344792.54	-8344792.41	0.0527	0.0073
Venus	-27560-05-30 18:14 J	-8344716.89	-8344716.74	-8344716.59	0.0524	0.0349
Venus	-27559-01-22 11:59 J	-8344480.19	-8344480.00	-8344479.81	0.0515	0.0136
Mercury	-27554-05-14 09:21 J	-8342542.22	-8342542.11	-8342541.99	0.0499	0.0370
Mercury	-27554-08-12 13:40 J	-8342452.05	-8342451.93	-8342451.79	0.0502	0.0330
Venus	-27554-11-18 21:07 J	-8342353.81	-8342353.62	-8342353.44	0.0506	0.0218
Venus	-27553-07-13 07:40 J	-8342116.36	-8342116.18	-8342116.00	0.0514	0.0264
Mercury	-27548-01-02 03:07 J	-8340482.49	-8340482.37	-8340482.25	0.0528	0.0210
Venus	-27548-02-02 16:33 J	-8340450.88	-8340450.81	-8340450.73	0.0527	0.0480
Mercury	-27548-04-01 11:16 J	-8340393.11	-8340393.03	-8340392.94	0.0524	0.0386
Venus	-27548-09-27 12:43 J	-8340214.17	-8340213.97	-8340213.77	0.0518	0.0011
Venus	-27547-05-21 23:45 J	-8339977.59	-8339977.51	-8339977.42	0.0509	0.0461
Mercury	-27542-05-31 12:28 J	-8338142.14	-8338141.98	-8338141.81	0.0502	0.0158
Venus	-27542-07-24 16:19 J	-8338087.97	-8338087.82	-8338087.67	0.0504	0.0342
Venus	-27541-03-18 00:43 J	-8337850.67	-8337850.47	-8337850.26	0.0512	0.0130
Mercury	-27537-10-21 07:11 J	-8336172.30	-8336172.20	-8336172.10	0.0528	0.0350
Mercury	-27536-01-18 15:07 J	-8336082.98	-8336082.87	-8336082.75	0.0525	0.0243
Venus	-27536-06-02 12:14 J	-8335948.18	-8335947.99	-8335947.80	0.0520	0.0125
Venus	-27535-01-25 01:11 J	-8335711.59	-8335711.45	-8335711.29	0.0511	0.0343
Earth	-27532-10-09 14:09 J	-8334358.09	-8334357.91	-8334357.72	0.0489	0.0313
Moon	-27532-10-09 16:47 J	-8334357.98	-8334357.80	-8334357.61	0.0489	0.0323 *
Mercury	-27530-03-19 11:45 J	-8333832.18	-8333832.01	-8333831.83	0.0501	0.0010
Venus	-27530-03-29 13:55 J	-8333822.00	-8333821.92	-8333821.84	0.0501	0.0458
Venus	-27530-11-21 19:40 J	-8333584.89	-8333584.68	-8333584.47	0.0509	0.0005

Venus	-27529-07-16 10:47 J	-8333347.12	-8333347.05	-8333346.98	0.0518	0.0488
Mercury	-27525-08-09 10:04 J	-8331862.11	-8331862.08	-8331862.04	0.0529	0.0509
Mercury	-27525-11-06 17:59 J	-8331772.88	-8331772.75	-8331772.62	0.0526	0.0081
Venus	-27524-02-05 07:26 J	-8331682.36	-8331682.19	-8331682.02	0.0523	0.0264
Venus	-27524-09-29 23:16 J	-8331445.71	-8331445.53	-8331445.35	0.0514	0.0215
Moon	-27520-10-13 22:33 J	-8329970.79	-8329970.56	-8329970.34	0.0490	0.0120
Earth	-27520-10-14 01:55 J	-8329970.65	-8329970.42	-8329970.19	0.0490	0.0153 *
Mercury	-27518-01-05 10:47 J	-8329522.22	-8329522.05	-8329521.89	0.0500	0.0173
Mars	-27518-04-12 10:19 J	-8329425.19	-8329425.07	-8329424.94	0.0503	0.0444
Venus	-27518-07-27 14:23 J	-8329319.10	-8329318.90	-8329318.70	0.0507	0.0132
Venus	-27517-03-21 02:38 J	-8329081.54	-8329081.39	-8329081.24	0.0516	0.0353
Mercury	-27513-08-25 21:35 J	-8327462.73	-8327462.60	-8327462.47	0.0527	0.0068
Venus	-27513-10-11 04:19 J	-8327416.45	-8327416.32	-8327416.19	0.0525	0.0400
Venus	-27512-06-04 23:02 J	-8327179.74	-8327179.54	-8327179.35	0.0516	0.0086
Mercury	-27507-10-24 08:38 J	-8325212.26	-8325212.14	-8325212.01	0.0499	0.0352
Mercury	-27506-01-22 12:57 J	-8325122.08	-8325121.96	-8325121.83	0.0502	0.0347
Venus	-27506-04-01 07:55 J	-8325053.34	-8325053.17	-8325052.98	0.0504	0.0263
Venus	-27506-11-24 17:31 J	-8324815.96	-8324815.77	-8324815.58	0.0513	0.0215
Moon	-27502-04-09 02:23 J	-8323584.52	-8323584.40	-8323584.26	0.0538	0.0450
Earth	-27502-04-09 04:04 J	-8323584.45	-8323584.33	-8323584.19	0.0538	0.0442 *
Mercury	-27501-06-14 01:26 J	-8323152.56	-8323152.44	-8323152.32	0.0528	0.0211
Mercury	-27501-09-11 09:50 J	-8323063.18	-8323063.09	-8323063.00	0.0525	0.0386
Venus	-27500-02-07 23:02 J	-8322913.74	-8322913.54	-8322913.34	0.0519	0.0046
Venus	-27500-10-02 11:31 J	-8322677.13	-8322677.02	-8322676.90	0.0510	0.0415
Mercury	-27495-11-10 11:45 J	-8320812.18	-8320812.01	-8320811.85	0.0501	0.0175
Venus	-27495-12-05 03:35 J	-8320787.48	-8320787.35	-8320787.22	0.0502	0.0385
Venus	-27494-07-30 10:19 J	-8320550.27	-8320550.07	-8320549.86	0.0511	0.0080
Moon	-27490-04-14 08:09 J	-8319196.36	-8319196.16	-8319195.95	0.0538	0.0205
Earth	-27490-04-14 08:23 J	-8319196.36	-8319196.15	-8319195.93	0.0538	0.0173 *
Mercury	-27489-04-02 05:45 J	-8318842.36	-8318842.26	-8318842.16	0.0528	0.0347

Mercury	-27489-06-30 13:55 J	-8318753.04	-8318752.92	-8318752.81	0.0525	0.0247
Venus	-27489-10-13 23:02 J	-8318647.73	-8318647.54	-8318647.35	0.0521	0.0176
Venus	-27488-06-07 13:26 J	-8318411.09	-8318410.94	-8318410.77	0.0512	0.0297
Mercury	-27483-08-29 10:19 J	-8316502.25	-8316502.07	-8316501.90	0.0501	0.0005
Mars	-27482-01-15 16:33 J	-8316363.08	-8316362.81	-8316362.54	0.0506	0.0069
Venus	-27482-04-04 04:19 J	-8316284.52	-8316284.32	-8316284.11	0.0508	0.0054
Venus	-27482-11-27 18:14 J	-8316046.84	-8316046.74	-8316046.62	0.0517	0.0436
Mercury	-27477-01-20 09:50 J	-8314532.14	-8314532.09	-8314532.04	0.0529	0.0487
Mercury	-27477-04-18 17:45 J	-8314442.89	-8314442.76	-8314442.63	0.0526	0.0104
Venus	-27477-06-18 21:21 J	-8314381.76	-8314381.61	-8314381.45	0.0524	0.0310
Venus	-27476-02-10 14:23 J	-8314145.09	-8314144.90	-8314144.71	0.0515	0.0171
Mercury	-27471-06-17 09:21 J	-8312192.27	-8312192.11	-8312191.94	0.0500	0.0163
Venus	-27471-12-08 00:28 J	-8312018.68	-8312018.48	-8312018.29	0.0506	0.0179
Venus	-27470-08-02 11:45 J	-8311781.18	-8311781.01	-8311780.84	0.0515	0.0303
Mercury	-27465-02-05 20:38 J	-8310132.77	-8310132.64	-8310132.51	0.0526	0.0056
Venus	-27465-02-22 15:35 J	-8310115.95	-8310115.85	-8310115.74	0.0526	0.0449
Venus	-27465-10-16 11:16 J	-8309879.23	-8309879.03	-8309878.83	0.0517	0.0037
Venus	-27464-06-09 22:04 J	-8309642.63	-8309642.58	-8309642.52	0.0509	0.0487
Mercury	-27459-04-05 08:09 J	-8307882.29	-8307882.16	-8307882.03	0.0500	0.0331
Mercury	-27459-07-04 12:43 J	-8307792.09	-8307791.97	-8307791.86	0.0503	0.0369
Venus	-27459-08-12 20:23 J	-8307752.82	-8307752.65	-8307752.49	0.0504	0.0304
Venus	-27458-04-07 05:02 J	-8307515.49	-8307515.29	-8307515.10	0.0512	0.0169
Mercury	-27454-11-25 00:14 J	-8305822.61	-8305822.49	-8305822.37	0.0527	0.0205
Mercury	-27453-02-22 08:23 J	-8305733.24	-8305733.15	-8305733.06	0.0524	0.0389
Mars	-27453-04-10 08:23 J	-8305685.40	-8305685.15	-8305684.90	0.0523	0.0216
Venus	-27453-06-21 09:50 J	-8305613.29	-8305613.09	-8305612.90	0.0520	0.0097
Venus	-27452-02-12 23:02 J	-8305376.68	-8305376.54	-8305376.40	0.0511	0.0368
Moon	-27449-10-08 20:52 J	-8304042.78	-8304042.63	-8304042.48	0.0489	0.0375
Earth	-27449-10-09 00:28 J	-8304042.64	-8304042.48	-8304042.32	0.0489	0.0359 *
Venus	-27447-04-17 15:07 J	-8303486.98	-8303486.87	-8303486.76	0.0501	0.0427

Mercury	-27447-04-22 10:47 J	-8303482.21	-8303482.05	-8303481.89	0.0501	0.0192
Mars	-27447-10-21 11:45 J	-8303300.21	-8303300.01	-8303299.80	0.0508	0.0335
Venus	-27447-12-10 20:38 J	-8303249.85	-8303249.64	-8303249.43	0.0509	0.0031
Venus	-27446-08-05 11:31 J	-8303012.03	-8303012.02	-8303012.01	0.0518	0.0517
Mercury	-27442-09-13 04:04 J	-8301512.43	-8301512.33	-8301512.23	0.0528	0.0348
Mercury	-27442-12-11 12:14 J	-8301423.11	-8301422.99	-8301422.88	0.0525	0.0246
Venus	-27441-02-25 08:23 J	-8301347.32	-8301347.15	-8301346.97	0.0523	0.0231
Venus	-27441-10-19 00:28 J	-8301110.65	-8301110.48	-8301110.30	0.0514	0.0247
Earth	-27437-10-13 11:02 J	-8299655.27	-8299655.04	-8299654.81	0.0490	0.0099
Moon	-27437-10-13 14:52 J	-8299655.11	-8299654.88	-8299654.64	0.0490	0.0072 *
Mercury	-27435-02-08 09:21 J	-8299172.29	-8299172.11	-8299171.93	0.0501	0.0018
Venus	-27435-08-15 14:23 J	-8298984.10	-8298983.90	-8298983.69	0.0507	0.0101
Venus	-27434-04-10 02:38 J	-8298746.52	-8298746.39	-8298746.24	0.0516	0.0383
Mercury	-27430-07-02 08:23 J	-8297202.20	-8297202.15	-8297202.10	0.0529	0.0486
Mercury	-27430-09-29 16:04 J	-8297112.96	-8297112.83	-8297112.70	0.0526	0.0107
Venus	-27430-10-31 07:11 J	-8297081.34	-8297081.20	-8297081.05	0.0525	0.0363
Venus	-27429-06-24 01:40 J	-8296844.62	-8296844.43	-8296844.23	0.0516	0.0121
Mercury	-27424-11-27 07:40 J	-8294862.35	-8294862.18	-8294862.01	0.0500	0.0157
Venus	-27423-04-20 09:21 J	-8294718.30	-8294718.11	-8294717.93	0.0505	0.0228
Venus	-27423-12-13 19:26 J	-8294480.87	-8294480.69	-8294480.51	0.0514	0.0249
Earth	-27419-04-08 14:09 J	-8293268.99	-8293268.91	-8293268.83	0.0538	0.0503
Moon	-27419-04-08 14:09 J	-8293268.98	-8293268.91	-8293268.84	0.0538	0.0508 *
Venus	-27418-07-06 04:33 J	-8292815.37	-8292815.31	-8292815.24	0.0527	0.0495
Mercury	-27418-07-18 20:09 J	-8292802.79	-8292802.66	-8292802.53	0.0527	0.0036
Mars	-27417-01-16 05:31 J	-8292621.51	-8292621.27	-8292621.03	0.0520	0.0244
Venus	-27417-02-28 01:40 J	-8292578.63	-8292578.43	-8292578.23	0.0519	0.0009
Venus	-27417-10-21 13:26 J	-8292342.03	-8292341.94	-8292341.84	0.0510	0.0446
Mercury	-27412-09-15 06:43 J	-8290552.35	-8290552.22	-8290552.08	0.0500	0.0322
Mercury	-27412-12-14 11:02 J	-8290462.15	-8290462.04	-8290461.92	0.0503	0.0378
Venus	-27412-12-24 06:14 J	-8290452.39	-8290452.24	-8290452.09	0.0503	0.0349

Venus	-27411-08-18 13:55 J	-8290215.13	-8290214.92	-8290214.72	0.0511	0.0118
Earth	-27407-04-13 13:26 J	-8288881.17	-8288880.94	-8288880.72	0.0537	0.0088
Moon	-27407-04-13 15:21 J	-8288881.09	-8288880.86	-8288880.63	0.0537	0.0121 *
Mercury	-27406-05-06 23:02 J	-8288492.66	-8288492.54	-8288492.41	0.0527	0.0195
Mercury	-27406-08-04 07:11 J	-8288403.28	-8288403.20	-8288403.11	0.0524	0.0399
Venus	-27406-11-02 21:35 J	-8288312.79	-8288312.60	-8288312.41	0.0521	0.0147
Venus	-27405-06-26 11:31 J	-8288076.17	-8288076.02	-8288075.86	0.0512	0.0322
Mercury	-27400-07-04 05:16 J	-8286242.30	-8286242.28	-8286242.25	0.0499	0.0493
Venus	-27400-08-29 03:07 J	-8286186.44	-8286186.37	-8286186.30	0.0501	0.0467
Mercury	-27400-10-02 10:04 J	-8286152.23	-8286152.08	-8286151.92	0.0502	0.0211
Venus	-27399-04-23 08:09 J	-8285949.37	-8285949.16	-8285948.96	0.0509	0.0019
Venus	-27399-12-16 22:04 J	-8285711.66	-8285711.58	-8285711.49	0.0517	0.0470
Mercury	-27394-02-23 02:38 J	-8284182.48	-8284182.39	-8284182.29	0.0528	0.0343
Mercury	-27394-05-23 10:47 J	-8284093.17	-8284093.05	-8284092.94	0.0525	0.0249
Venus	-27394-07-08 18:43 J	-8284046.89	-8284046.72	-8284046.56	0.0523	0.0282
Venus	-27393-03-01 11:31 J	-8283810.21	-8283810.02	-8283809.84	0.0515	0.0197
Mercury	-27388-07-21 08:09 J	-8281842.33	-8281842.16	-8281841.98	0.0501	0.0035
Venus	-27388-12-27 00:43 J	-8281683.67	-8281683.47	-8281683.27	0.0506	0.0148
Venus	-27387-08-21 11:45 J	-8281446.16	-8281446.01	-8281445.84	0.0515	0.0333
Mercury	-27383-12-12 06:43 J	-8279872.27	-8279872.22	-8279872.18	0.0529	0.0487
Mercury	-27382-03-11 14:23 J	-8279783.03	-8279782.90	-8279782.77	0.0526	0.0103
Venus	-27382-03-13 15:50 J	-8279780.96	-8279780.84	-8279780.72	0.0526	0.0417
Venus	-27382-11-05 11:45 J	-8279544.21	-8279544.01	-8279543.81	0.0517	0.0068
Mercury	-27376-05-09 06:43 J	-8277532.39	-8277532.22	-8277532.05	0.0500	0.0143
Venus	-27376-08-31 19:40 J	-8277417.85	-8277417.68	-8277417.51	0.0504	0.0274
Venus	-27375-04-26 04:04 J	-8277180.52	-8277180.33	-8277180.13	0.0512	0.0197
Mercury	-27371-12-28 18:28 J	-8275472.86	-8275472.73	-8275472.60	0.0527	0.0037
Venus	-27370-07-11 11:45 J	-8275278.21	-8275278.01	-8275277.81	0.0520	0.0061
Venus	-27369-03-04 00:43 J	-8275041.58	-8275041.47	-8275041.34	0.0511	0.0400
Earth	-27366-10-09 07:55 J	-8273727.28	-8273727.17	-8273727.04	0.0489	0.0419

Moon	-27366-10-09 11:59 J	-8273727.10	-8273727.00	-8273726.89	0.0489	0.0435 *
Mercury	-27364-02-25 04:47 J	-8273222.44	-8273222.30	-8273222.16	0.0500	0.0320
Venus	-27364-05-06 15:07 J	-8273151.99	-8273151.87	-8273151.74	0.0502	0.0395
Mercury	-27364-05-26 09:07 J	-8273132.23	-8273132.12	-8273132.00	0.0502	0.0380
Mars	-27364-07-06 16:47 J	-8273091.00	-8273090.80	-8273090.59	0.0504	0.0332
Venus	-27364-12-29 21:21 J	-8272914.82	-8272914.61	-8272914.41	0.0510	0.0064
Mercury	-27359-10-16 22:33 J	-8271162.69	-8271162.56	-8271162.44	0.0527	0.0178
Mercury	-27358-01-14 06:43 J	-8271073.30	-8271073.22	-8271073.14	0.0524	0.0416
Venus	-27358-03-16 10:47 J	-8271012.24	-8271012.05	-8271011.87	0.0522	0.0194
Venus	-27358-11-08 02:09 J	-8270775.58	-8270775.41	-8270775.24	0.0513	0.0278
Moon	-27354-10-13 16:19 J	-8269340.06	-8269339.82	-8269339.58	0.0490	0.0018
Earth	-27354-10-13 19:40 J	-8269339.91	-8269339.68	-8269339.44	0.0490	0.0045 *
Mercury	-27353-12-14 03:35 J	-8268912.38	-8268912.35	-8268912.31	0.0499	0.0487
Mercury	-27352-03-14 08:23 J	-8268822.30	-8268822.15	-8268821.99	0.0502	0.0217
Venus	-27352-09-03 16:47 J	-8268649.01	-8268648.80	-8268648.60	0.0508	0.0065
Venus	-27351-04-29 05:45 J	-8268411.38	-8268411.26	-8268411.14	0.0516	0.0418
Mercury	-27347-08-05 01:40 J	-8266852.53	-8266852.43	-8266852.33	0.0528	0.0333
Mercury	-27347-11-02 09:35 J	-8266763.22	-8266763.10	-8266762.98	0.0525	0.0257
Venus	-27347-11-19 05:31 J	-8266746.42	-8266746.27	-8266746.11	0.0524	0.0333
Venus	-27346-07-13 23:16 J	-8266509.72	-8266509.53	-8266509.33	0.0516	0.0148
Mercury	-27341-12-31 07:11 J	-8264512.37	-8264512.20	-8264512.02	0.0501	0.0049
Venus	-27340-05-09 11:45 J	-8264383.20	-8264383.01	-8264382.82	0.0505	0.0193
Venus	-27339-01-01 22:19 J	-8264145.75	-8264145.57	-8264145.40	0.0514	0.0284
Mercury	-27335-05-24 05:16 J	-8262542.33	-8262542.28	-8262542.23	0.0528	0.0482
Venus	-27335-07-25 01:26 J	-8262480.53	-8262480.44	-8262480.35	0.0526	0.0468
Mercury	-27335-08-21 12:57 J	-8262453.09	-8262452.96	-8262452.83	0.0526	0.0107
Venus	-27334-03-18 22:04 J	-8262243.78	-8262243.58	-8262243.38	0.0518	0.0016
Venus	-27334-11-10 09:35 J	-8262007.17	-8262007.10	-8262007.01	0.0510	0.0468
Mercury	-27329-10-19 05:16 J	-8260202.45	-8260202.28	-8260202.11	0.0500	0.0133
Venus	-27328-01-12 05:45 J	-8260117.42	-8260117.26	-8260117.10	0.0503	0.0319

Mars	-27328-04-11 04:19 J	-8260028.59	-8260028.32	-8260028.05	0.0506	0.0055
Venus	-27328-09-06 13:11 J	-8259880.15	-8259879.95	-8259879.75	0.0511	0.0147
Moon	-27324-04-12 11:16 J	-8258566.25	-8258566.03	-8258565.80	0.0537	0.0012
Earth	-27324-04-12 14:23 J	-8258566.13	-8258565.90	-8258565.67	0.0537	0.0018 *
Mercury	-27323-06-09 16:33 J	-8258142.94	-8258142.81	-8258142.68	0.0527	0.0043
Venus	-27323-11-21 20:52 J	-8257977.83	-8257977.63	-8257977.44	0.0521	0.0117
Venus	-27322-07-16 11:16 J	-8257741.18	-8257741.03	-8257740.89	0.0512	0.0350
Mercury	-27317-08-07 03:21 J	-8255892.50	-8255892.36	-8255892.22	0.0499	0.0309
Venus	-27317-09-17 01:26 J	-8255851.53	-8255851.44	-8255851.33	0.0501	0.0439
Mercury	-27317-11-05 07:55 J	-8255802.28	-8255802.17	-8255802.06	0.0502	0.0389
Venus	-27316-05-12 06:14 J	-8255614.45	-8255614.24	-8255614.03	0.0509	0.0014
Venus	-27315-01-04 20:09 J	-8255376.72	-8255376.66	-8255376.60	0.0517	0.0494
Mercury	-27311-03-28 20:38 J	-8253832.76	-8253832.64	-8253832.52	0.0528	0.0182
Mercury	-27311-06-26 04:47 J	-8253743.38	-8253743.30	-8253743.22	0.0525	0.0413
Venus	-27311-07-27 19:26 J	-8253711.86	-8253711.69	-8253711.51	0.0523	0.0248
Venus	-27310-03-21 12:28 J	-8253475.16	-8253474.98	-8253474.80	0.0515	0.0228
Mercury	-27305-05-26 01:11 J	-8251582.48	-8251582.45	-8251582.41	0.0499	0.0488
Mercury	-27305-08-24 06:14 J	-8251492.40	-8251492.24	-8251492.08	0.0502	0.0215
Venus	-27304-01-14 23:59 J	-8251348.70	-8251348.50	-8251348.30	0.0506	0.0117
Venus	-27304-09-09 11:45 J	-8251111.15	-8251111.01	-8251110.86	0.0515	0.0362
Mercury	-27299-01-15 00:43 J	-8249522.57	-8249522.47	-8249522.37	0.0528	0.0323
Venus	-27299-04-01 17:16 J	-8249445.91	-8249445.78	-8249445.64	0.0526	0.0382
Mercury	-27299-04-14 08:38 J	-8249433.25	-8249433.14	-8249433.03	0.0525	0.0270
Mars	-27299-07-05 22:47 J	-8249350.82	-8249350.55	-8249350.27	0.0522	0.0079
Venus	-27299-11-24 12:43 J	-8249209.17	-8249208.97	-8249208.78	0.0517	0.0101
Mercury	-27293-06-12 05:16 J	-8247182.45	-8247182.28	-8247182.10	0.0501	0.0049
Venus	-27293-09-19 20:23 J	-8247082.84	-8247082.65	-8247082.47	0.0504	0.0242
Mars	-27292-01-14 21:35 J	-8246965.71	-8246965.60	-8246965.47	0.0508	0.0454
Venus	-27292-05-15 05:45 J	-8246845.45	-8246845.26	-8246845.08	0.0513	0.0231
Mercury	-27288-11-03 03:50 J	-8245212.39	-8245212.34	-8245212.28	0.0528	0.0476

Venus	-27288-12-05 11:45 J	-8245180.05	-8245180.01	-8245179.98	0.0527	0.0518
Mercury	-27287-01-31 11:45 J	-8245123.14	-8245123.01	-8245122.88	0.0525	0.0113
Venus	-27287-07-30 09:07 J	-8244943.32	-8244943.12	-8244942.92	0.0519	0.0036
Venus	-27286-03-23 21:35 J	-8244706.70	-8244706.60	-8244706.48	0.0510	0.0422
Earth	-27283-10-08 14:38 J	-8243411.93	-8243411.89	-8243411.85	0.0490	0.0482
Mercury	-27281-03-31 03:50 J	-8242872.51	-8242872.34	-8242872.17	0.0501	0.0123
Venus	-27281-05-25 16:04 J	-8242816.97	-8242816.83	-8242816.68	0.0502	0.0364
Venus	-27280-01-17 22:47 J	-8242579.75	-8242579.55	-8242579.34	0.0510	0.0098
Mercury	-27276-11-19 15:07 J	-8240813.00	-8240812.87	-8240812.74	0.0526	0.0039
Venus	-27275-04-04 06:43 J	-8240677.41	-8240677.22	-8240677.03	0.0522	0.0169
Venus	-27275-11-26 21:35 J	-8240440.76	-8240440.60	-8240440.43	0.0513	0.0300
Earth	-27271-10-13 00:43 J	-8239024.71	-8239024.47	-8239024.23	0.0490	0.0027
Moon	-27271-10-13 02:38 J	-8239024.62	-8239024.39	-8239024.16	0.0490	0.0044 *
Mercury	-27269-01-18 01:40 J	-8238562.57	-8238562.43	-8238562.29	0.0500	0.0304
Venus	-27269-01-29 11:16 J	-8238551.08	-8238551.03	-8238550.97	0.0500	0.0482
Mercury	-27269-04-17 06:14 J	-8238472.35	-8238472.24	-8238472.14	0.0502	0.0396
Venus	-27269-09-22 15:07 J	-8238314.08	-8238313.87	-8238313.66	0.0508	0.0037
Venus	-27268-05-18 03:50 J	-8238076.44	-8238076.34	-8238076.23	0.0516	0.0443
Mercury	-27264-09-07 18:43 J	-8236502.84	-8236502.72	-8236502.60	0.0528	0.0188
Mercury	-27264-12-06 02:52 J	-8236413.46	-8236413.38	-8236413.30	0.0525	0.0406
Venus	-27264-12-08 03:35 J	-8236411.51	-8236411.35	-8236411.19	0.0524	0.0304
Mars	-27263-04-10 20:09 J	-8236287.87	-8236287.66	-8236287.46	0.0520	0.0338
Venus	-27263-08-01 21:50 J	-8236174.78	-8236174.59	-8236174.41	0.0516	0.0175
Moon	-27259-10-17 11:02 J	-8234637.14	-8234637.04	-8234636.95	0.0491	0.0451
Earth	-27259-10-17 11:16 J	-8234637.13	-8234637.03	-8234636.91	0.0491	0.0432 *
Mercury	-27258-11-05 23:45 J	-8234252.55	-8234252.51	-8234252.47	0.0499	0.0481
Mercury	-27257-02-04 04:33 J	-8234162.46	-8234162.31	-8234162.15	0.0501	0.0221
Venus	-27257-05-28 09:07 J	-8234048.32	-8234048.12	-8234047.93	0.0505	0.0166
Venus	-27256-01-20 19:11 J	-8233810.86	-8233810.70	-8233810.53	0.0514	0.0308
Mercury	-27252-06-26 22:33 J	-8232192.66	-8232192.56	-8232192.45	0.0528	0.0331



Venus	-27252-08-13 00:57 J	-8232145.57	-8232145.46	-8232145.35	0.0527	0.0437
Mercury	-27252-09-24 06:43 J	-8232103.34	-8232103.22	-8232103.11	0.0525	0.0263
Venus	-27251-04-06 21:50 J	-8231908.79	-8231908.59	-8231908.39	0.0518	0.0048
Venus	-27251-11-29 09:35 J	-8231672.14	-8231672.10	-8231672.05	0.0509	0.0494
Mercury	-27246-11-23 02:52 J	-8229852.56	-8229852.38	-8229852.21	0.0501	0.0045
Venus	-27245-02-01 03:35 J	-8229782.52	-8229782.35	-8229782.18	0.0503	0.0291
Venus	-27245-09-25 11:31 J	-8229545.22	-8229545.02	-8229544.82	0.0511	0.0175
Earth	-27241-04-11 18:57 J	-8228250.93	-8228250.71	-8228250.48	0.0538	0.0106
Moon	-27241-04-11 22:47 J	-8228250.77	-8228250.55	-8228250.32	0.0538	0.0074 *
Mercury	-27240-04-15 02:38 J	-8227882.44	-8227882.39	-8227882.33	0.0529	0.0470
Mercury	-27240-07-13 10:33 J	-8227793.19	-8227793.06	-8227792.93	0.0526	0.0120
Venus	-27240-12-10 20:52 J	-8227642.82	-8227642.63	-8227642.43	0.0521	0.0085
Venus	-27239-08-04 10:47 J	-8227406.18	-8227406.05	-8227405.91	0.0512	0.0377
Mercury	-27234-09-11 01:40 J	-8225542.60	-8225542.43	-8225542.26	0.0500	0.0124
Venus	-27234-10-07 00:28 J	-8225516.59	-8225516.48	-8225516.35	0.0501	0.0409
Venus	-27233-05-31 05:59 J	-8225279.46	-8225279.25	-8225279.04	0.0509	0.0044
Moon	-27229-04-16 16:04 J	-8223862.92	-8223862.83	-8223862.72	0.0536	0.0478
Earth	-27229-04-16 19:55 J	-8223862.76	-8223862.67	-8223862.58	0.0536	0.0492 *
Mercury	-27228-05-01 13:55 J	-8223483.06	-8223482.92	-8223482.79	0.0526	0.0037
Venus	-27228-08-15 17:02 J	-8223376.97	-8223376.79	-8223376.61	0.0523	0.0221
Venus	-27227-04-09 09:07 J	-8223140.29	-8223140.12	-8223139.95	0.0514	0.0251
Mercury	-27222-06-29 23:59 J	-8221232.64	-8221232.50	-8221232.36	0.0500	0.0299
Mercury	-27222-09-28 04:33 J	-8221142.41	-8221142.31	-8221142.21	0.0503	0.0402
Venus	-27221-02-04 00:14 J	-8221013.70	-8221013.49	-8221013.29	0.0507	0.0086
Venus	-27221-09-28 12:28 J	-8220776.11	-8220775.98	-8220775.84	0.0515	0.0393
Mercury	-27216-02-17 17:16 J	-8219172.90	-8219172.78	-8219172.66	0.0527	0.0185
Venus	-27216-04-20 13:11 J	-8219111.09	-8219110.95	-8219110.80	0.0525	0.0356
Mercury	-27216-05-18 01:11 J	-8219083.53	-8219083.45	-8219083.36	0.0524	0.0408
Venus	-27216-12-13 07:55 J	-8218874.37	-8218874.17	-8218873.98	0.0516	0.0123
Mercury	-27210-04-17 21:35 J	-8216922.64	-8216922.60	-8216922.55	0.0499	0.0480

Mercury	-27210-07-17 02:38 J	-8216832.55	-8216832.39	-8216832.23	0.0502	0.0223
Mars	-27210-09-30 16:19 J	-8216757.05	-8216756.82	-8216756.57	0.0504	0.0229
Venus	-27210-10-09 17:45 J	-8216747.95	-8216747.76	-8216747.57	0.0504	0.0214
Venus	-27209-06-03 02:52 J	-8216510.56	-8216510.38	-8216510.20	0.0513	0.0256
Mercury	-27205-12-06 20:38 J	-8214862.74	-8214862.64	-8214862.54	0.0528	0.0337
Venus	-27205-12-24 08:23 J	-8214845.22	-8214845.15	-8214845.08	0.0528	0.0491
Mercury	-27204-03-06 04:33 J	-8214773.42	-8214773.31	-8214773.19	0.0525	0.0256
Venus	-27204-08-18 06:14 J	-8214608.44	-8214608.24	-8214608.04	0.0519	0.0009
Venus	-27203-04-11 19:11 J	-8214371.79	-8214371.70	-8214371.60	0.0511	0.0445
Mercury	-27198-05-05 00:57 J	-8212522.64	-8212522.46	-8212522.29	0.0501	0.0047
Venus	-27198-06-14 12:43 J	-8212482.12	-8212481.97	-8212481.82	0.0502	0.0337
Venus	-27197-02-06 18:57 J	-8212244.91	-8212244.71	-8212244.51	0.0510	0.0122
Mercury	-27193-09-25 00:28 J	-8210552.52	-8210552.48	-8210552.42	0.0529	0.0480
Mercury	-27193-12-23 08:23 J	-8210463.28	-8210463.15	-8210463.02	0.0526	0.0111
Venus	-27192-04-23 05:02 J	-8210342.48	-8210342.29	-8210342.09	0.0522	0.0140
Venus	-27192-12-15 20:23 J	-8210105.80	-8210105.65	-8210105.49	0.0513	0.0327
Moon	-27188-10-12 03:50 J	-8208709.58	-8208709.34	-8208709.10	0.0490	0.0119
Earth	-27188-10-12 04:19 J	-8208709.55	-8208709.32	-8208709.09	0.0490	0.0105 *
Venus	-27186-02-17 08:09 J	-8208216.24	-8208216.16	-8208216.08	0.0500	0.0455
Mercury	-27186-02-20 22:47 J	-8208212.72	-8208212.55	-8208212.38	0.0500	0.0133
Venus	-27186-10-12 11:59 J	-8207979.21	-8207979.00	-8207978.79	0.0508	0.0011
Venus	-27185-06-06 01:11 J	-8207741.53	-8207741.45	-8207741.36	0.0517	0.0468
Mercury	-27181-10-11 12:14 J	-8206153.12	-8206152.99	-8206152.85	0.0527	0.0035
Mars	-27181-12-23 00:57 J	-8206080.61	-8206080.46	-8206080.30	0.0524	0.0432
Venus	-27181-12-27 03:07 J	-8206076.54	-8206076.37	-8206076.20	0.0524	0.0273
Venus	-27180-08-20 20:52 J	-8205839.81	-8205839.63	-8205839.45	0.0515	0.0203
Moon	-27176-10-16 13:55 J	-8204322.06	-8204321.92	-8204321.77	0.0490	0.0377
Earth	-27176-10-16 14:52 J	-8204322.04	-8204321.88	-8204321.71	0.0490	0.0353 *
Mercury	-27175-12-09 21:21 J	-8203902.75	-8203902.61	-8203902.47	0.0500	0.0304
Mercury	-27174-03-10 02:09 J	-8203812.52	-8203812.41	-8203812.31	0.0502	0.0397

Venus	-27174-06-17 07:11 J	-8203713.40	-8203713.20	-8203713.00	0.0506	0.0137
Mars	-27174-07-05 23:31 J	-8203694.78	-8203694.52	-8203694.26	0.0506	0.0150
Venus	-27173-02-09 17:59 J	-8203475.90	-8203475.75	-8203475.59	0.0514	0.0338
Mercury	-27169-07-30 15:50 J	-8201842.97	-8201842.84	-8201842.72	0.0527	0.0183
Venus	-27169-08-31 22:33 J	-8201810.68	-8201810.56	-8201810.43	0.0526	0.0409
Mercury	-27169-10-27 23:45 J	-8201753.59	-8201753.51	-8201753.43	0.0524	0.0409
Venus	-27168-04-25 18:28 J	-8201573.92	-8201573.73	-8201573.53	0.0517	0.0072
Mercury	-27163-09-27 19:26 J	-8199592.73	-8199592.69	-8199592.64	0.0499	0.0481
Mercury	-27163-12-27 00:28 J	-8199502.63	-8199502.48	-8199502.32	0.0502	0.0225
Venus	-27162-02-20 02:09 J	-8199447.58	-8199447.41	-8199447.23	0.0504	0.0263
Venus	-27162-10-15 11:02 J	-8199210.23	-8199210.04	-8199209.85	0.0512	0.0204
Moon	-27158-04-11 14:38 J	-8197936.10	-8197935.89	-8197935.67	0.0537	0.0189
Earth	-27158-04-11 18:28 J	-8197935.94	-8197935.73	-8197935.52	0.0537	0.0218 *
Mercury	-27157-05-18 19:11 J	-8197532.80	-8197532.70	-8197532.60	0.0528	0.0333
Mercury	-27157-08-16 03:07 J	-8197443.49	-8197443.37	-8197443.25	0.0525	0.0257
Venus	-27157-12-29 16:04 J	-8197308.02	-8197307.83	-8197307.63	0.0520	0.0062
Venus	-27156-08-23 05:31 J	-8197071.39	-8197071.27	-8197071.14	0.0511	0.0396
Mercury	-27151-10-14 22:33 J	-8195192.73	-8195192.56	-8195192.38	0.0501	0.0047
Venus	-27151-10-25 21:07 J	-8195181.75	-8195181.62	-8195181.48	0.0501	0.0383
Venus	-27150-06-20 02:23 J	-8194944.60	-8194944.40	-8194944.19	0.0509	0.0071
Earth	-27146-04-16 14:52 J	-8193548.05	-8193547.88	-8193547.71	0.0537	0.0355
Moon	-27146-04-16 17:31 J	-8193547.93	-8193547.77	-8193547.59	0.0537	0.0344 *
Mercury	-27145-03-06 22:33 J	-8193222.61	-8193222.56	-8193222.51	0.0529	0.0487
Mercury	-27145-06-04 06:14 J	-8193133.36	-8193133.24	-8193133.11	0.0526	0.0104
Venus	-27145-09-03 12:57 J	-8193042.15	-8193041.96	-8193041.78	0.0523	0.0195
Mars	-27145-09-28 03:21 J	-8193017.64	-8193017.36	-8193017.08	0.0522	0.0002
Venus	-27144-04-28 05:31 J	-8192805.44	-8192805.27	-8192805.10	0.0514	0.0275
Venus	-27139-06-30 17:16 J	-8190915.78	-8190915.78	-8190915.76	0.0499	0.0498
Mercury	-27139-08-02 20:52 J	-8190882.80	-8190882.63	-8190882.46	0.0500	0.0131
Venus	-27138-02-22 19:55 J	-8190678.88	-8190678.67	-8190678.47	0.0507	0.0061

Venus	-27138-10-18 07:40 J	-8190441.30	-8190441.18	-8190441.05	0.0515	0.0413
Mercury	-27133-03-23 10:04 J	-8188823.21	-8188823.08	-8188822.95	0.0527	0.0044
Venus	-27133-05-09 10:19 J	-8188776.23	-8188776.07	-8188775.92	0.0525	0.0328
Venus	-27132-01-01 05:31 J	-8188539.46	-8188539.27	-8188539.08	0.0517	0.0151
Mercury	-27127-05-21 18:43 J	-8186572.86	-8186572.72	-8186572.59	0.0499	0.0313
Mercury	-27127-08-19 23:16 J	-8186482.64	-8186482.53	-8186482.42	0.0502	0.0387
Venus	-27127-10-28 13:40 J	-8186413.12	-8186412.93	-8186412.73	0.0504	0.0188
Venus	-27126-06-22 22:47 J	-8186175.72	-8186175.55	-8186175.37	0.0513	0.0281
Mercury	-27121-01-10 14:09 J	-8184513.04	-8184512.91	-8184512.79	0.0528	0.0186
Venus	-27121-01-13 07:11 J	-8184510.29	-8184510.20	-8184510.10	0.0528	0.0461
Mercury	-27121-04-08 22:04 J	-8184423.66	-8184423.58	-8184423.49	0.0525	0.0408
Venus	-27121-09-06 05:02 J	-8184273.49	-8184273.29	-8184273.09	0.0519	0.0023
Venus	-27120-04-30 17:31 J	-8184036.84	-8184036.77	-8184036.69	0.0510	0.0469
Mercury	-27115-03-09 17:02 J	-8182262.83	-8182262.79	-8182262.76	0.0499	0.0486
Mercury	-27115-06-07 22:04 J	-8182172.74	-8182172.58	-8182172.42	0.0502	0.0218
Venus	-27115-07-03 09:35 J	-8182147.26	-8182147.10	-8182146.93	0.0502	0.0311
Venus	-27114-02-25 16:33 J	-8181910.01	-8181909.81	-8181909.61	0.0511	0.0149
Mercury	-27110-10-29 17:45 J	-8180202.86	-8180202.76	-8180202.66	0.0528	0.0333
Mercury	-27109-01-27 01:26 J	-8180113.55	-8180113.44	-8180113.32	0.0525	0.0258
Venus	-27109-05-12 02:09 J	-8180007.60	-8180007.41	-8180007.21	0.0521	0.0113
Mars	-27109-07-04 11:16 J	-8179954.17	-8179954.03	-8179953.87	0.0519	0.0432
Venus	-27108-01-03 16:33 J	-8179770.95	-8179770.81	-8179770.66	0.0512	0.0348
Moon	-27105-10-11 04:47 J	-8178394.51	-8178394.30	-8178394.09	0.0490	0.0207
Earth	-27105-10-11 05:31 J	-8178394.48	-8178394.27	-8178394.05	0.0490	0.0194 *
Venus	-27103-03-08 05:31 J	-8177881.37	-8177881.27	-8177881.16	0.0501	0.0429
Mercury	-27103-03-26 20:23 J	-8177862.83	-8177862.65	-8177862.48	0.0501	0.0043
Venus	-27103-10-31 10:19 J	-8177644.28	-8177644.07	-8177643.86	0.0508	0.0019
Venus	-27102-06-25 23:59 J	-8177406.55	-8177406.50	-8177406.43	0.0517	0.0495
Mercury	-27098-08-17 21:07 J	-8175892.66	-8175892.62	-8175892.56	0.0528	0.0483
Mercury	-27098-11-15 05:02 J	-8175803.42	-8175803.29	-8175803.17	0.0526	0.0107

Venus	-27097-01-15 22:47 J	-8175741.72	-8175741.55	-8175741.37	0.0523	0.0248
Venus	-27097-09-08 15:50 J	-8175505.02	-8175504.84	-8175504.66	0.0515	0.0224
Earth	-27093-10-15 15:50 J	-8174007.03	-8174006.84	-8174006.63	0.0490	0.0262
Moon	-27093-10-15 18:14 J	-8174006.93	-8174006.74	-8174006.54	0.0490	0.0288 *
Mercury	-27091-01-12 18:28 J	-8173552.90	-8173552.73	-8173552.56	0.0500	0.0136
Venus	-27091-07-06 03:21 J	-8173378.56	-8173378.36	-8173378.15	0.0506	0.0111
Venus	-27090-02-28 13:55 J	-8173141.06	-8173140.92	-8173140.76	0.0514	0.0361
Mercury	-27086-09-03 08:09 J	-8171493.29	-8171493.16	-8171493.03	0.0527	0.0054
Venus	-27086-09-20 17:45 J	-8171475.89	-8171475.76	-8171475.62	0.0526	0.0383
Venus	-27085-05-14 14:09 J	-8171239.11	-8171238.91	-8171238.72	0.0518	0.0097
Mercury	-27080-10-31 16:33 J	-8169242.95	-8169242.81	-8169242.67	0.0499	0.0313
Mercury	-27079-01-29 21:07 J	-8169152.73	-8169152.62	-8169152.51	0.0502	0.0387
Venus	-27079-03-10 22:04 J	-8169112.76	-8169112.58	-8169112.40	0.0503	0.0236
Venus	-27079-11-03 05:59 J	-8168875.43	-8168875.25	-8168875.06	0.0512	0.0228
Earth	-27075-04-10 12:28 J	-8167621.14	-8167620.98	-8167620.81	0.0538	0.0362
Moon	-27075-04-10 15:35 J	-8167621.02	-8167620.85	-8167620.67	0.0538	0.0331 *
Venus	-27074-05-26 13:26 J	-8167209.97	-8167209.94	-8167209.89	0.0529	0.0516
Mercury	-27074-06-22 11:45 J	-8167183.13	-8167183.01	-8167182.89	0.0528	0.0198
Mercury	-27074-09-19 19:55 J	-8167093.76	-8167093.67	-8167093.59	0.0525	0.0396
Venus	-27073-01-18 12:43 J	-8166973.17	-8166972.97	-8166972.77	0.0520	0.0034
Venus	-27073-09-11 02:38 J	-8166736.50	-8166736.39	-8166736.27	0.0512	0.0421
Mercury	-27068-08-19 13:55 J	-8164932.93	-8164932.92	-8164932.89	0.0499	0.0496
Venus	-27068-11-13 16:47 J	-8164846.94	-8164846.80	-8164846.65	0.0501	0.0358
Mercury	-27068-11-17 19:11 J	-8164842.86	-8164842.70	-8164842.54	0.0501	0.0208
Venus	-27067-07-08 22:04 J	-8164609.78	-8164609.58	-8164609.37	0.0509	0.0095
Moon	-27063-04-15 13:40 J	-8163233.14	-8163232.93	-8163232.71	0.0537	0.0230
Earth	-27063-04-15 15:07 J	-8163233.07	-8163232.87	-8163232.66	0.0537	0.0245 *
Mercury	-27062-04-10 15:50 J	-8162872.94	-8162872.84	-8162872.74	0.0528	0.0339
Mercury	-27062-07-08 23:45 J	-8162783.63	-8162783.51	-8162783.40	0.0525	0.0253
Venus	-27062-09-23 11:16 J	-8162707.21	-8162707.03	-8162706.84	0.0523	0.0166

Venus	-27061-05-17 03:35 J	-8162470.51	-8162470.35	-8162470.19	0.0514	0.0301
Venus	-27056-07-19 13:40 J	-8160580.99	-8160580.93	-8160580.86	0.0499	0.0473
Mercury	-27056-09-05 17:45 J	-8160532.94	-8160532.76	-8160532.58	0.0501	0.0037
Mars	-27056-12-24 00:57 J	-8160423.72	-8160423.46	-8160423.20	0.0504	0.0152
Venus	-27055-03-13 16:33 J	-8160344.02	-8160343.81	-8160343.60	0.0507	0.0035
Venus	-27055-11-06 05:02 J	-8160106.39	-8160106.29	-8160106.18	0.0516	0.0439
Mercury	-27050-01-27 19:40 J	-8158562.73	-8158562.68	-8158562.63	0.0529	0.0483
Mercury	-27050-04-27 03:21 J	-8158473.49	-8158473.36	-8158473.23	0.0526	0.0106
Venus	-27050-05-29 08:09 J	-8158441.32	-8158441.16	-8158441.00	0.0525	0.0300
Venus	-27049-01-21 02:09 J	-8158204.59	-8158204.41	-8158204.22	0.0516	0.0175
Mercury	-27044-06-24 15:50 J	-8156223.01	-8156222.84	-8156222.67	0.0500	0.0141
Venus	-27044-11-16 11:16 J	-8156078.23	-8156078.03	-8156077.84	0.0505	0.0161
Venus	-27043-07-11 21:07 J	-8155840.78	-8155840.62	-8155840.45	0.0513	0.0308
Venus	-27038-02-01 03:50 J	-8154175.45	-8154175.34	-8154175.23	0.0527	0.0433
Mercury	-27038-02-13 06:43 J	-8154163.35	-8154163.22	-8154163.09	0.0526	0.0046
Venus	-27038-09-26 00:43 J	-8153938.67	-8153938.47	-8153938.27	0.0518	0.0045
Venus	-27037-05-19 12:28 J	-8153702.03	-8153701.98	-8153701.92	0.0510	0.0488
Mercury	-27032-04-12 13:55 J	-8151913.05	-8151912.92	-8151912.78	0.0499	0.0318
Mercury	-27032-07-11 18:43 J	-8151822.83	-8151822.72	-8151822.61	0.0502	0.0383
Venus	-27032-07-22 05:45 J	-8151812.42	-8151812.26	-8151812.08	0.0502	0.0284
Venus	-27031-03-16 12:43 J	-8151575.16	-8151574.97	-8151574.77	0.0511	0.0176
Mercury	-27027-12-02 09:50 J	-8149853.21	-8149853.09	-8149852.97	0.0528	0.0205
Mercury	-27026-03-01 17:45 J	-8149763.84	-8149763.76	-8149763.67	0.0525	0.0389
Mars	-27026-03-17 23:59 J	-8149747.69	-8149747.50	-8149747.29	0.0524	0.0365
Venus	-27026-05-31 21:07 J	-8149672.81	-8149672.62	-8149672.42	0.0521	0.0088
Venus	-27025-01-23 11:59 J	-8149436.13	-8149436.00	-8149435.86	0.0513	0.0372
Earth	-27022-10-11 09:35 J	-8148079.29	-8148079.10	-8148078.90	0.0489	0.0271
Moon	-27022-10-11 11:59 J	-8148079.20	-8148079.00	-8148078.80	0.0489	0.0277 *
Mercury	-27020-01-29 11:59 J	-8147603.01	-8147603.00	-8147602.98	0.0499	0.0495
Venus	-27020-03-27 01:55 J	-8147546.53	-8147546.42	-8147546.29	0.0500	0.0401

Mercury	-27020-04-29 17:16 J	-8147512.94	-8147512.78	-8147512.62	0.0501	0.0209
Mars	-27020-09-28 05:59 J	-8147361.49	-8147361.25	-8147361.00	0.0506	0.0221
Venus	-27020-11-19 05:59 J	-8147309.46	-8147309.25	-8147309.04	0.0508	0.0045
Venus	-27019-07-14 18:57 J	-8147071.71	-8147071.71	-8147071.69	0.0517	0.0516
Mercury	-27015-09-20 13:26 J	-8145543.03	-8145542.94	-8145542.84	0.0529	0.0352
Mercury	-27015-12-18 21:21 J	-8145453.72	-8145453.61	-8145453.49	0.0526	0.0241
Venus	-27014-02-03 18:28 J	-8145406.90	-8145406.73	-8145406.54	0.0524	0.0221
Venus	-27014-09-28 12:14 J	-8145170.16	-8145169.99	-8145169.81	0.0515	0.0251
Moon	-27010-10-15 15:21 J	-8143692.07	-8143691.86	-8143691.65	0.0490	0.0206
Earth	-27010-10-15 18:43 J	-8143691.94	-8143691.72	-8143691.50	0.0490	0.0180 *
Mercury	-27008-02-15 15:07 J	-8143203.05	-8143202.87	-8143202.69	0.0500	0.0029
Venus	-27008-07-24 23:02 J	-8143043.74	-8143043.54	-8143043.33	0.0506	0.0086
Venus	-27007-03-19 09:50 J	-8142806.23	-8142806.09	-8142805.95	0.0514	0.0383
Mercury	-27003-07-09 17:31 J	-8141232.81	-8141232.77	-8141232.72	0.0529	0.0492
Mercury	-27003-10-07 01:26 J	-8141143.57	-8141143.44	-8141143.31	0.0526	0.0099
Venus	-27003-10-09 16:04 J	-8141140.97	-8141140.83	-8141140.68	0.0526	0.0353
Venus	-27002-06-03 12:14 J	-8140904.18	-8140903.99	-8140903.79	0.0518	0.0125

# 27TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 27th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-26997-12-04 13:26 J	-8138893.11	-8138892.94	-8138892.77	0.0500	0.0145		

Venus	-26996-03-29 18:28 J	-8138777.92	-8138777.73	-8138777.54	0.0504	0.0210
Venus	-26996-11-22 02:52 J	-8138540.56	-8138540.38	-8138540.20	0.0512	0.0254
Moon	-26992-04-09 12:57 J	-8137306.09	-8137305.96	-8137305.81	0.0538	0.0433
Earth	-26992-04-09 15:21 J	-8137305.98	-8137305.86	-8137305.75	0.0538	0.0460 *
Venus	-26991-06-14 12:14 J	-8136875.06	-8136874.99	-8136874.91	0.0528	0.0485
Mercury	-26991-07-26 05:02 J	-8136833.42	-8136833.29	-8136833.16	0.0527	0.0049
Mars	-26991-12-22 18:57 J	-8136683.98	-8136683.71	-8136683.44	0.0521	0.0093
Venus	-26990-02-06 10:47 J	-8136638.25	-8136638.05	-8136637.85	0.0520	0.0007
Venus	-26990-09-30 23:45 J	-8136401.60	-8136401.51	-8136401.41	0.0511	0.0443
Mercury	-26985-09-22 11:31 J	-8134583.15	-8134583.02	-8134582.88	0.0500	0.0323
Venus	-26985-12-02 13:55 J	-8134512.07	-8134511.92	-8134511.76	0.0502	0.0331
Mercury	-26985-12-21 16:19 J	-8134492.93	-8134492.82	-8134492.70	0.0502	0.0380
Venus	-26984-07-27 20:09 J	-8134274.87	-8134274.66	-8134274.46	0.0510	0.0123
Moon	-26980-04-14 15:50 J	-8132918.06	-8132917.84	-8132917.63	0.0537	0.0117
Earth	-26980-04-14 16:19 J	-8132918.05	-8132917.82	-8132917.60	0.0537	0.0137 *
Mercury	-26979-05-14 08:38 J	-8132523.26	-8132523.14	-8132523.02	0.0527	0.0196
Mercury	-26979-08-11 16:33 J	-8132433.89	-8132433.81	-8132433.72	0.0524	0.0396
Venus	-26979-10-12 08:09 J	-8132372.35	-8132372.16	-8132371.97	0.0522	0.0138
Venus	-26978-06-05 23:45 J	-8132135.67	-8132135.51	-8132135.36	0.0513	0.0324
Venus	-26973-08-07 10:19 J	-8130246.15	-8130246.07	-8130245.97	0.0499	0.0445
Mercury	-26973-10-09 14:52 J	-8130183.04	-8130182.88	-8130182.72	0.0501	0.0206
Venus	-26972-04-01 13:26 J	-8130009.15	-8130008.94	-8130008.73	0.0507	0.0008
Venus	-26972-11-25 01:40 J	-8129771.51	-8129771.43	-8129771.34	0.0516	0.0464
Mercury	-26967-03-02 11:45 J	-8128213.10	-8128213.01	-8128212.91	0.0529	0.0356
Mercury	-26967-05-30 19:26 J	-8128123.80	-8128123.69	-8128123.57	0.0526	0.0236
Venus	-26967-06-17 02:52 J	-8128106.54	-8128106.38	-8128106.21	0.0525	0.0274
Venus	-26966-02-08 21:50 J	-8127869.78	-8127869.59	-8127869.41	0.0516	0.0200
Mercury	-26961-07-28 13:11 J	-8125873.12	-8125872.95	-8125872.77	0.0500	0.0036
Venus	-26961-12-05 08:09 J	-8125743.36	-8125743.16	-8125742.96	0.0505	0.0132
Venus	-26960-07-30 17:16 J	-8125505.93	-8125505.78	-8125505.62	0.0513	0.0333



Mercury	-26956-12-19 15:35 J	-8123902.89	-8123902.85	-8123902.82	0.0529	0.0503
Venus	-26955-02-19 23:02 J	-8123840.66	-8123840.54	-8123840.41	0.0527	0.0407
Mercury	-26955-03-18 23:16 J	-8123813.66	-8123813.53	-8123813.40	0.0527	0.0088
Mars	-26955-09-27 17:16 J	-8123620.84	-8123620.78	-8123620.71	0.0520	0.0503
Venus	-26955-10-14 20:52 J	-8123603.83	-8123603.63	-8123603.43	0.0519	0.0073
Mercury	-26949-05-16 11:02 J	-8121563.21	-8121563.04	-8121562.87	0.0500	0.0148
Venus	-26949-08-10 02:23 J	-8121477.58	-8121477.40	-8121477.22	0.0502	0.0257
Venus	-26948-04-04 09:07 J	-8121240.31	-8121240.12	-8121239.93	0.0510	0.0201
Mercury	-26943-01-05 03:07 J	-8119503.50	-8119503.37	-8119503.24	0.0527	0.0055
Venus	-26943-06-19 19:55 J	-8119337.87	-8119337.67	-8119337.47	0.0521	0.0058
Venus	-26942-02-11 10:33 J	-8119101.18	-8119101.06	-8119100.93	0.0513	0.0398
Moon	-26939-10-10 09:35 J	-8117764.26	-8117764.10	-8117763.94	0.0489	0.0353
Earth	-26939-10-10 12:43 J	-8117764.13	-8117763.97	-8117763.80	0.0489	0.0351 *
Mercury	-26937-03-04 09:21 J	-8117253.24	-8117253.11	-8117252.97	0.0499	0.0323
Venus	-26937-04-14 22:47 J	-8117211.69	-8117211.55	-8117211.41	0.0500	0.0375
Mercury	-26937-06-02 14:09 J	-8117163.02	-8117162.91	-8117162.80	0.0502	0.0378
Mars	-26937-06-13 10:33 J	-8117152.18	-8117152.06	-8117151.92	0.0502	0.0439
Venus	-26937-12-08 02:52 J	-8116974.58	-8116974.38	-8116974.17	0.0508	0.0072
Mercury	-26932-10-24 07:11 J	-8115193.33	-8115193.20	-8115193.08	0.0528	0.0198
Mercury	-26931-01-21 15:07 J	-8115103.96	-8115103.87	-8115103.79	0.0525	0.0396
Venus	-26931-02-22 17:45 J	-8115071.94	-8115071.76	-8115071.57	0.0523	0.0189
Venus	-26931-10-17 10:47 J	-8114835.22	-8114835.05	-8114834.88	0.0515	0.0277
Earth	-26927-10-14 21:07 J	-8113376.86	-8113376.62	-8113376.39	0.0490	0.0094
Moon	-26927-10-15 00:57 J	-8113376.69	-8113376.46	-8113376.23	0.0490	0.0126 *
Venus	-26926-12-19 19:11 J	-8112945.74	-8112945.70	-8112945.66	0.0499	0.0488
Mercury	-26925-03-21 12:28 J	-8112853.14	-8112852.98	-8112852.82	0.0502	0.0204
Venus	-26925-08-12 21:07 J	-8112708.82	-8112708.62	-8112708.41	0.0506	0.0057
Venus	-26924-04-07 08:38 J	-8112471.26	-8112471.14	-8112471.01	0.0515	0.0412
Mercury	-26920-08-12 10:47 J	-8110883.15	-8110883.05	-8110882.95	0.0528	0.0344
Venus	-26920-10-28 14:23 J	-8110806.06	-8110805.90	-8110805.74	0.0526	0.0323

Mercury	-26920-11-09 18:28 J	-8110793.84	-8110793.73	-8110793.61	0.0525	0.0247
Venus	-26919-06-22 09:50 J	-8110569.28	-8110569.09	-8110568.90	0.0517	0.0151
Mercury	-26913-01-08 11:02 J	-8108543.21	-8108543.04	-8108542.86	0.0501	0.0033
Venus	-26913-04-17 16:33 J	-8108443.01	-8108442.81	-8108442.62	0.0504	0.0179
Venus	-26913-12-11 00:43 J	-8108205.64	-8108205.47	-8108205.29	0.0512	0.0283
Mercury	-26908-05-31 13:40 J	-8106572.96	-8106572.93	-8106572.89	0.0529	0.0505
Venus	-26908-07-03 07:26 J	-8106540.28	-8106540.19	-8106540.09	0.0528	0.0458
Mercury	-26908-08-28 21:21 J	-8106483.74	-8106483.61	-8106483.48	0.0526	0.0086
Venus	-26907-02-25 06:14 J	-8106303.43	-8106303.24	-8106303.04	0.0520	0.0024
Venus	-26907-10-19 19:55 J	-8106066.74	-8106066.67	-8106066.59	0.0511	0.0467
Mercury	-26902-10-27 09:35 J	-8104233.27	-8104233.10	-8104232.93	0.0500	0.0141
Venus	-26902-12-22 12:28 J	-8104177.15	-8104176.98	-8104176.81	0.0501	0.0299
Mars	-26901-03-18 14:23 J	-8104090.17	-8104089.90	-8104089.63	0.0504	0.0075
Venus	-26901-08-15 17:45 J	-8103939.95	-8103939.76	-8103939.56	0.0509	0.0153
Earth	-26897-04-13 10:19 J	-8102603.30	-8102603.07	-8102602.84	0.0538	0.0009
Moon	-26897-04-13 12:28 J	-8102603.21	-8102602.98	-8102602.74	0.0538	0.0032 *
Mercury	-26896-06-17 01:11 J	-8102173.58	-8102173.45	-8102173.32	0.0527	0.0064
Venus	-26896-10-31 04:19 J	-8102037.52	-8102037.32	-8102037.13	0.0523	0.0111
Venus	-26895-06-24 20:23 J	-8101800.79	-8101800.65	-8101800.50	0.0514	0.0350
Mercury	-26890-08-15 07:11 J	-8099923.33	-8099923.20	-8099923.06	0.0499	0.0322
Venus	-26890-08-27 08:09 J	-8099911.27	-8099911.16	-8099911.05	0.0499	0.0417
Mercury	-26890-11-13 11:59 J	-8099833.11	-8099833.00	-8099832.88	0.0502	0.0378
Venus	-26889-04-20 10:47 J	-8099674.26	-8099674.05	-8099673.84	0.0507	0.0023
Venus	-26889-12-13 22:47 J	-8099436.61	-8099436.55	-8099436.49	0.0516	0.0488
Mercury	-26884-04-05 05:02 J	-8097863.41	-8097863.29	-8097863.17	0.0528	0.0205
Mercury	-26884-07-03 13:11 J	-8097774.04	-8097773.95	-8097773.86	0.0525	0.0390
Venus	-26884-07-06 02:09 J	-8097771.58	-8097771.41	-8097771.23	0.0525	0.0243
Venus	-26883-02-27 20:52 J	-8097534.80	-8097534.63	-8097534.44	0.0516	0.0230
Mercury	-26878-06-03 05:16 J	-8095613.28	-8095613.28	-8095613.26	0.0498	0.0498
Mercury	-26878-09-01 10:33 J	-8095523.21	-8095523.06	-8095522.89	0.0501	0.0207

Venus	-26878-12-25 05:31 J	-8095408.47	-8095408.27	-8095408.06	0.0505	0.0105
Venus	-26877-08-18 15:21 J	-8095171.01	-8095170.86	-8095170.72	0.0513	0.0360
Mercury	-26872-01-22 09:07 J	-8093553.21	-8093553.12	-8093553.02	0.0529	0.0345
Venus	-26872-03-10 23:31 J	-8093505.65	-8093505.52	-8093505.37	0.0527	0.0373
Mercury	-26872-04-21 17:02 J	-8093463.91	-8093463.79	-8093463.67	0.0526	0.0247
Mars	-26872-06-10 23:45 J	-8093413.75	-8093413.51	-8093413.27	0.0524	0.0256
Venus	-26872-11-02 20:38 J	-8093268.83	-8093268.64	-8093268.44	0.0518	0.0104
Mercury	-26866-06-20 09:07 J	-8091213.30	-8091213.12	-8091212.95	0.0501	0.0033
Venus	-26866-08-30 00:57 J	-8091142.64	-8091142.46	-8091142.27	0.0503	0.0226
Mars	-26866-12-22 20:38 J	-8091027.86	-8091027.64	-8091027.42	0.0507	0.0304
Venus	-26865-04-23 08:23 J	-8090905.33	-8090905.15	-8090904.96	0.0511	0.0231
Mercury	-26861-11-10 13:11 J	-8089243.00	-8089242.95	-8089242.91	0.0529	0.0488
Venus	-26861-11-13 19:11 J	-8089239.75	-8089239.70	-8089239.64	0.0529	0.0504
Mercury	-26860-02-07 20:38 J	-8089153.77	-8089153.64	-8089153.51	0.0526	0.0102
Venus	-26860-07-08 18:57 J	-8089002.91	-8089002.71	-8089002.51	0.0521	0.0026
Venus	-26859-03-02 09:07 J	-8088766.23	-8088766.12	-8088766.01	0.0512	0.0423
Earth	-26856-10-09 17:59 J	-8087448.87	-8087448.75	-8087448.63	0.0489	0.0424
Moon	-26856-10-09 21:50 J	-8087448.71	-8087448.59	-8087448.47	0.0489	0.0413 *
Mercury	-26854-04-08 07:40 J	-8086903.35	-8086903.18	-8086903.01	0.0500	0.0139
Venus	-26854-05-04 21:50 J	-8086876.74	-8086876.59	-8086876.44	0.0501	0.0342
Venus	-26854-12-28 02:09 J	-8086639.61	-8086639.41	-8086639.20	0.0508	0.0104
Mercury	-26849-11-26 23:31 J	-8084843.65	-8084843.52	-8084843.38	0.0527	0.0065
Venus	-26848-03-13 13:55 J	-8084737.11	-8084736.92	-8084736.73	0.0524	0.0161
Venus	-26848-11-05 07:11 J	-8084500.36	-8084500.20	-8084500.04	0.0515	0.0304
Moon	-26844-10-14 02:23 J	-8083061.64	-8083061.40	-8083061.16	0.0490	0.0068
Earth	-26844-10-14 05:45 J	-8083061.49	-8083061.26	-8083061.02	0.0490	0.0039 *
Venus	-26842-01-07 19:11 J	-8082610.78	-8082610.70	-8082610.61	0.0499	0.0455
Mercury	-26842-01-25 06:14 J	-8082593.38	-8082593.24	-8082593.10	0.0499	0.0310
Mercury	-26842-04-25 11:02 J	-8082503.15	-8082503.04	-8082502.93	0.0502	0.0390
Venus	-26842-09-01 20:52 J	-8082373.84	-8082373.63	-8082373.42	0.0506	0.0023

Venus	-26841-04-26 07:40 J	-8082136.28	-8082136.18	-8082136.07	0.0514	0.0441
Mercury	-26837-09-15 03:21 J	-8080533.48	-8080533.36	-8080533.24	0.0528	0.0209
Venus	-26837-11-16 10:19 J	-8080471.23	-8080471.07	-8080470.90	0.0526	0.0295
Mercury	-26837-12-13 11:16 J	-8080444.12	-8080444.03	-8080443.94	0.0525	0.0385
Mars	-26836-03-17 05:31 J	-8080350.53	-8080350.27	-8080350.01	0.0522	0.0171
Venus	-26836-07-11 06:43 J	-8080234.41	-8080234.22	-8080234.03	0.0518	0.0180
Mercury	-26831-11-13 03:50 J	-8078283.36	-8078283.34	-8078283.31	0.0498	0.0491
Mercury	-26830-02-11 09:07 J	-8078193.28	-8078193.12	-8078192.96	0.0501	0.0212
Venus	-26830-05-07 14:52 J	-8078108.08	-8078107.88	-8078107.68	0.0503	0.0150
Venus	-26830-12-30 23:02 J	-8077870.71	-8077870.54	-8077870.38	0.0512	0.0310
Mercury	-26825-07-04 07:26 J	-8076223.29	-8076223.19	-8076223.10	0.0529	0.0350
Venus	-26825-07-22 07:11 J	-8076205.31	-8076205.20	-8076205.08	0.0528	0.0427
Mercury	-26825-10-01 15:07 J	-8076133.98	-8076133.87	-8076133.75	0.0526	0.0243
Venus	-26824-03-16 06:28 J	-8075968.43	-8075968.23	-8075968.03	0.0520	0.0053
Venus	-26824-11-07 19:55 J	-8075731.71	-8075731.67	-8075731.61	0.0511	0.0494
Mercury	-26819-11-30 07:26 J	-8073883.36	-8073883.19	-8073883.01	0.0500	0.0042
Venus	-26818-01-10 10:47 J	-8073842.22	-8073842.05	-8073841.87	0.0501	0.0270
Venus	-26818-09-04 16:33 J	-8073605.01	-8073604.81	-8073604.62	0.0510	0.0181
Moon	-26814-04-13 13:11 J	-8072288.16	-8072287.95	-8072287.73	0.0538	0.0119
Earth	-26814-04-13 16:33 J	-8072288.03	-8072287.81	-8072287.58	0.0538	0.0086 *
Mercury	-26813-04-22 11:31 J	-8071913.06	-8071913.02	-8071912.97	0.0529	0.0487
Mercury	-26813-07-20 19:11 J	-8071823.83	-8071823.70	-8071823.57	0.0527	0.0103
Venus	-26813-11-19 05:31 J	-8071702.47	-8071702.27	-8071702.08	0.0522	0.0076
Venus	-26812-07-13 21:07 J	-8071465.75	-8071465.62	-8071465.49	0.0513	0.0380
Venus	-26807-09-15 07:26 J	-8069576.32	-8069576.19	-8069576.06	0.0500	0.0386
Mercury	-26807-09-18 05:45 J	-8069573.43	-8069573.26	-8069573.09	0.0500	0.0136
Venus	-26806-05-10 10:47 J	-8069339.26	-8069339.05	-8069338.84	0.0508	0.0054
Earth	-26802-04-18 18:57 J	-8067899.76	-8067899.71	-8067899.64	0.0537	0.0518
Moon	-26802-04-18 23:02 J	-8067899.61	-8067899.54	-8067899.46	0.0537	0.0502
Mercury	-26801-05-08 23:02 J	-8067513.67	-8067513.54	-8067513.41	0.0527	0.0043

Venus	-26801-07-25 02:52 J	-8067436.56	-8067436.38	-8067436.20	0.0524	0.0208
Venus	-26800-03-18 21:07 J	-8067199.79	-8067199.62	-8067199.45	0.0516	0.0259
Venus	-26795-05-21 05:31 J	-8065310.28	-8065310.27	-8065310.24	0.0498	0.0494
Mercury	-26795-07-07 04:33 J	-8065263.45	-8065263.31	-8065263.17	0.0499	0.0305
Mercury	-26795-10-05 09:21 J	-8065173.21	-8065173.11	-8065173.00	0.0502	0.0396
Venus	-26794-01-13 06:14 J	-8065073.45	-8065073.24	-8065073.04	0.0505	0.0069
Venus	-26794-09-07 16:04 J	-8064835.96	-8064835.83	-8064835.70	0.0513	0.0394
Mercury	-26789-02-26 01:55 J	-8063203.54	-8063203.42	-8063203.30	0.0528	0.0205
Venus	-26789-03-29 20:23 J	-8063170.80	-8063170.65	-8063170.50	0.0527	0.0344
Mercury	-26789-05-25 09:50 J	-8063114.17	-8063114.09	-8063114.00	0.0525	0.0389
Venus	-26789-11-21 17:45 J	-8062933.95	-8062933.76	-8062933.57	0.0519	0.0132
Mercury	-26783-04-25 02:52 J	-8060953.42	-8060953.38	-8060953.32	0.0498	0.0475
Mercury	-26783-07-24 08:09 J	-8060863.31	-8060863.16	-8060863.00	0.0501	0.0229
Mars	-26783-09-07 15:07 J	-8060818.07	-8060817.87	-8060817.67	0.0502	0.0341
Venus	-26783-09-18 02:23 J	-8060807.59	-8060807.40	-8060807.21	0.0503	0.0191
Venus	-26782-05-13 09:21 J	-8060570.29	-8060570.11	-8060569.93	0.0511	0.0265
Venus	-26778-12-03 15:35 J	-8058904.93	-8058904.85	-8058904.76	0.0529	0.0477
Mercury	-26778-12-15 05:45 J	-8058893.36	-8058893.26	-8058893.16	0.0529	0.0351
Mercury	-26777-03-13 13:26 J	-8058804.05	-8058803.94	-8058803.82	0.0526	0.0241
Venus	-26777-07-27 15:50 J	-8058668.04	-8058667.84	-8058667.64	0.0521	0.0008
Venus	-26776-03-21 06:43 J	-8058431.30	-8058431.22	-8058431.12	0.0513	0.0451
Moon	-26773-10-08 23:45 J	-8057133.58	-8057133.51	-8057133.42	0.0489	0.0460
Earth	-26773-10-09 03:21 J	-8057133.42	-8057133.36	-8057133.31	0.0489	0.0474 *
Mercury	-26771-05-12 06:14 J	-8056553.41	-8056553.24	-8056553.06	0.0500	0.0051
Venus	-26771-05-23 21:35 J	-8056541.76	-8056541.60	-8056541.44	0.0500	0.0312
Venus	-26770-01-16 01:40 J	-8056304.63	-8056304.43	-8056304.23	0.0508	0.0134
Mercury	-26766-10-03 09:50 J	-8054583.14	-8054583.09	-8054583.04	0.0530	0.0491
Mercury	-26766-12-31 17:31 J	-8054493.90	-8054493.77	-8054493.64	0.0527	0.0100
Venus	-26765-04-01 14:38 J	-8054402.08	-8054401.89	-8054401.70	0.0524	0.0128
Venus	-26765-11-24 08:09 J	-8054165.31	-8054165.16	-8054165.01	0.0515	0.0334

Earth	-26761-10-13 13:40 J	-8052746.17	-8052745.93	-8052745.70	0.0489	0.0023
Moon	-26761-10-13 15:50 J	-8052746.07	-8052745.84	-8052745.61	0.0489	0.0010 *
Venus	-26759-01-26 18:28 J	-8052275.83	-8052275.73	-8052275.62	0.0499	0.0426
Mercury	-26759-02-28 04:33 J	-8052243.48	-8052243.31	-8052243.13	0.0499	0.0123
Venus	-26759-09-20 20:23 J	-8052038.86	-8052038.65	-8052038.44	0.0506	0.0008
Venus	-26758-05-16 07:26 J	-8051801.27	-8051801.19	-8051801.11	0.0515	0.0469
Mercury	-26754-10-19 21:35 J	-8050183.73	-8050183.60	-8050183.47	0.0527	0.0041
Venus	-26754-12-06 12:43 J	-8050136.14	-8050135.97	-8050135.79	0.0526	0.0258
Venus	-26753-07-30 08:38 J	-8049899.32	-8049899.14	-8049898.96	0.0517	0.0214
Moon	-26749-10-17 22:19 J	-8048358.69	-8048358.57	-8048358.45	0.0490	0.0425
Earth	-26749-10-17 23:02 J	-8048358.65	-8048358.54	-8048358.42	0.0490	0.0429 *
Mercury	-26748-12-17 02:38 J	-8047933.52	-8047933.39	-8047933.24	0.0499	0.0300
Mercury	-26747-03-17 07:40 J	-8047843.28	-8047843.18	-8047843.07	0.0502	0.0402
Venus	-26747-05-26 15:35 J	-8047773.06	-8047772.85	-8047772.65	0.0504	0.0116
Mars	-26747-06-12 16:04 J	-8047756.10	-8047755.83	-8047755.56	0.0505	0.0025
Venus	-26746-01-19 00:14 J	-8047535.64	-8047535.49	-8047535.33	0.0513	0.0343
Mercury	-26742-08-08 01:40 J	-8045873.55	-8045873.43	-8045873.31	0.0528	0.0182
Venus	-26742-08-11 09:21 J	-8045870.24	-8045870.11	-8045869.97	0.0528	0.0390
Mercury	-26742-11-05 09:35 J	-8045784.18	-8045784.10	-8045784.02	0.0525	0.0411
Venus	-26741-04-04 07:55 J	-8045633.37	-8045633.17	-8045632.97	0.0520	0.0087
Mercury	-26736-10-05 01:26 J	-8043623.49	-8043623.44	-8043623.37	0.0498	0.0467
Mercury	-26735-01-03 06:57 J	-8043533.37	-8043533.21	-8043533.06	0.0501	0.0238
Venus	-26735-01-29 12:28 J	-8043507.16	-8043506.98	-8043506.79	0.0502	0.0234
Venus	-26735-09-23 18:43 J	-8043269.91	-8043269.72	-8043269.53	0.0510	0.0218
Earth	-26731-04-12 17:45 J	-8041972.98	-8041972.76	-8041972.55	0.0538	0.0189
Moon	-26731-04-12 21:35 J	-8041972.81	-8041972.60	-8041972.39	0.0538	0.0221 *
Venus	-26730-04-16 01:55 J	-8041604.45	-8041604.42	-8041604.40	0.0530	0.0524
Mercury	-26730-05-27 04:33 J	-8041563.41	-8041563.31	-8041563.21	0.0529	0.0343
Mercury	-26730-08-24 12:28 J	-8041474.10	-8041473.98	-8041473.87	0.0526	0.0249
Venus	-26730-12-09 03:07 J	-8041367.57	-8041367.37	-8041367.17	0.0522	0.0046

Venus	-26729-08-01 18:43 J	-8041130.83	-8041130.72	-8041130.59	0.0514	0.0408
Venus	-26724-10-04 10:04 J	-8039241.23	-8039241.08	-8039240.93	0.0500	0.0350
Mercury	-26724-10-22 05:45 J	-8039223.44	-8039223.26	-8039223.09	0.0500	0.0071
Venus	-26723-05-29 13:11 J	-8039004.15	-8039003.95	-8039003.74	0.0507	0.0091
Moon	-26719-04-17 14:23 J	-8037585.06	-8037584.90	-8037584.74	0.0537	0.0383
Earth	-26719-04-17 17:59 J	-8037584.89	-8037584.75	-8037584.59	0.0537	0.0402 *
Mercury	-26718-03-15 08:23 J	-8037253.20	-8037253.15	-8037253.10	0.0530	0.0489
Mercury	-26718-06-12 16:04 J	-8037163.96	-8037163.83	-8037163.70	0.0527	0.0101
Venus	-26718-08-13 23:59 J	-8037101.68	-8037101.50	-8037101.31	0.0525	0.0179
Mars	-26718-09-04 19:55 J	-8037079.93	-8037079.67	-8037079.40	0.0524	0.0159
Venus	-26717-04-06 18:57 J	-8036864.88	-8036864.71	-8036864.55	0.0516	0.0288
Venus	-26712-06-09 06:28 J	-8034975.30	-8034975.23	-8034975.15	0.0498	0.0463
Mercury	-26712-08-10 03:35 J	-8034913.52	-8034913.35	-8034913.17	0.0499	0.0109
Venus	-26711-02-01 06:43 J	-8034738.42	-8034738.22	-8034738.01	0.0505	0.0038
Mars	-26711-03-18 04:19 J	-8034693.47	-8034693.32	-8034693.16	0.0506	0.0412
Venus	-26711-09-26 16:33 J	-8034500.93	-8034500.81	-8034500.70	0.0513	0.0423
Mercury	-26706-03-31 19:55 J	-8032853.80	-8032853.67	-8032853.54	0.0528	0.0044
Venus	-26706-04-18 21:35 J	-8032835.76	-8032835.60	-8032835.44	0.0527	0.0310
Venus	-26706-12-11 18:57 J	-8032598.89	-8032598.71	-8032598.52	0.0519	0.0165
Mercury	-26700-05-29 01:55 J	-8030603.56	-8030603.42	-8030603.27	0.0499	0.0282
Mercury	-26700-08-27 06:43 J	-8030513.31	-8030513.22	-8030513.12	0.0501	0.0417
Venus	-26700-10-07 02:23 J	-8030472.59	-8030472.40	-8030472.20	0.0503	0.0160
Venus	-26699-06-01 09:35 J	-8030235.27	-8030235.10	-8030234.93	0.0511	0.0295
Venus	-26695-12-22 18:57 J	-8028569.82	-8028569.71	-8028569.60	0.0529	0.0439
Mercury	-26694-01-18 00:14 J	-8028543.61	-8028543.49	-8028543.37	0.0528	0.0178
Mercury	-26694-04-17 08:09 J	-8028454.23	-8028454.16	-8028454.08	0.0525	0.0416
Venus	-26694-08-16 18:43 J	-8028332.91	-8028332.72	-8028332.52	0.0521	0.0041
Venus	-26693-04-09 09:21 J	-8028096.17	-8028096.11	-8028096.04	0.0512	0.0481
Mercury	-26688-03-16 23:59 J	-8026293.56	-8026293.50	-8026293.43	0.0498	0.0458
Venus	-26688-06-11 22:33 J	-8026206.73	-8026206.56	-8026206.38	0.0501	0.0278

Mercury	-26688-06-15 05:16 J	-8026203.43	-8026203.28	-8026203.12	0.0501	0.0246
Venus	-26687-02-04 03:21 J	-8025969.55	-8025969.36	-8025969.16	0.0509	0.0169
Mercury	-26683-11-06 04:19 J	-8024233.42	-8024233.32	-8024233.22	0.0529	0.0319
Mercury	-26682-02-03 11:59 J	-8024144.11	-8024144.00	-8024143.88	0.0526	0.0273
Venus	-26682-04-21 17:16 J	-8024066.97	-8024066.78	-8024066.58	0.0523	0.0090
Mars	-26682-06-12 00:14 J	-8024015.71	-8024015.49	-8024015.26	0.0521	0.0307
Venus	-26682-12-14 10:04 J	-8023830.22	-8023830.08	-8023829.94	0.0514	0.0366
Moon	-26678-10-13 23:16 J	-8022430.78	-8022430.53	-8022430.28	0.0489	0.0046
Earth	-26678-10-13 23:59 J	-8022430.74	-8022430.50	-8022430.27	0.0489	0.0071 *
Venus	-26676-02-14 20:52 J	-8021940.75	-8021940.63	-8021940.49	0.0499	0.0390
Mercury	-26676-04-03 04:33 J	-8021893.49	-8021893.31	-8021893.14	0.0500	0.0082
Venus	-26676-10-09 23:16 J	-8021703.74	-8021703.53	-8021703.32	0.0506	0.0046
Venus	-26675-06-04 10:47 J	-8021466.09	-8021466.05	-8021466.01	0.0515	0.0505
Mercury	-26671-08-25 07:26 J	-8019923.25	-8019923.19	-8019923.14	0.0529	0.0478
Mercury	-26671-11-22 14:52 J	-8019834.01	-8019833.88	-8019833.75	0.0527	0.0112
Venus	-26671-12-25 11:16 J	-8019801.21	-8019801.03	-8019800.85	0.0526	0.0227
Venus	-26670-08-19 06:57 J	-8019564.39	-8019564.21	-8019564.04	0.0517	0.0242
Moon	-26666-10-18 10:33 J	-8018043.20	-8018043.06	-8018042.92	0.0490	0.0381
Earth	-26666-10-18 11:45 J	-8018043.14	-8018043.01	-8018042.86	0.0490	0.0394 *
Mercury	-26664-01-20 03:21 J	-8017583.54	-8017583.36	-8017583.19	0.0500	0.0086
Venus	-26664-06-14 19:11 J	-8017437.91	-8017437.70	-8017437.49	0.0504	0.0078
Venus	-26663-02-07 03:50 J	-8017200.48	-8017200.34	-8017200.20	0.0512	0.0379
Venus	-26659-08-30 07:11 J	-8015535.34	-8015535.20	-8015535.06	0.0528	0.0360
Mercury	-26659-09-10 18:43 J	-8015523.85	-8015523.72	-8015523.59	0.0527	0.0039
Venus	-26658-04-24 05:45 J	-8015298.46	-8015298.26	-8015298.07	0.0520	0.0116
Mercury	-26653-11-08 01:11 J	-8013273.60	-8013273.45	-8013273.30	0.0499	0.0264
Mercury	-26652-02-06 05:59 J	-8013183.33	-8013183.25	-8013183.16	0.0501	0.0434
Venus	-26652-02-17 13:55 J	-8013172.11	-8013171.92	-8013171.72	0.0502	0.0202
Venus	-26652-10-12 19:55 J	-8012934.85	-8012934.67	-8012934.49	0.0510	0.0249
Moon	-26648-04-11 18:57 J	-8011657.90	-8011657.71	-8011657.52	0.0538	0.0309



Earth	-26648-04-11 22:47 J	-8011657.74	-8011657.55	-8011657.35	0.0538	0.0274 *
Venus	-26647-05-05 03:07 J	-8011269.43	-8011269.37	-8011269.29	0.0530	0.0491
Mercury	-26647-06-29 22:33 J	-8011213.68	-8011213.56	-8011213.43	0.0528	0.0179
Mercury	-26647-09-27 06:28 J	-8011124.30	-8011124.23	-8011124.14	0.0526	0.0417
Venus	-26647-12-28 04:47 J	-8011032.50	-8011032.30	-8011032.11	0.0522	0.0016
Venus	-26646-08-21 20:38 J	-8010795.74	-8010795.64	-8010795.53	0.0514	0.0438
Mercury	-26641-08-26 23:16 J	-8008963.61	-8008963.53	-8008963.44	0.0498	0.0439
Venus	-26641-10-23 10:47 J	-8008906.21	-8008906.05	-8008905.89	0.0500	0.0318
Mercury	-26641-11-25 04:33 J	-8008873.46	-8008873.31	-8008873.16	0.0501	0.0263
Venus	-26640-06-17 13:55 J	-8008669.12	-8008668.92	-8008668.72	0.0507	0.0123
Earth	-26636-04-17 03:07 J	-8007269.55	-8007269.37	-8007269.19	0.0538	0.0336
Moon	-26636-04-17 05:16 J	-8007269.45	-8007269.28	-8007269.10	0.0538	0.0334 *
Mercury	-26635-04-18 02:52 J	-8006903.48	-8006903.38	-8006903.27	0.0529	0.0316
Mercury	-26635-07-16 10:47 J	-8006814.16	-8006814.05	-8006813.94	0.0526	0.0277
Venus	-26635-09-02 03:35 J	-8006766.54	-8006766.35	-8006766.16	0.0524	0.0140
Venus	-26634-04-26 22:04 J	-8006529.74	-8006529.58	-8006529.43	0.0516	0.0322
Venus	-26629-06-28 07:55 J	-8004640.27	-8004640.17	-8004640.07	0.0498	0.0430
Mercury	-26629-09-13 03:07 J	-8004563.55	-8004563.37	-8004563.20	0.0500	0.0091
Mars	-26629-12-02 00:43 J	-8004483.71	-8004483.47	-8004483.23	0.0503	0.0229
Venus	-26628-02-20 08:38 J	-8004403.34	-8004403.14	-8004402.93	0.0505	0.0010
Venus	-26628-10-15 19:11 J	-8004165.79	-8004165.70	-8004165.61	0.0514	0.0456
Mercury	-26623-02-04 07:11 J	-8002593.27	-8002593.20	-8002593.14	0.0530	0.0455
Mercury	-26623-05-04 14:38 J	-8002504.01	-8002503.89	-8002503.76	0.0527	0.0136
Venus	-26623-05-08 00:57 J	-8002500.62	-8002500.46	-8002500.28	0.0527	0.0272
Venus	-26623-12-30 21:50 J	-8002263.77	-8002263.59	-8002263.41	0.0518	0.0200
Mercury	-26617-07-02 02:09 J	-8000253.59	-8000253.41	-8000253.23	0.0500	0.0074
Venus	-26617-10-26 05:45 J	-8000137.46	-8000137.26	-8000137.06	0.0503	0.0122
Venus	-26616-06-20 13:26 J	-7999900.09	-7999899.94	-7999899.78	0.0511	0.0333
Venus	-26611-01-10 17:59 J	-7998234.87	-7998234.75	-7998234.62	0.0529	0.0409
Mercury	-26611-02-20 17:45 J	-7998193.89	-7998193.76	-7998193.63	0.0527	0.0027

Venus	-26611-09-04 17:31 J	-7997997.97	-7997997.77	-7997997.57	0.0521	0.0069
Venus	-26610-04-29 07:55 J	-7997761.19	-7997761.17	-7997761.14	0.0512	0.0508
Mercury	-26605-04-20 00:57 J	-7995943.62	-7995943.46	-7995943.31	0.0499	0.0241
Venus	-26605-07-01 02:38 J	-7995871.56	-7995871.39	-7995871.20	0.0501	0.0241
Mercury	-26605-07-19 05:31 J	-7995853.33	-7995853.27	-7995853.19	0.0502	0.0458
Venus	-26604-02-23 07:40 J	-7995634.37	-7995634.18	-7995633.99	0.0509	0.0207
Mercury	-26600-12-09 21:21 J	-7993883.73	-7993883.61	-7993883.49	0.0528	0.0173
Mars	-26599-02-22 10:33 J	-7993809.17	-7993809.06	-7993808.96	0.0526	0.0487
Mercury	-26599-03-09 05:16 J	-7993794.36	-7993794.28	-7993794.20	0.0525	0.0420
Venus	-26599-05-10 15:07 J	-7993732.07	-7993731.87	-7993731.67	0.0523	0.0062
Venus	-26598-01-02 07:55 J	-7993495.29	-7993495.17	-7993495.04	0.0515	0.0394
Moon	-26595-10-13 09:50 J	-7992115.32	-7992115.09	-7992114.87	0.0489	0.0095
Earth	-26595-10-13 11:16 J	-7992115.26	-7992115.03	-7992114.80	0.0489	0.0112 *
Mercury	-26593-02-06 22:33 J	-7991633.65	-7991633.56	-7991633.46	0.0498	0.0420
Venus	-26593-03-05 22:47 J	-7991605.69	-7991605.55	-7991605.40	0.0499	0.0358
Mercury	-26593-05-07 03:50 J	-7991543.48	-7991543.34	-7991543.19	0.0501	0.0282
Mars	-26593-09-06 10:19 J	-7991421.33	-7991421.07	-7991420.81	0.0505	0.0151
Venus	-26593-10-29 00:57 J	-7991368.67	-7991368.46	-7991368.25	0.0506	0.0078
Mercury	-26588-09-28 01:26 J	-7989573.54	-7989573.44	-7989573.34	0.0529	0.0315
Mercury	-26588-12-26 09:07 J	-7989484.23	-7989484.12	-7989484.00	0.0526	0.0278
Venus	-26587-01-13 12:57 J	-7989466.15	-7989465.96	-7989465.78	0.0526	0.0193
Venus	-26587-09-07 08:38 J	-7989229.31	-7989229.14	-7989228.97	0.0517	0.0274
Earth	-26583-10-17 21:50 J	-7987727.75	-7987727.59	-7987727.41	0.0490	0.0345
Moon	-26583-10-18 01:26 J	-7987727.62	-7987727.44	-7987727.25	0.0490	0.0322 *
Venus	-26582-11-09 20:23 J	-7987339.71	-7987339.65	-7987339.57	0.0497	0.0468
Mercury	-26581-02-24 02:23 J	-7987233.57	-7987233.40	-7987233.23	0.0500	0.0110
Venus	-26581-07-03 19:55 J	-7987102.88	-7987102.67	-7987102.46	0.0504	0.0046
Venus	-26580-02-26 04:33 J	-7986865.43	-7986865.31	-7986865.18	0.0512	0.0409
Mercury	-26576-07-17 05:45 J	-7985263.33	-7985263.26	-7985263.20	0.0530	0.0452
Venus	-26576-09-18 10:47 J	-7985200.21	-7985200.05	-7985199.89	0.0528	0.0322

Mercury	-26576-10-14 13:26 J	-7985174.07	-7985173.94	-7985173.82	0.0527	0.0139
Venus	-26575-05-13 09:07 J	-7984963.31	-7984963.12	-7984962.93	0.0519	0.0153
Mercury	-26570-12-13 00:43 J	-7982923.65	-7982923.47	-7982923.29	0.0500	0.0065
Venus	-26569-03-08 15:35 J	-7982837.04	-7982836.85	-7982836.65	0.0502	0.0168
Venus	-26569-10-31 22:04 J	-7982599.75	-7982599.58	-7982599.40	0.0510	0.0284
Earth	-26565-04-11 09:50 J	-7981342.27	-7981342.09	-7981341.91	0.0538	0.0330
Moon	-26565-04-11 12:28 J	-7981342.14	-7981341.98	-7981341.81	0.0538	0.0361 *
Venus	-26564-05-24 07:11 J	-7980934.29	-7980934.20	-7980934.09	0.0530	0.0452
Mercury	-26564-08-02 17:16 J	-7980863.91	-7980863.78	-7980863.64	0.0527	0.0017
Mars	-26564-11-29 22:33 J	-7980744.84	-7980744.56	-7980744.28	0.0523	0.0006
Venus	-26563-01-16 07:55 J	-7980697.36	-7980697.17	-7980696.97	0.0522	0.0028
Venus	-26563-09-09 23:16 J	-7980460.61	-7980460.53	-7980460.45	0.0513	0.0469
Mercury	-26558-09-30 23:31 J	-7978613.67	-7978613.52	-7978613.36	0.0499	0.0230
Venus	-26558-11-12 13:40 J	-7978571.10	-7978570.93	-7978570.75	0.0500	0.0282
Mercury	-26558-12-30 04:33 J	-7978523.37	-7978523.31	-7978523.25	0.0502	0.0469
Venus	-26557-07-06 17:45 J	-7978333.96	-7978333.76	-7978333.57	0.0508	0.0161
Moon	-26553-04-16 08:23 J	-7976954.36	-7976954.15	-7976953.95	0.0537	0.0261
Earth	-26553-04-16 08:52 J	-7976954.33	-7976954.13	-7976953.93	0.0537	0.0256 *
Mercury	-26552-05-21 20:23 J	-7976553.77	-7976553.65	-7976553.52	0.0528	0.0161
Mercury	-26552-08-19 04:19 J	-7976464.39	-7976464.32	-7976464.24	0.0525	0.0432
Venus	-26552-09-21 02:52 J	-7976431.58	-7976431.38	-7976431.19	0.0524	0.0110
Venus	-26551-05-15 20:38 J	-7976194.78	-7976194.64	-7976194.49	0.0515	0.0349
Venus	-26546-07-18 11:45 J	-7974305.13	-7974305.01	-7974304.88	0.0499	0.0395
Mercury	-26546-07-19 22:04 J	-7974303.68	-7974303.58	-7974303.47	0.0499	0.0399
Mercury	-26546-10-18 03:35 J	-7974213.49	-7974213.35	-7974213.21	0.0501	0.0305
Venus	-26545-03-11 13:11 J	-7974068.16	-7974067.95	-7974067.75	0.0506	0.0037
Venus	-26545-11-03 23:31 J	-7973830.57	-7973830.52	-7973830.46	0.0514	0.0492
Mercury	-26540-03-10 00:14 J	-7972243.60	-7972243.49	-7972243.39	0.0529	0.0308
Venus	-26540-05-26 23:02 J	-7972165.71	-7972165.54	-7972165.36	0.0526	0.0243
Mercury	-26540-06-07 07:55 J	-7972154.28	-7972154.17	-7972154.06	0.0526	0.0283

Venus	-26539-01-18 19:40 J	-7971928.86	-7971928.68	-7971928.50	0.0518	0.0227
Mercury	-26534-08-06 01:40 J	-7969903.60	-7969903.43	-7969903.26	0.0500	0.0128
Venus	-26534-11-15 07:26 J	-7969802.39	-7969802.19	-7969801.98	0.0503	0.0089
Venus	-26533-07-09 14:52 J	-7969565.02	-7969564.88	-7969564.73	0.0511	0.0364
Mercury	-26529-12-27 04:04 J	-7967933.39	-7967933.33	-7967933.26	0.0530	0.0451
Venus	-26528-01-29 19:26 J	-7967899.83	-7967899.69	-7967899.55	0.0529	0.0374
Mercury	-26528-03-26 11:45 J	-7967844.14	-7967844.01	-7967843.88	0.0527	0.0139
Mars	-26528-09-05 05:31 J	-7967681.43	-7967681.27	-7967681.11	0.0521	0.0421
Venus	-26528-09-23 18:57 J	-7967662.90	-7967662.71	-7967662.51	0.0521	0.0102
Mercury	-26522-05-24 23:59 J	-7965593.68	-7965593.50	-7965593.33	0.0499	0.0047
Venus	-26522-07-21 03:21 J	-7965536.55	-7965536.36	-7965536.17	0.0501	0.0209
Venus	-26521-03-14 08:09 J	-7965299.34	-7965299.16	-7965298.97	0.0509	0.0237
Venus	-26517-10-04 16:04 J	-7963633.89	-7963633.83	-7963633.77	0.0531	0.0502
Mercury	-26516-01-12 15:50 J	-7963533.97	-7963533.84	-7963533.71	0.0528	0.0014
Venus	-26516-05-29 18:14 J	-7963396.94	-7963396.74	-7963396.54	0.0523	0.0026
Venus	-26515-01-21 11:02 J	-7963160.15	-7963160.04	-7963159.93	0.0514	0.0426
Earth	-26512-10-12 20:52 J	-7961799.85	-7961799.63	-7961799.40	0.0489	0.0163
Moon	-26512-10-13 00:14 J	-7961799.72	-7961799.49	-7961799.26	0.0489	0.0153 *
Mercury	-26510-03-12 22:04 J	-7961283.74	-7961283.58	-7961283.42	0.0499	0.0222
Venus	-26510-03-25 23:59 J	-7961270.65	-7961270.50	-7961270.34	0.0499	0.0325
Mars	-26510-05-24 13:55 J	-7961211.01	-7961210.92	-7961210.82	0.0501	0.0466
Mercury	-26510-06-11 02:52 J	-7961193.43	-7961193.38	-7961193.33	0.0502	0.0476
Venus	-26510-11-18 02:38 J	-7961033.59	-7961033.39	-7961033.19	0.0507	0.0112
Mercury	-26505-10-31 19:55 J	-7959223.79	-7959223.67	-7959223.54	0.0528	0.0141
Mercury	-26504-01-29 03:50 J	-7959134.40	-7959134.34	-7959134.27	0.0525	0.0454
Venus	-26504-02-01 16:19 J	-7959131.01	-7959130.82	-7959130.63	0.0525	0.0155
Venus	-26504-09-26 11:31 J	-7958894.18	-7958894.02	-7958893.86	0.0517	0.0308
Moon	-26500-10-17 04:33 J	-7957412.50	-7957412.31	-7957412.10	0.0490	0.0269
Earth	-26500-10-17 08:38 J	-7957412.32	-7957412.14	-7957411.94	0.0490	0.0297 *
Venus	-26499-11-28 22:47 J	-7957004.64	-7957004.55	-7957004.44	0.0498	0.0435

Mercury	-26499-12-29 20:52 J	-7956973.74	-7956973.63	-7956973.52	0.0498	0.0388
Mercury	-26498-03-30 02:09 J	-7956883.54	-7956883.41	-7956883.27	0.0501	0.0314
Venus	-26498-07-23 23:02 J	-7956767.75	-7956767.54	-7956767.33	0.0505	0.0010
Venus	-26497-03-17 08:23 J	-7956530.25	-7956530.15	-7956530.04	0.0513	0.0445
Mercury	-26493-08-19 23:16 J	-7954913.64	-7954913.53	-7954913.43	0.0528	0.0296
Venus	-26493-10-07 10:19 J	-7954865.23	-7954865.07	-7954864.90	0.0527	0.0291
Mercury	-26493-11-17 06:57 J	-7954824.32	-7954824.21	-7954824.10	0.0526	0.0294
Venus	-26492-06-01 07:40 J	-7954628.36	-7954628.18	-7954627.99	0.0519	0.0181
Mercury	-26486-01-16 00:57 J	-7952573.63	-7952573.46	-7952573.29	0.0501	0.0148
Venus	-26486-03-28 19:26 J	-7952501.89	-7952501.69	-7952501.49	0.0503	0.0131
Venus	-26486-11-21 02:23 J	-7952264.56	-7952264.40	-7952264.24	0.0511	0.0320
Moon	-26482-04-11 11:45 J	-7951027.13	-7951027.01	-7951026.88	0.0537	0.0450
Earth	-26482-04-11 12:57 J	-7951027.10	-7951026.96	-7951026.82	0.0537	0.0422 *
Mercury	-26481-06-08 02:52 J	-7950603.45	-7950603.38	-7950603.31	0.0529	0.0444
Venus	-26481-06-12 05:16 J	-7950599.39	-7950599.28	-7950599.16	0.0529	0.0424
Mercury	-26481-09-05 10:33 J	-7950514.19	-7950514.06	-7950513.94	0.0526	0.0145
Venus	-26480-02-04 05:31 J	-7950362.47	-7950362.27	-7950362.07	0.0521	0.0053
Venus	-26480-09-28 20:38 J	-7950125.69	-7950125.64	-7950125.58	0.0513	0.0492
Mercury	-26475-11-03 23:02 J	-7948263.72	-7948263.54	-7948263.36	0.0500	0.0031
Venus	-26475-12-01 14:52 J	-7948236.06	-7948235.88	-7948235.70	0.0500	0.0251
Mars	-26474-02-26 17:45 J	-7948149.02	-7948148.76	-7948148.49	0.0503	0.0101
Venus	-26474-07-26 18:43 J	-7947998.91	-7947998.72	-7947998.53	0.0508	0.0191
Moon	-26470-04-16 11:16 J	-7946639.23	-7946639.03	-7946638.82	0.0537	0.0176
Earth	-26470-04-16 12:28 J	-7946639.20	-7946638.98	-7946638.76	0.0537	0.0163 *
Mercury	-26469-06-24 14:23 J	-7946204.04	-7946203.90	-7946203.77	0.0528	0.0017
Venus	-26469-10-10 03:35 J	-7946096.55	-7946096.35	-7946096.16	0.0524	0.0077
Venus	-26468-06-03 21:21 J	-7945859.74	-7945859.61	-7945859.47	0.0516	0.0379
Venus	-26463-08-06 11:45 J	-7943970.14	-7943970.01	-7943969.86	0.0498	0.0365
Mercury	-26463-08-22 21:07 J	-7943953.78	-7943953.62	-7943953.46	0.0499	0.0206
Mercury	-26463-11-21 01:55 J	-7943863.45	-7943863.42	-7943863.39	0.0501	0.0491

Venus	-26462-03-31 12:57 J	-7943733.16	-7943732.96	-7943732.75	0.0506	0.0066
Mercury	-26457-04-12 18:28 J	-7941893.86	-7941893.73	-7941893.61	0.0528	0.0141
Venus	-26457-06-15 01:26 J	-7941830.62	-7941830.44	-7941830.25	0.0526	0.0207
Mercury	-26457-07-11 02:23 J	-7941804.46	-7941804.40	-7941804.34	0.0525	0.0454
Venus	-26456-02-06 21:50 J	-7941593.75	-7941593.59	-7941593.41	0.0518	0.0261
Venus	-26451-04-11 09:21 J	-7939704.17	-7939704.11	-7939704.05	0.0497	0.0475
Mercury	-26451-06-10 19:11 J	-7939643.82	-7939643.70	-7939643.59	0.0498	0.0384
Mercury	-26451-09-09 00:14 J	-7939553.62	-7939553.49	-7939553.35	0.0501	0.0319
Venus	-26451-12-04 07:55 J	-7939467.37	-7939467.17	-7939466.96	0.0504	0.0059
Venus	-26450-07-29 15:50 J	-7939229.96	-7939229.84	-7939229.70	0.0512	0.0395
Mercury	-26445-01-30 22:33 J	-7937583.67	-7937583.56	-7937583.45	0.0529	0.0280
Venus	-26445-02-18 22:33 J	-7937564.71	-7937564.56	-7937564.41	0.0528	0.0337
Mercury	-26445-04-29 06:14 J	-7937494.34	-7937494.24	-7937494.13	0.0526	0.0312
Mars	-26445-05-19 09:21 J	-7937474.32	-7937474.11	-7937473.89	0.0525	0.0335
Venus	-26445-10-12 21:35 J	-7937327.80	-7937327.60	-7937327.41	0.0520	0.0137
Mercury	-26439-06-27 23:31 J	-7935243.69	-7935243.52	-7935243.35	0.0500	0.0154
Venus	-26439-08-09 05:16 J	-7935201.47	-7935201.28	-7935201.08	0.0502	0.0175
Mars	-26439-12-02 02:38 J	-7935086.61	-7935086.39	-7935086.16	0.0505	0.0275
Venus	-26438-04-03 11:02 J	-7934964.21	-7934964.04	-7934963.86	0.0510	0.0272
Venus	-26434-10-24 15:50 J	-7933298.92	-7933298.84	-7933298.75	0.0530	0.0472
Mercury	-26434-11-19 01:55 J	-7933273.49	-7933273.42	-7933273.35	0.0529	0.0433
Mercury	-26433-02-16 09:21 J	-7933184.23	-7933184.11	-7933183.98	0.0526	0.0155
Venus	-26433-06-17 17:02 J	-7933061.99	-7933061.79	-7933061.59	0.0522	0.0006
Venus	-26432-02-09 08:52 J	-7932825.22	-7932825.13	-7932825.03	0.0514	0.0449
Moon	-26429-10-12 01:55 J	-7931484.63	-7931484.42	-7931484.21	0.0490	0.0211
Earth	-26429-10-12 05:59 J	-7931484.46	-7931484.25	-7931484.04	0.0490	0.0216 *
Venus	-26427-04-14 02:38 J	-7930935.56	-7930935.39	-7930935.22	0.0500	0.0292
Mercury	-26427-04-15 22:04 J	-7930933.76	-7930933.58	-7930933.40	0.0500	0.0016
Venus	-26427-12-07 05:45 J	-7930698.46	-7930698.26	-7930698.06	0.0507	0.0147
Mercury	-26422-12-05 12:57 J	-7928874.09	-7928873.96	-7928873.83	0.0527	0.0007

Venus	-26421-02-21 13:40 J	-7928796.12	-7928795.93	-7928795.74	0.0524	0.0128
Venus	-26421-10-15 08:09 J	-7928559.31	-7928559.16	-7928559.00	0.0516	0.0331
Earth	-26417-10-16 16:33 J	-7927097.02	-7927096.81	-7927096.60	0.0490	0.0239
Moon	-26417-10-16 20:23 J	-7927096.86	-7927096.65	-7927096.44	0.0490	0.0212 *
Venus	-26416-12-17 23:02 J	-7926669.66	-7926669.54	-7926669.42	0.0498	0.0405
Mercury	-26415-02-01 19:55 J	-7926623.83	-7926623.67	-7926623.51	0.0499	0.0195
Venus	-26415-08-11 23:16 J	-7926432.74	-7926432.53	-7926432.32	0.0505	0.0021
Venus	-26414-04-06 08:23 J	-7926195.22	-7926195.15	-7926195.07	0.0513	0.0472
Mercury	-26410-09-23 16:33 J	-7924563.93	-7924563.81	-7924563.68	0.0528	0.0144
Venus	-26410-10-27 09:50 J	-7924530.26	-7924530.09	-7924529.91	0.0527	0.0260
Mercury	-26410-12-22 00:28 J	-7924474.54	-7924474.48	-7924474.41	0.0525	0.0451
Mars	-26409-02-23 21:07 J	-7924410.89	-7924410.62	-7924410.35	0.0523	0.0103
Venus	-26409-06-20 07:26 J	-7924293.37	-7924293.19	-7924293.00	0.0519	0.0211
Mercury	-26404-11-20 17:45 J	-7922313.87	-7922313.76	-7922313.64	0.0498	0.0372
Mercury	-26403-02-18 23:02 J	-7922223.67	-7922223.54	-7922223.40	0.0501	0.0331
Venus	-26403-04-16 18:28 J	-7922166.93	-7922166.73	-7922166.52	0.0503	0.0102
Venus	-26403-12-10 00:57 J	-7921929.60	-7921929.46	-7921929.30	0.0510	0.0347
Earth	-26399-04-10 16:19 J	-7920711.88	-7920711.82	-7920711.75	0.0538	0.0516
Venus	-26398-07-02 06:14 J	-7920264.36	-7920264.24	-7920264.10	0.0529	0.0391
Mercury	-26398-07-12 20:52 J	-7920253.74	-7920253.63	-7920253.52	0.0529	0.0283
Mercury	-26398-10-10 04:33 J	-7920164.42	-7920164.31	-7920164.20	0.0526	0.0309
Venus	-26397-02-24 06:57 J	-7920027.41	-7920027.21	-7920027.01	0.0521	0.0086
Mercury	-26392-12-07 21:21 J	-7917913.78	-7917913.61	-7917913.44	0.0500	0.0155
Venus	-26392-12-20 14:09 J	-7917901.09	-7917900.91	-7917900.72	0.0501	0.0222
Venus	-26391-08-14 18:28 J	-7917663.92	-7917663.73	-7917663.54	0.0508	0.0221
Earth	-26387-04-15 20:09 J	-7916323.89	-7916323.66	-7916323.44	0.0538	0.0091
Moon	-26387-04-15 22:47 J	-7916323.78	-7916323.55	-7916323.32	0.0538	0.0110 *
Venus	-26386-03-07 02:23 J	-7915998.44	-7915998.40	-7915998.36	0.0531	0.0519
Mercury	-26386-05-01 00:57 J	-7915943.54	-7915943.46	-7915943.38	0.0530	0.0422
Mercury	-26386-07-29 08:38 J	-7915854.27	-7915854.14	-7915854.02	0.0527	0.0168

Venus	-26386-10-30 05:31 J	-7915761.47	-7915761.27	-7915761.08	0.0524	0.0044
Venus	-26385-06-22 22:33 J	-7915524.67	-7915524.56	-7915524.43	0.0515	0.0408
Venus	-26380-08-25 12:28 J	-7913635.14	-7913634.98	-7913634.83	0.0499	0.0334
Mercury	-26380-09-25 20:09 J	-7913603.84	-7913603.66	-7913603.48	0.0500	0.0013
Venus	-26379-04-19 14:23 J	-7913398.11	-7913397.90	-7913397.70	0.0506	0.0099
Mercury	-26374-05-17 11:45 J	-7911544.14	-7911544.01	-7911543.88	0.0527	0.0015
Venus	-26374-07-05 00:14 J	-7911495.67	-7911495.49	-7911495.30	0.0525	0.0178
Venus	-26373-02-26 19:55 J	-7911258.84	-7911258.67	-7911258.51	0.0517	0.0285
Venus	-26368-04-30 10:04 J	-7909369.17	-7909369.08	-7909368.98	0.0497	0.0445
Mercury	-26368-07-14 18:28 J	-7909293.89	-7909293.73	-7909293.56	0.0499	0.0185
Venus	-26368-12-23 09:50 J	-7909132.30	-7909132.09	-7909131.89	0.0504	0.0027
Venus	-26367-08-17 18:14 J	-7908894.85	-7908894.74	-7908894.62	0.0512	0.0426
Mercury	-26362-03-05 15:21 J	-7907233.98	-7907233.86	-7907233.73	0.0528	0.0137
Venus	-26362-03-09 19:40 J	-7907229.84	-7907229.68	-7907229.52	0.0527	0.0310
Mercury	-26362-06-02 23:16 J	-7907144.60	-7907144.53	-7907144.47	0.0525	0.0454
Venus	-26362-11-01 17:45 J	-7906992.94	-7906992.76	-7906992.57	0.0520	0.0161
Mercury	-26356-05-02 16:19 J	-7904983.94	-7904983.82	-7904983.70	0.0498	0.0365
Mercury	-26356-07-31 21:35 J	-7904893.73	-7904893.60	-7904893.47	0.0501	0.0338
Mars	-26356-08-17 22:04 J	-7904876.76	-7904876.58	-7904876.39	0.0501	0.0355
Venus	-26356-08-28 04:33 J	-7904866.51	-7904866.31	-7904866.11	0.0502	0.0146
Venus	-26355-04-22 10:04 J	-7904629.25	-7904629.08	-7904628.91	0.0509	0.0299
Venus	-26351-11-12 14:09 J	-7902964.02	-7902963.91	-7902963.80	0.0530	0.0442
Mercury	-26351-12-22 18:57 J	-7902923.82	-7902923.71	-7902923.60	0.0529	0.0287
Mercury	-26350-03-22 02:38 J	-7902834.49	-7902834.39	-7902834.28	0.0526	0.0305
Venus	-26350-07-07 15:35 J	-7902727.05	-7902726.85	-7902726.65	0.0522	0.0033
Venus	-26349-02-29 07:40 J	-7902490.25	-7902490.18	-7902490.10	0.0514	0.0475
Earth	-26346-10-12 12:28 J	-7901169.17	-7901168.98	-7901168.78	0.0489	0.0280
Moon	-26346-10-12 16:19 J	-7901169.01	-7901168.82	-7901168.62	0.0489	0.0278 *
Venus	-26344-05-03 00:43 J	-7900600.65	-7900600.47	-7900600.29	0.0500	0.0264
Mercury	-26344-05-19 19:55 J	-7900583.84	-7900583.67	-7900583.51	0.0500	0.0163



Venus	-26344-12-26 03:35 J	-7900363.55	-7900363.35	-7900363.16	0.0507	0.0173
Mercury	-26339-10-10 23:02 J	-7898613.61	-7898613.54	-7898613.47	0.0530	0.0429
Mercury	-26338-01-08 06:43 J	-7898524.35	-7898524.22	-7898524.10	0.0527	0.0162
Venus	-26338-03-12 13:40 J	-7898461.13	-7898460.93	-7898460.74	0.0525	0.0096
Venus	-26338-11-04 08:23 J	-7898224.29	-7898224.15	-7898224.01	0.0516	0.0361
Moon	-26334-10-16 18:57 J	-7896781.94	-7896781.71	-7896781.47	0.0490	0.0141
Earth	-26334-10-16 22:04 J	-7896781.80	-7896781.58	-7896781.35	0.0490	0.0171 *
Venus	-26332-01-05 21:07 J	-7896334.75	-7896334.62	-7896334.48	0.0498	0.0377
Mercury	-26332-03-07 17:45 J	-7896273.93	-7896273.76	-7896273.58	0.0500	0.0018
Venus	-26332-08-30 21:35 J	-7896097.81	-7896097.60	-7896097.39	0.0505	0.0049
Venus	-26331-04-25 07:11 J	-7895860.24	-7895860.20	-7895860.15	0.0513	0.0498
Mercury	-26327-10-27 10:33 J	-7894214.19	-7894214.06	-7894213.93	0.0527	0.0024
Venus	-26327-11-15 10:47 J	-7894195.22	-7894195.05	-7894194.87	0.0527	0.0227
Venus	-26326-07-10 08:09 J	-7893958.34	-7893958.16	-7893957.99	0.0519	0.0240
Venus	-26321-09-10 19:55 J	-7892068.71	-7892068.67	-7892068.62	0.0496	0.0484
Mercury	-26321-12-24 16:19 J	-7891963.98	-7891963.82	-7891963.65	0.0499	0.0185
Venus	-26320-05-05 18:14 J	-7891831.95	-7891831.74	-7891831.54	0.0503	0.0073
Mars	-26320-05-22 21:21 J	-7891814.88	-7891814.61	-7891814.34	0.0504	0.0003
Venus	-26320-12-29 01:26 J	-7891594.58	-7891594.44	-7891594.30	0.0511	0.0376
Venus	-26315-07-21 05:16 J	-7889929.42	-7889929.28	-7889929.14	0.0528	0.0360
Mercury	-26315-08-15 14:09 J	-7889904.04	-7889903.91	-7889903.79	0.0528	0.0133
Mercury	-26315-11-12 21:50 J	-7889814.65	-7889814.59	-7889814.53	0.0525	0.0459
Venus	-26314-03-15 04:33 J	-7889692.50	-7889692.31	-7889692.11	0.0520	0.0113
Mercury	-26309-10-12 14:23 J	-7887654.02	-7887653.90	-7887653.77	0.0499	0.0360
Venus	-26308-01-08 14:09 J	-7887566.10	-7887565.91	-7887565.72	0.0501	0.0191
Mercury	-26308-01-10 19:55 J	-7887563.80	-7887563.67	-7887563.54	0.0501	0.0344
Venus	-26308-09-02 19:11 J	-7887328.88	-7887328.70	-7887328.52	0.0509	0.0252
Moon	-26304-04-14 17:59 J	-7886008.98	-7886008.75	-7886008.53	0.0537	0.0006
Earth	-26304-04-14 21:21 J	-7886008.84	-7886008.61	-7886008.39	0.0537	0.0017 *
Venus	-26303-03-25 23:31 J	-7885663.59	-7885663.52	-7885663.45	0.0530	0.0491

Mercury	-26303-06-03 17:31 J	-7885593.87	-7885593.77	-7885593.66	0.0528	0.0283
Mercury	-26303-09-01 01:11 J	-7885504.55	-7885504.45	-7885504.34	0.0525	0.0307
Venus	-26303-11-18 01:26 J	-7885426.63	-7885426.44	-7885426.24	0.0523	0.0021
Venus	-26302-07-12 18:14 J	-7885189.85	-7885189.74	-7885189.63	0.0515	0.0427
Venus	-26297-09-13 10:04 J	-7883300.23	-7883300.08	-7883299.91	0.0499	0.0307
Mercury	-26297-10-29 17:59 J	-7883253.92	-7883253.75	-7883253.59	0.0500	0.0166
Venus	-26296-05-08 12:14 J	-7883063.19	-7883062.99	-7883062.79	0.0506	0.0126
Mercury	-26291-03-22 21:07 J	-7881283.69	-7881283.62	-7881283.55	0.0529	0.0434
Mercury	-26291-06-20 04:33 J	-7881194.43	-7881194.31	-7881194.18	0.0527	0.0156
Venus	-26291-07-23 21:21 J	-7881160.80	-7881160.61	-7881160.42	0.0526	0.0149
Mars	-26291-08-12 21:07 J	-7881140.87	-7881140.62	-7881140.37	0.0525	0.0243
Venus	-26290-03-17 17:16 J	-7880923.93	-7880923.78	-7880923.62	0.0517	0.0311
Venus	-26285-05-19 07:26 J	-7879034.30	-7879034.19	-7879034.08	0.0497	0.0418
Mercury	-26285-08-17 16:04 J	-7878944.01	-7878943.83	-7878943.65	0.0500	0.0012
Venus	-26284-01-11 06:28 J	-7878797.43	-7878797.23	-7878797.02	0.0504	0.0011
Mars	-26284-02-24 21:21 J	-7878752.79	-7878752.61	-7878752.42	0.0505	0.0368
Venus	-26284-09-05 14:52 J	-7878559.98	-7878559.88	-7878559.78	0.0512	0.0449
Venus	-26279-03-28 17:59 J	-7876894.92	-7876894.75	-7876894.58	0.0528	0.0280
Mercury	-26279-04-08 08:38 J	-7876884.27	-7876884.14	-7876884.01	0.0528	0.0017
Venus	-26279-11-20 16:33 J	-7876657.99	-7876657.81	-7876657.62	0.0520	0.0190
Mercury	-26273-06-05 13:40 J	-7874634.09	-7874633.93	-7874633.76	0.0499	0.0191
Venus	-26273-09-16 01:40 J	-7874531.64	-7874531.43	-7874531.23	0.0502	0.0120
Venus	-26272-05-11 07:11 J	-7874294.35	-7874294.20	-7874294.03	0.0510	0.0325
Venus	-26268-12-01 13:55 J	-7872629.04	-7872628.92	-7872628.79	0.0530	0.0411
Mercury	-26267-01-25 12:28 J	-7872574.10	-7872573.98	-7872573.85	0.0528	0.0132
Mercury	-26267-04-24 20:23 J	-7872484.71	-7872484.65	-7872484.59	0.0525	0.0462
Venus	-26267-07-26 15:21 J	-7872392.06	-7872391.86	-7872391.66	0.0522	0.0064
Venus	-26266-03-20 07:11 J	-7872155.24	-7872155.20	-7872155.16	0.0514	0.0500
Moon	-26263-10-11 13:11 J	-7870854.11	-7870853.95	-7870853.78	0.0489	0.0356
Earth	-26263-10-11 16:33 J	-7870853.97	-7870853.81	-7870853.65	0.0489	0.0355 *

Mercury	-26261-03-24 11:59 J	-7870324.12	-7870324.00	-7870323.87	0.0498	0.0364
Venus	-26261-05-21 22:33 J	-7870265.74	-7870265.56	-7870265.37	0.0500	0.0236
Mercury	-26261-06-22 17:31 J	-7870233.90	-7870233.77	-7870233.64	0.0501	0.0340
Venus	-26260-01-14 02:09 J	-7870028.60	-7870028.41	-7870028.22	0.0508	0.0202
Mercury	-26256-11-13 16:04 J	-7868263.93	-7868263.83	-7868263.72	0.0528	0.0281
Mercury	-26255-02-10 23:45 J	-7868174.61	-7868174.51	-7868174.40	0.0525	0.0309
Venus	-26255-03-31 11:31 J	-7868126.22	-7868126.02	-7868125.83	0.0524	0.0069
Mars	-26255-05-19 18:28 J	-7868076.99	-7868076.73	-7868076.48	0.0522	0.0209
Venus	-26255-11-23 05:02 J	-7867889.41	-7867889.29	-7867889.15	0.0516	0.0383
Earth	-26251-10-16 00:28 J	-7866466.71	-7866466.48	-7866466.24	0.0490	0.0089
Moon	-26251-10-16 01:55 J	-7866466.65	-7866466.42	-7866466.19	0.0490	0.0061 *
Venus	-26249-01-25 19:11 J	-7865999.84	-7865999.70	-7865999.54	0.0499	0.0351
Mercury	-26249-04-10 15:50 J	-7865924.01	-7865923.84	-7865923.67	0.0501	0.0166
Venus	-26249-09-18 20:52 J	-7865762.84	-7865762.63	-7865762.43	0.0506	0.0078
Mercury	-26244-09-01 19:40 J	-7863953.75	-7863953.68	-7863953.60	0.0529	0.0430
Mercury	-26244-11-30 03:21 J	-7863864.49	-7863864.36	-7863864.24	0.0526	0.0158
Venus	-26244-12-04 06:57 J	-7863860.39	-7863860.21	-7863860.02	0.0526	0.0201
Venus	-26243-07-29 03:21 J	-7863623.53	-7863623.36	-7863623.19	0.0518	0.0262
Venus	-26238-09-30 16:33 J	-7861733.88	-7861733.81	-7861733.72	0.0497	0.0459
Mercury	-26237-01-28 13:40 J	-7861614.10	-7861613.93	-7861613.75	0.0500	0.0017
Venus	-26237-05-24 14:52 J	-7861497.08	-7861496.88	-7861496.67	0.0503	0.0046
Venus	-26236-01-16 22:04 J	-7861259.70	-7861259.58	-7861259.45	0.0511	0.0401
Venus	-26232-08-09 00:57 J	-7859594.61	-7859594.46	-7859594.30	0.0529	0.0334
Mercury	-26232-09-18 06:28 J	-7859554.36	-7859554.23	-7859554.10	0.0527	0.0015
Venus	-26231-04-03 00:57 J	-7859357.65	-7859357.46	-7859357.27	0.0521	0.0137
Mercury	-26226-11-16 11:45 J	-7857304.17	-7857304.01	-7857303.84	0.0499	0.0190
Venus	-26225-01-28 10:33 J	-7857231.26	-7857231.06	-7857230.86	0.0501	0.0164
Venus	-26225-09-21 15:07 J	-7856994.04	-7856993.87	-7856993.69	0.0509	0.0276
Earth	-26221-04-13 17:02 J	-7855694.01	-7855693.79	-7855693.57	0.0538	0.0147
Moon	-26221-04-13 20:38 J	-7855693.86	-7855693.64	-7855693.41	0.0538	0.0122 *

Venus	-26220-04-13 19:55 J	-7855328.76	-7855328.67	-7855328.57	0.0531	0.0464
Mercury	-26220-07-07 10:19 J	-7855244.19	-7855244.07	-7855243.94	0.0528	0.0143
Mercury	-26220-10-04 18:14 J	-7855154.81	-7855154.74	-7855154.67	0.0525	0.0450
Venus	-26220-12-06 22:47 J	-7855091.75	-7855091.55	-7855091.35	0.0523	0.0011
Venus	-26219-07-31 16:04 J	-7854854.92	-7854854.83	-7854854.74	0.0515	0.0453
Mercury	-26214-09-04 09:21 J	-7852994.23	-7852994.11	-7852993.99	0.0498	0.0372
Venus	-26214-10-03 06:28 J	-7852965.40	-7852965.23	-7852965.06	0.0499	0.0281
Mercury	-26214-12-03 14:38 J	-7852904.02	-7852903.89	-7852903.75	0.0501	0.0331
Venus	-26213-05-27 08:23 J	-7852728.35	-7852728.15	-7852727.95	0.0506	0.0151
Moon	-26209-04-18 16:19 J	-7851305.92	-7851305.82	-7851305.71	0.0537	0.0472
Earth	-26209-04-18 19:26 J	-7851305.81	-7851305.69	-7851305.56	0.0537	0.0453 *
Mercury	-26208-04-25 14:23 J	-7850934.01	-7850933.90	-7850933.79	0.0529	0.0284
Mercury	-26208-07-23 22:04 J	-7850844.68	-7850844.58	-7850844.47	0.0526	0.0307
Venus	-26208-08-11 20:23 J	-7850825.85	-7850825.65	-7850825.46	0.0525	0.0120
Venus	-26207-04-05 16:04 J	-7850588.98	-7850588.83	-7850588.68	0.0517	0.0337
Venus	-26202-06-08 04:04 J	-7848699.45	-7848699.33	-7848699.20	0.0497	0.0392
Mercury	-26202-09-21 13:11 J	-7848594.11	-7848593.95	-7848593.78	0.0500	0.0161
Mars	-26202-11-11 11:31 J	-7848543.25	-7848543.02	-7848542.80	0.0502	0.0275
Venus	-26201-01-31 03:50 J	-7848462.55	-7848462.34	-7848462.14	0.0504	0.0030
Venus	-26201-09-24 12:43 J	-7848225.04	-7848224.97	-7848224.89	0.0513	0.0474
Mercury	-26196-02-11 18:14 J	-7846623.81	-7846623.74	-7846623.67	0.0529	0.0430
Venus	-26196-04-16 16:04 J	-7846560.01	-7846559.83	-7846559.66	0.0527	0.0251
Mercury	-26196-05-12 01:40 J	-7846534.56	-7846534.43	-7846534.30	0.0526	0.0157
Venus	-26196-12-09 13:40 J	-7846323.11	-7846322.93	-7846322.75	0.0519	0.0214
Mercury	-26190-07-10 11:16 J	-7844284.21	-7844284.03	-7844283.85	0.0500	0.0018
Venus	-26190-10-05 23:16 J	-7844196.74	-7844196.53	-7844196.33	0.0503	0.0092
Venus	-26189-05-30 05:45 J	-7843959.40	-7843959.26	-7843959.11	0.0510	0.0352
Venus	-26185-12-20 10:33 J	-7842294.20	-7842294.06	-7842293.93	0.0529	0.0383
Mercury	-26184-02-28 05:16 J	-7842224.42	-7842224.28	-7842224.15	0.0527	0.0020
Venus	-26184-08-14 10:47 J	-7842057.25	-7842057.05	-7842056.85	0.0521	0.0087

Earth	-26180-10-10 16:47 J	-7840538.89	-7840538.80	-7840538.70	0.0489	0.0447
Moon	-26180-10-10 18:28 J	-7840538.81	-7840538.73	-7840538.65	0.0489	0.0455 *
Mercury	-26178-04-28 09:07 J	-7839974.28	-7839974.12	-7839973.95	0.0499	0.0196
Venus	-26178-06-10 18:43 J	-7839930.90	-7839930.72	-7839930.53	0.0500	0.0209
Venus	-26177-02-02 22:19 J	-7839693.76	-7839693.57	-7839693.38	0.0508	0.0227
Venus	-26173-08-25 02:38 J	-7838028.43	-7838028.39	-7838028.34	0.0531	0.0516
Mercury	-26173-12-17 08:23 J	-7837914.28	-7837914.15	-7837914.03	0.0528	0.0151
Mercury	-26172-03-16 16:04 J	-7837824.90	-7837824.83	-7837824.76	0.0525	0.0442
Venus	-26172-04-19 06:28 J	-7837791.42	-7837791.23	-7837791.03	0.0524	0.0044
Venus	-26172-12-12 00:43 J	-7837554.58	-7837554.47	-7837554.34	0.0516	0.0406
Earth	-26168-10-15 04:04 J	-7836151.57	-7836151.33	-7836151.09	0.0490	0.0008
Moon	-26168-10-15 04:47 J	-7836151.55	-7836151.30	-7836151.05	0.0490	0.0019 *
Venus	-26166-02-13 15:35 J	-7835665.00	-7835664.85	-7835664.69	0.0498	0.0323
Mercury	-26166-02-14 06:57 J	-7835664.32	-7835664.21	-7835664.08	0.0498	0.0374
Mercury	-26166-05-15 12:43 J	-7835574.10	-7835573.97	-7835573.84	0.0501	0.0330
Mars	-26166-08-16 06:28 J	-7835481.50	-7835481.23	-7835480.97	0.0504	0.0074
Venus	-26166-10-08 16:33 J	-7835428.02	-7835427.81	-7835427.61	0.0505	0.0104
Mercury	-26161-10-05 12:14 J	-7833604.10	-7833603.99	-7833603.89	0.0529	0.0297
Venus	-26161-12-23 02:52 J	-7833525.57	-7833525.38	-7833525.19	0.0527	0.0173
Mercury	-26160-01-02 19:55 J	-7833514.78	-7833514.67	-7833514.56	0.0526	0.0294
Venus	-26160-08-16 23:59 J	-7833288.66	-7833288.50	-7833288.33	0.0518	0.0288
Moon	-26156-10-19 11:02 J	-7831764.11	-7831764.04	-7831763.96	0.0490	0.0462
Earth	-26156-10-19 13:11 J	-7831764.02	-7831763.95	-7831763.86	0.0490	0.0457 *
Venus	-26155-10-19 12:28 J	-7831399.08	-7831398.98	-7831398.88	0.0496	0.0433
Mercury	-26154-03-03 10:19 J	-7831264.23	-7831264.07	-7831263.90	0.0500	0.0151
Venus	-26154-06-13 10:33 J	-7831162.27	-7831162.06	-7831161.85	0.0503	0.0020
Venus	-26153-02-05 17:31 J	-7830924.87	-7830924.77	-7830924.64	0.0511	0.0424
Mercury	-26149-07-24 16:19 J	-7829293.89	-7829293.82	-7829293.75	0.0530	0.0438
Venus	-26149-08-27 23:16 J	-7829259.69	-7829259.53	-7829259.36	0.0529	0.0305
Mercury	-26149-10-21 23:45 J	-7829204.64	-7829204.51	-7829204.38	0.0527	0.0151

Venus	-26148-04-21 23:02 J	-7829022.72	-7829022.54	-7829022.34	0.0521	0.0166
Mercury	-26143-12-20 08:52 J	-7826954.31	-7826954.13	-7826953.96	0.0500	0.0026
Venus	-26142-02-16 06:43 J	-7826896.42	-7826896.22	-7826896.02	0.0501	0.0139
Venus	-26142-10-11 11:45 J	-7826659.17	-7826659.01	-7826658.84	0.0509	0.0301
Moon	-26138-04-13 15:50 J	-7825379.05	-7825378.84	-7825378.62	0.0538	0.0219
Earth	-26138-04-13 19:11 J	-7825378.90	-7825378.70	-7825378.49	0.0538	0.0247 *
Venus	-26137-05-02 18:28 J	-7824993.84	-7824993.73	-7824993.61	0.0530	0.0434
Mercury	-26137-08-10 03:35 J	-7824894.49	-7824894.35	-7824894.22	0.0527	0.0017
Mars	-26137-11-05 12:43 J	-7824807.24	-7824806.97	-7824806.70	0.0524	0.0147
Venus	-26137-12-25 20:09 J	-7824756.85	-7824756.66	-7824756.46	0.0522	0.0040
Venus	-26136-08-19 12:28 J	-7824520.05	-7824519.98	-7824519.90	0.0514	0.0474
Mercury	-26131-10-08 06:28 J	-7822644.39	-7822644.23	-7822644.06	0.0499	0.0203
Venus	-26131-10-22 03:07 J	-7822630.55	-7822630.37	-7822630.19	0.0500	0.0255
Mercury	-26130-01-06 11:45 J	-7822554.02	-7822554.01	-7822553.99	0.0502	0.0499
Mars	-26130-05-21 07:40 J	-7822419.31	-7822419.18	-7822419.05	0.0506	0.0443
Venus	-26130-06-16 05:45 J	-7822393.46	-7822393.26	-7822393.07	0.0507	0.0178
Earth	-26126-04-18 19:26 J	-7820990.86	-7820990.69	-7820990.51	0.0537	0.0341
Moon	-26126-04-18 21:21 J	-7820990.77	-7820990.61	-7820990.44	0.0537	0.0359 *
Mercury	-26125-05-29 07:11 J	-7820584.33	-7820584.20	-7820584.08	0.0528	0.0146
Mercury	-26125-08-26 14:52 J	-7820494.95	-7820494.88	-7820494.81	0.0525	0.0445
Venus	-26125-08-30 16:33 J	-7820491.01	-7820490.81	-7820490.62	0.0525	0.0093
Venus	-26124-04-24 11:31 J	-7820254.16	-7820254.02	-7820253.88	0.0516	0.0358
Venus	-26119-06-26 23:59 J	-7818364.63	-7818364.50	-7818364.35	0.0498	0.0366
Mercury	-26119-07-27 04:33 J	-7818334.43	-7818334.31	-7818334.20	0.0498	0.0380
Mercury	-26119-10-25 10:04 J	-7818244.21	-7818244.08	-7818243.94	0.0501	0.0324
Venus	-26118-02-18 23:45 J	-7818127.71	-7818127.51	-7818127.30	0.0504	0.0056
Venus	-26118-10-14 08:52 J	-7817890.18	-7817890.13	-7817890.09	0.0512	0.0498
Mercury	-26113-03-17 10:04 J	-7816274.18	-7816274.08	-7816273.97	0.0529	0.0305
Venus	-26113-05-05 10:19 J	-7816225.25	-7816225.07	-7816224.89	0.0527	0.0226
Mercury	-26113-06-14 17:45 J	-7816184.87	-7816184.76	-7816184.65	0.0526	0.0286

Venus	-26113-12-28 08:38 J	-7815988.32	-7815988.14	-7815987.97	0.0519	0.0238
Venus	-26107-03-01 22:19 J	-7814098.63	-7814098.57	-7814098.51	0.0496	0.0472
Mercury	-26107-08-13 08:23 J	-7813934.32	-7813934.15	-7813933.98	0.0500	0.0150
Venus	-26107-10-24 19:11 J	-7813861.90	-7813861.70	-7813861.49	0.0502	0.0066
Venus	-26106-06-19 01:11 J	-7813624.59	-7813624.45	-7813624.31	0.0510	0.0375
Mercury	-26101-01-04 13:55 J	-7811963.98	-7811963.92	-7811963.85	0.0530	0.0451
Venus	-26101-01-09 05:16 J	-7811959.42	-7811959.28	-7811959.13	0.0530	0.0358
Mercury	-26101-04-02 21:35 J	-7811874.73	-7811874.60	-7811874.48	0.0527	0.0139
Mars	-26101-08-11 22:04 J	-7811743.81	-7811743.58	-7811743.34	0.0523	0.0279
Venus	-26101-09-02 06:28 J	-7811722.42	-7811722.23	-7811722.03	0.0522	0.0113
Mercury	-26095-06-01 05:59 J	-7809624.43	-7809624.25	-7809624.07	0.0499	0.0032
Venus	-26095-06-29 14:23 J	-7809596.09	-7809595.90	-7809595.70	0.0500	0.0185
Venus	-26094-02-21 17:45 J	-7809358.94	-7809358.76	-7809358.58	0.0508	0.0250
Venus	-26090-09-14 00:43 J	-7807693.55	-7807693.47	-7807693.39	0.0532	0.0487
Mercury	-26089-01-21 01:26 J	-7807564.57	-7807564.44	-7807564.31	0.0528	0.0009
Venus	-26089-05-08 04:33 J	-7807456.51	-7807456.31	-7807456.11	0.0524	0.0014
Venus	-26089-12-30 22:47 J	-7807219.66	-7807219.55	-7807219.44	0.0516	0.0430
Moon	-26085-10-14 03:35 J	-7805836.57	-7805836.35	-7805836.12	0.0489	0.0106
Earth	-26085-10-14 05:59 J	-7805836.49	-7805836.25	-7805836.02	0.0489	0.0077 *
Venus	-26083-03-04 11:31 J	-7805330.18	-7805330.02	-7805329.85	0.0498	0.0299
Mercury	-26083-03-20 04:04 J	-7805314.49	-7805314.33	-7805314.16	0.0499	0.0206
Mercury	-26083-06-18 09:21 J	-7805224.14	-7805224.11	-7805224.08	0.0501	0.0493
Venus	-26083-10-27 12:43 J	-7805093.17	-7805092.97	-7805092.77	0.0506	0.0129
Mercury	-26078-11-09 05:16 J	-7803254.40	-7803254.28	-7803254.15	0.0528	0.0149
Venus	-26077-01-12 01:11 J	-7803190.64	-7803190.45	-7803190.26	0.0526	0.0144
Mercury	-26077-02-06 13:11 J	-7803165.02	-7803164.95	-7803164.88	0.0525	0.0443
Venus	-26077-09-04 21:35 J	-7802953.76	-7802953.60	-7802953.44	0.0518	0.0313
Earth	-26073-10-18 13:26 J	-7801449.08	-7801448.94	-7801448.77	0.0490	0.0365
Moon	-26073-10-18 17:02 J	-7801448.94	-7801448.79	-7801448.63	0.0490	0.0371 *
Venus	-26072-11-07 08:38 J	-7801064.25	-7801064.14	-7801064.02	0.0497	0.0408

Mercury	-26071-01-06 01:40 J	-7801004.53	-7801004.43	-7801004.31	0.0499	0.0388
Mercury	-26071-04-06 07:26 J	-7800914.32	-7800914.19	-7800914.05	0.0501	0.0319
Venus	-26071-07-02 07:26 J	-7800827.40	-7800827.19	-7800826.98	0.0504	0.0007
Venus	-26070-02-24 15:21 J	-7800589.95	-7800589.86	-7800589.76	0.0512	0.0449
Mercury	-26066-08-28 09:07 J	-7798944.23	-7798944.12	-7798944.01	0.0529	0.0296
Venus	-26066-09-16 20:38 J	-7798924.81	-7798924.64	-7798924.47	0.0528	0.0275
Mercury	-26066-11-25 16:33 J	-7798854.92	-7798854.81	-7798854.70	0.0526	0.0293
Venus	-26065-05-10 19:26 J	-7798687.87	-7798687.69	-7798687.50	0.0520	0.0191
Mercury	-26059-01-23 05:45 J	-7796604.43	-7796604.26	-7796604.09	0.0500	0.0144
Venus	-26059-03-07 03:07 J	-7796561.57	-7796561.37	-7796561.16	0.0501	0.0111
Venus	-26059-10-30 08:09 J	-7796324.31	-7796324.16	-7796323.99	0.0509	0.0328
Earth	-26055-04-12 12:28 J	-7795064.13	-7795063.98	-7795063.82	0.0538	0.0391
Moon	-26055-04-12 15:07 J	-7795064.03	-7795063.87	-7795063.70	0.0538	0.0360 *
Venus	-26054-05-22 12:43 J	-7794659.09	-7794658.97	-7794658.84	0.0530	0.0409
Mercury	-26054-06-16 12:14 J	-7794634.06	-7794633.99	-7794633.93	0.0530	0.0456
Mercury	-26054-09-13 19:40 J	-7794544.81	-7794544.68	-7794544.56	0.0527	0.0133
Venus	-26053-01-14 14:52 J	-7794422.08	-7794421.88	-7794421.68	0.0523	0.0063
Venus	-26053-09-07 07:40 J	-7794185.22	-7794185.18	-7794185.12	0.0515	0.0497
Venus	-26048-11-09 23:59 J	-7792295.68	-7792295.50	-7792295.31	0.0499	0.0226
Mercury	-26048-11-11 04:04 J	-7792294.51	-7792294.33	-7792294.15	0.0499	0.0030
Mars	-26047-02-03 19:11 J	-7792209.94	-7792209.70	-7792209.46	0.0502	0.0210
Venus	-26047-07-05 02:09 J	-7792058.60	-7792058.41	-7792058.22	0.0506	0.0205
Moon	-26043-04-17 11:16 J	-7790676.25	-7790676.03	-7790675.81	0.0537	0.0209
Earth	-26043-04-17 12:14 J	-7790676.20	-7790675.99	-7790675.77	0.0537	0.0194 *
Mercury	-26042-07-02 23:16 J	-7790234.66	-7790234.53	-7790234.40	0.0528	0.0016
Venus	-26042-09-19 11:45 J	-7790156.21	-7790156.01	-7790155.82	0.0525	0.0068
Venus	-26041-05-13 07:11 J	-7789919.32	-7789919.20	-7789919.06	0.0517	0.0385
Venus	-26036-07-15 20:23 J	-7788029.80	-7788029.65	-7788029.50	0.0497	0.0340
Mercury	-26036-08-30 01:40 J	-7787984.59	-7787984.43	-7787984.27	0.0499	0.0211
Mercury	-26036-11-28 06:57 J	-7787894.25	-7787894.21	-7787894.18	0.0501	0.0488



Venus	-26035-03-09 19:55 J	-7787792.88	-7787792.67	-7787792.47	0.0504	0.0081
Mercury	-26030-04-21 03:21 J	-7785924.49	-7785924.36	-7785924.24	0.0529	0.0158
Venus	-26030-05-25 08:23 J	-7785890.33	-7785890.15	-7785889.96	0.0528	0.0197
Mercury	-26030-07-19 11:02 J	-7785835.11	-7785835.04	-7785834.97	0.0526	0.0435
Venus	-26029-01-17 06:43 J	-7785653.39	-7785653.22	-7785653.05	0.0519	0.0265
Venus	-26024-03-20 18:28 J	-7783763.81	-7783763.73	-7783763.63	0.0496	0.0447
Mercury	-26024-06-17 23:31 J	-7783674.63	-7783674.52	-7783674.40	0.0498	0.0388
Mercury	-26024-09-16 05:16 J	-7783584.42	-7783584.28	-7783584.14	0.0501	0.0316
Venus	-26024-11-12 15:35 J	-7783527.06	-7783526.85	-7783526.64	0.0502	0.0039
Venus	-26023-07-07 21:50 J	-7783289.72	-7783289.59	-7783289.46	0.0510	0.0399
Venus	-26018-01-28 04:47 J	-7781624.46	-7781624.30	-7781624.14	0.0529	0.0326
Mercury	-26018-02-07 07:26 J	-7781614.30	-7781614.19	-7781614.09	0.0529	0.0299
Mars	-26018-04-24 23:16 J	-7781537.56	-7781537.53	-7781537.49	0.0526	0.0522
Mercury	-26018-05-07 14:52 J	-7781524.99	-7781524.88	-7781524.77	0.0526	0.0291
Venus	-26018-09-22 05:16 J	-7781387.47	-7781387.28	-7781387.09	0.0521	0.0143
Mercury	-26012-07-05 03:21 J	-7779274.53	-7779274.36	-7779274.19	0.0500	0.0139
Venus	-26012-07-18 11:31 J	-7779261.22	-7779261.02	-7779260.82	0.0501	0.0157
Mars	-26012-11-08 14:23 J	-7779148.16	-7779147.90	-7779147.64	0.0504	0.0142
Venus	-26011-03-12 15:21 J	-7779024.03	-7779023.86	-7779023.68	0.0508	0.0278
Venus	-26007-10-02 23:16 J	-7777358.63	-7777358.53	-7777358.43	0.0531	0.0455
Mercury	-26007-11-26 11:02 J	-7777304.10	-7777304.04	-7777303.97	0.0529	0.0446
Mercury	-26006-02-23 18:28 J	-7777214.85	-7777214.73	-7777214.60	0.0527	0.0144
Venus	-26006-05-28 02:09 J	-7777121.60	-7777121.41	-7777121.21	0.0524	0.0019
Venus	-26005-01-19 19:40 J	-7776884.77	-7776884.68	-7776884.58	0.0515	0.0454
Earth	-26002-10-14 08:09 J	-7775521.38	-7775521.16	-7775520.93	0.0489	0.0163
Moon	-26002-10-14 11:31 J	-7775521.24	-7775521.02	-7775520.79	0.0489	0.0188 *

# 26TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 26th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Venus	-26000-03-23 08:52 J	-7774995.30	-7774995.13	-7774994.95	0.0499	0.0269		
Mercury	-26000-04-23 01:40 J	-7774964.61	-7774964.43	-7774964.25	0.0499	0.0034		
Venus	-26000-11-15 10:04 J	-7774758.28	-7774758.08	-7774757.88	0.0506	0.0158		
Mercury	-25995-12-12 21:35 J	-7772904.73	-7772904.60	-7772904.47	0.0528	0.0021		
Venus	-25994-01-30 20:09 J	-7772855.86	-7772855.66	-7772855.47	0.0526	0.0118		
Venus	-25994-09-24 16:47 J	-7772618.95	-7772618.80	-7772618.65	0.0518	0.0337		
Moon	-25990-10-18 16:04 J	-7771134.01	-7771133.83	-7771133.64	0.0490	0.0304		
Earth	-25990-10-18 19:55 J	-7771133.86	-7771133.67	-7771133.48	0.0490	0.0295 *		
Venus	-25989-11-26 07:11 J	-7770729.34	-7770729.20	-7770729.07	0.0497	0.0378		
Mercury	-25988-02-08 23:59 J	-7770654.66	-7770654.50	-7770654.34	0.0499	0.0206		
Mercury	-25988-05-10 05:02 J	-7770564.31	-7770564.29	-7770564.25	0.0501	0.0494		
Venus	-25988-07-21 05:16 J	-7770492.48	-7770492.28	-7770492.07	0.0503	0.0039		
Venus	-25987-03-15 12:43 J	-7770255.04	-7770254.97	-7770254.89	0.0511	0.0475		
Mercury	-25983-10-01 01:11 J	-7768594.57	-7768594.45	-7768594.32	0.0529	0.0168		
Venus	-25983-10-05 15:35 J	-7768590.03	-7768589.85	-7768589.68	0.0528	0.0249		
Mercury	-25983-12-29 08:52 J	-7768505.20	-7768505.13	-7768505.05	0.0526	0.0426		
Mars	-25982-01-29 15:07 J	-7768474.14	-7768473.87	-7768473.59	0.0525	0.0082		
Venus	-25982-05-30 15:07 J	-7768353.05	-7768352.87	-7768352.69	0.0521	0.0217		
Venus	-25977-08-01 04:47 J	-7766463.34	-7766463.30	-7766463.26	0.0495	0.0484		
Mercury	-25977-11-27 21:35 J	-7766344.71	-7766344.60	-7766344.49	0.0498	0.0388		
Mercury	-25976-02-26 03:07 J	-7766254.50	-7766254.37	-7766254.23	0.0500	0.0315		

Venus	-25976-03-26 00:14 J	-7766226.69	-7766226.49	-7766226.28	0.0501	0.0084
Venus	-25976-11-18 05:02 J	-7765989.44	-7765989.29	-7765989.14	0.0509	0.0352
Moon	-25972-04-11 10:33 J	-7764749.17	-7764749.06	-7764748.95	0.0538	0.0471
Earth	-25972-04-11 11:59 J	-7764749.07	-7764749.00	-7764748.92	0.0538	0.0505 *
Venus	-25971-06-10 11:16 J	-7764324.17	-7764324.03	-7764323.89	0.0531	0.0379
Mercury	-25971-07-20 05:16 J	-7764284.38	-7764284.28	-7764284.17	0.0529	0.0309
Mercury	-25971-10-17 12:57 J	-7764195.07	-7764194.96	-7764194.85	0.0527	0.0283
Venus	-25970-02-02 13:40 J	-7764087.13	-7764086.93	-7764086.73	0.0523	0.0092
Venus	-25965-11-28 21:07 J	-7761960.81	-7761960.62	-7761960.43	0.0499	0.0200
Mercury	-25965-12-15 01:26 J	-7761944.61	-7761944.44	-7761944.27	0.0500	0.0142
Venus	-25964-07-23 23:16 J	-7761723.72	-7761723.53	-7761723.35	0.0507	0.0230
Moon	-25960-04-16 15:50 J	-7760361.06	-7760360.84	-7760360.63	0.0538	0.0113
Earth	-25960-04-16 16:19 J	-7760361.05	-7760360.82	-7760360.60	0.0538	0.0102 *
Venus	-25959-02-13 06:43 J	-7760058.27	-7760058.22	-7760058.15	0.0532	0.0505
Mercury	-25959-05-08 09:35 J	-7759974.17	-7759974.10	-7759974.03	0.0530	0.0447
Mercury	-25959-08-05 17:02 J	-7759884.92	-7759884.79	-7759884.67	0.0527	0.0142
Venus	-25959-10-08 11:31 J	-7759821.21	-7759821.02	-7759820.82	0.0525	0.0035
Venus	-25958-06-02 06:28 J	-7759584.34	-7759584.23	-7759584.11	0.0516	0.0411
Venus	-25953-08-03 17:59 J	-7757694.91	-7757694.75	-7757694.59	0.0498	0.0311
Mercury	-25953-10-02 23:31 J	-7757634.70	-7757634.52	-7757634.35	0.0499	0.0037
Venus	-25952-03-28 17:59 J	-7757457.95	-7757457.75	-7757457.54	0.0505	0.0110
Mercury	-25947-05-24 20:38 J	-7755574.77	-7755574.64	-7755574.50	0.0528	0.0018
Venus	-25947-06-13 07:40 J	-7755555.36	-7755555.18	-7755554.98	0.0527	0.0165
Mars	-25947-11-05 18:57 J	-7755409.90	-7755409.71	-7755409.52	0.0522	0.0374
Venus	-25946-02-05 05:16 J	-7755318.44	-7755318.28	-7755318.11	0.0519	0.0293
Venus	-25941-04-08 16:47 J	-7753428.91	-7753428.80	-7753428.69	0.0496	0.0417
Mercury	-25941-07-21 21:50 J	-7753324.75	-7753324.59	-7753324.43	0.0499	0.0207
Mercury	-25941-10-20 03:07 J	-7753234.40	-7753234.37	-7753234.34	0.0501	0.0493
Venus	-25941-12-01 14:09 J	-7753192.12	-7753191.91	-7753191.70	0.0503	0.0009
Venus	-25940-07-26 20:23 J	-7752954.75	-7752954.65	-7752954.53	0.0510	0.0430

Venus	-25935-02-16 00:14 J	-7751289.65	-7751289.49	-7751289.33	0.0529	0.0299
Mercury	-25935-03-12 23:45 J	-7751264.63	-7751264.51	-7751264.39	0.0528	0.0167
Mercury	-25935-06-10 07:26 J	-7751175.27	-7751175.19	-7751175.11	0.0526	0.0425
Venus	-25935-10-11 00:57 J	-7751052.65	-7751052.46	-7751052.27	0.0522	0.0169
Mercury	-25929-05-09 20:09 J	-7749014.77	-7749014.66	-7749014.54	0.0498	0.0379
Mars	-25929-07-25 21:07 J	-7748937.70	-7748937.62	-7748937.53	0.0500	0.0471
Venus	-25929-08-06 11:02 J	-7748926.24	-7748926.04	-7748925.84	0.0500	0.0124
Mercury	-25929-08-08 01:55 J	-7748924.56	-7748924.42	-7748924.29	0.0500	0.0325
Venus	-25928-03-31 14:38 J	-7748689.05	-7748688.89	-7748688.73	0.0508	0.0308
Venus	-25924-10-21 18:28 J	-7747023.84	-7747023.73	-7747023.61	0.0531	0.0430
Mercury	-25924-12-30 03:21 J	-7746954.46	-7746954.36	-7746954.25	0.0529	0.0315
Mercury	-25923-03-29 11:02 J	-7746865.15	-7746865.04	-7746864.93	0.0527	0.0276
Venus	-25923-06-15 22:04 J	-7746786.78	-7746786.58	-7746786.38	0.0524	0.0042
Venus	-25922-02-07 16:04 J	-7746549.89	-7746549.83	-7746549.75	0.0516	0.0479
Moon	-25919-10-13 11:31 J	-7745206.22	-7745206.02	-7745205.82	0.0489	0.0250
Earth	-25919-10-13 15:07 J	-7745206.07	-7745205.87	-7745205.65	0.0489	0.0224 *
Venus	-25917-04-11 07:11 J	-7744660.38	-7744660.20	-7744660.01	0.0498	0.0241
Mercury	-25917-05-26 23:45 J	-7744614.68	-7744614.51	-7744614.34	0.0500	0.0146
Venus	-25917-12-04 07:55 J	-7744423.36	-7744423.17	-7744422.97	0.0505	0.0185
Mercury	-25912-10-18 07:26 J	-7742644.25	-7742644.19	-7742644.12	0.0530	0.0456
Mercury	-25911-01-15 15:07 J	-7742555.00	-7742554.87	-7742554.75	0.0527	0.0136
Venus	-25911-02-18 19:26 J	-7742520.88	-7742520.69	-7742520.49	0.0526	0.0087
Venus	-25911-10-13 16:19 J	-7742283.96	-7742283.82	-7742283.68	0.0518	0.0366
Earth	-25907-10-18 01:26 J	-7740818.65	-7740818.44	-7740818.23	0.0490	0.0226
Moon	-25907-10-18 05:02 J	-7740818.49	-7740818.29	-7740818.09	0.0490	0.0245 *
Venus	-25906-12-16 05:02 J	-7740394.44	-7740394.29	-7740394.14	0.0497	0.0351
Mercury	-25905-03-14 21:50 J	-7740304.77	-7740304.59	-7740304.41	0.0499	0.0029
Venus	-25905-08-09 03:21 J	-7740157.57	-7740157.36	-7740157.15	0.0503	0.0065
Venus	-25904-04-03 11:02 J	-7739920.08	-7739920.04	-7739920.00	0.0512	0.0500
Venus	-25900-10-24 16:47 J	-7738254.98	-7738254.80	-7738254.62	0.0528	0.0214

Mercury	-25900-11-03 19:11 J	-7738244.83	-7738244.70	-7738244.57	0.0528	0.0005
Venus	-25899-06-18 15:50 J	-7738018.01	-7738017.84	-7738017.66	0.0520	0.0248
Venus	-25894-08-21 02:52 J	-7736128.45	-7736128.38	-7736128.29	0.0495	0.0456
Mercury	-25893-01-01 19:55 J	-7735994.84	-7735994.67	-7735994.51	0.0499	0.0206
Mercury	-25893-04-01 01:11 J	-7735904.48	-7735904.45	-7735904.43	0.0501	0.0494
Venus	-25893-04-13 23:16 J	-7735891.74	-7735891.53	-7735891.32	0.0502	0.0053
Mars	-25893-04-29 11:45 J	-7735876.27	-7735876.01	-7735875.75	0.0502	0.0132
Venus	-25893-12-07 04:33 J	-7735654.44	-7735654.31	-7735654.17	0.0509	0.0382
Venus	-25888-06-29 12:14 J	-7733989.14	-7733988.99	-7733988.84	0.0530	0.0344
Mercury	-25888-08-22 23:02 J	-7733934.66	-7733934.54	-7733934.41	0.0528	0.0150
Mercury	-25888-11-20 06:43 J	-7733845.28	-7733845.22	-7733845.15	0.0526	0.0443
Venus	-25887-02-21 13:55 J	-7733752.11	-7733751.92	-7733751.73	0.0522	0.0124
Mercury	-25882-10-20 18:14 J	-7731684.85	-7731684.74	-7731684.62	0.0498	0.0376
Venus	-25882-12-18 20:52 J	-7731625.83	-7731625.63	-7731625.43	0.0500	0.0167
Mercury	-25881-01-18 23:59 J	-7731594.63	-7731594.50	-7731594.36	0.0501	0.0328
Venus	-25881-08-11 23:16 J	-7731388.70	-7731388.53	-7731388.35	0.0507	0.0264
Earth	-25877-04-15 14:52 J	-7730046.11	-7730045.88	-7730045.65	0.0537	0.0015
Moon	-25877-04-15 17:02 J	-7730046.03	-7730045.79	-7730045.56	0.0537	0.0012 *
Venus	-25876-03-04 03:21 J	-7729723.44	-7729723.36	-7729723.27	0.0532	0.0478
Mercury	-25876-06-11 02:09 J	-7729624.52	-7729624.41	-7729624.31	0.0529	0.0310
Mercury	-25876-09-08 09:35 J	-7729535.21	-7729535.10	-7729534.99	0.0526	0.0280
Venus	-25876-10-27 08:09 J	-7729486.36	-7729486.16	-7729485.96	0.0525	0.0010
Venus	-25875-06-21 03:21 J	-7729249.47	-7729249.36	-7729249.26	0.0517	0.0436
Venus	-25870-08-23 19:11 J	-7727359.87	-7727359.70	-7727359.53	0.0498	0.0278
Mercury	-25870-11-06 22:47 J	-7727284.72	-7727284.55	-7727284.38	0.0500	0.0161
Venus	-25869-04-16 18:57 J	-7727122.91	-7727122.71	-7727122.51	0.0505	0.0144
Moon	-25865-04-20 11:02 J	-7725658.05	-7725658.04	-7725658.02	0.0537	0.0535
Mercury	-25864-03-30 05:59 J	-7725314.32	-7725314.25	-7725314.19	0.0530	0.0457
Mercury	-25864-06-27 13:26 J	-7725225.07	-7725224.94	-7725224.82	0.0527	0.0133
Venus	-25864-07-02 04:04 J	-7725220.53	-7725220.33	-7725220.14	0.0527	0.0137

Mars	-25864-07-18 10:19 J	-7725204.21	-7725204.07	-7725203.90	0.0527	0.0440
Venus	-25863-02-24 01:55 J	-7724983.57	-7724983.42	-7724983.26	0.0519	0.0320
Venus	-25858-04-28 16:33 J	-7723093.93	-7723093.81	-7723093.68	0.0496	0.0388
Mercury	-25858-08-25 20:38 J	-7722974.82	-7722974.64	-7722974.46	0.0499	0.0019
Venus	-25858-12-21 13:40 J	-7722857.14	-7722856.93	-7722856.72	0.0502	0.0022
Mars	-25857-02-02 13:26 J	-7722814.18	-7722813.94	-7722813.70	0.0504	0.0230
Venus	-25857-08-14 19:40 J	-7722619.77	-7722619.68	-7722619.59	0.0510	0.0456
Venus	-25852-03-07 00:14 J	-7720954.65	-7720954.49	-7720954.31	0.0529	0.0267
Mercury	-25852-04-15 17:16 J	-7720914.91	-7720914.78	-7720914.65	0.0528	0.0018
Venus	-25852-10-30 01:11 J	-7720717.63	-7720717.45	-7720717.26	0.0522	0.0200
Venus	-25846-01-01 15:07 J	-7718827.88	-7718827.87	-7718827.84	0.0494	0.0492
Mercury	-25846-06-13 18:43 J	-7718664.89	-7718664.72	-7718664.56	0.0498	0.0193
Venus	-25846-08-26 10:04 J	-7718591.28	-7718591.08	-7718590.87	0.0500	0.0095
Venus	-25845-04-19 13:40 J	-7718354.08	-7718353.93	-7718353.77	0.0508	0.0336
Venus	-25841-11-09 20:38 J	-7716688.77	-7716688.64	-7716688.50	0.0531	0.0394
Mercury	-25840-02-01 21:35 J	-7716604.72	-7716604.60	-7716604.47	0.0529	0.0148
Mercury	-25840-05-02 05:16 J	-7716515.34	-7716515.28	-7716515.21	0.0526	0.0445
Venus	-25840-07-04 23:59 J	-7716451.69	-7716451.50	-7716451.30	0.0524	0.0077
Venus	-25839-02-26 17:45 J	-7716214.79	-7716214.76	-7716214.73	0.0515	0.0508
Earth	-25836-10-12 21:50 J	-7714890.78	-7714890.59	-7714890.40	0.0489	0.0288
Moon	-25836-10-13 01:26 J	-7714890.62	-7714890.44	-7714890.25	0.0489	0.0304 *
Mercury	-25834-04-01 16:33 J	-7714354.93	-7714354.81	-7714354.69	0.0498	0.0371
Venus	-25834-05-01 06:57 J	-7714325.40	-7714325.21	-7714325.02	0.0499	0.0209
Mercury	-25834-06-30 22:19 J	-7714264.70	-7714264.57	-7714264.44	0.0500	0.0333
Venus	-25834-12-24 08:09 J	-7714088.34	-7714088.16	-7714087.96	0.0506	0.0217
Venus	-25829-07-15 15:07 J	-7712422.90	-7712422.87	-7712422.82	0.0533	0.0521
Mercury	-25829-11-21 01:40 J	-7712294.54	-7712294.43	-7712294.32	0.0529	0.0290
Mercury	-25828-02-18 09:07 J	-7712205.22	-7712205.12	-7712205.01	0.0526	0.0301
Venus	-25828-03-09 21:21 J	-7712185.81	-7712185.61	-7712185.41	0.0526	0.0051
Mars	-25828-04-25 03:21 J	-7712139.64	-7712139.36	-7712139.08	0.0524	0.0043

Venus	-25828-11-01 17:16 J	-7711948.90	-7711948.78	-7711948.64	0.0518	0.0397
Moon	-25824-10-17 07:11 J	-7710503.43	-7710503.20	-7710502.97	0.0490	0.0189
Earth	-25824-10-17 09:35 J	-7710503.32	-7710503.10	-7710502.87	0.0490	0.0168 *
Venus	-25822-01-04 05:45 J	-7710059.42	-7710059.26	-7710059.10	0.0497	0.0317
Mercury	-25822-04-18 21:07 J	-7709954.78	-7709954.62	-7709954.45	0.0500	0.0168
Venus	-25822-08-29 04:47 J	-7709822.50	-7709822.30	-7709822.10	0.0504	0.0100
Mercury	-25817-09-09 04:47 J	-7707984.37	-7707984.30	-7707984.23	0.0530	0.0449
Venus	-25817-11-12 14:09 J	-7707920.09	-7707919.91	-7707919.72	0.0528	0.0186
Mercury	-25817-12-07 12:14 J	-7707895.12	-7707894.99	-7707894.87	0.0527	0.0139
Venus	-25816-07-07 13:11 J	-7707683.11	-7707682.95	-7707682.78	0.0520	0.0275
Venus	-25811-09-09 05:16 J	-7705793.38	-7705793.28	-7705793.17	0.0495	0.0424
Mercury	-25810-02-04 19:55 J	-7705644.85	-7705644.67	-7705644.49	0.0499	0.0000
Venus	-25810-05-04 01:40 J	-7705556.64	-7705556.43	-7705556.22	0.0502	0.0019
Venus	-25810-12-27 06:43 J	-7705319.33	-7705319.22	-7705319.10	0.0509	0.0415
Venus	-25805-07-18 08:52 J	-7703654.28	-7703654.13	-7703653.97	0.0530	0.0317
Mercury	-25805-09-25 15:50 J	-7703584.97	-7703584.84	-7703584.71	0.0528	0.0009
Venus	-25804-03-12 11:02 J	-7703417.23	-7703417.04	-7703416.85	0.0523	0.0152
Mercury	-25799-11-23 17:45 J	-7701334.93	-7701334.76	-7701334.59	0.0498	0.0178
Venus	-25798-01-06 21:35 J	-7701290.80	-7701290.60	-7701290.40	0.0499	0.0136
Venus	-25798-08-31 23:59 J	-7701053.67	-7701053.50	-7701053.33	0.0507	0.0293
Moon	-25794-04-15 15:07 J	-7699731.09	-7699730.87	-7699730.65	0.0538	0.0113
Earth	-25794-04-15 18:28 J	-7699730.95	-7699730.73	-7699730.50	0.0538	0.0107 *
Venus	-25793-03-23 04:04 J	-7699388.43	-7699388.33	-7699388.22	0.0532	0.0446
Mercury	-25793-07-14 19:55 J	-7699274.79	-7699274.67	-7699274.55	0.0529	0.0151
Mercury	-25793-10-12 03:35 J	-7699185.42	-7699185.35	-7699185.28	0.0526	0.0443
Venus	-25793-11-15 09:07 J	-7699151.32	-7699151.12	-7699150.92	0.0525	0.0027
Mars	-25792-01-29 17:31 J	-7699075.87	-7699075.77	-7699075.64	0.0523	0.0473
Venus	-25792-07-10 04:19 J	-7698914.40	-7698914.32	-7698914.23	0.0517	0.0465
Mercury	-25787-09-11 15:35 J	-7697024.97	-7697024.85	-7697024.72	0.0498	0.0354
Venus	-25787-09-11 19:11 J	-7697024.88	-7697024.70	-7697024.52	0.0498	0.0248 *

Mercury	-25787-12-10 21:21 J	-7696934.73	-7696934.61	-7696934.48	0.0500	0.0349
Venus	-25786-05-06 18:57 J	-7696787.91	-7696787.71	-7696787.51	0.0505	0.0173
Earth	-25782-04-20 22:33 J	-7695342.64	-7695342.56	-7695342.48	0.0537	0.0499
Moon	-25782-04-21 02:23 J	-7695342.51	-7695342.40	-7695342.28	0.0537	0.0466 *
Mercury	-25781-05-03 00:14 J	-7694964.60	-7694964.49	-7694964.38	0.0530	0.0287
Venus	-25781-07-21 06:57 J	-7694885.41	-7694885.21	-7694885.02	0.0527	0.0100
Mercury	-25781-07-31 07:55 J	-7694875.28	-7694875.17	-7694875.07	0.0527	0.0304
Venus	-25780-03-15 04:33 J	-7694648.45	-7694648.31	-7694648.16	0.0519	0.0354
Venus	-25775-05-17 16:47 J	-7692758.94	-7692758.80	-7692758.65	0.0496	0.0357
Mercury	-25775-09-28 19:40 J	-7692624.85	-7692624.68	-7692624.51	0.0500	0.0175
Mars	-25775-10-20 01:11 J	-7692603.62	-7692603.45	-7692603.27	0.0500	0.0374
Venus	-25774-01-09 14:23 J	-7692522.10	-7692521.90	-7692521.69	0.0503	0.0056
Venus	-25774-09-03 21:07 J	-7692284.67	-7692284.62	-7692284.55	0.0511	0.0488
Mercury	-25769-02-20 04:19 J	-7690654.39	-7690654.32	-7690654.24	0.0530	0.0428
Venus	-25769-03-26 03:21 J	-7690619.53	-7690619.36	-7690619.18	0.0529	0.0229
Mercury	-25769-05-19 11:45 J	-7690565.13	-7690565.01	-7690564.88	0.0527	0.0162
Venus	-25769-11-18 03:35 J	-7690382.52	-7690382.35	-7690382.17	0.0521	0.0234
Venus	-25763-01-20 16:47 J	-7688492.87	-7688492.80	-7688492.72	0.0495	0.0459
Mercury	-25763-07-17 18:28 J	-7688314.90	-7688314.73	-7688314.55	0.0499	0.0015
Venus	-25763-09-14 12:14 J	-7688256.19	-7688255.99	-7688255.78	0.0501	0.0061
Venus	-25762-05-09 16:33 J	-7688018.95	-7688018.81	-7688018.67	0.0508	0.0372
Venus	-25758-11-29 19:26 J	-7686353.84	-7686353.69	-7686353.55	0.0531	0.0364
Mercury	-25757-03-07 14:52 J	-7686255.01	-7686254.88	-7686254.75	0.0528	0.0008
Venus	-25757-07-23 22:19 J	-7686116.77	-7686116.57	-7686116.38	0.0523	0.0106
Moon	-25753-10-12 07:26 J	-7684575.36	-7684575.19	-7684575.01	0.0490	0.0335
Earth	-25753-10-12 09:50 J	-7684575.26	-7684575.09	-7684574.91	0.0490	0.0327 *
Mercury	-25751-05-05 17:16 J	-7684004.95	-7684004.78	-7684004.61	0.0499	0.0157
Venus	-25751-05-20 10:19 J	-7683990.26	-7683990.07	-7683989.87	0.0499	0.0174
Venus	-25750-01-12 11:45 J	-7683753.18	-7683753.01	-7683752.82	0.0506	0.0253
Venus	-25746-08-04 12:57 J	-7682088.03	-7682087.96	-7682087.88	0.0532	0.0493



Mercury	-25746-12-25 18:28 J	-7681944.85	-7681944.73	-7681944.60	0.0529	0.0148
Mercury	-25745-03-24 02:09 J	-7681855.47	-7681855.41	-7681855.34	0.0526	0.0446
Venus	-25745-03-28 18:57 J	-7681850.91	-7681850.71	-7681850.51	0.0526	0.0023
Venus	-25745-11-20 15:07 J	-7681613.98	-7681613.87	-7681613.75	0.0518	0.0423
Earth	-25741-10-16 20:38 J	-7680187.87	-7680187.64	-7680187.41	0.0490	0.0126
Moon	-25741-10-16 21:21 J	-7680187.83	-7680187.61	-7680187.39	0.0490	0.0155 *
Venus	-25739-01-23 07:26 J	-7679724.36	-7679724.19	-7679724.02	0.0497	0.0286
Mercury	-25739-02-21 14:52 J	-7679695.01	-7679694.88	-7679694.74	0.0498	0.0336
Mercury	-25739-05-22 20:38 J	-7679604.76	-7679604.64	-7679604.52	0.0500	0.0366
Mars	-25739-07-25 01:55 J	-7679541.69	-7679541.42	-7679541.15	0.0502	0.0018
Venus	-25739-09-17 06:14 J	-7679487.44	-7679487.24	-7679487.04	0.0504	0.0132
Mercury	-25734-10-13 22:33 J	-7677634.66	-7677634.56	-7677634.45	0.0530	0.0289
Venus	-25734-12-02 15:35 J	-7677585.04	-7677584.85	-7677584.66	0.0528	0.0151
Mercury	-25733-01-11 06:14 J	-7677545.35	-7677545.24	-7677545.13	0.0527	0.0303
Venus	-25733-07-26 14:52 J	-7677348.04	-7677347.88	-7677347.72	0.0520	0.0307
Venus	-25728-09-28 05:59 J	-7675458.37	-7675458.25	-7675458.12	0.0495	0.0393
Mercury	-25727-03-10 18:57 J	-7675294.87	-7675294.71	-7675294.54	0.0500	0.0194
Venus	-25727-05-23 02:09 J	-7675221.61	-7675221.41	-7675221.20	0.0502	0.0017
Venus	-25726-01-15 07:11 J	-7674984.29	-7674984.20	-7674984.09	0.0509	0.0444
Mercury	-25722-08-02 03:07 J	-7673324.45	-7673324.37	-7673324.30	0.0530	0.0424
Venus	-25722-08-07 12:28 J	-7673319.15	-7673318.98	-7673318.81	0.0530	0.0279
Mercury	-25722-10-30 10:33 J	-7673235.19	-7673235.06	-7673234.94	0.0528	0.0166
Venus	-25721-03-31 14:23 J	-7673082.08	-7673081.90	-7673081.71	0.0522	0.0188
Mercury	-25716-12-27 17:16 J	-7670984.96	-7670984.78	-7670984.60	0.0499	0.0022
Venus	-25715-01-25 22:47 J	-7670955.75	-7670955.55	-7670955.35	0.0500	0.0102
Venus	-25715-09-20 01:40 J	-7670718.58	-7670718.43	-7670718.26	0.0507	0.0327
Earth	-25711-04-15 05:16 J	-7669415.50	-7669415.28	-7669415.06	0.0538	0.0162
Moon	-25711-04-15 09:21 J	-7669415.33	-7669415.11	-7669414.90	0.0538	0.0176 *
Venus	-25710-04-12 08:09 J	-7669053.29	-7669053.16	-7669053.03	0.0532	0.0407
Mercury	-25710-08-18 14:38 J	-7668925.02	-7668924.89	-7668924.76	0.0528	0.0027

Mars	-25710-10-13 12:28 J	-7668869.21	-7668868.98	-7668868.74	0.0526	0.0288
Venus	-25710-12-05 12:28 J	-7668816.18	-7668815.98	-7668815.78	0.0525	0.0064
Venus	-25709-07-29 07:11 J	-7668579.25	-7668579.20	-7668579.15	0.0516	0.0497
Venus	-25704-09-30 21:50 J	-7666689.78	-7666689.59	-7666689.40	0.0498	0.0213
Mercury	-25704-10-15 16:04 J	-7666675.00	-7666674.83	-7666674.66	0.0499	0.0146
Mars	-25703-04-29 07:26 J	-7666479.38	-7666479.19	-7666478.99	0.0504	0.0348
Venus	-25703-05-25 22:04 J	-7666452.76	-7666452.58	-7666452.38	0.0505	0.0211
Moon	-25699-04-20 00:14 J	-7665027.65	-7665027.49	-7665027.32	0.0537	0.0380
Earth	-25699-04-20 03:35 J	-7665027.48	-7665027.35	-7665027.20	0.0537	0.0417 *
Mercury	-25698-06-06 17:45 J	-7664614.89	-7664614.76	-7664614.64	0.0528	0.0135
Venus	-25698-08-10 05:59 J	-7664550.45	-7664550.25	-7664550.05	0.0527	0.0070
Mercury	-25698-09-04 01:26 J	-7664525.51	-7664525.44	-7664525.38	0.0526	0.0457
Venus	-25697-04-03 03:21 J	-7664313.49	-7664313.36	-7664313.22	0.0519	0.0381
Venus	-25692-06-05 20:38 J	-7662423.79	-7662423.64	-7662423.48	0.0497	0.0322
Mercury	-25692-08-03 14:38 J	-7662365.03	-7662364.89	-7662364.75	0.0498	0.0314
Mercury	-25692-11-01 20:23 J	-7662274.76	-7662274.65	-7662274.54	0.0500	0.0389
Venus	-25691-01-28 18:43 J	-7662186.92	-7662186.72	-7662186.51	0.0503	0.0092
Mercury	-25686-03-25 21:21 J	-7660304.71	-7660304.61	-7660304.50	0.0529	0.0282
Venus	-25686-04-15 01:26 J	-7660284.62	-7660284.44	-7660284.25	0.0529	0.0200
Mercury	-25686-06-23 04:47 J	-7660215.40	-7660215.30	-7660215.19	0.0527	0.0310
Venus	-25686-12-08 01:40 J	-7660047.60	-7660047.43	-7660047.26	0.0521	0.0261
Venus	-25680-02-08 19:11 J	-7658157.80	-7658157.70	-7658157.60	0.0495	0.0428
Mercury	-25680-05-22 12:14 J	-7658055.01	-7658054.99	-7658054.97	0.0497	0.0492
Mercury	-25680-08-20 18:14 J	-7657964.90	-7657964.74	-7657964.57	0.0500	0.0213
Venus	-25680-10-03 14:23 J	-7657921.11	-7657920.90	-7657920.69	0.0501	0.0027
Venus	-25679-05-28 18:28 J	-7657683.86	-7657683.73	-7657683.61	0.0508	0.0402
Venus	-25675-12-18 20:52 J	-7656018.79	-7656018.63	-7656018.48	0.0531	0.0330
Mercury	-25674-01-12 01:26 J	-7655994.51	-7655994.44	-7655994.36	0.0530	0.0424
Mercury	-25674-04-11 08:52 J	-7655905.25	-7655905.13	-7655905.00	0.0528	0.0166
Mars	-25674-07-20 08:52 J	-7655805.40	-7655805.13	-7655804.86	0.0524	0.0158

Venus	-25674-08-12 23:59 J	-7655781.70	-7655781.50	-7655781.31	0.0524	0.0139
Earth	-25670-10-12 20:38 J	-7654259.79	-7654259.64	-7654259.48	0.0489	0.0371
Moon	-25670-10-12 21:07 J	-7654259.76	-7654259.62	-7654259.47	0.0489	0.0371 *
Venus	-25668-06-08 11:16 J	-7653655.23	-7653655.03	-7653654.83	0.0499	0.0142
Mercury	-25668-06-08 16:33 J	-7653654.99	-7653654.81	-7653654.63	0.0499	0.0040 *
Venus	-25667-01-31 12:43 J	-7653418.14	-7653417.97	-7653417.80	0.0506	0.0283
Venus	-25663-08-23 16:33 J	-7651752.91	-7651752.81	-7651752.71	0.0533	0.0456
Mercury	-25662-01-28 13:11 J	-7651595.08	-7651594.95	-7651594.82	0.0528	0.0028
Venus	-25662-04-17 22:33 J	-7651515.76	-7651515.56	-7651515.36	0.0526	0.0017
Venus	-25662-12-10 18:43 J	-7651278.81	-7651278.72	-7651278.63	0.0517	0.0455
Earth	-25658-10-17 06:43 J	-7649872.45	-7649872.22	-7649871.98	0.0489	0.0077
Moon	-25658-10-17 07:40 J	-7649872.42	-7649872.18	-7649871.94	0.0489	0.0107 *
Venus	-25656-02-11 08:52 J	-7649389.31	-7649389.13	-7649388.95	0.0497	0.0254
Mercury	-25656-03-27 14:38 J	-7649345.06	-7649344.89	-7649344.72	0.0498	0.0136
Venus	-25656-10-06 08:09 J	-7649152.36	-7649152.16	-7649151.96	0.0504	0.0165
Mercury	-25651-11-16 17:16 J	-7647284.90	-7647284.78	-7647284.65	0.0529	0.0112
Venus	-25651-12-21 19:26 J	-7647249.88	-7647249.69	-7647249.49	0.0528	0.0113
Mercury	-25650-02-14 00:57 J	-7647195.51	-7647195.46	-7647195.41	0.0526	0.0481
Venus	-25650-08-15 17:59 J	-7647012.89	-7647012.75	-7647012.59	0.0520	0.0342
Venus	-25645-10-17 08:38 J	-7645123.28	-7645123.14	-7645122.99	0.0496	0.0359
Mercury	-25644-01-13 13:26 J	-7645035.08	-7645034.94	-7645034.80	0.0498	0.0302
Mercury	-25644-04-13 19:11 J	-7644944.81	-7644944.70	-7644944.60	0.0500	0.0400
Venus	-25644-06-11 05:31 J	-7644886.48	-7644886.27	-7644886.06	0.0502	0.0050
Venus	-25643-02-03 11:16 J	-7644649.09	-7644649.03	-7644648.96	0.0510	0.0479
Venus	-25639-08-26 12:28 J	-7642984.15	-7642983.98	-7642983.80	0.0529	0.0248
Mercury	-25639-09-04 20:38 J	-7642974.75	-7642974.64	-7642974.53	0.0529	0.0268
Mercury	-25639-12-03 04:04 J	-7642885.43	-7642885.33	-7642885.23	0.0526	0.0321
Venus	-25638-04-20 13:40 J	-7642747.11	-7642746.93	-7642746.75	0.0522	0.0217
Venus	-25633-06-22 08:23 J	-7640857.22	-7640857.15	-7640857.08	0.0495	0.0463
Mercury	-25633-11-01 11:45 J	-7640725.06	-7640725.01	-7640724.95	0.0498	0.0471

Mercury	-25632-01-30 17:59 J	-7640634.91	-7640634.75	-7640634.59	0.0500	0.0235
Venus	-25632-02-14 03:07 J	-7640620.58	-7640620.37	-7640620.17	0.0500	0.0066
Venus	-25632-10-09 06:28 J	-7640383.37	-7640383.23	-7640383.08	0.0508	0.0362
Moon	-25628-04-14 05:16 J	-7639100.48	-7639100.28	-7639100.07	0.0537	0.0267
Earth	-25628-04-14 09:07 J	-7639100.32	-7639100.12	-7639099.92	0.0537	0.0250 *
Venus	-25627-05-01 06:43 J	-7638718.36	-7638718.22	-7638718.08	0.0531	0.0378
Mercury	-25627-06-24 00:28 J	-7638664.56	-7638664.48	-7638664.40	0.0530	0.0415
Mercury	-25627-09-21 07:40 J	-7638575.30	-7638575.18	-7638575.05	0.0527	0.0173
Venus	-25627-12-24 10:33 J	-7638481.26	-7638481.06	-7638480.87	0.0524	0.0092
Venus	-25621-10-19 23:45 J	-7636354.70	-7636354.51	-7636354.31	0.0498	0.0181
Mercury	-25621-11-18 15:50 J	-7636325.01	-7636324.84	-7636324.66	0.0499	0.0059
Mars	-25620-01-13 20:52 J	-7636268.85	-7636268.63	-7636268.39	0.0501	0.0250
Venus	-25620-06-14 00:14 J	-7636117.67	-7636117.49	-7636117.31	0.0505	0.0241
Earth	-25616-04-19 08:52 J	-7634712.31	-7634712.13	-7634711.95	0.0537	0.0331
Moon	-25616-04-19 11:02 J	-7634712.22	-7634712.04	-7634711.85	0.0537	0.0303 *
Venus	-25615-01-04 00:28 J	-7634452.53	-7634452.48	-7634452.41	0.0533	0.0506
Mercury	-25615-07-10 11:45 J	-7634265.14	-7634265.01	-7634264.88	0.0528	0.0034
Venus	-25615-08-29 07:26 J	-7634215.39	-7634215.19	-7634214.99	0.0527	0.0036
Venus	-25614-04-23 05:02 J	-7633978.41	-7633978.29	-7633978.17	0.0519	0.0411
Venus	-25609-06-24 21:50 J	-7632088.76	-7632088.59	-7632088.42	0.0497	0.0291
Mercury	-25609-09-06 14:09 J	-7632015.09	-7632014.91	-7632014.74	0.0498	0.0117
Venus	-25608-02-16 19:40 J	-7631851.89	-7631851.68	-7631851.48	0.0503	0.0123
Mercury	-25603-04-28 15:50 J	-7629954.96	-7629954.84	-7629954.71	0.0529	0.0110
Venus	-25603-05-04 04:47 J	-7629949.49	-7629949.30	-7629949.11	0.0529	0.0163
Mercury	-25603-07-26 23:31 J	-7629865.56	-7629865.52	-7629865.47	0.0526	0.0484
Venus	-25603-12-27 04:47 J	-7629712.46	-7629712.30	-7629712.13	0.0521	0.0296
Venus	-25597-02-28 20:09 J	-7627822.78	-7627822.66	-7627822.54	0.0495	0.0397
Mercury	-25597-06-25 11:59 J	-7627705.15	-7627705.00	-7627704.86	0.0498	0.0293
Mercury	-25597-09-23 17:31 J	-7627614.86	-7627614.77	-7627614.66	0.0500	0.0409
Venus	-25597-10-22 15:50 J	-7627586.05	-7627585.84	-7627585.63	0.0501	0.0009

Venus	-25596-06-16 20:09 J	-7627348.76	-7627348.66	-7627348.55	0.0509	0.0434
Venus	-25591-01-07 00:57 J	-7625683.63	-7625683.46	-7625683.29	0.0530	0.0292
Mercury	-25591-02-14 20:09 J	-7625644.77	-7625644.66	-7625644.55	0.0529	0.0248
Mercury	-25591-05-15 03:35 J	-7625555.44	-7625555.35	-7625555.25	0.0527	0.0343
Venus	-25591-09-01 03:21 J	-7625446.54	-7625446.36	-7625446.17	0.0523	0.0175
Earth	-25587-10-12 07:26 J	-7623944.31	-7623944.19	-7623944.07	0.0489	0.0417
Moon	-25587-10-12 08:38 J	-7623944.27	-7623944.14	-7623944.00	0.0489	0.0408 *
Mercury	-25585-04-13 10:19 J	-7623395.12	-7623395.07	-7623394.99	0.0497	0.0461
Venus	-25585-06-27 14:09 J	-7623320.12	-7623319.91	-7623319.71	0.0499	0.0107
Mercury	-25585-07-12 16:47 J	-7623304.96	-7623304.80	-7623304.65	0.0500	0.0246
Mars	-25585-10-18 21:35 J	-7623206.86	-7623206.60	-7623206.34	0.0503	0.0105
Venus	-25584-02-19 16:04 J	-7623082.98	-7623082.83	-7623082.66	0.0507	0.0319
Venus	-25580-09-11 17:16 J	-7621417.89	-7621417.78	-7621417.66	0.0532	0.0425
Mercury	-25580-12-03 23:31 J	-7621334.60	-7621334.52	-7621334.44	0.0529	0.0402
Mercury	-25579-03-03 06:43 J	-7621245.34	-7621245.22	-7621245.09	0.0527	0.0186
Venus	-25579-05-06 22:04 J	-7621180.78	-7621180.58	-7621180.38	0.0525	0.0045
Venus	-25579-12-29 17:31 J	-7620943.84	-7620943.77	-7620943.70	0.0517	0.0480
Moon	-25575-10-16 15:21 J	-7619557.09	-7619556.86	-7619556.63	0.0490	0.0062
Earth	-25575-10-16 17:45 J	-7619556.99	-7619556.76	-7619556.52	0.0490	0.0034 *
Venus	-25573-03-02 12:14 J	-7619054.17	-7619053.99	-7619053.80	0.0498	0.0220
Mercury	-25573-04-30 15:21 J	-7618995.04	-7618994.86	-7618994.68	0.0499	0.0078
Venus	-25573-10-25 12:14 J	-7618817.18	-7618816.99	-7618816.79	0.0505	0.0201
Mercury	-25568-12-20 10:33 J	-7616935.19	-7616935.06	-7616934.93	0.0528	0.0038
Venus	-25567-01-09 17:45 J	-7616914.96	-7616914.76	-7616914.56	0.0527	0.0085
Venus	-25567-09-03 15:50 J	-7616677.98	-7616677.84	-7616677.70	0.0519	0.0366
Earth	-25563-10-21 04:47 J	-7615169.32	-7615169.30	-7615169.27	0.0490	0.0486
Moon	-25563-10-21 08:38 J	-7615169.17	-7615169.14	-7615169.11	0.0490	0.0486
Venus	-25562-11-06 10:19 J	-7614788.23	-7614788.07	-7614787.92	0.0496	0.0328
Mercury	-25561-02-17 13:11 J	-7614685.13	-7614684.95	-7614684.77	0.0499	0.0100
Venus	-25561-06-30 07:11 J	-7614551.41	-7614551.20	-7614551.00	0.0502	0.0081

Venus	-25560-02-22 12:57 J	-7614313.98	-7614313.96	-7614313.94	0.0510	0.0507
Venus	-25556-09-14 13:11 J	-7612649.13	-7612648.95	-7612648.76	0.0529	0.0215
Mercury	-25556-10-08 14:23 J	-7612625.03	-7612624.90	-7612624.77	0.0529	0.0109
Mercury	-25555-01-05 22:04 J	-7612535.63	-7612535.58	-7612535.53	0.0526	0.0483
Mars	-25555-01-06 17:45 J	-7612535.02	-7612534.76	-7612534.49	0.0526	0.0169
Venus	-25555-05-09 14:38 J	-7612412.07	-7612411.89	-7612411.72	0.0522	0.0248
Venus	-25550-07-12 09:07 J	-7610522.22	-7610522.12	-7610522.02	0.0495	0.0433
Mercury	-25550-12-06 11:16 J	-7610375.18	-7610375.03	-7610374.88	0.0498	0.0275
Venus	-25549-03-05 03:35 J	-7610285.56	-7610285.35	-7610285.14	0.0500	0.0036
Mercury	-25549-03-05 16:47 J	-7610284.89	-7610284.80	-7610284.71	0.0500	0.0426
Mars	-25549-07-23 21:50 J	-7610144.67	-7610144.59	-7610144.48	0.0504	0.0469
Venus	-25549-10-28 06:43 J	-7610048.35	-7610048.22	-7610048.08	0.0508	0.0390
Earth	-25545-04-13 14:52 J	-7608785.05	-7608784.88	-7608784.69	0.0538	0.0332
Moon	-25545-04-13 17:31 J	-7608784.93	-7608784.77	-7608784.60	0.0538	0.0351 *
Venus	-25544-05-20 09:07 J	-7608383.27	-7608383.12	-7608382.97	0.0531	0.0342
Mercury	-25544-07-27 18:28 J	-7608314.84	-7608314.73	-7608314.61	0.0529	0.0248
Mercury	-25544-10-25 02:09 J	-7608225.51	-7608225.41	-7608225.31	0.0527	0.0344
Venus	-25543-01-12 13:11 J	-7608146.15	-7608145.95	-7608145.76	0.0524	0.0127
Mercury	-25538-09-24 08:52 J	-7606065.20	-7606065.13	-7606065.06	0.0497	0.0453
Venus	-25538-11-09 00:28 J	-7606019.68	-7606019.48	-7606019.28	0.0499	0.0149
Mercury	-25538-12-23 15:07 J	-7605975.03	-7605974.87	-7605974.72	0.0500	0.0252
Venus	-25537-07-03 01:11 J	-7605782.62	-7605782.45	-7605782.27	0.0506	0.0273
Moon	-25533-04-18 18:28 J	-7604396.94	-7604396.73	-7604396.51	0.0537	0.0248
Earth	-25533-04-18 18:43 J	-7604396.91	-7604396.72	-7604396.52	0.0537	0.0272 *
Venus	-25532-01-23 04:19 J	-7604117.41	-7604117.32	-7604117.22	0.0533	0.0469
Mercury	-25532-05-15 22:47 J	-7604004.63	-7604004.55	-7604004.46	0.0530	0.0386
Mercury	-25532-08-13 06:14 J	-7603915.36	-7603915.24	-7603915.12	0.0527	0.0203
Venus	-25532-09-17 10:47 J	-7603880.25	-7603880.05	-7603879.85	0.0526	0.0002
Venus	-25531-05-12 07:40 J	-7603643.28	-7603643.18	-7603643.07	0.0518	0.0442
Venus	-25526-07-14 23:31 J	-7601753.70	-7601753.52	-7601753.34	0.0497	0.0259

Mercury	-25526-10-11 13:55 J	-7601665.10	-7601664.92	-7601664.75	0.0499	0.0087
Venus	-25525-03-07 22:04 J	-7601516.78	-7601516.58	-7601516.38	0.0504	0.0156
Venus	-25520-05-23 04:47 J	-7599614.49	-7599614.30	-7599614.11	0.0528	0.0132
Mercury	-25520-06-01 09:35 J	-7599605.23	-7599605.10	-7599604.97	0.0527	0.0049
Mars	-25520-10-13 23:16 J	-7599470.76	-7599470.53	-7599470.29	0.0523	0.0288
Venus	-25519-01-15 03:50 J	-7599377.50	-7599377.34	-7599377.19	0.0520	0.0322
Venus	-25514-03-19 22:33 J	-7597487.70	-7597487.56	-7597487.42	0.0496	0.0366
Mercury	-25514-07-30 12:14 J	-7597355.17	-7597354.99	-7597354.81	0.0499	0.0084
Venus	-25514-11-11 18:57 J	-7597250.92	-7597250.71	-7597250.50	0.0502	0.0040
Venus	-25513-07-05 23:59 J	-7597013.58	-7597013.50	-7597013.42	0.0509	0.0466
Venus	-25508-01-25 23:16 J	-7595348.70	-7595348.53	-7595348.35	0.0530	0.0263
Mercury	-25508-03-20 13:11 J	-7595295.08	-7595294.95	-7595294.82	0.0528	0.0101
Mercury	-25508-06-17 20:52 J	-7595205.68	-7595205.63	-7595205.59	0.0525	0.0489
Venus	-25508-09-20 00:57 J	-7595111.64	-7595111.46	-7595111.27	0.0522	0.0201
Moon	-25504-10-11 12:43 J	-7593629.03	-7593628.97	-7593628.90	0.0490	0.0466
Earth	-25504-10-11 15:21 J	-7593628.92	-7593628.86	-7593628.80	0.0490	0.0474 *
Venus	-25503-11-22 21:21 J	-7593221.68	-7593221.61	-7593221.55	0.0494	0.0469
Mercury	-25502-05-18 10:04 J	-7593045.23	-7593045.08	-7593044.93	0.0498	0.0263
Mars	-25502-07-06 15:35 J	-7592995.92	-7592995.85	-7592995.78	0.0499	0.0479
Venus	-25502-07-17 14:52 J	-7592985.09	-7592984.88	-7592984.67	0.0500	0.0076
Mercury	-25502-08-16 15:35 J	-7592954.92	-7592954.85	-7592954.76	0.0500	0.0439
Venus	-25501-03-10 17:02 J	-7592747.94	-7592747.79	-7592747.64	0.0507	0.0347
Venus	-25497-09-30 17:02 J	-7591082.92	-7591082.79	-7591082.65	0.0532	0.0393
Mercury	-25496-01-06 17:02 J	-7590984.91	-7590984.79	-7590984.68	0.0529	0.0249
Mercury	-25496-04-06 00:28 J	-7590895.58	-7590895.48	-7590895.38	0.0527	0.0342
Venus	-25496-05-25 22:04 J	-7590845.78	-7590845.58	-7590845.38	0.0525	0.0076
Venus	-25495-01-17 17:45 J	-7590608.80	-7590608.76	-7590608.73	0.0517	0.0507
Earth	-25492-10-16 02:38 J	-7589241.63	-7589241.39	-7589241.15	0.0490	0.0022
Moon	-25492-10-16 06:14 J	-7589241.48	-7589241.24	-7589240.99	0.0490	0.0012 *
Mercury	-25490-03-06 07:40 J	-7588735.25	-7588735.18	-7588735.09	0.0497	0.0440

Venus	-25490-03-22 12:14 J	-7588719.18	-7588718.99	-7588718.80	0.0498	0.0189
Mercury	-25490-06-04 13:55 J	-7588645.07	-7588644.92	-7588644.77	0.0500	0.0266
Venus	-25490-11-14 11:45 J	-7588482.19	-7588482.01	-7588481.82	0.0504	0.0229
Venus	-25485-06-05 11:31 J	-7586817.06	-7586817.02	-7586816.97	0.0534	0.0519
Mercury	-25485-10-25 21:07 J	-7586674.70	-7586674.62	-7586674.53	0.0530	0.0389
Mercury	-25484-01-23 04:33 J	-7586585.43	-7586585.31	-7586585.19	0.0527	0.0201
Venus	-25484-01-28 19:26 J	-7586579.89	-7586579.69	-7586579.50	0.0527	0.0051
Venus	-25484-09-22 17:31 J	-7586342.89	-7586342.77	-7586342.64	0.0519	0.0397
Moon	-25480-10-20 08:52 J	-7584854.24	-7584854.13	-7584854.00	0.0490	0.0418
Earth	-25480-10-20 12:43 J	-7584854.08	-7584853.97	-7584853.85	0.0490	0.0428 *
Venus	-25479-11-25 09:50 J	-7584453.25	-7584453.09	-7584452.92	0.0496	0.0299
Mercury	-25478-03-23 11:59 J	-7584335.18	-7584335.00	-7584334.83	0.0499	0.0089
Venus	-25478-07-20 06:57 J	-7584216.41	-7584216.21	-7584216.00	0.0503	0.0111
Mercury	-25473-08-14 01:26 J	-7582364.45	-7582364.44	-7582364.43	0.0531	0.0526
Venus	-25473-10-03 16:04 J	-7582314.02	-7582313.83	-7582313.65	0.0529	0.0178
Mercury	-25473-11-11 08:38 J	-7582275.27	-7582275.14	-7582275.01	0.0528	0.0061
Venus	-25472-05-28 16:33 J	-7582076.97	-7582076.81	-7582076.64	0.0522	0.0281
Venus	-25467-07-31 09:35 J	-7580187.22	-7580187.10	-7580186.98	0.0495	0.0403
Mercury	-25466-01-09 10:33 J	-7580025.24	-7580025.06	-7580024.88	0.0499	0.0079
Venus	-25466-03-25 04:33 J	-7579950.51	-7579950.31	-7579950.10	0.0501	0.0010
Mars	-25466-04-10 08:23 J	-7579934.41	-7579934.15	-7579933.89	0.0501	0.0139
Venus	-25466-11-17 08:38 J	-7579713.25	-7579713.14	-7579713.03	0.0508	0.0421
Moon	-25462-04-13 21:21 J	-7578469.75	-7578469.61	-7578469.46	0.0537	0.0425
Earth	-25462-04-13 22:04 J	-7578469.72	-7578469.58	-7578469.42	0.0537	0.0403 *
Venus	-25461-06-08 09:21 J	-7578048.27	-7578048.11	-7578047.95	0.0530	0.0311
Mercury	-25461-08-30 11:59 J	-7577965.12	-7577965.00	-7577964.87	0.0528	0.0094
Mercury	-25461-11-27 19:40 J	-7577875.72	-7577875.68	-7577875.64	0.0525	0.0497
Venus	-25460-01-31 12:14 J	-7577811.18	-7577810.99	-7577810.80	0.0523	0.0155
Mercury	-25455-10-28 08:38 J	-7575715.29	-7575715.14	-7575714.98	0.0498	0.0252
Venus	-25455-11-28 01:55 J	-7575684.62	-7575684.42	-7575684.21	0.0499	0.0118



Mercury	-25454-01-26 14:38 J	-7575624.97	-7575624.89	-7575624.82	0.0501	0.0451
Venus	-25454-07-23 03:35 J	-7575447.51	-7575447.35	-7575447.18	0.0506	0.0304
Moon	-25450-04-18 20:23 J	-7574081.86	-7574081.65	-7574081.43	0.0537	0.0163
Earth	-25450-04-18 22:19 J	-7574081.79	-7574081.57	-7574081.36	0.0537	0.0179 *
Venus	-25449-02-12 02:52 J	-7573782.49	-7573782.38	-7573782.27	0.0532	0.0440
Mercury	-25449-06-18 15:50 J	-7573654.96	-7573654.84	-7573654.73	0.0529	0.0241
Mercury	-25449-09-15 23:16 J	-7573565.63	-7573565.53	-7573565.43	0.0526	0.0348
Venus	-25449-10-06 08:09 J	-7573545.36	-7573545.16	-7573544.96	0.0525	0.0029
Venus	-25448-05-31 04:19 J	-7573308.40	-7573308.32	-7573308.23	0.0518	0.0463
Venus	-25443-08-02 23:02 J	-7571418.72	-7571418.54	-7571418.35	0.0497	0.0229
Mercury	-25443-08-16 06:14 J	-7571405.32	-7571405.24	-7571405.15	0.0498	0.0432
Mercury	-25443-11-14 12:28 J	-7571315.13	-7571314.98	-7571314.83	0.0500	0.0274
Venus	-25442-03-27 21:50 J	-7571181.78	-7571181.59	-7571181.40	0.0504	0.0186
Mercury	-25437-04-06 19:26 J	-7569344.77	-7569344.69	-7569344.60	0.0530	0.0391
Venus	-25437-06-11 03:35 J	-7569279.55	-7569279.35	-7569279.16	0.0528	0.0102
Mars	-25437-06-25 13:26 J	-7569264.99	-7569264.94	-7569264.89	0.0528	0.0518
Mercury	-25437-07-05 02:52 J	-7569255.50	-7569255.38	-7569255.26	0.0527	0.0198
Venus	-25436-02-03 02:38 J	-7569042.53	-7569042.39	-7569042.24	0.0520	0.0350
Venus	-25431-04-07 21:21 J	-7567152.76	-7567152.61	-7567152.45	0.0496	0.0337
Mercury	-25431-09-02 10:33 J	-7567005.23	-7567005.06	-7567004.88	0.0499	0.0099
Venus	-25431-11-30 17:31 J	-7566915.98	-7566915.77	-7566915.56	0.0502	0.0068
Mars	-25430-01-13 02:38 J	-7566872.63	-7566872.39	-7566872.15	0.0503	0.0208
Venus	-25430-07-25 22:04 J	-7566678.62	-7566678.58	-7566678.52	0.0509	0.0491
Venus	-25425-02-14 23:16 J	-7565013.71	-7565013.53	-7565013.35	0.0530	0.0230
Mercury	-25425-04-23 06:43 J	-7564945.35	-7564945.22	-7564945.09	0.0528	0.0057
Venus	-25425-10-09 01:26 J	-7564776.62	-7564776.44	-7564776.26	0.0523	0.0232
Venus	-25420-12-11 19:40 J	-7562886.77	-7562886.68	-7562886.58	0.0494	0.0442
Mercury	-25419-06-21 08:23 J	-7562695.33	-7562695.15	-7562694.97	0.0499	0.0080
Venus	-25419-08-05 13:26 J	-7562650.15	-7562649.94	-7562649.73	0.0500	0.0048
Venus	-25418-03-30 15:50 J	-7562412.97	-7562412.84	-7562412.70	0.0507	0.0374

Venus	-25414-10-20 18:43 J	-7560747.86	-7560747.72	-7560747.57	0.0532	0.0359
Mercury	-25413-02-10 11:02 J	-7560635.17	-7560635.04	-7560634.92	0.0529	0.0087
Mercury	-25413-05-09 18:28 J	-7560545.76	-7560545.73	-7560545.69	0.0526	0.0507
Venus	-25413-06-13 23:16 J	-7560510.72	-7560510.53	-7560510.33	0.0525	0.0109
Moon	-25409-10-15 05:31 J	-7558926.51	-7558926.27	-7558926.03	0.0490	0.0063
Earth	-25409-10-15 09:07 J	-7558926.35	-7558926.12	-7558925.88	0.0490	0.0087 *
Mercury	-25407-04-09 06:43 J	-7558385.38	-7558385.22	-7558385.06	0.0498	0.0250
Venus	-25407-04-10 11:45 J	-7558384.21	-7558384.01	-7558383.81	0.0498	0.0160
Mercury	-25407-07-08 12:28 J	-7558295.05	-7558294.98	-7558294.90	0.0501	0.0452
Venus	-25407-12-03 11:59 J	-7558147.18	-7558147.00	-7558146.82	0.0505	0.0259
Venus	-25402-06-25 11:45 J	-7556482.08	-7556482.01	-7556481.93	0.0533	0.0487
Mercury	-25402-11-29 14:38 J	-7556325.01	-7556324.89	-7556324.78	0.0529	0.0236
Venus	-25401-02-17 18:28 J	-7556244.93	-7556244.73	-7556244.53	0.0526	0.0023
Mercury	-25401-02-26 21:50 J	-7556235.68	-7556235.59	-7556235.49	0.0526	0.0353
Mars	-25401-04-02 01:40 J	-7556200.71	-7556200.43	-7556200.14	0.0525	0.0046
Venus	-25401-10-11 15:21 J	-7556007.97	-7556007.86	-7556007.74	0.0518	0.0421
Earth	-25397-10-19 17:31 J	-7554538.93	-7554538.77	-7554538.60	0.0490	0.0357
Moon	-25397-10-19 20:38 J	-7554538.80	-7554538.64	-7554538.47	0.0490	0.0344 *
Venus	-25396-12-14 09:21 J	-7554118.28	-7554118.11	-7554117.93	0.0497	0.0271
Mercury	-25395-01-26 04:19 J	-7554075.40	-7554075.32	-7554075.22	0.0498	0.0428
Mercury	-25395-04-26 10:47 J	-7553985.19	-7553985.05	-7553984.90	0.0500	0.0280
Venus	-25395-08-08 07:40 J	-7553881.38	-7553881.18	-7553880.98	0.0503	0.0142
Mercury	-25390-09-17 18:14 J	-7552014.83	-7552014.74	-7552014.65	0.0529	0.0384
Venus	-25390-10-23 13:11 J	-7551979.14	-7551978.95	-7551978.75	0.0528	0.0151
Mercury	-25390-12-16 01:26 J	-7551925.56	-7551925.44	-7551925.32	0.0527	0.0202
Venus	-25389-06-16 12:57 J	-7551742.12	-7551741.96	-7551741.80	0.0521	0.0303
Venus	-25384-08-19 07:40 J	-7549852.31	-7549852.18	-7549852.04	0.0495	0.0376
Mercury	-25383-02-12 08:38 J	-7549675.31	-7549675.14	-7549674.96	0.0499	0.0102
Venus	-25383-04-13 03:07 J	-7549615.58	-7549615.37	-7549615.16	0.0501	0.0025
Venus	-25383-12-06 06:57 J	-7549378.30	-7549378.21	-7549378.11	0.0508	0.0447

Earth	-25379-04-12 20:23 J	-7548154.69	-7548154.65	-7548154.59	0.0537	0.0523
Venus	-25378-06-28 06:43 J	-7547713.39	-7547713.22	-7547713.05	0.0531	0.0282
Mercury	-25378-10-04 05:02 J	-7547615.42	-7547615.29	-7547615.16	0.0528	0.0051
Venus	-25377-02-20 09:50 J	-7547476.28	-7547476.09	-7547475.91	0.0524	0.0182
Venus	-25372-04-24 06:57 J	-7545586.26	-7545586.21	-7545586.16	0.0494	0.0477
Mercury	-25372-12-01 06:43 J	-7545365.40	-7545365.22	-7545365.04	0.0499	0.0075
Venus	-25372-12-16 23:45 J	-7545349.72	-7545349.51	-7545349.31	0.0499	0.0090
Venus	-25371-08-11 00:57 J	-7545112.62	-7545112.46	-7545112.30	0.0506	0.0330
Earth	-25367-04-17 21:07 J	-7543766.85	-7543766.62	-7543766.39	0.0537	0.0061
Moon	-25367-04-18 00:14 J	-7543766.72	-7543766.49	-7543766.25	0.0537	0.0053 *
Venus	-25366-03-03 00:57 J	-7543447.58	-7543447.46	-7543447.33	0.0532	0.0410
Mercury	-25366-07-23 08:52 J	-7543305.25	-7543305.13	-7543305.00	0.0529	0.0095
Mercury	-25366-10-20 16:33 J	-7543215.85	-7543215.81	-7543215.77	0.0526	0.0498
Venus	-25366-10-26 06:57 J	-7543210.41	-7543210.21	-7543210.01	0.0526	0.0058
Mars	-25365-01-07 23:59 J	-7543136.68	-7543136.50	-7543136.31	0.0523	0.0393
Venus	-25365-06-19 03:35 J	-7542973.41	-7542973.35	-7542973.29	0.0518	0.0490
Venus	-25360-08-21 20:38 J	-7541083.83	-7541083.64	-7541083.45	0.0497	0.0202
Mercury	-25360-09-19 04:04 J	-7541055.48	-7541055.33	-7541055.17	0.0498	0.0256
Mercury	-25360-12-18 10:04 J	-7540965.16	-7540965.08	-7540965.00	0.0500	0.0446
Venus	-25359-04-15 19:26 J	-7540846.88	-7540846.69	-7540846.50	0.0504	0.0212
Mercury	-25354-05-11 12:57 J	-7538995.07	-7538994.96	-7538994.84	0.0529	0.0235
Venus	-25354-07-01 03:50 J	-7538944.54	-7538944.34	-7538944.14	0.0528	0.0070
Mercury	-25354-08-08 20:38 J	-7538905.74	-7538905.64	-7538905.55	0.0527	0.0356
Venus	-25353-02-23 02:38 J	-7538707.52	-7538707.39	-7538707.25	0.0520	0.0378
Venus	-25348-04-26 19:26 J	-7536817.85	-7536817.69	-7536817.53	0.0496	0.0310
Mercury	-25348-07-08 02:09 J	-7536745.49	-7536745.41	-7536745.31	0.0498	0.0429
Mars	-25348-09-29 12:57 J	-7536662.11	-7536661.96	-7536661.79	0.0500	0.0391
Mercury	-25348-10-06 08:38 J	-7536655.29	-7536655.14	-7536654.99	0.0500	0.0278
Venus	-25348-12-19 15:50 J	-7536581.04	-7536580.84	-7536580.63	0.0502	0.0096
Mercury	-25342-02-27 16:47 J	-7534684.89	-7534684.80	-7534684.71	0.0529	0.0381

Venus	-25342-03-05 22:19 J	-7534678.75	-7534678.57	-7534678.38	0.0529	0.0200
Mercury	-25342-05-27 23:59 J	-7534595.62	-7534595.50	-7534595.38	0.0527	0.0205
Venus	-25342-10-28 23:16 J	-7534441.70	-7534441.53	-7534441.35	0.0522	0.0258
Venus	-25337-12-30 17:31 J	-7532551.88	-7532551.77	-7532551.66	0.0495	0.0415
Mercury	-25336-07-25 06:43 J	-7532345.40	-7532345.22	-7532345.05	0.0500	0.0103
Venus	-25336-08-24 12:14 J	-7532315.20	-7532314.99	-7532314.78	0.0500	0.0019
Venus	-25335-04-18 15:35 J	-7532077.97	-7532077.85	-7532077.72	0.0508	0.0402
Venus	-25331-11-08 16:04 J	-7530412.98	-7530412.83	-7530412.67	0.0531	0.0330
Mercury	-25331-12-16 20:38 J	-7530374.64	-7530374.64	-7530374.64	0.0530	0.0529
Mercury	-25330-03-16 03:35 J	-7530285.48	-7530285.35	-7530285.22	0.0527	0.0055
Venus	-25330-07-03 19:40 J	-7530175.87	-7530175.68	-7530175.49	0.0524	0.0133
Earth	-25326-10-15 10:47 J	-7528611.27	-7528611.05	-7528610.82	0.0490	0.0173
Moon	-25326-10-15 13:55 J	-7528611.14	-7528610.92	-7528610.70	0.0490	0.0151 *
Venus	-25324-04-29 08:52 J	-7528049.33	-7528049.13	-7528048.93	0.0498	0.0132
Mercury	-25324-05-13 04:19 J	-7528035.49	-7528035.32	-7528035.14	0.0499	0.0077
Venus	-25324-12-22 09:07 J	-7527812.28	-7527812.12	-7527811.94	0.0505	0.0286
Venus	-25319-07-14 07:40 J	-7526147.28	-7526147.18	-7526147.08	0.0533	0.0460
Mercury	-25318-01-02 06:57 J	-7525975.33	-7525975.21	-7525975.08	0.0528	0.0101
Venus	-25318-03-08 14:38 J	-7525910.09	-7525909.89	-7525909.69	0.0527	0.0007
Mercury	-25318-04-01 14:38 J	-7525885.94	-7525885.89	-7525885.85	0.0526	0.0490
Venus	-25318-10-31 12:14 J	-7525673.09	-7525672.99	-7525672.89	0.0519	0.0445
Moon	-25314-10-19 19:55 J	-7524223.87	-7524223.67	-7524223.46	0.0490	0.0264
Earth	-25314-10-19 22:19 J	-7524223.77	-7524223.57	-7524223.38	0.0490	0.0282 *
Venus	-25312-01-02 06:28 J	-7523783.41	-7523783.23	-7523783.05	0.0497	0.0243
Mercury	-25312-03-01 02:09 J	-7523725.56	-7523725.41	-7523725.25	0.0498	0.0254
Mercury	-25312-05-30 07:55 J	-7523635.24	-7523635.17	-7523635.09	0.0500	0.0449
Mars	-25312-07-04 00:57 J	-7523600.73	-7523600.46	-7523600.20	0.0501	0.0060
Venus	-25312-08-27 04:19 J	-7523546.52	-7523546.32	-7523546.12	0.0503	0.0168
Mercury	-25307-10-21 10:47 J	-7521665.16	-7521665.05	-7521664.93	0.0529	0.0246
Venus	-25307-11-11 10:19 J	-7521644.26	-7521644.07	-7521643.88	0.0529	0.0122

Mercury	-25306-01-18 18:14 J	-7521575.83	-7521575.74	-7521575.64	0.0527	0.0345
Venus	-25306-07-06 10:33 J	-7521407.21	-7521407.06	-7521406.90	0.0521	0.0331
Venus	-25301-09-07 04:19 J	-7519517.46	-7519517.32	-7519517.17	0.0495	0.0350
Mercury	-25301-12-17 23:31 J	-7519415.60	-7519415.52	-7519415.43	0.0497	0.0437
Mercury	-25300-03-18 05:45 J	-7519325.40	-7519325.26	-7519325.11	0.0500	0.0270
Venus	-25300-05-01 23:31 J	-7519280.73	-7519280.52	-7519280.31	0.0501	0.0050
Venus	-25300-12-25 03:21 J	-7519043.43	-7519043.36	-7519043.28	0.0508	0.0470
Venus	-25295-07-17 05:45 J	-7517378.43	-7517378.26	-7517378.08	0.0531	0.0251
Mercury	-25295-08-09 15:07 J	-7517354.96	-7517354.87	-7517354.78	0.0530	0.0386
Mercury	-25295-11-06 22:19 J	-7517265.69	-7517265.57	-7517265.45	0.0527	0.0202
Venus	-25294-03-11 08:52 J	-7517141.31	-7517141.13	-7517140.95	0.0523	0.0211
Venus	-25289-05-13 03:35 J	-7515251.43	-7515251.35	-7515251.26	0.0494	0.0452
Mercury	-25288-01-04 04:04 J	-7515015.50	-7515015.33	-7515015.15	0.0499	0.0098
Venus	-25288-01-04 20:38 J	-7515014.85	-7515014.64	-7515014.43	0.0499	0.0064
Venus	-25288-08-29 22:19 J	-7514777.71	-7514777.57	-7514777.42	0.0506	0.0356
Moon	-25284-04-16 20:52 J	-7513451.86	-7513451.63	-7513451.41	0.0537	0.0045
Earth	-25284-04-17 00:43 J	-7513451.70	-7513451.47	-7513451.25	0.0537	0.0034 *
Venus	-25283-03-21 23:59 J	-7513112.63	-7513112.50	-7513112.36	0.0532	0.0380
Mercury	-25283-05-28 18:57 J	-7513044.71	-7513044.71	-7513044.71	0.0530	0.0530
Mercury	-25283-08-26 02:09 J	-7512955.54	-7512955.41	-7512955.28	0.0527	0.0056
Mars	-25283-09-19 11:16 J	-7512931.20	-7512931.03	-7512930.84	0.0527	0.0411
Venus	-25283-11-14 05:02 J	-7512875.49	-7512875.29	-7512875.09	0.0525	0.0085
Venus	-25282-07-09 00:28 J	-7512638.50	-7512638.48	-7512638.45	0.0517	0.0511
Venus	-25277-09-09 17:45 J	-7510748.96	-7510748.76	-7510748.57	0.0498	0.0176
Mercury	-25277-10-23 01:55 J	-7510705.60	-7510705.42	-7510705.24	0.0499	0.0082
Mars	-25276-04-07 17:45 J	-7510538.97	-7510538.76	-7510538.53	0.0504	0.0288
Venus	-25276-05-04 17:16 J	-7510511.96	-7510511.78	-7510511.59	0.0505	0.0239
Venus	-25272-11-24 16:47 J	-7508846.86	-7508846.80	-7508846.74	0.0533	0.0506
Mercury	-25271-06-14 05:45 J	-7508645.39	-7508645.26	-7508645.14	0.0528	0.0096
Venus	-25271-07-20 00:14 J	-7508609.69	-7508609.49	-7508609.29	0.0527	0.0043

Mercury	-25271-09-11 13:11 J	-7508555.99	-7508555.95	-7508555.91	0.0525	0.0493
Venus	-25270-03-13 22:19 J	-7508372.69	-7508372.57	-7508372.44	0.0519	0.0399
Venus	-25265-05-15 15:21 J	-7506483.03	-7506482.86	-7506482.68	0.0496	0.0284
Mercury	-25265-08-10 23:31 J	-7506395.67	-7506395.52	-7506395.36	0.0498	0.0261
Mercury	-25265-11-09 05:31 J	-7506305.35	-7506305.27	-7506305.19	0.0501	0.0443
Venus	-25264-01-07 12:14 J	-7506246.19	-7506245.99	-7506245.79	0.0502	0.0123
Venus	-25259-03-24 17:31 J	-7504343.96	-7504343.77	-7504343.58	0.0529	0.0174
Mercury	-25259-04-02 08:52 J	-7504335.24	-7504335.13	-7504335.01	0.0529	0.0254
Mercury	-25259-06-30 16:19 J	-7504245.92	-7504245.82	-7504245.72	0.0527	0.0336
Venus	-25259-11-16 18:43 J	-7504106.88	-7504106.72	-7504106.55	0.0522	0.0282
Venus	-25253-01-19 14:09 J	-7502217.03	-7502216.91	-7502216.78	0.0495	0.0388
Mercury	-25253-05-29 21:21 J	-7502085.69	-7502085.61	-7502085.52	0.0497	0.0438
Mercury	-25253-08-28 03:35 J	-7501995.49	-7501995.35	-7501995.19	0.0500	0.0269
Venus	-25253-09-12 08:38 J	-7501980.35	-7501980.14	-7501979.93	0.0500	0.0009
Venus	-25252-05-07 11:31 J	-7501743.14	-7501743.02	-7501742.91	0.0507	0.0426
Venus	-25248-11-27 11:31 J	-7500078.18	-7500078.02	-7500077.86	0.0531	0.0304
Mercury	-25247-01-19 12:43 J	-7500025.05	-7500024.97	-7500024.88	0.0530	0.0399
Mercury	-25247-04-18 20:09 J	-7499935.78	-7499935.66	-7499935.54	0.0527	0.0189
Mars	-25247-06-26 09:21 J	-7499867.39	-7499867.11	-7499866.82	0.0525	0.0033
Venus	-25247-07-22 15:50 J	-7499841.03	-7499840.84	-7499840.65	0.0524	0.0160
Moon	-25243-10-14 11:45 J	-7498296.23	-7498296.01	-7498295.79	0.0490	0.0231
Earth	-25243-10-14 13:55 J	-7498296.12	-7498295.92	-7498295.72	0.0490	0.0251 *
Venus	-25242-09-24 12:57 J	-7497950.98	-7497950.96	-7497950.94	0.0493	0.0489
Venus	-25241-05-18 04:33 J	-7497714.51	-7497714.31	-7497714.10	0.0498	0.0108
Mercury	-25241-06-16 01:11 J	-7497685.62	-7497685.45	-7497685.27	0.0499	0.0089
Venus	-25240-01-10 04:47 J	-7497477.46	-7497477.30	-7497477.13	0.0505	0.0308
Venus	-25236-08-02 05:45 J	-7495812.37	-7495812.26	-7495812.14	0.0533	0.0432
Mercury	-25235-02-05 00:14 J	-7495625.62	-7495625.49	-7495625.36	0.0528	0.0049
Venus	-25235-03-27 12:57 J	-7495575.16	-7495574.96	-7495574.76	0.0527	0.0035
Venus	-25235-11-19 10:19 J	-7495338.15	-7495338.07	-7495337.98	0.0519	0.0470

Earth	-25231-10-18 23:59 J	-7493908.72	-7493908.50	-7493908.28	0.0490	0.0197
Moon	-25231-10-19 00:28 J	-7493908.69	-7493908.48	-7493908.26	0.0490	0.0179 *
Venus	-25229-01-22 02:23 J	-7493448.58	-7493448.40	-7493448.21	0.0497	0.0218
Mercury	-25229-04-03 23:16 J	-7493375.70	-7493375.53	-7493375.35	0.0499	0.0088
Venus	-25229-09-15 00:43 J	-7493211.67	-7493211.47	-7493211.28	0.0503	0.0192
Mercury	-25224-11-24 04:04 J	-7491315.46	-7491315.33	-7491315.20	0.0528	0.0099
Venus	-25224-11-30 08:38 J	-7491309.34	-7491309.14	-7491308.95	0.0528	0.0092
Mercury	-25223-02-21 11:31 J	-7491226.06	-7491226.02	-7491225.98	0.0525	0.0491
Venus	-25223-07-25 07:55 J	-7491072.31	-7491072.17	-7491072.02	0.0520	0.0355
Venus	-25218-09-26 23:59 J	-7489182.65	-7489182.50	-7489182.33	0.0496	0.0326
Mercury	-25217-01-21 20:52 J	-7489065.78	-7489065.63	-7489065.48	0.0498	0.0268
Mercury	-25217-04-21 02:52 J	-7488975.46	-7488975.38	-7488975.29	0.0501	0.0437
Venus	-25217-05-20 20:09 J	-7488945.87	-7488945.66	-7488945.45	0.0502	0.0077
Venus	-25216-01-13 00:57 J	-7488708.50	-7488708.46	-7488708.41	0.0509	0.0495
Venus	-25212-08-05 02:38 J	-7487043.57	-7487043.39	-7487043.20	0.0530	0.0223
Mercury	-25212-09-12 07:40 J	-7487005.29	-7487005.18	-7487005.06	0.0529	0.0247
Mercury	-25212-12-10 15:07 J	-7486915.97	-7486915.87	-7486915.77	0.0526	0.0340
Venus	-25211-03-30 04:47 J	-7486806.47	-7486806.30	-7486806.12	0.0523	0.0236
Mars	-25211-04-02 10:33 J	-7486803.17	-7486803.06	-7486802.94	0.0522	0.0474
Venus	-25206-06-01 23:16 J	-7484916.64	-7484916.53	-7484916.43	0.0494	0.0426
Mercury	-25206-11-09 18:43 J	-7484755.80	-7484755.72	-7484755.65	0.0498	0.0447
Venus	-25205-01-24 16:33 J	-7484680.02	-7484679.81	-7484679.60	0.0499	0.0036
Mercury	-25205-02-08 00:57 J	-7484665.61	-7484665.46	-7484665.30	0.0500	0.0261
Venus	-25205-09-17 18:28 J	-7484442.86	-7484442.73	-7484442.59	0.0506	0.0381
Earth	-25201-04-15 17:45 J	-7483136.97	-7483136.76	-7483136.54	0.0537	0.0176
Moon	-25201-04-15 21:50 J	-7483136.80	-7483136.59	-7483136.37	0.0537	0.0183 *
Venus	-25200-04-09 18:14 J	-7482777.89	-7482777.74	-7482777.59	0.0532	0.0354
Mercury	-25200-07-01 11:02 J	-7482695.12	-7482695.04	-7482694.96	0.0530	0.0406
Mercury	-25200-09-28 18:14 J	-7482605.87	-7482605.74	-7482605.62	0.0527	0.0182
Venus	-25200-12-02 23:31 J	-7482540.71	-7482540.52	-7482540.32	0.0525	0.0111

Venus	-25194-09-29 14:09 J	-7480414.11	-7480413.91	-7480413.71	0.0498	0.0148
Mercury	-25194-11-26 23:02 J	-7480355.71	-7480355.54	-7480355.36	0.0499	0.0087
Mars	-25194-12-23 21:07 J	-7480328.82	-7480328.62	-7480328.42	0.0500	0.0330
Venus	-25193-05-23 13:11 J	-7480177.12	-7480176.95	-7480176.77	0.0504	0.0264
Moon	-25189-04-20 13:55 J	-7478749.05	-7478748.92	-7478748.78	0.0537	0.0429
Earth	-25189-04-20 17:16 J	-7478748.93	-7478748.78	-7478748.63	0.0537	0.0401 *
Venus	-25189-12-13 10:47 J	-7478512.13	-7478512.05	-7478511.96	0.0534	0.0483
Mercury	-25188-07-17 21:50 J	-7478295.72	-7478295.59	-7478295.46	0.0528	0.0034
Venus	-25188-08-07 19:11 J	-7478274.90	-7478274.70	-7478274.50	0.0528	0.0017
Venus	-25187-04-01 17:59 J	-7478037.85	-7478037.75	-7478037.63	0.0520	0.0424
Venus	-25182-06-04 11:16 J	-7476148.21	-7476148.03	-7476147.85	0.0496	0.0259
Mercury	-25182-09-14 20:38 J	-7476045.82	-7476045.64	-7476045.47	0.0498	0.0096
Venus	-25181-01-27 07:40 J	-7475911.38	-7475911.18	-7475910.98	0.0502	0.0147
Venus	-25176-04-12 15:07 J	-7474009.06	-7474008.87	-7474008.68	0.0530	0.0145
Mercury	-25176-05-06 01:55 J	-7473985.55	-7473985.42	-7473985.29	0.0529	0.0109
Mercury	-25176-08-03 09:21 J	-7473896.15	-7473896.11	-7473896.06	0.0526	0.0483
Venus	-25176-12-05 16:33 J	-7473771.97	-7473771.81	-7473771.65	0.0522	0.0309
Venus	-25170-02-07 10:04 J	-7471882.22	-7471882.08	-7471881.94	0.0495	0.0364
Mercury	-25170-07-03 18:28 J	-7471735.88	-7471735.73	-7471735.58	0.0498	0.0272
Mercury	-25170-10-02 00:28 J	-7471645.57	-7471645.48	-7471645.39	0.0500	0.0431
Venus	-25170-10-02 04:19 J	-7471645.53	-7471645.32	-7471645.11	0.0500	0.0032 *
Venus	-25169-05-26 07:11 J	-7471408.28	-7471408.20	-7471408.09	0.0508	0.0449
Venus	-25165-12-16 10:04 J	-7469743.24	-7469743.08	-7469742.90	0.0531	0.0273
Mercury	-25164-02-22 05:59 J	-7469675.36	-7469675.25	-7469675.14	0.0529	0.0252
Mercury	-25164-05-22 13:11 J	-7469586.05	-7469585.95	-7469585.85	0.0526	0.0337
Venus	-25164-08-10 13:40 J	-7469506.11	-7469505.93	-7469505.74	0.0524	0.0189
Earth	-25160-10-13 13:11 J	-7467981.11	-7467980.95	-7467980.78	0.0490	0.0347
Moon	-25160-10-13 14:09 J	-7467981.08	-7467980.91	-7467980.74	0.0490	0.0331 *
Venus	-25159-10-13 08:23 J	-7467616.22	-7467616.15	-7467616.08	0.0494	0.0465
Mercury	-25158-04-21 15:50 J	-7467425.91	-7467425.84	-7467425.77	0.0498	0.0455



Venus	-25158-06-07 00:43 J	-7467379.68	-7467379.47	-7467379.27	0.0499	0.0081
Mercury	-25158-07-20 22:19 J	-7467335.72	-7467335.57	-7467335.42	0.0500	0.0253
Mars	-25158-09-27 06:57 J	-7467267.48	-7467267.21	-7467266.95	0.0502	0.0008
Venus	-25157-01-30 01:40 J	-7467142.59	-7467142.43	-7467142.28	0.0506	0.0334
Venus	-25153-08-21 03:35 J	-7465477.48	-7465477.35	-7465477.22	0.0532	0.0401
Mercury	-25153-12-11 09:50 J	-7465365.18	-7465365.09	-7465365.01	0.0529	0.0399
Mercury	-25152-03-10 16:47 J	-7465275.92	-7465275.80	-7465275.67	0.0527	0.0188
Venus	-25152-04-15 09:50 J	-7465240.29	-7465240.09	-7465239.89	0.0526	0.0063
Venus	-25152-12-08 06:28 J	-7465003.29	-7465003.23	-7465003.17	0.0518	0.0491
Earth	-25148-10-17 23:59 J	-7463593.73	-7463593.50	-7463593.27	0.0490	0.0102
Moon	-25148-10-18 01:11 J	-7463593.69	-7463593.45	-7463593.20	0.0490	0.0080 *
Venus	-25146-02-09 22:33 J	-7463113.75	-7463113.56	-7463113.37	0.0497	0.0190
Mercury	-25146-05-08 20:23 J	-7463025.82	-7463025.65	-7463025.47	0.0499	0.0078
Venus	-25146-10-04 20:52 J	-7462876.82	-7462876.63	-7462876.44	0.0503	0.0220
Venus	-25141-04-25 17:31 J	-7461211.79	-7461211.77	-7461211.75	0.0534	0.0531
Venus	-25141-12-19 02:38 J	-7460974.59	-7460974.39	-7460974.19	0.0528	0.0067
Mercury	-25141-12-27 19:55 J	-7460965.80	-7460965.67	-7460965.54	0.0528	0.0029
Venus	-25140-08-13 02:23 J	-7460737.53	-7460737.40	-7460737.26	0.0521	0.0379
Venus	-25135-10-15 21:21 J	-7458847.77	-7458847.61	-7458847.44	0.0495	0.0297
Mercury	-25134-02-24 18:28 J	-7458715.90	-7458715.73	-7458715.55	0.0498	0.0096
Venus	-25134-06-09 16:47 J	-7458611.00	-7458610.80	-7458610.59	0.0501	0.0105
Venus	-25129-08-23 21:07 J	-7456708.81	-7456708.62	-7456708.44	0.0530	0.0198
Mercury	-25129-10-15 23:45 J	-7456655.64	-7456655.51	-7456655.39	0.0529	0.0122
Mars	-25129-12-12 09:21 J	-7456598.31	-7456598.11	-7456597.89	0.0527	0.0352
Mercury	-25128-01-13 07:11 J	-7456566.25	-7456566.20	-7456566.14	0.0526	0.0470
Venus	-25128-04-17 23:59 J	-7456471.67	-7456471.50	-7456471.33	0.0523	0.0260
Venus	-25123-06-20 19:26 J	-7454581.80	-7454581.69	-7454581.56	0.0494	0.0402
Mercury	-25123-12-13 15:50 J	-7454405.99	-7454405.84	-7454405.69	0.0498	0.0279
Venus	-25122-02-12 12:28 J	-7454345.19	-7454344.98	-7454344.77	0.0499	0.0012
Mercury	-25122-03-13 21:50 J	-7454315.68	-7454315.59	-7454315.49	0.0500	0.0424

Mars	-25122-07-01 22:04 J	-7454205.77	-7454205.58	-7454205.38	0.0503	0.0343
Venus	-25122-10-07 14:09 J	-7454108.03	-7454107.91	-7454107.78	0.0506	0.0403
Moon	-25118-04-15 12:14 J	-7452822.17	-7452821.99	-7452821.79	0.0537	0.0304
Earth	-25118-04-15 15:50 J	-7452822.02	-7452821.84	-7452821.64	0.0537	0.0295 *
Venus	-25117-04-28 15:35 J	-7452443.00	-7452442.85	-7452442.69	0.0532	0.0327
Mercury	-25117-08-04 03:50 J	-7452345.45	-7452345.34	-7452345.23	0.0530	0.0263
Mercury	-25117-11-01 11:02 J	-7452256.14	-7452256.04	-7452255.93	0.0527	0.0327
Venus	-25117-12-21 21:21 J	-7452205.80	-7452205.61	-7452205.42	0.0525	0.0139
Mercury	-25111-10-01 13:26 J	-7450096.00	-7450095.94	-7450095.86	0.0497	0.0457
Venus	-25111-10-18 10:04 J	-7450079.28	-7450079.08	-7450078.88	0.0498	0.0123
Mercury	-25111-12-30 19:55 J	-7450005.82	-7450005.67	-7450005.51	0.0499	0.0252
Venus	-25110-06-12 09:07 J	-7449842.29	-7449842.12	-7449841.94	0.0504	0.0288
Earth	-25106-04-20 19:11 J	-7448433.88	-7448433.70	-7448433.50	0.0537	0.0302
Moon	-25106-04-20 20:52 J	-7448433.80	-7448433.63	-7448433.45	0.0537	0.0334 *
Venus	-25105-01-02 10:04 J	-7448177.18	-7448177.08	-7448176.97	0.0533	0.0452
Mercury	-25105-05-23 07:55 J	-7448035.25	-7448035.17	-7448035.08	0.0530	0.0404
Mercury	-25105-08-20 15:07 J	-7447945.99	-7447945.87	-7447945.74	0.0527	0.0184
Venus	-25105-08-26 17:59 J	-7447939.95	-7447939.75	-7447939.55	0.0527	0.0014
Venus	-25104-04-20 16:19 J	-7447702.91	-7447702.82	-7447702.72	0.0519	0.0449
Venus	-25099-06-23 07:11 J	-7445813.38	-7445813.20	-7445813.01	0.0496	0.0233
Mercury	-25099-10-18 17:45 J	-7445695.94	-7445695.76	-7445695.58	0.0499	0.0072
Venus	-25098-02-15 04:19 J	-7445576.51	-7445576.32	-7445576.12	0.0503	0.0174
Venus	-25093-05-01 13:11 J	-7443674.14	-7443673.95	-7443673.76	0.0529	0.0114
Mercury	-25093-06-08 18:57 J	-7443635.84	-7443635.71	-7443635.58	0.0528	0.0036
Mars	-25093-09-18 23:31 J	-7443533.79	-7443533.52	-7443533.24	0.0525	0.0118
Venus	-25093-12-24 13:55 J	-7443437.07	-7443436.92	-7443436.77	0.0521	0.0335
Venus	-25087-02-26 06:28 J	-7441547.38	-7441547.23	-7441547.08	0.0495	0.0336
Mercury	-25087-08-06 15:50 J	-7441386.01	-7441385.84	-7441385.66	0.0498	0.0103
Venus	-25087-10-21 01:11 J	-7441310.66	-7441310.45	-7441310.24	0.0500	0.0061
Venus	-25086-06-15 04:19 J	-7441073.38	-7441073.32	-7441073.24	0.0508	0.0475

Venus	-25081-01-05 04:33 J	-7439408.49	-7439408.31	-7439408.13	0.0531	0.0248
Mercury	-25081-03-27 22:04 J	-7439325.71	-7439325.58	-7439325.46	0.0529	0.0126
Mercury	-25081-06-25 05:31 J	-7439236.33	-7439236.27	-7439236.21	0.0526	0.0465
Venus	-25081-08-29 08:23 J	-7439171.33	-7439171.15	-7439170.97	0.0524	0.0213
Earth	-25077-10-12 18:43 J	-7437665.85	-7437665.72	-7437665.60	0.0490	0.0415
Moon	-25077-10-12 19:40 J	-7437665.81	-7437665.68	-7437665.53	0.0490	0.0406 *
Venus	-25076-11-01 06:43 J	-7437281.32	-7437281.22	-7437281.13	0.0493	0.0437
Mercury	-25075-05-25 13:55 J	-7437076.06	-7437075.92	-7437075.76	0.0498	0.0276
Venus	-25075-06-25 22:33 J	-7437044.76	-7437044.56	-7437044.35	0.0498	0.0052
Mercury	-25075-08-23 20:09 J	-7436985.75	-7436985.66	-7436985.57	0.0500	0.0428
Venus	-25074-02-17 23:02 J	-7436807.68	-7436807.54	-7436807.39	0.0505	0.0361
Venus	-25070-09-09 21:35 J	-7435142.73	-7435142.60	-7435142.45	0.0533	0.0378
Mercury	-25069-01-15 01:40 J	-7435015.54	-7435015.43	-7435015.32	0.0530	0.0273
Mercury	-25069-04-13 09:07 J	-7434926.23	-7434926.12	-7434926.02	0.0527	0.0316
Venus	-25069-05-04 04:33 J	-7434905.51	-7434905.31	-7434905.12	0.0526	0.0088
Venus	-25069-12-27 01:55 J	-7434668.44	-7434668.42	-7434668.40	0.0519	0.0515
Moon	-25065-10-17 01:55 J	-7433278.65	-7433278.42	-7433278.19	0.0490	0.0004
Earth	-25065-10-17 04:47 J	-7433278.53	-7433278.30	-7433278.06	0.0490	0.0033 *
Venus	-25063-02-28 19:26 J	-7432778.88	-7432778.69	-7432778.49	0.0497	0.0165
Mercury	-25063-03-13 11:16 J	-7432766.09	-7432766.03	-7432765.96	0.0497	0.0458
Mercury	-25063-06-11 17:45 J	-7432675.91	-7432675.76	-7432675.60	0.0499	0.0249
Venus	-25063-10-23 17:31 J	-7432541.96	-7432541.77	-7432541.59	0.0503	0.0245
Venus	-25058-05-15 15:21 J	-7430876.93	-7430876.86	-7430876.80	0.0534	0.0504
Mercury	-25058-11-03 05:45 J	-7430705.33	-7430705.26	-7430705.18	0.0530	0.0415
Venus	-25057-01-08 00:43 J	-7430639.67	-7430639.47	-7430639.27	0.0528	0.0039
Mercury	-25057-01-31 12:57 J	-7430616.08	-7430615.96	-7430615.83	0.0528	0.0175
Venus	-25057-09-01 00:43 J	-7430402.59	-7430402.47	-7430402.34	0.0521	0.0405
Earth	-25053-10-21 14:52 J	-7428890.92	-7428890.88	-7428890.82	0.0490	0.0478
Moon	-25053-10-21 18:57 J	-7428890.77	-7428890.71	-7428890.64	0.0490	0.0467
Venus	-25052-11-03 17:59 J	-7428512.92	-7428512.75	-7428512.57	0.0495	0.0271

Mercury	-25051-03-30 15:50 J	-7428366.02	-7428365.84	-7428365.66	0.0499	0.0074
Venus	-25051-06-28 13:26 J	-7428276.14	-7428275.94	-7428275.74	0.0501	0.0130
Venus	-25046-09-12 20:52 J	-7426373.82	-7426373.63	-7426373.44	0.0530	0.0165
Mercury	-25046-11-19 17:16 J	-7426305.91	-7426305.78	-7426305.65	0.0528	0.0034
Venus	-25045-05-06 23:16 J	-7426136.69	-7426136.53	-7426136.36	0.0523	0.0290
Venus	-25040-07-09 16:19 J	-7424246.96	-7424246.82	-7424246.69	0.0494	0.0375
Mercury	-25039-01-16 13:26 J	-7424056.11	-7424055.94	-7424055.76	0.0498	0.0107
Venus	-25039-03-03 09:35 J	-7424010.31	-7424010.10	-7424009.89	0.0500	0.0017
Mars	-25039-03-18 05:02 J	-7423995.51	-7423995.29	-7423995.06	0.0500	0.0269
Venus	-25039-10-26 11:59 J	-7423773.11	-7423773.00	-7423772.89	0.0507	0.0430
Earth	-25035-04-14 19:26 J	-7422506.84	-7422506.69	-7422506.53	0.0537	0.0388
Moon	-25035-04-14 21:50 J	-7422506.75	-7422506.59	-7422506.44	0.0537	0.0384 *
Venus	-25034-05-18 15:07 J	-7422108.03	-7422107.87	-7422107.70	0.0532	0.0294
Mercury	-25034-09-07 21:07 J	-7421995.75	-7421995.62	-7421995.49	0.0529	0.0113
Mercury	-25034-12-06 04:33 J	-7421906.36	-7421906.31	-7421906.26	0.0526	0.0477
Venus	-25033-01-10 19:55 J	-7421870.85	-7421870.67	-7421870.48	0.0525	0.0169
Venus	-25028-03-14 16:33 J	-7419980.86	-7419980.81	-7419980.75	0.0493	0.0473
Mercury	-25028-11-04 11:45 J	-7419746.16	-7419746.01	-7419745.86	0.0498	0.0279
Venus	-25028-11-06 07:55 J	-7419744.38	-7419744.17	-7419743.97	0.0498	0.0093
Mercury	-25027-02-02 17:45 J	-7419655.85	-7419655.76	-7419655.66	0.0500	0.0425
Venus	-25027-07-01 07:11 J	-7419507.35	-7419507.20	-7419507.03	0.0504	0.0319
Moon	-25023-04-19 15:07 J	-7418119.09	-7418118.87	-7418118.65	0.0537	0.0204
Earth	-25023-04-19 15:21 J	-7418119.07	-7418118.86	-7418118.64	0.0537	0.0173 *
Venus	-25022-01-21 05:16 J	-7417842.39	-7417842.28	-7417842.15	0.0533	0.0427
Mercury	-25022-06-27 00:14 J	-7417685.60	-7417685.49	-7417685.38	0.0529	0.0274
Venus	-25022-09-15 13:11 J	-7417605.15	-7417604.95	-7417604.75	0.0527	0.0040
Mercury	-25022-09-24 07:26 J	-7417596.29	-7417596.19	-7417596.08	0.0527	0.0315
Venus	-25021-05-09 11:45 J	-7417368.09	-7417368.01	-7417367.93	0.0520	0.0473
Venus	-25016-07-12 06:43 J	-7415478.41	-7415478.22	-7415478.03	0.0496	0.0202
Mercury	-25016-08-23 09:50 J	-7415436.16	-7415436.09	-7415436.02	0.0497	0.0451

Mercury	-25016-11-21 16:19 J	-7415345.97	-7415345.82	-7415345.66	0.0499	0.0256
Venus	-25015-03-06 03:35 J	-7415241.54	-7415241.35	-7415241.16	0.0502	0.0204
Mercury	-25010-04-15 03:50 J	-7413375.41	-7413375.34	-7413375.26	0.0530	0.0421
Venus	-25010-05-21 08:09 J	-7413339.36	-7413339.16	-7413338.97	0.0529	0.0090
Mercury	-25010-07-13 11:02 J	-7413286.16	-7413286.04	-7413285.91	0.0528	0.0167
Venus	-25009-01-13 09:21 J	-7413102.25	-7413102.11	-7413101.97	0.0522	0.0359
Venus	-25004-03-17 05:02 J	-7411212.45	-7411212.29	-7411212.13	0.0495	0.0309
Mercury	-25004-09-09 13:55 J	-7411036.09	-7411035.92	-7411035.74	0.0499	0.0078
Venus	-25004-11-08 23:02 J	-7410975.74	-7410975.54	-7410975.33	0.0500	0.0088
Mars	-25004-12-20 21:21 J	-7410933.87	-7410933.61	-7410933.34	0.0501	0.0072
Venus	-25003-07-04 01:55 J	-7410738.45	-7410738.42	-7410738.38	0.0507	0.0499

# 25TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 25th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Venus	-24998-01-24 03:07 J	-7409073.55	-7409073.37	-7409073.18	0.0531	0.0218		
Mercury	-24998-05-01 15:07 J	-7408976.00	-7408975.87	-7408975.74	0.0529	0.0028		
Venus	-24998-09-18 07:26 J	-7408836.37	-7408836.19	-7408836.02	0.0524	0.0242		
Moon	-24994-10-12 20:52 J	-7407350.64	-7407350.63	-7407350.59	0.0489	0.0486		
Earth	-24994-10-13 00:14 J	-7407350.53	-7407350.49	-7407350.46	0.0489	0.0483		
Venus	-24993-11-20 04:04 J	-7406946.43	-7406946.33	-7406946.21	0.0493	0.0412		
Mercury	-24992-06-28 11:59 J	-7406726.18	-7406726.00	-7406725.82	0.0498	0.0099		

Venus	-24992-07-14 20:09 J	-7406709.87	-7406709.66	-7406709.45	0.0498	0.0025
Venus	-24991-03-08 20:38 J	-7406472.77	-7406472.64	-7406472.51	0.0505	0.0386
Venus	-24987-09-28 22:33 J	-7404807.71	-7404807.56	-7404807.40	0.0533	0.0343
Mercury	-24986-02-17 19:26 J	-7404665.81	-7404665.69	-7404665.56	0.0529	0.0115
Mercury	-24986-05-18 02:52 J	-7404576.43	-7404576.38	-7404576.32	0.0526	0.0476
Venus	-24986-05-24 05:02 J	-7404570.48	-7404570.29	-7404570.09	0.0526	0.0122
Earth	-24982-10-17 08:52 J	-7402963.37	-7402963.13	-7402962.89	0.0490	0.0044
Moon	-24982-10-17 12:43 J	-7402963.20	-7402962.97	-7402962.73	0.0490	0.0075 *
Venus	-24980-03-19 17:31 J	-7402443.97	-7402443.77	-7402443.57	0.0497	0.0135
Mercury	-24980-04-16 09:35 J	-7402416.25	-7402416.10	-7402415.95	0.0498	0.0279
Mercury	-24980-07-15 15:35 J	-7402325.93	-7402325.85	-7402325.75	0.0500	0.0425
Venus	-24980-11-11 15:50 J	-7402207.01	-7402206.84	-7402206.66	0.0504	0.0274
Venus	-24975-06-03 16:04 J	-7400541.92	-7400541.83	-7400541.73	0.0534	0.0470
Mercury	-24975-12-06 23:31 J	-7400355.63	-7400355.52	-7400355.41	0.0529	0.0258
Venus	-24974-01-27 01:11 J	-7400304.65	-7400304.45	-7400304.25	0.0528	0.0007
Mercury	-24974-03-06 06:43 J	-7400266.32	-7400266.22	-7400266.12	0.0527	0.0331
Mars	-24974-03-08 12:28 J	-7400264.23	-7400263.98	-7400263.72	0.0527	0.0242
Venus	-24974-09-21 00:28 J	-7400067.58	-7400067.48	-7400067.37	0.0520	0.0433
Moon	-24970-10-21 16:04 J	-7398575.96	-7398575.83	-7398575.68	0.0490	0.0393
Earth	-24970-10-21 20:09 J	-7398575.78	-7398575.66	-7398575.52	0.0490	0.0407 *
Venus	-24969-11-22 16:47 J	-7398177.98	-7398177.80	-7398177.61	0.0496	0.0241
Mercury	-24968-02-02 07:55 J	-7398106.25	-7398106.17	-7398106.10	0.0497	0.0450
Mercury	-24968-05-03 14:23 J	-7398016.05	-7398015.90	-7398015.75	0.0499	0.0257
Venus	-24968-07-17 12:43 J	-7397941.16	-7397940.97	-7397940.77	0.0502	0.0162
Mars	-24968-09-24 18:43 J	-7397871.86	-7397871.72	-7397871.57	0.0504	0.0420
Mercury	-24963-09-25 02:38 J	-7396045.47	-7396045.39	-7396045.31	0.0530	0.0418
Venus	-24963-10-01 17:02 J	-7396038.98	-7396038.79	-7396038.59	0.0530	0.0138
Mercury	-24963-12-23 09:50 J	-7395956.22	-7395956.09	-7395955.97	0.0528	0.0169
Venus	-24962-05-26 19:26 J	-7395801.85	-7395801.69	-7395801.53	0.0523	0.0315
Venus	-24957-07-28 17:02 J	-7393911.94	-7393911.79	-7393911.64	0.0494	0.0344

Mercury	-24956-02-19 12:57 J	-7393706.14	-7393705.96	-7393705.78	0.0499	0.0089
Venus	-24956-03-22 10:33 J	-7393675.27	-7393675.06	-7393674.85	0.0500	0.0049
Venus	-24956-11-14 12:14 J	-7393438.06	-7393437.99	-7393437.89	0.0507	0.0461
Moon	-24952-04-13 15:21 J	-7392191.94	-7392191.86	-7392191.77	0.0537	0.0499
Earth	-24952-04-13 16:04 J	-7392191.89	-7392191.83	-7392191.75	0.0537	0.0511 *
Venus	-24951-06-06 10:47 J	-7391773.22	-7391773.05	-7391772.88	0.0532	0.0268
Mercury	-24951-10-11 13:26 J	-7391646.07	-7391645.94	-7391645.81	0.0528	0.0024
Venus	-24950-01-29 15:50 J	-7391536.02	-7391535.84	-7391535.65	0.0525	0.0195
Venus	-24945-04-02 16:33 J	-7389645.90	-7389645.81	-7389645.73	0.0493	0.0445
Venus	-24945-11-25 07:11 J	-7389409.40	-7389409.20	-7389408.99	0.0498	0.0065
Mercury	-24945-12-08 10:33 J	-7389396.24	-7389396.06	-7389395.88	0.0498	0.0090
Venus	-24944-07-20 06:14 J	-7389172.38	-7389172.24	-7389172.08	0.0504	0.0345
Moon	-24940-04-18 15:50 J	-7387804.06	-7387803.84	-7387803.62	0.0537	0.0104
Earth	-24940-04-18 17:02 J	-7387804.02	-7387803.79	-7387803.56	0.0537	0.0071 *
Venus	-24939-02-09 04:47 J	-7387507.43	-7387507.30	-7387507.16	0.0533	0.0395
Mercury	-24939-07-30 17:31 J	-7387335.89	-7387335.77	-7387335.64	0.0529	0.0121
Venus	-24939-10-04 12:57 J	-7387270.16	-7387269.96	-7387269.76	0.0527	0.0071
Mercury	-24939-10-28 00:57 J	-7387246.51	-7387246.46	-7387246.40	0.0527	0.0471
Mars	-24939-12-13 12:57 J	-7387200.21	-7387199.96	-7387199.69	0.0525	0.0203
Venus	-24938-05-29 11:31 J	-7387033.06	-7387033.02	-7387032.96	0.0520	0.0501
Venus	-24933-07-31 05:16 J	-7385143.47	-7385143.28	-7385143.08	0.0496	0.0174
Mercury	-24933-09-26 08:23 J	-7385086.30	-7385086.15	-7385086.00	0.0497	0.0266
Mercury	-24933-12-25 14:38 J	-7384995.98	-7384995.89	-7384995.81	0.0500	0.0436
Venus	-24932-03-25 02:09 J	-7384906.59	-7384906.41	-7384906.22	0.0502	0.0231
Venus	-24928-10-14 23:16 J	-7383241.57	-7383241.53	-7383241.48	0.0535	0.0519
Mercury	-24927-05-18 21:50 J	-7383025.70	-7383025.59	-7383025.47	0.0530	0.0259
Venus	-24927-06-09 09:50 J	-7383004.29	-7383004.09	-7383003.89	0.0529	0.0054
Mercury	-24927-08-16 05:16 J	-7382936.38	-7382936.28	-7382936.18	0.0527	0.0332
Venus	-24926-02-01 10:47 J	-7382767.18	-7382767.05	-7382766.92	0.0522	0.0391
Venus	-24921-04-05 03:50 J	-7380877.51	-7380877.34	-7380877.17	0.0495	0.0280

Mercury	-24921-07-15 05:59 J	-7380776.33	-7380776.25	-7380776.17	0.0497	0.0446
Mercury	-24921-10-13 12:28 J	-7380686.13	-7380685.98	-7380685.82	0.0499	0.0261
Venus	-24921-11-27 22:19 J	-7380640.77	-7380640.57	-7380640.36	0.0501	0.0119
Venus	-24915-02-12 05:16 J	-7378738.47	-7378738.28	-7378738.09	0.0531	0.0181
Mercury	-24915-03-07 02:09 J	-7378715.50	-7378715.41	-7378715.33	0.0530	0.0399
Mercury	-24915-06-04 09:21 J	-7378626.24	-7378626.11	-7378625.99	0.0528	0.0189
Venus	-24915-10-07 08:38 J	-7378501.30	-7378501.14	-7378500.97	0.0524	0.0275
Venus	-24910-12-10 04:19 J	-7376611.45	-7376611.32	-7376611.19	0.0494	0.0381
Mercury	-24909-08-01 11:16 J	-7376376.21	-7376376.03	-7376375.86	0.0499	0.0094
Venus	-24909-08-02 20:52 J	-7376374.84	-7376374.63	-7376374.43	0.0499	0.0014
Venus	-24908-03-27 21:35 J	-7376137.71	-7376137.60	-7376137.48	0.0506	0.0419
Venus	-24904-10-17 20:09 J	-7374472.81	-7374472.66	-7374472.50	0.0532	0.0316
Mercury	-24903-03-23 12:14 J	-7374316.12	-7374315.99	-7374315.86	0.0528	0.0029
Venus	-24903-06-12 02:23 J	-7374235.59	-7374235.40	-7374235.21	0.0526	0.0148
Moon	-24899-10-16 15:07 J	-7372648.10	-7372647.87	-7372647.63	0.0490	0.0123
Earth	-24899-10-16 19:11 J	-7372647.93	-7372647.70	-7372647.46	0.0490	0.0090 *
Venus	-24898-08-15 05:16 J	-7372345.32	-7372345.28	-7372345.23	0.0493	0.0479
Venus	-24897-04-07 19:40 J	-7372108.88	-7372108.68	-7372108.47	0.0497	0.0102
Mercury	-24897-05-20 09:50 J	-7372066.27	-7372066.09	-7372065.92	0.0498	0.0074
Venus	-24897-11-30 17:59 J	-7371871.91	-7371871.75	-7371871.58	0.0504	0.0307
Venus	-24892-06-22 12:57 J	-7370207.07	-7370206.96	-7370206.85	0.0534	0.0443
Mercury	-24891-01-09 16:04 J	-7370005.96	-7370005.83	-7370005.70	0.0529	0.0120
Venus	-24891-02-14 21:50 J	-7369969.79	-7369969.59	-7369969.39	0.0528	0.0022
Mercury	-24891-04-08 23:31 J	-7369916.58	-7369916.52	-7369916.46	0.0526	0.0470
Venus	-24891-10-09 21:21 J	-7369732.69	-7369732.61	-7369732.51	0.0521	0.0459
Earth	-24887-10-21 06:14 J	-7368260.40	-7368260.24	-7368260.08	0.0490	0.0359
Moon	-24887-10-21 09:21 J	-7368260.26	-7368260.11	-7368259.95	0.0490	0.0355 *
Venus	-24886-12-12 17:45 J	-7367842.95	-7367842.76	-7367842.57	0.0495	0.0211
Mercury	-24885-03-08 07:26 J	-7367756.35	-7367756.19	-7367756.04	0.0497	0.0253
Mercury	-24885-06-06 13:26 J	-7367666.01	-7367665.94	-7367665.86	0.0500	0.0449



Mars	-24885-06-11 11:31 J	-7367661.27	-7367661.02	-7367660.77	0.0500	0.0171
Venus	-24885-08-05 13:26 J	-7367606.14	-7367605.94	-7367605.75	0.0501	0.0191
Venus	-24880-10-20 17:31 J	-7365703.96	-7365703.77	-7365703.57	0.0530	0.0105
Mercury	-24880-10-28 20:09 J	-7365695.77	-7365695.66	-7365695.55	0.0530	0.0262
Mercury	-24879-01-26 03:35 J	-7365606.45	-7365606.35	-7365606.25	0.0527	0.0328
Venus	-24879-06-14 19:55 J	-7365466.81	-7365466.67	-7365466.51	0.0523	0.0346
Venus	-24874-08-17 17:02 J	-7363576.95	-7363576.79	-7363576.63	0.0494	0.0315
Mercury	-24874-12-26 05:02 J	-7363446.37	-7363446.29	-7363446.19	0.0497	0.0429
Mercury	-24873-03-25 11:45 J	-7363356.16	-7363356.01	-7363355.86	0.0499	0.0277
Venus	-24873-04-10 10:19 J	-7363340.28	-7363340.07	-7363339.86	0.0500	0.0078
Venus	-24873-12-03 12:14 J	-7363103.05	-7363102.99	-7363102.94	0.0507	0.0487
Venus	-24868-06-25 13:26 J	-7361438.11	-7361437.94	-7361437.75	0.0532	0.0232
Mercury	-24868-08-17 00:43 J	-7361385.56	-7361385.47	-7361385.39	0.0530	0.0398
Mercury	-24868-11-14 07:55 J	-7361296.29	-7361296.17	-7361296.05	0.0528	0.0191
Venus	-24867-02-17 18:43 J	-7361200.90	-7361200.72	-7361200.54	0.0525	0.0229
Venus	-24862-04-22 16:19 J	-7359310.93	-7359310.82	-7359310.71	0.0493	0.0416
Venus	-24862-12-15 07:26 J	-7359074.40	-7359074.19	-7359073.98	0.0498	0.0034
Mercury	-24861-01-12 09:35 J	-7359046.27	-7359046.10	-7359045.92	0.0499	0.0102
Venus	-24861-08-08 07:11 J	-7358837.34	-7358837.20	-7358837.06	0.0505	0.0376
Earth	-24857-04-18 02:23 J	-7357488.63	-7357488.40	-7357488.17	0.0537	0.0010
Moon	-24857-04-18 05:02 J	-7357488.52	-7357488.29	-7357488.05	0.0537	0.0040 *
Venus	-24856-02-28 08:09 J	-7357172.30	-7357172.16	-7357172.01	0.0533	0.0358
Mercury	-24856-09-02 11:59 J	-7356986.13	-7356986.00	-7356985.87	0.0528	0.0050
Venus	-24856-10-23 15:50 J	-7356935.04	-7356934.84	-7356934.65	0.0527	0.0107
Venus	-24850-08-20 06:57 J	-7354808.41	-7354808.21	-7354808.01	0.0497	0.0140
Mercury	-24850-10-31 08:23 J	-7354736.33	-7354736.15	-7354735.97	0.0498	0.0065
Mars	-24849-03-16 06:28 J	-7354599.48	-7354599.23	-7354598.98	0.0502	0.0172
Venus	-24849-04-13 04:19 J	-7354571.49	-7354571.32	-7354571.14	0.0503	0.0266
Venus	-24845-11-02 22:33 J	-7352906.63	-7352906.56	-7352906.48	0.0534	0.0489
Mercury	-24844-06-21 15:07 J	-7352676.00	-7352675.87	-7352675.74	0.0529	0.0110

Venus	-24844-06-28 08:23 J	-7352669.35	-7352669.15	-7352668.95	0.0529	0.0025
Mercury	-24844-09-18 22:33 J	-7352586.61	-7352586.56	-7352586.51	0.0526	0.0479
Venus	-24843-02-20 08:52 J	-7352432.24	-7352432.13	-7352432.01	0.0521	0.0417
Venus	-24838-04-25 06:43 J	-7350542.39	-7350542.22	-7350542.03	0.0495	0.0248
Mercury	-24838-08-19 06:43 J	-7350426.37	-7350426.22	-7350426.06	0.0498	0.0233
Mercury	-24838-11-17 12:57 J	-7350336.01	-7350335.96	-7350335.90	0.0500	0.0470
Venus	-24838-12-18 01:55 J	-7350305.62	-7350305.42	-7350305.22	0.0501	0.0153
Venus	-24832-03-03 02:52 J	-7348403.57	-7348403.38	-7348403.19	0.0530	0.0154
Mercury	-24832-04-09 18:57 J	-7348365.82	-7348365.71	-7348365.60	0.0530	0.0257
Mercury	-24832-07-08 02:09 J	-7348276.51	-7348276.41	-7348276.31	0.0527	0.0332
Venus	-24832-10-26 06:14 J	-7348166.40	-7348166.24	-7348166.08	0.0524	0.0301
Venus	-24827-12-29 05:45 J	-7346276.39	-7346276.26	-7346276.10	0.0494	0.0351
Mercury	-24826-06-07 04:19 J	-7346116.41	-7346116.32	-7346116.21	0.0497	0.0412
Venus	-24826-08-22 22:33 J	-7346039.77	-7346039.56	-7346039.35	0.0499	0.0040
Mercury	-24826-09-05 11:02 J	-7346026.19	-7346026.04	-7346025.90	0.0499	0.0294
Venus	-24825-04-15 23:16 J	-7345802.62	-7345802.53	-7345802.44	0.0506	0.0448
Venus	-24821-11-05 21:07 J	-7344137.78	-7344137.62	-7344137.44	0.0532	0.0283
Mercury	-24820-01-26 23:02 J	-7344055.62	-7344055.54	-7344055.46	0.0530	0.0398
Mercury	-24820-04-26 06:14 J	-7343966.36	-7343966.24	-7343966.12	0.0528	0.0189
Mars	-24820-06-01 11:59 J	-7343930.27	-7343930.00	-7343929.72	0.0527	0.0136
Venus	-24820-07-01 03:35 J	-7343900.54	-7343900.35	-7343900.16	0.0526	0.0181
Earth	-24816-10-16 05:31 J	-7342332.50	-7342332.27	-7342332.04	0.0490	0.0137
Moon	-24816-10-16 08:38 J	-7342332.36	-7342332.14	-7342331.92	0.0490	0.0166 *
Venus	-24815-09-03 06:14 J	-7342010.32	-7342010.24	-7342010.15	0.0493	0.0449
Venus	-24814-04-27 20:23 J	-7341773.86	-7341773.65	-7341773.44	0.0497	0.0071
Mercury	-24814-06-24 09:07 J	-7341716.30	-7341716.12	-7341715.95	0.0499	0.0121
Venus	-24814-12-20 18:28 J	-7341536.88	-7341536.73	-7341536.57	0.0504	0.0336
Venus	-24809-07-11 16:04 J	-7339871.95	-7339871.83	-7339871.70	0.0534	0.0407
Mercury	-24808-02-12 10:33 J	-7339656.19	-7339656.06	-7339655.93	0.0529	0.0052
Venus	-24808-03-06 01:11 J	-7339634.65	-7339634.45	-7339634.25	0.0528	0.0060

Venus	-24808-10-29 00:43 J	-7339397.53	-7339397.47	-7339397.40	0.0520	0.0491
Moon	-24804-10-20 13:40 J	-7337945.11	-7337944.93	-7337944.73	0.0490	0.0309
Earth	-24804-10-20 15:35 J	-7337945.03	-7337944.85	-7337944.66	0.0490	0.0308 *
Venus	-24803-12-31 18:28 J	-7337507.92	-7337507.73	-7337507.53	0.0496	0.0179
Mercury	-24802-04-12 06:57 J	-7337406.39	-7337406.21	-7337406.03	0.0498	0.0055
Venus	-24802-08-25 14:38 J	-7337271.07	-7337270.89	-7337270.70	0.0502	0.0223
Venus	-24797-03-16 10:04 J	-7335606.10	-7335606.08	-7335606.05	0.0535	0.0531
Venus	-24797-11-08 21:35 J	-7335368.80	-7335368.60	-7335368.41	0.0530	0.0068
Mercury	-24797-12-01 14:52 J	-7335346.01	-7335345.88	-7335345.76	0.0529	0.0090
Mercury	-24796-02-28 22:04 J	-7335256.61	-7335256.58	-7335256.54	0.0526	0.0504
Venus	-24796-07-03 23:16 J	-7335131.66	-7335131.53	-7335131.39	0.0522	0.0379
Venus	-24791-09-05 18:57 J	-7333241.88	-7333241.71	-7333241.54	0.0495	0.0283
Mercury	-24790-01-29 05:31 J	-7333096.43	-7333096.27	-7333096.11	0.0498	0.0222
Mercury	-24790-04-29 11:45 J	-7333006.05	-7333006.01	-7333005.96	0.0500	0.0481
Venus	-24790-04-30 12:57 J	-7333005.16	-7333004.96	-7333004.75	0.0500	0.0113
Venus	-24785-07-14 13:26 J	-7331103.13	-7331102.94	-7331102.76	0.0531	0.0200
Mercury	-24785-09-19 17:59 J	-7331035.86	-7331035.75	-7331035.64	0.0529	0.0245
Mercury	-24785-12-18 01:11 J	-7330946.55	-7330946.45	-7330946.35	0.0527	0.0344
Venus	-24784-03-08 17:45 J	-7330865.93	-7330865.76	-7330865.59	0.0524	0.0258
Mars	-24784-03-08 23:45 J	-7330865.73	-7330865.51	-7330865.29	0.0524	0.0322 *
Venus	-24779-05-11 19:26 J	-7328975.81	-7328975.69	-7328975.55	0.0494	0.0385
Mercury	-24779-11-17 03:50 J	-7328786.44	-7328786.34	-7328786.22	0.0497	0.0391
Venus	-24778-01-03 11:31 J	-7328739.23	-7328739.02	-7328738.81	0.0498	0.0004
Mercury	-24778-02-15 10:33 J	-7328696.20	-7328696.06	-7328695.92	0.0499	0.0316
Venus	-24778-08-28 11:31 J	-7328502.13	-7328502.02	-7328501.90	0.0505	0.0410
Moon	-24774-04-18 02:23 J	-7327173.62	-7327173.40	-7327173.18	0.0537	0.0057
Earth	-24774-04-18 05:45 J	-7327173.48	-7327173.26	-7327173.03	0.0537	0.0082 *
Venus	-24773-03-19 06:57 J	-7326837.37	-7326837.21	-7326837.06	0.0533	0.0329
Mercury	-24773-07-08 21:50 J	-7326725.67	-7326725.59	-7326725.50	0.0530	0.0390
Mercury	-24773-10-06 05:02 J	-7326636.41	-7326636.29	-7326636.17	0.0528	0.0196

Venus	-24773-11-11 13:55 J	-7326600.11	-7326599.92	-7326599.73	0.0527	0.0134
Venus	-24767-01-14 19:40 J	-7324709.71	-7324709.68	-7324709.64	0.0492	0.0482
Venus	-24767-09-08 09:21 J	-7324473.31	-7324473.11	-7324472.91	0.0497	0.0108
Mars	-24767-12-02 12:43 J	-7324388.13	-7324387.97	-7324387.81	0.0499	0.0391
Mercury	-24767-12-04 08:23 J	-7324386.32	-7324386.15	-7324385.98	0.0499	0.0140
Venus	-24766-05-03 06:28 J	-7324236.39	-7324236.23	-7324236.05	0.0503	0.0297
Earth	-24762-04-23 05:31 J	-7322785.35	-7322785.27	-7322785.18	0.0537	0.0495
Moon	-24762-04-23 08:52 J	-7322785.23	-7322785.13	-7322785.02	0.0537	0.0473 *
Venus	-24762-11-22 23:45 J	-7322571.60	-7322571.51	-7322571.40	0.0534	0.0456
Venus	-24761-07-17 09:50 J	-7322334.29	-7322334.09	-7322333.89	0.0529	0.0012
Mercury	-24761-07-25 09:07 J	-7322326.25	-7322326.12	-7322325.99	0.0529	0.0055
Venus	-24760-03-11 10:47 J	-7322097.15	-7322097.05	-7322096.95	0.0522	0.0448
Venus	-24755-05-14 08:09 J	-7320207.35	-7320207.16	-7320206.97	0.0495	0.0215
Mercury	-24755-09-22 06:28 J	-7320076.41	-7320076.23	-7320076.05	0.0498	0.0034
Venus	-24754-01-06 02:52 J	-7319970.57	-7319970.38	-7319970.18	0.0501	0.0184
Venus	-24749-03-22 06:28 J	-7318068.43	-7318068.23	-7318068.04	0.0531	0.0116
Mercury	-24749-05-13 13:26 J	-7318016.07	-7318015.94	-7318015.81	0.0529	0.0084
Mercury	-24749-08-10 20:52 J	-7317926.66	-7317926.63	-7317926.60	0.0527	0.0507
Venus	-24749-11-14 09:50 J	-7317831.24	-7317831.09	-7317830.94	0.0524	0.0336
Venus	-24743-01-17 06:57 J	-7315941.36	-7315941.21	-7315941.04	0.0494	0.0320
Mercury	-24743-07-11 04:19 J	-7315766.48	-7315766.32	-7315766.16	0.0498	0.0211
Venus	-24743-09-10 23:59 J	-7315704.71	-7315704.50	-7315704.29	0.0499	0.0072
Mercury	-24743-10-09 10:19 J	-7315676.09	-7315676.07	-7315676.03	0.0500	0.0491
Venus	-24742-05-06 01:11 J	-7315467.51	-7315467.45	-7315467.38	0.0506	0.0479
Venus	-24738-11-26 01:40 J	-7313802.60	-7313802.43	-7313802.25	0.0532	0.0243
Mercury	-24737-03-01 17:45 J	-7313705.88	-7313705.76	-7313705.65	0.0530	0.0223
Mercury	-24737-05-30 00:57 J	-7313616.55	-7313616.46	-7313616.37	0.0527	0.0367
Venus	-24737-07-20 07:40 J	-7313565.36	-7313565.18	-7313565.00	0.0526	0.0218
Moon	-24733-10-15 15:07 J	-7312017.09	-7312016.87	-7312016.64	0.0490	0.0205
Earth	-24733-10-15 16:33 J	-7312017.03	-7312016.81	-7312016.58	0.0490	0.0181 *

Venus	-24732-09-22 08:23 J	-7311675.26	-7311675.15	-7311675.04	0.0493	0.0418
Mercury	-24731-04-29 02:38 J	-7311456.50	-7311456.39	-7311456.26	0.0497	0.0379
Venus	-24731-05-16 23:02 J	-7311438.74	-7311438.54	-7311438.33	0.0498	0.0039
Mercury	-24731-07-28 09:21 J	-7311366.24	-7311366.11	-7311365.97	0.0499	0.0329
Mars	-24731-09-06 04:47 J	-7311326.56	-7311326.30	-7311326.03	0.0500	0.0057
Venus	-24730-01-08 22:04 J	-7311201.72	-7311201.58	-7311201.43	0.0504	0.0370
Venus	-24726-07-31 17:16 J	-7309536.92	-7309536.78	-7309536.64	0.0533	0.0375
Mercury	-24726-12-19 21:07 J	-7309395.71	-7309395.62	-7309395.53	0.0530	0.0377
Mercury	-24725-03-18 04:04 J	-7309306.45	-7309306.33	-7309306.21	0.0527	0.0209
Venus	-24725-03-25 01:11 J	-7309299.64	-7309299.45	-7309299.25	0.0527	0.0090
Venus	-24725-11-16 23:59 J	-7309062.52	-7309062.50	-7309062.47	0.0520	0.0516
Moon	-24721-10-20 02:52 J	-7307629.57	-7307629.38	-7307629.19	0.0490	0.0284
Earth	-24721-10-20 03:35 J	-7307629.55	-7307629.35	-7307629.15	0.0490	0.0269 *
Venus	-24719-01-19 22:19 J	-7307172.77	-7307172.57	-7307172.37	0.0496	0.0145
Mercury	-24719-05-16 07:55 J	-7307056.33	-7307056.17	-7307055.99	0.0499	0.0163
Venus	-24719-09-13 19:11 J	-7306935.87	-7306935.70	-7306935.52	0.0502	0.0259
Venus	-24714-04-05 09:35 J	-7305271.16	-7305271.10	-7305271.03	0.0534	0.0501
Mercury	-24714-10-08 00:57 J	-7305085.48	-7305085.46	-7305085.44	0.0530	0.0522
Venus	-24714-11-28 20:09 J	-7305033.86	-7305033.66	-7305033.46	0.0529	0.0038
Mercury	-24713-01-05 07:55 J	-7304996.30	-7304996.17	-7304996.04	0.0528	0.0062
Venus	-24713-07-22 21:35 J	-7304796.72	-7304796.60	-7304796.47	0.0522	0.0405
Venus	-24708-09-24 21:21 J	-7302906.79	-7302906.61	-7302906.43	0.0495	0.0251
Mercury	-24707-03-04 05:59 J	-7302746.43	-7302746.25	-7302746.07	0.0498	0.0018
Venus	-24707-05-19 15:21 J	-7302670.06	-7302669.86	-7302669.66	0.0500	0.0145
Venus	-24702-08-03 14:52 J	-7300768.07	-7300767.88	-7300767.69	0.0531	0.0166
Mercury	-24702-10-24 11:59 J	-7300686.13	-7300686.00	-7300685.88	0.0529	0.0083
Mars	-24702-11-19 11:02 J	-7300660.16	-7300660.04	-7300659.91	0.0528	0.0473
Mercury	-24701-01-21 19:11 J	-7300596.72	-7300596.70	-7300596.66	0.0527	0.0509
Venus	-24701-03-27 19:26 J	-7300530.85	-7300530.69	-7300530.52	0.0525	0.0290
Venus	-24696-05-30 20:52 J	-7298640.77	-7298640.63	-7298640.48	0.0493	0.0353

Mercury	-24696-12-21 03:50 J	-7298436.51	-7298436.34	-7298436.17	0.0498	0.0189
Venus	-24695-01-22 12:43 J	-7298404.18	-7298403.97	-7298403.76	0.0498	0.0034
Mars	-24695-06-10 22:47 J	-7298264.76	-7298264.55	-7298264.33	0.0502	0.0290
Venus	-24695-09-16 12:43 J	-7298167.07	-7298166.97	-7298166.87	0.0505	0.0439
Earth	-24691-04-17 13:11 J	-7296858.16	-7296857.95	-7296857.73	0.0537	0.0155
Moon	-24691-04-17 17:02 J	-7296858.01	-7296857.79	-7296857.57	0.0537	0.0136 *
Venus	-24690-04-08 10:04 J	-7296502.24	-7296502.08	-7296501.91	0.0533	0.0292
Mercury	-24690-08-12 16:19 J	-7296375.94	-7296375.82	-7296375.70	0.0530	0.0220
Mercury	-24690-11-09 23:31 J	-7296286.61	-7296286.52	-7296286.42	0.0527	0.0370
Venus	-24690-12-01 17:16 J	-7296264.97	-7296264.78	-7296264.59	0.0527	0.0171
Venus	-24684-02-02 20:52 J	-7294374.71	-7294374.63	-7294374.55	0.0492	0.0452
Venus	-24684-09-27 10:33 J	-7294138.26	-7294138.06	-7294137.85	0.0497	0.0077
Mercury	-24684-10-09 01:26 J	-7294126.56	-7294126.44	-7294126.32	0.0497	0.0367
Mercury	-24683-01-07 07:55 J	-7294036.29	-7294036.17	-7294036.03	0.0499	0.0339
Venus	-24683-05-22 08:09 J	-7293901.31	-7293901.16	-7293901.00	0.0503	0.0328
Moon	-24679-04-22 14:23 J	-7292470.05	-7292469.90	-7292469.75	0.0537	0.0411
Earth	-24679-04-22 17:02 J	-7292469.91	-7292469.79	-7292469.66	0.0537	0.0442 *
Venus	-24679-12-12 04:33 J	-7292236.43	-7292236.31	-7292236.19	0.0534	0.0418
Mercury	-24678-05-31 20:38 J	-7292065.73	-7292065.64	-7292065.55	0.0530	0.0357
Venus	-24678-08-06 14:09 J	-7291999.11	-7291998.91	-7291998.71	0.0528	0.0047
Mercury	-24678-08-29 03:50 J	-7291976.46	-7291976.34	-7291976.23	0.0528	0.0230
Venus	-24677-03-30 14:23 J	-7291761.97	-7291761.90	-7291761.82	0.0521	0.0480
Venus	-24672-06-02 10:19 J	-7289872.26	-7289872.07	-7289871.87	0.0496	0.0183
Mercury	-24672-10-26 06:57 J	-7289726.38	-7289726.21	-7289726.05	0.0499	0.0174
Venus	-24671-01-25 05:59 J	-7289635.43	-7289635.25	-7289635.06	0.0501	0.0218
Mercury	-24666-03-19 23:59 J	-7287755.53	-7287755.50	-7287755.46	0.0530	0.0509
Venus	-24666-04-11 07:11 J	-7287733.39	-7287733.20	-7287733.00	0.0530	0.0085
Mercury	-24666-06-17 06:57 J	-7287666.33	-7287666.21	-7287666.08	0.0528	0.0077
Mars	-24666-08-27 07:26 J	-7287595.48	-7287595.19	-7287594.91	0.0526	0.0007
Venus	-24666-12-04 09:35 J	-7287496.24	-7287496.10	-7287495.95	0.0523	0.0363

Venus	-24660-02-05 10:19 J	-7285606.24	-7285606.07	-7285605.90	0.0495	0.0287
Mercury	-24660-08-14 05:16 J	-7285416.46	-7285416.28	-7285416.10	0.0499	0.0007
Venus	-24660-09-30 04:04 J	-7285369.53	-7285369.33	-7285369.13	0.0500	0.0107
Venus	-24655-12-15 00:57 J	-7283467.64	-7283467.46	-7283467.27	0.0531	0.0213
Mercury	-24654-04-05 10:47 J	-7283356.17	-7283356.05	-7283355.92	0.0529	0.0074
Mercury	-24654-07-03 18:14 J	-7283266.76	-7283266.74	-7283266.72	0.0526	0.0516
Venus	-24654-08-09 05:59 J	-7283230.42	-7283230.25	-7283230.07	0.0525	0.0244
Moon	-24650-10-16 01:40 J	-7281701.63	-7281701.43	-7281701.23	0.0490	0.0247
Earth	-24650-10-16 02:23 J	-7281701.60	-7281701.40	-7281701.18	0.0490	0.0229 *
Venus	-24649-10-11 10:04 J	-7281340.20	-7281340.08	-7281339.95	0.0493	0.0388
Mercury	-24648-06-02 03:07 J	-7281106.54	-7281106.37	-7281106.20	0.0498	0.0172
Venus	-24648-06-05 01:11 J	-7281103.66	-7281103.45	-7281103.24	0.0498	0.0004
Venus	-24647-01-28 00:14 J	-7280866.61	-7280866.49	-7280866.36	0.0504	0.0400
Venus	-24643-08-19 17:59 J	-7279201.89	-7279201.75	-7279201.59	0.0533	0.0343
Mercury	-24642-01-22 14:52 J	-7279046.00	-7279045.88	-7279045.77	0.0530	0.0218
Venus	-24642-04-14 02:23 J	-7278964.59	-7278964.40	-7278964.21	0.0527	0.0122
Mercury	-24642-04-21 22:04 J	-7278956.67	-7278956.58	-7278956.49	0.0527	0.0371
Earth	-24638-10-20 14:09 J	-7277314.12	-7277313.91	-7277313.69	0.0490	0.0222
Moon	-24638-10-20 16:47 J	-7277314.01	-7277313.80	-7277313.58	0.0490	0.0245 *
Venus	-24637-06-16 10:33 J	-7277074.09	-7277074.06	-7277074.02	0.0492	0.0485
Venus	-24636-02-07 23:31 J	-7276837.72	-7276837.52	-7276837.32	0.0496	0.0114
Mercury	-24636-03-21 00:43 J	-7276796.59	-7276796.47	-7276796.33	0.0497	0.0349
Mercury	-24636-06-19 07:26 J	-7276706.31	-7276706.19	-7276706.07	0.0499	0.0357
Venus	-24636-10-02 20:09 J	-7276600.83	-7276600.66	-7276600.49	0.0502	0.0288
Venus	-24631-04-24 11:59 J	-7274936.09	-7274936.00	-7274935.90	0.0535	0.0466
Mercury	-24631-11-10 19:11 J	-7274735.80	-7274735.70	-7274735.61	0.0530	0.0356
Venus	-24631-12-17 23:02 J	-7274698.74	-7274698.54	-7274698.35	0.0529	0.0011
Mercury	-24630-02-08 02:23 J	-7274646.52	-7274646.40	-7274646.29	0.0528	0.0232
Mars	-24630-06-03 21:35 J	-7274530.73	-7274530.60	-7274530.47	0.0524	0.0461
Venus	-24630-08-12 00:28 J	-7274461.58	-7274461.48	-7274461.37	0.0522	0.0438

Venus	-24625-10-13 22:04 J	-7272571.76	-7272571.58	-7272571.39	0.0495	0.0220
Mercury	-24624-04-07 05:16 J	-7272396.44	-7272396.28	-7272396.11	0.0499	0.0182
Venus	-24624-06-07 16:19 J	-7272335.01	-7272334.82	-7272334.62	0.0500	0.0177
Venus	-24619-08-22 18:43 J	-7270432.91	-7270432.72	-7270432.52	0.0531	0.0129
Mercury	-24619-08-29 23:31 J	-7270425.56	-7270425.52	-7270425.48	0.0531	0.0493
Mercury	-24619-11-27 06:28 J	-7270336.36	-7270336.23	-7270336.10	0.0528	0.0093
Venus	-24618-04-16 22:47 J	-7270195.70	-7270195.55	-7270195.39	0.0524	0.0325
Venus	-24613-06-18 22:33 J	-7268305.71	-7268305.56	-7268305.40	0.0494	0.0323
Mercury	-24612-01-24 04:04 J	-7268086.51	-7268086.33	-7268086.15	0.0498	0.0017
Venus	-24612-02-10 14:52 J	-7268069.08	-7268068.88	-7268068.67	0.0499	0.0067
Mars	-24612-02-26 04:04 J	-7268053.54	-7268053.33	-7268053.10	0.0499	0.0278
Venus	-24612-10-05 15:50 J	-7267831.91	-7267831.84	-7267831.77	0.0506	0.0471
Moon	-24608-04-16 19:26 J	-7266542.91	-7266542.69	-7266542.47	0.0536	0.0206
Earth	-24608-04-16 22:19 J	-7266542.78	-7266542.57	-7266542.36	0.0536	0.0217 *
Venus	-24607-04-27 11:31 J	-7266167.19	-7266167.02	-7266166.85	0.0532	0.0259
Mercury	-24607-09-15 10:04 J	-7266026.21	-7266026.08	-7266025.95	0.0528	0.0062
Venus	-24607-12-20 17:31 J	-7265929.96	-7265929.77	-7265929.59	0.0526	0.0200
Venus	-24601-02-22 22:47 J	-7264039.65	-7264039.55	-7264039.44	0.0493	0.0423
Venus	-24601-10-16 13:26 J	-7263803.15	-7263802.94	-7263802.73	0.0498	0.0043
Mercury	-24601-11-12 02:09 J	-7263776.58	-7263776.41	-7263776.24	0.0498	0.0156
Venus	-24600-06-10 11:59 J	-7263566.14	-7263566.00	-7263565.85	0.0504	0.0361
Earth	-24596-04-21 22:19 J	-7262154.74	-7262154.57	-7262154.40	0.0536	0.0359
Moon	-24596-04-21 23:45 J	-7262154.69	-7262154.51	-7262154.34	0.0536	0.0329 *
Venus	-24596-12-31 04:19 J	-7261901.46	-7261901.32	-7261901.18	0.0533	0.0387
Mercury	-24595-07-04 13:40 J	-7261716.04	-7261715.93	-7261715.81	0.0529	0.0209
Venus	-24595-08-25 12:43 J	-7261664.17	-7261663.97	-7261663.77	0.0528	0.0075
Mercury	-24595-10-01 20:52 J	-7261626.71	-7261626.63	-7261626.54	0.0527	0.0379
Venus	-24594-04-19 12:14 J	-7261427.03	-7261426.99	-7261426.93	0.0520	0.0503
Venus	-24589-06-21 11:31 J	-7259537.21	-7259537.02	-7259536.82	0.0496	0.0151
Mercury	-24589-08-30 23:45 J	-7259466.64	-7259466.51	-7259466.37	0.0497	0.0335



Mercury	-24589-11-29 06:28 J	-7259376.35	-7259376.23	-7259376.11	0.0499	0.0371
Venus	-24588-02-13 07:26 J	-7259300.37	-7259300.19	-7259300.01	0.0501	0.0249
Venus	-24584-09-04 19:55 J	-7257635.72	-7257635.67	-7257635.61	0.0535	0.0513
Mercury	-24583-04-22 17:45 J	-7257405.86	-7257405.76	-7257405.67	0.0530	0.0355
Venus	-24583-04-30 07:26 J	-7257398.39	-7257398.19	-7257397.99	0.0530	0.0051
Mercury	-24583-07-21 00:43 J	-7257316.59	-7257316.47	-7257316.35	0.0528	0.0232
Venus	-24583-12-23 10:04 J	-7257161.21	-7257161.08	-7257160.95	0.0523	0.0393
Venus	-24577-02-25 10:47 J	-7255271.22	-7255271.05	-7255270.87	0.0494	0.0256
Mercury	-24577-09-17 04:33 J	-7255066.48	-7255066.31	-7255066.15	0.0499	0.0198
Venus	-24577-10-19 04:19 J	-7255034.52	-7255034.32	-7255034.12	0.0500	0.0137
Mars	-24577-11-30 17:31 J	-7254992.03	-7254991.77	-7254991.50	0.0501	0.0056
Venus	-24571-01-03 02:38 J	-7253132.58	-7253132.39	-7253132.20	0.0532	0.0178
Mercury	-24571-02-08 21:50 J	-7253095.63	-7253095.59	-7253095.54	0.0531	0.0495
Mercury	-24571-05-09 04:47 J	-7253006.42	-7253006.30	-7253006.17	0.0528	0.0093
Venus	-24571-08-28 07:55 J	-7252895.34	-7252895.17	-7252895.00	0.0525	0.0278
Earth	-24567-10-15 11:31 J	-7251386.21	-7251386.02	-7251385.83	0.0490	0.0281
Moon	-24567-10-15 14:09 J	-7251386.10	-7251385.91	-7251385.71	0.0490	0.0291 *
Venus	-24566-10-31 10:04 J	-7251005.21	-7251005.08	-7251004.93	0.0493	0.0359
Venus	-24565-06-24 01:11 J	-7250768.65	-7250768.45	-7250768.24	0.0498	0.0027
Mercury	-24565-07-06 02:09 J	-7250756.59	-7250756.41	-7250756.23	0.0498	0.0022
Venus	-24564-02-16 00:28 J	-7250531.58	-7250531.48	-7250531.37	0.0504	0.0429
Venus	-24560-09-07 21:35 J	-7248866.77	-7248866.60	-7248866.44	0.0533	0.0305
Mercury	-24559-02-25 09:07 J	-7248696.25	-7248696.12	-7248695.99	0.0529	0.0048
Venus	-24559-05-03 05:16 J	-7248629.47	-7248629.28	-7248629.09	0.0527	0.0158
Moon	-24555-10-19 19:40 J	-7246998.89	-7246998.68	-7246998.47	0.0490	0.0192
Earth	-24555-10-19 23:16 J	-7246998.75	-7246998.53	-7246998.31	0.0490	0.0168 *
Venus	-24554-07-06 11:16 J	-7246739.10	-7246739.03	-7246738.95	0.0492	0.0456
Venus	-24553-02-28 00:28 J	-7246502.68	-7246502.48	-7246502.27	0.0497	0.0083
Mercury	-24553-04-24 00:43 J	-7246446.65	-7246446.47	-7246446.30	0.0498	0.0149
Venus	-24553-10-21 21:50 J	-7246265.75	-7246265.59	-7246265.43	0.0503	0.0320

Venus	-24548-05-13 13:55 J	-7244601.04	-7244600.92	-7244600.81	0.0534	0.0433
Mercury	-24548-12-14 12:43 J	-7244386.09	-7244385.97	-7244385.85	0.0529	0.0199
Venus	-24547-01-05 23:16 J	-7244363.73	-7244363.53	-7244363.33	0.0528	0.0029
Mars	-24547-02-13 05:31 J	-7244325.49	-7244325.27	-7244325.05	0.0527	0.0332
Mercury	-24547-03-13 19:55 J	-7244296.76	-7244296.67	-7244296.58	0.0526	0.0388
Venus	-24547-08-30 23:45 J	-7244126.60	-7244126.51	-7244126.42	0.0521	0.0462
Venus	-24542-11-02 23:16 J	-7242236.72	-7242236.53	-7242236.34	0.0496	0.0190
Mercury	-24541-02-10 22:33 J	-7242136.70	-7242136.56	-7242136.42	0.0498	0.0324
Mercury	-24541-05-11 05:16 J	-7242046.39	-7242046.28	-7242046.17	0.0500	0.0384
Venus	-24541-06-26 18:28 J	-7241999.91	-7241999.73	-7241999.54	0.0501	0.0209
Mars	-24541-09-04 14:23 J	-7241930.06	-7241929.90	-7241929.74	0.0503	0.0405
Venus	-24536-09-10 17:31 J	-7240097.96	-7240097.77	-7240097.57	0.0530	0.0099
Mercury	-24536-10-02 16:33 J	-7240075.91	-7240075.81	-7240075.71	0.0529	0.0346
Mercury	-24536-12-30 23:31 J	-7239986.63	-7239986.52	-7239986.40	0.0527	0.0240
Venus	-24535-05-05 20:38 J	-7239860.79	-7239860.64	-7239860.49	0.0523	0.0348
Venus	-24530-07-08 22:19 J	-7237970.73	-7237970.57	-7237970.40	0.0494	0.0293
Mercury	-24529-02-28 03:07 J	-7237736.53	-7237736.37	-7237736.21	0.0499	0.0207
Venus	-24529-03-01 15:07 J	-7237734.07	-7237733.87	-7237733.66	0.0499	0.0097
Venus	-24529-10-24 16:04 J	-7237496.86	-7237496.83	-7237496.80	0.0506	0.0499
Earth	-24525-04-15 23:45 J	-7236227.69	-7236227.51	-7236227.32	0.0536	0.0320
Moon	-24525-04-16 01:40 J	-7236227.61	-7236227.43	-7236227.25	0.0536	0.0313 *
Venus	-24524-05-16 10:33 J	-7235832.24	-7235832.06	-7235831.88	0.0532	0.0228
Mercury	-24524-07-21 20:23 J	-7235765.70	-7235765.65	-7235765.61	0.0530	0.0495
Mercury	-24524-10-19 03:21 J	-7235676.49	-7235676.36	-7235676.24	0.0528	0.0091
Venus	-24523-01-08 16:33 J	-7235594.99	-7235594.81	-7235594.63	0.0526	0.0230
Venus	-24518-03-13 22:33 J	-7233704.68	-7233704.56	-7233704.44	0.0493	0.0393
Venus	-24518-11-05 12:57 J	-7233468.17	-7233467.96	-7233467.76	0.0497	0.0015
Mercury	-24518-12-17 00:57 J	-7233426.64	-7233426.46	-7233426.28	0.0498	0.0031
Venus	-24517-06-29 11:02 J	-7233231.17	-7233231.04	-7233230.91	0.0503	0.0389
Moon	-24513-04-21 00:43 J	-7231839.68	-7231839.47	-7231839.25	0.0537	0.0228

Earth	-24513-04-21 00:28 J	-7231839.67	-7231839.48	-7231839.27	0.0537	0.0261 *
Venus	-24512-01-19 04:04 J	-7231566.47	-7231566.33	-7231566.17	0.0534	0.0355
Mercury	-24512-08-07 07:26 J	-7231366.32	-7231366.19	-7231366.06	0.0529	0.0054
Venus	-24512-09-13 13:11 J	-7231329.15	-7231328.95	-7231328.76	0.0528	0.0108
Mars	-24512-11-20 18:43 J	-7231261.00	-7231260.72	-7231260.44	0.0526	0.0128
Venus	-24507-11-16 22:19 J	-7229438.57	-7229438.57	-7229438.55	0.0492	0.0491
Venus	-24506-07-11 10:33 J	-7229202.26	-7229202.06	-7229201.85	0.0496	0.0123
Mercury	-24506-10-04 22:33 J	-7229116.73	-7229116.56	-7229116.39	0.0498	0.0148
Venus	-24505-03-04 06:28 J	-7228965.40	-7228965.23	-7228965.05	0.0502	0.0276
Venus	-24501-09-23 22:04 J	-7227300.67	-7227300.58	-7227300.49	0.0535	0.0479
Venus	-24500-05-19 09:21 J	-7227063.31	-7227063.11	-7227062.91	0.0530	0.0017
Mercury	-24500-05-26 11:31 J	-7227056.13	-7227056.02	-7227055.89	0.0529	0.0192
Mercury	-24500-08-23 18:57 J	-7226966.80	-7226966.71	-7226966.63	0.0527	0.0397
Venus	-24499-01-11 11:31 J	-7226826.13	-7226826.02	-7226825.90	0.0523	0.0423
Venus	-24494-03-16 10:19 J	-7224936.25	-7224936.07	-7224935.88	0.0495	0.0228
Mercury	-24494-07-23 20:38 J	-7224806.77	-7224806.64	-7224806.50	0.0497	0.0320
Mercury	-24494-10-22 03:21 J	-7224716.47	-7224716.36	-7224716.25	0.0500	0.0387
Venus	-24494-11-08 04:19 J	-7224699.52	-7224699.32	-7224699.12	0.0500	0.0167
Venus	-24488-01-22 03:07 J	-7222797.56	-7222797.37	-7222797.18	0.0531	0.0146
Mercury	-24488-03-14 15:21 J	-7222745.96	-7222745.86	-7222745.76	0.0529	0.0339
Mercury	-24488-06-11 22:19 J	-7222656.68	-7222656.57	-7222656.45	0.0527	0.0246
Venus	-24488-09-16 06:57 J	-7222560.36	-7222560.21	-7222560.04	0.0524	0.0305
Moon	-24484-10-14 12:14 J	-7221071.13	-7221070.99	-7221070.83	0.0491	0.0368
Earth	-24484-10-14 15:50 J	-7221070.99	-7221070.84	-7221070.67	0.0491	0.0355 *
Venus	-24483-11-19 09:21 J	-7220670.26	-7220670.11	-7220669.95	0.0494	0.0331
Venus	-24482-07-14 01:26 J	-7220433.64	-7220433.44	-7220433.23	0.0499	0.0057
Mercury	-24482-08-10 01:26 J	-7220406.60	-7220406.44	-7220406.28	0.0499	0.0213
Venus	-24481-03-07 01:40 J	-7220196.51	-7220196.43	-7220196.34	0.0505	0.0458
Venus	-24477-09-26 20:09 J	-7218531.83	-7218531.66	-7218531.49	0.0532	0.0275
Mercury	-24477-12-31 19:11 J	-7218435.75	-7218435.70	-7218435.65	0.0530	0.0486

Mercury	-24476-03-31 02:09 J	-7218346.54	-7218346.41	-7218346.29	0.0528	0.0097
Venus	-24476-05-22 02:38 J	-7218294.57	-7218294.39	-7218294.20	0.0526	0.0184
Earth	-24472-10-19 03:21 J	-7216683.60	-7216683.36	-7216683.13	0.0491	0.0093
Moon	-24472-10-19 07:11 J	-7216683.43	-7216683.20	-7216682.97	0.0491	0.0121 *
Venus	-24471-07-25 09:21 J	-7216404.20	-7216404.11	-7216404.00	0.0493	0.0429
Venus	-24470-03-18 23:16 J	-7216167.74	-7216167.53	-7216167.32	0.0497	0.0053
Mercury	-24470-05-28 23:16 J	-7216096.71	-7216096.53	-7216096.35	0.0499	0.0036
Venus	-24470-11-10 20:52 J	-7215930.78	-7215930.63	-7215930.48	0.0503	0.0348
Venus	-24465-06-01 11:31 J	-7214266.15	-7214266.02	-7214265.89	0.0534	0.0404
Mercury	-24464-01-17 05:45 J	-7214036.39	-7214036.26	-7214036.13	0.0529	0.0058
Venus	-24464-01-24 21:07 J	-7214028.82	-7214028.62	-7214028.42	0.0528	0.0059
Venus	-24464-09-18 21:50 J	-7213791.66	-7213791.59	-7213791.52	0.0521	0.0488
Venus	-24459-11-21 21:50 J	-7211901.79	-7211901.59	-7211901.39	0.0495	0.0161
Mercury	-24458-03-16 20:52 J	-7211786.80	-7211786.63	-7211786.45	0.0498	0.0143
Mars	-24458-05-23 05:16 J	-7211719.52	-7211719.28	-7211719.03	0.0499	0.0189
Venus	-24458-07-16 16:47 J	-7211664.99	-7211664.80	-7211664.62	0.0501	0.0236
Venus	-24453-02-05 03:35 J	-7210000.37	-7210000.35	-7210000.31	0.0535	0.0528
Venus	-24453-09-29 16:04 J	-7209763.02	-7209762.83	-7209762.63	0.0530	0.0069
Mercury	-24453-11-05 09:35 J	-7209726.21	-7209726.10	-7209725.98	0.0530	0.0200
Mercury	-24452-02-02 16:47 J	-7209636.88	-7209636.80	-7209636.71	0.0527	0.0390
Venus	-24452-05-24 19:40 J	-7209525.81	-7209525.68	-7209525.54	0.0524	0.0378
Venus	-24447-07-27 20:23 J	-7207635.82	-7207635.65	-7207635.47	0.0494	0.0266
Mercury	-24446-01-02 18:14 J	-7207476.87	-7207476.74	-7207476.60	0.0497	0.0324
Venus	-24446-03-21 12:57 J	-7207399.16	-7207398.96	-7207398.76	0.0499	0.0124
Mercury	-24446-04-03 00:57 J	-7207386.57	-7207386.46	-7207386.35	0.0499	0.0382
Moon	-24442-04-16 03:21 J	-7205912.51	-7205912.36	-7205912.20	0.0537	0.0405
Earth	-24442-04-16 03:50 J	-7205912.48	-7205912.34	-7205912.19	0.0537	0.0409 *
Venus	-24441-06-04 11:16 J	-7205497.22	-7205497.03	-7205496.85	0.0532	0.0195
Mercury	-24441-08-24 13:55 J	-7205416.02	-7205415.92	-7205415.82	0.0530	0.0338
Mercury	-24441-11-21 21:07 J	-7205326.74	-7205326.62	-7205326.51	0.0528	0.0249

Venus	-24440-01-27 17:02 J	-7205259.96	-7205259.79	-7205259.61	0.0526	0.0261
Venus	-24435-04-01 20:38 J	-7203369.77	-7203369.64	-7203369.50	0.0493	0.0367
Venus	-24435-11-24 11:16 J	-7203133.24	-7203133.03	-7203132.82	0.0498	0.0014
Mercury	-24434-01-19 23:16 J	-7203076.69	-7203076.53	-7203076.37	0.0499	0.0212
Venus	-24434-07-19 09:50 J	-7202896.20	-7202896.09	-7202895.97	0.0504	0.0415
Moon	-24430-04-21 04:19 J	-7201524.53	-7201524.32	-7201524.10	0.0536	0.0148
Earth	-24430-04-21 06:14 J	-7201524.45	-7201524.24	-7201524.02	0.0536	0.0178 *
Venus	-24429-02-08 04:33 J	-7201231.47	-7201231.31	-7201231.15	0.0533	0.0322
Mercury	-24429-06-12 17:45 J	-7201105.81	-7201105.76	-7201105.71	0.0530	0.0484
Mercury	-24429-09-10 00:43 J	-7201016.60	-7201016.47	-7201016.34	0.0528	0.0099
Venus	-24429-10-02 12:14 J	-7200994.18	-7200993.99	-7200993.79	0.0527	0.0138
Venus	-24424-12-05 19:40 J	-7199103.74	-7199103.68	-7199103.61	0.0493	0.0466
Venus	-24423-07-30 08:52 J	-7198867.33	-7198867.13	-7198866.92	0.0497	0.0095
Mercury	-24423-11-07 21:07 J	-7198766.80	-7198766.62	-7198766.44	0.0499	0.0036
Mars	-24422-02-24 16:33 J	-7198658.07	-7198657.81	-7198657.56	0.0502	0.0143
Venus	-24422-03-24 05:45 J	-7198630.42	-7198630.26	-7198630.09	0.0502	0.0305
Venus	-24418-10-13 20:38 J	-7196965.74	-7196965.64	-7196965.53	0.0534	0.0449
Venus	-24417-06-07 06:43 J	-7196728.41	-7196728.22	-7196728.02	0.0529	0.0017
Mercury	-24417-06-29 04:19 J	-7196706.44	-7196706.32	-7196706.19	0.0528	0.0053
Venus	-24416-01-30 07:55 J	-7196491.27	-7196491.17	-7196491.06	0.0522	0.0445
Venus	-24411-04-04 07:40 J	-7194601.37	-7194601.18	-7194600.99	0.0495	0.0200
Mercury	-24411-08-26 18:43 J	-7194456.89	-7194456.72	-7194456.55	0.0498	0.0145
Venus	-24411-11-27 01:55 J	-7194364.61	-7194364.42	-7194364.23	0.0500	0.0195
Venus	-24405-02-10 23:31 J	-7192462.72	-7192462.52	-7192462.33	0.0531	0.0118
Mercury	-24405-04-17 07:55 J	-7192396.29	-7192396.17	-7192396.05	0.0529	0.0204
Mercury	-24405-07-15 15:07 J	-7192306.96	-7192306.87	-7192306.78	0.0527	0.0383
Venus	-24405-10-05 03:50 J	-7192225.49	-7192225.34	-7192225.19	0.0524	0.0331
Earth	-24401-10-13 21:07 J	-7190755.73	-7190755.62	-7190755.50	0.0490	0.0425
Moon	-24401-10-14 01:11 J	-7190755.56	-7190755.45	-7190755.34	0.0490	0.0430 *
Venus	-24400-12-08 07:11 J	-7190335.36	-7190335.20	-7190335.04	0.0494	0.0303

Mercury	-24399-06-14 16:19 J	-7190146.96	-7190146.82	-7190146.68	0.0497	0.0322
Venus	-24399-08-01 22:47 J	-7190098.75	-7190098.55	-7190098.34	0.0498	0.0085
Mercury	-24399-09-12 23:02 J	-7190056.65	-7190056.54	-7190056.43	0.0499	0.0384
Venus	-24398-03-26 22:47 J	-7189861.61	-7189861.55	-7189861.49	0.0505	0.0482
Venus	-24394-10-16 17:02 J	-7188196.97	-7188196.79	-7188196.61	0.0533	0.0246
Mercury	-24393-02-04 11:45 J	-7188086.10	-7188086.01	-7188085.91	0.0530	0.0349
Mercury	-24393-05-03 18:57 J	-7187996.83	-7187996.71	-7187996.60	0.0528	0.0238
Mars	-24393-05-08 21:35 J	-7187991.85	-7187991.60	-7187991.34	0.0528	0.0240
Venus	-24393-06-09 23:59 J	-7187959.67	-7187959.50	-7187959.31	0.0527	0.0213
Moon	-24389-10-18 04:04 J	-7186368.57	-7186368.33	-7186368.09	0.0490	0.0046
Earth	-24389-10-18 07:40 J	-7186368.42	-7186368.18	-7186367.94	0.0490	0.0020 *
Venus	-24388-08-13 06:28 J	-7186069.34	-7186069.23	-7186069.11	0.0493	0.0404
Venus	-24387-04-06 20:09 J	-7185832.87	-7185832.66	-7185832.46	0.0497	0.0029
Mercury	-24387-07-01 20:38 J	-7185746.80	-7185746.64	-7185746.48	0.0499	0.0205
Mars	-24387-11-29 03:35 J	-7185596.42	-7185596.35	-7185596.25	0.0503	0.0475
Venus	-24387-11-29 17:16 J	-7185595.91	-7185595.78	-7185595.64	0.0503	0.0372
Venus	-24382-06-21 10:47 J	-7183931.19	-7183931.05	-7183930.91	0.0534	0.0373
Mercury	-24382-11-23 16:04 J	-7183775.88	-7183775.83	-7183775.78	0.0531	0.0488
Venus	-24381-02-13 20:23 J	-7183693.84	-7183693.65	-7183693.45	0.0528	0.0090
Mercury	-24381-02-20 23:02 J	-7183686.67	-7183686.54	-7183686.41	0.0528	0.0096
Venus	-24381-10-07 20:52 J	-7183456.65	-7183456.63	-7183456.59	0.0521	0.0515
Earth	-24377-10-22 17:59 J	-7181980.81	-7181980.75	-7181980.67	0.0490	0.0465
Moon	-24377-10-22 20:09 J	-7181980.71	-7181980.66	-7181980.60	0.0490	0.0475 *
Venus	-24376-12-10 18:43 J	-7181566.91	-7181566.72	-7181566.51	0.0496	0.0135
Mercury	-24375-04-19 18:43 J	-7181436.90	-7181436.72	-7181436.54	0.0498	0.0032
Venus	-24375-08-04 14:09 J	-7181330.09	-7181329.91	-7181329.74	0.0501	0.0262
Venus	-24370-02-24 03:35 J	-7179665.42	-7179665.35	-7179665.27	0.0534	0.0496
Venus	-24370-10-19 15:21 J	-7179428.06	-7179427.86	-7179427.66	0.0530	0.0038
Mercury	-24370-12-10 02:52 J	-7179376.51	-7179376.38	-7179376.25	0.0528	0.0051
Venus	-24369-06-12 17:31 J	-7179190.89	-7179190.77	-7179190.64	0.0523	0.0403

Venus	-24364-08-15 16:47 J	-7177300.97	-7177300.80	-7177300.61	0.0495	0.0241
Mercury	-24363-02-05 16:04 J	-7177127.00	-7177126.83	-7177126.65	0.0498	0.0150
Venus	-24363-04-09 10:19 J	-7177064.26	-7177064.07	-7177063.87	0.0500	0.0152
Moon	-24359-04-15 04:47 J	-7175597.36	-7175597.30	-7175597.24	0.0536	0.0513
Earth	-24359-04-15 05:59 J	-7175597.32	-7175597.25	-7175597.18	0.0536	0.0508 *
Venus	-24358-06-24 08:38 J	-7175162.33	-7175162.14	-7175161.95	0.0531	0.0166
Mercury	-24358-09-28 06:43 J	-7175066.34	-7175066.22	-7175066.11	0.0529	0.0200
Mercury	-24358-12-26 13:40 J	-7174977.02	-7174976.93	-7174976.84	0.0526	0.0387
Mars	-24357-02-14 11:16 J	-7174927.29	-7174927.03	-7174926.77	0.0525	0.0220
Venus	-24357-02-16 13:40 J	-7174925.10	-7174924.93	-7174924.76	0.0525	0.0286
Venus	-24352-04-20 16:33 J	-7173034.96	-7173034.81	-7173034.66	0.0493	0.0341
Mercury	-24352-11-24 13:40 J	-7172817.06	-7172816.93	-7172816.79	0.0498	0.0329
Venus	-24352-12-13 07:40 J	-7172798.39	-7172798.18	-7172797.97	0.0498	0.0042
Mercury	-24351-02-22 20:38 J	-7172726.76	-7172726.64	-7172726.53	0.0500	0.0379
Venus	-24351-08-07 06:28 J	-7172561.32	-7172561.23	-7172561.12	0.0504	0.0441
Earth	-24347-04-20 01:26 J	-7171209.67	-7171209.44	-7171209.21	0.0536	0.0044
Moon	-24347-04-20 04:33 J	-7171209.54	-7171209.31	-7171209.07	0.0536	0.0015 *
Venus	-24346-02-26 23:31 J	-7170896.68	-7170896.52	-7170896.35	0.0533	0.0296
Mercury	-24346-07-17 10:04 J	-7170756.18	-7170756.08	-7170755.99	0.0530	0.0356
Mercury	-24346-10-14 17:02 J	-7170666.91	-7170666.79	-7170666.68	0.0527	0.0230
Venus	-24346-10-22 07:40 J	-7170659.37	-7170659.18	-7170658.99	0.0527	0.0164
Venus	-24341-12-24 17:02 J	-7168768.88	-7168768.79	-7168768.70	0.0492	0.0438
Venus	-24340-08-18 05:45 J	-7168532.46	-7168532.26	-7168532.05	0.0496	0.0067
Mars	-24340-11-11 11:16 J	-7168447.15	-7168447.03	-7168446.91	0.0498	0.0441
Mercury	-24340-12-11 18:28 J	-7168416.89	-7168416.73	-7168416.57	0.0499	0.0203
Venus	-24339-04-12 02:09 J	-7168295.56	-7168295.41	-7168295.25	0.0502	0.0331
Venus	-24335-11-01 15:50 J	-7166630.96	-7166630.84	-7166630.72	0.0534	0.0424
Mercury	-24334-05-05 13:55 J	-7166445.96	-7166445.92	-7166445.88	0.0531	0.0501
Venus	-24334-06-27 02:38 J	-7166393.59	-7166393.39	-7166393.19	0.0529	0.0039
Mercury	-24334-08-02 20:52 J	-7166356.76	-7166356.63	-7166356.50	0.0528	0.0084

Venus	-24333-02-19 04:19 J	-7166156.40	-7166156.32	-7166156.23	0.0522	0.0471
Venus	-24328-04-23 03:50 J	-7164266.53	-7164266.34	-7164266.15	0.0495	0.0175
Mercury	-24328-09-29 15:50 J	-7164107.02	-7164106.84	-7164106.66	0.0498	0.0022
Venus	-24328-12-15 21:35 J	-7164029.78	-7164029.60	-7164029.41	0.0500	0.0218
Venus	-24322-03-01 21:35 J	-7162127.79	-7162127.60	-7162127.40	0.0531	0.0089
Mercury	-24322-05-22 00:57 J	-7162046.59	-7162046.46	-7162046.33	0.0529	0.0059
Venus	-24322-10-25 02:09 J	-7161890.55	-7161890.41	-7161890.27	0.0524	0.0358
Venus	-24317-12-27 03:07 J	-7160000.54	-7160000.37	-7160000.20	0.0494	0.0278
Mercury	-24316-07-18 13:40 J	-7159797.10	-7159796.93	-7159796.76	0.0498	0.0154
Venus	-24316-08-20 18:57 J	-7159763.91	-7159763.71	-7159763.50	0.0499	0.0109
Venus	-24315-04-14 19:11 J	-7159526.70	-7159526.70	-7159526.70	0.0505	0.0505
Venus	-24311-11-04 15:50 J	-7157862.02	-7157861.84	-7157861.65	0.0532	0.0215
Mercury	-24310-03-10 05:02 J	-7157736.41	-7157736.29	-7157736.18	0.0529	0.0203
Mercury	-24310-06-07 11:59 J	-7157647.09	-7157647.00	-7157646.91	0.0527	0.0383
Venus	-24310-06-29 22:19 J	-7157624.75	-7157624.57	-7157624.39	0.0526	0.0240
Earth	-24306-10-18 06:43 J	-7156053.45	-7156053.22	-7156052.98	0.0490	0.0078
Moon	-24306-10-18 08:52 J	-7156053.35	-7156053.13	-7156052.89	0.0490	0.0050 *
Venus	-24305-09-01 01:55 J	-7155734.55	-7155734.42	-7155734.29	0.0493	0.0379
Venus	-24304-04-25 16:04 J	-7155498.04	-7155497.83	-7155497.62	0.0497	0.0004
Mercury	-24304-05-06 10:47 J	-7155487.18	-7155487.05	-7155486.91	0.0498	0.0339
Mercury	-24304-08-04 17:45 J	-7155396.88	-7155396.76	-7155396.64	0.0500	0.0371
Mars	-24304-08-15 14:09 J	-7155386.17	-7155385.91	-7155385.66	0.0500	0.0128
Venus	-24304-12-18 14:09 J	-7155261.03	-7155260.91	-7155260.78	0.0504	0.0397
Venus	-24299-07-10 08:23 J	-7153596.30	-7153596.15	-7153596.00	0.0533	0.0343
Mercury	-24299-12-27 08:38 J	-7153426.23	-7153426.14	-7153426.04	0.0529	0.0350
Venus	-24298-03-04 17:16 J	-7153358.97	-7153358.78	-7153358.58	0.0528	0.0117
Mercury	-24298-03-26 15:35 J	-7153336.96	-7153336.85	-7153336.73	0.0527	0.0234
Moon	-24294-10-22 16:47 J	-7151665.96	-7151665.80	-7151665.64	0.0491	0.0371
Earth	-24294-10-22 17:31 J	-7151665.92	-7151665.77	-7151665.61	0.0491	0.0368 *
Venus	-24293-05-07 02:23 J	-7151468.45	-7151468.40	-7151468.35	0.0492	0.0475



Venus	-24293-12-29 14:23 J	-7151232.11	-7151231.90	-7151231.70	0.0496	0.0108
Mercury	-24292-05-23 15:35 J	-7151087.01	-7151086.85	-7151086.68	0.0499	0.0195
Venus	-24292-08-23 09:50 J	-7150995.25	-7150995.09	-7150994.91	0.0501	0.0289
Venus	-24287-03-14 21:50 J	-7149330.68	-7149330.59	-7149330.50	0.0534	0.0472
Mercury	-24287-10-15 11:59 J	-7149116.03	-7149116.00	-7149115.97	0.0530	0.0508
Venus	-24287-11-07 09:35 J	-7149093.30	-7149093.10	-7149092.90	0.0530	0.0012
Mercury	-24286-01-12 18:43 J	-7149026.84	-7149026.72	-7149026.59	0.0528	0.0078
Venus	-24286-07-02 12:14 J	-7148856.10	-7148855.99	-7148855.87	0.0523	0.0426
Venus	-24281-09-03 13:40 J	-7146966.11	-7146965.93	-7146965.74	0.0494	0.0213
Mercury	-24280-03-11 13:40 J	-7146777.11	-7146776.93	-7146776.75	0.0498	0.0020
Venus	-24280-04-28 06:57 J	-7146729.41	-7146729.21	-7146729.02	0.0499	0.0178
Venus	-24275-07-13 02:52 J	-7144827.57	-7144827.38	-7144827.18	0.0532	0.0141
Mercury	-24275-10-31 22:33 J	-7144716.68	-7144716.56	-7144716.43	0.0529	0.0074
Mercury	-24274-01-29 05:45 J	-7144627.27	-7144627.26	-7144627.23	0.0526	0.0517
Venus	-24274-03-07 08:38 J	-7144590.29	-7144590.14	-7144589.97	0.0525	0.0311
Venus	-24269-05-09 12:43 J	-7142700.13	-7142699.97	-7142699.81	0.0493	0.0317
Mercury	-24269-12-28 10:47 J	-7142467.22	-7142467.05	-7142466.88	0.0498	0.0164
Venus	-24268-01-01 03:07 J	-7142463.57	-7142463.37	-7142463.16	0.0498	0.0067
Mars	-24268-05-19 21:21 J	-7142324.85	-7142324.61	-7142324.36	0.0501	0.0197
Venus	-24268-08-26 01:55 J	-7142226.50	-7142226.42	-7142226.34	0.0504	0.0462
Moon	-24264-04-18 19:40 J	-7140894.91	-7140894.68	-7140894.46	0.0537	0.0109
Earth	-24264-04-18 23:31 J	-7140894.75	-7140894.52	-7140894.30	0.0537	0.0076 *
Venus	-24263-03-17 20:52 J	-7140561.80	-7140561.63	-7140561.45	0.0533	0.0268
Mercury	-24263-08-20 02:38 J	-7140406.50	-7140406.39	-7140406.27	0.0530	0.0215
Venus	-24263-11-10 05:16 J	-7140324.47	-7140324.28	-7140324.09	0.0527	0.0191
Mercury	-24263-11-17 09:50 J	-7140317.18	-7140317.09	-7140317.00	0.0527	0.0374
Venus	-24257-01-13 12:28 J	-7138434.08	-7138433.98	-7138433.86	0.0492	0.0415
Venus	-24257-09-06 01:26 J	-7138197.65	-7138197.44	-7138197.23	0.0496	0.0043
Mercury	-24257-10-16 08:23 J	-7138157.28	-7138157.15	-7138157.02	0.0497	0.0342
Mercury	-24256-01-14 15:21 J	-7138066.98	-7138066.86	-7138066.74	0.0499	0.0365

Venus	-24256-04-30 21:50 J	-7137960.73	-7137960.59	-7137960.44	0.0502	0.0354
Earth	-24252-04-24 01:55 J	-7136506.48	-7136506.42	-7136506.35	0.0536	0.0511
Moon	-24252-04-24 05:45 J	-7136506.30	-7136506.26	-7136506.21	0.0536	0.0524
Venus	-24252-11-20 14:38 J	-7136296.03	-7136295.89	-7136295.76	0.0534	0.0392
Mercury	-24251-06-08 06:57 J	-7136096.31	-7136096.21	-7136096.12	0.0530	0.0356
Venus	-24251-07-16 00:57 J	-7136058.66	-7136058.46	-7136058.26	0.0529	0.0069
Mercury	-24251-09-05 13:55 J	-7136007.04	-7136006.92	-7136006.81	0.0527	0.0229
Venus	-24250-03-10 02:09 J	-7135821.47	-7135821.41	-7135821.35	0.0522	0.0495
Venus	-24245-05-11 23:02 J	-7133931.74	-7133931.54	-7133931.34	0.0495	0.0150
Mercury	-24245-11-02 12:43 J	-7133757.13	-7133756.97	-7133756.80	0.0499	0.0185
Venus	-24244-01-03 17:31 J	-7133694.95	-7133694.77	-7133694.59	0.0501	0.0244
Venus	-24240-07-26 06:14 J	-7132030.28	-7132030.24	-7132030.19	0.0535	0.0517
Venus	-24239-03-20 19:11 J	-7131792.90	-7131792.70	-7131792.51	0.0530	0.0060
Mercury	-24239-03-27 10:47 J	-7131786.09	-7131786.05	-7131786.01	0.0530	0.0501
Mercury	-24239-06-24 17:31 J	-7131696.89	-7131696.77	-7131696.64	0.0528	0.0083
Mars	-24239-08-02 09:35 J	-7131658.37	-7131658.10	-7131657.82	0.0527	0.0157
Venus	-24239-11-12 22:33 J	-7131555.69	-7131555.56	-7131555.42	0.0524	0.0383
Venus	-24233-01-15 22:19 J	-7129665.74	-7129665.57	-7129665.39	0.0494	0.0252
Mercury	-24233-08-21 10:47 J	-7129447.23	-7129447.05	-7129446.87	0.0498	0.0010
Venus	-24233-09-08 14:52 J	-7129429.08	-7129428.88	-7129428.68	0.0499	0.0136
Venus	-24228-11-23 09:35 J	-7127527.28	-7127527.10	-7127526.91	0.0532	0.0191
Mercury	-24227-04-12 20:52 J	-7127386.76	-7127386.63	-7127386.51	0.0529	0.0081
Mercury	-24227-07-11 04:04 J	-7127297.36	-7127297.33	-7127297.30	0.0526	0.0508
Venus	-24227-07-18 16:19 J	-7127289.99	-7127289.82	-7127289.65	0.0526	0.0264
Moon	-24223-10-17 09:35 J	-7125738.34	-7125738.10	-7125737.86	0.0490	0.0124
Earth	-24223-10-17 10:19 J	-7125738.29	-7125738.07	-7125737.84	0.0490	0.0154 *
Venus	-24222-09-20 23:02 J	-7125399.68	-7125399.54	-7125399.40	0.0493	0.0353
Venus	-24221-05-14 12:57 J	-7125163.17	-7125162.96	-7125162.75	0.0497	0.0027
Mercury	-24221-06-09 08:38 J	-7125137.31	-7125137.14	-7125136.97	0.0498	0.0166
Venus	-24220-01-06 10:33 J	-7124926.17	-7124926.06	-7124925.95	0.0503	0.0422

Venus	-24216-07-29 01:55 J	-7123261.58	-7123261.42	-7123261.26	0.0534	0.0320
Mercury	-24215-01-30 00:28 J	-7123076.59	-7123076.48	-7123076.36	0.0530	0.0228
Venus	-24215-03-23 11:31 J	-7123024.21	-7123024.02	-7123023.83	0.0528	0.0141
Mercury	-24215-04-29 07:40 J	-7122987.27	-7122987.18	-7122987.09	0.0527	0.0360
Moon	-24211-10-21 19:55 J	-7121350.85	-7121350.67	-7121350.48	0.0490	0.0292
Earth	-24211-10-21 20:38 J	-7121350.83	-7121350.64	-7121350.45	0.0490	0.0291 *
Venus	-24210-05-26 22:33 J	-7121133.63	-7121133.56	-7121133.47	0.0492	0.0451
Venus	-24209-01-18 10:19 J	-7120897.27	-7120897.07	-7120896.86	0.0495	0.0083
Mercury	-24209-03-28 05:45 J	-7120827.39	-7120827.26	-7120827.13	0.0497	0.0349
Mercury	-24209-06-26 12:43 J	-7120737.09	-7120736.97	-7120736.85	0.0499	0.0357
Venus	-24209-09-11 05:31 J	-7120660.43	-7120660.27	-7120660.10	0.0501	0.0311
Venus	-24204-04-02 18:43 J	-7118995.83	-7118995.72	-7118995.61	0.0535	0.0445
Mercury	-24204-11-18 04:33 J	-7118766.39	-7118766.31	-7118766.21	0.0530	0.0370
Venus	-24204-11-26 06:43 J	-7118758.42	-7118758.22	-7118758.02	0.0530	0.0018
Mercury	-24203-02-15 11:45 J	-7118677.13	-7118677.01	-7118676.89	0.0528	0.0217
Mars	-24203-05-09 13:55 J	-7118594.15	-7118593.92	-7118593.68	0.0526	0.0285
Venus	-24203-07-21 09:50 J	-7118521.19	-7118521.09	-7118520.99	0.0523	0.0451
Venus	-24198-09-23 09:21 J	-7116631.30	-7116631.11	-7116630.92	0.0494	0.0189
Mercury	-24197-04-14 10:33 J	-7116427.23	-7116427.06	-7116426.89	0.0499	0.0182
Venus	-24197-05-17 02:23 J	-7116394.59	-7116394.40	-7116394.21	0.0499	0.0201
Venus	-24192-08-01 01:40 J	-7114492.62	-7114492.43	-7114492.23	0.0531	0.0110
Mercury	-24192-09-06 08:52 J	-7114456.16	-7114456.13	-7114456.09	0.0531	0.0508
Mercury	-24192-12-04 15:50 J	-7114366.97	-7114366.84	-7114366.71	0.0528	0.0075
Venus	-24191-03-26 07:11 J	-7114255.35	-7114255.20	-7114255.05	0.0525	0.0339
Venus	-24186-05-29 07:40 J	-7112365.34	-7112365.18	-7112365.01	0.0493	0.0292
Venus	-24185-01-20 22:47 J	-7112128.75	-7112128.55	-7112128.34	0.0498	0.0092
Mercury	-24185-02-01 07:55 J	-7112117.35	-7112117.17	-7112116.99	0.0498	0.0000
Mars	-24185-02-04 14:23 J	-7112114.06	-7112113.90	-7112113.73	0.0498	0.0391
Venus	-24185-09-13 22:19 J	-7111891.62	-7111891.57	-7111891.52	0.0505	0.0487
Earth	-24181-04-18 00:57 J	-7110579.67	-7110579.46	-7110579.24	0.0537	0.0177

Moon	-24181-04-18 04:47 J	-7110579.50	-7110579.30	-7110579.09	0.0537	0.0207 *
Venus	-24180-04-05 19:11 J	-7110226.88	-7110226.70	-7110226.52	0.0533	0.0237
Mercury	-24180-09-22 19:40 J	-7110056.81	-7110056.68	-7110056.55	0.0529	0.0072
Venus	-24180-11-29 02:52 J	-7109989.56	-7109989.38	-7109989.20	0.0527	0.0219
Mercury	-24180-12-21 02:52 J	-7109967.40	-7109967.38	-7109967.36	0.0526	0.0515
Venus	-24174-02-01 08:23 J	-7108099.28	-7108099.15	-7108099.03	0.0492	0.0390
Venus	-24174-09-25 21:21 J	-7107862.81	-7107862.61	-7107862.40	0.0497	0.0018
Mercury	-24174-11-20 05:45 J	-7107807.43	-7107807.26	-7107807.09	0.0498	0.0176
Venus	-24173-05-19 18:14 J	-7107625.87	-7107625.74	-7107625.60	0.0502	0.0381
Moon	-24169-04-22 16:47 J	-7106191.96	-7106191.80	-7106191.63	0.0536	0.0380
Earth	-24169-04-22 20:09 J	-7106191.82	-7106191.66	-7106191.50	0.0536	0.0374 *
Venus	-24169-12-09 08:23 J	-7105961.28	-7105961.15	-7105961.00	0.0534	0.0369
Mercury	-24168-07-11 22:47 J	-7105746.67	-7105746.55	-7105746.44	0.0529	0.0232
Venus	-24168-08-03 18:57 J	-7105723.90	-7105723.71	-7105723.51	0.0529	0.0093
Mercury	-24168-10-09 05:45 J	-7105657.35	-7105657.26	-7105657.16	0.0527	0.0355
Venus	-24167-03-28 20:23 J	-7105486.67	-7105486.65	-7105486.62	0.0522	0.0517
Venus	-24163-10-07 09:35 J	-7103833.12	-7103833.10	-7103833.06	0.0492	0.0485
Venus	-24162-05-31 20:38 J	-7103596.84	-7103596.64	-7103596.43	0.0495	0.0122
Mercury	-24162-09-08 03:50 J	-7103497.47	-7103497.34	-7103497.21	0.0497	0.0349
Mercury	-24162-12-07 10:33 J	-7103407.18	-7103407.06	-7103406.93	0.0499	0.0359
Venus	-24161-01-23 15:07 J	-7103360.05	-7103359.87	-7103359.70	0.0500	0.0271
Venus	-24157-08-13 23:45 J	-7101695.58	-7101695.51	-7101695.43	0.0535	0.0495
Venus	-24156-04-08 12:57 J	-7101458.16	-7101457.96	-7101457.76	0.0531	0.0035
Mercury	-24156-04-30 02:38 J	-7101436.48	-7101436.39	-7101436.30	0.0530	0.0380
Mercury	-24156-07-28 09:35 J	-7101347.22	-7101347.10	-7101346.98	0.0528	0.0206
Venus	-24156-12-01 17:02 J	-7101220.91	-7101220.79	-7101220.66	0.0524	0.0407
Venus	-24150-02-03 19:26 J	-7099330.87	-7099330.69	-7099330.50	0.0494	0.0227
Mercury	-24150-09-25 08:09 J	-7099097.33	-7099097.16	-7099096.99	0.0498	0.0178
Venus	-24150-09-28 11:16 J	-7099094.22	-7099094.03	-7099093.83	0.0499	0.0160
Mars	-24150-11-08 22:19 J	-7099052.83	-7099052.57	-7099052.30	0.0500	0.0071

Venus	-24145-12-12 06:57 J	-7097192.40	-7097192.21	-7097192.02	0.0532	0.0162
Mercury	-24144-02-16 06:43 J	-7097126.24	-7097126.22	-7097126.20	0.0531	0.0521
Mercury	-24144-05-16 13:40 J	-7097037.06	-7097036.93	-7097036.80	0.0529	0.0064
Venus	-24144-08-06 13:55 J	-7096955.08	-7096954.92	-7096954.75	0.0526	0.0291
Moon	-24140-10-16 12:28 J	-7095423.18	-7095422.98	-7095422.77	0.0490	0.0204
Earth	-24140-10-16 13:11 J	-7095423.16	-7095422.95	-7095422.74	0.0490	0.0232 *
Venus	-24139-10-09 19:26 J	-7095064.85	-7095064.69	-7095064.54	0.0493	0.0328
Venus	-24138-06-03 08:52 J	-7094828.33	-7094828.13	-7094827.92	0.0497	0.0052
Mercury	-24138-07-14 05:59 J	-7094787.43	-7094787.25	-7094787.07	0.0498	0.0009
Venus	-24137-01-26 06:28 J	-7094591.32	-7094591.23	-7094591.13	0.0503	0.0445
Venus	-24133-08-17 01:26 J	-7092926.61	-7092926.44	-7092926.27	0.0534	0.0288
Mercury	-24132-03-04 17:45 J	-7092726.88	-7092726.76	-7092726.63	0.0529	0.0078
Venus	-24132-04-11 10:47 J	-7092689.24	-7092689.05	-7092688.86	0.0528	0.0172
Mercury	-24132-06-02 00:57 J	-7092637.48	-7092637.46	-7092637.43	0.0526	0.0511
Earth	-24128-10-20 21:21 J	-7091035.82	-7091035.61	-7091035.39	0.0490	0.0203
Moon	-24128-10-20 23:31 J	-7091035.74	-7091035.52	-7091035.29	0.0490	0.0199 *
Venus	-24127-06-14 18:28 J	-7090798.82	-7090798.73	-7090798.62	0.0492	0.0426
Venus	-24126-02-06 06:28 J	-7090562.44	-7090562.23	-7090562.02	0.0496	0.0057
Mercury	-24126-05-02 03:07 J	-7090477.53	-7090477.37	-7090477.20	0.0498	0.0182
Venus	-24126-10-01 02:09 J	-7090325.56	-7090325.41	-7090325.25	0.0502	0.0338
Venus	-24121-04-21 17:59 J	-7088660.87	-7088660.75	-7088660.62	0.0535	0.0413
Venus	-24121-12-15 05:31 J	-7088423.46	-7088423.27	-7088423.07	0.0530	0.0050
Mercury	-24121-12-21 21:50 J	-7088416.71	-7088416.59	-7088416.47	0.0529	0.0221
Mercury	-24120-03-21 04:47 J	-7088327.39	-7088327.30	-7088327.20	0.0527	0.0365
Venus	-24120-08-09 07:55 J	-7088186.24	-7088186.17	-7088186.08	0.0523	0.0478
Venus	-24115-10-12 06:14 J	-7086296.44	-7086296.24	-7086296.04	0.0495	0.0161
Mercury	-24114-02-18 01:11 J	-7086167.58	-7086167.45	-7086167.32	0.0497	0.0356
Mercury	-24114-05-19 08:09 J	-7086077.28	-7086077.16	-7086077.03	0.0499	0.0353
Venus	-24114-06-05 23:45 J	-7086059.70	-7086059.51	-7086059.33	0.0500	0.0230
Mars	-24114-08-13 09:07 J	-7085991.35	-7085991.12	-7085990.89	0.0502	0.0256

Venus	-24109-08-19 20:38 J	-7084157.84	-7084157.64	-7084157.44	0.0531	0.0084
Mercury	-24109-10-10 00:57 J	-7084106.55	-7084106.46	-7084106.37	0.0530	0.0381
Mercury	-24108-01-07 07:55 J	-7084017.29	-7084017.17	-7084017.05	0.0528	0.0203
Venus	-24108-04-14 01:55 J	-7083920.56	-7083920.42	-7083920.27	0.0525	0.0362
Venus	-24103-06-17 06:43 J	-7082030.39	-7082030.22	-7082030.04	0.0493	0.0263
Venus	-24102-02-08 21:50 J	-7081793.79	-7081793.59	-7081793.39	0.0498	0.0121
Mercury	-24102-03-07 06:28 J	-7081767.39	-7081767.23	-7081767.06	0.0499	0.0183
Moon	-24098-04-17 15:21 J	-7080265.03	-7080264.86	-7080264.68	0.0536	0.0345
Earth	-24098-04-17 18:57 J	-7080264.89	-7080264.71	-7080264.52	0.0536	0.0312 *
Venus	-24097-04-24 13:26 J	-7079892.12	-7079891.94	-7079891.76	0.0533	0.0213
Mercury	-24097-07-29 04:47 J	-7079796.31	-7079796.30	-7079796.29	0.0531	0.0528
Mercury	-24097-10-26 11:45 J	-7079707.14	-7079707.01	-7079706.89	0.0529	0.0057
Venus	-24097-12-17 21:21 J	-7079654.78	-7079654.61	-7079654.43	0.0527	0.0244
Venus	-24091-02-20 06:43 J	-7077764.36	-7077764.22	-7077764.08	0.0492	0.0364
Venus	-24091-10-14 19:26 J	-7077527.90	-7077527.69	-7077527.49	0.0496	0.0014
Mercury	-24091-12-24 04:04 J	-7077457.52	-7077457.33	-7077457.15	0.0498	0.0011
Venus	-24090-06-08 15:35 J	-7077290.96	-7077290.85	-7077290.72	0.0502	0.0405
Earth	-24086-04-22 18:57 J	-7075876.90	-7075876.71	-7075876.50	0.0537	0.0260
Moon	-24086-04-22 20:52 J	-7075876.82	-7075876.63	-7075876.44	0.0537	0.0275 *
Venus	-24086-12-29 06:14 J	-7075626.39	-7075626.24	-7075626.08	0.0534	0.0341
Mercury	-24085-08-14 15:50 J	-7075396.97	-7075396.84	-7075396.72	0.0529	0.0088
Venus	-24085-08-22 17:02 J	-7075388.98	-7075388.79	-7075388.59	0.0529	0.0122
Mars	-24085-10-25 13:26 J	-7075325.22	-7075324.94	-7075324.65	0.0527	0.0089
Mercury	-24085-11-11 23:02 J	-7075307.58	-7075307.54	-7075307.50	0.0527	0.0501
Venus	-24080-10-26 07:11 J	-7073498.26	-7073498.20	-7073498.12	0.0491	0.0460
Venus	-24079-06-19 17:59 J	-7073261.96	-7073261.75	-7073261.55	0.0495	0.0095
Mercury	-24079-10-12 01:40 J	-7073147.60	-7073147.43	-7073147.26	0.0497	0.0175
Venus	-24078-02-11 11:59 J	-7073025.16	-7073025.00	-7073024.83	0.0500	0.0296
Venus	-24074-09-02 23:59 J	-7071360.60	-7071360.50	-7071360.40	0.0535	0.0463
Venus	-24073-04-27 13:11 J	-7071123.15	-7071122.95	-7071122.75	0.0531	0.0002

Mercury	-24073-06-02 20:09 J	-7071086.78	-7071086.66	-7071086.55	0.0530	0.0225
Mercury	-24073-08-31 03:07 J	-7070997.46	-7070997.37	-7070997.27	0.0527	0.0362
Venus	-24073-12-20 17:16 J	-7070885.89	-7070885.78	-7070885.67	0.0524	0.0436
Venus	-24067-02-22 16:33 J	-7068996.00	-7068995.81	-7068995.62	0.0494	0.0200
Mercury	-24067-07-30 22:47 J	-7068837.67	-7068837.55	-7068837.42	0.0497	0.0358
Venus	-24067-10-17 08:38 J	-7068759.33	-7068759.14	-7068758.94	0.0499	0.0188
Mercury	-24067-10-29 05:59 J	-7068747.38	-7068747.25	-7068747.13	0.0499	0.0351
Venus	-24061-01-01 07:11 J	-7066857.39	-7066857.20	-7066857.00	0.0532	0.0129
Mercury	-24061-03-22 00:14 J	-7066776.58	-7066776.49	-7066776.40	0.0530	0.0367
Mercury	-24061-06-19 07:11 J	-7066687.32	-7066687.20	-7066687.08	0.0528	0.0218
Venus	-24061-08-25 13:40 J	-7066620.08	-7066619.93	-7066619.77	0.0526	0.0322
Earth	-24057-10-15 17:02 J	-7065107.97	-7065107.79	-7065107.60	0.0490	0.0307
Moon	-24057-10-15 19:11 J	-7065107.90	-7065107.70	-7065107.49	0.0490	0.0277 *
Venus	-24056-10-28 17:16 J	-7064729.94	-7064729.78	-7064729.61	0.0493	0.0300
Venus	-24055-06-22 07:26 J	-7064493.40	-7064493.19	-7064492.99	0.0497	0.0081
Mercury	-24055-08-17 04:19 J	-7064437.49	-7064437.32	-7064437.15	0.0499	0.0182
Venus	-24054-02-14 05:31 J	-7064256.34	-7064256.27	-7064256.20	0.0503	0.0474
Venus	-24050-09-05 21:21 J	-7062591.78	-7062591.61	-7062591.43	0.0533	0.0262
Mercury	-24049-01-09 03:21 J	-7062466.37	-7062466.36	-7062466.34	0.0531	0.0526
Mercury	-24049-04-07 10:04 J	-7062377.20	-7062377.08	-7062376.95	0.0528	0.0060
Venus	-24049-04-30 06:28 J	-7062354.41	-7062354.23	-7062354.04	0.0528	0.0198
Mars	-24049-08-01 23:02 J	-7062260.73	-7062260.54	-7062260.32	0.0525	0.0359
Moon	-24045-10-20 01:55 J	-7060720.64	-7060720.42	-7060720.19	0.0491	0.0135
Earth	-24045-10-20 05:16 J	-7060720.51	-7060720.28	-7060720.05	0.0491	0.0145 *
Venus	-24044-07-03 18:43 J	-7060463.84	-7060463.72	-7060463.60	0.0492	0.0398
Venus	-24043-02-25 06:57 J	-7060227.42	-7060227.21	-7060227.00	0.0496	0.0027
Mercury	-24043-06-05 02:38 J	-7060127.57	-7060127.39	-7060127.21	0.0498	0.0013
Venus	-24043-10-20 02:38 J	-7059990.53	-7059990.39	-7059990.25	0.0501	0.0367
Venus	-24038-05-11 13:11 J	-7058326.08	-7058325.95	-7058325.81	0.0534	0.0390
Venus	-24037-01-04 00:43 J	-7058088.66	-7058088.47	-7058088.27	0.0530	0.0074

Mercury	-24037-01-25 13:55 J	-7058067.04	-7058066.92	-7058066.79	0.0529	0.0093
Mercury	-24037-04-23 21:07 J	-7057977.66	-7057977.62	-7057977.58	0.0527	0.0497
Venus	-24037-08-28 03:35 J	-7057851.40	-7057851.35	-7057851.29	0.0523	0.0501
Venus	-24032-10-31 05:31 J	-7055961.47	-7055961.27	-7055961.06	0.0494	0.0133
Mercury	-24031-03-23 23:59 J	-7055817.67	-7055817.50	-7055817.32	0.0497	0.0168
Mars	-24031-04-30 11:45 J	-7055780.21	-7055780.01	-7055779.80	0.0498	0.0312
Venus	-24031-06-24 22:33 J	-7055724.73	-7055724.56	-7055724.38	0.0499	0.0258
Venus	-24026-01-14 05:02 J	-7054060.34	-7054060.29	-7054060.23	0.0536	0.0514
Venus	-24026-09-08 19:26 J	-7053822.89	-7053822.69	-7053822.49	0.0532	0.0054
Mercury	-24026-11-13 17:59 J	-7053756.86	-7053756.75	-7053756.63	0.0530	0.0234
Mercury	-24025-02-11 01:11 J	-7053667.54	-7053667.45	-7053667.35	0.0528	0.0355
Venus	-24025-05-03 01:11 J	-7053585.58	-7053585.45	-7053585.32	0.0525	0.0391
Venus	-24020-07-06 05:16 J	-7051695.46	-7051695.28	-7051695.10	0.0493	0.0236
Mercury	-24019-01-09 21:35 J	-7051507.72	-7051507.60	-7051507.46	0.0497	0.0345
Venus	-24019-02-27 20:09 J	-7051458.86	-7051458.66	-7051458.46	0.0498	0.0148
Mercury	-24019-04-10 04:33 J	-7051417.43	-7051417.31	-7051417.18	0.0499	0.0362
Earth	-24015-04-16 23:16 J	-7049949.68	-7049949.53	-7049949.38	0.0537	0.0400
Moon	-24015-04-17 01:26 J	-7049949.57	-7049949.44	-7049949.30	0.0537	0.0426 *
Venus	-24014-05-14 14:38 J	-7049557.08	-7049556.89	-7049556.70	0.0533	0.0179
Mercury	-24014-09-01 22:33 J	-7049446.65	-7049446.56	-7049446.47	0.0531	0.0370
Mercury	-24014-11-30 05:31 J	-7049357.39	-7049357.27	-7049357.15	0.0528	0.0216
Venus	-24013-01-06 22:33 J	-7049319.73	-7049319.56	-7049319.39	0.0527	0.0277
Venus	-24008-03-11 04:47 J	-7047429.45	-7047429.30	-7047429.15	0.0492	0.0337
Venus	-24008-11-02 17:45 J	-7047192.97	-7047192.76	-7047192.55	0.0497	0.0041
Mercury	-24007-01-27 02:23 J	-7047107.57	-7047107.40	-7047107.23	0.0499	0.0184
Venus	-24007-06-27 14:38 J	-7046955.99	-7046955.89	-7046955.79	0.0503	0.0433
Earth	-24003-04-22 01:55 J	-7045561.63	-7045561.42	-7045561.20	0.0537	0.0185
Moon	-24003-04-22 02:09 J	-7045561.62	-7045561.41	-7045561.18	0.0537	0.0207 *
Venus	-24002-01-17 08:09 J	-7045291.32	-7045291.16	-7045290.99	0.0534	0.0306
Mercury	-24002-06-21 02:52 J	-7045136.41	-7045136.38	-7045136.35	0.0531	0.0509



Venus -24002-09-11 18:28 J -7045053.92 -7045053.73 -7045053.53 0.0529 0.0156

Mercury -24002-09-18 09:35 J -7045047.23 -7045047.10 -7045046.97 0.0529 0.0074

# 24TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 24th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Venus	-23997-11-14 06:28 J	-7043163.32	-7043163.23	-7043163.13	0.0492	0.0432		
Venus	-23996-07-08 17:31 J	-7042926.97	-7042926.77	-7042926.56	0.0495	0.0065		
Mercury	-23996-11-15 00:43 J	-7042797.65	-7042797.47	-7042797.29	0.0498	0.0019		
Mars	-23995-02-01 21:35 J	-7042718.87	-7042718.60	-7042718.34	0.0500	0.0010		
Venus	-23995-03-02 12:14 J	-7042690.15	-7042689.99	-7042689.83	0.0501	0.0327		
Venus	-23991-09-21 21:50 J	-7041025.70	-7041025.59	-7041025.48	0.0535	0.0436		
Venus	-23990-05-17 10:19 J	-7040788.27	-7040788.07	-7040787.87	0.0530	0.0026		
Mercury	-23990-07-07 12:43 J	-7040737.09	-7040736.97	-7040736.84	0.0529	0.0086		
Mercury	-23990-10-04 19:55 J	-7040647.70	-7040647.67	-7040647.63	0.0527	0.0502		
Venus	-23989-01-09 13:55 J	-7040551.01	-7040550.92	-7040550.82	0.0524	0.0460		
Venus	-23984-03-13 18:14 J	-7038660.94	-7038660.74	-7038660.55	0.0494	0.0169		
Mercury	-23984-09-02 23:02 J	-7038487.71	-7038487.54	-7038487.36	0.0498	0.0154		
Venus	-23984-11-05 10:33 J	-7038424.24	-7038424.06	-7038423.87	0.0499	0.0220		
Venus	-23978-01-20 03:50 J	-7036522.54	-7036522.34	-7036522.15	0.0532	0.0103		
Mercury	-23978-04-25 16:33 J	-7036426.92	-7036426.81	-7036426.69	0.0530	0.0233		
Mercury	-23978-07-23 23:45 J	-7036337.61	-7036337.51	-7036337.42	0.0527	0.0354		

Venus	-23978-09-14 10:04 J	-7036285.23	-7036285.08	-7036284.93	0.0526	0.0346
Moon	-23974-10-15 22:47 J	-7034792.71	-7034792.55	-7034792.37	0.0491	0.0335
Earth	-23974-10-16 02:09 J	-7034792.57	-7034792.41	-7034792.24	0.0491	0.0356 *
Venus	-23973-11-16 17:59 J	-7034394.92	-7034394.75	-7034394.58	0.0493	0.0271
Mercury	-23972-06-21 20:38 J	-7034177.77	-7034177.64	-7034177.51	0.0497	0.0332
Venus	-23972-07-11 07:55 J	-7034158.37	-7034158.17	-7034157.97	0.0497	0.0111
Mercury	-23972-09-20 03:35 J	-7034087.47	-7034087.35	-7034087.23	0.0499	0.0374
Venus	-23971-03-05 05:45 J	-7033921.27	-7033921.26	-7033921.24	0.0503	0.0501
Venus	-23967-09-24 21:07 J	-7032256.79	-7032256.62	-7032256.43	0.0533	0.0231
Mercury	-23966-02-11 20:52 J	-7032116.72	-7032116.63	-7032116.54	0.0531	0.0374
Mars	-23966-04-13 17:59 J	-7032055.89	-7032055.75	-7032055.60	0.0529	0.0452
Mercury	-23966-05-12 03:50 J	-7032027.46	-7032027.34	-7032027.22	0.0528	0.0212
Venus	-23966-05-20 06:28 J	-7032019.41	-7032019.23	-7032019.05	0.0528	0.0229
Earth	-23962-10-20 13:40 J	-7030405.16	-7030404.93	-7030404.70	0.0490	0.0090
Moon	-23962-10-20 17:31 J	-7030405.00	-7030404.77	-7030404.54	0.0490	0.0072 *
Venus	-23961-07-22 18:28 J	-7030128.86	-7030128.73	-7030128.59	0.0492	0.0370
Venus	-23960-03-16 06:28 J	-7029892.44	-7029892.23	-7029892.02	0.0496	0.0005
Mercury	-23960-07-09 01:26 J	-7029777.60	-7029777.44	-7029777.27	0.0498	0.0201
Mars	-23960-11-06 11:31 J	-7029657.20	-7029657.02	-7029656.82	0.0501	0.0347
Venus	-23960-11-08 01:55 J	-7029655.54	-7029655.42	-7029655.29	0.0501	0.0395
Venus	-23955-05-30 15:21 J	-7027991.01	-7027990.86	-7027990.71	0.0535	0.0355
Mercury	-23955-12-01 01:11 J	-7027806.48	-7027806.45	-7027806.41	0.0531	0.0510
Venus	-23954-01-23 03:07 J	-7027753.56	-7027753.37	-7027753.17	0.0530	0.0108
Mercury	-23954-02-28 08:09 J	-7027717.29	-7027717.16	-7027717.03	0.0529	0.0075
Venus	-23949-03-27 19:11 J	-7025862.76	-7025862.70	-7025862.64	0.0491	0.0465
Venus	-23949-11-19 05:16 J	-7025626.49	-7025626.28	-7025626.08	0.0495	0.0103
Mercury	-23948-04-26 23:16 J	-7025467.71	-7025467.53	-7025467.35	0.0498	0.0023
Venus	-23948-07-13 22:33 J	-7025389.73	-7025389.56	-7025389.39	0.0500	0.0287
Venus	-23943-02-02 08:23 J	-7023725.23	-7023725.15	-7023725.06	0.0535	0.0478
Venus	-23943-09-27 22:33 J	-7023487.76	-7023487.56	-7023487.36	0.0531	0.0019

Mercury	-23943-12-17 12:14 J	-7023407.11	-7023406.99	-7023406.86	0.0529	0.0068
Mercury	-23942-03-16 19:26 J	-7023317.70	-7023317.69	-7023317.67	0.0527	0.0523
Venus	-23942-05-23 03:35 J	-7023250.47	-7023250.35	-7023250.24	0.0525	0.0423
Venus	-23937-07-25 05:59 J	-7021360.44	-7021360.25	-7021360.06	0.0494	0.0205
Mercury	-23936-02-12 21:35 J	-7021157.77	-7021157.60	-7021157.42	0.0498	0.0146
Venus	-23936-03-18 21:21 J	-7021123.80	-7021123.61	-7021123.41	0.0498	0.0181
Moon	-23932-04-16 03:07 J	-7019634.45	-7019634.37	-7019634.28	0.0536	0.0499
Earth	-23932-04-16 03:35 J	-7019634.45	-7019634.35	-7019634.25	0.0536	0.0482 *
Venus	-23931-06-02 13:26 J	-7019222.13	-7019221.94	-7019221.75	0.0532	0.0150
Mercury	-23931-10-05 15:35 J	-7019096.97	-7019096.85	-7019096.73	0.0530	0.0223
Mercury	-23930-01-02 22:33 J	-7019007.65	-7019007.56	-7019007.46	0.0527	0.0363
Mars	-23930-01-19 17:02 J	-7018991.08	-7018990.79	-7018990.51	0.0527	0.0021
Venus	-23930-01-25 20:38 J	-7018984.80	-7018984.64	-7018984.47	0.0527	0.0303
Venus	-23925-03-30 07:11 J	-7017094.36	-7017094.20	-7017094.03	0.0493	0.0306
Venus	-23925-11-21 20:52 J	-7016857.84	-7016857.63	-7016857.43	0.0497	0.0074
Mercury	-23925-12-01 19:55 J	-7016847.81	-7016847.67	-7016847.53	0.0497	0.0314
Mercury	-23924-03-02 02:52 J	-7016757.48	-7016757.38	-7016757.27	0.0499	0.0393
Venus	-23924-07-16 17:59 J	-7016620.83	-7016620.75	-7016620.67	0.0503	0.0465
Moon	-23920-04-21 01:26 J	-7015246.65	-7015246.44	-7015246.22	0.0536	0.0115
Earth	-23920-04-21 03:35 J	-7015246.58	-7015246.35	-7015246.13	0.0536	0.0087 *
Venus	-23919-02-05 06:14 J	-7014956.41	-7014956.24	-7014956.07	0.0534	0.0278
Mercury	-23919-07-24 19:26 J	-7014786.78	-7014786.69	-7014786.59	0.0530	0.0369
Venus	-23919-09-30 15:50 J	-7014719.02	-7014718.84	-7014718.65	0.0529	0.0183
Mercury	-23919-10-22 02:23 J	-7014697.52	-7014697.40	-7014697.28	0.0528	0.0216
Venus	-23914-12-04 08:09 J	-7012828.28	-7012828.16	-7012828.04	0.0492	0.0403
Venus	-23913-07-27 19:26 J	-7012591.90	-7012591.69	-7012591.49	0.0495	0.0034
Mercury	-23913-09-19 17:16 J	-7012537.79	-7012537.78	-7012537.76	0.0496	0.0493
Mercury	-23913-12-19 00:43 J	-7012447.63	-7012447.47	-7012447.31	0.0498	0.0217
Venus	-23912-03-21 13:40 J	-7012355.06	-7012354.93	-7012354.78	0.0501	0.0358
Venus	-23908-10-10 22:19 J	-7010690.69	-7010690.57	-7010690.43	0.0535	0.0405

Mercury	-23907-05-12 23:45 J	-7010476.54	-7010476.51	-7010476.48	0.0531	0.0511
Venus	-23907-06-05 11:02 J	-7010453.24	-7010453.04	-7010452.84	0.0531	0.0059
Mercury	-23907-08-10 06:28 J	-7010387.36	-7010387.23	-7010387.10	0.0529	0.0073
Venus	-23906-01-28 14:52 J	-7010215.94	-7010215.88	-7010215.80	0.0524	0.0490
Venus	-23901-04-01 18:57 J	-7008325.91	-7008325.71	-7008325.51	0.0494	0.0138
Mercury	-23901-10-06 22:33 J	-7008137.74	-7008137.56	-7008137.38	0.0498	0.0043
Venus	-23901-11-24 11:02 J	-7008089.21	-7008089.04	-7008088.85	0.0499	0.0250
Venus	-23896-06-15 15:21 J	-7006424.89	-7006424.86	-7006424.82	0.0536	0.0526
Venus	-23895-02-08 06:43 J	-7006187.42	-7006187.22	-7006187.02	0.0532	0.0066
Mercury	-23895-05-29 11:02 J	-7006077.17	-7006077.04	-7006076.92	0.0529	0.0066
Mercury	-23895-08-26 18:14 J	-7005987.75	-7005987.74	-7005987.74	0.0527	0.0525
Venus	-23895-10-03 13:11 J	-7005950.08	-7005949.95	-7005949.81	0.0526	0.0381
Mars	-23895-10-27 17:02 J	-7005925.88	-7005925.79	-7005925.67	0.0525	0.0486
Earth	-23891-10-15 11:45 J	-7004477.14	-7004477.01	-7004476.88	0.0490	0.0406
Moon	-23891-10-15 15:21 J	-7004477.00	-7004476.86	-7004476.71	0.0490	0.0391 *
Venus	-23890-12-06 18:28 J	-7004059.91	-7004059.73	-7004059.55	0.0493	0.0242
Mercury	-23889-07-25 20:09 J	-7003827.83	-7003827.66	-7003827.48	0.0497	0.0136
Venus	-23889-07-30 08:38 J	-7003823.34	-7003823.14	-7003822.94	0.0497	0.0142
Venus	-23884-10-14 01:26 J	-7001921.63	-7001921.44	-7001921.26	0.0533	0.0192
Mercury	-23883-03-17 15:07 J	-7001766.98	-7001766.87	-7001766.75	0.0530	0.0203
Venus	-23883-06-08 10:04 J	-7001684.25	-7001684.08	-7001683.91	0.0528	0.0264
Mercury	-23883-06-14 22:19 J	-7001677.66	-7001677.57	-7001677.48	0.0527	0.0385
Moon	-23879-10-19 20:38 J	-7000089.88	-7000089.64	-7000089.39	0.0490	0.0018
Earth	-23879-10-19 23:59 J	-7000089.73	-7000089.50	-7000089.26	0.0490	0.0044 *
Venus	-23878-08-11 20:09 J	-6999793.81	-6999793.66	-6999793.51	0.0492	0.0339
Venus	-23877-04-04 08:38 J	-6999557.35	-6999557.14	-6999556.93	0.0496	0.0036
Mercury	-23877-05-13 18:28 J	-6999517.87	-6999517.73	-6999517.58	0.0497	0.0304
Mars	-23877-07-24 23:59 J	-6999445.74	-6999445.50	-6999445.26	0.0499	0.0210
Mercury	-23877-08-12 01:40 J	-6999427.53	-6999427.43	-6999427.32	0.0499	0.0404
Venus	-23877-11-27 04:47 J	-6999320.41	-6999320.30	-6999320.19	0.0502	0.0427

Venus	-23872-06-18 16:04 J	-6997655.99	-6997655.83	-6997655.67	0.0534	0.0324
Mercury	-23871-01-03 18:43 J	-6997456.82	-6997456.72	-6997456.63	0.0530	0.0357
Venus	-23871-02-11 02:52 J	-6997418.58	-6997418.38	-6997418.19	0.0529	0.0138
Mercury	-23871-04-03 01:26 J	-6997367.55	-6997367.44	-6997367.32	0.0528	0.0228
Moon	-23867-10-24 13:26 J	-6995701.99	-6995701.94	-6995701.87	0.0491	0.0471
Venus	-23866-04-16 21:50 J	-6995527.68	-6995527.59	-6995527.50	0.0492	0.0436
Venus	-23866-12-09 08:38 J	-6995291.34	-6995291.14	-6995290.93	0.0495	0.0070
Mercury	-23865-03-01 16:47 J	-6995207.85	-6995207.80	-6995207.74	0.0497	0.0473
Mercury	-23865-05-31 00:14 J	-6995117.64	-6995117.49	-6995117.33	0.0499	0.0238
Venus	-23865-08-02 02:38 J	-6995054.54	-6995054.39	-6995054.23	0.0500	0.0321
Venus	-23860-02-21 07:40 J	-6993390.28	-6993390.18	-6993390.06	0.0535	0.0450
Venus	-23860-10-16 21:07 J	-6993152.82	-6993152.62	-6993152.42	0.0531	0.0016
Mercury	-23860-10-22 22:33 J	-6993146.59	-6993146.56	-6993146.52	0.0531	0.0501
Mercury	-23859-01-20 05:16 J	-6993057.40	-6993057.28	-6993057.15	0.0528	0.0083
Venus	-23859-06-11 01:26 J	-6992915.54	-6992915.44	-6992915.33	0.0525	0.0448
Venus	-23854-08-14 08:23 J	-6991025.34	-6991025.15	-6991024.96	0.0494	0.0173
Mercury	-23853-03-18 22:04 J	-6990807.76	-6990807.58	-6990807.40	0.0498	0.0062
Venus	-23853-04-06 23:45 J	-6990788.69	-6990788.51	-6990788.31	0.0498	0.0214
Venus	-23848-06-21 14:52 J	-6988887.08	-6988886.88	-6988886.69	0.0532	0.0116
Mercury	-23848-11-08 09:21 J	-6988747.23	-6988747.11	-6988746.98	0.0529	0.0065
Mercury	-23847-02-05 16:33 J	-6988657.81	-6988657.81	-6988657.80	0.0527	0.0526
Venus	-23847-02-13 22:19 J	-6988649.72	-6988649.57	-6988649.42	0.0527	0.0335
Venus	-23842-04-19 08:52 J	-6986759.30	-6986759.13	-6986758.96	0.0493	0.0275
Venus	-23842-12-11 22:04 J	-6986522.78	-6986522.58	-6986522.37	0.0497	0.0105
Mercury	-23841-01-05 19:55 J	-6986497.85	-6986497.67	-6986497.49	0.0497	0.0114
Mars	-23841-04-28 11:45 J	-6986384.26	-6986384.01	-6986383.75	0.0500	0.0120
Venus	-23841-08-04 19:11 J	-6986285.74	-6986285.70	-6986285.66	0.0503	0.0493
Earth	-23837-04-20 11:16 J	-6984931.26	-6984931.03	-6984930.80	0.0536	0.0016
Moon	-23837-04-20 14:38 J	-6984931.12	-6984930.89	-6984930.65	0.0536	0.0052 *
Venus	-23836-02-24 09:21 J	-6984621.29	-6984621.11	-6984620.93	0.0534	0.0241

Mercury	-23836-08-27 13:55 J	-6984437.04	-6984436.92	-6984436.80	0.0530	0.0199
Venus	-23836-10-19 19:26 J	-6984383.87	-6984383.69	-6984383.50	0.0529	0.0219
Mercury	-23836-11-24 20:52 J	-6984347.71	-6984347.63	-6984347.54	0.0528	0.0389
Venus	-23831-12-23 09:07 J	-6982493.25	-6982493.12	-6982492.98	0.0492	0.0374
Venus	-23830-08-16 20:38 J	-6982256.85	-6982256.64	-6982256.43	0.0495	0.0002
Mercury	-23830-10-24 17:31 J	-6982187.92	-6982187.77	-6982187.63	0.0497	0.0292
Mercury	-23829-01-23 00:28 J	-6982097.58	-6982097.48	-6982097.38	0.0499	0.0415
Venus	-23829-04-09 15:21 J	-6982019.98	-6982019.86	-6982019.72	0.0501	0.0388
Venus	-23825-10-30 03:07 J	-6980355.51	-6980355.37	-6980355.22	0.0535	0.0367
Mercury	-23824-06-15 18:14 J	-6980126.84	-6980126.74	-6980126.64	0.0530	0.0336
Venus	-23824-06-24 15:35 J	-6980118.05	-6980117.85	-6980117.65	0.0530	0.0096
Mercury	-23824-09-13 01:11 J	-6980037.56	-6980037.45	-6980037.34	0.0528	0.0250
Venus	-23823-02-16 18:57 J	-6979880.72	-6979880.71	-6979880.69	0.0523	0.0522
Venus	-23819-08-28 11:31 J	-6978227.08	-6978227.02	-6978226.96	0.0491	0.0467
Venus	-23818-04-21 21:21 J	-6977990.81	-6977990.61	-6977990.41	0.0494	0.0106
Mercury	-23818-08-12 15:50 J	-6977877.91	-6977877.84	-6977877.78	0.0497	0.0460
Mercury	-23818-11-10 23:16 J	-6977787.69	-6977787.53	-6977787.38	0.0499	0.0251
Venus	-23818-12-14 14:09 J	-6977754.08	-6977753.91	-6977753.74	0.0499	0.0283
Venus	-23813-07-04 17:45 J	-6976089.83	-6976089.76	-6976089.68	0.0535	0.0493
Venus	-23812-02-27 07:55 J	-6975852.37	-6975852.17	-6975851.97	0.0531	0.0035
Mercury	-23812-04-03 21:50 J	-6975816.64	-6975816.59	-6975816.54	0.0530	0.0488
Mercury	-23812-07-02 04:33 J	-6975727.44	-6975727.31	-6975727.18	0.0528	0.0094
Mars	-23812-07-08 13:26 J	-6975721.17	-6975720.94	-6975720.70	0.0528	0.0312
Venus	-23812-10-22 13:11 J	-6975615.07	-6975614.95	-6975614.82	0.0525	0.0408
Moon	-23808-10-14 19:11 J	-6974161.79	-6974161.70	-6974161.58	0.0491	0.0441
Earth	-23808-10-14 22:33 J	-6974161.64	-6974161.56	-6974161.46	0.0491	0.0449 *
Venus	-23807-12-25 21:50 J	-6973724.78	-6973724.59	-6973724.40	0.0494	0.0209
Venus	-23806-08-19 12:57 J	-6973488.15	-6973487.96	-6973487.76	0.0498	0.0176
Mercury	-23806-08-29 21:35 J	-6973477.78	-6973477.60	-6973477.42	0.0498	0.0083
Mars	-23805-02-01 09:21 J	-6973322.20	-6973322.11	-6973322.01	0.0502	0.0466

Venus	-23801-11-02 00:57 J	-6971586.65	-6971586.46	-6971586.27	0.0532	0.0162
Mercury	-23800-04-20 08:23 J	-6971417.28	-6971417.15	-6971417.02	0.0529	0.0053
Venus	-23800-06-27 08:52 J	-6971349.29	-6971349.13	-6971348.96	0.0527	0.0291
Earth	-23796-10-19 11:02 J	-6969774.28	-6969774.04	-6969773.80	0.0491	0.0006
Moon	-23796-10-19 12:57 J	-6969774.19	-6969773.96	-6969773.73	0.0491	0.0028 *
Venus	-23795-08-30 22:19 J	-6969458.72	-6969458.57	-6969458.40	0.0493	0.0309
Venus	-23794-04-24 11:16 J	-6969222.23	-6969222.03	-6969221.82	0.0496	0.0069
Mercury	-23794-06-17 19:26 J	-6969167.87	-6969167.69	-6969167.52	0.0498	0.0094
Venus	-23794-12-17 07:26 J	-6968985.27	-6968985.19	-6968985.10	0.0502	0.0458
Venus	-23789-07-07 17:31 J	-6967320.94	-6967320.77	-6967320.60	0.0534	0.0289
Mercury	-23788-02-06 12:28 J	-6967107.10	-6967106.98	-6967106.86	0.0530	0.0196
Venus	-23788-03-02 04:33 J	-6967083.50	-6967083.31	-6967083.12	0.0529	0.0172
Mercury	-23788-05-06 19:26 J	-6967017.77	-6967017.69	-6967017.60	0.0528	0.0391
Moon	-23784-10-23 22:19 J	-6965386.68	-6965386.57	-6965386.44	0.0491	0.0431
Earth	-23784-10-23 22:47 J	-6965386.63	-6965386.55	-6965386.44	0.0491	0.0450 *
Venus	-23783-05-05 23:45 J	-6965192.63	-6965192.51	-6965192.40	0.0492	0.0405
Venus	-23783-12-28 10:19 J	-6964956.28	-6964956.07	-6964955.86	0.0495	0.0038
Mercury	-23782-04-05 17:02 J	-6964857.94	-6964857.79	-6964857.64	0.0497	0.0269
Mercury	-23782-07-04 23:59 J	-6964767.58	-6964767.50	-6964767.41	0.0499	0.0437
Venus	-23782-08-22 04:19 J	-6964719.47	-6964719.32	-6964719.17	0.0500	0.0351
Venus	-23777-03-12 10:47 J	-6963055.17	-6963055.05	-6963054.92	0.0535	0.0414
Venus	-23777-11-05 00:28 J	-6962817.68	-6962817.48	-6962817.28	0.0531	0.0049
Mercury	-23777-11-25 16:47 J	-6962796.89	-6962796.80	-6962796.70	0.0531	0.0333
Mercury	-23776-02-22 23:45 J	-6962707.62	-6962707.51	-6962707.39	0.0528	0.0254
Mars	-23776-04-15 18:28 J	-6962656.01	-6962655.73	-6962655.46	0.0527	0.0165
Venus	-23776-06-30 05:02 J	-6962580.36	-6962580.29	-6962580.21	0.0525	0.0482
Venus	-23771-09-02 09:50 J	-6960690.29	-6960690.09	-6960689.89	0.0494	0.0142
Mercury	-23770-01-22 14:38 J	-6960547.97	-6960547.89	-6960547.82	0.0496	0.0448
Mercury	-23770-04-22 21:50 J	-6960457.74	-6960457.59	-6960457.43	0.0498	0.0262
Venus	-23770-04-27 01:26 J	-6960453.62	-6960453.44	-6960453.25	0.0499	0.0244

Venus	-23766-11-16 03:50 J	-6958789.34	-6958789.34	-6958789.32	0.0536	0.0535
Venus	-23765-07-10 19:40 J	-6958551.88	-6958551.68	-6958551.48	0.0532	0.0077
Mercury	-23765-09-13 21:21 J	-6958486.67	-6958486.61	-6958486.55	0.0531	0.0469
Mercury	-23765-12-12 04:04 J	-6958397.45	-6958397.33	-6958397.20	0.0529	0.0116
Venus	-23764-03-05 02:38 J	-6958314.52	-6958314.39	-6958314.24	0.0526	0.0371
Venus	-23759-05-08 11:02 J	-6956424.22	-6956424.04	-6956423.86	0.0493	0.0243
Venus	-23759-12-31 00:57 J	-6956187.66	-6956187.46	-6956187.26	0.0497	0.0138
Mars	-23758-01-15 08:09 J	-6956172.29	-6956172.16	-6956172.01	0.0498	0.0417
Mercury	-23758-02-08 20:38 J	-6956147.82	-6956147.64	-6956147.47	0.0498	0.0097
Moon	-23754-04-20 17:16 J	-6954616.00	-6954615.78	-6954615.55	0.0536	0.0013
Earth	-23754-04-20 21:21 J	-6954615.84	-6954615.61	-6954615.39	0.0536	0.0043 *
Venus	-23753-03-15 11:31 J	-6954286.20	-6954286.02	-6954285.83	0.0533	0.0207
Mercury	-23753-09-30 07:40 J	-6954087.31	-6954087.18	-6954087.05	0.0529	0.0039
Venus	-23753-11-07 20:23 J	-6954048.82	-6954048.65	-6954048.47	0.0528	0.0249
Venus	-23747-01-11 11:45 J	-6952158.16	-6952158.01	-6952157.86	0.0493	0.0343
Venus	-23747-09-05 00:14 J	-6951921.69	-6951921.49	-6951921.28	0.0496	0.0034
Mercury	-23747-11-27 18:43 J	-6951837.90	-6951837.72	-6951837.54	0.0498	0.0074
Venus	-23746-04-29 19:55 J	-6951684.77	-6951684.67	-6951684.55	0.0502	0.0422
Earth	-23742-04-25 21:07 J	-6950227.66	-6950227.62	-6950227.59	0.0535	0.0527
Venus	-23742-11-19 03:50 J	-6950020.49	-6950020.34	-6950020.18	0.0534	0.0334
Venus	-23741-07-13 15:07 J	-6949783.06	-6949782.87	-6949782.68	0.0529	0.0126
Mercury	-23741-07-19 11:31 J	-6949777.14	-6949777.02	-6949776.90	0.0529	0.0184
Mercury	-23741-10-16 18:28 J	-6949687.81	-6949687.73	-6949687.64	0.0527	0.0401
Venus	-23736-09-16 13:11 J	-6947892.04	-6947891.95	-6947891.86	0.0492	0.0438
Venus	-23735-05-10 23:31 J	-6947655.72	-6947655.52	-6947655.31	0.0495	0.0073
Mercury	-23735-09-15 16:19 J	-6947527.97	-6947527.82	-6947527.66	0.0497	0.0252
Mercury	-23735-12-14 23:31 J	-6947437.59	-6947437.52	-6947437.45	0.0499	0.0455
Venus	-23734-01-02 16:47 J	-6947418.96	-6947418.80	-6947418.64	0.0500	0.0315
Venus	-23730-07-24 18:57 J	-6945754.81	-6945754.71	-6945754.61	0.0535	0.0460
Venus	-23729-03-18 09:07 J	-6945517.32	-6945517.12	-6945516.92	0.0531	0.0006



Mercury	-23729-05-07 15:35 J	-6945466.95	-6945466.85	-6945466.75	0.0530	0.0329
Mercury	-23729-08-04 22:33 J	-6945377.68	-6945377.56	-6945377.45	0.0528	0.0256
Venus	-23729-11-10 14:38 J	-6945279.99	-6945279.89	-6945279.78	0.0525	0.0439
Earth	-23725-10-14 10:19 J	-6943846.07	-6943846.07	-6943846.07	0.0491	0.0491
Moon	-23725-10-14 11:59 J	-6943846.00	-6943846.00	-6943845.98	0.0491	0.0490
Venus	-23723-01-13 23:31 J	-6943389.72	-6943389.52	-6943389.33	0.0494	0.0177
Mercury	-23723-07-04 13:55 J	-6943218.00	-6943217.92	-6943217.82	0.0497	0.0428
Venus	-23723-09-07 14:23 J	-6943153.08	-6943152.90	-6943152.71	0.0498	0.0208
Mercury	-23723-10-02 21:21 J	-6943127.75	-6943127.61	-6943127.46	0.0499	0.0283
Mars	-23723-10-19 17:31 J	-6943111.02	-6943110.77	-6943110.51	0.0499	0.0097
Venus	-23718-11-22 03:50 J	-6941251.54	-6941251.34	-6941251.15	0.0533	0.0125
Mercury	-23717-02-24 19:55 J	-6941156.73	-6941156.67	-6941156.61	0.0531	0.0467
Mercury	-23717-05-24 02:38 J	-6941067.51	-6941067.39	-6941067.26	0.0529	0.0119
Venus	-23717-07-16 11:59 J	-6941014.15	-6941014.00	-6941013.84	0.0527	0.0327
Moon	-23713-10-18 21:21 J	-6939458.86	-6939458.61	-6939458.37	0.0491	0.0073
Earth	-23713-10-18 21:50 J	-6939458.83	-6939458.59	-6939458.36	0.0491	0.0045 *
Venus	-23712-09-18 23:31 J	-6939123.68	-6939123.52	-6939123.34	0.0493	0.0279
Venus	-23711-05-13 12:28 J	-6938887.18	-6938886.98	-6938886.77	0.0496	0.0100
Mercury	-23711-07-21 19:11 J	-6938817.88	-6938817.70	-6938817.52	0.0498	0.0106
Venus	-23710-01-05 08:52 J	-6938650.17	-6938650.13	-6938650.08	0.0502	0.0487
Venus	-23706-07-27 22:04 J	-6936985.76	-6936985.58	-6936985.41	0.0534	0.0251
Mercury	-23705-03-12 07:11 J	-6936757.33	-6936757.20	-6936757.07	0.0529	0.0024
Venus	-23705-03-21 08:52 J	-6936748.32	-6936748.13	-6936747.95	0.0529	0.0208
Moon	-23701-10-23 08:23 J	-6935071.28	-6935071.15	-6935071.01	0.0491	0.0398
Earth	-23701-10-23 10:04 J	-6935071.21	-6935071.08	-6935070.95	0.0491	0.0405 *
Venus	-23700-05-25 01:11 J	-6934857.58	-6934857.45	-6934857.31	0.0492	0.0375
Venus	-23699-01-16 12:28 J	-6934621.19	-6934620.98	-6934620.77	0.0495	0.0005
Mercury	-23699-05-09 17:31 J	-6934507.95	-6934507.77	-6934507.59	0.0498	0.0063
Venus	-23699-09-10 06:57 J	-6934384.34	-6934384.21	-6934384.07	0.0501	0.0384
Venus	-23694-04-01 13:55 J	-6932720.06	-6932719.92	-6932719.78	0.0534	0.0378

Venus	-23694-11-25 02:09 J	-6932482.61	-6932482.41	-6932482.22	0.0530	0.0082
Mercury	-23694-12-30 10:47 J	-6932447.17	-6932447.05	-6932446.93	0.0529	0.0172
Mercury	-23693-03-28 17:45 J	-6932357.84	-6932357.76	-6932357.68	0.0527	0.0413
Venus	-23693-07-19 05:31 J	-6932245.31	-6932245.27	-6932245.22	0.0524	0.0508
Venus	-23688-01-28 02:09 J	-6930591.46	-6930591.41	-6930591.35	0.0492	0.0471
Venus	-23688-09-21 12:14 J	-6930355.19	-6930354.99	-6930354.79	0.0495	0.0110
Mercury	-23687-02-25 15:35 J	-6930198.01	-6930197.85	-6930197.69	0.0498	0.0235
Venus	-23687-05-16 05:02 J	-6930118.46	-6930118.29	-6930118.11	0.0499	0.0277
Mercury	-23687-05-26 22:33 J	-6930107.61	-6930107.56	-6930107.50	0.0500	0.0474
Mars	-23687-07-24 08:52 J	-6930049.36	-6930049.13	-6930048.90	0.0501	0.0239
Venus	-23683-12-05 05:16 J	-6928454.34	-6928454.28	-6928454.21	0.0535	0.0502
Venus	-23682-07-30 19:40 J	-6928216.88	-6928216.68	-6928216.48	0.0531	0.0045
Mercury	-23682-10-18 14:38 J	-6928136.99	-6928136.89	-6928136.79	0.0530	0.0317
Mercury	-23681-01-15 21:35 J	-6928047.72	-6928047.60	-6928047.49	0.0527	0.0267
Venus	-23681-03-24 01:40 J	-6927979.55	-6927979.43	-6927979.30	0.0526	0.0397
Venus	-23676-05-27 12:14 J	-6926089.18	-6926088.99	-6926088.80	0.0493	0.0212
Mercury	-23676-12-14 13:11 J	-6925888.05	-6925887.95	-6925887.85	0.0497	0.0413
Venus	-23675-01-19 02:38 J	-6925852.58	-6925852.39	-6925852.19	0.0498	0.0171
Mercury	-23675-03-14 20:38 J	-6925797.78	-6925797.64	-6925797.50	0.0499	0.0298
Earth	-23671-04-20 01:40 J	-6924300.65	-6924300.43	-6924300.20	0.0536	0.0130
Moon	-23671-04-20 05:31 J	-6924300.50	-6924300.27	-6924300.05	0.0536	0.0095 *
Venus	-23670-04-04 12:14 J	-6923951.18	-6923950.99	-6923950.80	0.0533	0.0173
Mercury	-23670-08-06 18:28 J	-6923826.78	-6923826.73	-6923826.67	0.0531	0.0464
Mercury	-23670-11-04 01:26 J	-6923737.57	-6923737.44	-6923737.32	0.0528	0.0121
Venus	-23670-11-27 21:07 J	-6923713.78	-6923713.62	-6923713.45	0.0528	0.0281
Venus	-23664-01-30 12:57 J	-6921823.12	-6921822.96	-6921822.80	0.0492	0.0312
Venus	-23664-09-24 01:26 J	-6921586.65	-6921586.44	-6921586.24	0.0496	0.0064
Mercury	-23664-12-31 18:28 J	-6921487.91	-6921487.73	-6921487.56	0.0498	0.0123
Venus	-23663-05-18 20:52 J	-6921349.71	-6921349.63	-6921349.54	0.0501	0.0450
Moon	-23659-04-25 00:28 J	-6919912.61	-6919912.48	-6919912.35	0.0536	0.0441

Earth	-23659-04-25 02:38 J	-6919912.51	-6919912.39	-6919912.26	0.0536	0.0445 *
Venus	-23659-12-08 05:31 J	-6919685.44	-6919685.27	-6919685.11	0.0534	0.0299
Venus	-23658-08-02 17:02 J	-6919447.97	-6919447.79	-6919447.60	0.0530	0.0162
Mercury	-23658-08-23 05:31 J	-6919427.40	-6919427.27	-6919427.14	0.0529	0.0024
Mars	-23658-10-03 11:59 J	-6919386.28	-6919386.00	-6919385.73	0.0528	0.0173
Venus	-23653-10-05 13:55 J	-6917557.03	-6917556.92	-6917556.81	0.0492	0.0409
Venus	-23652-05-29 23:59 J	-6917320.70	-6917320.50	-6917320.29	0.0495	0.0043
Mercury	-23652-10-19 16:04 J	-6917178.01	-6917177.83	-6917177.65	0.0498	0.0055
Venus	-23651-01-21 17:16 J	-6917083.93	-6917083.78	-6917083.63	0.0500	0.0344
Venus	-23647-08-12 22:47 J	-6915419.67	-6915419.55	-6915419.43	0.0535	0.0424
Venus	-23646-04-07 12:57 J	-6915182.16	-6915181.96	-6915181.76	0.0531	0.0038
Mercury	-23646-06-11 09:50 J	-6915117.21	-6915117.09	-6915116.96	0.0530	0.0159
Mercury	-23646-09-08 17:02 J	-6915027.87	-6915027.79	-6915027.72	0.0527	0.0428
Venus	-23646-11-30 17:59 J	-6914944.83	-6914944.75	-6914944.66	0.0525	0.0471
Venus	-23640-02-02 00:43 J	-6913054.67	-6913054.47	-6913054.28	0.0494	0.0146
Mercury	-23640-08-07 14:09 J	-6912868.07	-6912867.91	-6912867.74	0.0497	0.0225
Venus	-23640-09-26 16:04 J	-6912818.01	-6912817.83	-6912817.64	0.0498	0.0239
Mercury	-23640-11-05 21:07 J	-6912777.65	-6912777.62	-6912777.57	0.0499	0.0483
Venus	-23635-12-11 05:45 J	-6910916.46	-6910916.26	-6910916.06	0.0532	0.0090
Mercury	-23634-03-30 13:40 J	-6910807.03	-6910806.93	-6910806.82	0.0530	0.0306
Mercury	-23634-06-27 20:23 J	-6910717.75	-6910717.65	-6910717.54	0.0527	0.0277
Venus	-23634-08-05 12:43 J	-6910679.11	-6910678.97	-6910678.82	0.0526	0.0356
Moon	-23630-10-19 03:21 J	-6909143.58	-6909143.36	-6909143.14	0.0491	0.0134
Earth	-23630-10-19 04:47 J	-6909143.53	-6909143.30	-6909143.06	0.0491	0.0106 *
Venus	-23629-10-08 00:28 J	-6908788.66	-6908788.48	-6908788.30	0.0493	0.0248
Mercury	-23628-05-26 11:45 J	-6908558.11	-6908558.01	-6908557.90	0.0497	0.0402
Venus	-23628-06-01 14:23 J	-6908552.10	-6908551.90	-6908551.70	0.0497	0.0132
Mercury	-23628-08-24 19:26 J	-6908467.83	-6908467.69	-6908467.55	0.0499	0.0311
Venus	-23623-08-15 22:19 J	-6906650.75	-6906650.57	-6906650.38	0.0533	0.0219
Mercury	-23622-01-16 17:31 J	-6906496.83	-6906496.77	-6906496.70	0.0530	0.0452

Venus	-23622-04-10 07:55 J	-6906413.35	-6906413.17	-6906412.99	0.0528	0.0236
Mercury	-23622-04-16 00:14 J	-6906407.61	-6906407.49	-6906407.36	0.0528	0.0130
Mars	-23622-07-11 06:14 J	-6906321.47	-6906321.24	-6906321.00	0.0526	0.0290
Earth	-23618-10-23 16:33 J	-6904755.97	-6904755.81	-6904755.63	0.0491	0.0342
Moon	-23618-10-23 20:09 J	-6904755.83	-6904755.66	-6904755.49	0.0491	0.0346 *
Venus	-23617-06-13 01:11 J	-6904522.59	-6904522.45	-6904522.30	0.0492	0.0346
Venus	-23616-02-04 12:57 J	-6904286.17	-6904285.96	-6904285.75	0.0496	0.0027
Mercury	-23616-06-12 17:16 J	-6904157.96	-6904157.78	-6904157.61	0.0498	0.0134
Venus	-23616-09-29 07:55 J	-6904049.28	-6904049.17	-6904049.05	0.0501	0.0414
Venus	-23611-04-20 13:26 J	-6902385.09	-6902384.94	-6902384.79	0.0534	0.0346
Venus	-23611-12-14 01:40 J	-6902147.62	-6902147.43	-6902147.24	0.0530	0.0114
Mercury	-23610-02-02 04:04 J	-6902097.46	-6902097.33	-6902097.20	0.0529	0.0020
Venus	-23605-02-17 02:38 J	-6900256.47	-6900256.39	-6900256.29	0.0492	0.0441
Venus	-23605-10-10 12:28 J	-6900020.18	-6900019.98	-6900019.77	0.0494	0.0079
Mercury	-23604-03-31 14:52 J	-6899848.06	-6899847.88	-6899847.69	0.0498	0.0044
Mars	-23604-04-10 18:43 J	-6899837.91	-6899837.72	-6899837.51	0.0498	0.0318
Venus	-23604-06-04 05:02 J	-6899783.45	-6899783.29	-6899783.13	0.0499	0.0307
Venus	-23600-12-24 05:16 J	-6898119.37	-6898119.28	-6898119.18	0.0535	0.0471
Venus	-23599-08-18 20:09 J	-6897881.86	-6897881.66	-6897881.46	0.0532	0.0011
Mercury	-23599-11-21 08:23 J	-6897787.28	-6897787.15	-6897787.03	0.0530	0.0162
Mercury	-23598-02-18 15:21 J	-6897697.94	-6897697.86	-6897697.79	0.0527	0.0425
Venus	-23598-04-13 02:52 J	-6897644.50	-6897644.38	-6897644.27	0.0526	0.0428
Venus	-23593-06-15 11:45 J	-6895754.20	-6895754.01	-6895753.81	0.0493	0.0184
Mercury	-23592-01-17 12:28 J	-6895538.15	-6895537.98	-6895537.82	0.0497	0.0223
Venus	-23592-02-07 02:09 J	-6895517.60	-6895517.41	-6895517.22	0.0498	0.0199
Mercury	-23592-04-17 19:26 J	-6895447.73	-6895447.69	-6895447.65	0.0499	0.0484
Moon	-23588-04-19 06:28 J	-6893985.45	-6893985.23	-6893985.00	0.0536	0.0172
Earth	-23588-04-19 09:07 J	-6893985.33	-6893985.12	-6893984.91	0.0536	0.0202 *
Venus	-23587-04-23 14:52 J	-6893616.08	-6893615.88	-6893615.69	0.0533	0.0137
Mercury	-23587-09-09 12:43 J	-6893477.08	-6893476.97	-6893476.87	0.0530	0.0299

Mercury	-23587-12-07 19:26 J	-6893387.79	-6893387.69	-6893387.58	0.0528	0.0286
Venus	-23587-12-16 23:31 J	-6893378.67	-6893378.52	-6893378.36	0.0528	0.0314
Venus	-23581-02-19 12:57 J	-6891488.13	-6891487.96	-6891487.79	0.0493	0.0283
Venus	-23581-10-13 01:26 J	-6891251.64	-6891251.44	-6891251.23	0.0496	0.0094
Mercury	-23581-11-05 10:19 J	-6891228.18	-6891228.07	-6891227.96	0.0497	0.0395
Mercury	-23580-02-03 17:45 J	-6891137.90	-6891137.76	-6891137.62	0.0499	0.0316
Venus	-23580-06-06 21:21 J	-6891014.66	-6891014.61	-6891014.54	0.0502	0.0479
Earth	-23576-04-24 10:47 J	-6889597.20	-6889597.05	-6889596.88	0.0535	0.0377
Moon	-23576-04-24 11:16 J	-6889597.19	-6889597.03	-6889596.87	0.0535	0.0365 *
Venus	-23576-12-27 07:26 J	-6889350.37	-6889350.19	-6889350.02	0.0533	0.0264
Mercury	-23575-06-28 16:33 J	-6889166.88	-6889166.81	-6889166.74	0.0530	0.0444
Venus	-23575-08-21 17:45 J	-6889112.94	-6889112.76	-6889112.57	0.0529	0.0193
Mercury	-23575-09-25 23:16 J	-6889077.66	-6889077.53	-6889077.41	0.0528	0.0137
Venus	-23570-10-25 12:43 J	-6887222.09	-6887221.97	-6887221.83	0.0492	0.0382
Venus	-23569-06-17 23:59 J	-6886985.71	-6886985.50	-6886985.29	0.0496	0.0012
Mercury	-23569-11-22 15:35 J	-6886828.02	-6886827.85	-6886827.68	0.0499	0.0141
Mars	-23568-01-13 02:23 J	-6886776.66	-6886776.40	-6886776.14	0.0500	0.0002
Venus	-23568-02-09 18:14 J	-6886748.87	-6886748.74	-6886748.60	0.0501	0.0375
Venus	-23564-08-31 23:16 J	-6885084.67	-6885084.53	-6885084.40	0.0534	0.0390
Venus	-23563-04-26 11:59 J	-6884847.20	-6884847.00	-6884846.81	0.0530	0.0069
Mercury	-23563-07-15 03:07 J	-6884767.50	-6884767.37	-6884767.24	0.0528	0.0018
Venus	-23563-12-19 16:04 J	-6884609.89	-6884609.83	-6884609.77	0.0524	0.0495
Venus	-23558-06-30 13:55 J	-6882955.96	-6882955.92	-6882955.86	0.0492	0.0475
Venus	-23557-02-21 23:31 J	-6882719.72	-6882719.52	-6882719.32	0.0494	0.0116
Mercury	-23557-09-10 13:11 J	-6882518.13	-6882517.95	-6882517.77	0.0498	0.0038
Venus	-23557-10-15 15:35 J	-6882483.03	-6882482.85	-6882482.68	0.0499	0.0269
Venus	-23552-05-06 12:28 J	-6880819.02	-6880818.98	-6880818.92	0.0535	0.0516
Venus	-23552-12-30 03:50 J	-6880581.53	-6880581.34	-6880581.14	0.0532	0.0061
Mercury	-23551-05-03 06:43 J	-6880457.34	-6880457.22	-6880457.10	0.0529	0.0162
Mercury	-23551-07-31 13:40 J	-6880368.01	-6880367.93	-6880367.86	0.0527	0.0423

Venus	-23551-08-24 11:02 J	-6880344.17	-6880344.04	-6880343.90	0.0526	0.0384
Earth	-23547-10-18 12:14 J	-6878828.21	-6878827.99	-6878827.76	0.0491	0.0166
Moon	-23547-10-18 15:35 J	-6878828.07	-6878827.85	-6878827.62	0.0491	0.0191 *
Venus	-23546-10-27 23:45 J	-6878453.69	-6878453.51	-6878453.32	0.0493	0.0218
Venus	-23545-06-20 13:26 J	-6878217.14	-6878216.94	-6878216.74	0.0497	0.0162
Mercury	-23545-06-29 10:47 J	-6878208.21	-6878208.05	-6878207.88	0.0497	0.0215
Mercury	-23545-09-27 17:59 J	-6878117.78	-6878117.75	-6878117.72	0.0499	0.0492
Venus	-23540-09-03 21:07 J	-6876315.81	-6876315.62	-6876315.43	0.0533	0.0187
Mercury	-23539-02-19 10:47 J	-6876147.15	-6876147.05	-6876146.95	0.0530	0.0305
Venus	-23539-04-29 06:57 J	-6876078.38	-6876078.21	-6876078.03	0.0528	0.0268
Mercury	-23539-05-19 17:45 J	-6876057.87	-6876057.76	-6876057.65	0.0528	0.0280
Moon	-23535-10-22 19:11 J	-6874440.88	-6874440.70	-6874440.50	0.0491	0.0285
Earth	-23535-10-22 23:31 J	-6874440.72	-6874440.52	-6874440.33	0.0491	0.0278 *
Venus	-23534-07-02 23:59 J	-6874187.66	-6874187.50	-6874187.34	0.0492	0.0319
Venus	-23533-02-24 11:31 J	-6873951.23	-6873951.02	-6873950.82	0.0496	0.0055
Mercury	-23533-04-17 07:55 J	-6873898.27	-6873898.17	-6873898.05	0.0497	0.0397
Mercury	-23533-07-16 15:35 J	-6873807.99	-6873807.85	-6873807.71	0.0499	0.0314
Mars	-23533-10-17 09:07 J	-6873715.32	-6873715.12	-6873714.92	0.0501	0.0321
Venus	-23533-10-18 06:14 J	-6873714.33	-6873714.24	-6873714.14	0.0501	0.0439
Venus	-23528-05-09 14:23 J	-6872050.06	-6872049.90	-6872049.74	0.0534	0.0313
Mercury	-23528-12-08 15:07 J	-6871836.94	-6871836.87	-6871836.80	0.0531	0.0443
Venus	-23527-01-02 02:38 J	-6871812.58	-6871812.39	-6871812.20	0.0530	0.0147
Mercury	-23527-03-07 21:50 J	-6871747.71	-6871747.59	-6871747.47	0.0528	0.0140
Venus	-23522-03-08 01:26 J	-6869921.55	-6869921.44	-6869921.33	0.0492	0.0414
Venus	-23522-10-30 11:16 J	-6869685.24	-6869685.03	-6869684.83	0.0495	0.0051
Mercury	-23521-05-04 13:40 J	-6869498.10	-6869497.93	-6869497.76	0.0498	0.0142
Venus	-23521-06-23 03:50 J	-6869448.49	-6869448.34	-6869448.18	0.0500	0.0335
Venus	-23516-01-12 06:43 J	-6867784.33	-6867784.22	-6867784.10	0.0535	0.0437
Venus	-23516-09-06 20:38 J	-6867546.84	-6867546.64	-6867546.44	0.0531	0.0023
Mercury	-23516-12-25 01:40 J	-6867437.56	-6867437.43	-6867437.30	0.0528	0.0010

Venus	-23515-05-02 02:09 J	-6867309.51	-6867309.41	-6867309.31	0.0525	0.0455
Venus	-23510-07-05 09:50 J	-6865419.29	-6865419.09	-6865418.89	0.0494	0.0155
Mercury	-23509-02-21 11:02 J	-6865188.22	-6865188.04	-6865187.85	0.0498	0.0039
Venus	-23509-02-27 01:11 J	-6865182.64	-6865182.45	-6865182.27	0.0498	0.0228
Earth	-23505-04-18 13:40 J	-6863670.12	-6863669.93	-6863669.73	0.0535	0.0288
Moon	-23505-04-18 14:23 J	-6863670.08	-6863669.90	-6863669.70	0.0535	0.0262 *
Venus	-23504-05-12 13:40 J	-6863281.13	-6863280.93	-6863280.74	0.0532	0.0106
Mercury	-23504-10-13 05:31 J	-6863127.39	-6863127.27	-6863127.15	0.0529	0.0155
Mars	-23504-12-27 16:04 J	-6863052.12	-6863051.83	-6863051.54	0.0527	0.0061
Venus	-23503-01-04 21:07 J	-6863043.76	-6863043.62	-6863043.46	0.0527	0.0341
Mercury	-23503-01-10 12:28 J	-6863038.05	-6863037.98	-6863037.91	0.0526	0.0428
Venus	-23498-03-10 10:04 J	-6861153.25	-6861153.08	-6861152.90	0.0493	0.0255
Venus	-23498-11-01 23:16 J	-6860916.73	-6860916.53	-6860916.33	0.0497	0.0123
Mercury	-23498-12-10 08:38 J	-6860878.30	-6860878.14	-6860877.97	0.0498	0.0217
Mercury	-23497-03-09 15:50 J	-6860787.86	-6860787.84	-6860787.81	0.0500	0.0492
Earth	-23493-04-23 09:21 J	-6859282.31	-6859282.11	-6859281.91	0.0535	0.0259
Moon	-23493-04-23 10:33 J	-6859282.27	-6859282.06	-6859281.85	0.0535	0.0242 *
Venus	-23492-01-15 04:19 J	-6859015.50	-6859015.32	-6859015.15	0.0533	0.0236
Mercury	-23492-08-01 09:07 J	-6858817.22	-6858817.12	-6858817.02	0.0530	0.0308
Venus	-23492-09-09 14:38 J	-6858778.06	-6858777.89	-6858777.70	0.0529	0.0221
Mercury	-23492-10-29 15:50 J	-6858727.95	-6858727.84	-6858727.73	0.0528	0.0275
Venus	-23487-11-13 11:16 J	-6856887.17	-6856887.03	-6856886.89	0.0492	0.0353
Venus	-23486-07-07 22:04 J	-6856650.78	-6856650.58	-6856650.37	0.0495	0.0019
Mercury	-23486-09-28 05:59 J	-6856568.35	-6856568.25	-6856568.13	0.0497	0.0395
Mercury	-23486-12-27 13:40 J	-6856478.06	-6856477.93	-6856477.79	0.0499	0.0317
Venus	-23485-02-29 16:04 J	-6856413.95	-6856413.83	-6856413.70	0.0500	0.0401
Venus	-23481-09-19 19:55 J	-6854749.81	-6854749.67	-6854749.52	0.0534	0.0362
Venus	-23480-05-15 09:07 J	-6854512.31	-6854512.12	-6854511.92	0.0531	0.0098
Mercury	-23480-05-20 13:11 J	-6854507.02	-6854506.95	-6854506.89	0.0530	0.0452
Mercury	-23480-08-17 19:55 J	-6854417.80	-6854417.67	-6854417.55	0.0528	0.0130

Venus	-23479-01-07 13:40 J	-6854274.93	-6854274.93	-6854274.91	0.0524	0.0523
Venus	-23475-07-19 11:59 J	-6852621.08	-6852621.00	-6852620.91	0.0491	0.0449
Venus	-23474-03-12 20:52 J	-6852384.83	-6852384.63	-6852384.42	0.0494	0.0090
Mercury	-23474-10-15 11:02 J	-6852168.21	-6852168.04	-6852167.86	0.0498	0.0136
Venus	-23474-11-04 12:43 J	-6852148.14	-6852147.97	-6852147.80	0.0499	0.0294
Venus	-23469-05-25 11:59 J	-6850484.08	-6850484.00	-6850483.91	0.0535	0.0486
Venus	-23468-01-18 03:35 J	-6850246.55	-6850246.35	-6850246.15	0.0532	0.0028
Mercury	-23468-06-05 23:59 J	-6850107.63	-6850107.50	-6850107.37	0.0529	0.0015
Venus	-23468-09-12 10:47 J	-6850009.17	-6850009.05	-6850008.93	0.0526	0.0413
Mars	-23468-10-04 08:52 J	-6849987.31	-6849987.13	-6849986.93	0.0526	0.0392
Moon	-23464-10-17 12:14 J	-6848513.18	-6848512.99	-6848512.78	0.0491	0.0268
Earth	-23464-10-17 16:19 J	-6848513.02	-6848512.82	-6848512.61	0.0491	0.0240 *
Venus	-23463-11-15 21:07 J	-6848118.81	-6848118.62	-6848118.43	0.0493	0.0192
Venus	-23462-07-10 10:47 J	-6847882.24	-6847882.05	-6847881.86	0.0497	0.0188
Mercury	-23462-08-03 08:52 J	-6847858.31	-6847858.13	-6847857.95	0.0498	0.0039
Venus	-23457-09-22 21:21 J	-6845980.81	-6845980.61	-6845980.42	0.0533	0.0154
Mercury	-23456-03-25 04:04 J	-6845797.45	-6845797.33	-6845797.21	0.0529	0.0155
Venus	-23456-05-18 06:14 J	-6845743.40	-6845743.24	-6845743.08	0.0528	0.0297
Mercury	-23456-06-22 11:02 J	-6845708.12	-6845708.04	-6845707.97	0.0527	0.0429
Earth	-23452-10-21 23:59 J	-6844125.72	-6844125.50	-6844125.28	0.0491	0.0187
Moon	-23452-10-22 03:50 J	-6844125.55	-6844125.34	-6844125.12	0.0491	0.0200 *
Venus	-23451-07-21 20:09 J	-6843852.83	-6843852.66	-6843852.49	0.0493	0.0293
Venus	-23450-03-15 08:23 J	-6843616.35	-6843616.15	-6843615.94	0.0496	0.0081
Mercury	-23450-05-22 05:59 J	-6843548.41	-6843548.25	-6843548.08	0.0498	0.0223
Mars	-23450-07-05 11:31 J	-6843504.25	-6843504.02	-6843503.79	0.0499	0.0249
Mercury	-23450-08-20 13:26 J	-6843457.97	-6843457.94	-6843457.90	0.0500	0.0488
Venus	-23450-11-07 04:04 J	-6843379.40	-6843379.33	-6843379.25	0.0502	0.0466
Venus	-23445-05-28 13:11 J	-6841715.12	-6841714.95	-6841714.78	0.0534	0.0281
Mercury	-23444-01-11 07:55 J	-6841487.27	-6841487.17	-6841487.06	0.0529	0.0302
Venus	-23444-01-21 00:14 J	-6841477.67	-6841477.49	-6841477.30	0.0529	0.0176



Mercury	-23444-04-10 14:38 J	-6841398.00	-6841397.89	-6841397.78	0.0527	0.0280
Venus	-23439-03-26 21:07 J	-6839586.74	-6839586.62	-6839586.49	0.0492	0.0389
Venus	-23439-11-18 07:26 J	-6839350.40	-6839350.19	-6839349.98	0.0495	0.0024
Mercury	-23438-03-10 03:21 J	-6839238.46	-6839238.36	-6839238.25	0.0497	0.0403
Mercury	-23438-06-08 11:16 J	-6839148.17	-6839148.03	-6839147.89	0.0499	0.0311
Venus	-23438-07-13 00:43 J	-6839113.61	-6839113.47	-6839113.33	0.0500	0.0362
Venus	-23433-02-01 02:23 J	-6837449.53	-6837449.40	-6837449.27	0.0535	0.0410
Venus	-23433-09-25 16:19 J	-6837212.02	-6837211.82	-6837211.62	0.0531	0.0049
Mercury	-23433-10-30 11:16 J	-6837177.09	-6837177.03	-6837176.96	0.0530	0.0458
Mercury	-23432-01-27 17:59 J	-6837087.87	-6837087.75	-6837087.62	0.0528	0.0124
Venus	-23432-05-20 21:50 J	-6836974.67	-6836974.59	-6836974.51	0.0525	0.0480
Venus	-23428-11-29 22:47 J	-6835320.58	-6835320.55	-6835320.51	0.0492	0.0483
Venus	-23427-07-24 07:26 J	-6835084.39	-6835084.19	-6835083.99	0.0494	0.0127
Venus	-23426-03-17 22:19 J	-6834847.75	-6834847.57	-6834847.39	0.0498	0.0255
Mercury	-23426-03-27 08:52 J	-6834838.30	-6834838.13	-6834837.95	0.0498	0.0135
Earth	-23422-04-18 08:38 J	-6833355.27	-6833355.14	-6833354.99	0.0535	0.0420
Moon	-23422-04-18 09:21 J	-6833355.27	-6833355.11	-6833354.95	0.0535	0.0392 *
Venus	-23422-10-06 16:47 J	-6833183.81	-6833183.80	-6833183.78	0.0535	0.0534
Venus	-23421-05-31 09:07 J	-6832946.32	-6832946.12	-6832945.92	0.0532	0.0079
Mercury	-23421-11-15 21:50 J	-6832777.72	-6832777.59	-6832777.46	0.0529	0.0025
Venus	-23420-01-23 17:16 J	-6832708.92	-6832708.78	-6832708.63	0.0527	0.0367
Venus	-23415-03-29 06:57 J	-6830818.39	-6830818.21	-6830818.02	0.0493	0.0230
Venus	-23415-11-20 19:40 J	-6830581.88	-6830581.68	-6830581.48	0.0496	0.0147
Mercury	-23414-01-13 06:14 J	-6830528.42	-6830528.24	-6830528.06	0.0498	0.0049
Mars	-23414-04-08 13:26 J	-6830443.20	-6830442.94	-6830442.68	0.0500	0.0062
Moon	-23410-04-23 06:57 J	-6828967.42	-6828967.21	-6828966.99	0.0536	0.0131
Earth	-23410-04-23 09:07 J	-6828967.34	-6828967.12	-6828966.90	0.0536	0.0149 *
Venus	-23409-02-04 02:23 J	-6828680.58	-6828680.40	-6828680.21	0.0534	0.0206
Mercury	-23409-09-04 02:09 J	-6828467.54	-6828467.41	-6828467.29	0.0530	0.0164
Venus	-23409-09-28 13:11 J	-6828443.12	-6828442.95	-6828442.77	0.0529	0.0250

Mercury	-23409-12-02 08:52 J	-6828378.20	-6828378.13	-6828378.05	0.0527	0.0422
Venus	-23404-12-02 07:26 J	-6826552.34	-6826552.19	-6826552.03	0.0492	0.0329
Venus	-23403-07-26 18:28 J	-6826315.94	-6826315.73	-6826315.52	0.0495	0.0042
Mercury	-23403-11-01 03:50 J	-6826218.51	-6826218.34	-6826218.18	0.0497	0.0225
Mercury	-23402-01-30 10:47 J	-6826128.08	-6826128.05	-6826128.00	0.0499	0.0484
Venus	-23402-03-20 12:28 J	-6826079.08	-6826078.98	-6826078.87	0.0501	0.0424
Venus	-23398-10-09 19:26 J	-6824414.84	-6824414.69	-6824414.53	0.0534	0.0330
Venus	-23397-06-03 08:09 J	-6824177.36	-6824177.16	-6824176.97	0.0530	0.0129
Mercury	-23397-06-23 06:14 J	-6824157.34	-6824157.24	-6824157.14	0.0530	0.0306
Mercury	-23397-09-20 12:57 J	-6824068.07	-6824067.96	-6824067.85	0.0527	0.0276
Venus	-23392-08-07 06:57 J	-6822286.31	-6822286.21	-6822286.11	0.0492	0.0425
Venus	-23391-03-31 16:33 J	-6822050.02	-6822049.81	-6822049.61	0.0495	0.0064
Mercury	-23391-08-20 00:28 J	-6821908.57	-6821908.48	-6821908.37	0.0497	0.0412
Mercury	-23391-11-18 08:23 J	-6821818.29	-6821818.15	-6821818.01	0.0499	0.0302
Venus	-23391-11-23 08:52 J	-6821813.29	-6821813.13	-6821812.97	0.0499	0.0320
Venus	-23386-06-14 10:47 J	-6820149.16	-6820149.05	-6820148.95	0.0535	0.0455
Venus	-23385-02-07 01:26 J	-6819911.64	-6819911.44	-6819911.24	0.0531	0.0004
Mercury	-23385-04-11 10:04 J	-6819847.14	-6819847.08	-6819847.01	0.0530	0.0452
Mars	-23385-06-14 06:43 J	-6819783.36	-6819783.22	-6819783.06	0.0528	0.0446
Mercury	-23385-07-09 16:47 J	-6819757.93	-6819757.80	-6819757.68	0.0528	0.0129
Venus	-23385-10-01 07:40 J	-6819674.29	-6819674.18	-6819674.07	0.0526	0.0438
Earth	-23381-10-16 15:07 J	-6818198.04	-6818197.87	-6818197.70	0.0491	0.0339
Moon	-23381-10-16 18:57 J	-6818197.86	-6818197.71	-6818197.55	0.0491	0.0363 *
Venus	-23380-12-04 16:19 J	-6817784.01	-6817783.82	-6817783.62	0.0494	0.0166
Venus	-23379-07-29 06:28 J	-6817547.41	-6817547.23	-6817547.04	0.0498	0.0215
Mercury	-23379-09-06 05:59 J	-6817508.42	-6817508.25	-6817508.07	0.0498	0.0126
Mars	-23378-01-10 20:38 J	-6817381.80	-6817381.64	-6817381.46	0.0501	0.0380
Venus	-23374-10-12 15:35 J	-6815646.04	-6815645.85	-6815645.65	0.0533	0.0129
Mercury	-23373-04-27 19:55 J	-6815447.79	-6815447.67	-6815447.54	0.0529	0.0033
Venus	-23373-06-06 00:43 J	-6815408.63	-6815408.47	-6815408.31	0.0528	0.0321

Moon	-23369-10-20 23:59 J	-6813810.73	-6813810.50	-6813810.26	0.0491	0.0120
Earth	-23369-10-21 03:35 J	-6813810.59	-6813810.35	-6813810.12	0.0491	0.0110 *
Venus	-23368-08-09 17:16 J	-6813517.95	-6813517.78	-6813517.61	0.0493	0.0266
Venus	-23367-04-03 05:16 J	-6813281.48	-6813281.28	-6813281.07	0.0496	0.0109
Mercury	-23367-06-25 03:50 J	-6813198.52	-6813198.34	-6813198.16	0.0498	0.0051
Venus	-23367-11-26 00:28 J	-6813044.51	-6813044.48	-6813044.43	0.0501	0.0491
Venus	-23362-06-17 07:11 J	-6811380.37	-6811380.20	-6811380.02	0.0534	0.0257
Venus	-23361-02-09 18:57 J	-6811142.89	-6811142.71	-6811142.52	0.0530	0.0201
Mercury	-23361-02-14 23:59 J	-6811137.63	-6811137.50	-6811137.38	0.0529	0.0178
Mercury	-23361-05-14 06:43 J	-6811048.30	-6811048.22	-6811048.14	0.0527	0.0408
Venus	-23356-04-14 17:45 J	-6809251.90	-6809251.76	-6809251.63	0.0492	0.0365
Venus	-23356-12-07 03:35 J	-6809015.56	-6809015.35	-6809015.14	0.0495	0.0006
Mercury	-23355-04-13 00:57 J	-6808888.62	-6808888.46	-6808888.30	0.0497	0.0235
Mercury	-23355-07-12 08:09 J	-6808798.21	-6808798.16	-6808798.10	0.0499	0.0473
Venus	-23355-07-31 20:09 J	-6808778.78	-6808778.66	-6808778.52	0.0500	0.0385
Venus	-23350-02-19 23:16 J	-6807114.66	-6807114.53	-6807114.39	0.0535	0.0383
Venus	-23350-10-15 13:40 J	-6806877.13	-6806876.93	-6806876.73	0.0531	0.0077
Mercury	-23350-12-04 04:04 J	-6806827.43	-6806827.33	-6806827.23	0.0530	0.0318
Mercury	-23349-03-02 10:47 J	-6806738.16	-6806738.05	-6806737.94	0.0528	0.0266
Mars	-23349-03-21 22:47 J	-6806718.84	-6806718.55	-6806718.26	0.0527	0.0011
Venus	-23349-06-08 19:11 J	-6806639.74	-6806639.70	-6806639.64	0.0525	0.0505
Venus	-23345-12-18 18:28 J	-6804985.79	-6804985.73	-6804985.65	0.0491	0.0460
Venus	-23344-08-12 03:07 J	-6804749.58	-6804749.37	-6804749.17	0.0494	0.0103
Mercury	-23343-01-29 22:04 J	-6804578.67	-6804578.58	-6804578.47	0.0497	0.0415
Venus	-23343-04-05 17:45 J	-6804512.93	-6804512.76	-6804512.58	0.0498	0.0279
Mercury	-23343-04-30 05:59 J	-6804488.39	-6804488.25	-6804488.11	0.0499	0.0297
Moon	-23339-04-17 08:23 J	-6803040.23	-6803040.15	-6803040.07	0.0536	0.0499
Earth	-23339-04-17 10:04 J	-6803040.12	-6803040.08	-6803040.03	0.0536	0.0522 *
Venus	-23339-10-25 15:50 J	-6802848.91	-6802848.84	-6802848.78	0.0535	0.0503
Venus	-23338-06-20 07:55 J	-6802611.37	-6802611.17	-6802610.97	0.0532	0.0047

Mercury	-23338-09-22 08:23 J	-6802517.21	-6802517.15	-6802517.09	0.0530	0.0458
Mercury	-23338-12-20 14:52 J	-6802428.00	-6802427.88	-6802427.75	0.0528	0.0123
Venus	-23337-02-12 15:35 J	-6802373.98	-6802373.85	-6802373.72	0.0527	0.0395
Venus	-23332-04-17 01:26 J	-6800483.62	-6800483.44	-6800483.24	0.0493	0.0207
Venus	-23332-12-09 14:38 J	-6800247.08	-6800246.89	-6800246.69	0.0497	0.0173
Mercury	-23331-02-16 03:07 J	-6800178.54	-6800178.37	-6800178.19	0.0499	0.0114
Earth	-23327-04-22 10:19 J	-6798652.29	-6798652.07	-6798651.84	0.0535	0.0048
Moon	-23327-04-22 13:40 J	-6798652.16	-6798651.93	-6798651.70	0.0535	0.0025 *
Venus	-23326-02-23 00:28 J	-6798345.67	-6798345.48	-6798345.29	0.0533	0.0175
Mercury	-23326-10-08 18:43 J	-6798117.85	-6798117.72	-6798117.59	0.0528	0.0027
Venus	-23326-10-18 10:19 J	-6798108.23	-6798108.07	-6798107.90	0.0528	0.0278
Venus	-23321-12-21 02:09 J	-6796217.57	-6796217.41	-6796217.24	0.0492	0.0305
Venus	-23320-08-14 13:40 J	-6795981.14	-6795980.93	-6795980.72	0.0496	0.0068
Mercury	-23320-12-05 00:43 J	-6795868.65	-6795868.47	-6795868.28	0.0498	0.0065
Venus	-23319-04-08 08:09 J	-6795744.25	-6795744.16	-6795744.07	0.0501	0.0451
Venus	-23315-10-28 13:11 J	-6794080.10	-6794079.95	-6794079.78	0.0534	0.0307
Venus	-23314-06-23 01:55 J	-6793842.61	-6793842.42	-6793842.23	0.0530	0.0152
Mercury	-23314-07-27 22:04 J	-6793807.70	-6793807.58	-6793807.46	0.0529	0.0184
Mercury	-23314-10-25 04:47 J	-6793718.38	-6793718.30	-6793718.21	0.0527	0.0400
Mars	-23314-12-28 06:43 J	-6793654.37	-6793654.22	-6793654.06	0.0525	0.0443
Venus	-23309-08-26 04:04 J	-6791951.45	-6791951.33	-6791951.21	0.0492	0.0400
Venus	-23308-04-19 13:26 J	-6791715.14	-6791714.94	-6791714.73	0.0494	0.0038
Mercury	-23308-09-22 22:33 J	-6791558.72	-6791558.56	-6791558.40	0.0497	0.0239
Venus	-23308-12-12 05:31 J	-6791478.42	-6791478.27	-6791478.12	0.0499	0.0346
Mercury	-23308-12-22 05:59 J	-6791468.31	-6791468.25	-6791468.19	0.0499	0.0470
Venus	-23303-07-03 03:50 J	-6789814.45	-6789814.34	-6789814.22	0.0535	0.0433
Venus	-23302-02-25 18:57 J	-6789576.91	-6789576.71	-6789576.51	0.0532	0.0027
Mercury	-23302-05-16 01:55 J	-6789497.52	-6789497.42	-6789497.32	0.0530	0.0332
Mercury	-23302-08-13 08:38 J	-6789408.25	-6789408.14	-6789408.03	0.0528	0.0252
Venus	-23302-10-21 01:40 J	-6789339.52	-6789339.43	-6789339.33	0.0526	0.0461

Moon	-23298-10-16 14:38 J	-6787882.99	-6787882.89	-6787882.78	0.0491	0.0439
Earth	-23298-10-16 18:14 J	-6787882.86	-6787882.74	-6787882.61	0.0491	0.0414 *
Venus	-23297-12-23 12:43 J	-6787449.17	-6787448.97	-6787448.77	0.0493	0.0142
Mercury	-23296-07-11 19:26 J	-6787248.78	-6787248.69	-6787248.59	0.0497	0.0423
Venus	-23296-08-17 02:23 J	-6787212.58	-6787212.40	-6787212.22	0.0497	0.0239
Mars	-23296-09-27 17:59 J	-6787170.99	-6787170.75	-6787170.51	0.0498	0.0197
Mercury	-23296-10-10 03:07 J	-6787158.51	-6787158.37	-6787158.22	0.0498	0.0289
Venus	-23291-10-31 12:14 J	-6785311.18	-6785310.99	-6785310.79	0.0533	0.0102
Mercury	-23290-03-04 05:59 J	-6785187.30	-6785187.25	-6785187.19	0.0531	0.0473
Mercury	-23290-06-01 12:43 J	-6785098.10	-6785097.97	-6785097.85	0.0529	0.0109
Venus	-23290-06-25 21:35 J	-6785073.74	-6785073.60	-6785073.44	0.0528	0.0348
Earth	-23286-10-21 05:02 J	-6783495.53	-6783495.29	-6783495.06	0.0491	0.0027
Moon	-23286-10-21 06:43 J	-6783495.45	-6783495.22	-6783494.99	0.0491	0.0042 *
Venus	-23285-08-28 12:57 J	-6783183.14	-6783182.96	-6783182.78	0.0492	0.0243
Venus	-23284-04-22 00:43 J	-6782946.67	-6782946.47	-6782946.27	0.0496	0.0132
Mercury	-23284-07-29 00:43 J	-6782848.64	-6782848.47	-6782848.29	0.0498	0.0112
Venus	-23279-07-06 05:45 J	-6781045.43	-6781045.26	-6781045.07	0.0534	0.0226
Venus	-23278-02-28 17:31 J	-6780807.95	-6780807.77	-6780807.59	0.0529	0.0231
Mercury	-23278-03-20 16:47 J	-6780787.92	-6780787.80	-6780787.67	0.0529	0.0036
Earth	-23274-10-25 12:43 J	-6779108.05	-6779107.97	-6779107.87	0.0491	0.0454
Moon	-23274-10-25 12:57 J	-6779108.01	-6779107.96	-6779107.89	0.0491	0.0475 *
Venus	-23273-05-03 11:59 J	-6778917.14	-6778917.00	-6778916.85	0.0492	0.0342
Venus	-23273-12-25 22:19 J	-6778680.78	-6778680.57	-6778680.36	0.0495	0.0026
Mercury	-23272-05-16 21:50 J	-6778538.77	-6778538.59	-6778538.41	0.0498	0.0074
Venus	-23272-08-19 15:35 J	-6778443.96	-6778443.85	-6778443.72	0.0500	0.0409
Venus	-23267-03-10 21:50 J	-6776779.74	-6776779.59	-6776779.44	0.0535	0.0352
Venus	-23267-11-03 11:31 J	-6776542.21	-6776542.02	-6776541.82	0.0531	0.0107
Mercury	-23266-01-06 20:52 J	-6776477.75	-6776477.63	-6776477.51	0.0529	0.0177
Mercury	-23266-04-06 03:35 J	-6776388.43	-6776388.35	-6776388.27	0.0527	0.0406
Venus	-23261-01-07 13:26 J	-6774651.03	-6774650.94	-6774650.84	0.0492	0.0436

Venus	-23261-08-30 22:19 J	-6774414.77	-6774414.57	-6774414.36	0.0494	0.0077
Mercury	-23260-03-04 19:26 J	-6774228.84	-6774228.69	-6774228.53	0.0497	0.0251
Venus	-23260-04-24 13:40 J	-6774178.10	-6774177.93	-6774177.77	0.0498	0.0305
Mercury	-23260-06-03 02:52 J	-6774138.44	-6774138.38	-6774138.31	0.0499	0.0459
Mars	-23260-07-01 20:23 J	-6774109.91	-6774109.65	-6774109.40	0.0500	0.0110
Venus	-23256-11-13 09:50 J	-6772514.17	-6772514.09	-6772514.00	0.0535	0.0481
Venus	-23255-07-09 01:40 J	-6772276.63	-6772276.43	-6772276.23	0.0532	0.0025
Mercury	-23255-10-25 23:59 J	-6772167.59	-6772167.50	-6772167.40	0.0530	0.0337
Mercury	-23254-01-23 06:43 J	-6772078.33	-6772078.22	-6772078.10	0.0528	0.0246
Venus	-23254-03-03 09:35 J	-6772039.22	-6772039.10	-6772038.98	0.0527	0.0418
Venus	-23249-05-05 23:02 J	-6770148.73	-6770148.54	-6770148.34	0.0493	0.0179
Mercury	-23249-12-21 17:16 J	-6769918.87	-6769918.78	-6769918.69	0.0497	0.0425
Venus	-23249-12-28 12:14 J	-6769912.18	-6769911.99	-6769911.80	0.0497	0.0200
Mercury	-23248-03-22 00:57 J	-6769828.60	-6769828.46	-6769828.31	0.0499	0.0288
Moon	-23244-04-20 23:16 J	-6768337.75	-6768337.53	-6768337.31	0.0535	0.0122
Earth	-23244-04-21 02:52 J	-6768337.60	-6768337.38	-6768337.15	0.0535	0.0096 *
Venus	-23243-03-13 17:45 J	-6768010.95	-6768010.76	-6768010.57	0.0533	0.0152
Mercury	-23243-08-14 03:50 J	-6767857.38	-6767857.34	-6767857.29	0.0531	0.0484
Venus	-23243-11-06 04:04 J	-6767773.49	-6767773.33	-6767773.16	0.0529	0.0300
Mercury	-23243-11-11 10:33 J	-6767768.19	-6767768.06	-6767767.93	0.0529	0.0097
Venus	-23237-01-09 23:16 J	-6765882.70	-6765882.53	-6765882.36	0.0492	0.0279
Venus	-23237-09-02 10:19 J	-6765646.28	-6765646.07	-6765645.87	0.0495	0.0093
Mercury	-23236-01-07 22:19 J	-6765518.75	-6765518.57	-6765518.39	0.0498	0.0105
Venus	-23236-04-27 04:19 J	-6765409.38	-6765409.32	-6765409.25	0.0500	0.0473
Earth	-23232-04-26 01:55 J	-6763949.52	-6763949.42	-6763949.30	0.0536	0.0466
Moon	-23232-04-26 05:16 J	-6763949.40	-6763949.28	-6763949.16	0.0536	0.0450 *
Venus	-23232-11-16 09:50 J	-6763745.26	-6763745.09	-6763744.92	0.0535	0.0280
Venus	-23231-07-11 22:47 J	-6763507.73	-6763507.55	-6763507.36	0.0530	0.0180
Mercury	-23231-08-30 14:38 J	-6763458.02	-6763457.89	-6763457.76	0.0529	0.0046
Mars	-23231-09-07 04:19 J	-6763450.52	-6763450.32	-6763450.12	0.0529	0.0388

Venus	-23226-09-15 00:14 J	-6761616.62	-6761616.49	-6761616.36	0.0492	0.0377
Venus	-23225-05-08 09:21 J	-6761380.32	-6761380.11	-6761379.90	0.0494	0.0013
Mercury	-23225-10-26 19:55 J	-6761208.85	-6761208.67	-6761208.49	0.0497	0.0074
Venus	-23225-12-31 01:11 J	-6761143.58	-6761143.45	-6761143.31	0.0499	0.0369
Mars	-23224-04-05 02:09 J	-6761048.53	-6761048.41	-6761048.27	0.0501	0.0434
Venus	-23220-07-22 02:38 J	-6759479.52	-6759479.39	-6759479.26	0.0535	0.0403
Venus	-23219-03-16 17:59 J	-6759241.95	-6759241.75	-6759241.55	0.0532	0.0058
Mercury	-23219-06-18 18:57 J	-6759147.83	-6759147.71	-6759147.59	0.0530	0.0185
Mercury	-23219-09-16 01:40 J	-6759058.51	-6759058.43	-6759058.34	0.0527	0.0400
Venus	-23219-11-09 00:43 J	-6759004.54	-6759004.47	-6759004.40	0.0526	0.0489
Venus	-23214-05-21 00:14 J	-6757350.54	-6757350.49	-6757350.43	0.0491	0.0471
Venus	-23213-01-12 07:55 J	-6757114.37	-6757114.17	-6757113.97	0.0493	0.0117
Mercury	-23213-08-14 16:47 J	-6756898.96	-6756898.80	-6756898.64	0.0497	0.0259
Venus	-23213-09-04 22:04 J	-6756877.75	-6756877.58	-6756877.40	0.0498	0.0264
Mercury	-23213-11-13 00:14 J	-6756808.56	-6756808.49	-6756808.41	0.0499	0.0451
Venus	-23208-03-26 18:14 J	-6755213.78	-6755213.74	-6755213.71	0.0535	0.0525
Venus	-23208-11-19 11:16 J	-6754976.23	-6754976.03	-6754975.83	0.0533	0.0069
Mercury	-23207-04-06 23:02 J	-6754837.64	-6754837.54	-6754837.44	0.0530	0.0328
Mercury	-23207-07-05 05:45 J	-6754748.37	-6754748.26	-6754748.15	0.0528	0.0254
Venus	-23207-07-14 20:09 J	-6754738.80	-6754738.66	-6754738.52	0.0527	0.0376
Moon	-23203-10-20 05:45 J	-6753180.51	-6753180.26	-6753180.02	0.0491	0.0042
Earth	-23203-10-20 05:31 J	-6753180.50	-6753180.27	-6753180.03	0.0491	0.0063 *
Venus	-23202-09-17 08:52 J	-6752848.32	-6752848.13	-6752847.95	0.0493	0.0217
Venus	-23201-05-10 21:07 J	-6752611.82	-6752611.62	-6752611.42	0.0496	0.0159
Mercury	-23201-06-02 14:23 J	-6752588.98	-6752588.90	-6752588.81	0.0497	0.0434
Mercury	-23201-08-31 22:19 J	-6752498.72	-6752498.57	-6752498.42	0.0499	0.0279
Venus	-23196-07-25 00:28 J	-6750710.66	-6750710.48	-6750710.29	0.0534	0.0202
Mercury	-23195-01-24 02:23 J	-6750527.45	-6750527.40	-6750527.36	0.0530	0.0487
Venus	-23195-03-19 11:59 J	-6750473.17	-6750473.00	-6750472.83	0.0529	0.0254
Mercury	-23195-04-23 08:52 J	-6750438.26	-6750438.13	-6750438.00	0.0528	0.0094

Mars	-23195-06-14 22:33 J	-6750385.85	-6750385.56	-6750385.28	0.0527	0.0069
Moon	-23191-10-24 15:50 J	-6748792.96	-6748792.84	-6748792.71	0.0491	0.0406
Earth	-23191-10-24 17:45 J	-6748792.90	-6748792.76	-6748792.61	0.0491	0.0387 *
Venus	-23190-05-23 10:19 J	-6748582.22	-6748582.07	-6748581.90	0.0492	0.0316
Venus	-23189-01-14 20:52 J	-6748345.84	-6748345.63	-6748345.42	0.0495	0.0055
Mercury	-23189-06-19 20:23 J	-6748188.82	-6748188.65	-6748188.47	0.0498	0.0108
Venus	-23189-09-07 14:09 J	-6748109.00	-6748108.91	-6748108.80	0.0500	0.0436
Venus	-23184-03-29 15:35 J	-6746445.00	-6746444.85	-6746444.69	0.0534	0.0330
Venus	-23184-11-22 05:16 J	-6746207.47	-6746207.28	-6746207.08	0.0531	0.0131
Mercury	-23183-02-09 12:43 J	-6746128.10	-6746127.97	-6746127.84	0.0529	0.0055
Venus	-23178-01-26 11:31 J	-6744316.12	-6744316.02	-6744315.90	0.0491	0.0412
Venus	-23178-09-19 20:09 J	-6744079.87	-6744079.66	-6744079.45	0.0494	0.0050
Mars	-23177-03-19 05:16 J	-6743898.39	-6743898.28	-6743898.15	0.0497	0.0440
Mercury	-23177-04-07 17:45 J	-6743878.94	-6743878.76	-6743878.58	0.0497	0.0074
Venus	-23177-05-13 11:02 J	-6743843.19	-6743843.04	-6743842.88	0.0498	0.0330
Venus	-23173-12-02 06:28 J	-6742179.33	-6742179.23	-6742179.12	0.0535	0.0455
Venus	-23172-07-27 23:02 J	-6741941.74	-6741941.54	-6741941.34	0.0532	0.0007
Mercury	-23172-11-28 16:47 J	-6741817.92	-6741817.80	-6741817.68	0.0530	0.0197
Mercury	-23171-02-25 23:31 J	-6741728.60	-6741728.52	-6741728.43	0.0528	0.0389
Venus	-23171-03-22 07:11 J	-6741704.30	-6741704.20	-6741704.09	0.0527	0.0444
Venus	-23166-05-25 19:55 J	-6739813.86	-6739813.67	-6739813.47	0.0493	0.0154
Venus	-23165-01-17 08:52 J	-6739577.32	-6739577.13	-6739576.94	0.0497	0.0225
Mercury	-23165-01-25 15:07 J	-6739569.03	-6739568.87	-6739568.71	0.0497	0.0253
Mercury	-23165-04-24 22:33 J	-6739478.63	-6739478.56	-6739478.49	0.0499	0.0455
Earth	-23161-04-20 04:33 J	-6738022.52	-6738022.31	-6738022.10	0.0536	0.0196
Moon	-23161-04-20 07:55 J	-6738022.37	-6738022.17	-6738021.96	0.0536	0.0225 *
Venus	-23160-04-01 17:16 J	-6737675.97	-6737675.78	-6737675.58	0.0534	0.0120
Mercury	-23160-09-16 21:07 J	-6737507.71	-6737507.62	-6737507.52	0.0530	0.0334
Venus	-23160-11-25 03:50 J	-6737438.49	-6737438.34	-6737438.18	0.0529	0.0331
Mercury	-23160-12-15 03:50 J	-6737418.45	-6737418.34	-6737418.22	0.0528	0.0250



Venus	-23154-01-28 19:26 J	-6735547.86	-6735547.69	-6735547.51	0.0492	0.0255
Venus	-23154-09-22 06:43 J	-6735311.42	-6735311.22	-6735311.02	0.0496	0.0119
Mercury	-23154-11-13 11:59 J	-6735259.08	-6735259.00	-6735258.91	0.0497	0.0438
Mercury	-23153-02-11 19:55 J	-6735168.82	-6735168.67	-6735168.52	0.0499	0.0275
Venus	-23153-05-16 01:11 J	-6735074.46	-6735074.45	-6735074.43	0.0501	0.0498
Moon	-23149-04-25 03:36 J	-6733634.52	-6733634.35	-6733634.17	0.0536	0.0360
Earth	-23149-04-25 06:14 J	-6733634.40	-6733634.24	-6733634.08	0.0536	0.0378 *
Venus	-23149-12-05 09:50 J	-6733410.26	-6733410.09	-6733409.91	0.0534	0.0248
Mercury	-23148-07-06 01:26 J	-6733197.50	-6733197.44	-6733197.39	0.0531	0.0475
Venus	-23148-07-30 22:33 J	-6733172.74	-6733172.56	-6733172.37	0.0530	0.0212
Mercury	-23148-10-03 07:55 J	-6733108.29	-6733108.17	-6733108.04	0.0528	0.0106
Venus	-23143-10-03 21:21 J	-6731281.75	-6731281.61	-6731281.47	0.0492	0.0351
Venus	-23142-05-28 06:43 J	-6731045.42	-6731045.22	-6731045.01	0.0494	0.0017
Mercury	-23142-11-30 18:00 J	-6730858.93	-6730858.75	-6730858.57	0.0498	0.0104
Mars	-23142-12-22 07:11 J	-6730837.45	-6730837.20	-6730836.95	0.0499	0.0137
Venus	-23141-01-19 23:16 J	-6730808.66	-6730808.53	-6730808.41	0.0499	0.0397
Venus	-23137-08-09 22:48 J	-6729144.69	-6729144.55	-6729144.41	0.0535	0.0379
Venus	-23136-04-04 13:26 J	-6728907.13	-6728906.94	-6728906.74	0.0531	0.0084
Mercury	-23136-07-22 11:02 J	-6728798.16	-6728798.04	-6728797.91	0.0529	0.0057
Venus	-23136-11-27 19:55 J	-6728669.71	-6728669.67	-6728669.62	0.0526	0.0511
Venus	-23131-06-08 23:45 J	-6727015.60	-6727015.51	-6727015.43	0.0492	0.0446
Venus	-23130-01-31 07:40 J	-6726779.39	-6726779.18	-6726778.98	0.0494	0.0088
Mercury	-23130-09-18 16:04 J	-6726549.01	-6726548.83	-6726548.64	0.0498	0.0068
Venus	-23130-09-24 22:04 J	-6726542.75	-6726542.58	-6726542.41	0.0498	0.0293
Venus	-23125-04-14 13:11 J	-6724879.01	-6724878.95	-6724878.88	0.0535	0.0502
Venus	-23125-12-08 06:00 J	-6724641.45	-6724641.25	-6724641.05	0.0533	0.0045
Mercury	-23124-05-10 15:07 J	-6724487.99	-6724487.87	-6724487.75	0.0530	0.0202
Venus	-23124-08-02 14:52 J	-6724404.00	-6724403.88	-6724403.75	0.0528	0.0399
Mercury	-23124-08-07 21:50 J	-6724398.68	-6724398.59	-6724398.50	0.0527	0.0383
Moon	-23120-10-19 10:19 J	-6722865.30	-6722865.07	-6722864.85	0.0491	0.0097

Earth	-23120-10-19 12:14 J	-6722865.22	-6722864.99	-6722864.76	0.0491	0.0123 *
Venus	-23119-10-06 07:55 J	-6722513.36	-6722513.17	-6722512.98	0.0493	0.0190
Venus	-23118-05-30 19:55 J	-6722276.86	-6722276.67	-6722276.48	0.0496	0.0187
Mercury	-23118-07-07 13:26 J	-6722239.10	-6722238.94	-6722238.78	0.0497	0.0248
Mercury	-23118-10-05 20:52 J	-6722148.69	-6722148.63	-6722148.56	0.0499	0.0460
Venus	-23113-08-12 22:33 J	-6720375.75	-6720375.56	-6720375.37	0.0534	0.0173
Mercury	-23112-02-26 19:11 J	-6720177.80	-6720177.70	-6720177.60	0.0530	0.0343
Venus	-23112-04-07 10:19 J	-6720138.23	-6720138.07	-6720137.90	0.0530	0.0283
Mercury	-23112-05-27 01:55 J	-6720088.53	-6720088.42	-6720088.31	0.0528	0.0240
Earth	-23108-10-23 23:16 J	-6718477.70	-6718477.53	-6718477.34	0.0491	0.0320
Moon	-23108-10-24 02:38 J	-6718477.56	-6718477.39	-6718477.21	0.0491	0.0337 *
Venus	-23107-06-11 08:38 J	-6718247.30	-6718247.14	-6718246.97	0.0492	0.0289
Venus	-23106-02-02 18:57 J	-6718010.92	-6718010.71	-6718010.51	0.0495	0.0082
Mercury	-23106-04-25 10:48 J	-6717929.14	-6717929.05	-6717928.96	0.0496	0.0427
Mercury	-23106-07-24 18:28 J	-6717838.87	-6717838.73	-6717838.58	0.0498	0.0285
Mars	-23106-09-25 13:11 J	-6717776.19	-6717775.95	-6717775.70	0.0500	0.0183
Venus	-23106-09-27 12:00 J	-6717774.07	-6717774.00	-6717773.92	0.0500	0.0460
Venus	-23101-04-17 15:50 J	-6716110.00	-6716109.84	-6716109.67	0.0535	0.0298
Venus	-23101-12-11 06:00 J	-6715872.44	-6715872.25	-6715872.06	0.0531	0.0164
Mercury	-23101-12-15 23:45 J	-6715867.56	-6715867.51	-6715867.46	0.0531	0.0479
Mercury	-23100-03-15 06:14 J	-6715778.36	-6715778.24	-6715778.11	0.0529	0.0103
Venus	-23095-02-14 09:21 J	-6713981.24	-6713981.11	-6713980.98	0.0491	0.0386
Venus	-23095-10-08 17:45 J	-6713744.97	-6713744.76	-6713744.55	0.0494	0.0024
Mercury	-23094-05-12 16:04 J	-6713529.01	-6713528.83	-6713528.65	0.0498	0.0105
Venus	-23094-06-02 08:52 J	-6713508.27	-6713508.13	-6713507.98	0.0498	0.0357
Venus	-23090-12-22 08:09 J	-6711844.28	-6711844.16	-6711844.04	0.0535	0.0422
Venus	-23089-08-16 00:14 J	-6711606.69	-6711606.49	-6711606.29	0.0532	0.0039
Mercury	-23088-01-01 10:33 J	-6711468.19	-6711468.06	-6711467.93	0.0529	0.0040
Venus	-23088-04-10 08:09 J	-6711369.24	-6711369.16	-6711369.07	0.0527	0.0474
Venus	-23084-10-20 11:45 J	-6709715.05	-6709715.01	-6709714.96	0.0491	0.0478

Venus	-23083-06-13 18:43 J	-6709478.92	-6709478.72	-6709478.52	0.0493	0.0125
Venus	-23082-02-05 07:55 J	-6709242.34	-6709242.17	-6709241.99	0.0497	0.0254
Mercury	-23082-02-28 14:09 J	-6709219.09	-6709218.91	-6709218.73	0.0498	0.0066
Moon	-23078-04-20 02:52 J	-6707707.57	-6707707.38	-6707707.20	0.0535	0.0325
Earth	-23078-04-20 05:45 J	-6707707.46	-6707707.26	-6707707.07	0.0535	0.0292 *
Venus	-23077-04-20 14:23 J	-6707341.09	-6707340.90	-6707340.70	0.0533	0.0094
Mercury	-23077-10-20 13:40 J	-6707158.05	-6707157.93	-6707157.81	0.0530	0.0197
Mars	-23077-11-30 19:40 J	-6707116.92	-6707116.68	-6707116.44	0.0529	0.0298
Venus	-23077-12-14 00:28 J	-6707103.63	-6707103.48	-6707103.33	0.0528	0.0356
Mercury	-23076-01-17 20:38 J	-6707068.73	-6707068.64	-6707068.56	0.0527	0.0387
Venus	-23071-02-16 20:23 J	-6705212.83	-6705212.65	-6705212.47	0.0493	0.0226
Venus	-23071-10-11 07:55 J	-6704976.36	-6704976.17	-6704975.97	0.0496	0.0150
Mercury	-23071-12-17 12:14 J	-6704909.15	-6704908.99	-6704908.83	0.0497	0.0236
Mercury	-23070-03-17 19:40 J	-6704818.73	-6704818.68	-6704818.62	0.0499	0.0473
Earth	-23066-04-25 04:33 J	-6703319.50	-6703319.31	-6703319.10	0.0535	0.0268
Moon	-23066-04-25 06:00 J	-6703319.44	-6703319.25	-6703319.05	0.0535	0.0254 *
Venus	-23066-12-25 06:14 J	-6703075.42	-6703075.24	-6703075.06	0.0534	0.0222
Mercury	-23065-08-08 17:45 J	-6702847.86	-6702847.76	-6702847.67	0.0530	0.0343
Venus	-23065-08-18 18:28 J	-6702837.91	-6702837.73	-6702837.55	0.0530	0.0236
Mercury	-23065-11-06 00:14 J	-6702758.60	-6702758.49	-6702758.37	0.0528	0.0240
Venus	-23060-10-22 21:36 J	-6700946.75	-6700946.60	-6700946.44	0.0492	0.0323
Venus	-23059-06-16 06:57 J	-6700710.41	-6700710.21	-6700710.00	0.0494	0.0047
Mercury	-23059-10-05 09:36 J	-6700599.20	-6700599.10	-6700599.00	0.0496	0.0416
Mercury	-23058-01-03 17:16 J	-6700508.92	-6700508.78	-6700508.63	0.0498	0.0296
Venus	-23058-02-07 23:16 J	-6700473.64	-6700473.53	-6700473.42	0.0499	0.0424
Venus	-23054-08-29 21:36 J	-6698809.74	-6698809.60	-6698809.44	0.0535	0.0349
Venus	-23053-04-23 12:43 J	-6698572.16	-6698571.97	-6698571.77	0.0532	0.0114
Mercury	-23053-05-27 21:50 J	-6698537.64	-6698537.59	-6698537.54	0.0531	0.0485
Mercury	-23053-08-25 04:33 J	-6698448.44	-6698448.31	-6698448.19	0.0529	0.0098
Venus	-23048-06-27 23:16 J	-6696680.63	-6696680.53	-6696680.42	0.0491	0.0418

Venus	-23047-02-19 06:57 J	-6696444.41	-6696444.21	-6696444.00	0.0493	0.0059
Venus	-23047-10-13 21:07 J	-6696207.77	-6696207.62	-6696207.46	0.0498	0.0320
Mercury	-23047-10-22 15:07 J	-6696199.05	-6696198.87	-6696198.69	0.0498	0.0120
Venus	-23042-05-04 14:09 J	-6694544.00	-6694543.91	-6694543.81	0.0536	0.0471
Venus	-23042-12-28 07:26 J	-6694306.39	-6694306.19	-6694305.99	0.0533	0.0011
Mercury	-23041-06-13 08:52 J	-6694138.26	-6694138.13	-6694138.00	0.0529	0.0040
Venus	-23041-08-21 16:33 J	-6694068.91	-6694068.81	-6694068.69	0.0528	0.0432
Mars	-23041-09-08 05:31 J	-6694051.54	-6694051.27	-6694051.00	0.0527	0.0181
Earth	-23037-10-18 18:57 J	-6692549.93	-6692549.71	-6692549.49	0.0491	0.0183
Moon	-23037-10-18 22:19 J	-6692549.80	-6692549.57	-6692549.33	0.0491	0.0150 *
Venus	-23036-10-25 06:57 J	-6692178.41	-6692178.21	-6692178.02	0.0493	0.0162
Venus	-23035-06-18 18:57 J	-6691941.89	-6691941.71	-6691941.52	0.0496	0.0215
Mercury	-23035-08-10 12:28 J	-6691889.16	-6691888.98	-6691888.80	0.0497	0.0061
Venus	-23030-09-02 01:11 J	-6690040.64	-6690040.45	-6690040.25	0.0534	0.0137
Mercury	-23029-04-01 13:11 J	-6689828.07	-6689827.95	-6689827.83	0.0530	0.0179
Venus	-23029-04-26 12:43 J	-6689803.13	-6689802.97	-6689802.81	0.0529	0.0317
Mercury	-23029-06-29 19:55 J	-6689738.75	-6689738.67	-6689738.58	0.0528	0.0406
Moon	-23025-10-23 03:21 J	-6688162.55	-6688162.36	-6688162.16	0.0491	0.0276
Earth	-23025-10-23 07:11 J	-6688162.40	-6688162.20	-6688162.00	0.0491	0.0262 *
Venus	-23024-06-30 08:38 J	-6687912.31	-6687912.14	-6687911.96	0.0492	0.0261
Venus	-23023-02-21 19:11 J	-6687675.90	-6687675.70	-6687675.50	0.0495	0.0112
Mercury	-23023-05-29 10:33 J	-6687579.22	-6687579.06	-6687578.90	0.0497	0.0230
Mars	-23023-06-13 07:40 J	-6687564.35	-6687564.18	-6687563.99	0.0497	0.0357
Mercury	-23023-08-27 18:00 J	-6687488.79	-6687488.75	-6687488.69	0.0499	0.0479
Venus	-23023-10-16 12:57 J	-6687439.00	-6687438.96	-6687438.92	0.0500	0.0490
Venus	-23018-05-07 15:07 J	-6685775.04	-6685774.87	-6685774.70	0.0534	0.0269
Venus	-23018-12-31 04:19 J	-6685537.51	-6685537.32	-6685537.13	0.0530	0.0191
Mercury	-23017-01-19 16:33 J	-6685517.91	-6685517.81	-6685517.71	0.0530	0.0335
Mercury	-23017-04-17 23:16 J	-6685428.65	-6685428.53	-6685428.42	0.0528	0.0247
Venus	-23012-03-05 10:48 J	-6683646.19	-6683646.05	-6683645.91	0.0492	0.0358

Venus	-23012-10-27 19:55 J	-6683409.88	-6683409.67	-6683409.46	0.0494	0.0010
Mercury	-23011-03-17 08:38 J	-6683269.24	-6683269.14	-6683269.03	0.0497	0.0400
Mercury	-23011-06-15 16:33 J	-6683178.95	-6683178.81	-6683178.67	0.0499	0.0313
Venus	-23011-06-21 11:31 J	-6683173.14	-6683173.02	-6683172.89	0.0499	0.0389
Venus	-23006-01-10 06:14 J	-6681509.37	-6681509.24	-6681509.10	0.0535	0.0395
Venus	-23006-09-04 21:36 J	-6681271.80	-6681271.60	-6681271.40	0.0532	0.0066
Mercury	-23006-11-07 20:38 J	-6681207.69	-6681207.64	-6681207.59	0.0531	0.0479
Mercury	-23005-02-05 03:07 J	-6681118.50	-6681118.37	-6681118.24	0.0529	0.0101
Venus	-23005-04-29 05:02 J	-6681034.35	-6681034.29	-6681034.22	0.0526	0.0498
Venus	-23001-11-08 12:43 J	-6679380.04	-6679379.97	-6679379.88	0.0492	0.0451

# 23RD MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 23rd millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Venus	-23000-07-02 20:09 J	-6679143.86	-6679143.66	-6679143.46	0.0493	0.0095		
Venus	-22999-02-24 09:36 J	-6678907.27	-6678907.10	-6678906.93	0.0497	0.0284		
Mercury	-22999-04-03 14:09 J	-6678869.08	-6678868.91	-6678868.73	0.0498	0.0135		
Earth	-22995-04-19 09:07 J	-6677392.28	-6677392.12	-6677391.96	0.0535	0.0383		
Moon	-22995-04-19 10:33 J	-6677392.19	-6677392.06	-6677391.92	0.0535	0.0416	*	
Venus	-22995-09-14 20:52 J	-6677243.67	-6677243.63	-6677243.58	0.0535	0.0518		
Venus	-22994-05-10 14:38 J	-6677006.09	-6677005.89	-6677005.69	0.0533	0.0061		
Mercury	-22994-11-24 07:11 J	-6676808.33	-6676808.20	-6676808.07	0.0529	0.0043		

Venus	-22993-01-03 00:57 J	-6676768.60	-6676768.46	-6676768.33	0.0528	0.0387
Venus	-22988-03-07 21:07 J	-6674877.81	-6674877.62	-6674877.43	0.0492	0.0196
Venus	-22988-10-30 08:23 J	-6674641.34	-6674641.15	-6674640.96	0.0496	0.0180
Mercury	-22987-01-20 12:00 J	-6674559.19	-6674559.00	-6674558.82	0.0497	0.0043
Mars	-22987-03-17 13:40 J	-6674503.19	-6674502.93	-6674502.67	0.0498	0.0042
Earth	-22983-04-24 11:02 J	-6673004.25	-6673004.04	-6673003.82	0.0536	0.0189
Moon	-22983-04-24 11:31 J	-6673004.24	-6673004.02	-6673003.79	0.0536	0.0182 *
Venus	-22982-01-13 08:23 J	-6672740.33	-6672740.15	-6672739.96	0.0534	0.0187
Venus	-22982-09-07 21:07 J	-6672502.79	-6672502.62	-6672502.45	0.0530	0.0271
Mercury	-22982-09-12 11:45 J	-6672498.13	-6672498.01	-6672497.89	0.0530	0.0178
Mercury	-22982-12-10 18:43 J	-6672408.81	-6672408.72	-6672408.64	0.0528	0.0407
Venus	-22977-11-10 21:50 J	-6670611.75	-6670611.59	-6670611.43	0.0492	0.0295
Venus	-22976-07-05 07:11 J	-6670375.40	-6670375.20	-6670374.99	0.0495	0.0075
Mercury	-22976-11-08 09:07 J	-6670249.28	-6670249.12	-6670248.95	0.0497	0.0221
Mercury	-22975-02-06 16:48 J	-6670158.84	-6670158.80	-6670158.77	0.0499	0.0487
Venus	-22975-02-26 23:45 J	-6670138.60	-6670138.51	-6670138.43	0.0499	0.0453
Venus	-22971-09-18 01:40 J	-6668474.59	-6668474.43	-6668474.27	0.0535	0.0312
Venus	-22970-05-13 16:19 J	-6668237.01	-6668236.82	-6668236.62	0.0531	0.0151
Mercury	-22970-07-01 16:04 J	-6668187.93	-6668187.83	-6668187.72	0.0530	0.0316
Mercury	-22970-09-28 22:48 J	-6668098.66	-6668098.55	-6668098.44	0.0528	0.0268
Venus	-22965-07-17 00:14 J	-6666345.61	-6666345.49	-6666345.36	0.0491	0.0390
Venus	-22964-03-10 08:23 J	-6666109.36	-6666109.15	-6666108.94	0.0494	0.0028
Mercury	-22964-08-27 07:11 J	-6665939.30	-6665939.20	-6665939.08	0.0497	0.0391
Venus	-22964-11-01 22:48 J	-6665872.69	-6665872.55	-6665872.39	0.0498	0.0352
Mercury	-22964-11-25 15:21 J	-6665849.00	-6665848.86	-6665848.73	0.0498	0.0322
Venus	-22959-05-23 15:36 J	-6664208.96	-6664208.85	-6664208.74	0.0535	0.0440
Venus	-22958-01-16 07:40 J	-6663971.38	-6663971.18	-6663970.98	0.0532	0.0020
Mercury	-22958-04-19 19:40 J	-6663877.74	-6663877.68	-6663877.62	0.0530	0.0468
Mercury	-22958-07-18 02:09 J	-6663788.53	-6663788.41	-6663788.28	0.0528	0.0112
Venus	-22958-09-10 15:50 J	-6663733.93	-6663733.84	-6663733.74	0.0527	0.0458

Moon	-22954-10-19 01:11 J	-6662234.66	-6662234.45	-6662234.23	0.0492	0.0199
Earth	-22954-10-19 05:02 J	-6662234.50	-6662234.29	-6662234.08	0.0492	0.0229 *
Venus	-22953-03-22 02:23 J	-6662079.43	-6662079.40	-6662079.36	0.0492	0.0484
Venus	-22953-11-13 09:36 J	-6661843.30	-6661843.10	-6661842.90	0.0493	0.0130
Venus	-22952-07-07 22:19 J	-6661606.74	-6661606.57	-6661606.38	0.0497	0.0249
Mercury	-22952-09-13 13:40 J	-6661539.10	-6661538.93	-6661538.76	0.0498	0.0155
Mars	-22952-12-20 03:36 J	-6661441.56	-6661441.35	-6661441.13	0.0500	0.0288
Venus	-22947-09-21 00:14 J	-6659705.68	-6659705.49	-6659705.29	0.0533	0.0108
Mercury	-22946-05-06 06:14 J	-6659478.37	-6659478.24	-6659478.11	0.0529	0.0036
Venus	-22946-05-16 11:02 J	-6659468.19	-6659468.04	-6659467.89	0.0529	0.0343
Earth	-22942-10-23 17:45 J	-6657846.97	-6657846.76	-6657846.55	0.0492	0.0218
Moon	-22942-10-23 21:21 J	-6657846.82	-6657846.61	-6657846.40	0.0492	0.0225 *
Venus	-22941-07-19 10:48 J	-6657577.23	-6657577.05	-6657576.87	0.0492	0.0230
Venus	-22940-03-12 21:36 J	-6657340.80	-6657340.60	-6657340.40	0.0495	0.0144
Mercury	-22940-07-02 11:16 J	-6657229.21	-6657229.03	-6657228.85	0.0497	0.0022
Venus	-22935-05-26 16:04 J	-6655440.01	-6655439.83	-6655439.65	0.0534	0.0235
Venus	-22934-01-19 05:16 J	-6655202.45	-6655202.28	-6655202.09	0.0531	0.0225
Mercury	-22934-02-22 10:19 J	-6655168.19	-6655168.07	-6655167.95	0.0530	0.0177
Mercury	-22934-05-22 17:02 J	-6655078.87	-6655078.79	-6655078.71	0.0528	0.0407
Venus	-22929-03-24 12:28 J	-6653311.13	-6653310.98	-6653310.83	0.0492	0.0327
Venus	-22929-11-15 21:21 J	-6653074.81	-6653074.61	-6653074.40	0.0494	0.0040
Mercury	-22928-04-20 08:52 J	-6652919.30	-6652919.13	-6652918.96	0.0497	0.0199
Venus	-22928-07-10 12:57 J	-6652838.07	-6652837.96	-6652837.85	0.0499	0.0418
Venus	-22923-01-29 08:52 J	-6651174.27	-6651174.13	-6651173.98	0.0535	0.0360
Venus	-22923-09-24 00:43 J	-6650936.66	-6650936.47	-6650936.27	0.0532	0.0103
Mercury	-22923-12-11 14:38 J	-6650857.99	-6650857.89	-6650857.78	0.0531	0.0314
Mars	-22922-02-25 16:33 J	-6650782.09	-6650781.81	-6650781.54	0.0529	0.0161
Mercury	-22922-03-10 21:21 J	-6650768.71	-6650768.61	-6650768.49	0.0528	0.0271
Venus	-22918-11-28 13:55 J	-6649045.02	-6649044.92	-6649044.81	0.0491	0.0423
Venus	-22917-07-21 21:07 J	-6648808.82	-6648808.62	-6648808.41	0.0493	0.0065

Mercury	-22916-02-06 06:00 J	-6648609.36	-6648609.25	-6648609.12	0.0496	0.0379
Venus	-22916-03-15 10:33 J	-6648572.21	-6648572.06	-6648571.89	0.0497	0.0315
Mercury	-22916-05-07 13:55 J	-6648519.05	-6648518.92	-6648518.78	0.0498	0.0334
Earth	-22912-04-18 20:09 J	-6647076.79	-6647076.66	-6647076.53	0.0535	0.0436
Moon	-22912-04-18 20:09 J	-6647076.77	-6647076.66	-6647076.54	0.0535	0.0466 *
Venus	-22912-10-04 01:26 J	-6646908.52	-6646908.44	-6646908.35	0.0535	0.0483
Venus	-22911-05-29 19:11 J	-6646670.90	-6646670.70	-6646670.50	0.0533	0.0024
Mercury	-22911-09-29 19:11 J	-6646547.76	-6646547.70	-6646547.63	0.0531	0.0449
Mercury	-22911-12-28 01:55 J	-6646458.55	-6646458.42	-6646458.30	0.0529	0.0134
Venus	-22910-01-22 05:02 J	-6646433.41	-6646433.29	-6646433.17	0.0528	0.0421
Venus	-22905-03-26 23:02 J	-6644542.74	-6644542.54	-6644542.35	0.0493	0.0164
Venus	-22905-11-18 10:48 J	-6644306.24	-6644306.05	-6644305.86	0.0496	0.0212
Mercury	-22904-02-23 12:28 J	-6644209.15	-6644208.98	-6644208.81	0.0498	0.0167
Moon	-22900-04-23 17:45 J	-6642688.98	-6642688.76	-6642688.55	0.0535	0.0132
Earth	-22900-04-23 20:09 J	-6642688.89	-6642688.66	-6642688.44	0.0535	0.0128 *
Venus	-22899-02-01 10:19 J	-6642405.26	-6642405.07	-6642404.87	0.0533	0.0154
Venus	-22899-09-26 21:50 J	-6642167.75	-6642167.59	-6642167.42	0.0529	0.0301
Mercury	-22899-10-16 05:16 J	-6642148.41	-6642148.28	-6642148.15	0.0529	0.0023
Venus	-22894-12-01 00:28 J	-6640276.66	-6640276.48	-6640276.31	0.0493	0.0265
Venus	-22893-07-24 10:48 J	-6640040.25	-6640040.05	-6640039.84	0.0495	0.0109
Mercury	-22893-12-12 10:48 J	-6639899.24	-6639899.05	-6639898.87	0.0498	0.0008
Venus	-22892-03-18 04:19 J	-6639803.37	-6639803.32	-6639803.28	0.0500	0.0485
Venus	-22888-10-07 02:23 J	-6638139.57	-6638139.40	-6638139.23	0.0534	0.0280
Venus	-22887-06-01 15:50 J	-6637902.03	-6637901.84	-6637901.65	0.0531	0.0179
Mercury	-22887-08-04 09:21 J	-6637838.23	-6637838.11	-6637837.99	0.0529	0.0166
Mercury	-22887-11-01 16:04 J	-6637748.91	-6637748.83	-6637748.75	0.0527	0.0417
Mars	-22887-12-03 14:52 J	-6637717.11	-6637716.88	-6637716.64	0.0526	0.0302
Venus	-22882-08-06 02:09 J	-6636010.54	-6636010.41	-6636010.26	0.0492	0.0360
Venus	-22881-03-29 11:02 J	-6635774.25	-6635774.04	-6635773.83	0.0494	0.0006
Mercury	-22881-09-30 08:23 J	-6635589.32	-6635589.15	-6635588.98	0.0497	0.0179



Venus	-22881-11-21 01:40 J	-6635537.55	-6635537.43	-6635537.29	0.0498	0.0384
Venus	-22876-06-11 17:02 J	-6633873.92	-6633873.79	-6633873.66	0.0535	0.0406
Venus	-22875-02-04 09:07 J	-6633636.31	-6633636.12	-6633635.92	0.0532	0.0057
Mercury	-22875-05-23 13:26 J	-6633528.04	-6633527.94	-6633527.84	0.0530	0.0310
Mercury	-22875-08-20 20:09 J	-6633438.77	-6633438.66	-6633438.55	0.0528	0.0273
Venus	-22875-09-29 17:31 J	-6633398.84	-6633398.77	-6633398.69	0.0527	0.0489
Earth	-22871-10-18 17:02 J	-6631918.99	-6631918.79	-6631918.59	0.0492	0.0270
Moon	-22871-10-18 20:38 J	-6631918.84	-6631918.64	-6631918.43	0.0492	0.0240 *
Venus	-22870-04-11 04:33 J	-6631744.38	-6631744.31	-6631744.23	0.0492	0.0453
Venus	-22870-12-03 11:31 J	-6631508.22	-6631508.02	-6631507.81	0.0493	0.0098
Mercury	-22869-07-19 05:45 J	-6631279.38	-6631279.26	-6631279.13	0.0497	0.0356
Venus	-22869-07-27 00:14 J	-6631271.66	-6631271.49	-6631271.31	0.0497	0.0280
Mars	-22869-09-07 00:14 J	-6631229.71	-6631229.49	-6631229.26	0.0498	0.0248
Mercury	-22869-10-17 13:40 J	-6631189.05	-6631188.93	-6631188.80	0.0498	0.0356
Venus	-22864-02-14 08:52 J	-6629608.16	-6629608.13	-6629608.09	0.0535	0.0527
Venus	-22864-10-10 03:21 J	-6629370.56	-6629370.36	-6629370.16	0.0534	0.0070
Mercury	-22863-03-11 18:00 J	-6629217.82	-6629217.75	-6629217.69	0.0531	0.0446
Venus	-22863-06-04 14:09 J	-6629133.04	-6629132.91	-6629132.76	0.0529	0.0379
Mercury	-22863-06-09 00:28 J	-6629128.60	-6629128.48	-6629128.35	0.0529	0.0136
Moon	-22859-10-23 02:23 J	-6627531.62	-6627531.40	-6627531.16	0.0491	0.0171
Earth	-22859-10-23 05:02 J	-6627531.51	-6627531.29	-6627531.07	0.0491	0.0175 *
Venus	-22858-08-08 12:14 J	-6627242.18	-6627241.99	-6627241.80	0.0492	0.0199
Venus	-22857-03-31 23:02 J	-6627005.73	-6627005.54	-6627005.34	0.0495	0.0176
Mercury	-22857-08-05 11:16 J	-6626879.19	-6626879.03	-6626878.86	0.0498	0.0180
Venus	-22852-06-14 21:07 J	-6625104.81	-6625104.62	-6625104.43	0.0534	0.0197
Venus	-22851-02-07 10:19 J	-6624867.25	-6624867.07	-6624866.90	0.0530	0.0261
Mercury	-22851-03-28 05:02 J	-6624818.42	-6624818.29	-6624818.17	0.0529	0.0019
Venus	-22846-04-13 14:23 J	-6622976.06	-6622975.90	-6622975.73	0.0492	0.0297
Venus	-22846-12-05 23:45 J	-6622739.71	-6622739.51	-6622739.30	0.0495	0.0073
Mercury	-22845-05-24 09:50 J	-6622569.28	-6622569.09	-6622568.91	0.0498	0.0016

Venus	-22845-07-29 15:50 J	-6622502.93	-6622502.84	-6622502.75	0.0499	0.0449
Venus	-22840-02-17 12:14 J	-6620839.14	-6620838.99	-6620838.83	0.0534	0.0324
Venus	-22840-10-13 02:52 J	-6620601.58	-6620601.38	-6620601.19	0.0531	0.0136
Mercury	-22839-01-14 08:38 J	-6620508.27	-6620508.14	-6620508.02	0.0529	0.0153
Mercury	-22839-04-13 15:21 J	-6620418.94	-6620418.86	-6620418.79	0.0527	0.0430
Venus	-22835-12-17 15:50 J	-6618709.96	-6618709.84	-6618709.72	0.0492	0.0393
Venus	-22834-08-11 00:14 J	-6618473.70	-6618473.49	-6618473.28	0.0494	0.0031
Mercury	-22833-03-12 07:40 J	-6618259.35	-6618259.18	-6618259.00	0.0498	0.0160
Venus	-22833-04-03 14:52 J	-6618237.03	-6618236.88	-6618236.73	0.0498	0.0348
Mars	-22833-06-11 10:19 J	-6618168.33	-6618168.07	-6618167.81	0.0499	0.0074
Moon	-22829-04-18 02:38 J	-6616761.41	-6616761.39	-6616761.37	0.0534	0.0531
Earth	-22829-04-18 04:33 J	-6616761.38	-6616761.31	-6616761.23	0.0534	0.0500 *
Venus	-22829-10-23 03:36 J	-6616573.46	-6616573.35	-6616573.24	0.0534	0.0448
Venus	-22828-06-17 19:55 J	-6616335.87	-6616335.67	-6616335.47	0.0532	0.0010
Mercury	-22828-11-02 12:43 J	-6616198.08	-6616197.97	-6616197.87	0.0530	0.0297
Mercury	-22827-01-30 19:11 J	-6616108.81	-6616108.70	-6616108.59	0.0528	0.0284
Venus	-22827-02-10 04:33 J	-6616098.41	-6616098.31	-6616098.20	0.0527	0.0448
Venus	-22823-08-22 18:14 J	-6614443.77	-6614443.74	-6614443.70	0.0492	0.0485
Venus	-22822-04-16 01:11 J	-6614207.65	-6614207.45	-6614207.25	0.0493	0.0132
Venus	-22822-12-08 13:26 J	-6613971.12	-6613970.94	-6613970.76	0.0496	0.0245
Mercury	-22822-12-30 05:16 J	-6613949.41	-6613949.28	-6613949.15	0.0497	0.0337
Mercury	-22821-03-29 13:11 J	-6613859.07	-6613858.95	-6613858.83	0.0499	0.0375
Earth	-22817-04-23 02:23 J	-6612373.63	-6612373.40	-6612373.18	0.0535	0.0050
Moon	-22817-04-23 06:00 J	-6612373.48	-6612373.25	-6612373.02	0.0535	0.0067 *
Venus	-22816-02-20 12:00 J	-6612070.20	-6612070.00	-6612069.81	0.0533	0.0117
Mercury	-22816-08-21 16:33 J	-6611887.87	-6611887.81	-6611887.74	0.0531	0.0441
Venus	-22816-10-15 23:31 J	-6611832.67	-6611832.52	-6611832.37	0.0529	0.0334
Mercury	-22816-11-18 23:16 J	-6611798.66	-6611798.53	-6611798.41	0.0529	0.0140
Venus	-22811-12-20 02:23 J	-6609941.58	-6609941.40	-6609941.22	0.0492	0.0232
Venus	-22810-08-13 12:57 J	-6609705.16	-6609704.96	-6609704.76	0.0495	0.0141

Mercury	-22809-01-16 11:02 J	-6609549.21	-6609549.04	-6609548.88	0.0498	0.0201
Venus	-22805-10-26 04:48 J	-6607804.47	-6607804.30	-6607804.12	0.0534	0.0244
Venus	-22804-06-20 18:43 J	-6607566.90	-6607566.72	-6607566.53	0.0531	0.0216
Mars	-22804-08-14 02:38 J	-6607512.47	-6607512.39	-6607512.30	0.0530	0.0505
Mercury	-22804-09-07 03:36 J	-6607488.48	-6607488.35	-6607488.22	0.0529	0.0009
Venus	-22799-08-25 03:50 J	-6605675.49	-6605675.34	-6605675.18	0.0492	0.0330
Venus	-22798-04-18 12:28 J	-6605439.19	-6605438.98	-6605438.77	0.0494	0.0036
Mercury	-22798-11-04 08:23 J	-6605239.33	-6605239.15	-6605238.96	0.0498	0.0026
Venus	-22798-12-11 03:21 J	-6605202.47	-6605202.36	-6605202.24	0.0498	0.0413
Mars	-22797-03-15 16:19 J	-6605106.98	-6605106.82	-6605106.65	0.0501	0.0391
Venus	-22793-06-30 21:50 J	-6603538.73	-6603538.59	-6603538.45	0.0535	0.0368
Venus	-22792-02-23 13:55 J	-6603301.11	-6603300.92	-6603300.72	0.0532	0.0094
Mercury	-22792-06-26 07:55 J	-6603178.29	-6603178.17	-6603178.04	0.0530	0.0136
Mercury	-22792-09-23 14:38 J	-6603088.95	-6603088.89	-6603088.82	0.0528	0.0450
Venus	-22792-10-18 21:50 J	-6603063.60	-6603063.59	-6603063.56	0.0527	0.0523
Moon	-22788-10-18 02:09 J	-6601603.61	-6601603.41	-6601603.21	0.0492	0.0287
Earth	-22788-10-18 04:33 J	-6601603.49	-6601603.31	-6601603.13	0.0492	0.0312 *
Venus	-22787-04-30 06:14 J	-6601409.33	-6601409.24	-6601409.13	0.0492	0.0424
Venus	-22787-12-22 13:40 J	-6601173.14	-6601172.93	-6601172.73	0.0493	0.0066
Venus	-22786-08-16 02:52 J	-6600936.54	-6600936.38	-6600936.22	0.0497	0.0312
Mercury	-22786-08-23 06:43 J	-6600929.40	-6600929.22	-6600929.05	0.0497	0.0146
Venus	-22781-03-05 13:11 J	-6599273.03	-6599272.95	-6599272.87	0.0535	0.0491
Venus	-22781-10-29 06:14 J	-6599035.44	-6599035.24	-6599035.04	0.0533	0.0036
Mercury	-22780-04-14 11:45 J	-6598868.12	-6598868.01	-6598867.90	0.0530	0.0283
Venus	-22780-06-23 15:50 J	-6598797.96	-6598797.84	-6598797.71	0.0528	0.0409
Mercury	-22780-07-12 18:28 J	-6598778.84	-6598778.73	-6598778.63	0.0527	0.0298
Earth	-22776-10-22 14:09 J	-6597216.14	-6597215.91	-6597215.68	0.0492	0.0123
Moon	-22776-10-22 14:38 J	-6597216.11	-6597215.89	-6597215.66	0.0492	0.0110 *
Venus	-22775-08-27 14:09 J	-6596907.10	-6596906.91	-6596906.71	0.0493	0.0167
Venus	-22774-04-21 02:09 J	-6596670.60	-6596670.41	-6596670.22	0.0496	0.0209

Mercury	-22774-06-11 04:19 J	-6596619.45	-6596619.32	-6596619.18	0.0497	0.0321
Mercury	-22774-09-09 12:14 J	-6596529.09	-6596528.99	-6596528.87	0.0499	0.0393
Venus	-22769-07-03 22:33 J	-6594769.75	-6594769.56	-6594769.37	0.0533	0.0162
Mercury	-22768-01-31 15:50 J	-6594557.91	-6594557.84	-6594557.77	0.0530	0.0427
Venus	-22768-02-26 10:19 J	-6594532.23	-6594532.07	-6594531.90	0.0529	0.0292
Mercury	-22768-04-30 22:19 J	-6594468.69	-6594468.57	-6594468.45	0.0528	0.0152
Mars	-22768-05-22 10:04 J	-6594447.37	-6594447.08	-6594446.79	0.0527	0.0025
Venus	-22763-05-02 15:36 J	-6592641.02	-6592640.85	-6592640.68	0.0493	0.0266
Venus	-22763-12-25 01:40 J	-6592404.63	-6592404.43	-6592404.23	0.0495	0.0105
Mercury	-22762-06-28 10:04 J	-6592219.24	-6592219.08	-6592218.91	0.0498	0.0217
Venus	-22762-08-18 18:14 J	-6592167.79	-6592167.74	-6592167.69	0.0499	0.0481
Venus	-22757-03-08 13:26 J	-6590504.11	-6590503.94	-6590503.77	0.0534	0.0290
Venus	-22757-11-01 03:50 J	-6590266.53	-6590266.34	-6590266.15	0.0531	0.0170
Mercury	-22756-02-17 02:09 J	-6590158.54	-6590158.41	-6590158.28	0.0529	0.0012
Venus	-22751-01-05 17:31 J	-6588374.91	-6588374.77	-6588374.63	0.0492	0.0362
Venus	-22751-08-30 01:55 J	-6588138.63	-6588138.42	-6588138.21	0.0494	0.0002
Mars	-22750-02-28 10:48 J	-6587956.15	-6587956.05	-6587955.94	0.0497	0.0453
Mercury	-22750-04-16 07:55 J	-6587909.35	-6587909.17	-6587908.99	0.0498	0.0041
Venus	-22750-04-23 16:19 J	-6587901.95	-6587901.82	-6587901.69	0.0498	0.0379
Venus	-22746-11-12 05:02 J	-6586238.41	-6586238.29	-6586238.16	0.0535	0.0414
Venus	-22745-07-06 21:50 J	-6586000.79	-6586000.59	-6586000.39	0.0533	0.0046
Mercury	-22745-12-06 06:28 J	-6585848.35	-6585848.23	-6585848.10	0.0530	0.0135
Venus	-22744-03-01 06:57 J	-6585763.28	-6585763.21	-6585763.13	0.0528	0.0482
Mercury	-22744-03-05 13:11 J	-6585759.01	-6585758.95	-6585758.88	0.0528	0.0451
Venus	-22740-09-10 19:26 J	-6584108.76	-6584108.69	-6584108.61	0.0492	0.0456
Venus	-22739-05-05 02:09 J	-6583872.61	-6583872.41	-6583872.21	0.0493	0.0101
Venus	-22739-12-27 14:23 J	-6583636.07	-6583635.90	-6583635.73	0.0496	0.0275
Mercury	-22738-02-02 05:16 J	-6583599.46	-6583599.28	-6583599.10	0.0497	0.0138
Moon	-22734-04-23 08:23 J	-6582058.38	-6582058.15	-6582057.92	0.0535	0.0010
Earth	-22734-04-23 12:28 J	-6582058.21	-6582057.98	-6582057.75	0.0535	0.0011 *

Venus	-22734-07-17 21:07 J	-6581972.62	-6581972.62	-6581972.61	0.0535	0.0535
Venus	-22733-03-11 16:04 J	-6581735.03	-6581734.83	-6581734.63	0.0534	0.0080
Mercury	-22733-09-24 11:02 J	-6581538.15	-6581538.04	-6581537.93	0.0530	0.0270
Venus	-22733-11-04 03:21 J	-6581497.50	-6581497.36	-6581497.21	0.0529	0.0370
Mercury	-22733-12-22 17:45 J	-6581448.87	-6581448.76	-6581448.66	0.0528	0.0313
Mars	-22732-02-27 20:52 J	-6581381.78	-6581381.63	-6581381.48	0.0526	0.0448
Venus	-22727-01-08 03:36 J	-6579606.53	-6579606.35	-6579606.16	0.0492	0.0201
Venus	-22727-09-01 14:23 J	-6579370.09	-6579369.90	-6579369.70	0.0495	0.0173
Mercury	-22727-11-21 03:07 J	-6579289.51	-6579289.37	-6579289.22	0.0497	0.0309
Mercury	-22726-02-19 11:16 J	-6579199.14	-6579199.03	-6579198.93	0.0499	0.0403
Venus	-22722-11-15 08:09 J	-6577469.34	-6577469.16	-6577468.97	0.0534	0.0207
Venus	-22721-07-09 20:52 J	-6577231.80	-6577231.63	-6577231.45	0.0530	0.0250
Mercury	-22721-07-13 14:52 J	-6577227.95	-6577227.88	-6577227.80	0.0530	0.0416
Mercury	-22721-10-10 21:21 J	-6577138.73	-6577138.61	-6577138.49	0.0528	0.0163
Venus	-22716-09-13 04:19 J	-6575340.49	-6575340.32	-6575340.16	0.0493	0.0301
Venus	-22715-05-07 13:55 J	-6575104.13	-6575103.92	-6575103.72	0.0495	0.0068
Mercury	-22715-09-09 00:43 J	-6574979.50	-6574979.47	-6574979.44	0.0497	0.0487
Mars	-22715-12-02 15:36 J	-6574895.10	-6574894.85	-6574894.60	0.0499	0.0144
Mercury	-22715-12-08 09:07 J	-6574889.28	-6574889.12	-6574888.96	0.0499	0.0230
Venus	-22715-12-30 06:00 J	-6574867.34	-6574867.25	-6574867.16	0.0499	0.0445
Venus	-22710-07-20 23:45 J	-6573203.67	-6573203.51	-6573203.36	0.0534	0.0333
Venus	-22709-03-14 14:38 J	-6572966.09	-6572965.89	-6572965.70	0.0531	0.0126
Mercury	-22709-07-30 01:26 J	-6572828.57	-6572828.44	-6572828.31	0.0528	0.0020
Earth	-22705-10-17 10:48 J	-6571288.19	-6571288.05	-6571287.89	0.0492	0.0377
Moon	-22705-10-17 11:16 J	-6571288.18	-6571288.03	-6571287.87	0.0492	0.0359 *
Venus	-22704-05-19 06:00 J	-6571074.37	-6571074.25	-6571074.12	0.0492	0.0395
Venus	-22703-01-10 14:09 J	-6570838.12	-6570837.91	-6570837.71	0.0494	0.0035
Venus	-22703-09-04 04:04 J	-6570601.48	-6570601.33	-6570601.18	0.0498	0.0344
Mercury	-22703-09-26 06:43 J	-6570579.40	-6570579.22	-6570579.04	0.0498	0.0053
Venus	-22698-03-25 13:11 J	-6568938.04	-6568937.95	-6568937.84	0.0534	0.0459

Venus	-22698-11-18 06:28 J	-6568700.43	-6568700.23	-6568700.03	0.0533	0.0005
Mercury	-22697-05-18 05:16 J	-6568518.41	-6568518.28	-6568518.16	0.0529	0.0132
Venus	-22697-07-12 16:04 J	-6568462.94	-6568462.83	-6568462.72	0.0528	0.0440
Mercury	-22697-08-15 12:00 J	-6568429.07	-6568429.00	-6568428.94	0.0527	0.0451
Earth	-22693-10-22 00:00 J	-6566900.73	-6566900.50	-6566900.26	0.0492	0.0073
Moon	-22693-10-22 01:11 J	-6566900.69	-6566900.45	-6566900.20	0.0492	0.0054 *
Venus	-22692-01-22 08:38 J	-6566808.16	-6566808.14	-6566808.11	0.0492	0.0487
Venus	-22692-09-15 15:07 J	-6566572.07	-6566571.87	-6566571.67	0.0493	0.0135
Venus	-22691-05-10 02:52 J	-6566335.56	-6566335.38	-6566335.20	0.0496	0.0240
Mercury	-22691-07-15 04:19 J	-6566269.50	-6566269.32	-6566269.14	0.0497	0.0124
Venus	-22686-07-23 23:02 J	-6564434.73	-6564434.54	-6564434.34	0.0534	0.0128
Mercury	-22685-03-06 09:21 J	-6564208.21	-6564208.11	-6564208.00	0.0530	0.0272
Venus	-22685-03-17 11:31 J	-6564197.18	-6564197.02	-6564196.86	0.0530	0.0325
Mercury	-22685-06-03 16:04 J	-6564118.93	-6564118.83	-6564118.73	0.0528	0.0310
Moon	-22681-10-26 09:21 J	-6562513.12	-6562513.11	-6562513.08	0.0492	0.0490
Venus	-22680-05-21 15:50 J	-6562306.02	-6562305.84	-6562305.66	0.0492	0.0236
Venus	-22679-01-13 01:40 J	-6562069.63	-6562069.43	-6562069.23	0.0495	0.0135
Mercury	-22679-05-03 01:26 J	-6561959.58	-6561959.44	-6561959.29	0.0497	0.0305
Mercury	-22679-08-01 09:21 J	-6561869.21	-6561869.11	-6561869.00	0.0499	0.0407
Mars	-22679-09-05 18:28 J	-6561833.98	-6561833.73	-6561833.48	0.0499	0.0166
Venus	-22674-03-28 16:19 J	-6560169.00	-6560168.82	-6560168.64	0.0534	0.0254
Venus	-22674-11-21 06:43 J	-6559931.40	-6559931.22	-6559931.03	0.0531	0.0206
Mercury	-22674-12-24 13:55 J	-6559898.00	-6559897.92	-6559897.84	0.0530	0.0408
Mercury	-22673-03-22 20:23 J	-6559808.77	-6559808.65	-6559808.53	0.0528	0.0172
Venus	-22668-01-24 17:45 J	-6558039.91	-6558039.76	-6558039.61	0.0492	0.0333
Venus	-22668-09-18 02:23 J	-6557803.61	-6557803.40	-6557803.20	0.0494	0.0033
Mercury	-22667-02-18 23:16 J	-6557649.57	-6557649.53	-6557649.48	0.0497	0.0478
Venus	-22667-05-12 17:02 J	-6557566.91	-6557566.79	-6557566.67	0.0498	0.0408
Mercury	-22667-05-20 07:40 J	-6557559.34	-6557559.18	-6557559.02	0.0498	0.0238
Venus	-22663-12-01 08:23 J	-6555903.30	-6555903.15	-6555903.01	0.0534	0.0378

Venus	-22662-07-27 00:00 J	-6555665.70	-6555665.50	-6555665.30	0.0532	0.0082
Mercury	-22661-01-10 00:14 J	-6555498.62	-6555498.49	-6555498.36	0.0528	0.0027
Venus	-22661-03-20 07:55 J	-6555428.21	-6555428.17	-6555428.12	0.0527	0.0511
Venus	-22657-09-29 18:00 J	-6553773.84	-6553773.75	-6553773.64	0.0492	0.0429
Venus	-22656-05-24 01:40 J	-6553537.64	-6553537.43	-6553537.23	0.0494	0.0071
Venus	-22655-01-15 14:52 J	-6553301.04	-6553300.88	-6553300.71	0.0497	0.0306
Mercury	-22655-03-08 05:02 J	-6553249.47	-6553249.29	-6553249.10	0.0498	0.0061
Earth	-22651-04-22 19:55 J	-6551742.90	-6551742.67	-6551742.44	0.0534	0.0083
Moon	-22651-04-22 23:16 J	-6551742.75	-6551742.53	-6551742.30	0.0534	0.0059 *
Venus	-22651-08-05 23:02 J	-6551637.60	-6551637.54	-6551637.47	0.0534	0.0500
Venus	-22650-03-31 16:48 J	-6551400.00	-6551399.80	-6551399.60	0.0532	0.0046
Mercury	-22650-10-29 04:19 J	-6551188.45	-6551188.32	-6551188.20	0.0529	0.0121
Mars	-22650-11-08 18:28 J	-6551177.93	-6551177.73	-6551177.52	0.0528	0.0375
Venus	-22650-11-24 02:38 J	-6551162.51	-6551162.39	-6551162.25	0.0528	0.0398
Mercury	-22649-01-26 10:48 J	-6551099.11	-6551099.05	-6551098.99	0.0527	0.0460
Venus	-22644-01-27 02:23 J	-6549271.59	-6549271.40	-6549271.20	0.0493	0.0172
Venus	-22644-09-20 13:55 J	-6549035.10	-6549034.92	-6549034.73	0.0496	0.0204
Mercury	-22644-12-25 02:38 J	-6548939.57	-6548939.39	-6548939.21	0.0498	0.0119
Mars	-22643-06-10 04:19 J	-6548772.37	-6548772.32	-6548772.25	0.0501	0.0487
Moon	-22639-04-27 13:40 J	-6547355.02	-6547354.93	-6547354.82	0.0534	0.0481
Earth	-22639-04-27 15:50 J	-6547354.95	-6547354.84	-6547354.72	0.0534	0.0458 *
Venus	-22639-12-04 06:57 J	-6547134.40	-6547134.21	-6547134.02	0.0534	0.0175
Venus	-22638-07-29 19:40 J	-6546896.84	-6546896.68	-6546896.50	0.0530	0.0281
Mercury	-22638-08-17 07:55 J	-6546878.28	-6546878.17	-6546878.06	0.0530	0.0271
Mercury	-22638-11-14 14:38 J	-6546789.00	-6546788.89	-6546788.79	0.0528	0.0310
Venus	-22633-10-02 04:04 J	-6545005.50	-6545005.33	-6545005.15	0.0492	0.0270
Venus	-22632-05-26 13:40 J	-6544769.13	-6544768.93	-6544768.73	0.0495	0.0100
Mercury	-22632-10-13 00:14 J	-6544629.64	-6544629.49	-6544629.35	0.0497	0.0296
Mercury	-22631-01-11 07:55 J	-6544539.26	-6544539.17	-6544539.06	0.0499	0.0417
Venus	-22631-01-18 05:16 J	-6544532.33	-6544532.28	-6544532.21	0.0499	0.0474

Venus	-22627-08-08 22:33 J	-6542868.73	-6542868.56	-6542868.40	0.0534	0.0302
Venus	-22626-04-03 13:55 J	-6542631.11	-6542630.92	-6542630.73	0.0532	0.0158
Mercury	-22626-06-05 12:00 J	-6542568.07	-6542568.00	-6542567.92	0.0530	0.0414
Mercury	-22626-09-02 18:43 J	-6542478.84	-6542478.72	-6542478.60	0.0528	0.0167
Earth	-22622-10-17 18:43 J	-6540972.83	-6540972.72	-6540972.61	0.0492	0.0433
Moon	-22622-10-17 19:55 J	-6540972.79	-6540972.67	-6540972.53	0.0492	0.0416 *
Venus	-22621-06-07 05:31 J	-6540739.40	-6540739.27	-6540739.13	0.0492	0.0367
Venus	-22620-01-29 13:11 J	-6540503.16	-6540502.95	-6540502.74	0.0494	0.0008
Mercury	-22620-07-31 21:07 J	-6540319.66	-6540319.62	-6540319.57	0.0496	0.0478
Venus	-22620-09-23 02:52 J	-6540266.51	-6540266.38	-6540266.24	0.0497	0.0371
Mercury	-22620-10-30 05:31 J	-6540229.43	-6540229.27	-6540229.11	0.0498	0.0237
Venus	-22615-04-13 14:23 J	-6538603.01	-6538602.90	-6538602.77	0.0535	0.0426
Venus	-22615-12-07 07:55 J	-6538365.37	-6538365.17	-6538364.97	0.0533	0.0034
Mercury	-22614-06-21 23:02 J	-6538168.67	-6538168.54	-6538168.41	0.0529	0.0031
Venus	-22614-08-01 17:31 J	-6538127.85	-6538127.77	-6538127.68	0.0528	0.0471
Mars	-22614-08-17 01:40 J	-6538112.71	-6538112.43	-6538112.14	0.0528	0.0098
Moon	-22610-10-22 04:19 J	-6536585.55	-6536585.32	-6536585.08	0.0492	0.0016
Earth	-22610-10-22 06:43 J	-6536585.45	-6536585.22	-6536584.98	0.0492	0.0014 *
Venus	-22609-02-11 07:40 J	-6536473.24	-6536473.18	-6536473.10	0.0492	0.0460
Venus	-22609-10-04 14:09 J	-6536237.11	-6536236.91	-6536236.71	0.0493	0.0107
Venus	-22608-05-29 01:55 J	-6536000.59	-6536000.42	-6536000.24	0.0496	0.0269
Mercury	-22608-08-18 03:21 J	-6535919.54	-6535919.36	-6535919.18	0.0498	0.0064
Venus	-22603-08-12 00:57 J	-6534099.66	-6534099.46	-6534099.27	0.0533	0.0092
Venus	-22602-04-06 12:14 J	-6533862.13	-6533861.99	-6533861.84	0.0529	0.0357
Mercury	-22602-04-10 03:07 J	-6533858.50	-6533858.37	-6533858.25	0.0529	0.0118
Mercury	-22602-07-08 09:36 J	-6533769.16	-6533769.10	-6533769.04	0.0527	0.0464
Earth	-22598-10-26 14:52 J	-6532197.99	-6532197.88	-6532197.77	0.0492	0.0436
Moon	-22598-10-26 18:14 J	-6532197.86	-6532197.74	-6532197.60	0.0492	0.0415 *
Venus	-22597-06-09 13:26 J	-6531971.12	-6531970.94	-6531970.75	0.0493	0.0209
Venus	-22596-02-01 00:14 J	-6531734.69	-6531734.49	-6531734.30	0.0496	0.0165



Mars	-22596-05-24 12:00 J	-6531622.16	-6531622.00	-6531621.82	0.0498	0.0375
Mercury	-22596-06-06 00:28 J	-6531609.65	-6531609.48	-6531609.30	0.0498	0.0119
Venus	-22591-04-16 16:33 J	-6529833.99	-6529833.81	-6529833.62	0.0534	0.0220
Venus	-22591-12-10 05:45 J	-6529596.43	-6529596.26	-6529596.07	0.0530	0.0237
Mercury	-22590-01-27 06:57 J	-6529548.32	-6529548.21	-6529548.10	0.0529	0.0262
Mercury	-22590-04-26 13:26 J	-6529459.04	-6529458.94	-6529458.84	0.0527	0.0317
Venus	-22585-02-13 14:52 J	-6527705.04	-6527704.88	-6527704.72	0.0492	0.0306
Venus	-22585-10-07 00:00 J	-6527468.70	-6527468.50	-6527468.29	0.0495	0.0062
Mercury	-22584-03-24 22:04 J	-6527299.73	-6527299.58	-6527299.44	0.0497	0.0297
Venus	-22584-05-31 15:07 J	-6527231.96	-6527231.87	-6527231.76	0.0499	0.0438
Mercury	-22584-06-23 06:00 J	-6527209.34	-6527209.25	-6527209.15	0.0499	0.0417
Venus	-22580-12-20 05:31 J	-6525568.41	-6525568.27	-6525568.11	0.0534	0.0349
Venus	-22579-08-14 21:21 J	-6525330.81	-6525330.61	-6525330.41	0.0532	0.0111
Mercury	-22579-11-15 10:33 J	-6525238.14	-6525238.06	-6525237.98	0.0530	0.0414
Mercury	-22578-02-12 17:02 J	-6525148.91	-6525148.79	-6525148.67	0.0528	0.0164
Venus	-22574-10-19 17:02 J	-6523438.90	-6523438.79	-6523438.66	0.0492	0.0401
Venus	-22573-06-12 00:28 J	-6523202.69	-6523202.48	-6523202.27	0.0494	0.0041
Mercury	-22572-01-10 19:11 J	-6522989.74	-6522989.70	-6522989.64	0.0497	0.0476
Venus	-22572-02-03 13:26 J	-6522966.09	-6522965.94	-6522965.78	0.0497	0.0335
Mercury	-22572-04-11 03:50 J	-6522899.50	-6522899.34	-6522899.18	0.0498	0.0241
Moon	-22568-04-21 15:50 J	-6521428.06	-6521427.84	-6521427.62	0.0534	0.0175
Earth	-22568-04-21 18:14 J	-6521427.95	-6521427.74	-6521427.52	0.0534	0.0198 *
Venus	-22568-08-24 20:09 J	-6521302.75	-6521302.66	-6521302.57	0.0535	0.0473
Venus	-22567-04-19 13:55 J	-6521065.12	-6521064.92	-6521064.72	0.0533	0.0019
Mercury	-22567-12-01 21:07 J	-6520838.75	-6520838.62	-6520838.49	0.0529	0.0022
Venus	-22567-12-13 00:28 J	-6520827.59	-6520827.48	-6520827.36	0.0529	0.0427
Venus	-22561-02-16 00:43 J	-6518936.67	-6518936.47	-6518936.27	0.0493	0.0144
Venus	-22561-10-09 11:45 J	-6518700.19	-6518700.01	-6518699.82	0.0496	0.0230
Mercury	-22560-01-28 00:57 J	-6518589.64	-6518589.46	-6518589.28	0.0498	0.0059
Mars	-22560-02-25 11:02 J	-6518561.30	-6518561.04	-6518560.78	0.0498	0.0073

Earth	-22556-04-26 18:28 J	-6517039.89	-6517039.73	-6517039.56	0.0535	0.0364
Moon	-22556-04-26 18:43 J	-6517039.88	-6517039.72	-6517039.57	0.0535	0.0381 *
Venus	-22556-12-23 06:43 J	-6516799.41	-6516799.22	-6516799.03	0.0534	0.0143
Venus	-22555-08-17 19:40 J	-6516561.84	-6516561.68	-6516561.52	0.0530	0.0311
Mercury	-22555-09-20 01:26 J	-6516528.57	-6516528.44	-6516528.32	0.0529	0.0120
Mercury	-22555-12-18 08:09 J	-6516439.22	-6516439.16	-6516439.10	0.0527	0.0463
Venus	-22550-10-22 01:55 J	-6514670.60	-6514670.42	-6514670.24	0.0492	0.0243
Venus	-22549-06-14 11:16 J	-6514434.23	-6514434.03	-6514433.83	0.0495	0.0126
Mercury	-22549-11-15 22:33 J	-6514279.74	-6514279.56	-6514279.38	0.0497	0.0117
Venus	-22548-02-06 03:07 J	-6514197.37	-6514197.37	-6514197.36	0.0499	0.0499
Venus	-22544-08-27 23:31 J	-6512533.69	-6512533.52	-6512533.35	0.0534	0.0267
Venus	-22543-04-22 14:09 J	-6512296.10	-6512295.91	-6512295.73	0.0531	0.0192
Mercury	-22543-07-09 05:31 J	-6512218.38	-6512218.27	-6512218.16	0.0529	0.0262
Mercury	-22543-10-06 12:00 J	-6512129.10	-6512129.00	-6512128.90	0.0527	0.0318
Venus	-22538-06-27 01:26 J	-6510404.58	-6510404.44	-6510404.29	0.0492	0.0343
Venus	-22537-02-18 09:50 J	-6510168.30	-6510168.09	-6510167.89	0.0494	0.0024
Mercury	-22537-09-03 19:26 J	-6509969.83	-6509969.69	-6509969.54	0.0497	0.0303
Venus	-22537-10-12 00:14 J	-6509931.61	-6509931.49	-6509931.36	0.0498	0.0399
Mercury	-22537-12-03 03:36 J	-6509879.45	-6509879.35	-6509879.25	0.0499	0.0412
Venus	-22532-05-02 14:23 J	-6508268.03	-6508267.90	-6508267.76	0.0534	0.0393
Venus	-22532-12-26 06:43 J	-6508030.42	-6508030.22	-6508030.02	0.0532	0.0066
Mercury	-22531-04-27 09:21 J	-6507908.18	-6507908.11	-6507908.03	0.0530	0.0407
Mercury	-22531-07-25 15:50 J	-6507818.96	-6507818.84	-6507818.72	0.0528	0.0171
Venus	-22531-08-20 15:21 J	-6507792.92	-6507792.86	-6507792.80	0.0527	0.0497
Earth	-22527-10-21 06:43 J	-6506270.46	-6506270.22	-6506269.99	0.0492	0.0083
Moon	-22527-10-21 10:04 J	-6506270.31	-6506270.08	-6506269.84	0.0492	0.0107 *
Venus	-22526-03-02 03:21 J	-6506138.45	-6506138.36	-6506138.27	0.0492	0.0436
Venus	-22526-10-24 10:04 J	-6505902.28	-6505902.08	-6505901.87	0.0493	0.0081
Venus	-22525-06-16 22:33 J	-6505665.72	-6505665.56	-6505665.39	0.0497	0.0297
Mercury	-22525-06-22 16:33 J	-6505659.84	-6505659.81	-6505659.76	0.0497	0.0483

Mercury	-22525-09-21 01:11 J	-6505569.61	-6505569.45	-6505569.29	0.0499	0.0235
Mars	-22525-11-29 14:09 J	-6505500.14	-6505499.91	-6505499.67	0.0500	0.0233
Venus	-22520-01-05 02:23 J	-6504002.44	-6504002.40	-6504002.35	0.0534	0.0518
Venus	-22520-08-30 20:52 J	-6503764.83	-6503764.63	-6503764.43	0.0533	0.0065
Venus	-22519-04-25 08:09 J	-6503527.29	-6503527.16	-6503527.02	0.0529	0.0383
Mercury	-22519-05-13 19:11 J	-6503508.82	-6503508.70	-6503508.57	0.0529	0.0024
Moon	-22515-10-25 15:36 J	-6501883.01	-6501882.85	-6501882.67	0.0492	0.0346
Earth	-22515-10-25 19:26 J	-6501882.84	-6501882.69	-6501882.52	0.0492	0.0364 *
Venus	-22514-06-29 11:31 J	-6501636.21	-6501636.02	-6501635.83	0.0493	0.0181
Venus	-22513-02-20 22:04 J	-6501399.78	-6501399.58	-6501399.39	0.0495	0.0193
Mercury	-22513-07-09 22:48 J	-6501259.73	-6501259.55	-6501259.37	0.0498	0.0059
Venus	-22508-05-05 12:00 J	-6499499.18	-6499499.00	-6499498.81	0.0534	0.0193
Venus	-22508-12-29 01:40 J	-6499261.60	-6499261.43	-6499261.25	0.0531	0.0264
Mercury	-22507-03-01 23:16 J	-6499198.65	-6499198.53	-6499198.41	0.0529	0.0130
Mercury	-22507-05-30 06:00 J	-6499109.32	-6499109.25	-6499109.19	0.0527	0.0452
Venus	-22502-03-04 12:28 J	-6497370.15	-6497369.98	-6497369.81	0.0492	0.0280
Venus	-22502-10-26 20:52 J	-6497133.83	-6497133.63	-6497133.42	0.0494	0.0088
Mercury	-22501-04-27 19:55 J	-6496949.85	-6496949.67	-6496949.49	0.0497	0.0125
Venus	-22501-06-19 11:45 J	-6496897.08	-6496897.01	-6496896.93	0.0498	0.0461
Venus	-22496-01-08 03:50 J	-6495233.50	-6495233.34	-6495233.18	0.0535	0.0320
Venus	-22496-09-02 19:40 J	-6494995.87	-6494995.68	-6494995.48	0.0532	0.0142
Mercury	-22496-12-19 03:36 J	-6494888.46	-6494888.35	-6494888.24	0.0530	0.0271
Mars	-22495-02-01 11:16 J	-6494844.27	-6494844.03	-6494843.78	0.0529	0.0289
Mercury	-22495-03-18 10:04 J	-6494799.18	-6494799.08	-6494798.98	0.0528	0.0311
Venus	-22491-11-07 13:55 J	-6493104.05	-6493103.92	-6493103.79	0.0492	0.0377
Venus	-22490-07-01 20:52 J	-6492867.83	-6492867.63	-6492867.42	0.0493	0.0018
Mercury	-22489-02-14 17:16 J	-6492639.93	-6492639.78	-6492639.64	0.0497	0.0304
Venus	-22489-02-23 09:50 J	-6492631.22	-6492631.09	-6492630.94	0.0497	0.0359
Mercury	-22489-05-15 01:26 J	-6492549.54	-6492549.44	-6492549.34	0.0499	0.0409
Earth	-22485-04-20 21:36 J	-6491112.79	-6491112.60	-6491112.41	0.0534	0.0290

Moon	-22485-04-20 22:04 J	-6491112.76	-6491112.58	-6491112.38	0.0534	0.0264 *
Venus	-22485-09-12 19:55 J	-6490967.78	-6490967.67	-6490967.55	0.0535	0.0441
Venus	-22484-05-08 13:40 J	-6490730.13	-6490729.93	-6490729.73	0.0533	0.0021
Mercury	-22484-10-07 07:55 J	-6490578.25	-6490578.17	-6490578.10	0.0530	0.0411
Venus	-22484-12-31 23:31 J	-6490492.62	-6490492.52	-6490492.42	0.0528	0.0456
Mercury	-22483-01-04 14:09 J	-6490489.03	-6490488.91	-6490488.79	0.0528	0.0167
Venus	-22479-07-13 13:40 J	-6488837.98	-6488837.93	-6488837.87	0.0492	0.0471
Venus	-22478-03-06 19:55 J	-6488601.87	-6488601.67	-6488601.47	0.0493	0.0119
Venus	-22478-10-29 07:26 J	-6488365.37	-6488365.19	-6488365.01	0.0496	0.0256
Mercury	-22478-12-03 13:55 J	-6488329.94	-6488329.92	-6488329.90	0.0497	0.0493
Mercury	-22477-03-02 22:19 J	-6488239.73	-6488239.57	-6488239.40	0.0499	0.0226
Earth	-22473-04-25 21:21 J	-6486724.81	-6486724.61	-6486724.41	0.0534	0.0267
Moon	-22473-04-25 23:16 J	-6486724.73	-6486724.53	-6486724.33	0.0534	0.0276 *
Venus	-22472-01-11 05:31 J	-6486464.47	-6486464.27	-6486464.07	0.0533	0.0110
Venus	-22472-09-05 17:31 J	-6486226.92	-6486226.77	-6486226.62	0.0529	0.0340
Mercury	-22472-10-23 18:00 J	-6486178.87	-6486178.75	-6486178.62	0.0528	0.0026
Venus	-22467-11-09 20:52 J	-6484335.82	-6484335.63	-6484335.45	0.0493	0.0219
Venus	-22466-07-04 06:43 J	-6484099.42	-6484099.22	-6484099.02	0.0495	0.0153
Mercury	-22466-12-20 19:55 J	-6483929.85	-6483929.67	-6483929.49	0.0498	0.0047
Venus	-22461-09-15 18:14 J	-6482198.91	-6482198.74	-6482198.56	0.0534	0.0242
Venus	-22460-05-11 08:52 J	-6481961.32	-6481961.13	-6481960.95	0.0531	0.0217
Mercury	-22460-08-11 21:21 J	-6481868.73	-6481868.61	-6481868.48	0.0529	0.0138
Mars	-22460-11-09 05:45 J	-6481779.53	-6481779.26	-6481778.98	0.0527	0.0160
Mercury	-22460-11-09 04:04 J	-6481779.40	-6481779.33	-6481779.26	0.0527	0.0444 *
Venus	-22455-07-15 22:48 J	-6480069.70	-6480069.55	-6480069.39	0.0492	0.0317
Venus	-22454-03-09 06:57 J	-6479833.41	-6479833.21	-6479833.00	0.0494	0.0050
Mercury	-22454-10-08 17:31 J	-6479619.95	-6479619.77	-6479619.59	0.0497	0.0130
Venus	-22454-10-31 21:21 J	-6479596.72	-6479596.61	-6479596.50	0.0498	0.0424
Venus	-22449-05-21 08:23 J	-6477933.29	-6477933.15	-6477933.00	0.0534	0.0370
Venus	-22448-01-14 00:57 J	-6477695.65	-6477695.46	-6477695.26	0.0532	0.0092

Mercury	-22448-05-31 01:26 J	-6477558.55	-6477558.44	-6477558.33	0.0530	0.0283
Mercury	-22448-08-28 07:55 J	-6477469.28	-6477469.17	-6477469.06	0.0528	0.0297
Venus	-22448-09-08 10:04 J	-6477458.10	-6477458.08	-6477458.05	0.0528	0.0521
Moon	-22444-10-20 06:14 J	-6475955.46	-6475955.24	-6475955.02	0.0492	0.0187
Earth	-22444-10-20 09:50 J	-6475955.31	-6475955.09	-6475954.86	0.0492	0.0159 *
Venus	-22443-03-21 00:28 J	-6475803.59	-6475803.48	-6475803.37	0.0492	0.0412
Venus	-22443-11-12 06:43 J	-6475567.42	-6475567.22	-6475567.01	0.0493	0.0055
Venus	-22442-07-06 18:43 J	-6475330.88	-6475330.72	-6475330.56	0.0496	0.0320
Mercury	-22442-07-27 14:23 J	-6475310.04	-6475309.90	-6475309.76	0.0497	0.0314
Mars	-22442-08-17 22:04 J	-6475288.78	-6475288.58	-6475288.38	0.0497	0.0321
Mercury	-22442-10-25 22:33 J	-6475219.67	-6475219.56	-6475219.45	0.0499	0.0399
Venus	-22437-01-24 23:02 J	-6473667.61	-6473667.54	-6473667.46	0.0535	0.0493
Venus	-22437-09-18 18:00 J	-6473429.95	-6473429.75	-6473429.55	0.0533	0.0037
Mercury	-22436-03-19 05:31 J	-6473248.34	-6473248.27	-6473248.19	0.0530	0.0424
Venus	-22436-05-14 05:31 J	-6473192.39	-6473192.27	-6473192.14	0.0529	0.0410
Mercury	-22436-06-16 12:00 J	-6473159.12	-6473159.00	-6473158.87	0.0528	0.0156
Earth	-22432-10-24 20:52 J	-6471567.82	-6471567.63	-6471567.43	0.0492	0.0280
Moon	-22432-10-25 00:14 J	-6471567.68	-6471567.49	-6471567.29	0.0492	0.0271 *
Venus	-22431-07-18 07:11 J	-6471301.39	-6471301.20	-6471301.00	0.0493	0.0157
Venus	-22430-03-11 17:31 J	-6471064.95	-6471064.77	-6471064.58	0.0495	0.0217
Mercury	-22430-05-15 11:31 J	-6471000.03	-6471000.02	-6471000.01	0.0496	0.0495
Mercury	-22430-08-13 19:55 J	-6470909.83	-6470909.67	-6470909.50	0.0498	0.0222
Venus	-22425-05-24 11:02 J	-6469164.23	-6469164.04	-6469163.85	0.0534	0.0161
Venus	-22424-01-17 00:28 J	-6468926.65	-6468926.48	-6468926.32	0.0530	0.0295
Mercury	-22424-04-04 16:19 J	-6468848.95	-6468848.82	-6468848.69	0.0529	0.0017
Venus	-22419-03-23 06:43 J	-6467035.40	-6467035.22	-6467035.05	0.0492	0.0257
Venus	-22419-11-14 15:36 J	-6466799.05	-6466798.85	-6466798.65	0.0495	0.0112
Mercury	-22418-06-01 16:48 J	-6466599.98	-6466599.80	-6466599.61	0.0498	0.0036
Venus	-22418-07-09 06:57 J	-6466562.25	-6466562.21	-6466562.16	0.0499	0.0485
Venus	-22413-01-28 02:23 J	-6464898.57	-6464898.40	-6464898.23	0.0534	0.0288

Venus	-22413-09-21 17:45 J	-6464660.95	-6464660.76	-6464660.57	0.0531	0.0172
Mercury	-22412-01-21 20:09 J	-6464538.78	-6464538.66	-6464538.53	0.0529	0.0132
Mercury	-22412-04-21 02:38 J	-6464449.45	-6464449.39	-6464449.32	0.0527	0.0449
Venus	-22408-11-26 08:09 J	-6462769.30	-6462769.16	-6462769.02	0.0492	0.0354
Venus	-22407-07-20 15:36 J	-6462533.05	-6462532.85	-6462532.64	0.0494	0.0014
Venus	-22406-03-14 05:16 J	-6462296.41	-6462296.28	-6462296.15	0.0497	0.0385
Mercury	-22406-03-20 14:23 J	-6462290.08	-6462289.90	-6462289.73	0.0498	0.0143
Mars	-22406-05-21 18:28 J	-6462227.99	-6462227.73	-6462227.47	0.0499	0.0027
Earth	-22402-04-20 16:04 J	-6460797.96	-6460797.83	-6460797.68	0.0534	0.0419
Moon	-22402-04-20 17:16 J	-6460797.94	-6460797.78	-6460797.61	0.0534	0.0387 *
Venus	-22402-10-02 14:09 J	-6460633.03	-6460632.91	-6460632.78	0.0534	0.0418
Venus	-22401-05-27 07:26 J	-6460395.39	-6460395.19	-6460394.99	0.0532	0.0043
Mercury	-22401-11-09 23:31 J	-6460228.63	-6460228.52	-6460228.41	0.0530	0.0290
Venus	-22400-01-19 17:16 J	-6460157.85	-6460157.78	-6460157.69	0.0528	0.0479
Mercury	-22400-02-07 06:00 J	-6460139.36	-6460139.25	-6460139.14	0.0528	0.0290
Venus	-22396-08-01 10:33 J	-6458503.13	-6458503.06	-6458502.96	0.0492	0.0448
Venus	-22395-03-25 16:48 J	-6458267.00	-6458266.80	-6458266.59	0.0493	0.0094
Venus	-22395-11-17 04:19 J	-6458030.49	-6458030.32	-6458030.15	0.0496	0.0283
Mercury	-22394-01-06 11:45 J	-6457980.14	-6457980.01	-6457979.86	0.0497	0.0320
Mercury	-22394-04-06 19:55 J	-6457889.77	-6457889.67	-6457889.55	0.0499	0.0395
Moon	-22390-04-25 10:48 J	-6456410.26	-6456410.05	-6456409.83	0.0534	0.0135
Earth	-22390-04-25 13:40 J	-6456410.15	-6456409.93	-6456409.70	0.0534	0.0127 *
Venus	-22389-01-30 22:48 J	-6456129.75	-6456129.55	-6456129.35	0.0533	0.0087
Mercury	-22389-08-29 03:21 J	-6455918.43	-6455918.36	-6455918.29	0.0530	0.0437
Venus	-22389-09-24 11:16 J	-6455892.18	-6455892.03	-6455891.89	0.0530	0.0363
Mercury	-22389-11-26 09:50 J	-6455829.21	-6455829.09	-6455828.97	0.0528	0.0142
Venus	-22384-11-28 17:31 J	-6454000.96	-6454000.77	-6454000.58	0.0492	0.0194
Venus	-22383-07-23 02:52 J	-6453764.57	-6453764.38	-6453764.19	0.0495	0.0177
Mercury	-22382-01-23 17:16 J	-6453579.95	-6453579.78	-6453579.62	0.0498	0.0212
Venus	-22378-10-05 14:23 J	-6451864.08	-6451863.90	-6451863.72	0.0534	0.0216

Venus	-22377-05-30 05:16 J	-6451626.46	-6451626.28	-6451626.10	0.0531	0.0244
Mercury	-22377-09-14 13:55 J	-6451519.05	-6451518.92	-6451518.79	0.0529	0.0007
Venus	-22372-08-03 18:28 J	-6449734.89	-6449734.73	-6449734.56	0.0492	0.0293
Venus	-22371-03-28 02:23 J	-6449498.60	-6449498.40	-6449498.19	0.0494	0.0074
Mercury	-22371-11-11 14:38 J	-6449270.08	-6449269.89	-6449269.71	0.0498	0.0033
Venus	-22371-11-19 16:19 J	-6449261.90	-6449261.82	-6449261.72	0.0498	0.0447
Mars	-22370-02-22 18:43 J	-6449166.93	-6449166.72	-6449166.50	0.0500	0.0283
Venus	-22366-06-10 06:43 J	-6447598.37	-6447598.22	-6447598.06	0.0535	0.0340
Venus	-22365-02-02 23:31 J	-6447360.71	-6447360.52	-6447360.32	0.0532	0.0123
Mercury	-22365-07-03 18:14 J	-6447208.86	-6447208.74	-6447208.61	0.0529	0.0141
Mercury	-22365-10-01 00:57 J	-6447119.53	-6447119.46	-6447119.39	0.0527	0.0441
Earth	-22361-10-19 08:09 J	-6445640.36	-6445640.16	-6445639.95	0.0492	0.0255
Moon	-22361-10-19 11:31 J	-6445640.21	-6445640.02	-6445639.83	0.0492	0.0285 *
Venus	-22360-04-08 18:28 J	-6445468.85	-6445468.73	-6445468.60	0.0492	0.0391
Venus	-22360-12-01 00:57 J	-6445232.66	-6445232.46	-6445232.25	0.0493	0.0032
Venus	-22359-07-25 13:26 J	-6444996.09	-6444995.94	-6444995.79	0.0497	0.0344
Mercury	-22359-08-30 11:16 J	-6444960.20	-6444960.03	-6444959.86	0.0497	0.0156
Venus	-22354-02-12 21:36 J	-6443332.69	-6443332.60	-6443332.50	0.0535	0.0464
Venus	-22354-10-08 16:04 J	-6443095.03	-6443094.83	-6443094.63	0.0533	0.0010
Mercury	-22353-04-21 22:19 J	-6442898.68	-6442898.57	-6442898.46	0.0530	0.0284
Venus	-22353-06-02 03:07 J	-6442857.48	-6442857.37	-6442857.26	0.0529	0.0438
Mercury	-22353-07-20 04:48 J	-6442809.41	-6442809.30	-6442809.19	0.0527	0.0295
Moon	-22349-10-23 17:02 J	-6441253.02	-6441252.79	-6441252.56	0.0492	0.0171
Earth	-22349-10-23 19:26 J	-6441252.90	-6441252.69	-6441252.46	0.0492	0.0183 *
Venus	-22349-12-12 20:23 J	-6441202.68	-6441202.65	-6441202.61	0.0492	0.0483
Venus	-22348-08-06 01:55 J	-6440966.62	-6440966.42	-6440966.22	0.0493	0.0132
Venus	-22347-03-30 12:43 J	-6440730.15	-6440729.97	-6440729.79	0.0496	0.0242
Mercury	-22347-06-18 08:38 J	-6440650.27	-6440650.14	-6440650.00	0.0497	0.0334
Mercury	-22347-09-16 17:02 J	-6440559.90	-6440559.79	-6440559.67	0.0499	0.0382
Venus	-22342-06-13 04:48 J	-6438829.49	-6438829.30	-6438829.10	0.0534	0.0139

Venus	-22341-02-05 18:14 J	-6438591.90	-6438591.74	-6438591.58	0.0530	0.0317
Mercury	-22341-02-09 01:40 J	-6438588.50	-6438588.43	-6438588.36	0.0530	0.0442
Mars	-22341-04-26 07:40 J	-6438511.44	-6438511.18	-6438510.92	0.0528	0.0235
Mercury	-22341-05-08 07:55 J	-6438499.29	-6438499.17	-6438499.04	0.0528	0.0136
Venus	-22336-04-11 03:50 J	-6436700.52	-6436700.34	-6436700.15	0.0492	0.0232
Venus	-22336-12-03 12:57 J	-6436464.16	-6436463.96	-6436463.76	0.0495	0.0139
Mercury	-22335-07-05 14:52 J	-6436250.04	-6436249.88	-6436249.71	0.0498	0.0209
Venus	-22330-02-15 19:26 J	-6434563.87	-6434563.69	-6434563.52	0.0534	0.0267
Venus	-22330-10-11 10:48 J	-6434326.23	-6434326.05	-6434325.86	0.0532	0.0194
Mercury	-22329-02-25 11:45 J	-6434189.13	-6434189.01	-6434188.88	0.0529	0.0020
Venus	-22325-12-15 05:02 J	-6432434.43	-6432434.29	-6432434.13	0.0492	0.0330
Venus	-22324-08-08 12:28 J	-6432198.19	-6432197.98	-6432197.77	0.0493	0.0035
Venus	-22323-04-02 01:26 J	-6431961.55	-6431961.44	-6431961.32	0.0497	0.0408
Mercury	-22323-04-23 12:00 J	-6431940.18	-6431940.00	-6431939.82	0.0497	0.0026
Moon	-22319-04-19 09:50 J	-6430483.15	-6430483.09	-6430483.03	0.0534	0.0512
Venus	-22319-10-21 09:50 J	-6430298.22	-6430298.09	-6430297.95	0.0535	0.0394
Venus	-22318-06-16 03:36 J	-6430060.55	-6430060.35	-6430060.15	0.0533	0.0069
Mercury	-22318-12-14 16:04 J	-6429878.96	-6429878.83	-6429878.71	0.0530	0.0156
Venus	-22317-02-08 14:09 J	-6429822.97	-6429822.91	-6429822.85	0.0528	0.0504
Mercury	-22317-03-12 22:33 J	-6429789.63	-6429789.56	-6429789.48	0.0528	0.0427
Venus	-22313-08-20 06:57 J	-6428168.31	-6428168.21	-6428168.11	0.0492	0.0425
Venus	-22312-04-13 12:43 J	-6427932.17	-6427931.97	-6427931.76	0.0493	0.0069
Venus	-22312-12-05 23:45 J	-6427695.67	-6427695.51	-6427695.34	0.0496	0.0306
Mercury	-22311-02-09 09:07 J	-6427630.29	-6427630.12	-6427629.94	0.0497	0.0155
Earth	-22307-04-24 13:55 J	-6426095.15	-6426094.92	-6426094.69	0.0535	0.0022
Moon	-22307-04-24 17:31 J	-6426095.00	-6426094.77	-6426094.54	0.0535	0.0029 *
Venus	-22307-06-26 01:26 J	-6426032.49	-6426032.44	-6426032.38	0.0535	0.0514
Venus	-22306-02-18 21:21 J	-6425794.81	-6425794.61	-6425794.41	0.0534	0.0057
Mercury	-22306-10-02 20:23 J	-6425568.76	-6425568.65	-6425568.54	0.0530	0.0293
Venus	-22306-10-14 09:50 J	-6425557.22	-6425557.09	-6425556.96	0.0530	0.0393



Mercury	-22306-12-31 02:52 J	-6425479.49	-6425479.38	-6425479.27	0.0528	0.0287
Mars	-22305-02-02 16:48 J	-6425446.05	-6425445.80	-6425445.53	0.0527	0.0236
Venus	-22301-12-17 12:00 J	-6423666.19	-6423666.00	-6423665.80	0.0492	0.0172
Venus	-22300-08-10 21:36 J	-6423429.78	-6423429.60	-6423429.40	0.0495	0.0202
Mercury	-22300-11-28 05:45 J	-6423320.39	-6423320.26	-6423320.12	0.0497	0.0343
Mercury	-22299-02-26 14:09 J	-6423230.03	-6423229.91	-6423229.79	0.0499	0.0372
Venus	-22295-10-24 13:11 J	-6421529.13	-6421528.95	-6421528.76	0.0534	0.0185
Venus	-22294-06-19 03:36 J	-6421291.51	-6421291.35	-6421291.17	0.0531	0.0274
Mercury	-22294-07-22 00:28 J	-6421258.55	-6421258.48	-6421258.41	0.0530	0.0435
Mercury	-22294-10-19 06:57 J	-6421169.34	-6421169.21	-6421169.09	0.0528	0.0143
Venus	-22289-08-22 13:55 J	-6419400.09	-6419399.92	-6419399.75	0.0492	0.0270
Venus	-22288-04-15 22:04 J	-6419163.78	-6419163.58	-6419163.38	0.0494	0.0099
Mars	-22288-11-10 04:33 J	-6418955.52	-6418955.31	-6418955.09	0.0498	0.0274
Venus	-22288-12-08 12:28 J	-6418927.04	-6418926.98	-6418926.92	0.0498	0.0472
Mercury	-22288-12-15 12:00 J	-6418920.17	-6418920.00	-6418919.83	0.0498	0.0198
Venus	-22283-06-29 01:26 J	-6417263.60	-6417263.44	-6417263.28	0.0534	0.0317
Venus	-22282-02-21 17:45 J	-6417025.95	-6417025.76	-6417025.56	0.0532	0.0146
Mercury	-22282-08-07 10:04 J	-6416859.21	-6416859.08	-6416858.95	0.0529	0.0018
Moon	-22278-10-19 09:21 J	-6415325.27	-6415325.11	-6415324.94	0.0493	0.0359
Earth	-22278-10-19 12:00 J	-6415325.17	-6415325.00	-6415324.82	0.0493	0.0327 *
Venus	-22277-04-27 16:04 J	-6415133.96	-6415133.83	-6415133.68	0.0492	0.0367
Venus	-22277-12-19 23:02 J	-6414897.74	-6414897.54	-6414897.33	0.0493	0.0011
Venus	-22276-08-13 11:45 J	-6414661.15	-6414661.01	-6414660.88	0.0497	0.0371
Mercury	-22276-10-03 09:50 J	-6414610.27	-6414610.09	-6414609.90	0.0498	0.0026
Venus	-22271-03-03 15:21 J	-6412997.97	-6412997.86	-6412997.75	0.0534	0.0443
Venus	-22271-10-27 09:36 J	-6412760.30	-6412760.10	-6412759.90	0.0533	0.0018
Mercury	-22270-05-26 13:55 J	-6412549.04	-6412548.92	-6412548.80	0.0529	0.0165
Venus	-22270-06-21 20:38 J	-6412522.73	-6412522.64	-6412522.54	0.0529	0.0459
Mercury	-22270-08-23 20:38 J	-6412459.72	-6412459.64	-6412459.57	0.0527	0.0417
Earth	-22266-10-23 23:45 J	-6410937.74	-6410937.51	-6410937.27	0.0492	0.0114

Moon	-22266-10-24 00:57 J	-6410937.68	-6410937.46	-6410937.23	0.0492	0.0108 *
Venus	-22265-01-01 18:14 J	-6410867.81	-6410867.74	-6410867.67	0.0492	0.0460
Venus	-22265-08-24 23:45 J	-6410631.71	-6410631.51	-6410631.31	0.0493	0.0106
Venus	-22264-04-18 10:04 J	-6410395.25	-6410395.08	-6410394.90	0.0495	0.0268
Mercury	-22264-07-22 06:57 J	-6410300.38	-6410300.21	-6410300.04	0.0497	0.0157
Venus	-22259-07-02 01:11 J	-6408494.64	-6408494.45	-6408494.25	0.0534	0.0111
Venus	-22258-02-24 15:07 J	-6408257.02	-6408256.87	-6408256.72	0.0531	0.0344
Mercury	-22258-03-14 18:14 J	-6408238.85	-6408238.74	-6408238.64	0.0530	0.0308
Mercury	-22258-06-12 00:43 J	-6408149.58	-6408149.47	-6408149.36	0.0528	0.0274
Venus	-22253-04-30 00:43 J	-6406365.66	-6406365.47	-6406365.28	0.0492	0.0207
Venus	-22253-12-22 09:21 J	-6406129.30	-6406129.11	-6406128.91	0.0494	0.0164
Mercury	-22252-05-10 04:04 J	-6405990.46	-6405990.33	-6405990.19	0.0497	0.0338
Mercury	-22252-08-08 12:14 J	-6405900.10	-6405899.99	-6405899.87	0.0498	0.0376
Mars	-22252-08-14 04:19 J	-6405894.58	-6405894.32	-6405894.06	0.0498	0.0032
Venus	-22247-03-06 18:14 J	-6404228.92	-6404228.74	-6404228.56	0.0535	0.0237
Venus	-22247-10-30 10:04 J	-6403991.26	-6403991.08	-6403990.90	0.0532	0.0225
Mercury	-22247-12-31 22:33 J	-6403928.62	-6403928.56	-6403928.49	0.0531	0.0444
Mercury	-22246-03-31 05:02 J	-6403839.41	-6403839.29	-6403839.17	0.0529	0.0135
Venus	-22241-01-04 00:57 J	-6402099.62	-6402099.46	-6402099.30	0.0492	0.0307
Venus	-22241-08-27 08:09 J	-6401863.36	-6401863.16	-6401862.95	0.0494	0.0061
Venus	-22240-04-20 21:36 J	-6401626.70	-6401626.60	-6401626.50	0.0497	0.0433
Mercury	-22240-05-27 09:21 J	-6401590.28	-6401590.11	-6401589.94	0.0498	0.0192
Venus	-22236-11-09 09:36 J	-6399963.24	-6399963.10	-6399962.95	0.0535	0.0363
Venus	-22235-07-05 03:21 J	-6399725.56	-6399725.36	-6399725.16	0.0533	0.0101
Mercury	-22234-01-17 09:07 J	-6399529.25	-6399529.12	-6399528.99	0.0529	0.0010
Venus	-22230-09-09 03:21 J	-6397833.47	-6397833.36	-6397833.24	0.0492	0.0401
Venus	-22229-05-02 09:21 J	-6397597.32	-6397597.11	-6397596.90	0.0493	0.0043
Venus	-22229-12-24 20:52 J	-6397360.78	-6397360.63	-6397360.47	0.0496	0.0332
Mercury	-22228-03-15 07:11 J	-6397280.38	-6397280.20	-6397280.01	0.0498	0.0021
Moon	-22224-04-23 07:55 J	-6395780.39	-6395780.17	-6395779.94	0.0534	0.0086

Earth	-22224-04-23 11:45 J	-6395780.23	-6395780.01	-6395779.78	0.0534	0.0091 *
Venus	-22224-07-14 21:50 J	-6395697.67	-6395697.59	-6395697.52	0.0534	0.0491
Venus	-22223-03-09 16:48 J	-6395460.00	-6395459.80	-6395459.60	0.0533	0.0034
Venus	-22223-11-02 05:02 J	-6395222.41	-6395222.29	-6395222.17	0.0529	0.0415
Mercury	-22223-11-05 12:28 J	-6395219.10	-6395218.98	-6395218.86	0.0529	0.0165
Mercury	-22222-02-02 18:57 J	-6395129.79	-6395129.71	-6395129.63	0.0527	0.0415
Venus	-22217-01-06 11:02 J	-6393331.23	-6393331.04	-6393330.84	0.0493	0.0144
Venus	-22217-08-29 21:07 J	-6393094.80	-6393094.62	-6393094.43	0.0495	0.0230
Mercury	-22216-01-01 05:16 J	-6392970.46	-6392970.28	-6392970.11	0.0497	0.0153
Mars	-22216-05-18 09:50 J	-6392833.28	-6392833.09	-6392832.90	0.0500	0.0345
Earth	-22212-04-28 09:50 J	-6391392.20	-6391392.09	-6391391.97	0.0534	0.0457
Moon	-22212-04-28 12:57 J	-6391392.09	-6391391.96	-6391391.82	0.0534	0.0428 *
Venus	-22212-11-12 07:55 J	-6391194.36	-6391194.17	-6391193.98	0.0534	0.0162
Venus	-22211-07-07 22:04 J	-6390956.74	-6390956.58	-6390956.41	0.0531	0.0296
Mercury	-22211-08-24 16:19 J	-6390908.92	-6390908.82	-6390908.71	0.0530	0.0312
Mercury	-22211-11-21 22:48 J	-6390819.66	-6390819.55	-6390819.44	0.0528	0.0268
Venus	-22206-09-11 12:43 J	-6389065.15	-6389064.97	-6389064.79	0.0492	0.0243
Venus	-22205-05-04 20:52 J	-6388828.83	-6388828.63	-6388828.43	0.0494	0.0126
Mercury	-22205-10-20 02:09 J	-6388660.54	-6388660.41	-6388660.27	0.0497	0.0335
Venus	-22205-12-27 10:48 J	-6388592.05	-6388592.05	-6388592.03	0.0498	0.0497
Mercury	-22204-01-18 10:33 J	-6388570.17	-6388570.06	-6388569.94	0.0498	0.0379
Venus	-22200-07-17 22:33 J	-6386928.73	-6386928.56	-6386928.39	0.0535	0.0290
Venus	-22199-03-12 15:21 J	-6386691.04	-6386690.86	-6386690.67	0.0532	0.0174
Mercury	-22199-06-12 20:23 J	-6386598.71	-6386598.65	-6386598.58	0.0531	0.0455
Mercury	-22199-09-10 02:52 J	-6386509.50	-6386509.38	-6386509.25	0.0529	0.0125
Earth	-22195-10-18 17:02 J	-6385009.92	-6385009.79	-6385009.64	0.0492	0.0395
Moon	-22195-10-18 18:14 J	-6385009.85	-6385009.74	-6385009.62	0.0492	0.0425 *
Venus	-22194-05-17 14:09 J	-6384799.05	-6384798.91	-6384798.75	0.0492	0.0341
Venus	-22193-01-08 20:52 J	-6384562.84	-6384562.63	-6384562.42	0.0493	0.0023
Venus	-22193-09-01 09:07 J	-6384326.24	-6384326.12	-6384325.99	0.0497	0.0396

Mercury	-22193-11-06 07:55 J	-6384260.33	-6384260.17	-6384260.00	0.0498	0.0202
Venus	-22188-03-22 14:38 J	-6382663.01	-6382662.89	-6382662.76	0.0535	0.0413
Venus	-22188-11-15 09:36 J	-6382425.30	-6382425.10	-6382424.91	0.0533	0.0052
Mercury	-22187-06-29 07:26 J	-6382199.32	-6382199.19	-6382199.06	0.0529	0.0013
Venus	-22187-07-10 20:52 J	-6382187.70	-6382187.63	-6382187.55	0.0529	0.0490
Mars	-22187-07-21 03:07 J	-6382177.65	-6382177.37	-6382177.08	0.0529	0.0142
Earth	-22183-10-23 03:36 J	-6380622.59	-6380622.35	-6380622.11	0.0492	0.0040
Moon	-22183-10-23 04:04 J	-6380622.57	-6380622.33	-6380622.08	0.0492	0.0041 *
Venus	-22182-01-20 15:21 J	-6380532.94	-6380532.86	-6380532.76	0.0492	0.0437
Venus	-22182-09-13 20:52 J	-6380296.83	-6380296.63	-6380296.43	0.0493	0.0081
Venus	-22181-05-07 07:11 J	-6380060.36	-6380060.20	-6380060.03	0.0495	0.0294
Mercury	-22181-08-25 05:02 J	-6379950.47	-6379950.29	-6379950.10	0.0498	0.0019
Venus	-22177-11-25 06:00 J	-6378397.26	-6378397.25	-6378397.25	0.0535	0.0534
Venus	-22176-07-21 02:23 J	-6378159.60	-6378159.40	-6378159.20	0.0534	0.0078
Venus	-22175-03-15 15:50 J	-6377921.97	-6377921.84	-6377921.70	0.0530	0.0376
Mercury	-22175-04-17 11:45 J	-6377889.14	-6377889.01	-6377888.89	0.0530	0.0153
Mercury	-22175-07-15 18:14 J	-6377799.81	-6377799.74	-6377799.67	0.0527	0.0429
Earth	-22171-10-27 15:21 J	-6376234.90	-6376234.86	-6376234.80	0.0492	0.0480
Venus	-22170-05-19 22:33 J	-6376030.75	-6376030.56	-6376030.37	0.0492	0.0181
Venus	-22169-01-11 07:40 J	-6375794.37	-6375794.18	-6375793.99	0.0495	0.0192
Mercury	-22169-06-13 02:52 J	-6375640.55	-6375640.38	-6375640.20	0.0497	0.0155
Venus	-22164-03-25 15:36 J	-6373894.03	-6373893.85	-6373893.66	0.0534	0.0210
Venus	-22164-11-18 06:43 J	-6373656.39	-6373656.22	-6373656.04	0.0531	0.0250
Mercury	-22163-02-03 15:07 J	-6373578.98	-6373578.87	-6373578.77	0.0530	0.0309
Mercury	-22163-05-03 21:21 J	-6373489.72	-6373489.61	-6373489.50	0.0528	0.0271
Venus	-22158-01-23 00:43 J	-6371764.63	-6371764.47	-6371764.30	0.0492	0.0280
Venus	-22158-09-16 08:52 J	-6371528.34	-6371528.13	-6371527.93	0.0494	0.0089
Mercury	-22157-04-01 00:43 J	-6371330.60	-6371330.47	-6371330.32	0.0497	0.0326
Venus	-22157-05-09 22:19 J	-6371291.63	-6371291.57	-6371291.48	0.0498	0.0462
Mercury	-22157-06-30 09:07 J	-6371240.22	-6371240.12	-6371240.00	0.0499	0.0390

Venus	-22153-11-28 06:00 J	-6369628.40	-6369628.25	-6369628.09	0.0534	0.0338
Venus	-22152-07-23 23:02 J	-6369390.73	-6369390.54	-6369390.34	0.0532	0.0126
Mercury	-22152-11-22 18:57 J	-6369268.77	-6369268.71	-6369268.64	0.0530	0.0454
Mercury	-22151-02-20 01:26 J	-6369179.57	-6369179.44	-6369179.32	0.0528	0.0125
Mars	-22151-04-27 22:04 J	-6369112.80	-6369112.58	-6369112.33	0.0527	0.0311
Venus	-22147-09-28 03:07 J	-6367498.50	-6367498.37	-6367498.24	0.0492	0.0375
Venus	-22146-05-22 09:21 J	-6367262.32	-6367262.11	-6367261.90	0.0493	0.0014
Venus	-22145-01-13 20:52 J	-6367025.77	-6367025.63	-6367025.49	0.0496	0.0360
Mercury	-22145-04-18 06:43 J	-6366930.39	-6366930.22	-6366930.06	0.0498	0.0210
Earth	-22141-04-22 12:28 J	-6365465.19	-6365464.98	-6365464.76	0.0534	0.0193
Moon	-22141-04-22 15:50 J	-6365465.04	-6365464.84	-6365464.62	0.0534	0.0194 *
Venus	-22141-08-02 20:09 J	-6365362.76	-6365362.66	-6365362.56	0.0535	0.0463
Venus	-22140-03-28 15:21 J	-6365125.06	-6365124.86	-6365124.66	0.0533	0.0011
Venus	-22140-11-21 03:50 J	-6364887.44	-6364887.34	-6364887.23	0.0530	0.0444
Mercury	-22140-12-09 05:31 J	-6364869.40	-6364869.27	-6364869.14	0.0529	0.0019
Venus	-22135-06-03 05:31 J	-6363232.33	-6363232.27	-6363232.21	0.0492	0.0468
Venus	-22134-01-25 10:19 J	-6362996.27	-6362996.07	-6362995.87	0.0492	0.0116
Venus	-22134-09-18 20:09 J	-6362759.83	-6362759.66	-6362759.48	0.0495	0.0258
Mars	-22133-02-04 02:23 J	-6362621.63	-6362621.40	-6362621.15	0.0497	0.0196
Mercury	-22133-02-05 04:04 J	-6362620.51	-6362620.33	-6362620.14	0.0497	0.0034
Moon	-22129-04-27 12:00 J	-6361077.18	-6361077.00	-6361076.81	0.0535	0.0337
Earth	-22129-04-27 13:55 J	-6361077.08	-6361076.92	-6361076.75	0.0535	0.0370 *
Venus	-22129-12-01 08:23 J	-6360859.34	-6360859.15	-6360858.95	0.0534	0.0128
Venus	-22128-07-26 23:16 J	-6360621.69	-6360621.53	-6360621.37	0.0531	0.0330
Mercury	-22128-09-27 10:04 J	-6360559.20	-6360559.08	-6360558.96	0.0530	0.0155
Mercury	-22128-12-25 16:33 J	-6360469.88	-6360469.81	-6360469.73	0.0528	0.0427
Venus	-22123-09-30 11:16 J	-6358730.22	-6358730.03	-6358729.85	0.0492	0.0217
Venus	-22122-05-24 19:11 J	-6358493.89	-6358493.70	-6358493.50	0.0494	0.0154
Mercury	-22122-11-24 01:11 J	-6358310.62	-6358310.45	-6358310.27	0.0497	0.0150
Venus	-22117-08-06 00:57 J	-6356593.64	-6356593.46	-6356593.28	0.0535	0.0255

Venus	-22116-03-31 17:45 J	-6356355.95	-6356355.76	-6356355.58	0.0532	0.0209
Mercury	-22116-07-16 14:23 J	-6356249.00	-6356248.90	-6356248.79	0.0530	0.0293
Mercury	-22116-10-13 20:52 J	-6356159.74	-6356159.63	-6356159.52	0.0528	0.0287
Earth	-22112-10-18 00:00 J	-6354694.58	-6354694.50	-6354694.40	0.0492	0.0453
Moon	-22112-10-18 00:43 J	-6354694.52	-6354694.47	-6354694.41	0.0492	0.0479 *
Venus	-22111-06-05 13:40 J	-6354464.09	-6354463.93	-6354463.77	0.0492	0.0314
Venus	-22110-01-27 20:23 J	-6354227.85	-6354227.65	-6354227.44	0.0493	0.0052
Mercury	-22110-09-11 23:02 J	-6354000.68	-6354000.54	-6354000.40	0.0497	0.0322
Venus	-22110-09-21 09:07 J	-6353991.22	-6353991.12	-6353991.01	0.0497	0.0425
Mercury	-22110-12-11 07:26 J	-6353910.30	-6353910.19	-6353910.08	0.0499	0.0393
Venus	-22105-04-10 14:23 J	-6352328.04	-6352327.90	-6352327.76	0.0534	0.0384
Venus	-22105-12-04 08:09 J	-6352090.36	-6352090.16	-6352089.96	0.0533	0.0079
Mercury	-22104-05-04 17:45 J	-6351938.82	-6351938.76	-6351938.69	0.0530	0.0448
Venus	-22104-07-29 18:43 J	-6351852.76	-6351852.72	-6351852.67	0.0528	0.0514
Mercury	-22104-08-02 00:14 J	-6351849.61	-6351849.49	-6351849.37	0.0528	0.0130
Moon	-22100-10-22 09:07 J	-6350307.35	-6350307.12	-6350306.89	0.0493	0.0009
Earth	-22100-10-22 11:45 J	-6350307.25	-6350307.01	-6350306.77	0.0493	0.0014 *
Venus	-22099-02-08 15:50 J	-6350197.94	-6350197.84	-6350197.72	0.0492	0.0411
Venus	-22099-10-02 22:04 J	-6349961.78	-6349961.58	-6349961.37	0.0493	0.0051
Venus	-22098-05-27 09:21 J	-6349725.27	-6349725.11	-6349724.95	0.0496	0.0324
Mercury	-22098-06-30 20:52 J	-6349690.64	-6349690.63	-6349690.60	0.0497	0.0493
Mercury	-22098-09-29 05:45 J	-6349600.42	-6349600.26	-6349600.10	0.0498	0.0225
Mars	-22098-11-08 09:36 J	-6349560.35	-6349560.10	-6349559.84	0.0499	0.0119
Venus	-22094-12-15 04:33 J	-6348062.37	-6348062.31	-6348062.25	0.0534	0.0507
Venus	-22093-08-09 00:00 J	-6347824.70	-6347824.50	-6347824.30	0.0533	0.0050
Venus	-22092-04-03 12:57 J	-6347587.09	-6347586.96	-6347586.83	0.0530	0.0400
Mercury	-22092-05-21 04:19 J	-6347539.45	-6347539.32	-6347539.20	0.0529	0.0023
Earth	-22088-10-27 00:14 J	-6345919.59	-6345919.49	-6345919.36	0.0492	0.0430
Moon	-22088-10-27 04:19 J	-6345919.40	-6345919.32	-6345919.23	0.0492	0.0459 *
Venus	-22087-06-07 23:31 J	-6345695.72	-6345695.52	-6345695.32	0.0493	0.0151

Venus	-22086-01-30 08:38 J	-6345459.32	-6345459.14	-6345458.95	0.0495	0.0223
Mercury	-22086-07-18 03:07 J	-6345290.55	-6345290.37	-6345290.18	0.0497	0.0048
Venus	-22081-04-13 15:21 J	-6343559.05	-6343558.86	-6343558.67	0.0534	0.0178
Venus	-22081-12-07 06:28 J	-6343321.39	-6343321.23	-6343321.06	0.0531	0.0283
Mercury	-22080-03-09 08:23 J	-6343229.27	-6343229.15	-6343229.03	0.0530	0.0158
Mercury	-22080-06-06 14:52 J	-6343139.95	-6343139.88	-6343139.80	0.0528	0.0424
Venus	-22075-02-11 01:26 J	-6341429.62	-6341429.44	-6341429.26	0.0492	0.0250
Venus	-22075-10-05 09:07 J	-6341193.32	-6341193.12	-6341192.92	0.0494	0.0119
Mercury	-22074-05-06 00:43 J	-6340980.65	-6340980.47	-6340980.30	0.0497	0.0131
Venus	-22074-05-29 22:33 J	-6340956.59	-6340956.56	-6340956.52	0.0497	0.0489
Venus	-22070-12-18 07:26 J	-6339293.35	-6339293.19	-6339293.02	0.0535	0.0304
Venus	-22069-08-12 00:57 J	-6339055.65	-6339055.46	-6339055.27	0.0533	0.0161
Mercury	-22069-12-26 12:57 J	-6338919.07	-6338918.96	-6338918.86	0.0530	0.0293
Mars	-22068-01-05 21:36 J	-6338908.68	-6338908.60	-6338908.51	0.0530	0.0506
Mercury	-22068-03-25 19:26 J	-6338829.80	-6338829.69	-6338829.58	0.0528	0.0288
Venus	-22064-10-17 03:07 J	-6337163.51	-6337163.37	-6337163.22	0.0492	0.0348
Venus	-22063-06-10 09:07 J	-6336927.33	-6336927.12	-6336926.91	0.0493	0.0016
Venus	-22062-02-01 20:38 J	-6336690.76	-6336690.64	-6336690.51	0.0496	0.0389
Mercury	-22062-02-21 21:36 J	-6336670.74	-6336670.60	-6336670.45	0.0497	0.0313
Mercury	-22062-05-23 06:00 J	-6336580.35	-6336580.25	-6336580.14	0.0498	0.0401
Mars	-22062-08-12 11:45 J	-6336499.15	-6336499.01	-6336498.88	0.0500	0.0426
Moon	-22058-04-22 19:40 J	-6335149.88	-6335149.68	-6335149.47	0.0534	0.0265
Earth	-22058-04-22 21:50 J	-6335149.79	-6335149.59	-6335149.39	0.0534	0.0253 *
Venus	-22058-08-22 23:31 J	-6335027.63	-6335027.52	-6335027.40	0.0535	0.0428
Venus	-22057-04-16 18:57 J	-6334789.91	-6334789.71	-6334789.51	0.0533	0.0036
Mercury	-22057-10-14 17:16 J	-6334608.85	-6334608.78	-6334608.70	0.0531	0.0430
Venus	-22057-12-10 07:11 J	-6334552.28	-6334552.20	-6334552.12	0.0529	0.0478
Mercury	-22056-01-11 23:45 J	-6334519.63	-6334519.51	-6334519.39	0.0529	0.0150
Venus	-22052-06-22 06:00 J	-6332897.33	-6332897.25	-6332897.15	0.0492	0.0441
Venus	-22051-02-13 11:02 J	-6332661.24	-6332661.04	-6332660.83	0.0493	0.0086

Venus	-22051-10-07 21:21 J	-6332424.78	-6332424.61	-6332424.44	0.0495	0.0288
Mercury	-22051-12-10 19:26 J	-6332360.72	-6332360.69	-6332360.64	0.0496	0.0484
Mercury	-22050-03-11 04:19 J	-6332270.48	-6332270.32	-6332270.16	0.0498	0.0234
Earth	-22046-04-27 20:38 J	-6330761.82	-6330761.64	-6330761.44	0.0534	0.0299
Moon	-22046-04-27 20:52 J	-6330761.82	-6330761.63	-6330761.44	0.0534	0.0269 *
Venus	-22046-12-21 09:21 J	-6330524.31	-6330524.11	-6330523.91	0.0533	0.0096
Venus	-22045-08-14 23:02 J	-6330286.69	-6330286.54	-6330286.39	0.0530	0.0358
Mercury	-22045-10-31 03:07 J	-6330209.49	-6330209.37	-6330209.24	0.0529	0.0020
Venus	-22040-10-19 12:57 J	-6328395.15	-6328394.96	-6328394.77	0.0493	0.0186
Venus	-22039-06-12 21:50 J	-6328158.78	-6328158.59	-6328158.39	0.0495	0.0187
Mercury	-22039-12-28 02:23 J	-6327960.58	-6327960.40	-6327960.21	0.0498	0.0066
Venus	-22034-08-26 00:43 J	-6326258.65	-6326258.47	-6326258.29	0.0534	0.0225
Venus	-22033-04-19 16:19 J	-6326020.99	-6326020.82	-6326020.64	0.0531	0.0237
Mercury	-22033-08-19 07:11 J	-6325899.32	-6325899.20	-6325899.07	0.0529	0.0150
Mars	-22033-10-14 05:31 J	-6325843.56	-6325843.27	-6325842.98	0.0528	0.0032
Mercury	-22033-11-16 13:40 J	-6325810.00	-6325809.93	-6325809.85	0.0527	0.0431
Venus	-22028-06-24 15:07 J	-6324129.04	-6324128.87	-6324128.70	0.0492	0.0284
Venus	-22027-02-15 22:33 J	-6323892.77	-6323892.56	-6323892.36	0.0494	0.0084
Venus	-22027-10-10 11:31 J	-6323656.10	-6323656.02	-6323655.94	0.0497	0.0456
Mercury	-22027-10-16 00:00 J	-6323650.68	-6323650.50	-6323650.32	0.0497	0.0113
Venus	-22022-04-30 15:07 J	-6321993.02	-6321992.87	-6321992.72	0.0534	0.0351
Venus	-22022-12-24 08:52 J	-6321755.32	-6321755.13	-6321754.93	0.0533	0.0113
Mercury	-22021-06-07 11:31 J	-6321589.13	-6321589.02	-6321588.92	0.0530	0.0292
Mercury	-22021-09-04 18:00 J	-6321499.86	-6321499.75	-6321499.65	0.0528	0.0288
Earth	-22017-10-21 22:33 J	-6319991.79	-6319991.56	-6319991.32	0.0493	0.0059
Moon	-22017-10-22 02:38 J	-6319991.63	-6319991.39	-6319991.15	0.0493	0.0037 *
Venus	-22016-02-27 17:45 J	-6319862.89	-6319862.76	-6319862.63	0.0492	0.0379
Venus	-22016-10-21 23:45 J	-6319626.72	-6319626.51	-6319626.31	0.0493	0.0021
Venus	-22015-06-15 10:33 J	-6319390.20	-6319390.06	-6319389.91	0.0496	0.0355
Mars	-22015-07-27 14:09 J	-6319348.05	-6319347.91	-6319347.75	0.0496	0.0399



Mercury	-22015-08-03 21:21 J	-6319340.76	-6319340.61	-6319340.46	0.0497	0.0290
Mercury	-22015-11-02 05:31 J	-6319250.35	-6319250.27	-6319250.17	0.0498	0.0424
Venus	-22010-01-03 06:28 J	-6317727.31	-6317727.23	-6317727.13	0.0534	0.0474
Venus	-22010-08-29 02:23 J	-6317489.60	-6317489.40	-6317489.20	0.0534	0.0016
Mercury	-22009-03-26 15:50 J	-6317278.91	-6317278.84	-6317278.76	0.0531	0.0428
Venus	-22009-04-22 15:50 J	-6317251.95	-6317251.84	-6317251.73	0.0530	0.0435
Mercury	-22009-06-23 22:19 J	-6317189.69	-6317189.57	-6317189.45	0.0529	0.0152
Moon	-22005-10-26 06:28 J	-6315604.35	-6315604.23	-6315604.09	0.0492	0.0410
Earth	-22005-10-26 10:48 J	-6315604.20	-6315604.05	-6315603.90	0.0492	0.0382 *
Venus	-22005-11-02 20:09 J	-6315596.71	-6315596.66	-6315596.60	0.0492	0.0473
Venus	-22004-06-27 00:28 J	-6315360.68	-6315360.48	-6315360.28	0.0492	0.0121
Venus	-22003-02-18 09:50 J	-6315124.27	-6315124.09	-6315123.91	0.0495	0.0252
Mercury	-22003-05-22 18:28 J	-6315030.78	-6315030.73	-6315030.67	0.0496	0.0471
Mercury	-22003-08-21 03:07 J	-6314940.53	-6314940.37	-6314940.21	0.0498	0.0245

# 22ND MILLENNIUM BCE

This is a list of transits visible from Jupiter in the 22nd millennium BCE.

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Venus	-21998-05-03 19:40 J	-6313223.87	-6313223.68	-6313223.48	0.0534	0.0140		
Venus	-21998-12-27 10:48 J	-6312986.20	-6312986.05	-6312985.88	0.0531	0.0319		
Mercury	-21997-04-12 02:52 J	-6312879.51	-6312879.38	-6312879.25	0.0529	0.0017		
Mars	-21997-07-23 01:40 J	-6312777.57	-6312777.43	-6312777.27	0.0527	0.0452		

Venus	-21992-03-02 03:07 J	-6311094.55	-6311094.37	-6311094.18	0.0492	0.0220
Venus	-21992-10-24 11:02 J	-6310858.24	-6310858.04	-6310857.84	0.0494	0.0151
Mercury	-21991-06-09 01:26 J	-6310630.62	-6310630.44	-6310630.26	0.0498	0.0077
Venus	-21986-01-06 10:19 J	-6308958.24	-6308958.07	-6308957.90	0.0534	0.0269
Venus	-21986-09-01 02:38 J	-6308720.57	-6308720.39	-6308720.20	0.0532	0.0193
Mercury	-21985-01-30 06:28 J	-6308569.35	-6308569.23	-6308569.11	0.0529	0.0136
Mercury	-21985-04-28 12:57 J	-6308480.03	-6308479.96	-6308479.89	0.0527	0.0443
Venus	-21981-11-05 04:48 J	-6306828.45	-6306828.30	-6306828.14	0.0493	0.0319
Venus	-21980-06-29 12:00 J	-6306592.21	-6306592.00	-6306591.79	0.0494	0.0048
Venus	-21979-02-21 00:28 J	-6306355.58	-6306355.48	-6306355.37	0.0497	0.0422
Mercury	-21979-03-27 23:16 J	-6306320.71	-6306320.53	-6306320.35	0.0498	0.0094
Mars	-21979-04-30 19:11 J	-6306286.95	-6306286.70	-6306286.44	0.0498	0.0091
Earth	-21975-04-22 05:31 J	-6304834.45	-6304834.27	-6304834.09	0.0533	0.0320
Moon	-21975-04-22 05:45 J	-6304834.43	-6304834.26	-6304834.09	0.0533	0.0341 *
Venus	-21975-09-11 01:26 J	-6304692.57	-6304692.44	-6304692.31	0.0534	0.0395
Venus	-21974-05-06 19:26 J	-6304454.89	-6304454.69	-6304454.49	0.0533	0.0068
Mercury	-21974-11-18 10:33 J	-6304259.17	-6304259.06	-6304258.95	0.0530	0.0280
Venus	-21974-12-30 06:28 J	-6304217.29	-6304217.23	-6304217.17	0.0529	0.0504
Mercury	-21973-02-15 17:02 J	-6304169.90	-6304169.79	-6304169.69	0.0528	0.0299
Venus	-21969-07-11 07:40 J	-6302562.29	-6302562.18	-6302562.07	0.0493	0.0412
Venus	-21968-03-04 13:26 J	-6302326.15	-6302325.94	-6302325.74	0.0493	0.0053
Venus	-21968-10-27 00:00 J	-6302089.65	-6302089.50	-6302089.34	0.0496	0.0322
Mercury	-21967-01-13 20:52 J	-6302010.78	-6302010.63	-6302010.48	0.0497	0.0271
Mercury	-21967-04-14 05:16 J	-6301920.36	-6301920.28	-6301920.20	0.0499	0.0443
Earth	-21963-04-27 03:07 J	-6300446.58	-6300446.37	-6300446.16	0.0534	0.0221
Moon	-21963-04-27 04:33 J	-6300446.53	-6300446.31	-6300446.09	0.0534	0.0192 *
Venus	-21963-05-16 14:52 J	-6300426.92	-6300426.88	-6300426.83	0.0534	0.0518
Venus	-21962-01-09 10:48 J	-6300189.25	-6300189.05	-6300188.85	0.0534	0.0061
Venus	-21962-09-04 00:28 J	-6299951.61	-6299951.48	-6299951.34	0.0530	0.0391
Mercury	-21962-09-06 14:38 J	-6299948.96	-6299948.89	-6299948.81	0.0530	0.0423

Mercury	-21962-12-04 21:07 J	-6299859.75	-6299859.62	-6299859.50	0.0529	0.0155
Venus	-21957-11-07 15:21 J	-6298060.06	-6298059.86	-6298059.67	0.0493	0.0154
Venus	-21956-07-02 00:00 J	-6297823.68	-6297823.50	-6297823.31	0.0495	0.0219
Mercury	-21956-11-01 18:14 J	-6297700.82	-6297700.74	-6297700.66	0.0496	0.0448
Mercury	-21955-01-31 02:52 J	-6297610.53	-6297610.38	-6297610.22	0.0498	0.0269
Venus	-21951-09-14 03:21 J	-6295923.54	-6295923.36	-6295923.17	0.0534	0.0188
Venus	-21950-05-09 19:26 J	-6295685.86	-6295685.69	-6295685.52	0.0532	0.0274
Mercury	-21950-09-23 01:26 J	-6295549.56	-6295549.44	-6295549.31	0.0529	0.0025
Venus	-21945-07-13 17:02 J	-6293793.97	-6293793.79	-6293793.62	0.0492	0.0253
Venus	-21944-03-07 00:14 J	-6293557.69	-6293557.49	-6293557.29	0.0494	0.0115
Venus	-21944-10-29 13:11 J	-6293320.99	-6293320.95	-6293320.91	0.0497	0.0485
Mercury	-21944-11-19 00:14 J	-6293300.67	-6293300.49	-6293300.31	0.0498	0.0091
Mars	-21943-02-01 21:21 J	-6293225.84	-6293225.61	-6293225.37	0.0499	0.0217
Venus	-21939-05-19 19:55 J	-6291657.83	-6291657.67	-6291657.50	0.0535	0.0314
Venus	-21938-01-12 13:55 J	-6291420.11	-6291419.92	-6291419.73	0.0533	0.0151
Mercury	-21938-07-12 06:00 J	-6291239.37	-6291239.25	-6291239.12	0.0530	0.0117
Mercury	-21938-10-09 12:28 J	-6291150.03	-6291149.98	-6291149.91	0.0528	0.0465
Moon	-21934-10-22 06:14 J	-6289676.47	-6289676.24	-6289676.00	0.0493	0.0076
Earth	-21934-10-22 10:19 J	-6289676.30	-6289676.07	-6289675.83	0.0493	0.0099 *
Venus	-21933-03-18 19:55 J	-6289527.81	-6289527.67	-6289527.52	0.0492	0.0349
Venus	-21933-11-10 01:55 J	-6289291.63	-6289291.42	-6289291.21	0.0493	0.0014
Venus	-21932-07-04 13:11 J	-6289055.07	-6289054.95	-6289054.82	0.0496	0.0387
Mercury	-21932-09-06 22:33 J	-6288990.75	-6288990.56	-6288990.38	0.0497	0.0080
Venus	-21927-01-22 10:48 J	-6287392.15	-6287392.05	-6287391.93	0.0534	0.0438
Venus	-21927-09-17 05:45 J	-6287154.46	-6287154.26	-6287154.06	0.0533	0.0024
Mercury	-21926-04-30 09:50 J	-6286929.20	-6286929.09	-6286928.98	0.0529	0.0266
Venus	-21926-05-12 17:45 J	-6286916.85	-6286916.76	-6286916.67	0.0529	0.0466
Mercury	-21926-07-28 16:04 J	-6286839.93	-6286839.83	-6286839.72	0.0528	0.0313
Earth	-21922-10-26 20:38 J	-6285288.81	-6285288.64	-6285288.46	0.0493	0.0335
Moon	-21922-10-27 00:00 J	-6285288.65	-6285288.50	-6285288.34	0.0493	0.0362 *

Venus	-21922-11-22 21:21 J	-6285261.69	-6285261.61	-6285261.52	0.0493	0.0445
Venus	-21921-07-16 02:52 J	-6285025.58	-6285025.38	-6285025.17	0.0493	0.0089
Venus	-21920-03-09 13:11 J	-6284789.11	-6284788.95	-6284788.78	0.0496	0.0286
Mercury	-21920-06-25 20:09 J	-6284680.82	-6284680.66	-6284680.50	0.0497	0.0252
Mercury	-21920-09-24 04:33 J	-6284590.37	-6284590.31	-6284590.24	0.0499	0.0463
Venus	-21915-05-22 21:36 J	-6282888.79	-6282888.60	-6282888.40	0.0533	0.0105
Venus	-21914-01-15 11:31 J	-6282651.17	-6282651.02	-6282650.87	0.0530	0.0349
Mercury	-21914-02-16 13:55 J	-6282619.00	-6282618.92	-6282618.84	0.0530	0.0409
Mars	-21914-04-02 17:02 J	-6282573.99	-6282573.79	-6282573.57	0.0529	0.0368
Mercury	-21914-05-16 20:09 J	-6282529.78	-6282529.66	-6282529.54	0.0528	0.0168
Venus	-21909-03-21 05:02 J	-6280759.48	-6280759.29	-6280759.10	0.0493	0.0187
Venus	-21909-11-12 13:40 J	-6280523.12	-6280522.93	-6280522.74	0.0495	0.0185
Mercury	-21908-04-13 17:31 J	-6280370.85	-6280370.77	-6280370.67	0.0497	0.0430
Mercury	-21908-07-13 02:23 J	-6280280.55	-6280280.40	-6280280.25	0.0498	0.0288
Venus	-21903-01-25 12:14 J	-6278623.17	-6278622.99	-6278622.81	0.0534	0.0234
Venus	-21903-09-20 04:19 J	-6278385.49	-6278385.32	-6278385.13	0.0532	0.0229
Mercury	-21902-03-05 00:14 J	-6278219.62	-6278219.49	-6278219.36	0.0529	0.0024
Venus	-21898-11-25 07:26 J	-6276493.36	-6276493.19	-6276493.02	0.0492	0.0286
Venus	-21897-07-18 14:23 J	-6276257.10	-6276256.90	-6276256.70	0.0494	0.0082
Venus	-21896-03-12 02:52 J	-6276020.46	-6276020.38	-6276020.30	0.0497	0.0453
Mercury	-21896-05-01 00:00 J	-6275970.68	-6275970.50	-6275970.32	0.0498	0.0113
Earth	-21892-04-21 12:43 J	-6274519.12	-6274518.97	-6274518.81	0.0533	0.0392
Moon	-21892-04-21 14:09 J	-6274519.06	-6274518.91	-6274518.76	0.0533	0.0415 *
Venus	-21892-09-30 03:50 J	-6274357.49	-6274357.34	-6274357.19	0.0534	0.0359
Venus	-21891-05-25 22:04 J	-6274119.77	-6274119.58	-6274119.38	0.0533	0.0105
Mercury	-21891-12-22 04:48 J	-6273909.43	-6273909.30	-6273909.18	0.0530	0.0115
Mercury	-21890-03-21 11:16 J	-6273820.09	-6273820.03	-6273819.97	0.0528	0.0467
Venus	-21886-07-31 09:50 J	-6272227.22	-6272227.09	-6272226.96	0.0492	0.0382
Venus	-21885-03-23 15:21 J	-6271991.07	-6271990.86	-6271990.66	0.0493	0.0021
Venus	-21885-11-15 01:55 J	-6271754.57	-6271754.42	-6271754.28	0.0496	0.0352

Mercury	-21884-02-16 21:21 J	-6271660.79	-6271660.61	-6271660.43	0.0497	0.0066
Moon	-21880-04-26 12:00 J	-6270131.22	-6270131.00	-6270130.79	0.0534	0.0145
Earth	-21880-04-26 14:38 J	-6270131.10	-6270130.89	-6270130.67	0.0534	0.0170 *
Venus	-21880-06-04 19:40 J	-6270091.76	-6270091.68	-6270091.59	0.0534	0.0482
Venus	-21879-01-28 15:50 J	-6269854.04	-6269853.84	-6269853.64	0.0534	0.0021
Venus	-21879-09-23 05:16 J	-6269616.39	-6269616.28	-6269616.15	0.0530	0.0428
Mercury	-21879-10-10 09:21 J	-6269599.23	-6269599.11	-6269599.00	0.0530	0.0249
Mercury	-21878-01-07 15:36 J	-6269509.94	-6269509.85	-6269509.75	0.0528	0.0332
Mars	-21878-01-09 16:33 J	-6269508.09	-6269507.81	-6269507.52	0.0528	0.0123
Venus	-21874-04-05 12:43 J	-6267961.01	-6267960.97	-6267960.91	0.0492	0.0475
Venus	-21874-11-27 17:31 J	-6267724.97	-6267724.77	-6267724.57	0.0493	0.0122
Venus	-21873-07-21 02:23 J	-6267488.57	-6267488.40	-6267488.22	0.0495	0.0251
Mercury	-21873-12-05 19:11 J	-6267350.86	-6267350.70	-6267350.53	0.0497	0.0237
Mercury	-21872-03-06 03:50 J	-6267260.39	-6267260.34	-6267260.29	0.0499	0.0477
Venus	-21868-10-03 07:40 J	-6265588.37	-6265588.18	-6265587.99	0.0533	0.0149
Venus	-21867-05-28 22:19 J	-6265350.73	-6265350.57	-6265350.40	0.0531	0.0309
Mercury	-21867-07-29 13:11 J	-6265289.03	-6265288.95	-6265288.87	0.0530	0.0395
Mercury	-21867-10-26 19:26 J	-6265199.81	-6265199.69	-6265199.57	0.0528	0.0181
Venus	-21862-08-02 18:28 J	-6263458.92	-6263458.73	-6263458.55	0.0493	0.0222
Venus	-21861-03-26 02:38 J	-6263222.59	-6263222.39	-6263222.19	0.0494	0.0149
Mercury	-21861-09-23 16:48 J	-6263040.90	-6263040.80	-6263040.70	0.0497	0.0413
Mars	-21861-10-21 09:21 J	-6263013.32	-6263013.11	-6263012.90	0.0498	0.0294
Mercury	-21861-12-23 01:40 J	-6262950.57	-6262950.43	-6262950.29	0.0499	0.0306
Venus	-21856-06-07 23:02 J	-6261322.71	-6261322.54	-6261322.37	0.0533	0.0277
Venus	-21855-01-31 15:36 J	-6261085.04	-6261084.85	-6261084.67	0.0532	0.0186
Mercury	-21855-08-14 23:31 J	-6260889.65	-6260889.52	-6260889.39	0.0528	0.0037
Earth	-21851-10-21 18:57 J	-6259360.94	-6259360.71	-6259360.49	0.0493	0.0155
Moon	-21851-10-21 22:04 J	-6259360.80	-6259360.58	-6259360.35	0.0493	0.0129 *
Venus	-21850-04-07 20:52 J	-6259192.79	-6259192.63	-6259192.48	0.0493	0.0319
Venus	-21850-11-30 03:36 J	-6258956.55	-6258956.35	-6258956.14	0.0494	0.0048

Venus	-21849-07-23 15:50 J	-6258719.95	-6258719.84	-6258719.74	0.0497	0.0420
Mercury	-21849-10-10 23:16 J	-6258640.70	-6258640.53	-6258640.35	0.0498	0.0130
Venus	-21844-02-10 12:43 J	-6257057.10	-6257056.97	-6257056.84	0.0534	0.0403
Venus	-21844-10-06 07:11 J	-6256819.40	-6256819.20	-6256819.00	0.0533	0.0059
Venus	-21843-05-31 19:11 J	-6256581.77	-6256581.70	-6256581.64	0.0529	0.0499
Mercury	-21843-06-03 03:36 J	-6256579.48	-6256579.35	-6256579.23	0.0529	0.0109
Mercury	-21843-08-31 10:04 J	-6256490.14	-6256490.08	-6256490.03	0.0527	0.0471
Moon	-21839-10-26 06:57 J	-6254973.40	-6254973.21	-6254973.02	0.0493	0.0310
Earth	-21839-10-26 08:38 J	-6254973.32	-6254973.14	-6254972.94	0.0493	0.0293 *
Venus	-21839-12-11 23:31 J	-6254926.62	-6254926.52	-6254926.40	0.0493	0.0414
Venus	-21838-08-05 05:16 J	-6254690.49	-6254690.28	-6254690.08	0.0493	0.0055
Venus	-21837-03-28 15:21 J	-6254454.02	-6254453.86	-6254453.70	0.0495	0.0319
Mercury	-21837-07-29 20:52 J	-6254330.81	-6254330.63	-6254330.45	0.0497	0.0047
Venus	-21833-10-16 03:21 J	-6252791.39	-6252791.36	-6252791.32	0.0534	0.0525
Venus	-21832-06-10 23:45 J	-6252553.71	-6252553.51	-6252553.31	0.0534	0.0069
Venus	-21831-02-03 13:55 J	-6252316.05	-6252315.92	-6252315.78	0.0531	0.0385
Mercury	-21831-03-22 07:55 J	-6252269.28	-6252269.17	-6252269.06	0.0530	0.0247
Mercury	-21831-06-19 14:23 J	-6252180.00	-6252179.90	-6252179.80	0.0528	0.0333
Venus	-21826-04-10 06:43 J	-6250424.42	-6250424.22	-6250424.03	0.0493	0.0156
Venus	-21826-12-02 15:07 J	-6250188.06	-6250187.87	-6250187.69	0.0494	0.0216
Mercury	-21825-05-17 18:00 J	-6250020.91	-6250020.75	-6250020.58	0.0497	0.0227
Mars	-21825-07-25 09:36 J	-6249952.36	-6249952.10	-6249951.84	0.0498	0.0012
Mercury	-21825-08-16 02:23 J	-6249930.43	-6249930.40	-6249930.36	0.0499	0.0487
Venus	-21820-02-13 16:33 J	-6248288.00	-6248287.81	-6248287.62	0.0534	0.0195
Venus	-21820-10-09 08:52 J	-6248050.30	-6248050.13	-6248049.96	0.0532	0.0267
Mercury	-21819-01-08 12:28 J	-6247959.07	-6247958.98	-6247958.89	0.0530	0.0381
Mercury	-21819-04-07 18:43 J	-6247869.84	-6247869.72	-6247869.60	0.0528	0.0197
Venus	-21815-12-14 09:07 J	-6246158.30	-6246158.12	-6246157.95	0.0492	0.0255
Venus	-21814-08-07 16:04 J	-6245922.02	-6245921.83	-6245921.62	0.0494	0.0115
Mercury	-21813-03-05 15:50 J	-6245710.94	-6245710.84	-6245710.73	0.0497	0.0399

Venus	-21813-03-31 05:02 J	-6245685.33	-6245685.29	-6245685.24	0.0497	0.0484
Mercury	-21813-06-04 00:43 J	-6245620.61	-6245620.47	-6245620.33	0.0498	0.0319
Moon	-21809-04-20 22:19 J	-6244203.67	-6244203.57	-6244203.47	0.0533	0.0471
Earth	-21809-04-21 00:57 J	-6244203.58	-6244203.46	-6244203.33	0.0533	0.0441 *
Venus	-21809-10-19 08:23 J	-6244022.31	-6244022.15	-6244021.99	0.0534	0.0321
Venus	-21808-06-14 01:40 J	-6243784.62	-6243784.43	-6243784.24	0.0532	0.0142
Mercury	-21808-10-27 16:33 J	-6243648.82	-6243648.81	-6243648.79	0.0530	0.0524
Mercury	-21807-01-24 22:48 J	-6243559.68	-6243559.55	-6243559.43	0.0528	0.0052
Venus	-21803-08-19 09:50 J	-6241892.23	-6241892.09	-6241891.95	0.0493	0.0353
Venus	-21802-04-12 16:19 J	-6241656.03	-6241655.82	-6241655.61	0.0494	0.0012
Venus	-21802-12-05 04:04 J	-6241419.46	-6241419.33	-6241419.20	0.0496	0.0385
Mercury	-21801-03-22 22:19 J	-6241310.75	-6241310.57	-6241310.40	0.0498	0.0143
Earth	-21797-04-26 00:43 J	-6239815.69	-6239815.47	-6239815.25	0.0533	0.0110
Moon	-21797-04-26 04:19 J	-6239815.54	-6239815.32	-6239815.09	0.0533	0.0098 *
Venus	-21797-06-23 23:16 J	-6239756.64	-6239756.53	-6239756.42	0.0533	0.0444
Venus	-21796-02-16 18:00 J	-6239518.95	-6239518.75	-6239518.55	0.0533	0.0019
Venus	-21796-10-12 06:14 J	-6239281.33	-6239281.24	-6239281.14	0.0529	0.0459
Mercury	-21796-11-13 02:52 J	-6239249.51	-6239249.38	-6239249.26	0.0529	0.0096
Mercury	-21795-02-10 09:07 J	-6239160.16	-6239160.12	-6239160.07	0.0527	0.0484
Venus	-21791-04-24 12:28 J	-6237626.07	-6237625.98	-6237625.90	0.0493	0.0446
Venus	-21791-12-16 17:45 J	-6237389.96	-6237389.76	-6237389.56	0.0493	0.0090
Venus	-21790-08-10 03:50 J	-6237153.51	-6237153.34	-6237153.17	0.0495	0.0285
Mercury	-21789-01-09 19:55 J	-6237000.86	-6237000.67	-6237000.49	0.0498	0.0035
Mars	-21789-04-28 16:48 J	-6236891.00	-6236890.80	-6236890.60	0.0500	0.0321
Venus	-21785-10-22 08:23 J	-6235253.34	-6235253.15	-6235252.95	0.0533	0.0115
Venus	-21784-06-16 23:02 J	-6235015.69	-6235015.54	-6235015.39	0.0531	0.0342
Mercury	-21784-09-01 06:43 J	-6234939.33	-6234939.22	-6234939.11	0.0529	0.0242
Mercury	-21784-11-29 12:57 J	-6234850.05	-6234849.96	-6234849.86	0.0528	0.0337
Venus	-21779-08-21 19:55 J	-6233123.86	-6233123.67	-6233123.48	0.0493	0.0190
Venus	-21778-04-15 04:04 J	-6232887.52	-6232887.33	-6232887.13	0.0494	0.0183

Mercury	-21778-10-28 17:16 J	-6232690.95	-6232690.78	-6232690.61	0.0497	0.0211
Venus	-21773-06-26 23:45 J	-6230987.68	-6230987.51	-6230987.33	0.0534	0.0243
Venus	-21772-02-19 16:48 J	-6230749.98	-6230749.80	-6230749.62	0.0532	0.0221
Mercury	-21772-06-20 11:02 J	-6230629.13	-6230629.04	-6230628.95	0.0530	0.0381
Mercury	-21772-09-17 17:16 J	-6230539.90	-6230539.78	-6230539.66	0.0528	0.0196
Moon	-21768-10-21 03:36 J	-6229045.58	-6229045.35	-6229045.12	0.0493	0.0174
Earth	-21768-10-21 05:31 J	-6229045.49	-6229045.27	-6229045.05	0.0493	0.0201 *
Venus	-21767-04-26 21:50 J	-6228857.75	-6228857.59	-6228857.42	0.0492	0.0289
Venus	-21767-12-19 04:33 J	-6228621.52	-6228621.31	-6228621.11	0.0493	0.0078
Venus	-21766-08-12 16:19 J	-6228384.90	-6228384.82	-6228384.73	0.0497	0.0449
Mercury	-21766-08-16 14:23 J	-6228381.01	-6228380.90	-6228380.79	0.0497	0.0392
Mercury	-21766-11-14 23:02 J	-6228290.67	-6228290.54	-6228290.40	0.0498	0.0325
Venus	-21761-03-01 15:50 J	-6226721.98	-6226721.84	-6226721.69	0.0534	0.0368
Venus	-21761-10-25 10:33 J	-6226484.26	-6226484.06	-6226483.86	0.0533	0.0097
Mercury	-21760-04-08 15:36 J	-6226318.88	-6226318.85	-6226318.83	0.0531	0.0516
Mars	-21760-06-27 21:50 J	-6226238.84	-6226238.59	-6226238.31	0.0529	0.0226
Mercury	-21760-07-06 21:50 J	-6226229.72	-6226229.59	-6226229.47	0.0529	0.0061
Moon	-21756-10-25 17:45 J	-6224657.95	-6224657.76	-6224657.56	0.0493	0.0251
Earth	-21756-10-25 18:14 J	-6224657.94	-6224657.74	-6224657.53	0.0493	0.0243 *
Venus	-21756-12-31 00:28 J	-6224591.61	-6224591.48	-6224591.35	0.0493	0.0384
Venus	-21755-08-24 06:00 J	-6224355.45	-6224355.25	-6224355.04	0.0493	0.0024
Venus	-21754-04-17 16:19 J	-6224118.96	-6224118.82	-6224118.67	0.0496	0.0350
Mercury	-21754-09-02 21:07 J	-6223980.80	-6223980.62	-6223980.45	0.0498	0.0154
Venus	-21750-11-05 07:26 J	-6222456.26	-6222456.19	-6222456.10	0.0533	0.0488
Venus	-21749-06-30 03:07 J	-6222218.57	-6222218.37	-6222218.16	0.0533	0.0032
Venus	-21748-02-22 16:33 J	-6221980.93	-6221980.81	-6221980.69	0.0530	0.0419
Mercury	-21748-04-25 01:40 J	-6221919.55	-6221919.43	-6221919.30	0.0529	0.0087
Mercury	-21748-07-23 08:09 J	-6221830.20	-6221830.16	-6221830.11	0.0527	0.0493
Venus	-21744-09-05 00:57 J	-6220325.50	-6220325.46	-6220325.41	0.0493	0.0480
Venus	-21743-04-29 06:00 J	-6220089.45	-6220089.25	-6220089.05	0.0493	0.0126



Venus	-21743-12-21 15:21 J	-6219853.04	-6219852.86	-6219852.68	0.0495	0.0248
Mercury	-21742-06-21 18:14 J	-6219670.92	-6219670.74	-6219670.55	0.0498	0.0029
Venus	-21737-03-04 18:57 J	-6217952.90	-6217952.71	-6217952.52	0.0533	0.0158
Venus	-21737-10-28 09:50 J	-6217715.25	-6217715.09	-6217714.92	0.0531	0.0300
Mercury	-21736-02-11 05:45 J	-6217609.37	-6217609.26	-6217609.14	0.0529	0.0230
Mercury	-21736-05-11 12:14 J	-6217520.09	-6217519.99	-6217519.90	0.0527	0.0348
Venus	-21731-01-02 07:40 J	-6215823.36	-6215823.18	-6215822.99	0.0493	0.0225
Venus	-21731-08-26 15:50 J	-6215587.04	-6215586.84	-6215586.64	0.0494	0.0146
Mercury	-21730-04-09 15:50 J	-6215361.01	-6215360.84	-6215360.67	0.0497	0.0205
Earth	-21726-04-21 04:33 J	-6213888.33	-6213888.31	-6213888.28	0.0533	0.0528
Venus	-21726-11-08 08:09 J	-6213687.33	-6213687.16	-6213686.99	0.0533	0.0288
Venus	-21725-07-03 01:11 J	-6213449.64	-6213449.45	-6213449.26	0.0532	0.0176
Mercury	-21725-11-30 09:36 J	-6213299.18	-6213299.10	-6213299.01	0.0530	0.0379
Mercury	-21724-02-27 15:50 J	-6213209.95	-6213209.84	-6213209.72	0.0528	0.0199
Mars	-21724-04-05 00:28 J	-6213173.74	-6213173.48	-6213173.22	0.0527	0.0228
Venus	-21720-09-07 10:19 J	-6211557.22	-6211557.07	-6211556.91	0.0493	0.0323
Venus	-21719-05-01 17:02 J	-6211321.00	-6211320.79	-6211320.59	0.0494	0.0044
Venus	-21719-12-24 04:19 J	-6211084.42	-6211084.32	-6211084.20	0.0496	0.0416
Mercury	-21718-01-26 13:11 J	-6211051.07	-6211050.95	-6211050.84	0.0497	0.0382
Mercury	-21718-04-26 21:50 J	-6210960.72	-6210960.59	-6210960.45	0.0498	0.0336
Moon	-21714-04-25 23:45 J	-6209500.75	-6209500.51	-6209500.28	0.0533	0.0010
Earth	-21714-04-26 03:07 J	-6209500.59	-6209500.37	-6209500.14	0.0533	0.0018 *
Venus	-21714-07-13 22:19 J	-6209421.69	-6209421.57	-6209421.44	0.0534	0.0414
Venus	-21713-03-07 17:45 J	-6209183.96	-6209183.76	-6209183.56	0.0533	0.0050
Mercury	-21713-09-18 13:55 J	-6208988.94	-6208988.92	-6208988.90	0.0530	0.0519
Venus	-21713-10-31 06:14 J	-6208946.31	-6208946.24	-6208946.16	0.0530	0.0490
Mercury	-21713-12-16 20:09 J	-6208899.79	-6208899.66	-6208899.53	0.0529	0.0057
Venus	-21708-05-13 12:43 J	-6207291.07	-6207290.97	-6207290.86	0.0493	0.0418
Venus	-21707-01-04 17:45 J	-6207054.97	-6207054.76	-6207054.56	0.0493	0.0060
Venus	-21707-08-29 03:21 J	-6206818.51	-6206818.36	-6206818.20	0.0495	0.0314

Mars	-21706-01-15 15:07 J	-6206679.11	-6206678.87	-6206678.64	0.0497	0.0211
Mercury	-21706-02-12 19:11 J	-6206650.88	-6206650.70	-6206650.53	0.0498	0.0155
Venus	-21702-11-11 10:19 J	-6204918.27	-6204918.07	-6204917.87	0.0534	0.0079
Venus	-21701-07-06 01:11 J	-6204680.59	-6204680.45	-6204680.31	0.0531	0.0376
Mercury	-21701-10-05 00:28 J	-6204589.60	-6204589.48	-6204589.35	0.0529	0.0082
Mercury	-21700-01-02 06:57 J	-6204500.25	-6204500.21	-6204500.17	0.0527	0.0499
Venus	-21696-09-09 19:40 J	-6202788.88	-6202788.68	-6202788.49	0.0493	0.0161
Venus	-21695-05-04 03:50 J	-6202552.53	-6202552.34	-6202552.15	0.0494	0.0211
Mercury	-21695-12-01 16:48 J	-6202340.98	-6202340.80	-6202340.61	0.0498	0.0020
Venus	-21690-07-17 02:38 J	-6200652.57	-6200652.39	-6200652.20	0.0533	0.0204
Venus	-21689-03-10 18:43 J	-6200414.89	-6200414.72	-6200414.54	0.0531	0.0258
Mercury	-21689-07-24 04:48 J	-6200279.42	-6200279.30	-6200279.19	0.0529	0.0224
Mercury	-21689-10-21 11:02 J	-6200190.14	-6200190.04	-6200189.95	0.0527	0.0353
Moon	-21685-10-20 08:23 J	-6198730.35	-6198730.15	-6198729.96	0.0493	0.0254
Earth	-21685-10-20 08:23 J	-6198730.34	-6198730.15	-6198729.95	0.0493	0.0280 *
Venus	-21684-05-15 19:11 J	-6198522.86	-6198522.70	-6198522.52	0.0493	0.0262
Venus	-21683-01-07 02:38 J	-6198286.59	-6198286.39	-6198286.18	0.0494	0.0108
Venus	-21683-08-31 15:36 J	-6198049.90	-6198049.85	-6198049.79	0.0497	0.0479
Mercury	-21683-09-19 13:40 J	-6198031.09	-6198030.93	-6198030.76	0.0498	0.0204
Venus	-21678-03-21 17:45 J	-6196386.91	-6196386.76	-6196386.60	0.0533	0.0331
Venus	-21678-11-14 11:31 J	-6196149.22	-6196149.02	-6196148.83	0.0532	0.0132
Mercury	-21677-05-12 08:52 J	-6195969.22	-6195969.13	-6195969.04	0.0529	0.0368
Mercury	-21677-08-09 14:52 J	-6195879.99	-6195879.88	-6195879.76	0.0527	0.0208
Earth	-21673-10-24 20:38 J	-6194342.86	-6194342.64	-6194342.41	0.0493	0.0161
Moon	-21673-10-24 23:02 J	-6194342.77	-6194342.54	-6194342.30	0.0493	0.0161 *
Venus	-21672-01-18 21:21 J	-6194256.74	-6194256.61	-6194256.46	0.0493	0.0358
Venus	-21672-09-12 03:50 J	-6194020.55	-6194020.34	-6194020.14	0.0494	0.0009
Venus	-21671-05-06 14:52 J	-6193784.01	-6193783.88	-6193783.75	0.0496	0.0380
Mercury	-21671-07-08 11:02 J	-6193721.15	-6193721.04	-6193720.92	0.0497	0.0383
Mercury	-21671-10-06 19:55 J	-6193630.80	-6193630.67	-6193630.53	0.0499	0.0337

Mars	-21671-10-19 15:50 J	-6193618.10	-6193617.84	-6193617.58	0.0499	0.0088
Venus	-21667-11-24 06:00 J	-6192121.35	-6192121.25	-6192121.15	0.0533	0.0458
Venus	-21666-07-20 01:26 J	-6191883.65	-6191883.44	-6191883.24	0.0533	0.0011
Mercury	-21665-02-29 12:28 J	-6191659.00	-6191658.98	-6191658.96	0.0530	0.0518
Venus	-21665-03-13 14:23 J	-6191646.00	-6191645.90	-6191645.79	0.0530	0.0449
Mercury	-21665-05-28 18:43 J	-6191569.85	-6191569.72	-6191569.60	0.0528	0.0059
Venus	-21661-09-24 00:28 J	-6189990.55	-6189990.48	-6189990.40	0.0493	0.0452
Venus	-21660-05-18 05:31 J	-6189754.48	-6189754.27	-6189754.07	0.0493	0.0096
Venus	-21659-01-09 14:38 J	-6189518.06	-6189517.89	-6189517.72	0.0495	0.0278
Mercury	-21659-07-25 17:31 J	-6189320.94	-6189320.77	-6189320.60	0.0498	0.0160
Venus	-21654-03-24 16:33 J	-6187618.00	-6187617.81	-6187617.61	0.0533	0.0128
Venus	-21654-11-17 07:55 J	-6187380.32	-6187380.17	-6187380.01	0.0531	0.0330
Mercury	-21653-03-16 22:48 J	-6187259.68	-6187259.55	-6187259.43	0.0529	0.0089
Mercury	-21653-06-14 05:16 J	-6187170.33	-6187170.28	-6187170.24	0.0527	0.0492
Venus	-21648-01-21 06:43 J	-6185488.41	-6185488.22	-6185488.03	0.0493	0.0197
Venus	-21648-09-14 14:23 J	-6185252.09	-6185251.90	-6185251.70	0.0494	0.0174
Mercury	-21647-05-13 14:38 J	-6185011.08	-6185010.89	-6185010.71	0.0497	0.0026
Venus	-21643-11-27 07:55 J	-6183352.34	-6183352.17	-6183351.99	0.0534	0.0256
Venus	-21642-07-23 01:26 J	-6183114.62	-6183114.44	-6183114.25	0.0532	0.0209
Mercury	-21641-01-04 03:07 J	-6182949.49	-6182949.37	-6182949.26	0.0530	0.0226
Mercury	-21641-04-02 09:21 J	-6182860.20	-6182860.11	-6182860.01	0.0528	0.0353
Venus	-21637-09-26 08:52 J	-6181222.29	-6181222.13	-6181221.97	0.0493	0.0295
Venus	-21636-05-20 15:07 J	-6180986.08	-6180985.87	-6180985.67	0.0493	0.0071
Venus	-21635-01-12 02:38 J	-6180749.48	-6180749.39	-6180749.30	0.0496	0.0442
Mercury	-21635-03-01 12:00 J	-6180701.17	-6180701.00	-6180700.83	0.0497	0.0200
Mars	-21635-07-23 17:02 J	-6180556.94	-6180556.79	-6180556.63	0.0500	0.0398
Earth	-21631-04-25 09:36 J	-6179185.32	-6179185.10	-6179184.87	0.0533	0.0063
Moon	-21631-04-25 12:14 J	-6179185.21	-6179184.99	-6179184.77	0.0533	0.0061 *
Venus	-21631-08-02 00:00 J	-6179086.64	-6179086.50	-6179086.35	0.0534	0.0379
Venus	-21630-03-27 18:57 J	-6178848.91	-6178848.71	-6178848.51	0.0533	0.0085

Mercury	-21630-10-23 07:26 J	-6178639.28	-6178639.19	-6178639.10	0.0529	0.0367
Venus	-21630-11-20 06:43 J	-6178611.24	-6178611.22	-6178611.18	0.0529	0.0522
Mercury	-21629-01-20 13:26 J	-6178550.05	-6178549.94	-6178549.82	0.0528	0.0209
Venus	-21625-06-01 08:38 J	-6176956.26	-6176956.14	-6176956.02	0.0493	0.0394
Venus	-21624-01-23 14:09 J	-6176720.12	-6176719.91	-6176719.71	0.0493	0.0033
Venus	-21624-09-17 00:28 J	-6176483.62	-6176483.48	-6176483.32	0.0496	0.0342
Mercury	-21624-12-18 08:23 J	-6176391.26	-6176391.15	-6176391.03	0.0497	0.0388
Mercury	-21623-03-18 17:31 J	-6176300.90	-6176300.77	-6176300.63	0.0499	0.0332
Venus	-21619-04-06 14:38 J	-6174820.95	-6174820.89	-6174820.82	0.0533	0.0501
Moon	-21619-04-30 07:40 J	-6174797.23	-6174797.18	-6174797.11	0.0533	0.0516
Earth	-21619-04-30 09:07 J	-6174797.22	-6174797.12	-6174797.03	0.0533	0.0485 *
Venus	-21619-11-30 10:33 J	-6174583.26	-6174583.06	-6174582.86	0.0533	0.0044
Venus	-21618-07-26 00:28 J	-6174345.61	-6174345.48	-6174345.36	0.0530	0.0407
Mercury	-21618-08-11 11:31 J	-6174329.05	-6174329.02	-6174328.99	0.0530	0.0510
Mercury	-21618-11-08 17:31 J	-6174239.90	-6174239.77	-6174239.64	0.0528	0.0063
Venus	-21613-02-05 10:48 J	-6172690.07	-6172690.05	-6172690.01	0.0493	0.0487
Venus	-21613-09-28 15:36 J	-6172454.05	-6172453.85	-6172453.65	0.0493	0.0134
Venus	-21612-05-23 00:28 J	-6172217.66	-6172217.48	-6172217.30	0.0495	0.0240
Mercury	-21611-01-04 15:07 J	-6171991.05	-6171990.87	-6171990.70	0.0498	0.0155
Venus	-21607-08-04 23:16 J	-6170317.72	-6170317.53	-6170317.34	0.0533	0.0177
Venus	-21606-03-30 15:21 J	-6170080.03	-6170079.86	-6170079.69	0.0531	0.0285
Mercury	-21606-08-27 21:07 J	-6169929.75	-6169929.62	-6169929.49	0.0529	0.0091
Mars	-21606-09-21 15:21 J	-6169905.14	-6169904.86	-6169904.58	0.0528	0.0144
Mercury	-21606-11-25 03:36 J	-6169840.40	-6169840.35	-6169840.31	0.0527	0.0487
Earth	-21602-10-20 13:26 J	-6168415.10	-6168414.94	-6168414.77	0.0494	0.0349
Moon	-21602-10-20 15:50 J	-6168415.02	-6168414.84	-6168414.65	0.0494	0.0319 *
Venus	-21601-06-03 17:45 J	-6168187.94	-6168187.76	-6168187.58	0.0493	0.0234
Venus	-21600-01-26 00:57 J	-6167951.66	-6167951.46	-6167951.26	0.0494	0.0137
Mercury	-21600-10-23 12:28 J	-6167681.16	-6167680.98	-6167680.80	0.0498	0.0023
Venus	-21595-04-09 13:40 J	-6166052.10	-6166051.93	-6166051.77	0.0533	0.0305

Venus	-21595-12-03 07:26 J	-6165814.38	-6165814.19	-6165814.00	0.0532	0.0160
Mercury	-21594-06-16 01:11 J	-6165619.57	-6165619.45	-6165619.34	0.0529	0.0236
Mercury	-21594-09-13 07:26 J	-6165530.29	-6165530.19	-6165530.09	0.0528	0.0342
Moon	-21590-10-24 22:33 J	-6164027.79	-6164027.56	-6164027.33	0.0493	0.0089
Earth	-21590-10-25 01:55 J	-6164027.65	-6164027.42	-6164027.19	0.0493	0.0092 *
Venus	-21589-02-07 19:40 J	-6163921.83	-6163921.68	-6163921.53	0.0493	0.0332
Venus	-21589-10-01 01:26 J	-6163685.65	-6163685.44	-6163685.23	0.0493	0.0033
Venus	-21588-05-25 12:00 J	-6163449.11	-6163449.00	-6163448.88	0.0496	0.0405
Mars	-21588-07-07 11:02 J	-6163406.14	-6163406.04	-6163405.91	0.0496	0.0444
Mercury	-21588-08-11 09:21 J	-6163371.28	-6163371.11	-6163370.94	0.0497	0.0207
Venus	-21584-12-13 03:50 J	-6161786.45	-6161786.34	-6161786.22	0.0534	0.0431
Venus	-21583-08-07 23:45 J	-6161548.71	-6161548.51	-6161548.31	0.0533	0.0033
Venus	-21582-04-02 13:26 J	-6161311.03	-6161310.94	-6161310.86	0.0530	0.0477
Mercury	-21582-04-04 05:31 J	-6161309.36	-6161309.27	-6161309.18	0.0530	0.0375
Mercury	-21582-07-02 11:45 J	-6161220.13	-6161220.01	-6161219.89	0.0528	0.0202
Venus	-21578-10-13 21:50 J	-6159655.69	-6159655.59	-6159655.49	0.0493	0.0427
Venus	-21577-06-06 02:23 J	-6159419.61	-6159419.40	-6159419.20	0.0493	0.0069
Venus	-21576-01-28 11:16 J	-6159183.18	-6159183.03	-6159182.86	0.0495	0.0304
Mercury	-21576-05-30 06:28 J	-6159061.34	-6159061.23	-6159061.11	0.0497	0.0387
Mercury	-21576-08-28 15:21 J	-6158970.99	-6158970.86	-6158970.72	0.0498	0.0332
Venus	-21571-04-12 16:48 J	-6157283.00	-6157282.80	-6157282.61	0.0533	0.0093
Venus	-21571-12-06 07:40 J	-6157045.32	-6157045.18	-6157045.03	0.0531	0.0363
Mercury	-21570-01-21 09:50 J	-6156999.12	-6156999.09	-6156999.06	0.0530	0.0513
Mercury	-21570-04-20 15:50 J	-6156909.96	-6156909.84	-6156909.71	0.0528	0.0062
Mars	-21570-06-30 03:21 J	-6156839.58	-6156839.36	-6156839.12	0.0527	0.0325
Venus	-21565-02-10 01:40 J	-6155153.62	-6155153.43	-6155153.23	0.0493	0.0173
Venus	-21565-10-03 09:50 J	-6154917.28	-6154917.09	-6154916.90	0.0494	0.0200
Mercury	-21564-06-16 12:14 J	-6154661.17	-6154660.99	-6154660.82	0.0498	0.0145
Venus	-21560-12-16 07:40 J	-6153017.36	-6153017.18	-6153017.00	0.0533	0.0222
Venus	-21559-08-11 00:28 J	-6152779.66	-6152779.48	-6152779.30	0.0532	0.0241

Mercury	-21558-02-06 19:55 J	-6152599.80	-6152599.67	-6152599.54	0.0528	0.0085
Mercury	-21558-05-07 02:23 J	-6152510.45	-6152510.40	-6152510.36	0.0526	0.0492
Venus	-21554-10-16 03:21 J	-6150887.52	-6150887.36	-6150887.18	0.0493	0.0272
Venus	-21553-06-08 10:19 J	-6150651.28	-6150651.07	-6150650.87	0.0494	0.0098
Venus	-21552-01-30 22:04 J	-6150414.64	-6150414.58	-6150414.50	0.0497	0.0469
Mercury	-21552-04-04 09:36 J	-6150351.29	-6150351.10	-6150350.92	0.0498	0.0035
Mars	-21552-04-10 04:33 J	-6150345.56	-6150345.31	-6150345.07	0.0498	0.0158
Moon	-21548-04-24 04:33 J	-6148870.53	-6148870.31	-6148870.08	0.0533	0.0181
Earth	-21548-04-24 06:28 J	-6148870.45	-6148870.23	-6148870.02	0.0533	0.0181 *
Venus	-21548-08-20 19:26 J	-6148751.83	-6148751.69	-6148751.53	0.0533	0.0355
Venus	-21547-04-15 14:09 J	-6148514.11	-6148513.91	-6148513.71	0.0532	0.0111
Mercury	-21547-11-25 23:16 J	-6148289.64	-6148289.53	-6148289.41	0.0529	0.0241
Mercury	-21546-02-23 05:45 J	-6148200.36	-6148200.26	-6148200.17	0.0527	0.0336
Venus	-21542-06-21 06:14 J	-6146621.38	-6146621.24	-6146621.11	0.0493	0.0369
Venus	-21541-02-12 11:31 J	-6146385.22	-6146385.02	-6146384.81	0.0493	0.0013
Venus	-21541-10-05 21:50 J	-6146148.72	-6146148.59	-6146148.45	0.0496	0.0369
Mercury	-21540-01-21 06:57 J	-6146041.38	-6146041.21	-6146041.04	0.0497	0.0212
Venus	-21536-04-25 08:52 J	-6144486.21	-6144486.13	-6144486.04	0.0533	0.0479
Earth	-21536-04-29 03:21 J	-6144482.52	-6144482.36	-6144482.18	0.0533	0.0355
Moon	-21536-04-29 03:21 J	-6144482.51	-6144482.36	-6144482.21	0.0533	0.0387 *
Venus	-21536-12-19 05:02 J	-6144248.50	-6144248.29	-6144248.09	0.0533	0.0022
Venus	-21535-08-13 18:57 J	-6144010.82	-6144010.71	-6144010.59	0.0530	0.0432
Mercury	-21535-09-14 03:21 J	-6143979.44	-6143979.36	-6143979.27	0.0530	0.0386
Mercury	-21535-12-12 09:36 J	-6143890.22	-6143890.10	-6143889.98	0.0528	0.0190
Venus	-21530-02-24 08:23 J	-6142355.21	-6142355.15	-6142355.08	0.0493	0.0463
Venus	-21530-10-18 12:43 J	-6142119.17	-6142118.97	-6142118.77	0.0493	0.0108
Venus	-21529-06-10 20:52 J	-6141882.80	-6141882.63	-6141882.45	0.0495	0.0265
Mercury	-21529-11-09 03:36 J	-6141731.46	-6141731.35	-6141731.24	0.0497	0.0397
Mercury	-21528-02-07 12:28 J	-6141641.11	-6141640.98	-6141640.84	0.0498	0.0322
Venus	-21524-08-23 20:09 J	-6139982.85	-6139982.66	-6139982.46	0.0534	0.0148

Venus	-21523-04-18 12:43 J	-6139745.13	-6139744.97	-6139744.81	0.0532	0.0313
Mercury	-21523-07-03 07:40 J	-6139669.19	-6139669.18	-6139669.17	0.0530	0.0527
Mercury	-21523-09-30 13:40 J	-6139580.05	-6139579.93	-6139579.80	0.0529	0.0050
Moon	-21519-10-19 12:14 J	-6138100.12	-6138099.99	-6138099.85	0.0494	0.0402
Earth	-21519-10-19 15:36 J	-6138099.96	-6138099.85	-6138099.73	0.0494	0.0429 *
Venus	-21518-06-23 13:55 J	-6137853.10	-6137852.92	-6137852.73	0.0493	0.0209
Venus	-21517-02-14 20:52 J	-6137616.82	-6137616.63	-6137616.43	0.0494	0.0162
Mercury	-21517-11-26 09:50 J	-6137331.26	-6137331.09	-6137330.91	0.0498	0.0143
Mars	-21516-01-12 01:40 J	-6137284.68	-6137284.43	-6137284.18	0.0499	0.0143
Venus	-21512-04-28 12:14 J	-6135717.15	-6135716.99	-6135716.81	0.0534	0.0274
Venus	-21512-12-22 06:28 J	-6135479.42	-6135479.23	-6135479.05	0.0532	0.0193
Mercury	-21511-07-19 18:00 J	-6135269.87	-6135269.75	-6135269.62	0.0529	0.0093
Mercury	-21511-10-17 00:28 J	-6135180.53	-6135180.48	-6135180.43	0.0527	0.0486
Earth	-21507-10-23 23:45 J	-6133712.75	-6133712.51	-6133712.27	0.0493	0.0008
Moon	-21507-10-24 03:36 J	-6133712.59	-6133712.35	-6133712.11	0.0493	0.0013 *
Venus	-21506-02-26 13:55 J	-6133587.08	-6133586.92	-6133586.76	0.0493	0.0310
Venus	-21506-10-20 19:40 J	-6133350.88	-6133350.68	-6133350.47	0.0493	0.0057
Venus	-21505-06-13 06:43 J	-6133114.32	-6133114.22	-6133114.12	0.0496	0.0429
Mercury	-21505-09-14 06:28 J	-6133021.42	-6133021.23	-6133021.05	0.0498	0.0048
Venus	-21500-01-01 02:52 J	-6131451.51	-6131451.38	-6131451.24	0.0534	0.0400
Venus	-21500-08-26 22:19 J	-6131213.77	-6131213.57	-6131213.37	0.0533	0.0065
Venus	-21499-04-21 11:16 J	-6130976.08	-6130976.03	-6130975.97	0.0529	0.0506
Mercury	-21499-05-07 22:04 J	-6130959.69	-6130959.58	-6130959.46	0.0529	0.0236
Mercury	-21499-08-05 04:19 J	-6130870.41	-6130870.32	-6130870.22	0.0527	0.0340
Moon	-21495-10-28 07:11 J	-6129325.33	-6129325.20	-6129325.05	0.0493	0.0397
Earth	-21495-10-28 11:02 J	-6129325.15	-6129325.04	-6129324.92	0.0493	0.0429 *
Venus	-21495-11-01 15:50 J	-6129320.95	-6129320.84	-6129320.72	0.0493	0.0406
Venus	-21494-06-25 20:38 J	-6129084.84	-6129084.64	-6129084.43	0.0493	0.0046
Venus	-21493-02-17 06:14 J	-6128848.39	-6128848.24	-6128848.09	0.0495	0.0329
Mercury	-21493-07-03 03:36 J	-6128711.51	-6128711.35	-6128711.18	0.0497	0.0227

Mercury	-21493-10-01 12:28 J	-6128621.01	-6128620.98	-6128620.95	0.0499	0.0491
Venus	-21489-09-05 14:23 J	-6127185.92	-6127185.90	-6127185.87	0.0533	0.0527
Venus	-21488-05-01 11:02 J	-6126948.24	-6126948.04	-6126947.84	0.0533	0.0069
Venus	-21488-12-25 01:40 J	-6126710.56	-6126710.43	-6126710.29	0.0531	0.0387
Mercury	-21487-02-24 01:26 J	-6126649.52	-6126649.44	-6126649.35	0.0530	0.0393
Mercury	-21487-05-24 07:40 J	-6126560.30	-6126560.18	-6126560.06	0.0528	0.0183
Venus	-21482-02-28 22:48 J	-6124818.75	-6124818.55	-6124818.35	0.0493	0.0147
Venus	-21482-10-23 06:57 J	-6124582.40	-6124582.21	-6124582.03	0.0494	0.0227
Mercury	-21481-04-21 00:57 J	-6124401.56	-6124401.46	-6124401.35	0.0497	0.0404
Mercury	-21481-07-20 10:04 J	-6124311.22	-6124311.08	-6124310.94	0.0498	0.0316
Mars	-21481-10-16 01:11 J	-6124223.56	-6124223.45	-6124223.32	0.0500	0.0443
Venus	-21476-01-04 00:57 J	-6122682.64	-6122682.46	-6122682.27	0.0533	0.0200
Venus	-21476-08-29 17:45 J	-6122444.93	-6122444.76	-6122444.58	0.0532	0.0264
Mercury	-21475-03-12 11:31 J	-6122250.14	-6122250.02	-6122249.89	0.0529	0.0038
Venus	-21471-11-04 00:14 J	-6120552.66	-6120552.49	-6120552.31	0.0493	0.0248
Venus	-21470-06-28 06:43 J	-6120316.42	-6120316.22	-6120316.02	0.0494	0.0123
Venus	-21469-02-19 18:14 J	-6120079.76	-6120079.74	-6120079.71	0.0496	0.0491
Mercury	-21469-05-08 06:57 J	-6120001.38	-6120001.21	-6120001.03	0.0498	0.0132
Earth	-21465-04-23 02:23 J	-6118555.59	-6118555.40	-6118555.21	0.0533	0.0304
Moon	-21465-04-23 02:38 J	-6118555.56	-6118555.39	-6118555.20	0.0533	0.0302 *
Venus	-21465-09-08 15:07 J	-6118417.02	-6118416.87	-6118416.71	0.0534	0.0329
Venus	-21464-05-04 10:04 J	-6118179.27	-6118179.08	-6118178.88	0.0533	0.0139
Mercury	-21464-12-29 15:50 J	-6117939.97	-6117939.84	-6117939.72	0.0529	0.0107
Mercury	-21463-03-28 22:04 J	-6117850.63	-6117850.58	-6117850.52	0.0527	0.0472
Venus	-21459-07-10 02:09 J	-6116286.55	-6116286.41	-6116286.26	0.0493	0.0346
Venus	-21458-03-03 07:11 J	-6116050.40	-6116050.20	-6116049.99	0.0493	0.0020
Venus	-21458-10-25 17:02 J	-6115813.91	-6115813.79	-6115813.66	0.0495	0.0392
Mercury	-21457-02-25 04:04 J	-6115691.51	-6115691.33	-6115691.14	0.0497	0.0050
Earth	-21453-04-28 03:36 J	-6114167.56	-6114167.35	-6114167.15	0.0534	0.0249
Moon	-21453-04-28 05:31 J	-6114167.47	-6114167.27	-6114167.07	0.0534	0.0279 *



Venus	-21453-05-14 06:28 J	-6114151.33	-6114151.23	-6114151.12	0.0534	0.0452
Venus	-21452-01-07 03:07 J	-6113913.57	-6113913.37	-6113913.17	0.0533	0.0013
Venus	-21452-09-01 17:16 J	-6113675.87	-6113675.78	-6113675.68	0.0530	0.0462
Mercury	-21452-10-17 20:09 J	-6113629.77	-6113629.66	-6113629.55	0.0529	0.0246
Mars	-21452-12-15 03:36 J	-6113571.64	-6113571.35	-6113571.06	0.0528	0.0068
Mercury	-21451-01-15 02:23 J	-6113540.50	-6113540.40	-6113540.30	0.0527	0.0332
Venus	-21447-03-15 02:38 J	-6112020.48	-6112020.39	-6112020.30	0.0493	0.0443
Venus	-21447-11-06 06:43 J	-6111784.43	-6111784.22	-6111784.02	0.0493	0.0086
Venus	-21446-06-30 14:52 J	-6111548.04	-6111547.88	-6111547.70	0.0495	0.0289
Mercury	-21446-12-14 00:28 J	-6111381.64	-6111381.48	-6111381.32	0.0497	0.0240
Mercury	-21445-03-13 09:07 J	-6111291.16	-6111291.12	-6111291.06	0.0499	0.0477
Venus	-21441-09-11 18:43 J	-6109647.92	-6109647.72	-6109647.52	0.0534	0.0117
Venus	-21440-05-07 10:33 J	-6109410.21	-6109410.06	-6109409.90	0.0531	0.0343
Mercury	-21440-08-06 00:14 J	-6109319.57	-6109319.49	-6109319.40	0.0530	0.0388
Mercury	-21440-11-03 06:28 J	-6109230.35	-6109230.23	-6109230.11	0.0528	0.0187
Venus	-21435-07-12 08:09 J	-6107518.35	-6107518.16	-6107517.97	0.0493	0.0187
Venus	-21434-03-05 15:21 J	-6107282.05	-6107281.86	-6107281.67	0.0494	0.0186
Mars	-21434-09-30 15:50 J	-6107072.99	-6107072.84	-6107072.69	0.0497	0.0403
Mercury	-21434-10-01 21:50 J	-6107071.69	-6107071.59	-6107071.50	0.0497	0.0419
Mercury	-21434-12-31 06:43 J	-6106981.36	-6106981.22	-6106981.07	0.0499	0.0302
Venus	-21429-05-17 06:28 J	-6105382.40	-6105382.23	-6105382.05	0.0533	0.0252
Venus	-21428-01-10 00:00 J	-6105144.68	-6105144.50	-6105144.31	0.0532	0.0215
Mercury	-21428-08-22 09:50 J	-6104920.22	-6104920.09	-6104919.97	0.0528	0.0031
Moon	-21424-10-22 21:50 J	-6103397.82	-6103397.59	-6103397.35	0.0494	0.0093
Earth	-21424-10-23 01:55 J	-6103397.65	-6103397.42	-6103397.19	0.0494	0.0084 *
Venus	-21423-03-17 10:33 J	-6103252.22	-6103252.06	-6103251.88	0.0493	0.0287
Venus	-21423-11-08 16:48 J	-6103016.00	-6103015.80	-6103015.60	0.0494	0.0083
Venus	-21422-07-03 03:50 J	-6102779.42	-6102779.34	-6102779.26	0.0496	0.0454
Mercury	-21422-10-19 04:33 J	-6102671.49	-6102671.31	-6102671.13	0.0498	0.0127
Venus	-21417-01-20 19:55 J	-6101116.80	-6101116.67	-6101116.52	0.0533	0.0380

Venus	-21417-09-14 15:21 J	-6100879.06	-6100878.86	-6100878.66	0.0533	0.0086
Venus	-21416-05-10 04:19 J	-6100641.34	-6100641.32	-6100641.30	0.0530	0.0527
Mercury	-21416-06-10 13:40 J	-6100610.05	-6100609.93	-6100609.81	0.0529	0.0119
Mercury	-21416-09-07 19:55 J	-6100520.73	-6100520.67	-6100520.60	0.0527	0.0459
Mars	-21416-09-21 19:11 J	-6100506.90	-6100506.70	-6100506.49	0.0527	0.0372
Earth	-21412-10-27 13:55 J	-6099010.09	-6099009.92	-6099009.76	0.0493	0.0352
Moon	-21412-10-27 16:33 J	-6099009.98	-6099009.81	-6099009.63	0.0493	0.0326 *
Venus	-21412-11-20 12:43 J	-6098986.09	-6098985.97	-6098985.84	0.0493	0.0384
Venus	-21411-07-14 17:31 J	-6098749.98	-6098749.77	-6098749.56	0.0493	0.0021
Venus	-21410-03-08 02:38 J	-6098513.53	-6098513.39	-6098513.24	0.0495	0.0353
Mercury	-21410-08-07 01:26 J	-6098361.62	-6098361.44	-6098361.26	0.0497	0.0058
Venus	-21406-09-25 09:21 J	-6096851.17	-6096851.11	-6096851.04	0.0533	0.0504
Venus	-21405-05-20 06:28 J	-6096613.43	-6096613.23	-6096613.03	0.0534	0.0044
Venus	-21404-01-12 21:36 J	-6096375.72	-6096375.60	-6096375.47	0.0531	0.0412
Mercury	-21404-03-29 17:45 J	-6096299.87	-6096299.76	-6096299.65	0.0530	0.0262
Mercury	-21404-06-27 00:00 J	-6096210.60	-6096210.50	-6096210.39	0.0528	0.0316
Venus	-21400-07-26 15:07 J	-6094719.92	-6094719.87	-6094719.82	0.0493	0.0477
Venus	-21399-03-19 18:43 J	-6094483.92	-6094483.72	-6094483.52	0.0493	0.0123
Venus	-21399-11-11 02:09 J	-6094247.58	-6094247.41	-6094247.23	0.0494	0.0251
Mercury	-21398-05-25 22:19 J	-6094051.73	-6094051.57	-6094051.41	0.0497	0.0240
Mars	-21398-07-04 10:33 J	-6094012.31	-6094012.06	-6094011.80	0.0498	0.0109
Mercury	-21398-08-24 06:57 J	-6093961.25	-6093961.21	-6093961.15	0.0499	0.0476
Venus	-21393-01-23 22:48 J	-6092347.74	-6092347.55	-6092347.36	0.0534	0.0171
Venus	-21393-09-17 15:50 J	-6092110.00	-6092109.84	-6092109.67	0.0532	0.0294
Mercury	-21392-01-15 22:19 J	-6091989.65	-6091989.57	-6091989.49	0.0530	0.0399
Mercury	-21392-04-15 04:19 J	-6091900.43	-6091900.32	-6091900.19	0.0528	0.0179
Venus	-21388-11-22 18:43 J	-6090217.90	-6090217.72	-6090217.54	0.0492	0.0226
Venus	-21387-07-17 00:57 J	-6089981.66	-6089981.46	-6089981.26	0.0494	0.0145
Mercury	-21386-03-13 18:43 J	-6089741.81	-6089741.72	-6089741.63	0.0497	0.0431
Mercury	-21386-06-12 03:50 J	-6089651.49	-6089651.34	-6089651.19	0.0498	0.0289

Earth	-21382-04-23 03:36 J	-6088240.49	-6088240.35	-6088240.19	0.0533	0.0401
Moon	-21382-04-23 04:48 J	-6088240.45	-6088240.30	-6088240.13	0.0533	0.0389 *
Venus	-21382-09-28 13:40 J	-6088082.09	-6088081.93	-6088081.76	0.0534	0.0300
Venus	-21381-05-23 08:38 J	-6087844.33	-6087844.14	-6087843.95	0.0533	0.0169
Mercury	-21380-02-01 08:38 J	-6087590.27	-6087590.14	-6087590.01	0.0528	0.0035
Venus	-21376-07-28 20:52 J	-6085951.78	-6085951.63	-6085951.48	0.0493	0.0324
Venus	-21375-03-22 02:09 J	-6085715.62	-6085715.41	-6085715.21	0.0493	0.0043
Venus	-21375-11-13 12:14 J	-6085479.10	-6085478.99	-6085478.87	0.0496	0.0416
Mercury	-21374-03-31 01:26 J	-6085341.62	-6085341.44	-6085341.26	0.0498	0.0113
Moon	-21370-04-27 19:55 J	-6083852.88	-6083852.67	-6083852.45	0.0533	0.0156
Earth	-21370-04-27 23:02 J	-6083852.76	-6083852.54	-6083852.31	0.0533	0.0128 *
Venus	-21370-06-03 01:26 J	-6083816.55	-6083816.44	-6083816.32	0.0533	0.0430
Venus	-21369-01-26 21:21 J	-6083578.81	-6083578.61	-6083578.40	0.0533	0.0037
Venus	-21369-09-20 11:16 J	-6083341.11	-6083341.03	-6083340.95	0.0530	0.0483
Mercury	-21369-11-20 11:45 J	-6083280.13	-6083280.01	-6083279.88	0.0529	0.0126
Mercury	-21368-02-17 18:14 J	-6083190.80	-6083190.74	-6083190.68	0.0527	0.0453
Venus	-21364-04-02 23:31 J	-6081685.62	-6081685.52	-6081685.41	0.0493	0.0422
Venus	-21364-11-25 04:04 J	-6081449.54	-6081449.33	-6081449.13	0.0493	0.0060
Venus	-21363-07-19 12:43 J	-6081213.12	-6081212.97	-6081212.81	0.0495	0.0314
Mercury	-21362-01-16 23:02 J	-6081031.72	-6081031.54	-6081031.35	0.0498	0.0061
Mars	-21362-04-07 08:38 J	-6080951.37	-6080951.14	-6080950.89	0.0499	0.0190
Venus	-21358-10-01 12:00 J	-6079313.20	-6079313.00	-6079312.80	0.0533	0.0096
Venus	-21357-05-26 03:36 J	-6079075.49	-6079075.35	-6079075.20	0.0531	0.0364
Mercury	-21357-09-08 15:50 J	-6078969.95	-6078969.84	-6078969.73	0.0529	0.0271
Mercury	-21357-12-06 22:04 J	-6078880.68	-6078880.58	-6078880.48	0.0528	0.0305
Venus	-21352-07-31 05:31 J	-6077183.46	-6077183.27	-6077183.07	0.0493	0.0162
Venus	-21351-03-24 12:43 J	-6076947.16	-6076946.97	-6076946.78	0.0494	0.0212
Mercury	-21351-11-04 19:55 J	-6076721.83	-6076721.67	-6076721.51	0.0497	0.0244
Mercury	-21350-02-03 04:33 J	-6076631.36	-6076631.31	-6076631.25	0.0499	0.0472
Venus	-21346-06-06 01:55 J	-6075047.60	-6075047.42	-6075047.23	0.0534	0.0227

Venus	-21345-01-29 20:09 J	-6074809.84	-6074809.66	-6074809.48	0.0532	0.0241
Mercury	-21345-06-27 19:55 J	-6074659.74	-6074659.67	-6074659.59	0.0530	0.0414
Mercury	-21345-09-25 02:09 J	-6074570.53	-6074570.41	-6074570.29	0.0528	0.0162
Earth	-21341-10-22 04:19 J	-6073082.54	-6073082.32	-6073082.09	0.0493	0.0163
Moon	-21341-10-22 07:11 J	-6073082.41	-6073082.20	-6073081.98	0.0493	0.0176 *
Venus	-21340-04-05 07:11 J	-6072917.37	-6072917.20	-6072917.02	0.0493	0.0263
Venus	-21340-11-27 12:57 J	-6072681.16	-6072680.96	-6072680.75	0.0493	0.0108
Venus	-21339-07-21 23:45 J	-6072444.56	-6072444.51	-6072444.46	0.0496	0.0477
Mercury	-21339-08-23 16:48 J	-6072411.89	-6072411.80	-6072411.70	0.0496	0.0427
Mercury	-21339-11-22 01:55 J	-6072321.57	-6072321.42	-6072321.27	0.0498	0.0292
Venus	-21334-02-08 17:45 J	-6070781.91	-6070781.76	-6070781.61	0.0534	0.0352
Venus	-21334-10-04 13:26 J	-6070544.13	-6070543.94	-6070543.74	0.0533	0.0117
Mars	-21333-05-31 20:52 J	-6070303.76	-6070303.63	-6070303.49	0.0530	0.0469
Mercury	-21333-07-14 06:43 J	-6070260.35	-6070260.22	-6070260.10	0.0529	0.0029
Moon	-21329-10-26 12:43 J	-6068695.18	-6068694.97	-6068694.75	0.0493	0.0239
Earth	-21329-10-26 14:09 J	-6068695.10	-6068694.91	-6068694.71	0.0493	0.0266 *
Venus	-21329-12-09 08:09 J	-6068651.30	-6068651.16	-6068651.02	0.0493	0.0362
Venus	-21328-08-02 12:43 J	-6068415.18	-6068414.97	-6068414.76	0.0493	0.0003
Venus	-21327-03-26 21:50 J	-6068178.72	-6068178.59	-6068178.45	0.0495	0.0376
Mercury	-21327-09-09 22:33 J	-6068011.74	-6068011.56	-6068011.38	0.0498	0.0106
Mars	-21326-01-09 04:04 J	-6067890.39	-6067890.33	-6067890.27	0.0500	0.0485
Venus	-21323-10-14 08:23 J	-6066516.23	-6066516.15	-6066516.05	0.0534	0.0477
Venus	-21322-06-09 05:45 J	-6066278.47	-6066278.26	-6066278.06	0.0534	0.0016
Venus	-21321-02-01 20:38 J	-6066040.74	-6066040.64	-6066040.52	0.0531	0.0442
Mercury	-21321-05-02 10:48 J	-6065950.17	-6065950.05	-6065949.92	0.0529	0.0117
Mercury	-21321-07-30 17:02 J	-6065860.84	-6065860.79	-6065860.72	0.0527	0.0462
Venus	-21317-08-14 10:48 J	-6064385.12	-6064385.05	-6064384.97	0.0493	0.0456
Venus	-21316-04-07 14:23 J	-6064149.10	-6064148.90	-6064148.69	0.0493	0.0100
Venus	-21316-11-29 22:19 J	-6063912.74	-6063912.57	-6063912.40	0.0494	0.0275
Mercury	-21315-06-28 20:09 J	-6063701.84	-6063701.66	-6063701.47	0.0497	0.0071

Venus	-21310-02-11 18:14 J	-6062012.93	-6062012.74	-6062012.54	0.0533	0.0148
Venus	-21310-10-07 11:02 J	-6061775.20	-6061775.04	-6061774.88	0.0532	0.0317
Mercury	-21309-02-19 14:09 J	-6061640.02	-6061639.91	-6061639.80	0.0529	0.0274
Mercury	-21309-05-18 20:23 J	-6061550.75	-6061550.65	-6061550.54	0.0528	0.0302
Venus	-21305-12-11 16:48 J	-6059882.99	-6059882.80	-6059882.61	0.0493	0.0201
Venus	-21304-08-04 23:31 J	-6059646.71	-6059646.52	-6059646.32	0.0494	0.0173
Mercury	-21303-04-16 18:00 J	-6059391.91	-6059391.75	-6059391.59	0.0497	0.0243
Mercury	-21303-07-16 02:38 J	-6059301.44	-6059301.39	-6059301.33	0.0499	0.0474
Moon	-21299-04-21 20:52 J	-6057925.69	-6057925.63	-6057925.56	0.0532	0.0505
Earth	-21299-04-21 23:31 J	-6057925.56	-6057925.52	-6057925.47	0.0532	0.0519 *
Venus	-21299-10-17 08:23 J	-6057747.32	-6057747.15	-6057746.98	0.0533	0.0277
Venus	-21298-06-12 02:38 J	-6057509.58	-6057509.39	-6057509.20	0.0532	0.0191
Mercury	-21298-12-08 18:14 J	-6057329.82	-6057329.74	-6057329.67	0.0530	0.0419
Mercury	-21297-03-07 00:14 J	-6057240.61	-6057240.49	-6057240.36	0.0528	0.0156
Mars	-21297-03-08 21:21 J	-6057238.91	-6057238.61	-6057238.32	0.0528	0.0013
Venus	-21293-08-16 18:57 J	-6055616.87	-6055616.71	-6055616.54	0.0493	0.0300
Venus	-21292-04-10 00:28 J	-6055380.68	-6055380.48	-6055380.27	0.0493	0.0070
Venus	-21292-12-02 10:19 J	-6055144.15	-6055144.07	-6055143.97	0.0496	0.0442
Mercury	-21291-02-02 14:52 J	-6055081.97	-6055081.88	-6055081.79	0.0496	0.0426
Mercury	-21291-05-04 00:00 J	-6054991.65	-6054991.50	-6054991.35	0.0498	0.0293
Earth	-21287-04-26 20:38 J	-6053537.87	-6053537.64	-6053537.41	0.0533	0.0013
Moon	-21287-04-27 00:28 J	-6053537.71	-6053537.48	-6053537.24	0.0533	0.0044 *
Venus	-21287-06-21 21:50 J	-6053481.72	-6053481.59	-6053481.46	0.0533	0.0404
Venus	-21286-02-14 18:00 J	-6053243.95	-6053243.75	-6053243.55	0.0533	0.0064
Venus	-21286-10-10 08:09 J	-6053006.21	-6053006.16	-6053006.10	0.0530	0.0509
Mercury	-21286-12-25 04:19 J	-6052930.44	-6052930.32	-6052930.19	0.0529	0.0023
Venus	-21281-04-21 21:21 J	-6051350.73	-6051350.61	-6051350.49	0.0493	0.0396
Venus	-21281-12-14 01:26 J	-6051114.64	-6051114.44	-6051114.23	0.0493	0.0036
Venus	-21280-08-07 10:04 J	-6050878.23	-6050878.08	-6050877.93	0.0495	0.0340
Mars	-21280-12-24 04:48 J	-6050739.48	-6050739.30	-6050739.11	0.0497	0.0341

Mercury	-21279-02-19 21:07 J	-6050681.80	-6050681.62	-6050681.44	0.0498	0.0113
Venus	-21275-02-24 12:43 J	-6049215.99	-6049215.97	-6049215.93	0.0533	0.0526
Venus	-21275-10-20 10:33 J	-6048978.26	-6048978.06	-6048977.86	0.0534	0.0066
Venus	-21274-06-15 02:52 J	-6048740.51	-6048740.38	-6048740.24	0.0532	0.0395
Mercury	-21274-10-13 08:52 J	-6048620.25	-6048620.13	-6048620.00	0.0529	0.0125
Mercury	-21273-01-10 15:21 J	-6048530.92	-6048530.86	-6048530.80	0.0528	0.0454
Venus	-21270-12-26 23:02 J	-6047084.55	-6047084.54	-6047084.53	0.0493	0.0492
Venus	-21269-08-19 02:09 J	-6046848.60	-6046848.41	-6046848.21	0.0492	0.0138
Venus	-21268-04-12 09:07 J	-6046612.30	-6046612.12	-6046611.93	0.0494	0.0237
Mercury	-21268-12-08 17:45 J	-6046371.94	-6046371.76	-6046371.57	0.0497	0.0074
Venus	-21263-06-25 02:23 J	-6044712.59	-6044712.40	-6044712.21	0.0534	0.0194
Venus	-21262-02-17 20:23 J	-6044474.82	-6044474.65	-6044474.47	0.0532	0.0274
Mercury	-21262-08-01 13:11 J	-6044310.06	-6044309.95	-6044309.84	0.0530	0.0264
Mercury	-21262-10-29 19:26 J	-6044220.79	-6044220.69	-6044220.58	0.0528	0.0314
Mars	-21262-12-16 16:04 J	-6044172.96	-6044172.83	-6044172.69	0.0527	0.0464
Moon	-21258-10-22 06:00 J	-6042767.45	-6042767.25	-6042767.03	0.0493	0.0257
Earth	-21258-10-22 07:40 J	-6042767.38	-6042767.18	-6042766.97	0.0493	0.0236 *
Venus	-21257-04-24 04:33 J	-6042582.49	-6042582.31	-6042582.13	0.0493	0.0238
Venus	-21257-12-16 10:19 J	-6042346.26	-6042346.07	-6042345.87	0.0493	0.0134
Mercury	-21256-09-26 15:21 J	-6042062.01	-6042061.86	-6042061.69	0.0497	0.0248
Mercury	-21256-12-26 00:14 J	-6041971.54	-6041971.49	-6041971.43	0.0499	0.0469
Venus	-21251-02-27 15:21 J	-6040447.02	-6040446.86	-6040446.70	0.0533	0.0326
Venus	-21251-10-23 10:19 J	-6040209.26	-6040209.07	-6040208.88	0.0533	0.0142
Mercury	-21250-05-20 16:48 J	-6039999.88	-6039999.80	-6039999.73	0.0530	0.0418
Mercury	-21250-08-17 22:48 J	-6039910.67	-6039910.55	-6039910.43	0.0528	0.0157
Moon	-21246-10-26 19:26 J	-6038379.90	-6038379.69	-6038379.48	0.0494	0.0178
Earth	-21246-10-26 19:40 J	-6038379.90	-6038379.68	-6038379.46	0.0494	0.0202 *
Venus	-21246-12-29 06:43 J	-6038316.36	-6038316.22	-6038316.07	0.0493	0.0337
Venus	-21245-08-21 12:14 J	-6038080.20	-6038079.99	-6038079.78	0.0493	0.0031
Venus	-21244-04-14 22:04 J	-6037843.70	-6037843.58	-6037843.46	0.0495	0.0405

Mercury	-21244-07-15 13:11 J	-6037752.05	-6037751.95	-6037751.85	0.0497	0.0420
Mars	-21244-09-27 04:33 J	-6037678.56	-6037678.31	-6037678.05	0.0498	0.0042
Mercury	-21244-10-13 22:19 J	-6037661.71	-6037661.57	-6037661.42	0.0498	0.0300
Venus	-21240-11-02 05:02 J	-6036181.39	-6036181.29	-6036181.18	0.0533	0.0452
Venus	-21239-06-28 01:26 J	-6035943.64	-6035943.44	-6035943.24	0.0533	0.0013
Venus	-21238-02-20 15:50 J	-6035705.93	-6035705.84	-6035705.74	0.0531	0.0465
Mercury	-21238-06-06 02:52 J	-6035600.51	-6035600.38	-6035600.25	0.0529	0.0012
Venus	-21234-09-03 09:36 J	-6034050.19	-6034050.10	-6034050.00	0.0493	0.0432
Venus	-21233-04-26 13:55 J	-6033814.13	-6033813.92	-6033813.72	0.0493	0.0071
Venus	-21233-12-18 21:50 J	-6033577.75	-6033577.59	-6033577.42	0.0494	0.0304
Mercury	-21232-08-01 19:40 J	-6033351.86	-6033351.68	-6033351.50	0.0498	0.0120
Venus	-21227-03-02 16:04 J	-6031678.03	-6031677.83	-6031677.63	0.0534	0.0118
Venus	-21227-10-26 08:52 J	-6031440.28	-6031440.13	-6031439.97	0.0532	0.0346
Mercury	-21226-03-25 06:57 J	-6031290.33	-6031290.21	-6031290.08	0.0529	0.0133
Mercury	-21226-06-22 13:26 J	-6031201.01	-6031200.94	-6031200.88	0.0528	0.0446
Venus	-21222-12-31 15:36 J	-6029548.04	-6029547.85	-6029547.65	0.0493	0.0173
Venus	-21221-08-23 22:19 J	-6029311.76	-6029311.57	-6029311.38	0.0494	0.0201
Mercury	-21220-05-20 16:48 J	-6029041.98	-6029041.80	-6029041.61	0.0497	0.0060
Venus	-21216-11-05 07:55 J	-6027412.35	-6027412.17	-6027411.99	0.0534	0.0246
Venus	-21215-07-01 02:38 J	-6027174.57	-6027174.39	-6027174.21	0.0533	0.0224
Mercury	-21214-01-11 11:31 J	-6026980.13	-6026980.02	-6026979.91	0.0530	0.0268
Mercury	-21214-04-10 17:45 J	-6026890.86	-6026890.76	-6026890.65	0.0528	0.0310
Venus	-21210-09-05 17:16 J	-6025281.95	-6025281.78	-6025281.61	0.0493	0.0274
Venus	-21209-04-28 22:33 J	-6025045.76	-6025045.56	-6025045.36	0.0493	0.0096
Venus	-21209-12-21 08:23 J	-6024809.21	-6024809.15	-6024809.08	0.0496	0.0467
Mercury	-21208-03-08 13:40 J	-6024732.09	-6024731.93	-6024731.77	0.0497	0.0245
Mercury	-21208-06-06 22:19 J	-6024641.62	-6024641.57	-6024641.51	0.0499	0.0472
Mars	-21208-07-01 00:14 J	-6024617.72	-6024617.49	-6024617.27	0.0499	0.0253
Moon	-21204-04-25 23:02 J	-6023222.77	-6023222.54	-6023222.31	0.0533	0.0035
Earth	-21204-04-26 02:52 J	-6023222.60	-6023222.38	-6023222.15	0.0533	0.0062 *

Venus	-21204-07-10 23:16 J	-6023146.67	-6023146.53	-6023146.38	0.0534	0.0373
Venus	-21203-03-05 19:40 J	-6022908.87	-6022908.68	-6022908.48	0.0533	0.0098
Mercury	-21203-10-30 16:04 J	-6022669.91	-6022669.83	-6022669.75	0.0530	0.0405
Mercury	-21202-01-27 22:04 J	-6022580.70	-6022580.58	-6022580.45	0.0528	0.0172
Venus	-21198-05-11 19:55 J	-6021015.80	-6021015.67	-6021015.53	0.0493	0.0371
Venus	-21197-01-03 00:14 J	-6020779.69	-6020779.49	-6020779.28	0.0493	0.0011
Venus	-21197-08-26 09:07 J	-6020543.25	-6020543.12	-6020542.98	0.0495	0.0368
Mercury	-21197-12-25 11:02 J	-6020422.13	-6020422.04	-6020421.93	0.0497	0.0419
Mercury	-21196-03-25 20:23 J	-6020331.79	-6020331.65	-6020331.50	0.0498	0.0301
Venus	-21192-03-15 12:43 J	-6018881.04	-6018880.97	-6018880.90	0.0533	0.0498
Earth	-21192-05-01 00:28 J	-6018834.57	-6018834.48	-6018834.37	0.0533	0.0476
Moon	-21192-05-01 03:21 J	-6018834.46	-6018834.36	-6018834.24	0.0533	0.0462 *
Venus	-21192-11-08 09:36 J	-6018643.30	-6018643.10	-6018642.90	0.0533	0.0036
Venus	-21191-07-04 00:57 J	-6018405.58	-6018405.46	-6018405.34	0.0531	0.0421
Mercury	-21191-11-16 01:40 J	-6018270.56	-6018270.43	-6018270.30	0.0529	0.0016
Venus	-21186-01-14 22:04 J	-6016749.63	-6016749.58	-6016749.51	0.0494	0.0468
Venus	-21186-09-08 02:23 J	-6016513.60	-6016513.40	-6016513.20	0.0493	0.0109
Venus	-21185-05-01 10:19 J	-6016277.25	-6016277.07	-6016276.90	0.0494	0.0267
Mercury	-21184-01-11 18:28 J	-6016021.91	-6016021.73	-6016021.55	0.0498	0.0132
Venus	-21180-07-14 00:28 J	-6014377.68	-6014377.48	-6014377.29	0.0533	0.0166
Venus	-21179-03-08 17:31 J	-6014139.93	-6014139.77	-6014139.60	0.0532	0.0299
Mars	-21179-08-25 09:07 J	-6013970.32	-6013970.12	-6013969.91	0.0529	0.0379
Mercury	-21179-09-04 05:45 J	-6013960.39	-6013960.26	-6013960.14	0.0529	0.0129
Mercury	-21179-12-02 12:00 J	-6013871.07	-6013871.00	-6013870.93	0.0527	0.0448
Moon	-21175-10-21 14:38 J	-6012452.06	-6012451.89	-6012451.71	0.0494	0.0321
Earth	-21175-10-21 14:52 J	-6012452.06	-6012451.88	-6012451.68	0.0494	0.0295 *
Venus	-21174-05-14 04:33 J	-6012247.49	-6012247.31	-6012247.12	0.0493	0.0209
Venus	-21173-01-05 11:02 J	-6012011.23	-6012011.04	-6012010.85	0.0494	0.0165
Mercury	-21173-10-30 15:50 J	-6011712.03	-6011711.84	-6011711.66	0.0497	0.0049
Venus	-21168-03-18 14:23 J	-6010112.07	-6010111.90	-6010111.73	0.0533	0.0296



Venus	-21168-11-11 09:21 J	-6009874.30	-6009874.11	-6009873.92	0.0533	0.0174
Mercury	-21167-06-23 09:50 J	-6009650.20	-6009650.09	-6009649.98	0.0530	0.0272
Mercury	-21167-09-20 16:04 J	-6009560.93	-6009560.83	-6009560.73	0.0528	0.0305
Earth	-21163-10-26 04:19 J	-6008064.55	-6008064.32	-6008064.09	0.0494	0.0147
Moon	-21163-10-26 06:00 J	-6008064.48	-6008064.25	-6008064.01	0.0494	0.0128 *
Venus	-21162-01-17 07:11 J	-6007981.36	-6007981.20	-6007981.04	0.0493	0.0308
Venus	-21162-09-10 12:28 J	-6007745.19	-6007744.98	-6007744.78	0.0493	0.0062
Venus	-21161-05-03 21:50 J	-6007508.68	-6007508.59	-6007508.48	0.0495	0.0433
Mercury	-21161-08-18 12:57 J	-6007402.12	-6007401.96	-6007401.80	0.0497	0.0227
Mercury	-21161-11-16 21:50 J	-6007311.62	-6007311.59	-6007311.56	0.0498	0.0489
Venus	-21157-11-21 05:31 J	-6005846.39	-6005846.27	-6005846.15	0.0533	0.0421
Venus	-21156-07-17 02:23 J	-6005608.60	-6005608.40	-6005608.20	0.0533	0.0048
Venus	-21155-03-11 17:31 J	-6005370.84	-6005370.77	-6005370.70	0.0531	0.0497
Mercury	-21155-04-11 14:23 J	-6005339.98	-6005339.90	-6005339.82	0.0530	0.0407
Mercury	-21155-07-09 20:38 J	-6005250.76	-6005250.64	-6005250.52	0.0529	0.0169
Venus	-21151-09-22 09:36 J	-6003715.21	-6003715.10	-6003714.99	0.0493	0.0405
Venus	-21150-05-16 13:26 J	-6003479.15	-6003478.94	-6003478.74	0.0493	0.0043
Venus	-21149-01-07 21:07 J	-6003242.76	-6003242.62	-6003242.46	0.0494	0.0332
Mercury	-21149-06-06 09:36 J	-6003092.19	-6003092.10	-6003091.99	0.0496	0.0411
Mercury	-21149-09-04 18:57 J	-6003001.85	-6003001.71	-6003001.57	0.0498	0.0308
Venus	-21144-03-21 18:57 J	-6001342.91	-6001342.71	-6001342.51	0.0534	0.0082
Venus	-21144-11-14 11:45 J	-6001105.14	-6001105.01	-6001104.86	0.0532	0.0381
Mercury	-21143-04-28 00:57 J	-6000940.58	-6000940.46	-6000940.33	0.0529	0.0036
Mars	-21143-06-03 12:28 J	-6000904.27	-6000903.98	-6000903.69	0.0528	0.0113
Venus	-21138-01-19 15:50 J	-5999213.04	-5999212.84	-5999212.64	0.0493	0.0144
Venus	-21138-09-12 22:48 J	-5998976.74	-5998976.55	-5998976.37	0.0494	0.0230
Mercury	-21137-06-23 16:48 J	-5998691.97	-5998691.80	-5998691.62	0.0498	0.0139
Venus	-21133-11-24 09:07 J	-5997077.31	-5997077.12	-5997076.94	0.0533	0.0213
Venus	-21132-07-20 02:52 J	-5996839.56	-5996839.38	-5996839.20	0.0532	0.0255
Mercury	-21131-02-14 04:33 J	-5996630.43	-5996630.31	-5996630.18	0.0529	0.0121

Mercury	-21131-05-14 11:02 J	-5996541.11	-5996541.04	-5996540.98	0.0527	0.0456
Venus	-21127-09-24 17:45 J	-5994946.93	-5994946.76	-5994946.58	0.0493	0.0245
Venus	-21126-05-19 00:00 J	-5994710.70	-5994710.50	-5994710.30	0.0494	0.0128
Mars	-21125-03-19 11:45 J	-5994405.22	-5994405.01	-5994404.78	0.0497	0.0253
Mercury	-21125-04-11 14:52 J	-5994382.07	-5994381.88	-5994381.70	0.0498	0.0033
Earth	-21121-04-25 08:09 J	-5992907.38	-5992907.16	-5992906.94	0.0532	0.0140
Moon	-21121-04-25 11:16 J	-5992907.24	-5992907.03	-5992906.81	0.0532	0.0115 *
Venus	-21121-07-29 23:45 J	-5992811.67	-5992811.51	-5992811.36	0.0533	0.0341
Venus	-21120-03-24 18:57 J	-5992573.90	-5992573.71	-5992573.51	0.0532	0.0128
Mercury	-21120-12-03 08:52 J	-5992320.24	-5992320.13	-5992320.02	0.0529	0.0264
Mercury	-21119-03-02 14:52 J	-5992230.98	-5992230.88	-5992230.77	0.0528	0.0312
Venus	-21115-05-30 20:38 J	-5990680.79	-5990680.64	-5990680.49	0.0494	0.0343
Venus	-21114-01-22 01:40 J	-5990444.64	-5990444.43	-5990444.23	0.0493	0.0026
Venus	-21114-09-15 11:02 J	-5990208.16	-5990208.04	-5990207.92	0.0495	0.0400
Mercury	-21113-01-29 12:00 J	-5990072.16	-5990072.00	-5990071.83	0.0497	0.0212
Venus	-21109-04-03 12:57 J	-5988546.05	-5988545.96	-5988545.86	0.0533	0.0467
Moon	-21109-04-30 03:50 J	-5988519.51	-5988519.34	-5988519.17	0.0533	0.0370
Earth	-21109-04-30 05:02 J	-5988519.43	-5988519.29	-5988519.13	0.0533	0.0393 *
Venus	-21109-11-27 09:50 J	-5988308.29	-5988308.09	-5988307.89	0.0533	0.0009
Venus	-21108-07-23 01:26 J	-5988070.54	-5988070.44	-5988070.34	0.0531	0.0453
Mercury	-21108-09-21 12:57 J	-5988010.04	-5988009.96	-5988009.88	0.0530	0.0406
Mercury	-21108-12-19 19:11 J	-5987920.82	-5987920.70	-5987920.58	0.0528	0.0170
Venus	-21103-02-02 23:45 J	-5986414.60	-5986414.51	-5986414.42	0.0494	0.0438
Venus	-21103-09-27 03:50 J	-5986178.55	-5986178.34	-5986178.14	0.0493	0.0077
Venus	-21102-05-21 11:16 J	-5985942.19	-5985942.03	-5985941.86	0.0494	0.0299
Mercury	-21102-11-17 09:21 J	-5985762.22	-5985762.11	-5985761.99	0.0497	0.0389
Mercury	-21101-02-15 18:28 J	-5985671.86	-5985671.73	-5985671.59	0.0498	0.0330
Venus	-21097-08-02 01:55 J	-5984042.61	-5984042.42	-5984042.22	0.0534	0.0131
Venus	-21096-03-27 19:40 J	-5983804.83	-5983804.68	-5983804.52	0.0532	0.0335
Mercury	-21096-10-07 23:31 J	-5983610.64	-5983610.52	-5983610.39	0.0529	0.0039

Earth	-21092-10-21 01:11 J	-5982136.62	-5982136.45	-5982136.27	0.0494	0.0339
Moon	-21092-10-21 03:07 J	-5982136.53	-5982136.37	-5982136.20	0.0494	0.0367 *
Venus	-21091-06-02 05:31 J	-5981912.46	-5981912.27	-5981912.08	0.0493	0.0179
Venus	-21090-01-24 11:45 J	-5981676.20	-5981676.01	-5981675.82	0.0494	0.0195
Mercury	-21090-12-04 15:50 J	-5981362.02	-5981361.84	-5981361.67	0.0498	0.0150
Mars	-21090-12-22 10:04 J	-5981344.34	-5981344.08	-5981343.82	0.0498	0.0044
Venus	-21085-04-06 18:14 J	-5979776.91	-5979776.74	-5979776.56	0.0534	0.0259
Venus	-21085-11-30 13:26 J	-5979539.12	-5979538.94	-5979538.75	0.0533	0.0212
Mercury	-21084-07-27 04:04 J	-5979300.45	-5979300.33	-5979300.20	0.0529	0.0104
Mercury	-21084-10-24 10:33 J	-5979211.11	-5979211.06	-5979211.01	0.0528	0.0476
Moon	-21080-10-25 11:45 J	-5977749.24	-5977749.01	-5977748.78	0.0493	0.0086
Earth	-21080-10-25 14:38 J	-5977749.12	-5977748.89	-5977748.65	0.0493	0.0102 *
Venus	-21079-02-05 08:38 J	-5977646.31	-5977646.14	-5977645.98	0.0493	0.0278
Venus	-21079-09-29 13:40 J	-5977410.13	-5977409.93	-5977409.72	0.0493	0.0093
Venus	-21078-05-23 23:31 J	-5977173.58	-5977173.52	-5977173.44	0.0496	0.0464
Mercury	-21078-09-22 13:40 J	-5977052.11	-5977051.93	-5977051.74	0.0497	0.0021
Venus	-21074-12-11 08:38 J	-5975511.27	-5975511.14	-5975511.00	0.0533	0.0386
Venus	-21073-08-05 04:33 J	-5975273.51	-5975273.31	-5975273.11	0.0533	0.0082
Venus	-21072-03-30 18:28 J	-5975035.74	-5975035.73	-5975035.70	0.0530	0.0527
Mercury	-21072-05-15 07:55 J	-5974990.28	-5974990.17	-5974990.06	0.0529	0.0252
Mercury	-21072-08-12 14:09 J	-5974901.01	-5974900.91	-5974900.81	0.0527	0.0323
Venus	-21068-10-11 10:19 J	-5973380.20	-5973380.07	-5973379.94	0.0494	0.0377
Venus	-21067-06-04 15:07 J	-5973144.08	-5973143.87	-5973143.66	0.0494	0.0011
Venus	-21066-01-27 00:00 J	-5972907.63	-5972907.50	-5972907.36	0.0495	0.0365
Mercury	-21066-07-11 11:31 J	-5972742.19	-5972742.02	-5972741.85	0.0497	0.0193
Venus	-21062-08-15 23:16 J	-5971245.58	-5971245.53	-5971245.46	0.0532	0.0508
Venus	-21061-04-09 20:23 J	-5971007.85	-5971007.65	-5971007.45	0.0533	0.0047
Venus	-21061-12-03 12:00 J	-5970770.13	-5970770.00	-5970769.88	0.0531	0.0411
Mercury	-21060-03-03 12:14 J	-5970680.08	-5970679.99	-5970679.91	0.0530	0.0394
Mercury	-21060-05-31 18:14 J	-5970590.86	-5970590.74	-5970590.62	0.0528	0.0180

Venus	-21056-06-16 13:11 J	-5969114.00	-5969113.95	-5969113.88	0.0494	0.0472
Venus	-21055-02-07 17:16 J	-5968877.98	-5968877.78	-5968877.57	0.0493	0.0113
Venus	-21055-10-02 00:57 J	-5968641.63	-5968641.46	-5968641.28	0.0494	0.0264
Mercury	-21054-04-29 08:52 J	-5968432.25	-5968432.13	-5968432.01	0.0497	0.0371
Mercury	-21054-07-28 18:00 J	-5968341.88	-5968341.75	-5968341.62	0.0498	0.0349
Mars	-21054-09-25 18:14 J	-5968282.92	-5968282.74	-5968282.56	0.0499	0.0357
Venus	-21050-12-14 10:19 J	-5966742.26	-5966742.07	-5966741.88	0.0533	0.0178
Venus	-21049-08-08 04:04 J	-5966504.49	-5966504.33	-5966504.16	0.0532	0.0290
Mercury	-21048-03-19 22:19 J	-5966280.70	-5966280.57	-5966280.44	0.0529	0.0037
Venus	-21044-10-13 20:09 J	-5964611.85	-5964611.66	-5964611.48	0.0493	0.0212
Venus	-21043-06-07 02:09 J	-5964375.60	-5964375.41	-5964375.21	0.0494	0.0162
Mercury	-21042-05-16 15:36 J	-5964032.03	-5964031.85	-5964031.68	0.0498	0.0173
Moon	-21038-04-25 13:26 J	-5962592.16	-5962591.94	-5962591.72	0.0532	0.0195
Earth	-21038-04-25 15:07 J	-5962592.07	-5962591.87	-5962591.65	0.0532	0.0212 *
Venus	-21038-08-19 01:40 J	-5962476.59	-5962476.43	-5962476.26	0.0533	0.0307
Venus	-21037-04-12 21:36 J	-5962238.79	-5962238.60	-5962238.41	0.0533	0.0165
Mercury	-21036-01-06 02:52 J	-5961970.51	-5961970.38	-5961970.26	0.0529	0.0099
Mercury	-21036-04-05 09:07 J	-5961881.17	-5961881.12	-5961881.07	0.0528	0.0479
Venus	-21032-06-18 22:33 J	-5960345.71	-5960345.56	-5960345.40	0.0493	0.0312
Venus	-21031-02-10 03:21 J	-5960109.56	-5960109.36	-5960109.16	0.0493	0.0057
Venus	-21031-10-04 12:43 J	-5959873.07	-5959872.97	-5959872.87	0.0495	0.0429
Mercury	-21030-03-04 12:43 J	-5959722.16	-5959721.97	-5959721.79	0.0497	0.0008
Venus	-21026-04-23 17:45 J	-5958210.88	-5958210.76	-5958210.65	0.0533	0.0430
Moon	-21026-04-30 15:50 J	-5958204.02	-5958203.84	-5958203.66	0.0533	0.0313
Earth	-21026-04-30 16:33 J	-5958203.98	-5958203.81	-5958203.63	0.0533	0.0341 *
Venus	-21026-12-17 14:38 J	-5957973.09	-5957972.89	-5957972.69	0.0533	0.0038
Venus	-21025-08-11 06:14 J	-5957735.32	-5957735.24	-5957735.17	0.0531	0.0489
Mercury	-21025-10-25 07:26 J	-5957660.30	-5957660.19	-5957660.08	0.0530	0.0234
Mars	-21025-11-19 16:19 J	-5957635.08	-5957634.82	-5957634.55	0.0529	0.0231
Mercury	-21024-01-22 13:40 J	-5957571.03	-5957570.93	-5957570.83	0.0528	0.0343

Venus	-21020-02-22 01:40 J	-5956079.53	-5956079.43	-5956079.30	0.0494	0.0409
Venus	-21020-10-16 05:45 J	-5955843.46	-5955843.26	-5955843.05	0.0493	0.0046
Venus	-21019-06-09 13:40 J	-5955607.08	-5955606.93	-5955606.78	0.0494	0.0330
Mercury	-21019-12-21 10:33 J	-5955412.23	-5955412.06	-5955411.89	0.0497	0.0178
Venus	-21014-08-22 06:00 J	-5953707.45	-5953707.25	-5953707.05	0.0533	0.0093
Venus	-21013-04-15 22:33 J	-5953469.70	-5953469.56	-5953469.41	0.0531	0.0370
Mercury	-21013-08-13 11:16 J	-5953350.11	-5953350.03	-5953349.94	0.0529	0.0380
Mercury	-21013-11-10 17:31 J	-5953260.89	-5953260.77	-5953260.66	0.0528	0.0194
Moon	-21009-10-20 06:43 J	-5951821.32	-5951821.22	-5951821.09	0.0495	0.0426
Earth	-21009-10-20 09:50 J	-5951821.22	-5951821.09	-5951820.94	0.0495	0.0394 *
Venus	-21008-06-21 06:57 J	-5951577.40	-5951577.21	-5951577.01	0.0494	0.0148
Venus	-21007-02-12 14:23 J	-5951341.09	-5951340.90	-5951340.72	0.0494	0.0229
Mars	-21007-09-10 04:19 J	-5951131.41	-5951131.32	-5951131.20	0.0497	0.0451
Mercury	-21007-10-09 08:09 J	-5951102.29	-5951102.16	-5951102.03	0.0497	0.0353
Mercury	-21006-01-07 17:16 J	-5951011.90	-5951011.78	-5951011.65	0.0499	0.0368
Venus	-21002-04-26 21:21 J	-5949441.79	-5949441.61	-5949441.42	0.0533	0.0221
Venus	-21002-12-20 15:07 J	-5949204.04	-5949203.87	-5949203.69	0.0532	0.0247
Mercury	-21001-06-01 15:36 J	-5949039.87	-5949039.85	-5949039.83	0.0530	0.0521
Mercury	-21001-08-29 21:36 J	-5948950.73	-5948950.60	-5948950.47	0.0528	0.0051

# 21ST MILLENNIUM BCE

This is a list of transits visible from Jupiter in the 21st millennium BCE.

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
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Earth	-20997-10-24 23:45 J	-5947433.75	-5947433.51	-5947433.27	0.0494	0.0049
Moon	-20997-10-25 03:36 J	-5947433.59	-5947433.35	-5947433.11	0.0494	0.0046 *
Venus	-20996-02-24 09:50 J	-5947311.27	-5947311.09	-5947310.91	0.0494	0.0247
Venus	-20996-10-18 15:50 J	-5947075.04	-5947074.84	-5947074.64	0.0494	0.0127
Mercury	-20995-10-26 14:52 J	-5946702.04	-5946701.88	-5946701.71	0.0498	0.0192
Venus	-20991-12-30 10:48 J	-5945176.20	-5945176.05	-5945175.89	0.0533	0.0351
Venus	-20990-08-25 06:28 J	-5944938.43	-5944938.23	-5944938.03	0.0533	0.0119
Mercury	-20989-06-18 01:40 J	-5944640.56	-5944640.43	-5944640.31	0.0529	0.0094
Mars	-20989-08-28 00:28 J	-5944569.74	-5944569.48	-5944569.21	0.0528	0.0229
Mercury	-20989-09-15 07:55 J	-5944551.22	-5944551.17	-5944551.12	0.0527	0.0483
Earth	-20985-10-29 14:09 J	-5943045.92	-5943045.91	-5943045.90	0.0494	0.0493
Venus	-20985-10-30 12:57 J	-5943045.10	-5943044.96	-5943044.81	0.0494	0.0345
Venus	-20984-06-23 17:45 J	-5942808.97	-5942808.76	-5942808.55	0.0493	0.0024
Venus	-20983-02-15 02:38 J	-5942572.51	-5942572.39	-5942572.27	0.0495	0.0398
Mercury	-20983-08-14 12:28 J	-5942392.16	-5942391.98	-5942391.80	0.0498	0.0016
Venus	-20979-09-04 01:40 J	-5940910.52	-5940910.43	-5940910.34	0.0532	0.0474
Venus	-20978-04-29 22:48 J	-5940672.75	-5940672.55	-5940672.35	0.0533	0.0010
Venus	-20978-12-23 14:52 J	-5940434.99	-5940434.88	-5940434.77	0.0531	0.0447
Mercury	-20977-04-06 06:14 J	-5940330.36	-5940330.24	-5940330.13	0.0530	0.0230
Mercury	-20977-07-04 12:28 J	-5940241.08	-5940240.98	-5940240.89	0.0528	0.0347
Venus	-20973-07-05 15:50 J	-5938778.92	-5938778.84	-5938778.74	0.0494	0.0441
Venus	-20972-02-26 19:40 J	-5938542.88	-5938542.68	-5938542.48	0.0493	0.0079
Venus	-20972-10-21 02:52 J	-5938306.54	-5938306.38	-5938306.21	0.0494	0.0296
Mercury	-20971-06-02 09:36 J	-5938082.27	-5938082.10	-5938081.93	0.0497	0.0164
Mars	-20971-06-14 02:38 J	-5938070.64	-5938070.39	-5938070.15	0.0497	0.0155
Venus	-20966-01-02 15:21 J	-5936407.06	-5936406.86	-5936406.67	0.0533	0.0138
Venus	-20966-08-28 09:07 J	-5936169.27	-5936169.12	-5936168.96	0.0532	0.0328
Mercury	-20965-01-24 10:48 J	-5936020.14	-5936020.05	-5936019.96	0.0530	0.0364
Mercury	-20965-04-22 17:02 J	-5935930.91	-5935930.79	-5935930.68	0.0528	0.0212

Venus	-20961-11-01 22:33 J	-5934276.75	-5934276.56	-5934276.37	0.0493	0.0180
Venus	-20960-06-26 04:33 J	-5934040.50	-5934040.31	-5934040.12	0.0494	0.0194
Mercury	-20959-03-21 07:26 J	-5933772.33	-5933772.19	-5933772.06	0.0497	0.0336
Mercury	-20959-06-19 16:33 J	-5933681.92	-5933681.81	-5933681.69	0.0498	0.0383
Moon	-20955-04-25 03:21 J	-5932276.55	-5932276.36	-5932276.16	0.0532	0.0254
Earth	-20955-04-25 04:04 J	-5932276.53	-5932276.33	-5932276.13	0.0532	0.0257 *
Venus	-20955-09-07 06:57 J	-5932141.38	-5932141.21	-5932141.03	0.0533	0.0266
Venus	-20954-05-03 01:40 J	-5931903.62	-5931903.43	-5931903.25	0.0532	0.0204
Mercury	-20954-11-12 14:52 J	-5931709.91	-5931709.88	-5931709.85	0.0530	0.0507
Mercury	-20953-02-09 20:52 J	-5931620.76	-5931620.63	-5931620.50	0.0528	0.0064
Venus	-20949-07-07 23:16 J	-5930010.69	-5930010.53	-5930010.35	0.0494	0.0282
Venus	-20948-03-01 05:02 J	-5929774.49	-5929774.29	-5929774.08	0.0494	0.0092
Venus	-20948-10-23 15:21 J	-5929537.92	-5929537.86	-5929537.78	0.0496	0.0464
Mercury	-20947-04-07 14:09 J	-5929372.07	-5929371.91	-5929371.74	0.0498	0.0210
Earth	-20943-04-30 03:50 J	-5927888.54	-5927888.34	-5927888.15	0.0532	0.0285
Moon	-20943-04-30 06:28 J	-5927888.43	-5927888.23	-5927888.02	0.0532	0.0252 *
Venus	-20943-05-12 22:04 J	-5927875.72	-5927875.58	-5927875.45	0.0532	0.0392
Venus	-20942-01-05 17:45 J	-5927637.96	-5927637.76	-5927637.56	0.0532	0.0076
Venus	-20942-08-31 07:40 J	-5927400.21	-5927400.18	-5927400.14	0.0530	0.0521
Mercury	-20942-11-29 00:57 J	-5927310.58	-5927310.46	-5927310.33	0.0528	0.0079
Mercury	-20941-02-26 07:11 J	-5927221.24	-5927221.20	-5927221.16	0.0527	0.0497
Venus	-20937-03-13 02:23 J	-5925744.53	-5925744.40	-5925744.27	0.0494	0.0379
Venus	-20937-11-04 07:11 J	-5925508.41	-5925508.20	-5925507.99	0.0494	0.0011
Venus	-20936-06-28 15:50 J	-5925271.98	-5925271.84	-5925271.70	0.0495	0.0365
Mercury	-20935-01-24 11:45 J	-5925062.19	-5925062.01	-5925061.82	0.0498	0.0034
Mars	-20935-03-18 06:57 J	-5925009.45	-5925009.21	-5925008.96	0.0499	0.0150
Venus	-20931-01-15 11:02 J	-5923610.09	-5923610.04	-5923609.99	0.0532	0.0516
Venus	-20931-09-10 08:09 J	-5923372.36	-5923372.16	-5923371.96	0.0533	0.0056
Venus	-20930-05-06 00:14 J	-5923134.61	-5923134.49	-5923134.36	0.0531	0.0405
Mercury	-20930-09-17 05:02 J	-5923000.40	-5923000.29	-5923000.17	0.0529	0.0223

Mercury	-20930-12-15 11:16 J	-5922911.13	-5922911.03	-5922910.94	0.0528	0.0352
Earth	-20926-10-20 22:19 J	-5921505.68	-5921505.57	-5921505.46	0.0495	0.0433
Moon	-20926-10-21 01:55 J	-5921505.49	-5921505.42	-5921505.33	0.0495	0.0462 *
Venus	-20926-11-17 05:45 J	-5921478.31	-5921478.26	-5921478.20	0.0495	0.0474
Venus	-20925-07-10 09:36 J	-5921242.30	-5921242.10	-5921241.90	0.0493	0.0113
Venus	-20924-03-03 16:48 J	-5921005.97	-5921005.80	-5921005.62	0.0494	0.0263
Mercury	-20924-11-12 09:07 J	-5920752.29	-5920752.12	-5920751.94	0.0497	0.0144
Venus	-20919-05-15 23:16 J	-5919106.71	-5919106.53	-5919106.34	0.0533	0.0186
Venus	-20918-01-08 17:31 J	-5918868.94	-5918868.77	-5918868.60	0.0532	0.0284
Mercury	-20918-07-06 09:36 J	-5918690.19	-5918690.10	-5918690.01	0.0530	0.0360
Mercury	-20918-10-03 15:36 J	-5918600.96	-5918600.85	-5918600.73	0.0528	0.0215
Moon	-20914-10-25 08:38 J	-5917118.38	-5917118.14	-5917117.90	0.0494	0.0014
Earth	-20914-10-25 12:00 J	-5917118.23	-5917118.00	-5917117.76	0.0494	0.0015 *
Venus	-20913-03-15 12:14 J	-5916976.18	-5916975.99	-5916975.81	0.0493	0.0214
Venus	-20913-11-06 17:45 J	-5916739.95	-5916739.76	-5916739.56	0.0494	0.0160
Mercury	-20912-08-31 06:14 J	-5916442.38	-5916442.24	-5916442.10	0.0497	0.0324
Mercury	-20912-11-29 15:21 J	-5916351.97	-5916351.86	-5916351.75	0.0498	0.0395
Venus	-20907-01-18 15:21 J	-5914841.03	-5914840.86	-5914840.70	0.0533	0.0312
Venus	-20907-09-13 11:02 J	-5914603.23	-5914603.04	-5914602.84	0.0533	0.0159
Mercury	-20906-04-24 14:09 J	-5914379.95	-5914379.91	-5914379.87	0.0530	0.0494
Mercury	-20906-07-22 20:09 J	-5914290.79	-5914290.66	-5914290.53	0.0529	0.0080
Earth	-20902-10-30 01:26 J	-5912730.53	-5912730.44	-5912730.34	0.0494	0.0451
Moon	-20902-10-30 03:50 J	-5912730.38	-5912730.34	-5912730.30	0.0494	0.0484 *
Venus	-20902-11-19 15:07 J	-5912710.03	-5912709.87	-5912709.71	0.0494	0.0314
Venus	-20901-07-12 19:55 J	-5912473.88	-5912473.67	-5912473.47	0.0493	0.0058
Venus	-20900-03-06 04:48 J	-5912237.40	-5912237.30	-5912237.20	0.0495	0.0429
Mercury	-20900-09-17 13:26 J	-5912042.10	-5912041.94	-5912041.78	0.0498	0.0225
Mars	-20900-12-20 11:45 J	-5911948.10	-5911948.01	-5911947.91	0.0500	0.0462
Venus	-20896-09-23 06:57 J	-5910575.32	-5910575.21	-5910575.09	0.0532	0.0435
Venus	-20895-05-19 03:36 J	-5910337.56	-5910337.35	-5910337.15	0.0533	0.0033



Venus	-20894-01-11 18:14 J	-5910099.81	-5910099.74	-5910099.65	0.0530	0.0483
Mercury	-20894-05-11 00:14 J	-5909980.62	-5909980.49	-5909980.36	0.0528	0.0065
Mercury	-20894-08-08 06:28 J	-5909891.26	-5909891.23	-5909891.20	0.0527	0.0509
Venus	-20890-07-25 15:50 J	-5908443.95	-5908443.84	-5908443.73	0.0494	0.0412
Venus	-20889-03-17 20:23 J	-5908207.86	-5908207.65	-5908207.45	0.0494	0.0048
Venus	-20889-11-09 04:33 J	-5907971.46	-5907971.31	-5907971.16	0.0495	0.0330
Mercury	-20888-07-06 10:48 J	-5907732.23	-5907732.05	-5907731.87	0.0498	0.0047
Venus	-20883-01-21 19:11 J	-5906071.90	-5906071.70	-5906071.50	0.0532	0.0098
Venus	-20883-09-16 11:31 J	-5905834.16	-5905834.02	-5905833.87	0.0531	0.0364
Mercury	-20882-02-27 04:19 J	-5905670.43	-5905670.32	-5905670.20	0.0529	0.0208
Mercury	-20882-05-27 10:33 J	-5905581.15	-5905581.06	-5905580.97	0.0527	0.0366
Venus	-20878-11-21 22:33 J	-5903941.75	-5903941.56	-5903941.36	0.0494	0.0149
Venus	-20877-07-15 05:31 J	-5903705.45	-5903705.27	-5903705.08	0.0494	0.0228
Mercury	-20876-04-24 08:09 J	-5903422.34	-5903422.16	-5903421.98	0.0498	0.0131
Earth	-20872-04-24 10:48 J	-5901961.22	-5901961.05	-5901960.87	0.0531	0.0329
Moon	-20872-04-24 13:26 J	-5901961.12	-5901960.94	-5901960.76	0.0531	0.0333 *
Venus	-20872-09-26 08:23 J	-5901806.32	-5901806.15	-5901805.96	0.0533	0.0231
Venus	-20871-05-22 02:52 J	-5901568.56	-5901568.38	-5901568.20	0.0532	0.0239
Mercury	-20871-12-16 08:23 J	-5901360.24	-5901360.15	-5901360.06	0.0529	0.0354
Mars	-20870-02-14 09:21 J	-5901300.40	-5901300.11	-5901299.82	0.0528	0.0111
Mercury	-20870-03-15 14:23 J	-5901271.01	-5901270.90	-5901270.78	0.0528	0.0220
Venus	-20866-07-28 01:26 J	-5899675.61	-5899675.44	-5899675.26	0.0494	0.0249
Venus	-20865-03-20 07:11 J	-5899439.39	-5899439.20	-5899439.00	0.0494	0.0126
Mercury	-20864-02-10 05:31 J	-5899112.41	-5899112.27	-5899112.12	0.0497	0.0308
Mercury	-20864-05-11 14:38 J	-5899021.98	-5899021.89	-5899021.78	0.0499	0.0413
Moon	-20860-04-29 06:00 J	-5897573.46	-5897573.25	-5897573.04	0.0532	0.0170
Earth	-20860-04-29 09:36 J	-5897573.31	-5897573.10	-5897572.89	0.0532	0.0207 *
Venus	-20860-05-31 23:02 J	-5897540.69	-5897540.54	-5897540.39	0.0532	0.0358
Venus	-20859-01-24 18:57 J	-5897302.90	-5897302.71	-5897302.51	0.0533	0.0112
Mercury	-20859-10-04 12:43 J	-5897050.01	-5897049.97	-5897049.92	0.0530	0.0492

Mercury	-20858-01-01 18:43 J	-5896960.84	-5896960.72	-5896960.59	0.0528	0.0082
Venus	-20854-04-02 04:19 J	-5895409.46	-5895409.32	-5895409.17	0.0494	0.0348
Venus	-20854-11-24 08:52 J	-5895173.34	-5895173.13	-5895172.93	0.0493	0.0022
Venus	-20853-07-17 17:02 J	-5894936.91	-5894936.79	-5894936.66	0.0495	0.0396
Mercury	-20853-11-29 02:23 J	-5894802.42	-5894802.40	-5894802.37	0.0497	0.0489
Mars	-20853-12-04 17:31 J	-5894796.94	-5894796.77	-5894796.59	0.0497	0.0359
Mercury	-20852-02-27 12:00 J	-5894712.16	-5894712.00	-5894711.84	0.0498	0.0233
Venus	-20848-02-03 14:09 J	-5893274.99	-5893274.91	-5893274.82	0.0532	0.0482
Venus	-20848-09-29 11:45 J	-5893037.21	-5893037.01	-5893036.81	0.0533	0.0018
Venus	-20847-05-25 03:50 J	-5892799.44	-5892799.34	-5892799.22	0.0531	0.0443
Mercury	-20847-10-20 23:16 J	-5892650.65	-5892650.53	-5892650.40	0.0529	0.0056
Mercury	-20846-01-18 05:31 J	-5892561.28	-5892561.27	-5892561.25	0.0527	0.0522
Earth	-20843-10-20 08:52 J	-5891190.18	-5891190.13	-5891190.07	0.0495	0.0479
Venus	-20843-12-06 07:11 J	-5891143.28	-5891143.20	-5891143.11	0.0494	0.0444
Venus	-20842-07-30 11:02 J	-5890907.24	-5890907.04	-5890906.84	0.0493	0.0081
Venus	-20841-03-22 18:14 J	-5890670.90	-5890670.74	-5890670.57	0.0494	0.0295
Mercury	-20841-12-16 09:50 J	-5890402.27	-5890402.09	-5890401.91	0.0498	0.0060
Venus	-20836-06-04 03:50 J	-5888771.53	-5888771.34	-5888771.14	0.0533	0.0145
Venus	-20835-01-27 21:21 J	-5888533.77	-5888533.61	-5888533.45	0.0531	0.0322
Mercury	-20835-08-09 03:36 J	-5888340.47	-5888340.35	-5888340.23	0.0529	0.0197
Mercury	-20835-11-06 09:36 J	-5888251.19	-5888251.10	-5888251.01	0.0527	0.0376
Mars	-20835-11-23 06:28 J	-5888234.43	-5888234.23	-5888234.02	0.0527	0.0367
Earth	-20831-10-24 17:45 J	-5886803.00	-5886802.76	-5886802.52	0.0495	0.0058
Moon	-20831-10-24 19:55 J	-5886802.90	-5886802.67	-5886802.44	0.0495	0.0048 *
Venus	-20830-04-04 11:16 J	-5886641.22	-5886641.03	-5886640.84	0.0494	0.0185
Venus	-20830-11-26 17:45 J	-5886404.95	-5886404.76	-5886404.57	0.0494	0.0192
Mercury	-20829-10-04 06:43 J	-5886092.39	-5886092.22	-5886092.04	0.0498	0.0123
Venus	-20824-02-06 19:11 J	-5884505.87	-5884505.70	-5884505.52	0.0532	0.0272
Venus	-20824-10-02 13:55 J	-5884268.11	-5884267.92	-5884267.74	0.0532	0.0197
Mercury	-20823-05-28 07:40 J	-5884030.27	-5884030.18	-5884030.08	0.0529	0.0339

Mercury	-20823-08-25 13:40 J	-5883941.04	-5883940.93	-5883940.81	0.0527	0.0233
Moon	-20819-10-29 06:00 J	-5882415.38	-5882415.25	-5882415.11	0.0494	0.0410
Earth	-20819-10-29 06:57 J	-5882415.36	-5882415.21	-5882415.06	0.0494	0.0381 *
Venus	-20819-12-08 13:40 J	-5882375.10	-5882374.93	-5882374.76	0.0494	0.0285
Venus	-20818-08-01 19:11 J	-5882138.90	-5882138.70	-5882138.49	0.0494	0.0090
Venus	-20817-03-25 05:02 J	-5881902.35	-5881902.29	-5881902.21	0.0496	0.0463
Mercury	-20817-07-23 04:04 J	-5881782.47	-5881782.33	-5881782.18	0.0497	0.0301
Mars	-20817-09-07 16:48 J	-5881736.06	-5881735.80	-5881735.55	0.0498	0.0066
Mercury	-20817-10-21 13:26 J	-5881692.03	-5881691.94	-5881691.84	0.0499	0.0421
Venus	-20813-10-12 07:40 J	-5880240.30	-5880240.18	-5880240.04	0.0532	0.0403
Venus	-20812-06-07 03:50 J	-5880002.54	-5880002.34	-5880002.14	0.0532	0.0066
Venus	-20811-01-30 18:28 J	-5879764.77	-5879764.73	-5879764.68	0.0530	0.0515
Mercury	-20811-03-16 11:31 J	-5879720.06	-5879720.02	-5879719.97	0.0530	0.0487
Mercury	-20811-06-13 17:31 J	-5879630.89	-5879630.77	-5879630.64	0.0528	0.0086
Venus	-20807-08-13 17:02 J	-5878108.92	-5878108.79	-5878108.66	0.0494	0.0382
Venus	-20806-04-06 21:36 J	-5877872.81	-5877872.60	-5877872.39	0.0494	0.0014
Venus	-20806-11-29 05:45 J	-5877636.40	-5877636.26	-5877636.12	0.0495	0.0362
Mercury	-20805-05-11 01:26 J	-5877472.49	-5877472.44	-5877472.39	0.0497	0.0478
Mercury	-20805-08-09 11:02 J	-5877382.20	-5877382.04	-5877381.88	0.0498	0.0245
Venus	-20801-06-16 21:36 J	-5875974.62	-5875974.60	-5875974.57	0.0531	0.0525
Venus	-20800-02-09 19:11 J	-5875736.90	-5875736.70	-5875736.50	0.0533	0.0065
Venus	-20800-10-05 11:45 J	-5875499.14	-5875499.01	-5875498.87	0.0531	0.0398
Mercury	-20799-04-01 21:50 J	-5875320.72	-5875320.59	-5875320.46	0.0529	0.0056
Mercury	-20799-06-30 04:04 J	-5875231.35	-5875231.33	-5875231.31	0.0527	0.0520
Venus	-20795-04-18 19:55 J	-5873842.72	-5873842.67	-5873842.62	0.0495	0.0478
Venus	-20795-12-10 23:31 J	-5873606.72	-5873606.52	-5873606.32	0.0493	0.0117
Venus	-20794-08-04 06:14 J	-5873370.42	-5873370.24	-5873370.07	0.0494	0.0259
Mercury	-20793-05-28 08:09 J	-5873072.35	-5873072.16	-5873071.98	0.0498	0.0065
Moon	-20789-04-23 14:23 J	-5871646.04	-5871645.90	-5871645.76	0.0532	0.0413
Earth	-20789-04-23 17:45 J	-5871645.90	-5871645.76	-5871645.61	0.0532	0.0402 *

Venus	-20789-10-15 10:33 J	-5871471.24	-5871471.06	-5871470.87	0.0533	0.0195
Venus	-20788-06-10 05:16 J	-5871233.45	-5871233.28	-5871233.11	0.0532	0.0276
Mercury	-20787-01-19 02:23 J	-5871010.52	-5871010.40	-5871010.29	0.0529	0.0193
Mercury	-20787-04-18 08:23 J	-5870921.23	-5870921.15	-5870921.06	0.0528	0.0383
Venus	-20783-08-16 01:55 J	-5869340.60	-5869340.42	-5869340.23	0.0494	0.0219
Venus	-20782-04-09 07:26 J	-5869104.38	-5869104.19	-5869103.99	0.0494	0.0157
Mercury	-20781-03-16 05:31 J	-5868762.45	-5868762.27	-5868762.09	0.0498	0.0112
Mars	-20781-06-11 16:33 J	-5868675.03	-5868674.81	-5868674.58	0.0499	0.0239
Earth	-20777-04-28 19:26 J	-5867257.91	-5867257.69	-5867257.47	0.0532	0.0146
Moon	-20777-04-28 23:16 J	-5867257.75	-5867257.53	-5867257.30	0.0532	0.0114 *
Venus	-20777-06-20 02:38 J	-5867205.54	-5867205.39	-5867205.22	0.0532	0.0320
Venus	-20776-02-12 22:19 J	-5866967.76	-5866967.57	-5866967.37	0.0532	0.0152
Mercury	-20776-11-07 06:28 J	-5866700.32	-5866700.23	-5866700.13	0.0529	0.0333
Mercury	-20775-02-04 12:43 J	-5866611.09	-5866610.97	-5866610.86	0.0527	0.0240
Venus	-20771-04-21 01:55 J	-5865074.57	-5865074.42	-5865074.26	0.0494	0.0321
Venus	-20771-12-13 06:57 J	-5864838.41	-5864838.21	-5864838.00	0.0494	0.0051
Venus	-20770-08-06 16:04 J	-5864601.93	-5864601.83	-5864601.72	0.0496	0.0427
Mercury	-20769-01-03 02:09 J	-5864452.55	-5864452.41	-5864452.26	0.0498	0.0299
Mercury	-20769-04-02 11:31 J	-5864362.11	-5864362.02	-5864361.92	0.0499	0.0425
Venus	-20765-02-23 17:31 J	-5862939.87	-5862939.77	-5862939.65	0.0532	0.0445
Venus	-20765-10-18 14:09 J	-5862702.11	-5862701.91	-5862701.71	0.0532	0.0022
Venus	-20764-06-13 05:16 J	-5862464.36	-5862464.28	-5862464.19	0.0530	0.0475
Mercury	-20764-08-26 10:48 J	-5862390.10	-5862390.05	-5862389.99	0.0529	0.0474
Mercury	-20764-11-23 16:48 J	-5862300.93	-5862300.80	-5862300.68	0.0528	0.0098
Venus	-20760-12-25 04:19 J	-5860808.42	-5860808.32	-5860808.21	0.0495	0.0418
Venus	-20759-08-18 08:52 J	-5860572.34	-5860572.13	-5860571.93	0.0494	0.0052
Venus	-20758-04-11 16:48 J	-5860335.95	-5860335.80	-5860335.65	0.0495	0.0326
Mercury	-20758-10-21 23:31 J	-5860142.57	-5860142.52	-5860142.47	0.0497	0.0478
Mercury	-20757-01-20 09:07 J	-5860052.28	-5860052.12	-5860051.96	0.0499	0.0247
Venus	-20753-06-23 03:07 J	-5858436.57	-5858436.37	-5858436.17	0.0532	0.0112

Venus	-20752-02-15 20:09 J	-5858198.80	-5858198.66	-5858198.51	0.0531	0.0354
Mars	-20752-08-02 04:48 J	-5858031.43	-5858031.30	-5858031.18	0.0529	0.0475
Mercury	-20752-09-11 20:23 J	-5857990.77	-5857990.65	-5857990.52	0.0528	0.0055
Mercury	-20752-12-10 02:38 J	-5857901.40	-5857901.39	-5857901.37	0.0527	0.0520
Moon	-20748-10-24 00:43 J	-5856487.71	-5856487.47	-5856487.22	0.0495	0.0102
Earth	-20748-10-24 01:40 J	-5856487.66	-5856487.43	-5856487.19	0.0495	0.0115 *
Venus	-20747-04-23 11:16 J	-5856306.22	-5856306.03	-5856305.83	0.0494	0.0155
Venus	-20747-12-15 18:00 J	-5856069.93	-5856069.75	-5856069.57	0.0494	0.0223
Mercury	-20746-11-08 06:28 J	-5855742.41	-5855742.23	-5855742.04	0.0498	0.0071
Venus	-20741-02-26 17:16 J	-5854170.95	-5854170.78	-5854170.59	0.0532	0.0243
Venus	-20741-10-21 12:14 J	-5853933.17	-5853932.99	-5853932.81	0.0532	0.0228
Mercury	-20740-07-01 00:43 J	-5853680.59	-5853680.47	-5853680.36	0.0529	0.0197
Mercury	-20740-09-28 06:43 J	-5853591.31	-5853591.22	-5853591.13	0.0527	0.0378
Moon	-20736-10-28 14:09 J	-5852100.07	-5852099.91	-5852099.75	0.0494	0.0352
Earth	-20736-10-28 14:52 J	-5852100.05	-5852099.88	-5852099.70	0.0494	0.0325 *
Venus	-20736-12-27 13:40 J	-5852040.11	-5852039.93	-5852039.76	0.0494	0.0256
Venus	-20735-08-20 18:57 J	-5851803.91	-5851803.71	-5851803.51	0.0494	0.0119
Venus	-20734-04-14 04:19 J	-5851567.34	-5851567.32	-5851567.29	0.0496	0.0490
Mercury	-20734-08-27 03:21 J	-5851432.54	-5851432.36	-5851432.18	0.0497	0.0113
Venus	-20730-11-01 08:09 J	-5849905.31	-5849905.16	-5849905.02	0.0532	0.0371
Venus	-20729-06-26 04:33 J	-5849667.51	-5849667.31	-5849667.11	0.0533	0.0101
Mercury	-20728-04-19 05:02 J	-5849370.39	-5849370.29	-5849370.19	0.0530	0.0334
Mercury	-20728-07-17 11:02 J	-5849281.15	-5849281.04	-5849280.92	0.0528	0.0241
Venus	-20724-09-01 16:04 J	-5847773.97	-5847773.83	-5847773.68	0.0494	0.0355
Venus	-20723-04-25 20:23 J	-5847537.85	-5847537.65	-5847537.44	0.0493	0.0017
Venus	-20723-12-18 04:33 J	-5847301.43	-5847301.31	-5847301.18	0.0495	0.0390
Mercury	-20722-06-15 00:43 J	-5847122.62	-5847122.47	-5847122.32	0.0497	0.0291
Mercury	-20722-09-13 09:50 J	-5847032.17	-5847032.09	-5847031.99	0.0499	0.0430
Venus	-20718-07-06 23:45 J	-5845639.58	-5845639.51	-5845639.43	0.0532	0.0491
Venus	-20717-02-29 21:21 J	-5845401.81	-5845401.61	-5845401.41	0.0533	0.0028

Venus	-20717-10-24 13:26 J	-5845164.05	-5845163.94	-5845163.82	0.0531	0.0434
Mercury	-20716-02-05 09:21 J	-5845060.16	-5845060.11	-5845060.05	0.0529	0.0473
Mercury	-20716-05-05 15:21 J	-5844970.98	-5844970.86	-5844970.73	0.0528	0.0099
Mars	-20716-05-11 03:07 J	-5844965.66	-5844965.37	-5844965.07	0.0528	0.0008
Venus	-20712-05-07 16:04 J	-5843507.90	-5843507.83	-5843507.75	0.0495	0.0454
Venus	-20712-12-29 19:55 J	-5843271.87	-5843271.67	-5843271.47	0.0494	0.0090
Venus	-20711-08-23 03:07 J	-5843035.53	-5843035.37	-5843035.20	0.0495	0.0288
Mercury	-20710-04-02 20:52 J	-5842812.66	-5842812.63	-5842812.58	0.0497	0.0482
Mercury	-20710-07-02 06:43 J	-5842722.38	-5842722.22	-5842722.06	0.0499	0.0244
Earth	-20706-04-24 01:11 J	-5841330.55	-5841330.45	-5841330.35	0.0531	0.0472
Moon	-20706-04-24 05:02 J	-5841330.38	-5841330.29	-5841330.19	0.0531	0.0484 *
Venus	-20706-11-04 12:28 J	-5841136.18	-5841135.98	-5841135.79	0.0532	0.0157
Venus	-20705-06-29 06:00 J	-5840898.41	-5840898.25	-5840898.08	0.0531	0.0311
Mercury	-20704-02-21 19:26 J	-5840660.81	-5840660.69	-5840660.56	0.0528	0.0047
Venus	-20700-09-03 21:50 J	-5839005.77	-5839005.59	-5839005.40	0.0494	0.0193
Venus	-20699-04-28 04:04 J	-5838769.52	-5838769.33	-5838769.13	0.0494	0.0185
Mars	-20698-02-28 15:36 J	-5838463.05	-5838462.85	-5838462.64	0.0497	0.0296
Mercury	-20698-04-20 04:04 J	-5838412.51	-5838412.33	-5838412.14	0.0498	0.0066
Moon	-20694-04-28 16:33 J	-5836943.04	-5836942.81	-5836942.57	0.0532	0.0015
Earth	-20694-04-28 20:09 J	-5836942.89	-5836942.66	-5836942.43	0.0532	0.0046 *
Venus	-20694-07-10 00:28 J	-5836870.65	-5836870.48	-5836870.31	0.0532	0.0291
Venus	-20693-03-03 19:55 J	-5836632.86	-5836632.67	-5836632.48	0.0532	0.0182
Mercury	-20693-12-10 23:16 J	-5836350.65	-5836350.53	-5836350.42	0.0529	0.0198
Mercury	-20692-03-10 05:16 J	-5836261.37	-5836261.28	-5836261.19	0.0527	0.0376
Venus	-20688-05-10 00:43 J	-5834739.63	-5834739.47	-5834739.30	0.0494	0.0294
Venus	-20687-01-01 05:45 J	-5834503.46	-5834503.26	-5834503.05	0.0494	0.0082
Venus	-20687-08-25 15:07 J	-5834266.95	-5834266.87	-5834266.79	0.0495	0.0455
Mercury	-20686-02-06 01:26 J	-5834102.62	-5834102.44	-5834102.26	0.0498	0.0113
Venus	-20682-03-14 14:09 J	-5832605.04	-5832604.91	-5832604.79	0.0532	0.0419
Venus	-20682-11-07 10:33 J	-5832367.26	-5832367.06	-5832366.86	0.0532	0.0051

Venus	-20681-07-02 01:55 J	-5832129.47	-5832129.42	-5832129.35	0.0531	0.0503
Mercury	-20681-09-29 03:21 J	-5832040.46	-5832040.36	-5832040.27	0.0529	0.0341
Mercury	-20681-12-27 09:21 J	-5831951.23	-5831951.11	-5831951.00	0.0528	0.0232
Mars	-20680-02-16 03:50 J	-5831900.48	-5831900.34	-5831900.19	0.0527	0.0455
Venus	-20676-01-13 03:07 J	-5830473.49	-5830473.37	-5830473.24	0.0494	0.0392
Venus	-20676-09-06 07:26 J	-5830237.40	-5830237.19	-5830236.99	0.0493	0.0024
Venus	-20675-04-30 14:52 J	-5830001.02	-5830000.88	-5830000.73	0.0495	0.0353
Mercury	-20675-11-24 22:04 J	-5829792.72	-5829792.58	-5829792.43	0.0497	0.0297
Mercury	-20674-02-23 07:26 J	-5829702.28	-5829702.19	-5829702.09	0.0499	0.0424
Venus	-20670-07-13 01:40 J	-5828101.63	-5828101.43	-5828101.23	0.0533	0.0080
Venus	-20669-03-06 19:11 J	-5827863.83	-5827863.70	-5827863.56	0.0532	0.0386
Mercury	-20669-07-18 07:40 J	-5827730.23	-5827730.18	-5827730.13	0.0530	0.0480
Mercury	-20669-10-15 13:40 J	-5827641.06	-5827640.93	-5827640.81	0.0528	0.0094
Venus	-20665-09-18 05:45 J	-5826207.29	-5826207.26	-5826207.23	0.0495	0.0488
Moon	-20665-10-23 05:31 J	-5826172.48	-5826172.27	-5826172.05	0.0495	0.0169
Earth	-20665-10-23 06:14 J	-5826172.46	-5826172.24	-5826172.02	0.0495	0.0186 *
Venus	-20664-05-12 09:07 J	-5825971.32	-5825971.12	-5825970.92	0.0493	0.0127
Venus	-20663-01-03 15:21 J	-5825735.04	-5825734.86	-5825734.68	0.0494	0.0250
Mercury	-20663-09-12 19:11 J	-5825482.75	-5825482.70	-5825482.65	0.0497	0.0478
Mars	-20663-12-02 12:00 J	-5825402.26	-5825402.00	-5825401.74	0.0498	0.0001
Mercury	-20663-12-12 04:48 J	-5825392.46	-5825392.30	-5825392.14	0.0498	0.0246
Venus	-20658-03-17 18:00 J	-5823835.94	-5823835.75	-5823835.56	0.0533	0.0208
Venus	-20658-11-10 12:43 J	-5823598.14	-5823597.97	-5823597.79	0.0532	0.0264
Mercury	-20657-08-03 18:00 J	-5823330.88	-5823330.75	-5823330.63	0.0528	0.0048
Earth	-20653-10-27 14:23 J	-5821785.10	-5821784.90	-5821784.69	0.0494	0.0233
Moon	-20653-10-27 17:02 J	-5821784.99	-5821784.79	-5821784.58	0.0494	0.0255 *
Venus	-20652-01-15 08:38 J	-5821705.32	-5821705.14	-5821704.96	0.0494	0.0232
Venus	-20652-09-08 14:09 J	-5821469.10	-5821468.91	-5821468.71	0.0494	0.0145
Mercury	-20651-09-30 01:26 J	-5821082.63	-5821082.44	-5821082.26	0.0498	0.0057
Venus	-20647-11-20 08:38 J	-5819570.30	-5819570.14	-5819569.99	0.0532	0.0337

Venus	-20646-07-16 04:33 J	-5819332.50	-5819332.31	-5819332.12	0.0532	0.0136
Mercury	-20645-05-22 22:04 J	-5819020.70	-5819020.58	-5819020.46	0.0528	0.0190
Mercury	-20645-08-20 04:04 J	-5818931.42	-5818931.33	-5818931.24	0.0527	0.0382
Venus	-20641-09-20 10:48 J	-5817439.20	-5817439.05	-5817438.90	0.0494	0.0332
Venus	-20640-05-14 15:36 J	-5817203.06	-5817202.85	-5817202.65	0.0494	0.0042
Venus	-20639-01-06 00:00 J	-5816966.60	-5816966.50	-5816966.38	0.0495	0.0417
Mercury	-20639-07-18 22:33 J	-5816772.74	-5816772.56	-5816772.38	0.0498	0.0124
Venus	-20635-07-25 20:09 J	-5815304.75	-5815304.66	-5815304.56	0.0531	0.0467
Venus	-20634-03-20 17:16 J	-5815066.98	-5815066.78	-5815066.58	0.0532	0.0005
Venus	-20634-11-13 09:21 J	-5814829.21	-5814829.11	-5814829.01	0.0531	0.0459
Mercury	-20633-03-11 01:40 J	-5814710.53	-5814710.43	-5814710.34	0.0529	0.0344
Mercury	-20633-06-08 07:26 J	-5814621.30	-5814621.19	-5814621.07	0.0527	0.0229
Venus	-20629-05-26 13:40 J	-5813173.02	-5813172.93	-5813172.83	0.0495	0.0431
Venus	-20628-01-17 17:45 J	-5812936.97	-5812936.76	-5812936.56	0.0494	0.0063
Venus	-20628-09-11 00:57 J	-5812700.61	-5812700.46	-5812700.29	0.0495	0.0316
Mercury	-20627-05-06 19:55 J	-5812462.82	-5812462.67	-5812462.53	0.0497	0.0302
Mercury	-20627-08-05 05:16 J	-5812372.38	-5812372.28	-5812372.18	0.0499	0.0420
Mars	-20627-09-05 07:40 J	-5812341.38	-5812341.18	-5812340.97	0.0499	0.0292
Venus	-20623-11-23 07:11 J	-5810801.40	-5810801.20	-5810801.01	0.0532	0.0133
Venus	-20622-07-19 00:57 J	-5810563.61	-5810563.46	-5810563.30	0.0532	0.0337
Mercury	-20622-12-29 05:31 J	-5810400.31	-5810400.27	-5810400.22	0.0530	0.0490
Mercury	-20621-03-27 11:31 J	-5810311.14	-5810311.02	-5810310.89	0.0528	0.0082
Venus	-20617-09-22 19:40 J	-5808670.87	-5808670.68	-5808670.49	0.0494	0.0166
Venus	-20616-05-17 01:26 J	-5808434.62	-5808434.44	-5808434.25	0.0494	0.0211
Mercury	-20615-02-22 16:19 J	-5808152.85	-5808152.82	-5808152.78	0.0497	0.0487
Mercury	-20615-05-24 02:09 J	-5808062.57	-5808062.41	-5808062.25	0.0498	0.0236
Earth	-20611-04-27 18:28 J	-5806627.96	-5806627.73	-5806627.50	0.0532	0.0066
Moon	-20611-04-27 20:38 J	-5806627.86	-5806627.64	-5806627.42	0.0532	0.0090 *
Venus	-20611-07-28 21:07 J	-5806535.79	-5806535.62	-5806535.44	0.0533	0.0264
Venus	-20610-03-23 17:02 J	-5806297.98	-5806297.79	-5806297.61	0.0532	0.0211



Mercury	-20609-01-14 15:50 J	-5806000.97	-5806000.84	-5806000.71	0.0529	0.0059
Mercury	-20609-04-12 22:04 J	-5805911.60	-5805911.58	-5805911.56	0.0527	0.0516
Venus	-20605-05-28 21:21 J	-5804404.77	-5804404.61	-5804404.43	0.0494	0.0269
Venus	-20604-01-20 02:09 J	-5804168.61	-5804168.41	-5804168.20	0.0494	0.0107
Venus	-20604-09-13 11:16 J	-5803932.07	-5803932.03	-5803931.98	0.0495	0.0479
Mercury	-20603-03-11 23:16 J	-5803752.72	-5803752.53	-5803752.35	0.0498	0.0056
Venus	-20599-04-02 12:43 J	-5802270.10	-5802269.97	-5802269.82	0.0532	0.0389
Earth	-20599-05-02 19:11 J	-5802239.80	-5802239.70	-5802239.60	0.0532	0.0477
Moon	-20599-05-02 18:57 J	-5802239.79	-5802239.71	-5802239.62	0.0532	0.0496 *
Venus	-20599-11-26 09:50 J	-5802032.29	-5802032.09	-5802031.89	0.0533	0.0084
Mars	-20598-10-27 02:52 J	-5801697.58	-5801697.38	-5801697.18	0.0529	0.0385
Mercury	-20598-11-02 20:09 J	-5801690.77	-5801690.66	-5801690.54	0.0529	0.0198
Mercury	-20597-01-31 02:23 J	-5801601.49	-5801601.40	-5801601.31	0.0527	0.0376
Venus	-20593-02-01 21:36 J	-5800138.73	-5800138.60	-5800138.46	0.0494	0.0371
Venus	-20593-09-25 01:40 J	-5799902.64	-5799902.43	-5799902.23	0.0494	0.0005
Venus	-20592-05-19 09:21 J	-5799666.24	-5799666.11	-5799665.98	0.0495	0.0377
Mercury	-20592-12-28 19:26 J	-5799442.87	-5799442.69	-5799442.51	0.0498	0.0137
Venus	-20588-12-06 03:07 J	-5798004.42	-5798004.37	-5798004.32	0.0531	0.0513
Venus	-20587-08-01 00:57 J	-5797766.66	-5797766.46	-5797766.26	0.0533	0.0048
Venus	-20586-03-26 18:00 J	-5797528.87	-5797528.75	-5797528.62	0.0531	0.0417
Mercury	-20586-08-22 00:28 J	-5797380.58	-5797380.48	-5797380.39	0.0529	0.0339
Mercury	-20586-11-19 06:28 J	-5797291.35	-5797291.23	-5797291.12	0.0527	0.0233
Venus	-20582-10-07 23:45 J	-5795872.57	-5795872.51	-5795872.44	0.0495	0.0468
Earth	-20582-10-23 03:36 J	-5795857.54	-5795857.35	-5795857.15	0.0495	0.0284
Moon	-20582-10-23 06:00 J	-5795857.45	-5795857.25	-5795857.04	0.0495	0.0261 *
Venus	-20581-05-31 03:07 J	-5795636.57	-5795636.37	-5795636.17	0.0494	0.0104
Venus	-20580-01-22 09:36 J	-5795400.26	-5795400.10	-5795399.92	0.0494	0.0276
Mercury	-20580-10-16 16:33 J	-5795132.95	-5795132.81	-5795132.67	0.0497	0.0317
Mercury	-20579-01-15 02:09 J	-5795042.52	-5795042.41	-5795042.31	0.0499	0.0406
Venus	-20575-04-05 12:57 J	-5793501.14	-5793500.96	-5793500.76	0.0532	0.0185

Venus	-20575-11-29 07:26 J	-5793263.36	-5793263.19	-5793263.02	0.0532	0.0288
Mercury	-20574-06-10 03:50 J	-5793070.38	-5793070.34	-5793070.29	0.0529	0.0494
Mercury	-20574-09-07 09:50 J	-5792981.22	-5792981.09	-5792980.97	0.0528	0.0076
Moon	-20570-10-27 13:11 J	-5791470.16	-5791469.95	-5791469.72	0.0494	0.0175
Earth	-20570-10-27 17:02 J	-5791470.02	-5791469.79	-5791469.56	0.0494	0.0156 *
Venus	-20569-02-04 05:45 J	-5791370.45	-5791370.26	-5791370.07	0.0494	0.0207
Venus	-20569-09-27 11:31 J	-5791134.22	-5791134.02	-5791133.83	0.0494	0.0171
Mercury	-20568-08-04 13:55 J	-5790822.94	-5790822.92	-5790822.91	0.0497	0.0494
Mercury	-20568-11-02 23:31 J	-5790732.68	-5790732.52	-5790732.35	0.0498	0.0230
Venus	-20564-12-09 02:09 J	-5789235.57	-5789235.41	-5789235.24	0.0532	0.0316
Venus	-20563-08-03 22:04 J	-5788997.77	-5788997.58	-5788997.39	0.0532	0.0158
Mercury	-20562-06-26 13:40 J	-5788671.05	-5788670.93	-5788670.80	0.0528	0.0071
Mars	-20562-08-04 01:55 J	-5788632.71	-5788632.42	-5788632.12	0.0528	0.0065
Mercury	-20562-09-23 19:55 J	-5788581.71	-5788581.67	-5788581.64	0.0527	0.0503
Venus	-20558-10-10 07:55 J	-5787104.32	-5787104.17	-5787104.01	0.0494	0.0308
Venus	-20557-06-02 12:28 J	-5786868.19	-5786867.98	-5786867.78	0.0494	0.0067
Venus	-20556-01-24 20:38 J	-5786631.73	-5786631.64	-5786631.55	0.0495	0.0441
Mercury	-20556-08-21 20:23 J	-5786422.84	-5786422.65	-5786422.47	0.0498	0.0045
Venus	-20552-08-13 15:36 J	-5784969.96	-5784969.85	-5784969.74	0.0532	0.0444
Venus	-20551-04-08 12:57 J	-5784732.16	-5784731.96	-5784731.75	0.0533	0.0030
Venus	-20551-12-02 05:31 J	-5784494.34	-5784494.27	-5784494.19	0.0531	0.0486
Mercury	-20550-04-14 18:00 J	-5784360.87	-5784360.75	-5784360.64	0.0529	0.0213
Mercury	-20550-07-13 00:00 J	-5784271.59	-5784271.50	-5784271.41	0.0527	0.0362
Venus	-20546-06-15 10:04 J	-5782838.19	-5782838.08	-5782837.96	0.0494	0.0407
Venus	-20545-02-06 13:40 J	-5782602.13	-5782601.93	-5782601.72	0.0493	0.0039
Venus	-20545-09-29 20:38 J	-5782365.79	-5782365.64	-5782365.49	0.0494	0.0339
Mars	-20544-05-24 00:14 J	-5782129.71	-5782129.49	-5782129.26	0.0497	0.0245
Mercury	-20544-06-09 17:16 J	-5782112.96	-5782112.78	-5782112.60	0.0497	0.0138
Venus	-20540-12-12 05:02 J	-5780466.49	-5780466.29	-5780466.09	0.0533	0.0102
Venus	-20539-08-06 23:16 J	-5780228.67	-5780228.53	-5780228.39	0.0532	0.0368

Mercury	-20538-01-31 22:33 J	-5780050.66	-5780050.56	-5780050.47	0.0529	0.0350
Mercury	-20538-05-01 04:19 J	-5779961.43	-5779961.32	-5779961.20	0.0528	0.0223
Venus	-20534-10-12 13:26 J	-5778336.13	-5778335.94	-5778335.74	0.0493	0.0145
Venus	-20533-06-04 19:11 J	-5778099.88	-5778099.70	-5778099.51	0.0494	0.0234
Mercury	-20532-03-28 13:11 J	-5777803.08	-5777802.95	-5777802.81	0.0497	0.0331
Mercury	-20532-06-26 22:48 J	-5777712.66	-5777712.55	-5777712.43	0.0499	0.0392
Moon	-20528-04-26 19:11 J	-5776312.92	-5776312.70	-5776312.47	0.0532	0.0182
Earth	-20528-04-26 19:55 J	-5776312.89	-5776312.67	-5776312.45	0.0532	0.0160 *
Venus	-20528-08-16 19:55 J	-5776200.85	-5776200.67	-5776200.49	0.0533	0.0234
Venus	-20527-04-11 15:21 J	-5775963.03	-5775962.86	-5775962.68	0.0532	0.0242
Mercury	-20527-11-20 02:38 J	-5775740.43	-5775740.39	-5775740.34	0.0530	0.0491
Mercury	-20526-02-17 08:23 J	-5775651.27	-5775651.15	-5775651.02	0.0528	0.0081
Venus	-20522-06-17 15:21 J	-5774070.03	-5774069.86	-5774069.68	0.0494	0.0248
Venus	-20521-02-08 20:23 J	-5773833.85	-5773833.65	-5773833.45	0.0494	0.0130
Mercury	-20520-04-14 20:09 J	-5773402.82	-5773402.66	-5773402.49	0.0498	0.0214
Venus	-20516-04-21 07:26 J	-5771935.33	-5771935.19	-5771935.04	0.0532	0.0368
Moon	-20516-05-01 13:26 J	-5771925.09	-5771924.94	-5771924.78	0.0532	0.0379
Earth	-20516-05-01 14:23 J	-5771925.06	-5771924.90	-5771924.72	0.0532	0.0356 *
Venus	-20516-12-15 04:04 J	-5771697.53	-5771697.33	-5771697.13	0.0532	0.0107
Mercury	-20515-12-06 12:00 J	-5771341.13	-5771341.00	-5771340.88	0.0528	0.0079
Mercury	-20514-03-05 18:00 J	-5771251.79	-5771251.75	-5771251.71	0.0527	0.0496
Venus	-20510-02-20 18:14 J	-5769803.88	-5769803.74	-5769803.60	0.0494	0.0349
Venus	-20510-10-14 22:33 J	-5769567.77	-5769567.56	-5769567.36	0.0494	0.0026
Venus	-20509-06-07 06:14 J	-5769331.35	-5769331.24	-5769331.11	0.0495	0.0403
Mercury	-20508-01-31 17:45 J	-5769092.95	-5769092.76	-5769092.58	0.0498	0.0039
Mars	-20508-02-24 17:31 J	-5769069.03	-5769068.77	-5769068.52	0.0498	0.0043
Venus	-20505-12-24 20:38 J	-5767669.71	-5767669.64	-5767669.57	0.0531	0.0494
Venus	-20504-08-19 18:00 J	-5767431.95	-5767431.75	-5767431.55	0.0532	0.0027
Venus	-20503-04-14 11:02 J	-5767194.15	-5767194.04	-5767193.93	0.0531	0.0437
Mercury	-20503-09-24 15:50 J	-5767030.95	-5767030.84	-5767030.72	0.0529	0.0224

Mercury	-20503-12-22 21:50 J	-5766941.68	-5766941.59	-5766941.49	0.0527	0.0349
Moon	-20499-10-22 02:23 J	-5765542.56	-5765542.40	-5765542.22	0.0495	0.0336
Earth	-20499-10-22 06:00 J	-5765542.41	-5765542.25	-5765542.09	0.0495	0.0361 *
Venus	-20499-10-26 20:38 J	-5765537.72	-5765537.64	-5765537.55	0.0495	0.0447
Venus	-20498-06-20 00:00 J	-5765301.70	-5765301.50	-5765301.30	0.0494	0.0079
Venus	-20497-02-11 06:14 J	-5765065.39	-5765065.24	-5765065.07	0.0494	0.0301
Mercury	-20497-11-19 14:23 J	-5764783.08	-5764782.90	-5764782.72	0.0497	0.0147
Venus	-20492-04-24 07:55 J	-5763166.36	-5763166.17	-5763165.98	0.0533	0.0159
Venus	-20492-12-18 02:52 J	-5762928.54	-5762928.38	-5762928.22	0.0532	0.0315
Mercury	-20491-07-13 20:09 J	-5762720.75	-5762720.66	-5762720.57	0.0530	0.0367
Mercury	-20491-10-11 01:55 J	-5762631.53	-5762631.42	-5762631.30	0.0528	0.0207
Earth	-20487-10-26 18:00 J	-5761154.98	-5761154.75	-5761154.51	0.0494	0.0073
Moon	-20487-10-26 22:04 J	-5761154.81	-5761154.58	-5761154.35	0.0494	0.0090 *
Venus	-20486-02-23 01:40 J	-5761035.61	-5761035.43	-5761035.23	0.0494	0.0184
Venus	-20486-10-17 06:57 J	-5760799.40	-5760799.21	-5760799.02	0.0494	0.0196
Mercury	-20485-09-07 11:02 J	-5760473.17	-5760473.04	-5760472.90	0.0497	0.0331
Mercury	-20485-12-06 20:38 J	-5760382.75	-5760382.64	-5760382.52	0.0499	0.0390
Venus	-20481-12-27 23:16 J	-5758900.70	-5758900.53	-5758900.36	0.0533	0.0289
Venus	-20480-08-22 19:40 J	-5758662.87	-5758662.68	-5758662.49	0.0533	0.0189
Mercury	-20479-05-02 00:28 J	-5758410.51	-5758410.48	-5758410.44	0.0530	0.0503
Mercury	-20479-07-30 06:28 J	-5758321.36	-5758321.23	-5758321.10	0.0528	0.0069
Venus	-20475-10-29 02:09 J	-5756769.57	-5756769.41	-5756769.24	0.0494	0.0288
Moon	-20475-10-30 23:31 J	-5756767.58	-5756767.52	-5756767.45	0.0494	0.0472
Venus	-20474-06-22 06:28 J	-5756533.44	-5756533.23	-5756533.03	0.0493	0.0089
Venus	-20473-02-13 14:38 J	-5756296.96	-5756296.89	-5756296.82	0.0495	0.0463
Mercury	-20473-09-24 17:02 J	-5756072.96	-5756072.79	-5756072.62	0.0498	0.0201
Mars	-20473-11-28 07:40 J	-5756008.37	-5756008.18	-5756007.98	0.0500	0.0328
Venus	-20469-09-01 13:40 J	-5754635.05	-5754634.93	-5754634.80	0.0532	0.0417
Venus	-20468-04-27 11:31 J	-5754397.22	-5754397.02	-5754396.82	0.0533	0.0059
Venus	-20468-12-21 03:36 J	-5754159.39	-5754159.35	-5754159.30	0.0531	0.0515

Mercury	-20467-05-18 10:48 J	-5754011.18	-5754011.05	-5754010.93	0.0529	0.0075
Mercury	-20467-08-15 16:48 J	-5753921.84	-5753921.80	-5753921.76	0.0527	0.0500
Venus	-20463-07-04 04:33 J	-5752503.43	-5752503.31	-5752503.18	0.0494	0.0387
Venus	-20462-02-25 08:09 J	-5752267.37	-5752267.16	-5752266.96	0.0493	0.0019
Venus	-20462-10-19 15:07 J	-5752031.01	-5752030.87	-5752030.73	0.0494	0.0363
Mercury	-20461-07-13 14:23 J	-5751763.08	-5751762.90	-5751762.72	0.0498	0.0023
Venus	-20457-12-30 23:31 J	-5750131.72	-5750131.52	-5750131.32	0.0532	0.0080
Venus	-20456-08-25 17:16 J	-5749893.91	-5749893.78	-5749893.64	0.0531	0.0389
Mercury	-20455-03-06 14:09 J	-5749701.03	-5749700.91	-5749700.80	0.0529	0.0230
Mercury	-20455-06-03 20:09 J	-5749611.76	-5749611.66	-5749611.57	0.0527	0.0343
Venus	-20451-03-09 06:57 J	-5748237.24	-5748237.21	-5748237.16	0.0495	0.0486
Venus	-20451-10-31 10:19 J	-5748001.26	-5748001.07	-5748000.87	0.0494	0.0121
Venus	-20450-06-24 16:19 J	-5747764.99	-5747764.82	-5747764.64	0.0494	0.0260
Mercury	-20449-05-01 12:00 J	-5747453.18	-5747453.00	-5747452.83	0.0498	0.0153
Moon	-20445-04-25 12:57 J	-5745998.13	-5745997.96	-5745997.78	0.0531	0.0310
Earth	-20445-04-25 13:40 J	-5745998.12	-5745997.93	-5745997.74	0.0531	0.0288 *
Venus	-20445-09-04 13:11 J	-5745866.13	-5745865.95	-5745865.76	0.0532	0.0213
Venus	-20444-04-30 08:23 J	-5745628.32	-5745628.15	-5745627.97	0.0532	0.0263
Mercury	-20444-12-23 18:00 J	-5745390.83	-5745390.75	-5745390.66	0.0529	0.0376
Mars	-20443-01-18 15:21 J	-5745365.08	-5745364.86	-5745364.62	0.0529	0.0337
Mercury	-20443-03-23 00:00 J	-5745301.62	-5745301.50	-5745301.38	0.0528	0.0196
Venus	-20439-07-06 12:28 J	-5743735.16	-5743734.98	-5743734.79	0.0494	0.0224
Venus	-20438-02-27 17:31 J	-5743498.97	-5743498.77	-5743498.58	0.0494	0.0155
Mercury	-20437-02-18 08:38 J	-5743143.28	-5743143.14	-5743143.01	0.0497	0.0337
Mercury	-20437-05-18 18:00 J	-5743052.86	-5743052.75	-5743052.63	0.0498	0.0385
Earth	-20433-04-30 10:04 J	-5741610.29	-5741610.08	-5741609.87	0.0532	0.0233
Moon	-20433-04-30 12:14 J	-5741610.20	-5741609.99	-5741609.78	0.0532	0.0256 *
Venus	-20433-05-10 02:23 J	-5741600.55	-5741600.40	-5741600.25	0.0532	0.0344
Venus	-20432-01-02 23:02 J	-5741362.73	-5741362.54	-5741362.34	0.0533	0.0134
Mercury	-20432-10-11 22:19 J	-5741080.59	-5741080.57	-5741080.55	0.0530	0.0519

Mercury	-20431-01-09 04:04 J	-5740991.45	-5740991.33	-5740991.20	0.0528	0.0053
Venus	-20427-03-11 14:38 J	-5739469.04	-5739468.89	-5739468.73	0.0494	0.0325
Venus	-20427-11-02 18:43 J	-5739232.93	-5739232.72	-5739232.52	0.0493	0.0051
Venus	-20426-06-27 02:09 J	-5738996.51	-5738996.41	-5738996.31	0.0495	0.0427
Mars	-20426-11-13 15:50 J	-5738856.89	-5738856.84	-5738856.78	0.0496	0.0481
Mercury	-20425-03-06 15:07 J	-5738743.04	-5738742.87	-5738742.70	0.0498	0.0203
Venus	-20421-01-13 17:16 J	-5737334.87	-5737334.78	-5737334.69	0.0532	0.0469
Venus	-20421-09-07 15:21 J	-5737097.06	-5737096.86	-5737096.66	0.0533	0.0003
Venus	-20420-05-03 08:52 J	-5736859.22	-5736859.13	-5736859.03	0.0532	0.0467
Mercury	-20420-10-28 08:38 J	-5736681.27	-5736681.14	-5736681.01	0.0529	0.0084
Mercury	-20419-01-25 14:52 J	-5736591.93	-5736591.88	-5736591.84	0.0527	0.0490
Earth	-20416-10-21 05:45 J	-5735227.35	-5735227.26	-5735227.15	0.0495	0.0447
Moon	-20416-10-21 09:50 J	-5735227.21	-5735227.09	-5735226.96	0.0495	0.0415 *
Venus	-20416-11-14 15:50 J	-5735202.93	-5735202.84	-5735202.73	0.0494	0.0427
Venus	-20415-07-08 18:57 J	-5734966.91	-5734966.71	-5734966.51	0.0493	0.0057
Venus	-20414-03-02 01:11 J	-5734730.61	-5734730.45	-5734730.30	0.0494	0.0322
Mercury	-20414-12-24 11:31 J	-5734433.21	-5734433.02	-5734432.84	0.0498	0.0013
Venus	-20409-05-13 06:28 J	-5732831.42	-5732831.23	-5732831.03	0.0533	0.0130
Venus	-20408-01-06 01:26 J	-5732593.59	-5732593.44	-5732593.28	0.0532	0.0345
Mercury	-20408-08-16 12:57 J	-5732371.08	-5732370.96	-5732370.85	0.0529	0.0224
Mars	-20408-10-27 14:23 J	-5732299.18	-5732298.90	-5732298.61	0.0528	0.0144
Mercury	-20408-11-13 18:57 J	-5732281.81	-5732281.71	-5732281.62	0.0527	0.0349
Moon	-20404-10-25 14:09 J	-5730840.15	-5730839.91	-5730839.67	0.0494	0.0003
Earth	-20404-10-25 18:00 J	-5730839.99	-5730839.75	-5730839.51	0.0494	0.0014 *
Venus	-20403-03-13 21:07 J	-5730700.81	-5730700.62	-5730700.43	0.0494	0.0161
Venus	-20403-11-05 02:09 J	-5730464.59	-5730464.41	-5730464.22	0.0494	0.0220
Mercury	-20402-10-12 08:52 J	-5730123.31	-5730123.13	-5730122.96	0.0497	0.0165
Venus	-20397-01-16 18:57 J	-5728565.88	-5728565.71	-5728565.53	0.0532	0.0265
Venus	-20397-09-10 14:52 J	-5728328.07	-5728327.88	-5728327.70	0.0532	0.0212
Mercury	-20396-06-04 16:19 J	-5728060.90	-5728060.82	-5728060.73	0.0529	0.0380

Mercury	-20396-09-01 22:19 J	-5727971.69	-5727971.57	-5727971.45	0.0528	0.0192
Earth	-20392-10-30 06:00 J	-5726452.36	-5726452.25	-5726452.12	0.0494	0.0421
Moon	-20392-10-30 08:52 J	-5726452.26	-5726452.13	-5726451.99	0.0494	0.0400 *
Venus	-20392-11-16 23:31 J	-5726434.69	-5726434.52	-5726434.35	0.0494	0.0264
Venus	-20391-07-11 04:04 J	-5726198.53	-5726198.33	-5726198.13	0.0494	0.0115
Venus	-20390-03-04 12:43 J	-5725961.99	-5725961.97	-5725961.93	0.0495	0.0489
Mercury	-20390-07-31 06:14 J	-5725813.37	-5725813.24	-5725813.10	0.0497	0.0339
Mars	-20390-08-17 09:36 J	-5725796.34	-5725796.10	-5725795.86	0.0497	0.0194
Mercury	-20390-10-29 15:50 J	-5725722.95	-5725722.84	-5725722.72	0.0499	0.0384
Venus	-20386-09-21 08:38 J	-5724300.27	-5724300.14	-5724300.01	0.0531	0.0395
Venus	-20385-05-16 05:16 J	-5724062.48	-5724062.28	-5724062.08	0.0532	0.0081
Mercury	-20384-03-23 20:23 J	-5723750.66	-5723750.65	-5723750.63	0.0530	0.0524
Mercury	-20384-06-21 02:09 J	-5723661.53	-5723661.41	-5723661.28	0.0528	0.0048
Venus	-20380-07-23 02:09 J	-5722168.55	-5722168.41	-5722168.28	0.0495	0.0364
Venus	-20379-03-16 06:00 J	-5721932.46	-5721932.25	-5721932.05	0.0494	0.0012
Venus	-20379-11-07 12:57 J	-5721696.08	-5721695.96	-5721695.83	0.0494	0.0389
Mercury	-20378-08-17 12:57 J	-5721413.13	-5721412.96	-5721412.79	0.0498	0.0201
Venus	-20374-05-26 21:07 J	-5720034.65	-5720034.62	-5720034.58	0.0531	0.0521
Venus	-20373-01-19 19:26 J	-5719796.89	-5719796.69	-5719796.49	0.0533	0.0053
Venus	-20373-09-13 13:26 J	-5719559.06	-5719558.94	-5719558.82	0.0532	0.0416
Mercury	-20372-04-09 06:28 J	-5719351.36	-5719351.23	-5719351.11	0.0529	0.0099
Mercury	-20372-07-07 12:28 J	-5719262.03	-5719261.98	-5719261.93	0.0527	0.0477
Venus	-20368-03-28 04:33 J	-5717902.37	-5717902.31	-5717902.23	0.0495	0.0462
Venus	-20368-11-19 07:40 J	-5717666.38	-5717666.18	-5717665.98	0.0494	0.0095
Venus	-20367-07-13 13:26 J	-5717430.10	-5717429.94	-5717429.77	0.0494	0.0286
Mercury	-20366-06-05 09:50 J	-5717103.27	-5717103.09	-5717102.90	0.0498	0.0022
Earth	-20362-04-25 12:57 J	-5715683.11	-5715682.96	-5715682.81	0.0531	0.0393
Moon	-20362-04-25 14:38 J	-5715683.03	-5715682.89	-5715682.74	0.0531	0.0410 *
Venus	-20362-09-24 10:48 J	-5715531.24	-5715531.05	-5715530.86	0.0533	0.0184
Venus	-20361-05-19 06:28 J	-5715293.39	-5715293.23	-5715293.06	0.0533	0.0294

Mercury	-20360-01-26 11:02 J	-5715041.16	-5715041.04	-5715040.93	0.0529	0.0234
Mercury	-20360-04-25 17:02 J	-5714951.89	-5714951.79	-5714951.69	0.0528	0.0340
Venus	-20356-07-25 08:52 J	-5713400.31	-5713400.13	-5713399.94	0.0494	0.0200
Venus	-20355-03-18 13:26 J	-5713164.13	-5713163.94	-5713163.74	0.0493	0.0180
Mercury	-20354-03-24 06:14 J	-5712793.41	-5712793.24	-5712793.06	0.0497	0.0170
Mars	-20354-05-20 23:45 J	-5712735.77	-5712735.51	-5712735.26	0.0498	0.0090
Moon	-20350-04-30 09:50 J	-5711295.30	-5711295.09	-5711294.87	0.0532	0.0171
Earth	-20350-04-30 13:11 J	-5711295.17	-5711294.95	-5711294.73	0.0532	0.0146 *
Venus	-20350-05-30 01:55 J	-5711265.58	-5711265.42	-5711265.26	0.0532	0.0315
Venus	-20349-01-22 22:48 J	-5711027.74	-5711027.55	-5711027.35	0.0533	0.0165
Mercury	-20349-11-14 15:21 J	-5710730.95	-5710730.86	-5710730.77	0.0530	0.0372
Mercury	-20348-02-11 21:21 J	-5710641.73	-5710641.61	-5710641.49	0.0528	0.0201
Venus	-20344-03-30 11:31 J	-5709134.18	-5709134.02	-5709133.86	0.0494	0.0302
Venus	-20344-11-21 15:21 J	-5708898.06	-5708897.86	-5708897.66	0.0493	0.0075
Venus	-20343-07-15 23:02 J	-5708661.62	-5708661.54	-5708661.46	0.0495	0.0451
Mercury	-20342-01-10 03:36 J	-5708483.48	-5708483.35	-5708483.21	0.0497	0.0346
Mercury	-20342-04-10 13:11 J	-5708393.06	-5708392.95	-5708392.82	0.0499	0.0377
Venus	-20338-02-01 14:52 J	-5706999.99	-5706999.88	-5706999.77	0.0531	0.0444
Venus	-20338-09-27 12:14 J	-5706762.19	-5706761.99	-5706761.79	0.0532	0.0030
Venus	-20337-05-22 04:48 J	-5706524.37	-5706524.30	-5706524.22	0.0531	0.0491
Mercury	-20337-09-02 18:57 J	-5706420.72	-5706420.71	-5706420.70	0.0530	0.0524
Mercury	-20337-12-01 00:43 J	-5706331.60	-5706331.47	-5706331.34	0.0528	0.0045
Moon	-20333-10-20 05:31 J	-5704912.30	-5704912.27	-5704912.23	0.0496	0.0489
Venus	-20333-12-03 13:26 J	-5704868.05	-5704867.94	-5704867.82	0.0495	0.0404
Venus	-20332-07-27 17:31 J	-5704631.98	-5704631.77	-5704631.57	0.0494	0.0032
Venus	-20331-03-21 00:14 J	-5704395.63	-5704395.49	-5704395.34	0.0495	0.0351
Mercury	-20330-01-27 11:16 J	-5704083.20	-5704083.03	-5704082.87	0.0498	0.0205
Venus	-20326-06-02 02:23 J	-5702496.59	-5702496.40	-5702496.20	0.0532	0.0105
Venus	-20325-01-25 20:38 J	-5702258.78	-5702258.64	-5702258.49	0.0532	0.0368
Mercury	-20325-09-19 04:48 J	-5702021.42	-5702021.30	-5702021.17	0.0529	0.0100



Mercury	-20325-12-17 10:48 J	-5701932.10	-5701932.05	-5701931.99	0.0527	0.0473
Earth	-20321-10-24 22:33 J	-5700524.79	-5700524.56	-5700524.32	0.0495	0.0083
Moon	-20321-10-25 01:26 J	-5700524.67	-5700524.44	-5700524.21	0.0495	0.0070 *
Venus	-20320-04-01 19:40 J	-5700365.87	-5700365.68	-5700365.48	0.0494	0.0134
Venus	-20320-11-24 01:11 J	-5700129.62	-5700129.45	-5700129.26	0.0494	0.0248
Mercury	-20319-11-15 08:09 J	-5699773.34	-5699773.16	-5699772.97	0.0498	0.0025
Mars	-20318-02-22 01:55 J	-5699674.57	-5699674.42	-5699674.25	0.0499	0.0395
Venus	-20314-02-04 16:04 J	-5698231.01	-5698230.83	-5698230.65	0.0532	0.0237
Venus	-20314-09-30 12:00 J	-5697993.18	-5697993.00	-5697992.82	0.0532	0.0241
Mercury	-20313-07-08 08:52 J	-5697711.24	-5697711.13	-5697711.01	0.0529	0.0244
Mercury	-20313-10-05 14:52 J	-5697621.97	-5697621.88	-5697621.78	0.0528	0.0331
Moon	-20309-10-29 10:48 J	-5696137.23	-5696137.05	-5696136.86	0.0494	0.0328
Earth	-20309-10-29 11:45 J	-5696137.17	-5696137.01	-5696136.84	0.0494	0.0354 *
Venus	-20309-12-05 22:04 J	-5696099.76	-5696099.58	-5696099.40	0.0494	0.0237
Venus	-20308-07-30 02:38 J	-5695863.59	-5695863.39	-5695863.19	0.0494	0.0143
Mercury	-20307-09-03 05:02 J	-5695463.46	-5695463.29	-5695463.11	0.0497	0.0159
Venus	-20303-10-10 06:57 J	-5693965.36	-5693965.21	-5693965.06	0.0532	0.0366
Venus	-20302-06-05 04:19 J	-5693727.52	-5693727.32	-5693727.12	0.0533	0.0112
Mercury	-20301-04-26 13:26 J	-5693401.02	-5693400.94	-5693400.85	0.0530	0.0379
Mercury	-20301-07-24 19:26 J	-5693311.81	-5693311.69	-5693311.57	0.0528	0.0195
Venus	-20297-08-11 00:14 J	-5691833.64	-5691833.49	-5691833.34	0.0494	0.0339
Venus	-20296-04-04 03:36 J	-5691597.55	-5691597.35	-5691597.14	0.0493	0.0037
Venus	-20296-11-26 10:19 J	-5691361.17	-5691361.07	-5691360.95	0.0494	0.0414
Mercury	-20295-06-22 01:40 J	-5691153.56	-5691153.43	-5691153.30	0.0497	0.0345
Mercury	-20295-09-20 11:16 J	-5691063.15	-5691063.03	-5691062.91	0.0498	0.0377
Venus	-20291-06-14 21:50 J	-5689699.66	-5689699.59	-5689699.52	0.0531	0.0492
Venus	-20290-02-07 20:23 J	-5689461.85	-5689461.65	-5689461.45	0.0533	0.0019
Venus	-20290-10-03 14:23 J	-5689224.00	-5689223.90	-5689223.79	0.0532	0.0449
Mercury	-20289-02-13 18:00 J	-5689090.77	-5689090.75	-5689090.72	0.0530	0.0514
Mars	-20289-04-13 16:33 J	-5689031.07	-5689030.81	-5689030.54	0.0529	0.0235

Mercury	-20289-05-13 00:00 J	-5689001.63	-5689001.50	-5689001.38	0.0529	0.0059
Venus	-20285-04-16 02:52 J	-5687567.47	-5687567.38	-5687567.28	0.0495	0.0438
Venus	-20285-12-08 06:00 J	-5687331.46	-5687331.25	-5687331.05	0.0493	0.0068
Venus	-20284-08-01 11:45 J	-5687095.16	-5687095.01	-5687094.85	0.0494	0.0313
Mercury	-20283-07-09 09:07 J	-5686753.29	-5686753.12	-5686752.96	0.0498	0.0205
Moon	-20279-04-24 13:26 J	-5685368.02	-5685367.94	-5685367.86	0.0531	0.0493
Earth	-20279-04-24 16:19 J	-5685367.92	-5685367.82	-5685367.72	0.0531	0.0476 *
Venus	-20279-10-13 10:04 J	-5685196.28	-5685196.08	-5685195.89	0.0532	0.0155
Venus	-20278-06-08 04:48 J	-5684958.46	-5684958.30	-5684958.14	0.0532	0.0321
Mercury	-20277-03-01 03:36 J	-5684691.48	-5684691.35	-5684691.23	0.0529	0.0098
Mercury	-20277-05-29 09:36 J	-5684602.15	-5684602.10	-5684602.05	0.0527	0.0476
Venus	-20273-08-13 07:55 J	-5683065.36	-5683065.17	-5683064.97	0.0494	0.0173
Venus	-20272-04-06 13:26 J	-5682829.12	-5682828.94	-5682828.75	0.0494	0.0209
Mars	-20271-02-06 12:00 J	-5682523.13	-5682523.00	-5682522.85	0.0497	0.0411
Mercury	-20271-04-27 06:43 J	-5682443.40	-5682443.22	-5682443.03	0.0498	0.0033
Earth	-20267-04-29 14:38 J	-5680980.12	-5680979.89	-5680979.66	0.0531	0.0052
Moon	-20267-04-29 18:14 J	-5680979.96	-5680979.74	-5680979.51	0.0531	0.0085 *
Venus	-20267-06-18 00:14 J	-5680930.66	-5680930.49	-5680930.32	0.0532	0.0286
Venus	-20266-02-10 20:09 J	-5680692.84	-5680692.66	-5680692.47	0.0532	0.0193
Mercury	-20266-12-19 07:40 J	-5680381.30	-5680381.18	-5680381.07	0.0529	0.0241
Mercury	-20265-03-17 13:26 J	-5680292.03	-5680291.94	-5680291.84	0.0527	0.0333
Venus	-20261-04-18 10:33 J	-5678799.22	-5678799.06	-5678798.88	0.0495	0.0275
Venus	-20261-12-10 15:07 J	-5678563.07	-5678562.87	-5678562.66	0.0494	0.0106
Venus	-20260-08-03 23:16 J	-5678326.57	-5678326.53	-5678326.48	0.0495	0.0481
Mercury	-20259-02-13 03:50 J	-5678133.51	-5678133.34	-5678133.16	0.0497	0.0148
Venus	-20255-02-20 13:26 J	-5676665.06	-5676664.94	-5676664.81	0.0531	0.0415
Venus	-20255-10-16 10:48 J	-5676427.25	-5676427.05	-5676426.85	0.0532	0.0061
Venus	-20254-06-11 03:21 J	-5676189.39	-5676189.36	-5676189.32	0.0531	0.0521
Mercury	-20254-10-07 11:45 J	-5676071.09	-5676071.01	-5676070.92	0.0530	0.0383
Mercury	-20253-01-04 17:45 J	-5675981.88	-5675981.76	-5675981.64	0.0528	0.0189

Mars	-20253-01-20 21:21 J	-5675965.87	-5675965.61	-5675965.33	0.0528	0.0219
Venus	-20250-12-23 13:26 J	-5674533.07	-5674532.94	-5674532.80	0.0495	0.0375
Venus	-20249-08-15 17:16 J	-5674296.98	-5674296.78	-5674296.57	0.0494	0.0007
Venus	-20248-04-09 00:00 J	-5674060.63	-5674060.50	-5674060.37	0.0494	0.0380
Mercury	-20248-12-02 00:43 J	-5673823.60	-5673823.47	-5673823.32	0.0497	0.0329
Mercury	-20247-03-02 10:19 J	-5673733.17	-5673733.07	-5673732.95	0.0498	0.0394
Venus	-20243-06-21 02:23 J	-5672161.60	-5672161.40	-5672161.20	0.0533	0.0071
Venus	-20242-02-13 21:07 J	-5671923.75	-5671923.62	-5671923.49	0.0532	0.0402
Mercury	-20242-07-26 16:19 J	-5671760.84	-5671760.82	-5671760.79	0.0530	0.0518
Mercury	-20242-10-23 22:19 J	-5671671.70	-5671671.57	-5671671.44	0.0529	0.0054
Venus	-20238-08-28 16:19 J	-5670266.87	-5670266.82	-5670266.76	0.0495	0.0473
Moon	-20238-10-25 05:02 J	-5670209.53	-5670209.29	-5670209.06	0.0495	0.0135
Earth	-20238-10-25 06:00 J	-5670209.48	-5670209.25	-5670209.02	0.0495	0.0139 *
Venus	-20237-04-20 19:11 J	-5670030.90	-5670030.70	-5670030.50	0.0494	0.0106
Venus	-20237-12-13 00:14 J	-5669794.65	-5669794.49	-5669794.31	0.0494	0.0276
Mars	-20236-11-10 06:00 J	-5669462.49	-5669462.25	-5669461.99	0.0497	0.0125
Mercury	-20236-12-19 07:26 J	-5669423.36	-5669423.19	-5669423.02	0.0498	0.0210
Venus	-20231-02-23 18:14 J	-5667895.93	-5667895.74	-5667895.55	0.0533	0.0203
Venus	-20231-10-19 14:23 J	-5667658.07	-5667657.90	-5667657.73	0.0533	0.0277
Mercury	-20230-08-12 02:52 J	-5667361.51	-5667361.38	-5667361.26	0.0529	0.0083
Mercury	-20230-11-09 08:52 J	-5667272.17	-5667272.13	-5667272.08	0.0527	0.0492
Moon	-20226-10-29 18:00 J	-5665821.93	-5665821.75	-5665821.55	0.0494	0.0270
Earth	-20226-10-29 19:11 J	-5665821.88	-5665821.70	-5665821.50	0.0494	0.0298 *
Venus	-20226-12-25 21:50 J	-5665764.78	-5665764.59	-5665764.41	0.0494	0.0209
Venus	-20225-08-18 02:23 J	-5665528.59	-5665528.40	-5665528.20	0.0494	0.0172
Mercury	-20224-10-07 05:02 J	-5665113.47	-5665113.29	-5665113.10	0.0498	0.0039
Venus	-20220-10-29 08:23 J	-5663630.31	-5663630.15	-5663629.99	0.0531	0.0333
Venus	-20219-06-24 04:48 J	-5663392.49	-5663392.30	-5663392.10	0.0532	0.0145
Mercury	-20218-05-31 06:28 J	-5663051.34	-5663051.23	-5663051.11	0.0529	0.0233
Mercury	-20218-08-28 12:28 J	-5662962.08	-5662961.98	-5662961.88	0.0527	0.0339

Venus	-20214-08-30 23:31 J	-5661498.67	-5661498.52	-5661498.36	0.0495	0.0312
Venus	-20213-04-23 04:04 J	-5661262.53	-5661262.33	-5661262.13	0.0494	0.0067
Venus	-20213-12-15 12:00 J	-5661026.09	-5661026.00	-5661025.91	0.0495	0.0445
Mercury	-20212-07-26 02:52 J	-5660803.56	-5660803.38	-5660803.20	0.0498	0.0136
Venus	-20208-07-03 22:48 J	-5659364.65	-5659364.55	-5659364.45	0.0530	0.0459
Venus	-20207-02-26 20:09 J	-5659126.86	-5659126.66	-5659126.46	0.0532	0.0013
Venus	-20207-10-22 12:57 J	-5658889.04	-5658888.96	-5658888.87	0.0531	0.0477
Mercury	-20206-03-19 10:48 J	-5658741.14	-5658741.05	-5658740.96	0.0529	0.0375
Mercury	-20206-06-16 16:33 J	-5658651.93	-5658651.81	-5658651.69	0.0528	0.0196
Venus	-20202-05-06 02:23 J	-5657232.51	-5657232.40	-5657232.28	0.0496	0.0411
Venus	-20202-12-28 06:14 J	-5656996.44	-5656996.24	-5656996.03	0.0494	0.0038
Venus	-20201-08-20 12:57 J	-5656760.10	-5656759.96	-5656759.81	0.0494	0.0345
Mercury	-20200-05-14 00:00 J	-5656493.64	-5656493.50	-5656493.36	0.0497	0.0315
Mercury	-20200-08-12 09:36 J	-5656403.20	-5656403.10	-5656402.99	0.0499	0.0408
Mars	-20200-08-14 09:36 J	-5656401.35	-5656401.10	-5656400.86	0.0499	0.0179
Venus	-20196-11-01 09:50 J	-5654861.28	-5654861.09	-5654860.89	0.0532	0.0121
Venus	-20195-06-27 04:48 J	-5654623.45	-5654623.30	-5654623.15	0.0532	0.0354
Mercury	-20194-01-05 14:52 J	-5654430.90	-5654430.88	-5654430.85	0.0530	0.0518
Mercury	-20194-04-04 20:52 J	-5654341.76	-5654341.63	-5654341.51	0.0528	0.0055
Venus	-20190-09-02 09:07 J	-5652730.32	-5652730.12	-5652729.92	0.0494	0.0141
Venus	-20189-04-25 14:38 J	-5652494.07	-5652493.89	-5652493.71	0.0494	0.0241
Mercury	-20188-03-01 21:07 J	-5652183.64	-5652183.62	-5652183.61	0.0497	0.0494
Mercury	-20188-05-31 06:57 J	-5652093.37	-5652093.21	-5652093.05	0.0498	0.0230
Moon	-20184-04-28 16:33 J	-5650665.05	-5650664.81	-5650664.58	0.0531	0.0009
Earth	-20184-04-28 19:55 J	-5650664.90	-5650664.67	-5650664.44	0.0531	0.0028 *
Venus	-20184-07-07 00:57 J	-5650595.64	-5650595.46	-5650595.28	0.0532	0.0252
Venus	-20183-03-01 21:21 J	-5650357.78	-5650357.61	-5650357.42	0.0533	0.0229
Mercury	-20182-01-22 01:26 J	-5650031.57	-5650031.44	-5650031.32	0.0529	0.0084
Mercury	-20182-04-21 07:26 J	-5649942.23	-5649942.19	-5649942.15	0.0527	0.0492
Venus	-20178-05-08 11:31 J	-5648464.19	-5648464.02	-5648463.84	0.0494	0.0245

Venus	-20178-12-30 15:50 J	-5648228.04	-5648227.84	-5648227.65	0.0494	0.0136
Mercury	-20176-03-19 03:50 J	-5647783.52	-5647783.34	-5647783.15	0.0498	0.0049
Venus	-20172-03-11 16:33 J	-5646329.95	-5646329.81	-5646329.67	0.0532	0.0381
Earth	-20172-05-03 20:23 J	-5646276.70	-5646276.65	-5646276.59	0.0532	0.0513
Moon	-20172-05-03 22:33 J	-5646276.60	-5646276.56	-5646276.51	0.0532	0.0520 *
Venus	-20172-11-04 14:09 J	-5646092.10	-5646091.91	-5646091.71	0.0533	0.0099
Mercury	-20171-11-10 06:00 J	-5645721.37	-5645721.25	-5645721.14	0.0529	0.0217
Mercury	-20170-02-07 12:00 J	-5645632.09	-5645632.00	-5645631.91	0.0528	0.0357
Venus	-20166-01-11 14:23 J	-5644198.04	-5644197.90	-5644197.75	0.0495	0.0346
Venus	-20166-09-04 18:14 J	-5643961.94	-5643961.74	-5643961.53	0.0494	0.0033
Venus	-20165-04-28 00:57 J	-5643725.56	-5643725.46	-5643725.34	0.0494	0.0411
Mercury	-20164-01-05 01:40 J	-5643473.61	-5643473.43	-5643473.25	0.0497	0.0125
Mars	-20164-05-18 10:33 J	-5643340.12	-5643340.06	-5643340.00	0.0500	0.0484
Venus	-20161-11-14 07:11 J	-5642064.25	-5642064.20	-5642064.13	0.0530	0.0504
Venus	-20160-07-10 05:02 J	-5641826.49	-5641826.29	-5641826.09	0.0532	0.0035
Venus	-20159-03-04 22:48 J	-5641588.66	-5641588.55	-5641588.43	0.0531	0.0435
Mercury	-20159-08-29 09:50 J	-5641411.18	-5641411.09	-5641411.00	0.0529	0.0364
Mercury	-20159-11-26 15:36 J	-5641321.96	-5641321.85	-5641321.73	0.0528	0.0207
Venus	-20155-09-16 15:50 J	-5639931.92	-5639931.84	-5639931.75	0.0496	0.0447
Moon	-20155-10-24 12:28 J	-5639894.18	-5639893.98	-5639893.77	0.0496	0.0205
Earth	-20155-10-24 13:40 J	-5639894.14	-5639893.93	-5639893.71	0.0496	0.0197 *
Venus	-20154-05-10 19:40 J	-5639695.88	-5639695.68	-5639695.48	0.0494	0.0074
Venus	-20153-01-02 02:09 J	-5639459.57	-5639459.41	-5639459.25	0.0495	0.0309
Mercury	-20153-10-23 23:02 J	-5639163.68	-5639163.54	-5639163.39	0.0497	0.0299
Mercury	-20152-01-22 08:52 J	-5639073.22	-5639073.13	-5639073.04	0.0499	0.0424
Venus	-20148-03-14 20:09 J	-5637560.85	-5637560.66	-5637560.46	0.0532	0.0167
Venus	-20148-11-07 15:07 J	-5637323.03	-5637322.87	-5637322.71	0.0532	0.0310
Mercury	-20147-06-17 14:09 J	-5637100.95	-5637100.91	-5637100.88	0.0529	0.0505
Mercury	-20147-09-14 19:55 J	-5637011.80	-5637011.67	-5637011.55	0.0528	0.0065
Earth	-20143-10-29 03:50 J	-5635506.55	-5635506.34	-5635506.13	0.0495	0.0243

Moon	-20143-10-29 06:43 J	-5635506.43	-5635506.22	-5635505.99	0.0495	0.0213 *
Venus	-20142-01-13 22:19 J	-5635429.76	-5635429.57	-5635429.38	0.0495	0.0178
Venus	-20142-09-07 04:04 J	-5635193.52	-5635193.33	-5635193.15	0.0494	0.0206
Mercury	-20141-08-11 20:09 J	-5634853.70	-5634853.66	-5634853.60	0.0497	0.0478
Mercury	-20141-11-10 06:14 J	-5634763.40	-5634763.24	-5634763.08	0.0498	0.0248
Venus	-20137-11-17 09:36 J	-5633295.26	-5633295.10	-5633294.93	0.0531	0.0299
Venus	-20136-07-13 06:00 J	-5633057.44	-5633057.25	-5633057.06	0.0532	0.0181
Mercury	-20135-07-04 00:00 J	-5632701.62	-5632701.50	-5632701.37	0.0529	0.0079
Mars	-20135-07-08 20:52 J	-5632696.92	-5632696.63	-5632696.34	0.0529	0.0130
Mercury	-20135-10-01 06:00 J	-5632612.29	-5632612.25	-5632612.20	0.0527	0.0494
Venus	-20131-09-19 01:40 J	-5631163.60	-5631163.43	-5631163.26	0.0495	0.0280
Venus	-20130-05-13 06:00 J	-5630927.45	-5630927.25	-5630927.04	0.0494	0.0102
Venus	-20129-01-04 13:55 J	-5630690.97	-5630690.92	-5630690.87	0.0495	0.0478
Mercury	-20129-08-29 03:36 J	-5630453.53	-5630453.35	-5630453.17	0.0498	0.0070
Venus	-20125-07-23 00:14 J	-5629029.61	-5629029.49	-5629029.37	0.0531	0.0427
Venus	-20124-03-17 22:04 J	-5628791.78	-5628791.58	-5628791.38	0.0532	0.0050
Venus	-20124-11-10 15:21 J	-5628553.91	-5628553.86	-5628553.81	0.0531	0.0513
Mercury	-20123-04-22 04:33 J	-5628391.42	-5628391.31	-5628391.19	0.0529	0.0215
Mercury	-20123-07-20 10:33 J	-5628302.15	-5628302.06	-5628301.96	0.0528	0.0359
Venus	-20119-05-25 04:33 J	-5626897.43	-5626897.31	-5626897.18	0.0495	0.0381
Venus	-20118-01-16 08:09 J	-5626661.37	-5626661.16	-5626660.96	0.0494	0.0009
Venus	-20118-09-09 14:23 J	-5626425.02	-5626424.90	-5626424.76	0.0494	0.0376
Mars	-20117-05-02 22:33 J	-5626188.75	-5626188.56	-5626188.36	0.0497	0.0323
Mercury	-20117-06-17 00:28 J	-5626143.66	-5626143.48	-5626143.29	0.0497	0.0112
Venus	-20113-11-20 14:09 J	-5624526.11	-5624525.91	-5624525.71	0.0532	0.0082
Venus	-20112-07-16 09:07 J	-5624288.25	-5624288.12	-5624287.98	0.0532	0.0393
Mercury	-20111-02-08 09:07 J	-5624081.21	-5624081.12	-5624081.02	0.0530	0.0349
Mercury	-20111-05-08 15:07 J	-5623991.98	-5623991.87	-5623991.75	0.0528	0.0224
Venus	-20107-01-28 07:55 J	-5622631.22	-5622631.17	-5622631.11	0.0496	0.0478
Venus	-20107-09-21 11:02 J	-5622395.24	-5622395.04	-5622394.84	0.0494	0.0109

Venus	-20106-05-15 16:19 J	-5622158.98	-5622158.82	-5622158.64	0.0494	0.0274
Mercury	-20105-04-04 22:04 J	-5621833.73	-5621833.58	-5621833.42	0.0497	0.0284
Mercury	-20105-07-04 07:55 J	-5621743.25	-5621743.17	-5621743.08	0.0499	0.0438
Earth	-20101-04-28 07:26 J	-5620349.41	-5620349.19	-5620348.96	0.0531	0.0079
Moon	-20101-04-28 09:50 J	-5620349.31	-5620349.09	-5620348.87	0.0531	0.0044 *
Venus	-20101-07-26 05:31 J	-5620260.46	-5620260.27	-5620260.08	0.0532	0.0212
Venus	-20100-03-21 00:57 J	-5620022.63	-5620022.46	-5620022.28	0.0532	0.0267
Mercury	-20100-11-27 13:26 J	-5619770.99	-5619770.94	-5619770.90	0.0529	0.0492
Mercury	-20099-02-24 19:11 J	-5619681.83	-5619681.70	-5619681.58	0.0528	0.0078
Mars	-20099-04-16 21:07 J	-5619630.83	-5619630.62	-5619630.39	0.0527	0.0351
Venus	-20095-05-27 12:00 J	-5618129.18	-5618129.00	-5618128.81	0.0495	0.0214
Venus	-20094-01-18 17:16 J	-5617892.97	-5617892.78	-5617892.59	0.0494	0.0170
Mercury	-20093-01-22 19:26 J	-5617523.75	-5617523.69	-5617523.62	0.0497	0.0462
Mercury	-20093-04-22 05:31 J	-5617433.42	-5617433.27	-5617433.11	0.0499	0.0266
Venus	-20089-03-30 20:38 J	-5615994.79	-5615994.64	-5615994.48	0.0531	0.0341
Moon	-20089-05-03 06:14 J	-5615961.36	-5615961.24	-5615961.11	0.0531	0.0453
Earth	-20089-05-03 06:57 J	-5615961.33	-5615961.21	-5615961.09	0.0531	0.0454 *
Venus	-20089-11-23 17:02 J	-5615756.99	-5615756.79	-5615756.60	0.0532	0.0137
Mercury	-20088-12-13 23:16 J	-5615371.65	-5615371.53	-5615371.40	0.0528	0.0066
Mercury	-20087-03-13 05:16 J	-5615282.31	-5615282.28	-5615282.25	0.0526	0.0507
Venus	-20083-01-30 15:07 J	-5613863.03	-5613862.87	-5613862.71	0.0495	0.0315
Venus	-20083-09-23 19:40 J	-5613626.88	-5613626.68	-5613626.47	0.0494	0.0066
Venus	-20082-05-18 03:21 J	-5613390.44	-5613390.36	-5613390.27	0.0495	0.0445
Mars	-20081-02-05 00:57 J	-5613127.72	-5613127.46	-5613127.20	0.0498	0.0025
Mercury	-20081-02-09 03:07 J	-5613123.55	-5613123.37	-5613123.19	0.0498	0.0089
Venus	-20078-12-04 09:36 J	-5611729.19	-5611729.10	-5611729.00	0.0530	0.0470
Venus	-20077-07-29 07:11 J	-5611491.41	-5611491.20	-5611491.00	0.0532	0.0009
Venus	-20076-03-24 00:43 J	-5611253.56	-5611253.47	-5611253.38	0.0531	0.0470
Mercury	-20076-10-02 03:36 J	-5611061.47	-5611061.35	-5611061.24	0.0529	0.0209
Mercury	-20076-12-30 09:21 J	-5610972.20	-5610972.11	-5610972.01	0.0527	0.0364

Venus	-20072-10-05 18:28 J	-5609596.83	-5609596.73	-5609596.61	0.0496	0.0415
Earth	-20072-10-24 02:09 J	-5609578.62	-5609578.41	-5609578.20	0.0496	0.0236
Moon	-20072-10-24 05:16 J	-5609578.49	-5609578.28	-5609578.07	0.0496	0.0252 *
Venus	-20071-05-29 22:19 J	-5609360.77	-5609360.57	-5609360.36	0.0494	0.0039
Venus	-20070-01-21 04:48 J	-5609124.45	-5609124.30	-5609124.15	0.0494	0.0343
Mercury	-20070-11-28 00:28 J	-5608813.67	-5608813.48	-5608813.30	0.0498	0.0089
Venus	-20065-04-02 22:33 J	-5607225.76	-5607225.56	-5607225.37	0.0532	0.0129
Venus	-20065-11-26 17:31 J	-5606987.91	-5606987.77	-5606987.61	0.0532	0.0348
Mercury	-20064-07-21 07:55 J	-5606751.26	-5606751.17	-5606751.07	0.0530	0.0345
Mercury	-20064-10-18 13:55 J	-5606662.03	-5606661.92	-5606661.80	0.0528	0.0228
Moon	-20060-10-28 12:28 J	-5605191.20	-5605190.98	-5605190.76	0.0495	0.0173
Earth	-20060-10-28 16:19 J	-5605191.03	-5605190.82	-5605190.60	0.0495	0.0205 *
Venus	-20059-02-02 00:57 J	-5605094.65	-5605094.46	-5605094.26	0.0494	0.0144
Venus	-20059-09-26 06:14 J	-5604858.42	-5604858.24	-5604858.06	0.0494	0.0239
Mercury	-20058-09-15 21:21 J	-5604503.77	-5604503.61	-5604503.45	0.0497	0.0270
Mercury	-20058-12-15 06:57 J	-5604413.28	-5604413.21	-5604413.13	0.0499	0.0452
Venus	-20054-12-07 14:09 J	-5602960.09	-5602959.91	-5602959.73	0.0532	0.0260
Venus	-20053-08-01 10:48 J	-5602722.23	-5602722.05	-5602721.87	0.0532	0.0221
Mercury	-20052-05-09 12:43 J	-5602441.02	-5602440.97	-5602440.92	0.0530	0.0477
Mercury	-20052-08-06 18:28 J	-5602351.85	-5602351.73	-5602351.60	0.0528	0.0095
Venus	-20048-10-08 04:04 J	-5600828.50	-5600828.33	-5600828.15	0.0495	0.0247
Venus	-20047-06-01 08:23 J	-5600592.34	-5600592.15	-5600591.95	0.0494	0.0135
Mercury	-20046-07-04 18:57 J	-5600193.79	-5600193.71	-5600193.63	0.0497	0.0443
Mercury	-20046-10-03 04:48 J	-5600103.45	-5600103.30	-5600103.15	0.0498	0.0282
Mars	-20046-11-09 02:52 J	-5600066.59	-5600066.38	-5600066.17	0.0499	0.0280
Venus	-20042-08-12 05:45 J	-5598694.39	-5598694.26	-5598694.11	0.0531	0.0387
Venus	-20041-04-06 02:52 J	-5598456.58	-5598456.38	-5598456.18	0.0532	0.0092
Mercury	-20040-05-25 22:33 J	-5598041.68	-5598041.56	-5598041.43	0.0528	0.0052
Mercury	-20040-08-23 04:33 J	-5597952.32	-5597952.31	-5597952.29	0.0526	0.0520
Venus	-20036-06-13 04:48 J	-5596562.44	-5596562.30	-5596562.15	0.0496	0.0351



Venus	-20035-02-04 09:07 J	-5596326.32	-5596326.12	-5596325.91	0.0494	0.0029
Venus	-20035-09-28 16:33 J	-5596089.92	-5596089.81	-5596089.69	0.0495	0.0411
Mercury	-20034-07-22 02:23 J	-5595793.58	-5595793.40	-5595793.22	0.0498	0.0106
Venus	-20030-04-16 20:52 J	-5594428.67	-5594428.63	-5594428.57	0.0530	0.0510
Venus	-20030-12-10 18:28 J	-5594190.93	-5594190.73	-5594190.53	0.0532	0.0040
Venus	-20029-08-04 12:00 J	-5593953.11	-5593953.00	-5593952.88	0.0531	0.0430
Mercury	-20028-03-14 02:52 J	-5593731.50	-5593731.38	-5593731.26	0.0528	0.0192
Mercury	-20028-06-11 08:38 J	-5593642.22	-5593642.14	-5593642.05	0.0527	0.0379
Venus	-20024-02-16 07:55 J	-5592296.25	-5592296.17	-5592296.08	0.0496	0.0450
Venus	-20024-10-10 11:45 J	-5592060.21	-5592060.01	-5592059.80	0.0495	0.0075
Venus	-20023-06-03 18:00 J	-5591823.90	-5591823.75	-5591823.58	0.0495	0.0310
Mercury	-20022-05-09 23:45 J	-5591483.70	-5591483.51	-5591483.33	0.0498	0.0072
Moon	-20018-04-28 15:07 J	-5590034.11	-5590033.87	-5590033.64	0.0530	0.0112
Earth	-20018-04-28 15:50 J	-5590034.06	-5590033.84	-5590033.61	0.0530	0.0144 *
Venus	-20018-08-15 07:55 J	-5589925.36	-5589925.17	-5589924.97	0.0531	0.0175
Venus	-20017-04-09 03:21 J	-5589687.53	-5589687.36	-5589687.20	0.0532	0.0304
Mars	-20017-12-25 02:38 J	-5589427.52	-5589427.39	-5589427.26	0.0529	0.0473
Mercury	-20017-12-31 06:57 J	-5589421.30	-5589421.21	-5589421.11	0.0529	0.0336
Mercury	-20016-03-30 12:43 J	-5589332.08	-5589331.97	-5589331.85	0.0528	0.0235
Venus	-20012-06-15 14:52 J	-5587794.07	-5587793.88	-5587793.69	0.0495	0.0180
Venus	-20011-02-06 20:09 J	-5587557.85	-5587557.66	-5587557.47	0.0494	0.0205
Mercury	-20010-02-25 20:52 J	-5587173.79	-5587173.63	-5587173.46	0.0497	0.0249
Mercury	-20010-05-27 06:43 J	-5587083.27	-5587083.22	-5587083.16	0.0499	0.0474
Venus	-20006-04-19 22:48 J	-5585659.72	-5585659.55	-5585659.39	0.0531	0.0306
Moon	-20006-05-03 13:11 J	-5585646.10	-5585645.95	-5585645.80	0.0531	0.0377
Earth	-20006-05-03 14:23 J	-5585646.06	-5585645.90	-5585645.74	0.0531	0.0385 *
Venus	-20006-12-13 19:11 J	-5585421.89	-5585421.70	-5585421.51	0.0532	0.0175
Mercury	-20005-10-19 11:31 J	-5585111.08	-5585111.02	-5585110.97	0.0530	0.0472
Mercury	-20004-01-16 17:16 J	-5585021.90	-5585021.78	-5585021.65	0.0528	0.0098

# 20TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 20th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Venus	-20000-02-18 18:00 J		-5583527.91	-5583527.75	-5583527.58	0.0495	0.0282	
Venus	-20000-10-12 22:04 J		-5583291.78	-5583291.58	-5583291.37	0.0494	0.0101	
Venus	-19999-06-06 05:31 J		-5583055.32	-5583055.27	-5583055.21	0.0495	0.0477	
Mercury	-19999-12-14 17:45 J		-5582863.84	-5582863.76	-5582863.66	0.0497	0.0430	
Mercury	-19998-03-15 03:50 J		-5582773.49	-5582773.34	-5582773.19	0.0498	0.0295	
Venus	-19995-12-23 13:40 J		-5581394.04	-5581393.93	-5581393.81	0.0531	0.0434	
Venus	-19994-08-18 11:45 J		-5581156.22	-5581156.01	-5581155.81	0.0532	0.0045	
Venus	-19993-04-12 05:31 J		-5580918.33	-5580918.27	-5580918.22	0.0531	0.0509	
Mercury	-19993-11-04 21:50 J		-5580711.71	-5580711.59	-5580711.46	0.0529	0.0039	
Moon	-19989-10-23 10:19 J		-5579263.25	-5579263.07	-5579262.88	0.0496	0.0297	
Earth	-19989-10-23 14:09 J		-5579263.10	-5579262.91	-5579262.71	0.0496	0.0276	*
Venus	-19989-10-24 21:07 J		-5579261.74	-5579261.62	-5579261.49	0.0496	0.0383	
Venus	-19988-06-18 00:43 J		-5579025.68	-5579025.47	-5579025.27	0.0494	0.0005	
Venus	-19987-02-09 06:57 J		-5578789.34	-5578789.21	-5578789.07	0.0494	0.0377	
Mercury	-19986-01-01 01:40 J		-5578463.61	-5578463.43	-5578463.25	0.0498	0.0123	
Venus	-19982-04-23 04:04 J		-5576890.53	-5576890.33	-5576890.13	0.0532	0.0087	
Venus	-19982-12-16 22:19 J		-5576652.70	-5576652.57	-5576652.43	0.0531	0.0388	
Mercury	-19981-08-24 02:09 J		-5576401.53	-5576401.41	-5576401.29	0.0528	0.0179	
Mars	-19981-10-03 08:38 J		-5576361.43	-5576361.14	-5576360.84	0.0528	0.0017	

Mercury	-19981-11-21 07:55 J	-5576312.25	-5576312.17	-5576312.08	0.0527	0.0392
Venus	-19977-06-29 21:36 J	-5574995.64	-5574995.60	-5574995.56	0.0497	0.0484
Earth	-19977-10-27 23:45 J	-5574875.74	-5574875.51	-5574875.28	0.0495	0.0145
Moon	-19977-10-28 03:36 J	-5574875.57	-5574875.35	-5574875.12	0.0495	0.0119 *
Venus	-19976-02-21 01:11 J	-5574759.65	-5574759.45	-5574759.25	0.0495	0.0112
Venus	-19976-10-15 07:11 J	-5574523.37	-5574523.20	-5574523.03	0.0495	0.0273
Mercury	-19975-10-19 22:48 J	-5574153.74	-5574153.55	-5574153.37	0.0498	0.0059
Venus	-19971-12-26 19:11 J	-5572624.88	-5572624.70	-5572624.51	0.0531	0.0218
Venus	-19970-08-21 14:38 J	-5572387.06	-5572386.89	-5572386.71	0.0531	0.0261
Mercury	-19969-06-12 06:28 J	-5572091.33	-5572091.23	-5572091.13	0.0529	0.0319
Mercury	-19969-09-09 12:14 J	-5572002.10	-5572001.99	-5572001.88	0.0527	0.0250
Venus	-19965-10-27 03:50 J	-5570493.52	-5570493.34	-5570493.15	0.0495	0.0216
Venus	-19964-06-20 09:07 J	-5570257.32	-5570257.12	-5570256.93	0.0495	0.0170
Mars	-19963-07-28 17:45 J	-5569853.98	-5569853.76	-5569853.53	0.0498	0.0229
Mercury	-19963-08-07 19:55 J	-5569843.83	-5569843.67	-5569843.50	0.0498	0.0236
Mercury	-19963-11-06 06:00 J	-5569753.29	-5569753.25	-5569753.22	0.0499	0.0489
Venus	-19959-08-31 08:23 J	-5568359.30	-5568359.15	-5568359.00	0.0530	0.0351
Venus	-19958-04-26 04:48 J	-5568121.49	-5568121.30	-5568121.10	0.0532	0.0130
Mercury	-19957-03-31 10:33 J	-5567781.12	-5567781.06	-5567781.00	0.0529	0.0464
Mercury	-19957-06-28 16:19 J	-5567691.95	-5567691.82	-5567691.70	0.0528	0.0105
Venus	-19953-07-02 07:11 J	-5566227.35	-5566227.20	-5566227.04	0.0496	0.0319
Venus	-19952-02-23 11:45 J	-5565991.22	-5565991.01	-5565990.81	0.0494	0.0065
Venus	-19952-10-17 18:57 J	-5565754.79	-5565754.71	-5565754.61	0.0495	0.0445
Mercury	-19951-05-26 17:16 J	-5565533.88	-5565533.78	-5565533.68	0.0497	0.0413
Mercury	-19951-08-25 03:21 J	-5565443.50	-5565443.36	-5565443.22	0.0499	0.0313
Venus	-19947-05-05 22:19 J	-5564093.65	-5564093.57	-5564093.48	0.0530	0.0478
Venus	-19947-12-29 19:55 J	-5563855.87	-5563855.67	-5563855.47	0.0532	0.0005
Venus	-19946-08-24 13:40 J	-5563618.02	-5563617.93	-5563617.83	0.0531	0.0466
Mercury	-19945-04-16 20:38 J	-5563381.77	-5563381.64	-5563381.51	0.0528	0.0034
Mars	-19945-07-12 00:14 J	-5563295.60	-5563295.49	-5563295.37	0.0527	0.0482

Venus	-19941-03-07 10:48 J	-5561961.16	-5561961.05	-5561960.95	0.0496	0.0418
Venus	-19941-10-29 14:09 J	-5561725.12	-5561724.91	-5561724.71	0.0494	0.0042
Venus	-19940-06-22 19:55 J	-5561488.81	-5561488.67	-5561488.52	0.0494	0.0342
Mercury	-19939-06-13 00:28 J	-5561133.66	-5561133.48	-5561133.30	0.0498	0.0133
Moon	-19935-04-28 00:28 J	-5559718.68	-5559718.48	-5559718.27	0.0531	0.0177
Earth	-19935-04-28 01:26 J	-5559718.65	-5559718.44	-5559718.22	0.0531	0.0203 *
Venus	-19935-09-03 11:31 J	-5559590.21	-5559590.02	-5559589.82	0.0532	0.0137
Venus	-19934-04-29 07:11 J	-5559352.35	-5559352.20	-5559352.05	0.0532	0.0343
Mercury	-19933-02-04 01:11 J	-5559071.57	-5559071.45	-5559071.33	0.0529	0.0169
Mercury	-19933-05-03 07:11 J	-5558982.28	-5558982.20	-5558982.12	0.0527	0.0404
Venus	-19929-07-04 16:48 J	-5557459.00	-5557458.80	-5557458.60	0.0495	0.0146
Venus	-19928-02-25 21:50 J	-5557222.77	-5557222.59	-5557222.41	0.0494	0.0238
Mercury	-19927-03-31 21:50 J	-5556823.77	-5556823.59	-5556823.40	0.0498	0.0044
Mars	-19927-05-01 17:02 J	-5556793.04	-5556792.79	-5556792.53	0.0498	0.0072
Earth	-19923-05-03 02:52 J	-5555330.55	-5555330.38	-5555330.20	0.0531	0.0336
Moon	-19923-05-03 06:14 J	-5555330.43	-5555330.24	-5555330.05	0.0531	0.0315 *
Venus	-19923-05-09 03:50 J	-5555324.51	-5555324.34	-5555324.16	0.0531	0.0264
Venus	-19922-01-02 00:00 J	-5555086.68	-5555086.50	-5555086.32	0.0532	0.0217
Mercury	-19922-11-23 05:31 J	-5554761.37	-5554761.27	-5554761.16	0.0529	0.0308
Mercury	-19921-02-20 11:16 J	-5554672.14	-5554672.03	-5554671.92	0.0527	0.0262
Venus	-19917-03-09 17:02 J	-5553192.96	-5553192.79	-5553192.61	0.0495	0.0253
Venus	-19917-10-31 21:50 J	-5552956.79	-5552956.59	-5552956.39	0.0495	0.0132
Mercury	-19915-01-17 18:43 J	-5552513.88	-5552513.72	-5552513.55	0.0498	0.0227
Mercury	-19915-04-18 04:33 J	-5552423.31	-5552423.31	-5552423.30	0.0499	0.0499
Venus	-19911-01-11 18:57 J	-5551058.84	-5551058.71	-5551058.57	0.0530	0.0393
Venus	-19911-09-06 15:50 J	-5550821.04	-5550820.84	-5550820.64	0.0531	0.0086
Mercury	-19910-09-11 09:50 J	-5550451.15	-5550451.09	-5550451.02	0.0529	0.0448
Mercury	-19910-12-09 15:36 J	-5550361.97	-5550361.85	-5550361.73	0.0527	0.0120
Earth	-19906-10-23 19:11 J	-5548947.87	-5548947.70	-5548947.53	0.0496	0.0346
Moon	-19906-10-23 23:02 J	-5548947.69	-5548947.54	-5548947.37	0.0496	0.0368 *

Venus	-19906-11-13 19:40 J	-5548926.82	-5548926.68	-5548926.54	0.0496	0.0355
Venus	-19905-07-07 00:00 J	-5548690.71	-5548690.50	-5548690.30	0.0495	0.0028
Venus	-19904-02-28 06:57 J	-5548454.31	-5548454.21	-5548454.09	0.0495	0.0411
Mercury	-19904-11-05 15:50 J	-5548203.94	-5548203.84	-5548203.73	0.0498	0.0405
Mercury	-19903-02-04 01:55 J	-5548113.55	-5548113.42	-5548113.27	0.0499	0.0323
Venus	-19900-09-16 07:40 J	-5546793.21	-5546793.18	-5546793.14	0.0529	0.0521
Venus	-19899-05-12 05:16 J	-5546555.49	-5546555.28	-5546555.08	0.0531	0.0051
Venus	-19898-01-04 23:02 J	-5546317.65	-5546317.54	-5546317.41	0.0531	0.0423
Mercury	-19898-09-27 19:26 J	-5546051.81	-5546051.69	-5546051.56	0.0528	0.0033
Venus	-19894-07-19 23:16 J	-5544660.61	-5544660.53	-5544660.45	0.0497	0.0455
Moon	-19894-10-28 07:11 J	-5544560.44	-5544560.20	-5544559.96	0.0496	0.0075
Earth	-19894-10-28 10:19 J	-5544560.30	-5544560.07	-5544559.84	0.0496	0.0098 *
Venus	-19893-03-12 02:52 J	-5544424.58	-5544424.38	-5544424.18	0.0495	0.0079
Venus	-19893-11-03 08:52 J	-5544188.29	-5544188.13	-5544187.97	0.0495	0.0307
Mercury	-19892-11-22 23:31 J	-5543803.70	-5543803.52	-5543803.34	0.0498	0.0146
Mars	-19891-02-02 16:48 J	-5543731.97	-5543731.80	-5543731.62	0.0500	0.0368
Venus	-19887-01-14 19:40 J	-5542289.87	-5542289.68	-5542289.49	0.0531	0.0184
Venus	-19887-09-09 15:07 J	-5542052.04	-5542051.87	-5542051.70	0.0532	0.0296
Mercury	-19886-07-16 23:45 J	-5541741.63	-5541741.51	-5541741.39	0.0529	0.0168
Mercury	-19886-10-14 05:45 J	-5541652.34	-5541652.26	-5541652.18	0.0527	0.0404
Venus	-19882-11-16 05:31 J	-5540158.45	-5540158.27	-5540158.07	0.0495	0.0184
Venus	-19881-07-09 10:19 J	-5539922.25	-5539922.07	-5539921.88	0.0494	0.0202
Mercury	-19880-09-10 20:23 J	-5539493.84	-5539493.65	-5539493.46	0.0498	0.0036
Venus	-19876-09-19 10:33 J	-5538024.22	-5538024.06	-5538023.90	0.0531	0.0315
Venus	-19875-05-15 07:26 J	-5537786.38	-5537786.19	-5537786.00	0.0532	0.0167
Mercury	-19874-05-05 04:19 J	-5537431.42	-5537431.32	-5537431.21	0.0529	0.0303
Mercury	-19874-08-02 10:19 J	-5537342.18	-5537342.07	-5537341.96	0.0528	0.0268
Venus	-19870-07-22 08:23 J	-5535892.31	-5535892.15	-5535891.98	0.0495	0.0287
Venus	-19869-03-14 12:28 J	-5535656.18	-5535655.98	-5535655.78	0.0494	0.0097
Venus	-19869-11-05 19:40 J	-5535419.73	-5535419.68	-5535419.62	0.0495	0.0476

Mercury	-19868-06-29 17:45 J	-5535183.93	-5535183.76	-5535183.59	0.0498	0.0213
Venus	-19864-05-25 02:23 J	-5533758.51	-5533758.40	-5533758.28	0.0530	0.0440
Venus	-19863-01-18 00:00 J	-5533520.70	-5533520.50	-5533520.30	0.0532	0.0039
Venus	-19863-09-12 17:31 J	-5533282.83	-5533282.77	-5533282.71	0.0531	0.0504
Mercury	-19862-02-21 08:52 J	-5533121.20	-5533121.13	-5533121.06	0.0529	0.0440
Mars	-19862-03-22 10:19 J	-5533092.29	-5533092.07	-5533091.83	0.0528	0.0337
Mercury	-19862-05-21 14:38 J	-5533032.02	-5533031.89	-5533031.77	0.0527	0.0127
Venus	-19858-03-27 08:23 J	-5531626.27	-5531626.15	-5531626.02	0.0496	0.0392
Venus	-19858-11-18 12:14 J	-5531390.19	-5531389.99	-5531389.78	0.0495	0.0012
Venus	-19857-07-11 18:43 J	-5531153.85	-5531153.72	-5531153.58	0.0495	0.0373
Mercury	-19856-04-17 14:09 J	-5530874.02	-5530873.91	-5530873.80	0.0498	0.0402
Mercury	-19856-07-17 00:14 J	-5530783.62	-5530783.49	-5530783.35	0.0499	0.0327
Earth	-19852-04-27 12:28 J	-5529403.18	-5529402.98	-5529402.78	0.0530	0.0257
Moon	-19852-04-27 15:21 J	-5529403.07	-5529402.86	-5529402.65	0.0530	0.0237 *
Venus	-19852-09-22 15:36 J	-5529255.05	-5529254.85	-5529254.65	0.0531	0.0095
Venus	-19851-05-18 09:50 J	-5529017.22	-5529017.09	-5529016.94	0.0531	0.0382
Mercury	-19850-03-09 18:43 J	-5528721.84	-5528721.72	-5528721.59	0.0528	0.0019
Venus	-19847-11-30 10:48 J	-5527360.07	-5527360.05	-5527360.02	0.0497	0.0492
Venus	-19846-07-24 14:23 J	-5527124.09	-5527123.90	-5527123.70	0.0495	0.0118
Venus	-19845-03-16 20:23 J	-5526887.83	-5526887.65	-5526887.48	0.0495	0.0270
Mars	-19844-01-18 02:38 J	-5526580.49	-5526580.39	-5526580.27	0.0497	0.0444
Mercury	-19844-05-04 21:36 J	-5526473.77	-5526473.60	-5526473.42	0.0499	0.0149
Moon	-19840-05-02 03:36 J	-5525015.55	-5525015.35	-5525015.14	0.0530	0.0227
Earth	-19840-05-02 07:26 J	-5525015.38	-5525015.19	-5525014.98	0.0530	0.0255 *
Venus	-19840-05-28 04:04 J	-5524989.51	-5524989.33	-5524989.15	0.0531	0.0232
Venus	-19839-01-20 23:45 J	-5524751.68	-5524751.51	-5524751.33	0.0531	0.0251
Mercury	-19839-12-26 22:33 J	-5524411.68	-5524411.56	-5524411.44	0.0528	0.0164
Mercury	-19838-03-26 04:33 J	-5524322.39	-5524322.31	-5524322.23	0.0527	0.0407
Venus	-19834-03-29 17:45 J	-5522857.94	-5522857.76	-5522857.58	0.0495	0.0223
Venus	-19834-11-20 22:33 J	-5522621.76	-5522621.56	-5522621.37	0.0495	0.0164

Mercury	-19832-02-20 18:57 J	-5522163.89	-5522163.71	-5522163.52	0.0498	0.0029
Venus	-19828-01-30 18:00 J	-5520723.90	-5520723.75	-5520723.60	0.0530	0.0363
Venus	-19828-09-25 14:52 J	-5520486.08	-5520485.88	-5520485.69	0.0532	0.0118
Mercury	-19827-10-15 02:52 J	-5520101.48	-5520101.38	-5520101.28	0.0529	0.0305
Mars	-19827-12-28 21:50 J	-5520026.87	-5520026.59	-5520026.29	0.0528	0.0128
Mercury	-19826-01-12 08:38 J	-5520012.25	-5520012.14	-5520012.03	0.0527	0.0266
Moon	-19823-10-23 01:11 J	-5518632.57	-5518632.45	-5518632.32	0.0496	0.0421
Earth	-19823-10-23 04:19 J	-5518632.46	-5518632.32	-5518632.17	0.0496	0.0396 *
Venus	-19823-12-02 20:23 J	-5518591.80	-5518591.65	-5518591.49	0.0496	0.0326
Venus	-19822-07-27 00:28 J	-5518355.69	-5518355.48	-5518355.28	0.0494	0.0058
Venus	-19821-03-19 07:11 J	-5518119.29	-5518119.20	-5518119.10	0.0495	0.0440
Mercury	-19821-12-09 15:50 J	-5517854.01	-5517853.84	-5517853.67	0.0498	0.0212
Venus	-19817-10-05 07:55 J	-5516458.24	-5516458.17	-5516458.09	0.0530	0.0491
Venus	-19816-05-31 06:00 J	-5516220.45	-5516220.25	-5516220.05	0.0532	0.0015
Venus	-19815-01-24 00:28 J	-5515982.58	-5515982.48	-5515982.38	0.0531	0.0458
Mercury	-19815-08-03 07:26 J	-5515791.26	-5515791.19	-5515791.12	0.0529	0.0441
Mercury	-19815-10-31 13:11 J	-5515702.08	-5515701.95	-5515701.83	0.0528	0.0128
Venus	-19811-08-07 23:16 J	-5514325.63	-5514325.53	-5514325.43	0.0496	0.0427
Earth	-19811-10-27 17:31 J	-5514245.00	-5514244.77	-5514244.53	0.0496	0.0041
Moon	-19811-10-27 18:57 J	-5514244.94	-5514244.71	-5514244.48	0.0496	0.0028 *
Venus	-19810-04-01 02:38 J	-5514089.59	-5514089.39	-5514089.19	0.0494	0.0048
Venus	-19810-11-23 08:09 J	-5513853.30	-5513853.16	-5513853.00	0.0494	0.0338
Mercury	-19809-09-27 12:57 J	-5513544.08	-5513543.96	-5513543.85	0.0497	0.0392
Mars	-19809-10-21 23:31 J	-5513519.77	-5513519.52	-5513519.28	0.0498	0.0150
Mercury	-19809-12-26 23:02 J	-5513453.68	-5513453.54	-5513453.41	0.0499	0.0335
Venus	-19804-02-02 22:19 J	-5511954.76	-5511954.57	-5511954.37	0.0531	0.0145
Venus	-19804-09-28 17:45 J	-5511716.91	-5511716.76	-5511716.60	0.0531	0.0336
Mercury	-19803-08-19 17:31 J	-5511391.90	-5511391.77	-5511391.64	0.0528	0.0012
Earth	-19799-11-01 02:23 J	-5509857.49	-5509857.40	-5509857.31	0.0495	0.0453
Moon	-19799-11-01 02:23 J	-5509857.45	-5509857.40	-5509857.32	0.0495	0.0479 *

Venus	-19799-12-05 02:09 J	-5509823.60	-5509823.41	-5509823.21	0.0495	0.0158
Venus	-19798-07-29 07:26 J	-5509587.37	-5509587.19	-5509587.01	0.0495	0.0231
Mercury	-19797-10-14 19:26 J	-5509143.87	-5509143.69	-5509143.51	0.0499	0.0146
Venus	-19793-10-08 13:26 J	-5507689.12	-5507688.94	-5507688.77	0.0531	0.0278
Venus	-19792-06-03 09:36 J	-5507451.29	-5507451.10	-5507450.91	0.0531	0.0206
Mercury	-19791-06-07 21:50 J	-5507081.71	-5507081.59	-5507081.47	0.0528	0.0153
Mercury	-19791-09-05 03:36 J	-5506992.43	-5506992.35	-5506992.27	0.0526	0.0416
Venus	-19787-08-10 04:33 J	-5505557.48	-5505557.31	-5505557.13	0.0495	0.0262
Venus	-19786-04-03 09:07 J	-5505321.32	-5505321.12	-5505320.92	0.0495	0.0125
Mercury	-19785-08-02 16:33 J	-5504833.99	-5504833.81	-5504833.62	0.0498	0.0034
Venus	-19781-06-13 01:26 J	-5503423.56	-5503423.44	-5503423.31	0.0530	0.0412
Venus	-19780-02-05 22:33 J	-5503185.76	-5503185.56	-5503185.36	0.0531	0.0069
Mercury	-19779-03-27 01:26 J	-5502771.54	-5502771.44	-5502771.33	0.0528	0.0304
Mercury	-19779-06-24 07:11 J	-5502682.31	-5502682.20	-5502682.09	0.0527	0.0266
Venus	-19775-04-15 07:40 J	-5501291.31	-5501291.18	-5501291.04	0.0496	0.0366
Venus	-19775-12-07 11:45 J	-5501055.22	-5501055.01	-5501054.81	0.0495	0.0020
Venus	-19774-07-31 18:14 J	-5500818.85	-5500818.74	-5500818.62	0.0495	0.0404
Mercury	-19773-05-21 13:55 J	-5500524.09	-5500523.92	-5500523.75	0.0498	0.0211
Mars	-19773-07-25 18:00 J	-5500459.00	-5500458.75	-5500458.50	0.0499	0.0137
Moon	-19769-04-26 08:09 J	-5499088.33	-5499088.16	-5499087.98	0.0530	0.0345
Earth	-19769-04-26 12:00 J	-5499088.17	-5499088.00	-5499087.83	0.0530	0.0358 *
Venus	-19769-10-11 12:43 J	-5498920.18	-5498919.97	-5498919.77	0.0531	0.0068
Venus	-19768-06-06 06:57 J	-5498682.33	-5498682.21	-5498682.08	0.0531	0.0411
Mercury	-19767-01-13 05:45 J	-5498461.33	-5498461.26	-5498461.20	0.0529	0.0446
Mercury	-19767-04-12 11:16 J	-5498372.15	-5498372.03	-5498371.90	0.0528	0.0123
Venus	-19764-12-19 10:19 J	-5497025.13	-5497025.07	-5497025.00	0.0497	0.0466
Venus	-19763-08-12 13:55 J	-5496789.12	-5496788.92	-5496788.72	0.0495	0.0088
Venus	-19762-04-05 19:11 J	-5496552.86	-5496552.70	-5496552.53	0.0494	0.0300
Mercury	-19761-03-09 10:19 J	-5496214.17	-5496214.07	-5496213.95	0.0497	0.0396
Mercury	-19761-06-07 20:38 J	-5496123.78	-5496123.64	-5496123.50	0.0499	0.0330



Earth	-19757-05-01 09:21 J	-5494700.33	-5494700.11	-5494699.89	0.0531	0.0161
Moon	-19757-05-01 13:11 J	-5494700.17	-5494699.95	-5494699.73	0.0531	0.0132 *
Venus	-19757-06-16 02:52 J	-5494654.57	-5494654.38	-5494654.19	0.0531	0.0201
Venus	-19756-02-08 23:02 J	-5494416.71	-5494416.54	-5494416.37	0.0532	0.0284
Mercury	-19755-01-29 15:50 J	-5494061.97	-5494061.84	-5494061.72	0.0528	0.0020
Venus	-19751-04-17 16:04 J	-5492523.01	-5492522.83	-5492522.64	0.0495	0.0195
Venus	-19751-12-09 20:38 J	-5492286.83	-5492286.64	-5492286.45	0.0494	0.0193
Mercury	-19749-03-26 17:45 J	-5491813.94	-5491813.76	-5491813.58	0.0498	0.0151
Venus	-19745-02-19 18:43 J	-5490388.88	-5490388.72	-5490388.56	0.0531	0.0330
Venus	-19745-10-14 15:50 J	-5490151.03	-5490150.84	-5490150.65	0.0532	0.0155
Mercury	-19744-11-17 20:09 J	-5489751.78	-5489751.66	-5489751.53	0.0528	0.0155
Mercury	-19743-02-15 02:09 J	-5489662.49	-5489662.41	-5489662.34	0.0526	0.0415
Earth	-19740-10-22 04:19 J	-5488317.36	-5488317.32	-5488317.26	0.0496	0.0483
Venus	-19740-12-21 15:50 J	-5488257.00	-5488256.84	-5488256.68	0.0496	0.0302
Venus	-19739-08-14 19:55 J	-5488020.87	-5488020.67	-5488020.47	0.0494	0.0084
Venus	-19738-04-08 03:07 J	-5487784.43	-5487784.37	-5487784.30	0.0495	0.0467
Mercury	-19737-01-13 13:55 J	-5487504.11	-5487503.92	-5487503.73	0.0498	0.0041
Mars	-19737-04-28 09:50 J	-5487398.21	-5487398.09	-5487397.94	0.0500	0.0425
Venus	-19734-10-25 09:21 J	-5486123.21	-5486123.11	-5486123.01	0.0530	0.0458
Venus	-19733-06-19 06:57 J	-5485885.41	-5485885.21	-5485885.00	0.0532	0.0024
Venus	-19732-02-12 00:43 J	-5485647.53	-5485647.47	-5485647.39	0.0531	0.0492
Mercury	-19732-09-06 00:28 J	-5485441.58	-5485441.48	-5485441.38	0.0528	0.0295
Mercury	-19732-12-04 06:14 J	-5485352.35	-5485352.24	-5485352.13	0.0527	0.0272
Venus	-19728-08-26 18:00 J	-5483990.86	-5483990.75	-5483990.63	0.0496	0.0406
Earth	-19728-10-26 16:48 J	-5483930.03	-5483929.80	-5483929.56	0.0496	0.0053
Moon	-19728-10-26 17:02 J	-5483930.03	-5483929.79	-5483929.54	0.0496	0.0061 *
Venus	-19727-04-19 21:50 J	-5483754.80	-5483754.59	-5483754.39	0.0495	0.0025
Venus	-19727-12-12 03:50 J	-5483518.47	-5483518.34	-5483518.20	0.0495	0.0364
Mercury	-19726-11-01 11:02 J	-5483194.21	-5483194.04	-5483193.88	0.0498	0.0222
Venus	-19721-02-22 19:26 J	-5481619.89	-5481619.69	-5481619.49	0.0531	0.0118

Venus	-19721-10-17 14:23 J	-5481382.04	-5481381.90	-5481381.75	0.0531	0.0363
Mercury	-19720-06-25 04:04 J	-5481131.39	-5481131.33	-5481131.26	0.0529	0.0448
Mercury	-19720-09-22 09:50 J	-5481042.21	-5481042.09	-5481041.97	0.0527	0.0120
Moon	-19716-10-31 05:02 J	-5479542.41	-5479542.29	-5479542.16	0.0495	0.0413
Earth	-19716-10-31 06:43 J	-5479542.36	-5479542.22	-5479542.07	0.0495	0.0385 *
Venus	-19716-12-24 00:14 J	-5479488.68	-5479488.49	-5479488.29	0.0495	0.0131
Venus	-19715-08-17 05:45 J	-5479252.43	-5479252.26	-5479252.08	0.0495	0.0259
Mercury	-19714-08-20 07:55 J	-5478884.27	-5478884.17	-5478884.05	0.0498	0.0401
Mercury	-19714-11-18 18:14 J	-5478793.87	-5478793.74	-5478793.60	0.0499	0.0328
Venus	-19710-10-28 08:38 J	-5477354.31	-5477354.14	-5477353.96	0.0531	0.0254
Venus	-19709-06-22 05:02 J	-5477116.48	-5477116.29	-5477116.11	0.0532	0.0232
Mars	-19708-06-14 23:45 J	-5476758.76	-5476758.51	-5476758.25	0.0528	0.0258
Mercury	-19708-07-11 13:55 J	-5476732.05	-5476731.92	-5476731.79	0.0528	0.0025
Venus	-19704-08-29 02:52 J	-5475222.56	-5475222.38	-5475222.20	0.0495	0.0236
Venus	-19703-04-22 07:11 J	-5474986.39	-5474986.20	-5474986.00	0.0494	0.0152
Mercury	-19702-09-06 15:07 J	-5474484.05	-5474483.87	-5474483.69	0.0498	0.0143
Venus	-19698-07-02 22:04 J	-5473088.71	-5473088.58	-5473088.44	0.0530	0.0385
Venus	-19697-02-25 19:40 J	-5472850.88	-5472850.68	-5472850.48	0.0532	0.0099
Mercury	-19696-04-29 18:14 J	-5472421.86	-5472421.74	-5472421.62	0.0529	0.0166
Mercury	-19696-07-28 00:00 J	-5472332.58	-5472332.50	-5472332.42	0.0527	0.0405
Venus	-19692-05-04 05:02 J	-5470956.44	-5470956.29	-5470956.14	0.0496	0.0340
Venus	-19692-12-26 08:38 J	-5470720.34	-5470720.14	-5470719.93	0.0494	0.0045
Venus	-19691-08-19 14:52 J	-5470483.97	-5470483.88	-5470483.77	0.0495	0.0430
Mars	-19690-04-13 18:28 J	-5470246.88	-5470246.73	-5470246.56	0.0497	0.0386
Mercury	-19690-06-25 12:00 J	-5470174.19	-5470174.00	-5470173.82	0.0498	0.0040
Venus	-19686-03-07 13:26 J	-5468822.99	-5468822.94	-5468822.88	0.0529	0.0510
Earth	-19686-04-26 14:09 J	-5468773.03	-5468772.91	-5468772.79	0.0530	0.0450
Moon	-19686-04-26 18:00 J	-5468772.87	-5468772.75	-5468772.62	0.0530	0.0438 *
Venus	-19686-10-31 11:45 J	-5468585.21	-5468585.01	-5468584.80	0.0532	0.0034
Venus	-19685-06-25 06:28 J	-5468347.33	-5468347.23	-5468347.11	0.0531	0.0444

Mercury	-19684-02-15 22:48 J	-5468111.66	-5468111.55	-5468111.45	0.0529	0.0302
Mercury	-19684-05-16 04:33 J	-5468022.42	-5468022.31	-5468022.20	0.0527	0.0267
Venus	-19680-01-07 05:02 J	-5466690.37	-5466690.29	-5466690.19	0.0496	0.0446
Venus	-19680-08-31 08:23 J	-5466454.35	-5466454.15	-5466453.95	0.0495	0.0065
Venus	-19679-04-24 13:55 J	-5466218.08	-5466217.92	-5466217.77	0.0495	0.0323
Mercury	-19678-04-13 07:55 J	-5465864.33	-5465864.17	-5465864.01	0.0498	0.0234
Mercury	-19678-07-12 18:00 J	-5465773.78	-5465773.75	-5465773.72	0.0499	0.0492
Moon	-19674-05-01 09:50 J	-5464385.32	-5464385.09	-5464384.85	0.0531	0.0047
Earth	-19674-05-01 13:11 J	-5464385.17	-5464384.95	-5464384.72	0.0531	0.0077 *
Venus	-19674-07-06 02:38 J	-5464319.58	-5464319.39	-5464319.20	0.0531	0.0168
Venus	-19673-02-28 22:33 J	-5464081.72	-5464081.56	-5464081.40	0.0532	0.0317
Mercury	-19673-12-05 02:52 J	-5463801.44	-5463801.38	-5463801.31	0.0529	0.0443
Mercury	-19672-03-04 08:38 J	-5463712.26	-5463712.14	-5463712.02	0.0527	0.0124
Mars	-19672-03-23 22:19 J	-5463692.84	-5463692.57	-5463692.30	0.0527	0.0216
Venus	-19668-05-06 10:04 J	-5462188.26	-5462188.08	-5462187.88	0.0495	0.0173
Venus	-19668-12-28 14:52 J	-5461952.06	-5461951.88	-5461951.69	0.0494	0.0217
Mercury	-19666-01-30 04:48 J	-5461554.40	-5461554.30	-5461554.20	0.0498	0.0416
Mercury	-19666-04-30 15:07 J	-5461464.01	-5461463.87	-5461463.73	0.0499	0.0313
Venus	-19662-03-10 14:38 J	-5460054.05	-5460053.89	-5460053.72	0.0530	0.0306
Venus	-19662-11-03 11:16 J	-5459816.22	-5459816.03	-5459815.84	0.0531	0.0180
Mercury	-19661-12-21 12:14 J	-5459402.12	-5459401.99	-5459401.87	0.0528	0.0032
Venus	-19656-01-09 12:43 J	-5457922.13	-5457921.97	-5457921.80	0.0496	0.0279
Venus	-19656-09-02 17:16 J	-5457685.98	-5457685.78	-5457685.58	0.0495	0.0110
Venus	-19655-04-27 00:28 J	-5457449.49	-5457449.48	-5457449.46	0.0495	0.0493
Mars	-19654-01-15 09:36 J	-5457186.35	-5457186.10	-5457185.85	0.0498	0.0104
Mercury	-19654-02-16 12:28 J	-5457154.16	-5457153.98	-5457153.80	0.0498	0.0136
Venus	-19651-11-13 03:36 J	-5455788.46	-5455788.35	-5455788.23	0.0529	0.0437
Venus	-19650-07-09 00:57 J	-5455550.66	-5455550.46	-5455550.25	0.0531	0.0046
Venus	-19649-03-02 18:43 J	-5455312.76	-5455312.72	-5455312.67	0.0531	0.0515
Mercury	-19649-10-09 16:04 J	-5455091.95	-5455091.83	-5455091.71	0.0528	0.0176

Mercury	-19648-01-06 22:04 J	-5455002.67	-5455002.58	-5455002.50	0.0527	0.0394
Venus	-19645-09-14 15:21 J	-5453655.98	-5453655.86	-5453655.73	0.0496	0.0382
Moon	-19645-10-25 18:28 J	-5453614.95	-5453614.73	-5453614.51	0.0496	0.0133
Earth	-19645-10-25 19:55 J	-5453614.89	-5453614.67	-5453614.43	0.0496	0.0127 *
Venus	-19644-05-08 18:57 J	-5453419.91	-5453419.71	-5453419.50	0.0495	0.0004
Venus	-19644-12-31 00:57 J	-5453183.58	-5453183.46	-5453183.33	0.0495	0.0390
Mercury	-19643-12-05 09:07 J	-5452844.31	-5452844.12	-5452843.94	0.0498	0.0050
Venus	-19638-03-13 14:52 J	-5451285.08	-5451284.88	-5451284.68	0.0531	0.0092
Venus	-19638-11-06 10:19 J	-5451047.20	-5451047.07	-5451046.93	0.0532	0.0391
Mercury	-19637-07-28 20:23 J	-5450781.75	-5450781.65	-5450781.55	0.0529	0.0317
Mercury	-19637-10-26 02:09 J	-5450692.52	-5450692.41	-5450692.30	0.0527	0.0252
Venus	-19633-05-20 17:31 J	-5449389.81	-5449389.77	-5449389.72	0.0497	0.0483
Earth	-19633-10-30 08:23 J	-5449227.33	-5449227.15	-5449226.96	0.0495	0.0303
Moon	-19633-10-30 11:16 J	-5449227.20	-5449227.03	-5449226.84	0.0495	0.0333 *
Venus	-19632-01-11 20:38 J	-5449153.84	-5449153.64	-5449153.44	0.0495	0.0105
Venus	-19632-09-05 01:40 J	-5448917.59	-5448917.43	-5448917.26	0.0494	0.0284
Mercury	-19631-09-23 05:45 J	-5448534.42	-5448534.26	-5448534.10	0.0498	0.0234
Mercury	-19631-12-22 15:36 J	-5448443.88	-5448443.85	-5448443.81	0.0499	0.0490
Venus	-19627-11-16 06:14 J	-5447019.42	-5447019.24	-5447019.05	0.0531	0.0224
Venus	-19626-07-12 03:07 J	-5446781.55	-5446781.37	-5446781.20	0.0532	0.0264
Mercury	-19625-05-17 00:57 J	-5446471.52	-5446471.46	-5446471.40	0.0529	0.0453
Mercury	-19625-08-14 06:43 J	-5446382.35	-5446382.22	-5446382.10	0.0528	0.0115
Venus	-19621-09-16 20:52 J	-5444887.81	-5444887.63	-5444887.44	0.0495	0.0215
Venus	-19620-05-11 00:57 J	-5444651.65	-5444651.46	-5444651.27	0.0494	0.0175
Mercury	-19619-07-12 01:26 J	-5444224.53	-5444224.44	-5444224.34	0.0497	0.0430
Mercury	-19619-10-10 11:45 J	-5444134.15	-5444134.01	-5444133.86	0.0499	0.0298
Mars	-19619-10-18 21:07 J	-5444125.86	-5444125.62	-5444125.38	0.0499	0.0174
Venus	-19615-07-21 20:38 J	-5442753.78	-5442753.64	-5442753.49	0.0530	0.0357
Venus	-19614-03-16 18:28 J	-5442515.92	-5442515.73	-5442515.53	0.0532	0.0130
Mercury	-19613-06-02 10:48 J	-5442072.17	-5442072.05	-5442071.92	0.0528	0.0030

Venus	-19609-05-22 22:48 J	-5440621.70	-5440621.55	-5440621.39	0.0496	0.0321
Venus	-19608-01-14 02:23 J	-5440385.60	-5440385.40	-5440385.19	0.0494	0.0067
Venus	-19608-09-07 09:07 J	-5440149.20	-5440149.12	-5440149.04	0.0495	0.0452
Mercury	-19607-07-29 09:07 J	-5439824.30	-5439824.12	-5439823.94	0.0499	0.0119
Venus	-19603-03-26 08:52 J	-5438488.20	-5438488.13	-5438488.05	0.0529	0.0489
Venus	-19603-11-19 06:43 J	-5438250.42	-5438250.22	-5438250.02	0.0531	0.0010
Venus	-19602-07-15 00:57 J	-5438012.55	-5438012.46	-5438012.36	0.0531	0.0467
Mercury	-19601-03-21 14:23 J	-5437762.02	-5437761.90	-5437761.78	0.0528	0.0182
Mercury	-19601-06-18 20:09 J	-5437672.74	-5437672.66	-5437672.57	0.0527	0.0387
Venus	-19597-01-27 01:26 J	-5436355.54	-5436355.44	-5436355.34	0.0497	0.0425
Venus	-19597-09-19 05:02 J	-5436119.50	-5436119.29	-5436119.09	0.0495	0.0042
Venus	-19596-05-13 10:33 J	-5435883.20	-5435883.06	-5435882.91	0.0495	0.0349
Mercury	-19595-05-17 06:14 J	-5435514.42	-5435514.24	-5435514.05	0.0498	0.0059
Earth	-19591-04-30 06:43 J	-5434070.44	-5434070.22	-5434069.99	0.0530	0.0052
Moon	-19591-04-30 08:52 J	-5434070.34	-5434070.13	-5434069.90	0.0530	0.0079 *
Venus	-19591-07-24 19:55 J	-5433984.86	-5433984.67	-5433984.47	0.0531	0.0148
Venus	-19590-03-19 15:36 J	-5433747.00	-5433746.85	-5433746.69	0.0531	0.0339
Mercury	-19589-01-08 18:28 J	-5433451.83	-5433451.73	-5433451.64	0.0529	0.0328
Mercury	-19589-04-07 00:00 J	-5433362.61	-5433362.50	-5433362.38	0.0527	0.0242
Venus	-19585-05-25 06:57 J	-5431853.40	-5431853.21	-5431853.01	0.0495	0.0148
Venus	-19584-01-16 11:45 J	-5431617.19	-5431617.01	-5431616.83	0.0494	0.0243
Mercury	-19583-03-05 02:52 J	-5431204.54	-5431204.38	-5431204.22	0.0497	0.0245
Mercury	-19583-06-03 12:43 J	-5431114.01	-5431113.97	-5431113.92	0.0499	0.0480
Mars	-19583-07-22 18:14 J	-5431064.82	-5431064.74	-5431064.65	0.0500	0.0470
Venus	-19579-03-29 09:07 J	-5429719.29	-5429719.12	-5429718.94	0.0530	0.0282
Moon	-19579-05-05 02:52 J	-5429682.51	-5429682.38	-5429682.26	0.0531	0.0449
Earth	-19579-05-05 02:38 J	-5429682.50	-5429682.39	-5429682.27	0.0531	0.0460 *
Venus	-19579-11-22 06:14 J	-5429481.43	-5429481.24	-5429481.06	0.0532	0.0207
Mercury	-19578-10-27 22:33 J	-5429141.61	-5429141.56	-5429141.50	0.0529	0.0470
Mercury	-19577-01-25 04:19 J	-5429052.45	-5429052.32	-5429052.20	0.0528	0.0098

Venus	-19573-01-29 09:07 J	-5427587.30	-5427587.12	-5427586.95	0.0496	0.0255
Venus	-19573-09-21 12:57 J	-5427351.15	-5427350.96	-5427350.76	0.0494	0.0135
Mercury	-19572-12-21 23:16 J	-5426894.61	-5426894.53	-5426894.43	0.0497	0.0430
Mercury	-19571-03-22 09:36 J	-5426804.24	-5426804.10	-5426803.95	0.0499	0.0297
Venus	-19568-12-01 23:45 J	-5425453.63	-5425453.51	-5425453.38	0.0530	0.0413
Venus	-19567-07-27 22:04 J	-5425215.78	-5425215.58	-5425215.38	0.0532	0.0074
Mercury	-19566-11-13 08:52 J	-5424742.26	-5424742.13	-5424742.01	0.0528	0.0039
Venus	-19562-10-04 09:50 J	-5423321.22	-5423321.09	-5423320.95	0.0496	0.0362
Earth	-19562-10-25 18:00 J	-5423299.96	-5423299.75	-5423299.54	0.0496	0.0219
Moon	-19562-10-25 20:52 J	-5423299.85	-5423299.63	-5423299.41	0.0496	0.0220 *
Venus	-19561-05-27 12:57 J	-5423085.17	-5423084.96	-5423084.76	0.0494	0.0024
Venus	-19560-01-18 18:28 J	-5422848.84	-5422848.73	-5422848.61	0.0494	0.0411
Mercury	-19559-01-08 05:45 J	-5422494.44	-5422494.26	-5422494.08	0.0498	0.0104
Venus	-19555-04-01 13:11 J	-5420950.16	-5420949.95	-5420949.75	0.0532	0.0063
Venus	-19555-11-25 08:38 J	-5420712.26	-5420712.14	-5420712.02	0.0532	0.0421
Mercury	-19554-09-01 13:11 J	-5420432.07	-5420431.95	-5420431.83	0.0528	0.0180
Mars	-19554-09-08 11:31 J	-5420425.30	-5420425.02	-5420424.74	0.0528	0.0183
Mercury	-19554-11-29 18:57 J	-5420342.80	-5420342.71	-5420342.63	0.0527	0.0390
Venus	-19550-06-09 12:00 J	-5419055.07	-5419055.00	-5419054.93	0.0497	0.0465
Moon	-19550-10-30 02:23 J	-5418912.60	-5418912.40	-5418912.19	0.0495	0.0236
Earth	-19550-10-30 06:00 J	-5418912.46	-5418912.25	-5418912.03	0.0495	0.0208 *
Venus	-19549-01-31 14:52 J	-5418819.09	-5418818.88	-5418818.68	0.0495	0.0085
Venus	-19549-09-23 19:40 J	-5418582.83	-5418582.68	-5418582.51	0.0494	0.0307
Mercury	-19548-10-27 02:52 J	-5418184.56	-5418184.38	-5418184.20	0.0498	0.0076
Venus	-19544-12-05 01:11 J	-5416684.64	-5416684.45	-5416684.26	0.0531	0.0202
Venus	-19543-07-30 21:21 J	-5416446.78	-5416446.61	-5416446.44	0.0531	0.0287
Mercury	-19542-06-20 16:33 J	-5416121.90	-5416121.81	-5416121.71	0.0529	0.0334
Mercury	-19542-09-17 22:19 J	-5416032.68	-5416032.57	-5416032.46	0.0527	0.0234
Venus	-19538-10-06 17:02 J	-5414552.97	-5414552.79	-5414552.60	0.0495	0.0192
Venus	-19537-05-29 21:36 J	-5414316.78	-5414316.60	-5414316.41	0.0495	0.0200

Mars	-19536-07-06 23:45 J	-5413913.69	-5413913.51	-5413913.32	0.0497	0.0343
Mercury	-19536-08-15 00:00 J	-5413874.65	-5413874.50	-5413874.33	0.0498	0.0253
Mercury	-19536-11-13 10:19 J	-5413784.13	-5413784.07	-5413784.02	0.0499	0.0473
Venus	-19532-08-09 14:23 J	-5412419.05	-5412418.90	-5412418.74	0.0530	0.0337
Venus	-19531-04-04 11:31 J	-5412181.21	-5412181.02	-5412180.82	0.0531	0.0152
Mercury	-19530-04-08 20:38 J	-5411811.69	-5411811.64	-5411811.59	0.0529	0.0479
Mercury	-19530-07-07 02:09 J	-5411722.53	-5411722.41	-5411722.28	0.0528	0.0089
Venus	-19526-06-11 19:26 J	-5410286.85	-5410286.69	-5410286.52	0.0496	0.0298
Venus	-19525-02-02 23:16 J	-5410050.73	-5410050.53	-5410050.33	0.0494	0.0093
Venus	-19525-09-26 06:00 J	-5409814.30	-5409814.25	-5409814.20	0.0495	0.0477
Mercury	-19524-06-02 20:38 J	-5409564.72	-5409564.64	-5409564.55	0.0497	0.0438
Mercury	-19524-09-01 06:57 J	-5409474.36	-5409474.21	-5409474.06	0.0498	0.0289
Venus	-19520-04-14 03:07 J	-5408153.46	-5408153.37	-5408153.27	0.0529	0.0467
Venus	-19520-12-08 01:11 J	-5407915.65	-5407915.45	-5407915.25	0.0532	0.0015
Venus	-19519-08-02 19:55 J	-5407677.74	-5407677.67	-5407677.60	0.0531	0.0492
Mercury	-19518-04-25 06:28 J	-5407412.36	-5407412.23	-5407412.11	0.0528	0.0057
Mars	-19518-06-16 10:33 J	-5407360.31	-5407360.06	-5407359.80	0.0527	0.0260
Mercury	-19518-07-23 12:14 J	-5407323.01	-5407322.99	-5407322.96	0.0527	0.0515
Venus	-19514-02-14 21:50 J	-5406020.70	-5406020.59	-5406020.47	0.0497	0.0402
Venus	-19514-10-09 01:11 J	-5405784.66	-5405784.45	-5405784.25	0.0495	0.0018
Venus	-19513-06-01 06:28 J	-5405548.36	-5405548.23	-5405548.09	0.0494	0.0373
Mercury	-19512-06-20 03:50 J	-5405164.52	-5405164.34	-5405164.16	0.0498	0.0105
Moon	-19508-04-29 03:50 J	-5403755.56	-5403755.34	-5403755.11	0.0530	0.0190
Earth	-19508-04-29 04:33 J	-5403755.53	-5403755.31	-5403755.09	0.0530	0.0162 *
Venus	-19508-08-12 16:19 J	-5403650.02	-5403649.82	-5403649.62	0.0531	0.0120
Venus	-19507-04-07 12:43 J	-5403412.11	-5403411.97	-5403411.82	0.0532	0.0368
Mercury	-19506-02-11 11:02 J	-5403102.16	-5403102.04	-5403101.93	0.0529	0.0192
Mercury	-19506-05-11 16:48 J	-5403012.89	-5403012.80	-5403012.71	0.0527	0.0378
Venus	-19502-06-14 01:55 J	-5401518.62	-5401518.42	-5401518.23	0.0495	0.0127
Venus	-19501-02-05 06:00 J	-5401282.42	-5401282.25	-5401282.07	0.0494	0.0265

Mercury	-19500-04-07 23:45 J	-5400854.69	-5400854.51	-5400854.32	0.0498	0.0088
Mars	-19500-04-09 09:50 J	-5400853.34	-5400853.09	-5400852.83	0.0498	0.0068
Venus	-19496-04-17 07:11 J	-5399384.38	-5399384.20	-5399384.02	0.0531	0.0255
Moon	-19496-05-04 01:40 J	-5399367.59	-5399367.43	-5399367.26	0.0531	0.0363
Earth	-19496-05-04 03:36 J	-5399367.51	-5399367.35	-5399367.18	0.0531	0.0365 *
Venus	-19496-12-11 04:19 J	-5399146.49	-5399146.32	-5399146.13	0.0532	0.0238
Mercury	-19495-11-30 15:21 J	-5398791.96	-5398791.86	-5398791.76	0.0529	0.0330
Mercury	-19494-02-27 21:07 J	-5398702.74	-5398702.62	-5398702.51	0.0527	0.0238
Venus	-19490-02-17 04:04 J	-5397252.51	-5397252.33	-5397252.15	0.0495	0.0234
Venus	-19490-10-11 07:40 J	-5397016.37	-5397016.18	-5397015.98	0.0494	0.0158
Mercury	-19488-01-24 20:52 J	-5396544.79	-5396544.63	-5396544.47	0.0498	0.0267
Mercury	-19488-04-25 06:57 J	-5396454.28	-5396454.21	-5396454.14	0.0499	0.0459
Venus	-19485-12-20 19:40 J	-5395118.81	-5395118.68	-5395118.54	0.0530	0.0390
Venus	-19484-08-15 17:16 J	-5394880.98	-5394880.78	-5394880.58	0.0531	0.0098
Mercury	-19483-09-18 18:57 J	-5394481.76	-5394481.71	-5394481.66	0.0529	0.0484
Mercury	-19483-12-17 00:28 J	-5394392.60	-5394392.48	-5394392.35	0.0528	0.0083
Venus	-19479-10-23 06:00 J	-5392986.39	-5392986.25	-5392986.10	0.0496	0.0341
Moon	-19479-10-24 15:36 J	-5392985.03	-5392984.85	-5392984.66	0.0496	0.0301
Earth	-19479-10-24 19:11 J	-5392984.89	-5392984.70	-5392984.51	0.0496	0.0300 *
Venus	-19478-06-16 09:50 J	-5392750.30	-5392750.09	-5392749.89	0.0495	0.0050
Venus	-19477-02-07 16:04 J	-5392513.92	-5392513.83	-5392513.74	0.0495	0.0437
Mercury	-19477-11-12 18:00 J	-5392234.82	-5392234.75	-5392234.66	0.0497	0.0444
Mercury	-19476-02-11 04:33 J	-5392144.46	-5392144.31	-5392144.16	0.0499	0.0285
Venus	-19473-08-25 09:21 J	-5390853.15	-5390853.11	-5390853.07	0.0528	0.0518
Venus	-19472-04-20 07:11 J	-5390615.40	-5390615.20	-5390615.00	0.0531	0.0040
Venus	-19472-12-14 02:09 J	-5390377.52	-5390377.41	-5390377.30	0.0531	0.0442
Mercury	-19471-10-05 04:33 J	-5390082.44	-5390082.31	-5390082.18	0.0528	0.0063
Mercury	-19470-01-02 10:19 J	-5389993.10	-5389993.07	-5389993.03	0.0526	0.0506
Venus	-19467-06-28 08:23 J	-5388720.23	-5388720.15	-5388720.05	0.0497	0.0444
Earth	-19467-10-29 08:23 J	-5388597.38	-5388597.15	-5388596.92	0.0496	0.0131



Moon	-19467-10-29 12:00 J	-5388597.22	-5388597.00	-5388596.77	0.0496	0.0163 *
Venus	-19466-02-19 12:00 J	-5388484.20	-5388484.00	-5388483.80	0.0495	0.0059
Venus	-19466-10-13 17:02 J	-5388247.93	-5388247.79	-5388247.63	0.0494	0.0334
Mercury	-19465-11-30 01:26 J	-5387834.62	-5387834.44	-5387834.26	0.0498	0.0102
Mars	-19464-01-11 07:55 J	-5387792.39	-5387792.17	-5387791.94	0.0499	0.0228
Venus	-19461-12-23 20:09 J	-5386349.85	-5386349.66	-5386349.46	0.0531	0.0177
Venus	-19460-08-18 16:33 J	-5386111.97	-5386111.81	-5386111.64	0.0532	0.0313
Mercury	-19459-07-24 08:38 J	-5385772.25	-5385772.14	-5385772.02	0.0529	0.0207
Mercury	-19459-10-21 14:38 J	-5385682.99	-5385682.89	-5385682.80	0.0527	0.0364
Venus	-19455-10-25 14:09 J	-5384218.10	-5384217.91	-5384217.72	0.0495	0.0166
Venus	-19454-06-18 18:28 J	-5383981.91	-5383981.73	-5383981.55	0.0494	0.0226
Mercury	-19453-09-17 22:04 J	-5383524.76	-5383524.58	-5383524.39	0.0498	0.0083
Venus	-19449-08-28 11:02 J	-5382084.21	-5382084.04	-5382083.88	0.0530	0.0310
Venus	-19448-04-23 08:38 J	-5381846.33	-5381846.14	-5381845.95	0.0532	0.0182
Mercury	-19447-05-12 13:11 J	-5381462.04	-5381461.95	-5381461.85	0.0529	0.0342
Mercury	-19447-08-09 18:57 J	-5381372.82	-5381372.71	-5381372.59	0.0528	0.0228
Venus	-19443-06-30 15:50 J	-5379952.01	-5379951.84	-5379951.67	0.0496	0.0275
Venus	-19442-02-21 18:57 J	-5379715.91	-5379715.71	-5379715.51	0.0494	0.0116
Mercury	-19441-07-06 18:14 J	-5379214.89	-5379214.74	-5379214.58	0.0497	0.0274
Mercury	-19441-10-05 04:19 J	-5379124.39	-5379124.32	-5379124.24	0.0499	0.0451
Venus	-19437-05-03 01:26 J	-5377818.55	-5377818.44	-5377818.32	0.0530	0.0441
Venus	-19437-12-27 00:00 J	-5377580.70	-5377580.50	-5377580.30	0.0532	0.0046
Venus	-19436-08-21 18:57 J	-5377342.74	-5377342.71	-5377342.67	0.0532	0.0522
Mercury	-19435-02-28 17:45 J	-5377151.81	-5377151.76	-5377151.71	0.0529	0.0479
Mercury	-19435-05-28 23:31 J	-5377062.65	-5377062.52	-5377062.40	0.0528	0.0090
Venus	-19431-03-05 18:14 J	-5375685.87	-5375685.74	-5375685.61	0.0496	0.0379
Venus	-19431-10-27 21:07 J	-5375449.82	-5375449.62	-5375449.41	0.0494	0.0011
Venus	-19430-06-21 02:23 J	-5375213.52	-5375213.40	-5375213.28	0.0494	0.0397
Mercury	-19429-04-24 15:21 J	-5374904.93	-5374904.86	-5374904.78	0.0497	0.0452
Mercury	-19429-07-24 01:40 J	-5374814.58	-5374814.43	-5374814.27	0.0499	0.0276

Moon	-19425-04-28 02:38 J	-5373440.57	-5373440.39	-5373440.20	0.0530	0.0292
Earth	-19425-04-28 03:50 J	-5373440.53	-5373440.34	-5373440.13	0.0530	0.0261 *
Venus	-19425-08-31 13:11 J	-5373315.15	-5373314.95	-5373314.75	0.0531	0.0094
Venus	-19424-04-26 08:52 J	-5373077.26	-5373077.13	-5373076.99	0.0531	0.0393
Mercury	-19423-03-17 02:52 J	-5372752.50	-5372752.38	-5372752.25	0.0528	0.0067
Mercury	-19423-06-14 08:52 J	-5372663.17	-5372663.13	-5372663.10	0.0526	0.0504
Venus	-19420-11-08 19:55 J	-5371419.72	-5371419.67	-5371419.63	0.0498	0.0484
Venus	-19419-07-02 23:02 J	-5371183.74	-5371183.54	-5371183.34	0.0495	0.0101
Venus	-19418-02-24 04:04 J	-5370947.49	-5370947.33	-5370947.16	0.0495	0.0292
Mercury	-19417-05-11 23:16 J	-5370504.71	-5370504.53	-5370504.34	0.0498	0.0103
Earth	-19413-05-03 01:26 J	-5369052.64	-5369052.44	-5369052.24	0.0530	0.0255
Moon	-19413-05-03 04:33 J	-5369052.51	-5369052.31	-5369052.10	0.0530	0.0257 *
Venus	-19413-05-06 03:07 J	-5369049.55	-5369049.37	-5369049.18	0.0530	0.0229
Venus	-19413-12-29 23:31 J	-5368811.69	-5368811.52	-5368811.34	0.0531	0.0262
Mercury	-19411-01-03 06:57 J	-5368442.32	-5368442.21	-5368442.09	0.0528	0.0210
Mercury	-19411-04-02 12:43 J	-5368353.06	-5368352.97	-5368352.87	0.0527	0.0359
Venus	-19407-03-08 01:40 J	-5366917.61	-5366917.43	-5366917.24	0.0496	0.0208
Venus	-19407-10-30 06:00 J	-5366681.44	-5366681.25	-5366681.06	0.0495	0.0186
Mercury	-19405-02-28 20:09 J	-5366194.84	-5366194.66	-5366194.47	0.0498	0.0081
Venus	-19401-01-09 16:04 J	-5364783.98	-5364783.83	-5364783.68	0.0530	0.0363
Venus	-19401-09-03 13:40 J	-5364546.13	-5364545.93	-5364545.74	0.0532	0.0126
Mercury	-19400-10-22 11:16 J	-5364132.12	-5364132.03	-5364131.94	0.0529	0.0353
Mars	-19400-12-01 04:33 J	-5364092.60	-5364092.31	-5364092.02	0.0528	0.0129
Mercury	-19399-01-19 17:02 J	-5364042.91	-5364042.79	-5364042.68	0.0528	0.0216
Earth	-19396-10-23 23:31 J	-5362669.67	-5362669.52	-5362669.35	0.0497	0.0370
Moon	-19396-10-24 03:21 J	-5362669.52	-5362669.36	-5362669.19	0.0497	0.0357 *
Venus	-19396-11-11 04:19 J	-5362651.48	-5362651.32	-5362651.16	0.0496	0.0314
Venus	-19395-07-05 07:55 J	-5362415.37	-5362415.17	-5362414.97	0.0495	0.0078
Venus	-19394-02-26 13:55 J	-5362178.99	-5362178.92	-5362178.85	0.0495	0.0464
Mercury	-19394-12-17 16:48 J	-5361884.95	-5361884.80	-5361884.64	0.0497	0.0264

Mercury	-19393-03-17 02:52 J	-5361794.44	-5361794.38	-5361794.30	0.0499	0.0461
Venus	-19390-09-14 06:28 J	-5360518.30	-5360518.23	-5360518.15	0.0529	0.0492
Venus	-19389-05-09 05:02 J	-5360280.50	-5360280.29	-5360280.09	0.0532	0.0014
Venus	-19388-01-02 00:28 J	-5360042.57	-5360042.48	-5360042.39	0.0532	0.0473
Mercury	-19388-08-10 15:50 J	-5359821.89	-5359821.84	-5359821.79	0.0530	0.0487
Mercury	-19388-11-07 21:36 J	-5359732.73	-5359732.60	-5359732.48	0.0528	0.0082
Venus	-19384-07-17 06:28 J	-5358385.33	-5358385.23	-5358385.11	0.0497	0.0419
Moon	-19384-10-28 09:07 J	-5358282.36	-5358282.12	-5358281.88	0.0496	0.0090
Earth	-19384-10-28 12:14 J	-5358282.23	-5358281.99	-5358281.76	0.0496	0.0061 *
Venus	-19383-03-10 09:21 J	-5358149.31	-5358149.11	-5358148.90	0.0495	0.0034
Venus	-19383-11-01 14:09 J	-5357913.05	-5357912.91	-5357912.77	0.0494	0.0358
Mars	-19382-09-30 10:04 J	-5357580.28	-5357580.08	-5357579.87	0.0497	0.0290
Mercury	-19382-10-05 13:11 J	-5357575.02	-5357574.95	-5357574.88	0.0497	0.0453
Mercury	-19381-01-03 23:31 J	-5357484.67	-5357484.52	-5357484.36	0.0498	0.0274
Venus	-19377-01-12 20:09 J	-5356014.86	-5356014.66	-5356014.46	0.0531	0.0145
Venus	-19377-09-06 16:48 J	-5355776.94	-5355776.80	-5355776.64	0.0532	0.0346
Mercury	-19376-08-27 01:55 J	-5355422.54	-5355422.42	-5355422.29	0.0528	0.0058
Mercury	-19376-11-24 07:55 J	-5355333.20	-5355333.17	-5355333.15	0.0527	0.0514
Earth	-19372-11-02 00:57 J	-5353894.48	-5353894.46	-5353894.42	0.0495	0.0491
Moon	-19372-11-02 02:52 J	-5353894.40	-5353894.38	-5353894.34	0.0495	0.0489
Venus	-19372-11-13 12:00 J	-5353883.20	-5353883.00	-5353882.81	0.0495	0.0141
Venus	-19371-07-07 16:04 J	-5353647.01	-5353646.83	-5353646.65	0.0494	0.0252
Mercury	-19370-10-22 20:52 J	-5353174.81	-5353174.63	-5353174.44	0.0498	0.0100
Venus	-19366-09-17 09:50 J	-5351749.25	-5351749.09	-5351748.91	0.0530	0.0281
Venus	-19365-05-12 06:57 J	-5351511.40	-5351511.21	-5351511.02	0.0531	0.0211
Mercury	-19364-06-15 05:45 J	-5351112.38	-5351112.26	-5351112.15	0.0528	0.0208
Mars	-19364-09-08 22:19 J	-5351026.79	-5351026.57	-5351026.34	0.0527	0.0341
Mercury	-19364-09-12 11:31 J	-5351023.11	-5351023.02	-5351022.93	0.0527	0.0360
Venus	-19360-07-19 13:26 J	-5349617.11	-5349616.94	-5349616.76	0.0496	0.0250
Venus	-19359-03-12 17:45 J	-5349380.95	-5349380.76	-5349380.56	0.0495	0.0145

Mercury	-19358-08-10 18:28 J	-5348864.91	-5348864.73	-5348864.54	0.0498	0.0076
Venus	-19354-05-23 00:14 J	-5347483.61	-5347483.49	-5347483.36	0.0529	0.0412
Venus	-19353-01-15 21:36 J	-5347245.80	-5347245.60	-5347245.40	0.0531	0.0076
Mercury	-19352-04-03 09:50 J	-5346802.18	-5346802.09	-5346802.00	0.0529	0.0351
Mercury	-19352-07-01 15:36 J	-5346712.97	-5346712.85	-5346712.74	0.0527	0.0217
Venus	-19348-03-24 16:19 J	-5345350.96	-5345350.82	-5345350.67	0.0497	0.0354
Venus	-19348-11-15 20:09 J	-5345114.87	-5345114.66	-5345114.46	0.0495	0.0037
Venus	-19347-07-10 01:55 J	-5344878.51	-5344878.42	-5344878.31	0.0495	0.0428
Mercury	-19346-05-29 15:36 J	-5344555.01	-5344554.85	-5344554.70	0.0498	0.0257
Mars	-19346-07-04 09:21 J	-5344519.37	-5344519.11	-5344518.85	0.0498	0.0006
Mercury	-19346-08-28 01:26 J	-5344464.49	-5344464.44	-5344464.37	0.0499	0.0469
Earth	-19342-04-28 04:48 J	-5343125.47	-5343125.30	-5343125.13	0.0529	0.0357
Moon	-19342-04-28 07:26 J	-5343125.34	-5343125.19	-5343125.02	0.0529	0.0388 *
Venus	-19342-09-20 11:16 J	-5342980.23	-5342980.03	-5342979.83	0.0531	0.0062
Venus	-19341-05-15 06:43 J	-5342742.34	-5342742.22	-5342742.10	0.0531	0.0423
Mercury	-19340-01-20 14:09 J	-5342491.96	-5342491.91	-5342491.87	0.0529	0.0494
Mercury	-19340-04-19 19:40 J	-5342402.80	-5342402.68	-5342402.55	0.0528	0.0074
Venus	-19337-11-27 19:11 J	-5341084.77	-5341084.70	-5341084.62	0.0498	0.0457
Venus	-19336-07-21 22:33 J	-5340848.76	-5340848.56	-5340848.35	0.0495	0.0072
Venus	-19335-03-15 03:36 J	-5340612.50	-5340612.35	-5340612.19	0.0494	0.0322
Mercury	-19334-03-17 12:14 J	-5340245.07	-5340244.99	-5340244.90	0.0497	0.0439
Mercury	-19334-06-15 22:48 J	-5340154.70	-5340154.55	-5340154.40	0.0498	0.0289
Moon	-19330-05-02 23:45 J	-5338737.72	-5338737.51	-5338737.29	0.0530	0.0163
Earth	-19330-05-03 03:36 J	-5338737.57	-5338737.35	-5338737.13	0.0530	0.0163 *
Venus	-19330-05-26 01:55 J	-5338714.60	-5338714.42	-5338714.23	0.0531	0.0199
Venus	-19329-01-18 22:48 J	-5338476.71	-5338476.55	-5338476.38	0.0532	0.0295
Mercury	-19328-02-06 00:14 J	-5338092.61	-5338092.49	-5338092.36	0.0529	0.0062
Mercury	-19328-05-06 06:14 J	-5338003.27	-5338003.24	-5338003.21	0.0527	0.0509
Venus	-19324-03-27 00:57 J	-5336582.65	-5336582.46	-5336582.27	0.0495	0.0180
Venus	-19324-11-18 04:48 J	-5336346.48	-5336346.30	-5336346.11	0.0494	0.0214

Mercury	-19322-04-03 19:11 J	-5335844.88	-5335844.70	-5335844.51	0.0498	0.0104
Venus	-19318-01-28 17:16 J	-5334448.94	-5334448.78	-5334448.62	0.0530	0.0331
Venus	-19318-09-23 15:07 J	-5334211.06	-5334210.87	-5334210.67	0.0532	0.0162
Mercury	-19317-11-25 04:48 J	-5333782.41	-5333782.30	-5333782.18	0.0529	0.0197
Mercury	-19316-02-22 10:33 J	-5333693.14	-5333693.06	-5333692.97	0.0527	0.0374
Moon	-19313-10-23 03:21 J	-5332354.48	-5332354.36	-5332354.22	0.0496	0.0410
Earth	-19313-10-23 06:43 J	-5332354.34	-5332354.22	-5332354.10	0.0496	0.0428 *
Venus	-19313-11-30 03:50 J	-5332316.51	-5332316.34	-5332316.18	0.0496	0.0286
Venus	-19312-07-24 07:11 J	-5332080.40	-5332080.20	-5332080.00	0.0494	0.0107
Venus	-19311-03-17 13:11 J	-5331843.96	-5331843.95	-5331843.93	0.0495	0.0492
Mercury	-19310-01-20 16:48 J	-5331534.99	-5331534.80	-5331534.62	0.0498	0.0072
Mars	-19310-04-07 04:48 J	-5331458.50	-5331458.30	-5331458.09	0.0499	0.0300
Venus	-19307-10-03 07:40 J	-5330183.27	-5330183.18	-5330183.08	0.0529	0.0461
Venus	-19306-05-29 05:31 J	-5329945.47	-5329945.27	-5329945.07	0.0531	0.0025
Venus	-19305-01-22 00:00 J	-5329707.55	-5329707.50	-5329707.43	0.0531	0.0504
Mercury	-19305-09-13 08:38 J	-5329472.23	-5329472.14	-5329472.04	0.0529	0.0345
Mercury	-19305-12-11 14:23 J	-5329383.02	-5329382.90	-5329382.79	0.0527	0.0222
Venus	-19301-08-05 05:02 J	-5328050.41	-5328050.29	-5328050.17	0.0497	0.0393
Earth	-19301-10-27 17:31 J	-5327967.01	-5327966.77	-5327966.53	0.0496	0.0006
Moon	-19301-10-27 19:26 J	-5327966.92	-5327966.69	-5327966.46	0.0496	0.0023 *
Venus	-19300-03-29 08:38 J	-5327814.34	-5327814.14	-5327813.93	0.0495	0.0011
Venus	-19300-11-20 14:23 J	-5327578.02	-5327577.90	-5327577.77	0.0495	0.0390
Mercury	-19299-11-08 14:09 J	-5327225.07	-5327224.91	-5327224.75	0.0498	0.0247
Mercury	-19298-02-07 00:28 J	-5327134.53	-5327134.48	-5327134.43	0.0499	0.0479
Venus	-19294-01-31 20:23 J	-5325679.84	-5325679.65	-5325679.45	0.0530	0.0111
Venus	-19294-09-26 15:50 J	-5325441.97	-5325441.84	-5325441.69	0.0531	0.0377
Mercury	-19293-07-02 12:57 J	-5325162.01	-5325161.96	-5325161.91	0.0529	0.0486
Mercury	-19293-09-29 18:28 J	-5325072.85	-5325072.73	-5325072.60	0.0528	0.0082
Venus	-19289-04-10 07:40 J	-5323784.19	-5323784.18	-5323784.16	0.0498	0.0495
Moon	-19289-11-01 07:11 J	-5323579.33	-5323579.20	-5323579.07	0.0496	0.0420

Earth	-19289-11-01 07:40 J	-5323579.30	-5323579.18	-5323579.06	0.0496	0.0429 *
Venus	-19289-12-02 11:16 J	-5323548.22	-5323548.03	-5323547.83	0.0496	0.0111
Venus	-19288-07-26 16:19 J	-5323311.98	-5323311.82	-5323311.65	0.0495	0.0285
Mercury	-19287-08-27 11:02 J	-5322915.13	-5322915.04	-5322914.94	0.0497	0.0427
Mercury	-19287-11-25 21:36 J	-5322824.74	-5322824.60	-5322824.45	0.0499	0.0301
Venus	-19283-10-06 09:36 J	-5321414.27	-5321414.10	-5321413.92	0.0530	0.0248
Venus	-19282-06-01 06:14 J	-5321176.41	-5321176.24	-5321176.05	0.0531	0.0245
Mars	-19281-05-18 12:28 J	-5320824.07	-5320823.98	-5320823.88	0.0529	0.0498
Mercury	-19281-07-18 22:48 J	-5320762.68	-5320762.55	-5320762.43	0.0528	0.0063
Mercury	-19281-10-16 04:33 J	-5320673.34	-5320673.31	-5320673.28	0.0527	0.0507
Venus	-19277-08-07 14:23 J	-5319282.08	-5319281.90	-5319281.71	0.0496	0.0218
Venus	-19276-03-31 18:43 J	-5319045.91	-5319045.72	-5319045.53	0.0495	0.0178
Mercury	-19275-09-13 18:43 J	-5318514.90	-5318514.72	-5318514.54	0.0498	0.0122
Venus	-19271-06-11 00:14 J	-5317148.63	-5317148.49	-5317148.35	0.0529	0.0381
Venus	-19270-02-03 22:04 J	-5316910.78	-5316910.58	-5316910.38	0.0531	0.0110
Mercury	-19269-05-07 03:21 J	-5316452.48	-5316452.36	-5316452.24	0.0529	0.0198
Mercury	-19269-08-04 09:07 J	-5316363.21	-5316363.12	-5316363.03	0.0527	0.0372
Venus	-19265-04-12 17:16 J	-5315015.93	-5315015.78	-5315015.62	0.0497	0.0324
Venus	-19265-12-04 20:38 J	-5314779.84	-5314779.64	-5314779.44	0.0495	0.0068
Venus	-19264-07-29 02:09 J	-5314543.48	-5314543.41	-5314543.33	0.0495	0.0457
Mars	-19263-03-22 21:50 J	-5314306.60	-5314306.59	-5314306.55	0.0496	0.0494
Mercury	-19263-07-02 15:21 J	-5314205.04	-5314204.86	-5314204.67	0.0498	0.0063
Venus	-19259-02-13 15:21 J	-5312882.91	-5312882.86	-5312882.81	0.0529	0.0508
Moon	-19259-04-27 09:07 J	-5312810.23	-5312810.12	-5312810.00	0.0530	0.0457
Earth	-19259-04-27 12:43 J	-5312810.10	-5312809.97	-5312809.83	0.0530	0.0421 *
Venus	-19259-10-09 13:55 J	-5312645.12	-5312644.92	-5312644.72	0.0531	0.0025
Venus	-19258-06-04 09:36 J	-5312407.19	-5312407.10	-5312407.00	0.0532	0.0460
Mercury	-19257-02-24 07:55 J	-5312142.26	-5312142.17	-5312142.07	0.0529	0.0332
Mercury	-19257-05-23 13:40 J	-5312053.04	-5312052.93	-5312052.82	0.0528	0.0238
Venus	-19254-12-17 20:09 J	-5310749.76	-5310749.66	-5310749.55	0.0497	0.0428

Venus	-19253-08-09 23:31 J	-5310513.73	-5310513.52	-5310513.32	0.0495	0.0040
Venus	-19252-04-03 04:19 J	-5310277.46	-5310277.32	-5310277.18	0.0494	0.0353
Mercury	-19251-04-20 12:57 J	-5309895.13	-5309894.96	-5309894.80	0.0498	0.0237
Mercury	-19251-07-19 23:02 J	-5309804.57	-5309804.54	-5309804.51	0.0499	0.0488
Earth	-19247-05-02 12:28 J	-5308422.21	-5308421.98	-5308421.76	0.0530	0.0101
Moon	-19247-05-02 16:19 J	-5308422.05	-5308421.82	-5308421.60	0.0530	0.0111 *
Venus	-19247-06-14 04:48 J	-5308379.49	-5308379.30	-5308379.10	0.0530	0.0160
Venus	-19246-02-07 00:57 J	-5308141.61	-5308141.46	-5308141.30	0.0531	0.0331
Mercury	-19246-12-13 12:00 J	-5307832.05	-5307832.00	-5307831.95	0.0529	0.0477
Mars	-19245-02-25 16:33 J	-5307758.10	-5307757.81	-5307757.51	0.0528	0.0014
Mercury	-19245-03-11 17:31 J	-5307742.89	-5307742.77	-5307742.64	0.0528	0.0090
Venus	-19241-04-15 00:28 J	-5306247.67	-5306247.48	-5306247.28	0.0496	0.0150
Venus	-19241-12-07 05:16 J	-5306011.45	-5306011.28	-5306011.10	0.0495	0.0247
Mercury	-19239-02-06 10:04 J	-5305585.18	-5305585.08	-5305584.98	0.0498	0.0414
Mercury	-19239-05-07 20:38 J	-5305494.78	-5305494.64	-5305494.50	0.0499	0.0315
Venus	-19235-02-16 19:55 J	-5304113.83	-5304113.67	-5304113.50	0.0529	0.0294
Venus	-19235-10-12 16:33 J	-5303875.99	-5303875.81	-5303875.62	0.0531	0.0199
Mercury	-19234-12-29 21:50 J	-5303432.72	-5303432.59	-5303432.46	0.0528	0.0052
Mercury	-19233-03-28 03:36 J	-5303343.37	-5303343.35	-5303343.33	0.0526	0.0516
Earth	-19230-10-23 13:26 J	-5302038.97	-5302038.94	-5302038.90	0.0497	0.0490
Moon	-19230-10-23 15:07 J	-5302038.93	-5302038.87	-5302038.79	0.0497	0.0469 *
Venus	-19230-12-20 03:21 J	-5301981.53	-5301981.36	-5301981.18	0.0497	0.0256
Venus	-19229-08-12 07:55 J	-5301745.37	-5301745.17	-5301744.98	0.0495	0.0141
Mars	-19228-12-24 22:19 J	-5301245.80	-5301245.57	-5301245.33	0.0498	0.0202
Mercury	-19227-02-23 18:00 J	-5301184.93	-5301184.75	-5301184.57	0.0498	0.0138
Venus	-19224-10-22 09:07 J	-5299848.24	-5299848.12	-5299848.00	0.0528	0.0427
Venus	-19223-06-17 06:28 J	-5299610.43	-5299610.23	-5299610.02	0.0531	0.0062
Mercury	-19222-10-18 02:09 J	-5299122.53	-5299122.41	-5299122.30	0.0528	0.0195
Mercury	-19221-01-15 07:55 J	-5299033.26	-5299033.17	-5299033.09	0.0527	0.0374
Venus	-19218-08-25 06:43 J	-5297715.35	-5297715.22	-5297715.08	0.0497	0.0362

Moon	-19218-10-28 04:19 J	-5297651.57	-5297651.32	-5297651.08	0.0497	0.0026
Earth	-19218-10-28 04:33 J	-5297651.54	-5297651.31	-5297651.07	0.0497	0.0050 *
Venus	-19217-04-17 10:33 J	-5297479.26	-5297479.06	-5297478.85	0.0495	0.0033
Venus	-19217-12-09 16:19 J	-5297242.92	-5297242.82	-5297242.71	0.0495	0.0423
Mercury	-19216-12-12 15:07 J	-5296875.06	-5296874.87	-5296874.68	0.0498	0.0041
Venus	-19211-02-19 21:50 J	-5295344.79	-5295344.59	-5295344.39	0.0531	0.0075
Venus	-19211-10-15 17:31 J	-5295106.89	-5295106.77	-5295106.64	0.0532	0.0414
Mercury	-19210-08-06 06:43 J	-5294812.32	-5294812.22	-5294812.12	0.0529	0.0329
Mercury	-19210-11-03 12:28 J	-5294723.10	-5294722.98	-5294722.87	0.0528	0.0240
Mars	-19210-12-04 15:07 J	-5294692.00	-5294691.87	-5294691.72	0.0527	0.0460
Venus	-19206-04-30 09:50 J	-5293449.15	-5293449.09	-5293449.01	0.0498	0.0465
Moon	-19206-11-01 17:31 J	-5293263.92	-5293263.77	-5293263.62	0.0496	0.0371
Earth	-19206-11-01 18:57 J	-5293263.85	-5293263.71	-5293263.56	0.0496	0.0387 *
Venus	-19206-12-22 13:11 J	-5293213.15	-5293212.95	-5293212.75	0.0495	0.0077
Venus	-19205-08-14 18:00 J	-5292976.91	-5292976.75	-5292976.60	0.0494	0.0318
Mercury	-19204-09-30 11:45 J	-5292565.17	-5292565.01	-5292564.84	0.0497	0.0224
Venus	-19200-10-25 13:11 J	-5291079.14	-5291078.95	-5291078.76	0.0530	0.0210
Venus	-19199-06-20 10:19 J	-5290841.24	-5290841.07	-5290840.90	0.0532	0.0284
Mercury	-19198-05-25 11:16 J	-5290502.08	-5290502.03	-5290501.97	0.0529	0.0462
Mercury	-19198-08-22 17:02 J	-5290412.91	-5290412.79	-5290412.67	0.0528	0.0106
Venus	-19194-08-27 16:19 J	-5288947.01	-5288946.82	-5288946.63	0.0496	0.0185
Venus	-19193-04-19 20:23 J	-5288710.83	-5288710.65	-5288710.46	0.0495	0.0211
Mercury	-19192-07-19 09:21 J	-5288255.22	-5288255.11	-5288255.00	0.0497	0.0398
Mars	-19192-09-27 20:38 J	-5288184.89	-5288184.64	-5288184.39	0.0498	0.0096
Mercury	-19192-10-17 19:40 J	-5288164.81	-5288164.68	-5288164.54	0.0499	0.0330
Venus	-19188-06-30 04:48 J	-5286813.45	-5286813.30	-5286813.14	0.0529	0.0341
Venus	-19187-02-23 02:09 J	-5286575.60	-5286575.41	-5286575.22	0.0531	0.0152
Mercury	-19186-06-10 21:07 J	-5286102.75	-5286102.62	-5286102.50	0.0528	0.0041
Venus	-19182-05-02 17:02 J	-5284680.95	-5284680.79	-5284680.63	0.0497	0.0294
Venus	-19182-12-24 21:07 J	-5284444.82	-5284444.62	-5284444.41	0.0495	0.0103



Venus	-19181-08-17 03:50 J	-5284208.36	-5284208.34	-5284208.31	0.0495	0.0492
Mercury	-19180-08-05 17:16 J	-5283854.96	-5283854.78	-5283854.61	0.0499	0.0154
Venus	-19176-03-04 20:09 J	-5282547.75	-5282547.66	-5282547.56	0.0528	0.0469
Earth	-19176-04-27 00:14 J	-5282494.58	-5282494.49	-5282494.38	0.0529	0.0471
Moon	-19176-04-27 04:19 J	-5282494.39	-5282494.32	-5282494.24	0.0529	0.0498 *
Venus	-19176-10-28 17:31 J	-5282309.97	-5282309.77	-5282309.56	0.0530	0.0021
Venus	-19175-06-23 12:00 J	-5282072.06	-5282072.00	-5282071.93	0.0531	0.0496
Mercury	-19174-03-30 01:26 J	-5281792.56	-5281792.44	-5281792.32	0.0528	0.0180
Mercury	-19174-06-27 07:11 J	-5281703.29	-5281703.20	-5281703.12	0.0526	0.0388
Venus	-19170-01-05 19:55 J	-5280414.79	-5280414.67	-5280414.55	0.0498	0.0399
Venus	-19170-08-30 00:00 J	-5280178.70	-5280178.50	-5280178.29	0.0496	0.0008
Venus	-19169-04-22 05:45 J	-5279942.38	-5279942.26	-5279942.13	0.0495	0.0389
Mercury	-19168-05-24 14:23 J	-5279545.08	-5279544.90	-5279544.71	0.0498	0.0027
Moon	-19164-05-01 17:31 J	-5278107.00	-5278106.77	-5278106.53	0.0529	0.0049
Earth	-19164-05-01 20:38 J	-5278106.87	-5278106.64	-5278106.41	0.0529	0.0035 *
Venus	-19164-07-03 07:11 J	-5278044.40	-5278044.20	-5278044.00	0.0530	0.0122
Venus	-19163-02-26 03:07 J	-5277806.52	-5277806.37	-5277806.23	0.0531	0.0368
Mercury	-19162-01-16 05:31 J	-5277482.37	-5277482.27	-5277482.17	0.0529	0.0323
Mercury	-19162-04-15 11:16 J	-5277393.14	-5277393.03	-5277392.92	0.0527	0.0245
Venus	-19158-05-05 03:07 J	-5275912.57	-5275912.37	-5275912.17	0.0496	0.0115
Venus	-19158-12-27 07:55 J	-5275676.33	-5275676.17	-5275675.99	0.0495	0.0283
Mercury	-19156-03-12 11:45 J	-5275235.18	-5275235.01	-5275234.84	0.0498	0.0202
Mars	-19156-07-01 22:04 J	-5275123.73	-5275123.58	-5275123.42	0.0499	0.0395
Venus	-19152-03-07 21:50 J	-5273778.76	-5273778.59	-5273778.41	0.0529	0.0258
Venus	-19152-10-31 18:57 J	-5273540.89	-5273540.71	-5273540.53	0.0531	0.0236
Mercury	-19151-11-04 10:04 J	-5273172.14	-5273172.08	-5273172.01	0.0529	0.0458
Mercury	-19150-02-01 15:50 J	-5273082.97	-5273082.84	-5273082.72	0.0528	0.0110
Venus	-19146-01-08 06:14 J	-5271646.42	-5271646.24	-5271646.06	0.0496	0.0222
Venus	-19146-09-01 10:19 J	-5271410.26	-5271410.07	-5271409.87	0.0495	0.0175
Mercury	-19145-12-29 08:23 J	-5270925.26	-5270925.15	-5270925.03	0.0497	0.0384

Mercury	-19144-03-29 18:57 J	-5270834.85	-5270834.71	-5270834.58	0.0499	0.0344
Venus	-19141-11-10 12:57 J	-5269513.09	-5269512.96	-5269512.82	0.0529	0.0390
Venus	-19140-07-06 11:02 J	-5269275.24	-5269275.04	-5269274.84	0.0531	0.0103
Mercury	-19139-11-20 20:23 J	-5268772.77	-5268772.65	-5268772.52	0.0528	0.0027
Venus	-19135-09-13 09:36 J	-5267380.25	-5267380.10	-5267379.95	0.0497	0.0328
Moon	-19135-10-27 15:21 J	-5267336.09	-5267335.86	-5267335.63	0.0497	0.0072
Earth	-19135-10-27 17:02 J	-5267336.02	-5267335.79	-5267335.56	0.0497	0.0088 *
Venus	-19134-05-07 13:11 J	-5267144.16	-5267143.95	-5267143.75	0.0495	0.0067
Venus	-19134-12-29 18:43 J	-5266907.79	-5266907.72	-5266907.64	0.0495	0.0457
Mercury	-19132-01-15 16:33 J	-5266524.99	-5266524.81	-5266524.64	0.0498	0.0171
Venus	-19129-07-16 05:02 J	-5265247.32	-5265247.29	-5265247.24	0.0528	0.0515
Venus	-19128-03-11 03:07 J	-5265009.57	-5265009.37	-5265009.16	0.0530	0.0032
Venus	-19128-11-03 22:19 J	-5264771.67	-5264771.57	-5264771.47	0.0531	0.0454
Mars	-19127-08-13 21:50 J	-5264488.80	-5264488.59	-5264488.37	0.0528	0.0355
Mercury	-19127-09-09 00:43 J	-5264462.59	-5264462.47	-5264462.35	0.0528	0.0167
Mercury	-19127-12-07 06:14 J	-5264373.32	-5264373.24	-5264373.15	0.0526	0.0401
Venus	-19123-05-19 09:36 J	-5263114.18	-5263114.10	-5263113.99	0.0498	0.0437
Earth	-19123-11-01 03:07 J	-5262948.54	-5262948.37	-5262948.19	0.0496	0.0329
Moon	-19123-11-01 06:28 J	-5262948.42	-5262948.23	-5262948.04	0.0496	0.0305 *
Venus	-19122-01-10 13:40 J	-5262878.14	-5262877.93	-5262877.73	0.0496	0.0044
Venus	-19122-09-03 19:11 J	-5262641.84	-5262641.70	-5262641.55	0.0495	0.0353
Mercury	-19121-11-03 13:40 J	-5262215.11	-5262214.93	-5262214.74	0.0499	0.0009
Venus	-19117-11-13 18:43 J	-5260743.92	-5260743.72	-5260743.53	0.0530	0.0166
Venus	-19116-07-09 14:23 J	-5260506.05	-5260505.90	-5260505.74	0.0531	0.0326
Mercury	-19115-06-28 05:02 J	-5260152.39	-5260152.29	-5260152.19	0.0528	0.0305
Mercury	-19115-09-25 10:33 J	-5260063.17	-5260063.06	-5260062.95	0.0527	0.0261
Venus	-19111-09-15 16:33 J	-5258612.00	-5258611.81	-5258611.62	0.0496	0.0152
Venus	-19110-05-09 21:36 J	-5258375.78	-5258375.60	-5258375.42	0.0495	0.0247
Mars	-19109-06-16 17:16 J	-5257971.93	-5257971.78	-5257971.63	0.0497	0.0402
Mercury	-19109-08-22 11:02 J	-5257905.21	-5257905.04	-5257904.87	0.0498	0.0185

Venus	-19105-07-19 07:55 J	-5256478.34	-5256478.17	-5256478.00	0.0529	0.0304
Venus	-19104-03-14 04:48 J	-5256240.49	-5256240.30	-5256240.11	0.0531	0.0190
Mercury	-19103-04-16 09:07 J	-5255842.18	-5255842.12	-5255842.05	0.0529	0.0449
Mercury	-19103-07-14 14:52 J	-5255753.01	-5255752.88	-5255752.76	0.0527	0.0118
Venus	-19099-05-21 19:55 J	-5254345.84	-5254345.67	-5254345.50	0.0497	0.0260
Venus	-19098-01-13 00:14 J	-5254109.69	-5254109.49	-5254109.29	0.0495	0.0139
Mercury	-19097-06-10 08:09 J	-5253595.28	-5253595.16	-5253595.03	0.0498	0.0363
Mercury	-19097-09-08 18:43 J	-5253504.85	-5253504.72	-5253504.60	0.0499	0.0366
Venus	-19093-03-23 22:19 J	-5252212.68	-5252212.57	-5252212.45	0.0528	0.0435
Venus	-19093-11-16 19:55 J	-5251974.87	-5251974.67	-5251974.47	0.0531	0.0054
Mercury	-19091-05-02 19:11 J	-5251442.82	-5251442.70	-5251442.57	0.0528	0.0026
Mars	-19091-05-22 20:52 J	-5251422.92	-5251422.63	-5251422.34	0.0528	0.0122
Venus	-19087-01-24 23:16 J	-5250079.66	-5250079.53	-5250079.39	0.0498	0.0366
Venus	-19087-09-18 03:07 J	-5249843.57	-5249843.37	-5249843.17	0.0495	0.0030
Venus	-19086-05-12 08:23 J	-5249607.25	-5249607.15	-5249607.04	0.0495	0.0423
Mercury	-19085-06-27 15:36 J	-5249195.02	-5249194.85	-5249194.67	0.0498	0.0186
Earth	-19081-05-01 07:40 J	-5247791.41	-5247791.18	-5247790.95	0.0530	0.0018
Moon	-19081-05-01 08:52 J	-5247791.36	-5247791.13	-5247790.91	0.0530	0.0011 *
Venus	-19081-07-22 11:31 J	-5247709.22	-5247709.02	-5247708.82	0.0530	0.0082
Venus	-19080-03-17 07:40 J	-5247471.30	-5247471.18	-5247471.05	0.0531	0.0409
Mercury	-19079-02-19 00:00 J	-5247132.62	-5247132.50	-5247132.38	0.0528	0.0152
Mercury	-19079-05-19 05:45 J	-5247043.34	-5247043.26	-5247043.18	0.0527	0.0417
Venus	-19076-09-30 02:23 J	-5245813.46	-5245813.40	-5245813.33	0.0498	0.0469
Venus	-19075-05-24 06:00 J	-5245577.45	-5245577.25	-5245577.05	0.0496	0.0080
Venus	-19074-01-15 10:33 J	-5245341.21	-5245341.06	-5245340.90	0.0495	0.0318
Mars	-19073-03-20 15:36 J	-5244911.10	-5244910.85	-5244910.59	0.0498	0.0104
Mercury	-19073-04-15 13:11 J	-5244885.14	-5244884.95	-5244884.76	0.0498	0.0012
Venus	-19069-03-27 03:50 J	-5243443.52	-5243443.34	-5243443.15	0.0529	0.0214
Earth	-19069-05-06 08:38 J	-5243403.20	-5243403.14	-5243403.08	0.0530	0.0509
Moon	-19069-05-06 09:21 J	-5243403.12	-5243403.11	-5243403.08	0.0530	0.0528 *

Venus	-19069-11-20 00:28 J	-5243205.65	-5243205.48	-5243205.31	0.0531	0.0281
Mercury	-19068-12-08 04:19 J	-5242822.42	-5242822.32	-5242822.21	0.0528	0.0292
Mercury	-19067-03-07 09:50 J	-5242733.19	-5242733.09	-5242732.98	0.0527	0.0275
Venus	-19063-01-27 06:14 J	-5241311.43	-5241311.24	-5241311.05	0.0497	0.0191
Venus	-19063-09-20 11:02 J	-5241075.23	-5241075.04	-5241074.86	0.0495	0.0209
Mercury	-19061-02-02 10:04 J	-5240575.26	-5240575.08	-5240574.91	0.0498	0.0172
Venus	-19058-11-30 19:26 J	-5239177.84	-5239177.69	-5239177.54	0.0528	0.0346
Venus	-19057-07-25 16:19 J	-5238940.01	-5238939.82	-5238939.63	0.0531	0.0147
Mercury	-19056-09-26 08:38 J	-5238512.21	-5238512.14	-5238512.06	0.0528	0.0430
Mercury	-19056-12-24 14:23 J	-5238423.03	-5238422.90	-5238422.78	0.0527	0.0136
Venus	-19052-10-02 08:52 J	-5237045.28	-5237045.13	-5237044.96	0.0497	0.0299
Earth	-19052-10-26 23:45 J	-5237020.73	-5237020.51	-5237020.28	0.0497	0.0152
Moon	-19052-10-27 03:21 J	-5237020.59	-5237020.36	-5237020.13	0.0497	0.0143 *
Venus	-19051-05-26 13:11 J	-5236809.14	-5236808.95	-5236808.74	0.0496	0.0102
Venus	-19050-01-17 19:55 J	-5236572.68	-5236572.67	-5236572.65	0.0496	0.0493
Mercury	-19050-11-21 07:11 J	-5236265.33	-5236265.20	-5236265.06	0.0498	0.0349
Mercury	-19049-02-19 17:45 J	-5236174.87	-5236174.76	-5236174.64	0.0499	0.0382
Venus	-19046-08-05 08:38 J	-5234912.22	-5234912.14	-5234912.06	0.0527	0.0479
Venus	-19045-03-30 06:00 J	-5234674.45	-5234674.25	-5234674.05	0.0530	0.0008
Venus	-19045-11-23 00:43 J	-5234436.54	-5234436.47	-5234436.40	0.0531	0.0492
Mercury	-19044-10-12 18:28 J	-5234112.86	-5234112.73	-5234112.61	0.0528	0.0021
Venus	-19040-06-07 12:28 J	-5232779.09	-5232778.98	-5232778.86	0.0498	0.0404
Moon	-19040-10-31 11:31 J	-5232633.22	-5232633.02	-5232632.81	0.0497	0.0260
Earth	-19040-10-31 15:36 J	-5232633.04	-5232632.85	-5232632.66	0.0497	0.0291 *
Venus	-19039-01-29 16:33 J	-5232543.02	-5232542.81	-5232542.61	0.0496	0.0013
Venus	-19039-09-22 22:19 J	-5232306.70	-5232306.57	-5232306.45	0.0495	0.0389
Mercury	-19038-12-08 15:21 J	-5231865.03	-5231864.86	-5231864.70	0.0499	0.0205
Mars	-19038-12-23 15:36 J	-5231850.09	-5231849.85	-5231849.61	0.0499	0.0190
Venus	-19034-12-03 20:23 J	-5230408.84	-5230408.65	-5230408.45	0.0530	0.0131
Venus	-19033-07-28 16:33 J	-5230170.96	-5230170.81	-5230170.67	0.0531	0.0363

Mercury	-19032-07-31 22:48 J	-5229802.67	-5229802.55	-5229802.43	0.0528	0.0147
Mercury	-19032-10-29 04:33 J	-5229713.39	-5229713.31	-5229713.24	0.0527	0.0421
Venus	-19028-10-04 19:40 J	-5228276.88	-5228276.68	-5228276.49	0.0496	0.0118
Venus	-19027-05-29 00:14 J	-5228040.66	-5228040.49	-5228040.32	0.0495	0.0282
Mercury	-19026-09-26 12:14 J	-5227555.18	-5227554.99	-5227554.81	0.0498	0.0025
Venus	-19022-08-08 11:31 J	-5226143.19	-5226143.02	-5226142.84	0.0529	0.0265
Venus	-19021-04-02 08:52 J	-5225905.31	-5225905.13	-5225904.95	0.0531	0.0232
Mercury	-19020-05-20 03:21 J	-5225492.46	-5225492.36	-5225492.25	0.0529	0.0282
Mercury	-19020-08-17 09:07 J	-5225403.22	-5225403.12	-5225403.01	0.0527	0.0287
Venus	-19016-06-09 22:33 J	-5224010.74	-5224010.56	-5224010.38	0.0497	0.0226
Venus	-19015-02-01 02:23 J	-5223774.59	-5223774.40	-5223774.20	0.0495	0.0174
Mercury	-19014-07-15 09:36 J	-5223245.28	-5223245.10	-5223244.93	0.0498	0.0152
Venus	-19010-04-13 03:50 J	-5221877.47	-5221877.34	-5221877.20	0.0528	0.0394
Venus	-19010-12-07 01:26 J	-5221639.64	-5221639.44	-5221639.24	0.0531	0.0099
Mercury	-19008-03-08 07:55 J	-5221182.24	-5221182.17	-5221182.09	0.0528	0.0418
Mercury	-19008-06-05 13:26 J	-5221093.06	-5221092.94	-5221092.82	0.0527	0.0146
Venus	-19004-02-12 22:33 J	-5219744.70	-5219744.56	-5219744.41	0.0498	0.0337
Venus	-19004-10-07 02:38 J	-5219508.59	-5219508.39	-5219508.19	0.0496	0.0062
Venus	-19003-05-31 08:52 J	-5219272.21	-5219272.13	-5219272.06	0.0495	0.0457
Mercury	-19002-05-03 06:00 J	-5218935.38	-5218935.25	-5218935.11	0.0498	0.0339
Mercury	-19002-08-01 16:33 J	-5218844.92	-5218844.81	-5218844.69	0.0500	0.0393
Mars	-19002-09-26 14:38 J	-5218788.95	-5218788.89	-5218788.83	0.0500	0.0486

# 19TH MILLENNIUM BCE

This is a list of transits visible from Jupiter in the 19th millennium BCE.

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Venus	-18999-12-16 19:26 J		-5217611.71	-5217611.69	-5217611.66	0.0527	0.0521	
Earth	-18998-05-01 21:21 J		-5217475.83	-5217475.61	-5217475.38	0.0529	0.0060	
Moon	-18998-05-01 22:19 J		-5217475.81	-5217475.57	-5217475.34	0.0529	0.0029	*
Venus	-18998-08-11 17:02 J		-5217373.99	-5217373.79	-5217373.58	0.0530	0.0038	
Venus	-18997-04-05 12:14 J		-5217136.09	-5217135.99	-5217135.88	0.0531	0.0451	
Mercury	-18996-03-24 17:45 J		-5216782.88	-5216782.76	-5216782.63	0.0527	0.0013	
Venus	-18993-10-19 00:57 J		-5215478.54	-5215478.46	-5215478.36	0.0499	0.0443	
Venus	-18992-06-12 05:02 J		-5215242.49	-5215242.29	-5215242.09	0.0496	0.0048	
Venus	-18991-02-03 10:33 J		-5215006.20	-5215006.06	-5215005.92	0.0495	0.0352	
Mercury	-18990-05-20 14:09 J		-5214535.08	-5214534.91	-5214534.75	0.0499	0.0216	
Venus	-18986-04-16 06:14 J		-5213108.43	-5213108.24	-5213108.04	0.0529	0.0177	
Moon	-18986-05-06 14:38 J		-5213087.99	-5213087.89	-5213087.78	0.0529	0.0461	
Earth	-18986-05-06 16:48 J		-5213087.92	-5213087.80	-5213087.67	0.0529	0.0444	*
Venus	-18986-12-10 02:09 J		-5212870.56	-5212870.41	-5212870.24	0.0531	0.0319	
Mercury	-18984-01-10 21:50 J		-5212472.71	-5212472.59	-5212472.47	0.0528	0.0139	
Mercury	-18984-04-10 03:36 J		-5212383.42	-5212383.35	-5212383.28	0.0526	0.0428	
Venus	-18980-02-15 08:23 J		-5210976.34	-5210976.15	-5210975.96	0.0497	0.0157	
Venus	-18980-10-09 13:11 J		-5210740.13	-5210739.95	-5210739.77	0.0495	0.0245	
Mercury	-18978-03-08 11:16 J		-5210225.21	-5210225.03	-5210224.84	0.0499	0.0040	
Venus	-18975-12-19 20:23 J		-5208842.81	-5208842.65	-5208842.49	0.0529	0.0313	
Venus	-18974-08-14 17:16 J		-5208604.97	-5208604.78	-5208604.59	0.0531	0.0183	
Mercury	-18973-10-30 02:09 J		-5208162.51	-5208162.41	-5208162.30	0.0528	0.0278	
Mars	-18973-11-07 23:45 J		-5208153.77	-5208153.51	-5208153.24	0.0528	0.0227	
Mercury	-18972-01-27 07:55 J		-5208073.28	-5208073.17	-5208073.07	0.0527	0.0289	
Venus	-18969-10-21 11:31 J		-5206710.19	-5206710.02	-5206709.85	0.0497	0.0265	
Moon	-18969-10-26 07:55 J		-5206705.38	-5206705.17	-5206704.95	0.0497	0.0191	

Earth	-18969-10-26 12:00 J	-5206705.22	-5206705.00	-5206704.78	0.0497	0.0190	*
Venus	-18968-06-14 15:36 J	-5206474.05	-5206473.85	-5206473.66	0.0495	0.0136	
Mercury	-18967-12-25 08:09 J	-5205915.34	-5205915.16	-5205914.98	0.0498	0.0144	
Venus	-18963-08-24 11:02 J	-5204577.15	-5204577.04	-5204576.93	0.0528	0.0445	
Venus	-18962-04-19 08:52 J	-5204339.34	-5204339.13	-5204338.93	0.0531	0.0048	
Venus	-18962-12-13 03:50 J	-5204101.34	-5204101.34	-5204101.33	0.0531	0.0530	
Mercury	-18961-08-18 06:57 J	-5203852.29	-5203852.21	-5203852.14	0.0529	0.0412	
Mercury	-18961-11-15 12:28 J	-5203763.10	-5203762.98	-5203762.86	0.0527	0.0154	
Venus	-18957-06-26 14:23 J	-5202444.03	-5202443.90	-5202443.76	0.0498	0.0372	
Earth	-18957-10-31 02:09 J	-5202317.62	-5202317.41	-5202317.20	0.0496	0.0244	
Moon	-18957-10-31 05:45 J	-5202317.47	-5202317.26	-5202317.05	0.0496	0.0214	*
Venus	-18956-02-17 18:00 J	-5202207.95	-5202207.75	-5202207.54	0.0496	0.0027	
Venus	-18956-10-11 23:31 J	-5201971.62	-5201971.52	-5201971.41	0.0495	0.0422	
Mars	-18955-09-11 06:57 J	-5201637.40	-5201637.21	-5201637.00	0.0497	0.0313	
Mercury	-18955-10-13 05:16 J	-5201605.42	-5201605.28	-5201605.13	0.0498	0.0322	
Mercury	-18954-01-11 15:50 J	-5201514.94	-5201514.84	-5201514.73	0.0499	0.0407	
Venus	-18951-12-23 01:11 J	-5200073.65	-5200073.45	-5200073.25	0.0530	0.0087	
Venus	-18950-08-17 21:07 J	-5199835.75	-5199835.62	-5199835.49	0.0531	0.0406	
Mercury	-18949-09-03 16:48 J	-5199452.92	-5199452.80	-5199452.67	0.0527	0.0024	
Venus	-18945-03-01 14:23 J	-5198177.95	-5198177.90	-5198177.84	0.0499	0.0481	
Venus	-18945-10-23 18:00 J	-5197941.95	-5197941.75	-5197941.55	0.0496	0.0088	
Venus	-18944-06-16 22:48 J	-5197705.70	-5197705.55	-5197705.39	0.0495	0.0314	
Mercury	-18943-10-30 12:28 J	-5197205.15	-5197204.98	-5197204.81	0.0499	0.0221	
Venus	-18939-08-27 16:48 J	-5195807.99	-5195807.80	-5195807.62	0.0529	0.0223	
Venus	-18938-04-22 13:11 J	-5195570.12	-5195569.95	-5195569.78	0.0531	0.0274	
Mercury	-18937-06-22 21:21 J	-5195142.74	-5195142.61	-5195142.49	0.0527	0.0125	
Mars	-18937-08-17 04:04 J	-5195087.58	-5195087.33	-5195087.07	0.0526	0.0253	
Mercury	-18937-09-20 02:52 J	-5195053.45	-5195053.38	-5195053.31	0.0526	0.0442	
Venus	-18933-06-28 20:23 J	-5193675.84	-5193675.65	-5193675.46	0.0497	0.0198	
Venus	-18932-02-20 00:57 J	-5193439.65	-5193439.46	-5193439.27	0.0495	0.0205	

Mercury	-18931-08-18 09:50 J	-5192895.28	-5192895.09	-5192894.91	0.0499	0.0044
Venus	-18927-05-02 05:31 J	-5191542.42	-5191542.27	-5191542.12	0.0528	0.0361
Venus	-18927-12-26 02:23 J	-5191304.59	-5191304.40	-5191304.20	0.0530	0.0135
Mercury	-18925-04-11 01:11 J	-5190832.56	-5190832.45	-5190832.34	0.0528	0.0271
Mercury	-18925-07-09 06:43 J	-5190743.32	-5190743.22	-5190743.11	0.0527	0.0295
Venus	-18921-03-03 23:31 J	-5189409.67	-5189409.52	-5189409.35	0.0498	0.0307
Venus	-18921-10-26 03:50 J	-5189173.54	-5189173.34	-5189173.14	0.0496	0.0096
Venus	-18920-06-19 10:04 J	-5188937.11	-5188937.08	-5188937.05	0.0495	0.0490
Mercury	-18919-06-06 06:57 J	-5188585.39	-5188585.21	-5188585.03	0.0498	0.0135
Mars	-18919-06-15 02:09 J	-5188576.67	-5188576.41	-5188576.15	0.0498	0.0026
Venus	-18915-01-04 19:26 J	-5187276.76	-5187276.69	-5187276.62	0.0527	0.0492
Moon	-18915-04-30 23:16 J	-5187160.75	-5187160.53	-5187160.31	0.0529	0.0110
Earth	-18915-05-01 01:11 J	-5187160.67	-5187160.45	-5187160.23	0.0529	0.0141 *
Venus	-18915-08-30 16:48 J	-5187039.00	-5187038.80	-5187038.60	0.0530	0.0004
Venus	-18914-04-25 11:45 J	-5186801.08	-5186801.01	-5186800.92	0.0531	0.0485
Mercury	-18913-01-29 05:31 J	-5186522.35	-5186522.27	-5186522.19	0.0528	0.0411
Mercury	-18913-04-27 11:02 J	-5186433.16	-5186433.04	-5186432.92	0.0527	0.0154
Venus	-18910-11-08 02:52 J	-5185143.49	-5185143.38	-5185143.27	0.0498	0.0413
Venus	-18909-07-01 06:28 J	-5184907.44	-5184907.23	-5184907.03	0.0496	0.0015
Venus	-18908-02-22 11:31 J	-5184671.14	-5184671.02	-5184670.89	0.0495	0.0384
Mercury	-18907-03-25 03:36 J	-5184275.49	-5184275.35	-5184275.21	0.0498	0.0319
Mercury	-18907-06-23 14:09 J	-5184185.01	-5184184.91	-5184184.81	0.0499	0.0410
Venus	-18903-05-05 07:26 J	-5182773.39	-5182773.19	-5182773.00	0.0530	0.0142
Earth	-18903-05-05 22:48 J	-5182772.71	-5182772.55	-5182772.38	0.0530	0.0370
Moon	-18903-05-06 02:09 J	-5182772.57	-5182772.41	-5182772.25	0.0530	0.0379 *
Venus	-18903-12-29 03:50 J	-5182535.49	-5182535.34	-5182535.19	0.0531	0.0355
Mercury	-18901-02-14 15:36 J	-5182122.98	-5182122.85	-5182122.73	0.0528	0.0021
Venus	-18897-03-06 09:07 J	-5180641.32	-5180641.12	-5180640.93	0.0496	0.0125
Venus	-18897-10-28 13:26 J	-5180405.11	-5180404.94	-5180404.77	0.0495	0.0277
Mercury	-18895-04-11 11:16 J	-5179875.19	-5179875.03	-5179874.86	0.0499	0.0233



Venus	-18891-01-07 23:31 J	-5178507.69	-5178507.52	-5178507.34	0.0529	0.0275
Venus	-18891-09-02 20:38 J	-5178269.82	-5178269.64	-5178269.45	0.0531	0.0225
Mercury	-18890-12-03 20:09 J	-5177812.79	-5177812.66	-5177812.54	0.0528	0.0120
Mercury	-18889-03-02 01:40 J	-5177723.49	-5177723.43	-5177723.36	0.0526	0.0447
Earth	-18886-10-26 14:38 J	-5176390.08	-5176389.89	-5176389.68	0.0497	0.0267
Moon	-18886-10-26 18:28 J	-5176389.92	-5176389.73	-5176389.53	0.0497	0.0270 *
Venus	-18886-11-10 08:52 J	-5176375.31	-5176375.13	-5176374.95	0.0497	0.0239
Venus	-18885-07-03 12:57 J	-5176139.16	-5176138.96	-5176138.77	0.0495	0.0165
Mercury	-18883-01-28 07:40 J	-5175565.37	-5175565.18	-5175565.00	0.0499	0.0042
Mars	-18883-03-18 18:28 J	-5175515.94	-5175515.73	-5175515.51	0.0500	0.0260
Venus	-18880-09-12 14:52 J	-5174242.01	-5174241.88	-5174241.75	0.0528	0.0408
Venus	-18879-05-08 12:14 J	-5174004.19	-5174003.99	-5174003.79	0.0530	0.0088
Mercury	-18878-09-22 00:28 J	-5173502.59	-5173502.48	-5173502.37	0.0528	0.0258
Mercury	-18878-12-20 06:00 J	-5173413.35	-5173413.25	-5173413.15	0.0526	0.0306
Venus	-18874-07-16 11:02 J	-5172109.18	-5172109.04	-5172108.89	0.0498	0.0348
Moon	-18874-10-31 01:11 J	-5172002.69	-5172002.45	-5172002.22	0.0497	0.0132
Earth	-18874-10-31 04:04 J	-5172002.55	-5172002.33	-5172002.11	0.0497	0.0164 *
Venus	-18873-03-08 14:52 J	-5171873.08	-5171872.88	-5171872.67	0.0496	0.0055
Venus	-18873-10-30 20:52 J	-5171636.71	-5171636.63	-5171636.55	0.0495	0.0452
Mercury	-18872-11-16 04:33 J	-5171255.48	-5171255.31	-5171255.12	0.0499	0.0139
Venus	-18867-01-11 00:57 J	-5169738.66	-5169738.46	-5169738.25	0.0530	0.0055
Venus	-18867-09-05 20:23 J	-5169500.76	-5169500.65	-5169500.54	0.0531	0.0438
Mercury	-18866-07-11 04:19 J	-5169192.40	-5169192.32	-5169192.24	0.0528	0.0407
Mercury	-18866-10-08 09:50 J	-5169103.21	-5169103.09	-5169102.97	0.0527	0.0158
Venus	-18862-03-21 14:09 J	-5167842.99	-5167842.91	-5167842.83	0.0499	0.0455
Venus	-18862-11-12 18:00 J	-5167606.95	-5167606.75	-5167606.55	0.0496	0.0058
Venus	-18861-07-05 23:02 J	-5167370.68	-5167370.54	-5167370.39	0.0495	0.0345
Mercury	-18860-09-04 01:40 J	-5166945.57	-5166945.43	-5166945.28	0.0498	0.0317
Mercury	-18860-12-03 12:28 J	-5166855.08	-5166854.98	-5166854.88	0.0499	0.0415
Venus	-18856-09-15 14:52 J	-5165473.07	-5165472.88	-5165472.69	0.0529	0.0194

Venus	-18855-05-11 11:02 J	-5165235.20	-5165235.04	-5165234.87	0.0531	0.0305
Mercury	-18854-07-27 13:55 J	-5164793.05	-5164792.92	-5164792.79	0.0527	0.0016
Venus	-18850-07-18 20:38 J	-5163340.83	-5163340.64	-5163340.45	0.0497	0.0167
Venus	-18849-03-11 00:57 J	-5163104.64	-5163104.46	-5163104.28	0.0495	0.0236
Mercury	-18848-09-21 09:07 J	-5162545.28	-5162545.12	-5162544.95	0.0499	0.0231
Venus	-18844-05-21 04:33 J	-5161207.47	-5161207.31	-5161207.15	0.0528	0.0331
Venus	-18843-01-14 01:55 J	-5160969.61	-5160969.42	-5160969.23	0.0531	0.0169
Mercury	-18842-05-15 18:28 J	-5160482.86	-5160482.73	-5160482.61	0.0528	0.0123
Mercury	-18842-08-13 00:00 J	-5160393.56	-5160393.50	-5160393.43	0.0526	0.0444
Venus	-18838-03-23 23:16 J	-5159074.70	-5159074.53	-5159074.36	0.0497	0.0277
Venus	-18838-11-15 02:52 J	-5158838.57	-5158838.38	-5158838.18	0.0495	0.0126
Mercury	-18836-07-10 06:14 J	-5158235.43	-5158235.24	-5158235.06	0.0499	0.0050
Venus	-18832-01-23 20:23 J	-5156941.75	-5156941.65	-5156941.55	0.0528	0.0460
Earth	-18832-04-30 07:11 J	-5156845.40	-5156845.20	-5156844.98	0.0529	0.0215
Moon	-18832-04-30 10:33 J	-5156845.28	-5156845.06	-5156844.84	0.0529	0.0180 *
Venus	-18832-09-18 18:28 J	-5156703.94	-5156703.73	-5156703.53	0.0530	0.0035
Venus	-18831-05-14 13:40 J	-5156465.96	-5156465.93	-5156465.90	0.0531	0.0522
Mercury	-18830-03-03 23:02 J	-5156172.65	-5156172.54	-5156172.43	0.0528	0.0258
Mercury	-18830-06-01 04:33 J	-5156083.41	-5156083.31	-5156083.21	0.0526	0.0307
Venus	-18827-11-26 23:02 J	-5154808.66	-5154808.54	-5154808.41	0.0498	0.0390
Venus	-18826-07-21 02:38 J	-5154572.60	-5154572.39	-5154572.19	0.0496	0.0015
Venus	-18825-03-13 07:40 J	-5154336.29	-5154336.18	-5154336.06	0.0495	0.0411
Mercury	-18824-04-28 02:09 J	-5153925.59	-5153925.41	-5153925.23	0.0499	0.0145
Moon	-18820-05-05 02:38 J	-5152457.57	-5152457.39	-5152457.19	0.0530	0.0303
Earth	-18820-05-05 06:28 J	-5152457.42	-5152457.23	-5152457.04	0.0530	0.0303 *
Venus	-18820-05-24 09:21 J	-5152438.31	-5152438.11	-5152437.91	0.0530	0.0105
Venus	-18819-01-17 05:31 J	-5152200.40	-5152200.27	-5152200.13	0.0531	0.0392
Mercury	-18819-12-21 03:21 J	-5151862.44	-5151862.36	-5151862.28	0.0528	0.0397
Mars	-18818-02-02 16:48 J	-5151819.09	-5151818.80	-5151818.51	0.0527	0.0115
Mercury	-18818-03-20 08:52 J	-5151773.25	-5151773.13	-5151773.01	0.0527	0.0166

Venus	-18815-08-02 01:11 J	-5150542.47	-5150542.45	-5150542.43	0.0499	0.0495
Venus	-18814-03-26 04:33 J	-5150306.51	-5150306.31	-5150306.11	0.0496	0.0101
Venus	-18814-11-17 09:07 J	-5150070.28	-5150070.12	-5150069.95	0.0495	0.0303
Mercury	-18812-02-13 23:02 J	-5149615.68	-5149615.54	-5149615.40	0.0498	0.0326
Mercury	-18812-05-15 09:50 J	-5149525.20	-5149525.09	-5149524.98	0.0500	0.0406
Venus	-18808-01-26 22:04 J	-5148172.76	-5148172.58	-5148172.40	0.0529	0.0247
Venus	-18808-09-21 18:28 J	-5147934.90	-5147934.73	-5147934.55	0.0530	0.0254
Mercury	-18806-01-06 12:28 J	-5147463.10	-5147462.98	-5147462.85	0.0527	0.0017
Moon	-18803-10-25 16:48 J	-5146074.98	-5146074.80	-5146074.62	0.0498	0.0337
Earth	-18803-10-25 19:40 J	-5146074.85	-5146074.68	-5146074.50	0.0498	0.0332 *
Venus	-18803-11-29 07:26 J	-5146040.38	-5146040.19	-5146040.01	0.0497	0.0212
Venus	-18802-07-23 11:45 J	-5145804.20	-5145804.01	-5145803.83	0.0496	0.0194
Mars	-18801-12-05 02:38 J	-5145303.61	-5145303.39	-5145303.17	0.0498	0.0255
Mercury	-18800-03-03 06:57 J	-5145215.37	-5145215.21	-5145215.04	0.0499	0.0229
Venus	-18797-10-01 11:16 J	-5143907.17	-5143907.03	-5143906.89	0.0528	0.0384
Venus	-18796-05-27 08:23 J	-5143669.34	-5143669.15	-5143668.95	0.0530	0.0115
Mercury	-18795-10-25 16:33 J	-5143152.93	-5143152.81	-5143152.68	0.0528	0.0130
Mercury	-18794-01-22 22:19 J	-5143063.64	-5143063.57	-5143063.50	0.0526	0.0437
Venus	-18791-08-04 10:04 J	-5141774.23	-5141774.08	-5141773.93	0.0498	0.0321
Earth	-18791-10-30 09:36 J	-5141687.33	-5141687.10	-5141686.86	0.0497	0.0101
Moon	-18791-10-30 10:48 J	-5141687.27	-5141687.05	-5141686.82	0.0497	0.0073 *
Venus	-18790-03-28 13:55 J	-5141538.12	-5141537.92	-5141537.72	0.0496	0.0083
Venus	-18790-11-19 19:26 J	-5141301.73	-5141301.69	-5141301.64	0.0495	0.0480
Mercury	-18789-12-20 03:36 J	-5140905.53	-5140905.35	-5140905.16	0.0498	0.0044
Venus	-18785-06-06 00:28 J	-5139641.52	-5139641.48	-5139641.44	0.0527	0.0515
Venus	-18784-01-29 22:33 J	-5139403.77	-5139403.56	-5139403.36	0.0530	0.0026
Venus	-18784-09-24 18:14 J	-5139165.83	-5139165.74	-5139165.64	0.0531	0.0469
Mercury	-18783-08-13 20:52 J	-5138842.73	-5138842.63	-5138842.52	0.0528	0.0269
Mars	-18783-11-11 00:00 J	-5138753.72	-5138753.50	-5138753.26	0.0527	0.0337
Mercury	-18783-11-11 02:38 J	-5138753.50	-5138753.39	-5138753.29	0.0527	0.0298 *

Venus	-18779-04-09 12:28 J	-5137508.08	-5137507.98	-5137507.88	0.0499	0.0429
Venus	-18779-12-01 15:50 J	-5137272.04	-5137271.84	-5137271.64	0.0496	0.0030
Venus	-18778-07-25 20:23 J	-5137035.77	-5137035.65	-5137035.51	0.0495	0.0373
Mercury	-18777-10-08 00:28 J	-5136595.66	-5136595.48	-5136595.30	0.0498	0.0140
Venus	-18773-10-04 14:09 J	-5135138.10	-5135137.91	-5135137.72	0.0530	0.0162
Venus	-18772-05-30 10:48 J	-5134900.20	-5134900.05	-5134899.89	0.0531	0.0340
Mercury	-18771-06-02 01:40 J	-5134532.51	-5134532.43	-5134532.35	0.0528	0.0403
Mercury	-18771-08-30 07:11 J	-5134443.32	-5134443.20	-5134443.08	0.0527	0.0162
Venus	-18767-08-06 15:50 J	-5133006.04	-5133005.84	-5133005.65	0.0496	0.0144
Venus	-18766-03-30 19:55 J	-5132769.85	-5132769.67	-5132769.50	0.0495	0.0261
Mercury	-18765-07-26 19:55 J	-5132285.80	-5132285.67	-5132285.53	0.0498	0.0337
Mars	-18765-09-07 13:26 J	-5132243.20	-5132242.94	-5132242.69	0.0499	0.0021
Mercury	-18765-10-25 06:43 J	-5132195.33	-5132195.22	-5132195.10	0.0500	0.0395
Venus	-18761-06-09 04:48 J	-5130872.47	-5130872.30	-5130872.13	0.0529	0.0299
Venus	-18760-02-02 02:23 J	-5130634.59	-5130634.40	-5130634.21	0.0531	0.0204
Mercury	-18759-06-18 11:16 J	-5130133.15	-5130133.03	-5130132.90	0.0527	0.0028
Venus	-18755-04-11 17:45 J	-5128739.93	-5128739.76	-5128739.59	0.0497	0.0256
Venus	-18755-12-03 21:21 J	-5128503.80	-5128503.61	-5128503.41	0.0495	0.0149
Mercury	-18753-08-13 03:50 J	-5127885.51	-5127885.34	-5127885.17	0.0499	0.0215
Venus	-18749-02-12 17:16 J	-5126606.89	-5126606.78	-5126606.66	0.0527	0.0437
Moon	-18749-04-29 02:52 J	-5126530.57	-5126530.38	-5126530.19	0.0528	0.0283
Earth	-18749-04-29 06:28 J	-5126530.41	-5126530.23	-5126530.04	0.0528	0.0313 *
Venus	-18749-10-07 14:52 J	-5126369.08	-5126368.88	-5126368.68	0.0530	0.0061
Mercury	-18747-04-06 15:07 J	-5125823.00	-5125822.87	-5125822.75	0.0527	0.0133
Mercury	-18747-07-04 20:38 J	-5125733.71	-5125733.64	-5125733.57	0.0526	0.0433
Venus	-18744-12-15 20:09 J	-5124473.80	-5124473.66	-5124473.53	0.0498	0.0366
Venus	-18743-08-09 00:00 J	-5124237.70	-5124237.50	-5124237.30	0.0496	0.0038
Venus	-18742-04-02 05:31 J	-5124001.36	-5124001.27	-5124001.18	0.0495	0.0438
Mercury	-18741-06-01 01:11 J	-5123575.64	-5123575.45	-5123575.27	0.0499	0.0039
Earth	-18737-05-04 02:23 J	-5122142.61	-5122142.40	-5122142.18	0.0529	0.0188

Moon	-18737-05-04 05:45 J	-5122142.47	-5122142.26	-5122142.05	0.0529	0.0182 *
Venus	-18737-06-12 04:19 J	-5122103.52	-5122103.32	-5122103.12	0.0529	0.0081
Venus	-18736-02-05 00:14 J	-5121865.62	-5121865.49	-5121865.37	0.0531	0.0417
Mercury	-18735-01-23 19:11 J	-5121512.81	-5121512.70	-5121512.60	0.0528	0.0277
Mercury	-18735-04-23 00:43 J	-5121423.58	-5121423.47	-5121423.37	0.0527	0.0289
Venus	-18732-08-20 22:33 J	-5120207.62	-5120207.56	-5120207.49	0.0499	0.0473
Venus	-18731-04-14 02:09 J	-5119971.61	-5119971.41	-5119971.20	0.0496	0.0075
Venus	-18731-12-06 06:57 J	-5119735.36	-5119735.21	-5119735.06	0.0495	0.0330
Mercury	-18729-03-19 21:36 J	-5119265.78	-5119265.60	-5119265.42	0.0498	0.0150
Mars	-18729-06-11 08:52 J	-5119182.32	-5119182.13	-5119181.92	0.0499	0.0314
Venus	-18725-02-15 17:31 J	-5117837.95	-5117837.77	-5117837.58	0.0529	0.0221
Venus	-18725-10-10 14:23 J	-5117600.06	-5117599.90	-5117599.72	0.0531	0.0283
Mercury	-18724-11-11 23:16 J	-5117202.60	-5117202.53	-5117202.45	0.0529	0.0418
Mercury	-18723-02-09 04:48 J	-5117113.42	-5117113.30	-5117113.17	0.0527	0.0149
Earth	-18720-10-24 22:19 J	-5115759.70	-5115759.57	-5115759.44	0.0497	0.0408
Moon	-18720-10-24 23:31 J	-5115759.63	-5115759.52	-5115759.39	0.0497	0.0419 *
Venus	-18720-12-18 04:04 J	-5115705.51	-5115705.33	-5115705.13	0.0497	0.0187
Venus	-18719-08-11 08:09 J	-5115469.34	-5115469.16	-5115468.97	0.0495	0.0221
Mercury	-18717-01-06 18:00 J	-5114955.88	-5114955.75	-5114955.61	0.0498	0.0335
Mercury	-18717-04-06 04:48 J	-5114865.41	-5114865.30	-5114865.19	0.0499	0.0395
Venus	-18714-10-21 08:23 J	-5113572.29	-5113572.15	-5113571.99	0.0528	0.0357
Venus	-18713-06-15 06:28 J	-5113334.43	-5113334.23	-5113334.04	0.0531	0.0147
Mercury	-18712-11-28 09:21 J	-5112803.23	-5112803.11	-5112802.98	0.0527	0.0023
Venus	-18708-08-23 04:48 J	-5111439.46	-5111439.30	-5111439.14	0.0497	0.0300
Earth	-18708-10-29 07:55 J	-5111372.41	-5111372.17	-5111371.93	0.0497	0.0008
Moon	-18708-10-29 08:38 J	-5111372.39	-5111372.14	-5111371.89	0.0497	0.0018 *
Venus	-18707-04-16 07:55 J	-5111203.36	-5111203.17	-5111202.96	0.0495	0.0106
Mercury	-18705-01-24 00:43 J	-5110555.64	-5110555.47	-5110555.30	0.0499	0.0200
Venus	-18702-06-25 22:48 J	-5109306.61	-5109306.55	-5109306.47	0.0527	0.0490
Venus	-18701-02-18 21:21 J	-5109068.81	-5109068.61	-5109068.40	0.0530	0.0014

Venus	-18701-10-13 17:16 J	-5108830.84	-5108830.78	-5108830.71	0.0531	0.0501
Mars	-18700-07-20 08:23 J	-5108551.22	-5108551.15	-5108551.07	0.0528	0.0509
Mercury	-18700-09-16 13:40 J	-5108493.05	-5108492.93	-5108492.80	0.0528	0.0130
Mercury	-18700-12-14 19:26 J	-5108403.76	-5108403.69	-5108403.62	0.0526	0.0436
Venus	-18696-04-28 06:28 J	-5107173.34	-5107173.23	-5107173.11	0.0498	0.0410
Moon	-18696-11-02 17:31 J	-5106984.87	-5106984.77	-5106984.66	0.0496	0.0441
Earth	-18696-11-02 20:09 J	-5106984.77	-5106984.66	-5106984.54	0.0496	0.0430 *
Venus	-18696-12-20 09:50 J	-5106937.30	-5106937.09	-5106936.89	0.0496	0.0013
Venus	-18695-08-13 14:38 J	-5106701.01	-5106700.89	-5106700.77	0.0495	0.0395
Mercury	-18694-11-11 21:36 J	-5106245.79	-5106245.60	-5106245.41	0.0499	0.0019
Venus	-18690-10-24 09:50 J	-5104803.29	-5104803.09	-5104802.90	0.0529	0.0138
Venus	-18689-06-18 06:00 J	-5104565.39	-5104565.25	-5104565.10	0.0531	0.0364
Mercury	-18688-07-05 17:16 J	-5104182.88	-5104182.78	-5104182.67	0.0528	0.0283
Mercury	-18688-10-02 22:48 J	-5104093.65	-5104093.55	-5104093.44	0.0526	0.0283
Venus	-18684-08-25 12:14 J	-5102671.19	-5102670.99	-5102670.79	0.0497	0.0121
Venus	-18683-04-18 16:33 J	-5102434.97	-5102434.81	-5102434.64	0.0495	0.0286
Mars	-18682-05-27 18:28 J	-5102030.76	-5102030.73	-5102030.69	0.0497	0.0491
Mercury	-18682-08-30 18:43 J	-5101935.90	-5101935.72	-5101935.54	0.0498	0.0159
Venus	-18678-06-28 23:02 J	-5100537.71	-5100537.54	-5100537.37	0.0528	0.0277
Venus	-18677-02-21 20:09 J	-5100299.85	-5100299.66	-5100299.48	0.0530	0.0227
Mercury	-18676-04-23 21:21 J	-5099872.68	-5099872.61	-5099872.53	0.0528	0.0427
Mercury	-18676-07-22 02:52 J	-5099783.50	-5099783.38	-5099783.26	0.0527	0.0137
Venus	-18672-04-30 14:23 J	-5098405.08	-5098404.90	-5098404.72	0.0497	0.0232
Venus	-18672-12-22 18:28 J	-5098168.93	-5098168.73	-5098168.54	0.0495	0.0176
Mercury	-18670-06-18 15:07 J	-5097626.00	-5097625.87	-5097625.73	0.0498	0.0346
Mercury	-18670-09-17 01:55 J	-5097535.54	-5097535.42	-5097535.30	0.0499	0.0384
Venus	-18666-03-03 11:45 J	-5096272.13	-5096272.01	-5096271.88	0.0527	0.0414
Earth	-18666-04-29 01:40 J	-5096215.56	-5096215.43	-5096215.30	0.0528	0.0432
Moon	-18666-04-29 05:16 J	-5096215.43	-5096215.28	-5096215.13	0.0528	0.0400 *
Venus	-18666-10-27 09:36 J	-5096034.30	-5096034.10	-5096033.90	0.0530	0.0086

Mars	-18664-04-27 11:02 J	-5095486.34	-5095486.04	-5095485.75	0.0528	0.0064
Mercury	-18664-05-10 07:11 J	-5095473.33	-5095473.20	-5095473.08	0.0528	0.0018
Venus	-18660-01-03 16:19 J	-5094138.96	-5094138.82	-5094138.67	0.0498	0.0343
Venus	-18660-08-27 20:09 J	-5093902.86	-5093902.66	-5093902.46	0.0496	0.0063
Venus	-18659-04-21 01:11 J	-5093666.51	-5093666.45	-5093666.37	0.0495	0.0463
Mercury	-18658-07-05 22:33 J	-5093225.73	-5093225.56	-5093225.39	0.0499	0.0200
Moon	-18654-05-03 21:50 J	-5091827.82	-5091827.59	-5091827.35	0.0529	0.0072
Earth	-18654-05-04 00:28 J	-5091827.70	-5091827.48	-5091827.25	0.0529	0.0081 *
Venus	-18654-07-02 00:43 J	-5091768.67	-5091768.47	-5091768.27	0.0530	0.0053
Venus	-18653-02-24 21:07 J	-5091530.72	-5091530.62	-5091530.51	0.0531	0.0448
Mercury	-18652-02-26 11:45 J	-5091163.13	-5091163.01	-5091162.89	0.0528	0.0141
Mercury	-18652-05-26 17:16 J	-5091073.85	-5091073.78	-5091073.71	0.0526	0.0425
Venus	-18649-09-08 17:31 J	-5089872.85	-5089872.77	-5089872.69	0.0499	0.0453
Venus	-18648-05-02 20:23 J	-5089636.85	-5089636.65	-5089636.44	0.0496	0.0054
Venus	-18648-12-25 00:28 J	-5089400.62	-5089400.48	-5089400.33	0.0495	0.0352
Mars	-18646-02-28 02:23 J	-5088970.62	-5088970.40	-5088970.17	0.0498	0.0221
Mercury	-18646-04-23 18:14 J	-5088915.92	-5088915.74	-5088915.55	0.0499	0.0006
Venus	-18642-03-06 15:21 J	-5087503.05	-5087502.86	-5087502.67	0.0529	0.0193
Venus	-18642-10-30 12:43 J	-5087265.13	-5087264.97	-5087264.80	0.0531	0.0313
Mercury	-18641-12-15 16:04 J	-5086852.94	-5086852.83	-5086852.73	0.0528	0.0280
Mercury	-18640-03-14 21:36 J	-5086763.71	-5086763.60	-5086763.49	0.0527	0.0285
Venus	-18636-01-05 22:19 J	-5085370.76	-5085370.57	-5085370.38	0.0497	0.0166
Venus	-18636-08-30 02:09 J	-5085134.59	-5085134.41	-5085134.23	0.0495	0.0242
Mercury	-18634-02-09 15:07 J	-5084606.04	-5084605.87	-5084605.69	0.0498	0.0178
Venus	-18631-11-09 03:50 J	-5083237.49	-5083237.34	-5083237.18	0.0528	0.0334
Venus	-18630-07-05 01:26 J	-5082999.63	-5082999.44	-5082999.25	0.0530	0.0171
Mercury	-18629-10-03 19:40 J	-5082542.75	-5082542.68	-5082542.61	0.0528	0.0433
Mercury	-18628-01-01 00:57 J	-5082453.58	-5082453.46	-5082453.33	0.0527	0.0131
Mars	-18628-02-02 22:48 J	-5082420.74	-5082420.55	-5082420.35	0.0526	0.0393
Venus	-18625-09-11 00:14 J	-5081104.65	-5081104.49	-5081104.32	0.0498	0.0279

Moon	-18625-10-28 06:00 J	-5081057.48	-5081057.25	-5081057.03	0.0497	0.0101
Earth	-18625-10-28 08:09 J	-5081057.39	-5081057.16	-5081056.92	0.0497	0.0076 *
Venus	-18624-05-05 04:19 J	-5080868.52	-5080868.32	-5080868.13	0.0496	0.0130
Mercury	-18623-11-28 12:14 J	-5080296.12	-5080295.99	-5080295.86	0.0498	0.0356
Mercury	-18622-02-26 23:02 J	-5080205.66	-5080205.54	-5080205.42	0.0499	0.0376
Venus	-18619-07-14 17:16 J	-5078971.87	-5078971.78	-5078971.68	0.0527	0.0468
Venus	-18618-03-09 15:07 J	-5078734.08	-5078733.87	-5078733.67	0.0530	0.0029
Venus	-18618-11-02 10:19 J	-5078496.10	-5078496.07	-5078496.03	0.0531	0.0522
Mercury	-18617-10-20 05:02 J	-5078143.41	-5078143.29	-5078143.16	0.0527	0.0018
Venus	-18613-05-17 02:38 J	-5076838.52	-5076838.39	-5076838.27	0.0499	0.0388
Earth	-18613-11-01 21:36 J	-5076669.77	-5076669.60	-5076669.43	0.0497	0.0351
Moon	-18613-11-02 01:11 J	-5076669.61	-5076669.45	-5076669.29	0.0497	0.0366 *
Venus	-18612-01-08 06:14 J	-5076602.44	-5076602.24	-5076602.04	0.0496	0.0018
Venus	-18612-09-01 11:16 J	-5076366.13	-5076366.03	-5076365.92	0.0495	0.0421
Mars	-18611-12-01 22:19 J	-5075909.83	-5075909.57	-5075909.32	0.0498	0.0069
Mercury	-18611-12-15 19:40 J	-5075895.85	-5075895.68	-5075895.51	0.0499	0.0190
Venus	-18607-11-12 03:50 J	-5074468.54	-5074468.34	-5074468.14	0.0529	0.0114
Venus	-18606-07-08 00:28 J	-5074230.61	-5074230.48	-5074230.34	0.0531	0.0390
Mercury	-18605-08-08 09:21 J	-5073833.23	-5073833.11	-5073832.99	0.0528	0.0159
Mercury	-18605-11-05 14:52 J	-5073743.96	-5073743.88	-5073743.80	0.0527	0.0407
Venus	-18601-01-21 04:48 J	-5072572.32	-5072572.30	-5072572.28	0.0500	0.0496
Venus	-18601-09-13 08:23 J	-5072336.35	-5072336.15	-5072335.95	0.0496	0.0096
Venus	-18600-05-07 12:43 J	-5072100.13	-5072099.97	-5072099.82	0.0495	0.0312
Mercury	-18599-10-03 16:19 J	-5071586.01	-5071585.82	-5071585.64	0.0498	0.0009
Venus	-18595-07-17 18:28 J	-5070202.91	-5070202.73	-5070202.55	0.0529	0.0252
Venus	-18594-03-12 16:19 J	-5069965.00	-5069964.82	-5069964.64	0.0531	0.0255
Mercury	-18593-05-27 13:55 J	-5069523.03	-5069522.92	-5069522.82	0.0528	0.0294
Mercury	-18593-08-24 19:26 J	-5069433.80	-5069433.69	-5069433.58	0.0527	0.0272
Venus	-18589-05-19 09:21 J	-5068070.29	-5068070.11	-5068069.93	0.0497	0.0211
Venus	-18588-01-10 12:43 J	-5067834.16	-5067833.97	-5067833.78	0.0495	0.0197



Mercury	-18587-07-22 12:00 J	-5067276.17	-5067276.00	-5067275.83	0.0498	0.0191
Venus	-18583-03-22 08:52 J	-5065937.26	-5065937.13	-5065936.99	0.0528	0.0389
Moon	-18583-04-27 22:33 J	-5065900.63	-5065900.56	-5065900.48	0.0529	0.0498
Earth	-18583-04-28 01:40 J	-5065900.43	-5065900.43	-5065900.43	0.0529	0.0528
Venus	-18583-11-15 07:11 J	-5065699.39	-5065699.20	-5065699.00	0.0531	0.0116
Mercury	-18581-03-15 18:14 J	-5065212.81	-5065212.74	-5065212.67	0.0529	0.0432
Mercury	-18581-06-12 23:45 J	-5065123.63	-5065123.51	-5065123.39	0.0527	0.0133
Venus	-18577-01-23 11:16 J	-5063804.18	-5063804.03	-5063803.87	0.0498	0.0323
Venus	-18577-09-15 14:38 J	-5063568.09	-5063567.89	-5063567.69	0.0495	0.0085
Venus	-18576-05-09 19:26 J	-5063331.72	-5063331.69	-5063331.64	0.0495	0.0485
Mercury	-18575-05-10 08:52 J	-5062966.25	-5062966.13	-5062966.01	0.0498	0.0372
Mercury	-18575-08-08 19:40 J	-5062875.81	-5062875.68	-5062875.55	0.0499	0.0359
Mars	-18575-09-04 10:48 J	-5062849.22	-5062849.05	-5062848.86	0.0500	0.0353
Venus	-18572-11-24 22:04 J	-5061671.59	-5061671.58	-5061671.55	0.0526	0.0523
Earth	-18571-05-02 21:36 J	-5061512.83	-5061512.60	-5061512.37	0.0529	0.0028
Moon	-18571-05-02 23:02 J	-5061512.76	-5061512.54	-5061512.31	0.0529	0.0040 *
Venus	-18571-07-20 20:09 J	-5061433.86	-5061433.66	-5061433.46	0.0530	0.0028
Venus	-18570-03-15 16:04 J	-5061195.91	-5061195.83	-5061195.73	0.0531	0.0471
Mercury	-18569-04-01 03:21 J	-5060813.49	-5060813.36	-5060813.23	0.0527	0.0022
Venus	-18566-09-28 12:43 J	-5059538.06	-5059537.97	-5059537.86	0.0499	0.0433
Venus	-18565-05-21 16:33 J	-5059302.02	-5059301.81	-5059301.61	0.0496	0.0031
Venus	-18564-01-12 21:21 J	-5059065.74	-5059065.61	-5059065.48	0.0495	0.0378
Mercury	-18563-05-27 17:02 J	-5058565.96	-5058565.79	-5058565.62	0.0499	0.0184
Venus	-18559-03-25 09:50 J	-5057168.28	-5057168.09	-5057167.89	0.0529	0.0170
Moon	-18559-05-07 18:14 J	-5057124.86	-5057124.74	-5057124.60	0.0529	0.0443
Earth	-18559-05-07 18:00 J	-5057124.85	-5057124.75	-5057124.65	0.0529	0.0474 *
Venus	-18559-11-18 06:28 J	-5056930.39	-5056930.23	-5056930.07	0.0530	0.0335
Mercury	-18557-01-19 07:26 J	-5056503.31	-5056503.19	-5056503.07	0.0528	0.0167
Mercury	-18557-04-17 12:57 J	-5056414.04	-5056413.96	-5056413.88	0.0526	0.0398
Venus	-18553-01-25 18:43 J	-5055035.92	-5055035.72	-5055035.53	0.0497	0.0142

Venus	-18553-09-17 23:02 J	-5054799.71	-5054799.54	-5054799.37	0.0495	0.0268
Mercury	-18551-03-15 13:40 J	-5054256.12	-5054255.93	-5054255.74	0.0498	0.0004
Venus	-18548-11-27 22:33 J	-5052902.73	-5052902.56	-5052902.40	0.0528	0.0310
Venus	-18547-07-23 19:55 J	-5052664.86	-5052664.67	-5052664.48	0.0530	0.0196
Mars	-18546-10-12 17:31 J	-5052218.90	-5052218.77	-5052218.63	0.0529	0.0469
Mercury	-18546-11-07 11:31 J	-5052193.12	-5052193.02	-5052192.92	0.0528	0.0310
Mercury	-18545-02-04 17:02 J	-5052103.90	-5052103.79	-5052103.68	0.0527	0.0255
Venus	-18542-09-30 21:07 J	-5050769.80	-5050769.62	-5050769.45	0.0498	0.0254
Earth	-18542-10-28 10:04 J	-5050742.30	-5050742.08	-5050741.85	0.0497	0.0154
Moon	-18542-10-28 13:40 J	-5050742.15	-5050741.93	-5050741.70	0.0497	0.0176 *
Venus	-18541-05-24 00:43 J	-5050533.66	-5050533.47	-5050533.28	0.0495	0.0156
Mercury	-18539-01-01 10:04 J	-5049946.25	-5049946.08	-5049945.90	0.0498	0.0188
Venus	-18536-08-02 12:43 J	-5048637.07	-5048636.97	-5048636.86	0.0527	0.0445
Venus	-18535-03-28 11:02 J	-5048399.24	-5048399.04	-5048398.84	0.0530	0.0057
Mercury	-18534-08-26 16:04 J	-5047882.89	-5047882.83	-5047882.76	0.0529	0.0445
Mercury	-18534-11-23 21:36 J	-5047793.72	-5047793.60	-5047793.47	0.0527	0.0121
Venus	-18530-06-05 22:48 J	-5046503.69	-5046503.55	-5046503.41	0.0498	0.0366
Moon	-18530-11-01 18:00 J	-5046354.94	-5046354.75	-5046354.55	0.0496	0.0280
Earth	-18530-11-01 22:04 J	-5046354.78	-5046354.58	-5046354.38	0.0496	0.0268 *
Venus	-18529-01-28 01:40 J	-5046267.63	-5046267.43	-5046267.22	0.0496	0.0042
Venus	-18529-09-20 06:14 J	-5046031.32	-5046031.24	-5046031.14	0.0495	0.0444
Mars	-18528-08-19 20:52 J	-5045697.73	-5045697.63	-5045697.52	0.0497	0.0451
Mercury	-18528-10-20 06:00 J	-5045636.37	-5045636.25	-5045636.13	0.0498	0.0381
Mercury	-18527-01-18 16:48 J	-5045545.93	-5045545.80	-5045545.67	0.0499	0.0350
Venus	-18524-12-01 01:40 J	-5044133.63	-5044133.43	-5044133.22	0.0530	0.0085
Venus	-18523-07-26 22:48 J	-5043895.67	-5043895.55	-5043895.42	0.0531	0.0420
Mercury	-18522-09-12 02:09 J	-5043483.54	-5043483.41	-5043483.29	0.0528	0.0023
Venus	-18518-02-09 00:57 J	-5042237.52	-5042237.46	-5042237.40	0.0499	0.0474
Venus	-18518-10-03 04:04 J	-5042001.53	-5042001.33	-5042001.13	0.0496	0.0072
Venus	-18517-05-26 07:55 J	-5041765.32	-5041765.17	-5041765.02	0.0495	0.0335

Mercury	-18516-11-06 13:55 J	-5041236.09	-5041235.92	-5041235.74	0.0499	0.0171
Venus	-18512-08-05 15:07 J	-5039868.05	-5039867.87	-5039867.68	0.0529	0.0226
Venus	-18511-03-31 12:28 J	-5039630.15	-5039629.98	-5039629.81	0.0530	0.0282
Mercury	-18510-07-01 05:45 J	-5039173.38	-5039173.26	-5039173.14	0.0528	0.0170
Mars	-18510-07-21 11:31 J	-5039153.32	-5039153.02	-5039152.72	0.0527	0.0002
Mercury	-18510-09-28 11:16 J	-5039084.11	-5039084.03	-5039083.95	0.0526	0.0394
Venus	-18506-06-08 05:31 J	-5037735.46	-5037735.27	-5037735.08	0.0497	0.0187
Venus	-18505-01-30 09:36 J	-5037499.28	-5037499.10	-5037498.92	0.0496	0.0224
Mercury	-18504-08-25 11:16 J	-5036926.22	-5036926.03	-5036925.84	0.0499	0.0006
Venus	-18500-04-10 05:16 J	-5035602.42	-5035602.28	-5035602.13	0.0527	0.0363
Venus	-18500-12-04 02:38 J	-5035364.59	-5035364.39	-5035364.19	0.0530	0.0142
Mercury	-18498-04-19 09:50 J	-5034863.19	-5034863.09	-5034862.99	0.0528	0.0314
Mercury	-18498-07-17 15:21 J	-5034773.97	-5034773.86	-5034773.75	0.0527	0.0250
Venus	-18494-02-11 07:55 J	-5033469.33	-5033469.17	-5033469.01	0.0498	0.0298
Venus	-18494-10-05 11:45 J	-5033233.21	-5033233.01	-5033232.81	0.0496	0.0113
Mars	-18492-05-23 16:48 J	-5032637.04	-5032636.80	-5032636.56	0.0498	0.0163
Mercury	-18492-06-13 07:55 J	-5032616.34	-5032616.17	-5032615.99	0.0498	0.0189
Venus	-18489-12-13 18:00 J	-5031336.81	-5031336.75	-5031336.69	0.0526	0.0498
Moon	-18488-05-01 18:28 J	-5031197.95	-5031197.73	-5031197.50	0.0528	0.0151
Earth	-18488-05-01 18:43 J	-5031197.94	-5031197.72	-5031197.49	0.0528	0.0140 *
Venus	-18488-08-08 15:36 J	-5031099.05	-5031098.85	-5031098.64	0.0530	0.0012
Venus	-18487-04-03 11:45 J	-5030861.07	-5030861.01	-5030860.94	0.0531	0.0498
Mercury	-18486-02-05 13:55 J	-5030552.98	-5030552.92	-5030552.86	0.0529	0.0457
Mercury	-18486-05-05 19:26 J	-5030463.81	-5030463.69	-5030463.56	0.0527	0.0107
Venus	-18483-10-17 10:33 J	-5029203.18	-5029203.06	-5029202.95	0.0499	0.0408
Venus	-18482-06-10 13:55 J	-5028967.12	-5028966.92	-5028966.71	0.0496	0.0007
Venus	-18481-02-01 18:28 J	-5028730.84	-5028730.73	-5028730.61	0.0495	0.0406
Mercury	-18480-04-01 04:33 J	-5028306.43	-5028306.31	-5028306.19	0.0498	0.0374
Mercury	-18480-06-30 15:21 J	-5028215.99	-5028215.86	-5028215.73	0.0499	0.0357
Venus	-18476-04-13 06:28 J	-5026833.43	-5026833.23	-5026833.04	0.0529	0.0141

Moon	-18476-05-06 14:52 J	-5026810.05	-5026809.88	-5026809.71	0.0529	0.0344
Earth	-18476-05-06 16:48 J	-5026809.96	-5026809.80	-5026809.63	0.0529	0.0370 *
Venus	-18476-12-07 03:21 J	-5026595.50	-5026595.36	-5026595.21	0.0531	0.0366
Mercury	-18474-02-22 00:00 J	-5026153.62	-5026153.50	-5026153.37	0.0528	0.0031
Mars	-18474-04-29 06:00 J	-5026087.39	-5026087.25	-5026087.11	0.0527	0.0465
Venus	-18470-02-13 15:50 J	-5024701.03	-5024700.84	-5024700.64	0.0497	0.0116
Venus	-18470-10-07 19:40 J	-5024464.84	-5024464.68	-5024464.52	0.0495	0.0294
Mercury	-18468-04-18 11:31 J	-5023906.19	-5023906.02	-5023905.84	0.0498	0.0167
Venus	-18465-12-16 20:52 J	-5022567.80	-5022567.63	-5022567.45	0.0529	0.0282
Venus	-18464-08-11 18:57 J	-5022329.89	-5022329.71	-5022329.52	0.0531	0.0229
Mercury	-18463-12-11 04:33 J	-5021843.43	-5021843.31	-5021843.19	0.0528	0.0165
Mercury	-18462-03-10 10:19 J	-5021754.15	-5021754.07	-5021753.99	0.0527	0.0402
Venus	-18459-10-19 18:14 J	-5020434.91	-5020434.74	-5020434.55	0.0497	0.0229
Moon	-18459-10-27 09:21 J	-5020427.31	-5020427.11	-5020426.91	0.0497	0.0252
Earth	-18459-10-27 13:11 J	-5020427.16	-5020426.95	-5020426.73	0.0497	0.0227 *
Venus	-18458-06-12 21:36 J	-5020198.79	-5020198.60	-5020198.41	0.0495	0.0182
Mercury	-18456-02-04 08:38 J	-5019596.32	-5019596.14	-5019595.95	0.0498	0.0016
Mars	-18456-02-24 07:26 J	-5019576.44	-5019576.19	-5019575.94	0.0499	0.0123
Venus	-18453-08-21 11:31 J	-5018302.15	-5018302.02	-5018301.90	0.0527	0.0416
Venus	-18452-04-16 09:07 J	-5018064.32	-5018064.12	-5018063.92	0.0530	0.0088
Mercury	-18451-09-29 08:23 J	-5017533.25	-5017533.15	-5017533.05	0.0528	0.0314
Mercury	-18451-12-27 13:55 J	-5017444.03	-5017443.92	-5017443.81	0.0527	0.0250
Venus	-18447-06-24 19:26 J	-5016168.84	-5016168.69	-5016168.55	0.0499	0.0342
Earth	-18447-11-01 00:28 J	-5016039.70	-5016039.48	-5016039.26	0.0497	0.0190
Moon	-18447-11-01 04:04 J	-5016039.54	-5016039.33	-5016039.11	0.0497	0.0210 *
Venus	-18446-02-15 23:16 J	-5015932.74	-5015932.53	-5015932.33	0.0496	0.0069
Venus	-18446-10-10 04:33 J	-5015696.36	-5015696.31	-5015696.25	0.0495	0.0473
Mercury	-18445-11-23 06:00 J	-5015286.42	-5015286.25	-5015286.08	0.0498	0.0188
Venus	-18441-12-19 23:31 J	-5013798.72	-5013798.52	-5013798.32	0.0529	0.0054
Venus	-18440-08-14 19:26 J	-5013560.79	-5013560.69	-5013560.58	0.0530	0.0448

Mercury	-18439-07-18 12:28 J	-5013223.04	-5013222.98	-5013222.91	0.0528	0.0457
Mercury	-18439-10-15 18:00 J	-5013133.87	-5013133.75	-5013133.63	0.0527	0.0107
Venus	-18435-02-27 21:50 J	-5011902.67	-5011902.59	-5011902.50	0.0500	0.0451
Venus	-18435-10-22 01:40 J	-5011666.63	-5011666.43	-5011666.23	0.0497	0.0044
Venus	-18434-06-15 06:14 J	-5011430.37	-5011430.24	-5011430.10	0.0495	0.0366
Mercury	-18433-09-11 02:52 J	-5010976.51	-5010976.38	-5010976.26	0.0498	0.0370
Mercury	-18433-12-10 13:40 J	-5010886.05	-5010885.93	-5010885.80	0.0499	0.0361
Venus	-18429-08-24 12:28 J	-5009533.16	-5009532.98	-5009532.79	0.0528	0.0197
Venus	-18428-04-19 09:21 J	-5009295.27	-5009295.11	-5009294.94	0.0530	0.0313
Mercury	-18427-08-03 22:04 J	-5008823.70	-5008823.58	-5008823.45	0.0528	0.0042
Venus	-18423-06-27 04:19 J	-5007400.51	-5007400.32	-5007400.13	0.0497	0.0158
Venus	-18422-02-18 08:23 J	-5007164.32	-5007164.15	-5007163.97	0.0496	0.0254
Mercury	-18421-09-28 10:33 J	-5006576.23	-5006576.06	-5006575.89	0.0499	0.0179
Mars	-18421-11-28 06:00 J	-5006515.38	-5006515.25	-5006515.10	0.0499	0.0417
Venus	-18417-04-29 02:52 J	-5005267.53	-5005267.38	-5005267.22	0.0528	0.0335
Venus	-18417-12-23 00:43 J	-5005029.66	-5005029.47	-5005029.28	0.0530	0.0174
Mercury	-18415-05-23 02:52 J	-5004513.50	-5004513.38	-5004513.26	0.0528	0.0172
Mercury	-18415-08-20 08:23 J	-5004424.23	-5004424.15	-5004424.07	0.0527	0.0395
Venus	-18411-03-02 06:57 J	-5003134.38	-5003134.21	-5003134.04	0.0498	0.0270
Venus	-18411-10-24 10:19 J	-5002898.27	-5002898.07	-5002897.87	0.0495	0.0141
Mercury	-18409-07-17 06:57 J	-5002266.40	-5002266.21	-5002266.03	0.0498	0.0014
Venus	-18405-01-02 17:45 J	-5001001.85	-5001001.76	-5001001.67	0.0527	0.0469
Moon	-18405-04-30 21:21 J	-5000882.80	-5000882.61	-5000882.41	0.0529	0.0239
Earth	-18405-04-30 22:48 J	-5000882.75	-5000882.55	-5000882.33	0.0529	0.0219 *
Venus	-18405-08-27 16:04 J	-5000764.03	-5000763.83	-5000763.63	0.0530	0.0033
Mercury	-18403-03-11 07:26 J	-5000203.29	-5000203.19	-5000203.09	0.0529	0.0306
Mercury	-18403-06-08 12:57 J	-5000114.07	-5000113.96	-5000113.85	0.0527	0.0260
Venus	-18400-11-05 09:21 J	-4998868.23	-4998868.11	-4998867.97	0.0499	0.0382
Venus	-18399-06-29 12:43 J	-4998632.17	-4998631.97	-4998631.76	0.0496	0.0028
Venus	-18398-02-20 17:16 J	-4998395.88	-4998395.78	-4998395.68	0.0495	0.0433

Mercury	-18397-05-05 04:04 J	-4997956.50	-4997956.33	-4997956.16	0.0498	0.0186
Venus	-18393-05-02 06:43 J	-4996498.42	-4996498.22	-4996498.02	0.0529	0.0107
Earth	-18393-05-05 21:21 J	-4996494.80	-4996494.61	-4996494.41	0.0529	0.0291
Moon	-18393-05-06 00:57 J	-4996494.66	-4996494.46	-4996494.26	0.0529	0.0270 *
Venus	-18393-12-26 03:07 J	-4996260.50	-4996260.37	-4996260.23	0.0530	0.0399
Mercury	-18392-12-28 11:16 J	-4995893.09	-4995893.03	-4995892.96	0.0528	0.0453
Mars	-18391-01-05 13:11 J	-4995885.15	-4995884.95	-4995884.74	0.0528	0.0377
Mercury	-18391-03-27 16:48 J	-4995803.93	-4995803.80	-4995803.68	0.0527	0.0110
Venus	-18388-07-11 10:04 J	-4994602.11	-4994602.08	-4994602.05	0.0500	0.0492
Venus	-18387-03-04 13:55 J	-4994366.12	-4994365.92	-4994365.72	0.0497	0.0087
Venus	-18387-10-26 18:28 J	-4994129.88	-4994129.73	-4994129.58	0.0496	0.0325
Mercury	-18385-02-22 01:11 J	-4993646.58	-4993646.45	-4993646.32	0.0498	0.0364
Mercury	-18385-05-22 12:14 J	-4993556.12	-4993555.99	-4993555.87	0.0499	0.0368
Venus	-18381-01-05 21:21 J	-4992232.78	-4992232.61	-4992232.42	0.0528	0.0247
Venus	-18381-08-30 18:28 J	-4991994.91	-4991994.73	-4991994.56	0.0530	0.0262
Mercury	-18379-01-13 20:52 J	-4991493.75	-4991493.63	-4991493.50	0.0527	0.0037
Earth	-18376-10-26 17:16 J	-4990111.96	-4990111.78	-4990111.59	0.0498	0.0299
Moon	-18376-10-26 21:07 J	-4990111.80	-4990111.62	-4990111.44	0.0498	0.0316 *
Venus	-18376-11-07 16:33 J	-4990100.00	-4990099.81	-4990099.62	0.0498	0.0200
Venus	-18375-07-01 20:52 J	-4989863.82	-4989863.63	-4989863.45	0.0496	0.0214
Mars	-18374-11-13 23:16 J	-4989363.69	-4989363.53	-4989363.36	0.0497	0.0379
Mercury	-18373-03-10 09:07 J	-4989246.29	-4989246.12	-4989245.94	0.0499	0.0189
Venus	-18370-09-10 10:33 J	-4987967.19	-4987967.06	-4987966.91	0.0527	0.0386
Venus	-18369-05-05 07:55 J	-4987729.36	-4987729.17	-4987728.97	0.0530	0.0122
Mercury	-18368-11-02 01:11 J	-4987183.57	-4987183.45	-4987183.33	0.0528	0.0174
Mercury	-18367-01-30 06:43 J	-4987094.30	-4987094.22	-4987094.13	0.0527	0.0391
Venus	-18364-07-13 19:26 J	-4985833.84	-4985833.69	-4985833.53	0.0499	0.0312
Moon	-18364-10-31 05:31 J	-4985724.50	-4985724.27	-4985724.03	0.0497	0.0157
Earth	-18364-10-31 08:23 J	-4985724.38	-4985724.15	-4985723.92	0.0497	0.0135 *
Venus	-18363-03-06 23:31 J	-4985597.72	-4985597.52	-4985597.32	0.0496	0.0101

Mercury	-18362-12-28 06:14 J	-4984936.43	-4984936.24	-4984936.06	0.0498	0.0014
Venus	-18358-05-16 00:57 J	-4983701.48	-4983701.46	-4983701.42	0.0526	0.0519
Venus	-18357-01-08 22:48 J	-4983463.75	-4983463.55	-4983463.34	0.0529	0.0021
Venus	-18357-09-02 19:11 J	-4983225.78	-4983225.70	-4983225.62	0.0531	0.0482
Mercury	-18356-08-21 05:45 J	-4982873.36	-4982873.26	-4982873.16	0.0529	0.0309
Mars	-18356-10-14 12:43 J	-4982819.27	-4982818.97	-4982818.68	0.0528	0.0098
Mercury	-18356-11-18 11:16 J	-4982784.14	-4982784.03	-4982783.92	0.0527	0.0257
Venus	-18352-03-18 22:33 J	-4981567.66	-4981567.56	-4981567.45	0.0499	0.0422
Venus	-18352-11-10 01:55 J	-4981331.62	-4981331.42	-4981331.21	0.0496	0.0017
Venus	-18351-07-04 06:14 J	-4981095.36	-4981095.24	-4981095.12	0.0495	0.0396
Mercury	-18350-10-16 02:38 J	-4980626.57	-4980626.39	-4980626.22	0.0498	0.0179
Venus	-18346-09-13 14:09 J	-4979198.11	-4979197.91	-4979197.72	0.0529	0.0161
Venus	-18345-05-08 11:16 J	-4978960.17	-4978960.03	-4978959.87	0.0531	0.0350
Mercury	-18344-06-09 10:33 J	-4978563.13	-4978563.06	-4978563.00	0.0529	0.0442
Mercury	-18344-09-06 16:04 J	-4978473.96	-4978473.83	-4978473.71	0.0528	0.0124
Venus	-18340-07-16 04:48 J	-4977065.50	-4977065.30	-4977065.10	0.0497	0.0126
Venus	-18339-03-09 08:38 J	-4976829.30	-4976829.14	-4976828.97	0.0495	0.0286
Mercury	-18338-08-03 23:45 J	-4976316.64	-4976316.51	-4976316.38	0.0498	0.0355
Mars	-18338-08-17 18:00 J	-4976303.00	-4976302.75	-4976302.50	0.0498	0.0088
Mercury	-18338-11-02 10:33 J	-4976226.17	-4976226.06	-4976225.93	0.0499	0.0376
Venus	-18334-05-19 05:16 J	-4974932.44	-4974932.28	-4974932.11	0.0528	0.0298
Venus	-18333-01-12 02:38 J	-4974694.57	-4974694.39	-4974694.20	0.0530	0.0212
Mercury	-18332-06-25 19:55 J	-4974163.80	-4974163.67	-4974163.54	0.0527	0.0025
Venus	-18328-03-21 05:31 J	-4972799.45	-4972799.27	-4972799.09	0.0498	0.0241
Venus	-18328-11-12 09:36 J	-4972563.29	-4972563.10	-4972562.91	0.0496	0.0173
Mercury	-18326-08-21 07:55 J	-4971916.33	-4971916.17	-4971915.99	0.0499	0.0200
Venus	-18322-01-21 20:52 J	-4970666.75	-4970666.63	-4970666.52	0.0526	0.0431
Earth	-18322-05-01 07:26 J	-4970567.39	-4970567.19	-4970567.00	0.0528	0.0281
Moon	-18322-05-01 10:33 J	-4970567.25	-4970567.06	-4970566.87	0.0528	0.0308 *
Venus	-18322-09-16 18:00 J	-4970428.95	-4970428.75	-4970428.54	0.0529	0.0073

Mercury	-18320-04-14 00:14 J	-4969853.61	-4969853.49	-4969853.37	0.0527	0.0164
Mercury	-18320-07-12 05:45 J	-4969764.34	-4969764.26	-4969764.18	0.0526	0.0400
Venus	-18317-11-24 07:55 J	-4968533.30	-4968533.17	-4968533.02	0.0499	0.0354
Venus	-18316-07-18 12:14 J	-4968297.19	-4968296.99	-4968296.79	0.0497	0.0061
Venus	-18315-03-11 17:31 J	-4968060.83	-4968060.77	-4968060.70	0.0496	0.0468
Mercury	-18314-06-09 05:16 J	-4967606.47	-4967606.28	-4967606.10	0.0499	0.0022
Moon	-18310-05-05 23:02 J	-4966179.75	-4966179.54	-4966179.32	0.0528	0.0193
Earth	-18310-05-06 03:07 J	-4966179.58	-4966179.37	-4966179.16	0.0528	0.0214 *
Venus	-18310-05-22 07:26 J	-4966163.39	-4966163.19	-4966162.99	0.0529	0.0072
Venus	-18309-01-15 03:36 J	-4965925.46	-4965925.35	-4965925.24	0.0530	0.0434
Mercury	-18308-01-31 04:33 J	-4965543.41	-4965543.31	-4965543.21	0.0528	0.0307
Mercury	-18308-04-30 10:04 J	-4965454.19	-4965454.08	-4965453.97	0.0527	0.0258
Venus	-18305-07-30 11:16 J	-4964267.10	-4964267.03	-4964266.95	0.0500	0.0463
Venus	-18304-03-23 15:21 J	-4964031.06	-4964030.86	-4964030.66	0.0497	0.0053
Venus	-18304-11-14 19:55 J	-4963794.81	-4963794.67	-4963794.53	0.0496	0.0359
Mercury	-18302-03-28 02:09 J	-4963296.59	-4963296.41	-4963296.23	0.0498	0.0160
Mars	-18302-05-21 17:02 J	-4963242.02	-4963241.79	-4963241.55	0.0499	0.0206
Venus	-18298-01-24 22:04 J	-4961897.76	-4961897.58	-4961897.39	0.0528	0.0212
Venus	-18298-09-19 19:11 J	-4961659.87	-4961659.70	-4961659.53	0.0530	0.0299
Mercury	-18297-11-19 09:07 J	-4961233.19	-4961233.12	-4961233.05	0.0529	0.0441
Mercury	-18296-02-16 14:38 J	-4961144.02	-4961143.89	-4961143.77	0.0527	0.0123
Moon	-18293-10-26 01:40 J	-4959796.60	-4959796.43	-4959796.26	0.0498	0.0352
Earth	-18293-10-26 04:19 J	-4959796.49	-4959796.32	-4959796.15	0.0498	0.0342 *
Venus	-18293-11-26 18:28 J	-4959764.93	-4959764.73	-4959764.54	0.0498	0.0167
Venus	-18292-07-20 22:19 J	-4959528.75	-4959528.57	-4959528.40	0.0496	0.0248
Mercury	-18290-01-13 22:48 J	-4958986.69	-4958986.55	-4958986.42	0.0498	0.0344
Mercury	-18290-04-14 09:36 J	-4958896.22	-4958896.10	-4958895.98	0.0499	0.0387
Venus	-18287-09-29 13:11 J	-4957632.10	-4957631.95	-4957631.80	0.0527	0.0350
Venus	-18286-05-25 11:02 J	-4957394.24	-4957394.04	-4957393.85	0.0530	0.0161
Mercury	-18285-12-05 19:11 J	-4956833.82	-4956833.70	-4956833.57	0.0528	0.0013



Venus	-18281-08-01 21:21 J	-4955498.78	-4955498.61	-4955498.44	0.0498	0.0279
Earth	-18281-10-30 18:43 J	-4955408.95	-4955408.72	-4955408.49	0.0497	0.0089
Moon	-18281-10-30 19:26 J	-4955408.91	-4955408.69	-4955408.47	0.0497	0.0118 *
Venus	-18280-03-26 00:57 J	-4955262.65	-4955262.46	-4955262.26	0.0496	0.0136
Mercury	-18278-01-31 06:57 J	-4954586.37	-4954586.21	-4954586.04	0.0499	0.0213
Venus	-18275-06-04 05:16 J	-4953366.36	-4953366.28	-4953366.20	0.0526	0.0480
Venus	-18274-01-28 02:52 J	-4953128.59	-4953128.38	-4953128.18	0.0529	0.0023
Venus	-18274-09-22 22:19 J	-4952890.59	-4952890.57	-4952890.53	0.0530	0.0523
Mercury	-18273-09-23 23:31 J	-4952523.65	-4952523.52	-4952523.40	0.0527	0.0155
Mercury	-18273-12-22 04:48 J	-4952434.37	-4952434.30	-4952434.22	0.0526	0.0410
Venus	-18269-04-06 21:36 J	-4951232.72	-4951232.60	-4951232.48	0.0500	0.0394
Venus	-18269-11-29 01:40 J	-4950996.64	-4950996.43	-4950996.23	0.0497	0.0021
Venus	-18268-07-23 06:43 J	-4950760.32	-4950760.22	-4950760.12	0.0496	0.0430
Mercury	-18267-11-19 04:04 J	-4950276.51	-4950276.33	-4950276.14	0.0499	0.0036
Venus	-18263-10-02 18:14 J	-4948862.93	-4948862.74	-4948862.54	0.0528	0.0119
Venus	-18262-05-28 14:23 J	-4948625.03	-4948624.90	-4948624.76	0.0530	0.0390
Mercury	-18261-07-13 03:50 J	-4948213.45	-4948213.34	-4948213.24	0.0528	0.0292
Mercury	-18261-10-10 09:07 J	-4948124.22	-4948124.12	-4948124.01	0.0526	0.0271
Venus	-18257-08-04 04:19 J	-4946730.52	-4946730.32	-4946730.12	0.0498	0.0094
Venus	-18256-03-28 09:07 J	-4946494.27	-4946494.12	-4946493.96	0.0496	0.0322
Mercury	-18255-09-07 01:26 J	-4945966.62	-4945966.44	-4945966.26	0.0499	0.0144
Venus	-18251-06-07 07:40 J	-4944597.35	-4944597.18	-4944597.00	0.0527	0.0261
Venus	-18250-01-31 04:33 J	-4944359.49	-4944359.31	-4944359.13	0.0530	0.0250
Mercury	-18249-05-01 07:55 J	-4943903.24	-4943903.17	-4943903.10	0.0528	0.0435
Mercury	-18249-07-29 13:26 J	-4943814.06	-4943813.94	-4943813.82	0.0527	0.0128
Venus	-18245-04-09 07:40 J	-4942464.36	-4942464.18	-4942463.99	0.0498	0.0208
Venus	-18245-12-01 12:00 J	-4942228.18	-4942228.00	-4942227.81	0.0496	0.0209
Mercury	-18243-06-25 22:19 J	-4941656.71	-4941656.57	-4941656.42	0.0498	0.0323
Mercury	-18243-09-24 09:21 J	-4941566.21	-4941566.11	-4941566.01	0.0499	0.0409
Venus	-18239-02-09 22:19 J	-4940331.70	-4940331.57	-4940331.43	0.0526	0.0398

Moon	-18239-04-30 10:19 J	-4940252.22	-4940252.07	-4940251.91	0.0528	0.0383
Earth	-18239-04-30 14:09 J	-4940252.07	-4940251.91	-4940251.73	0.0528	0.0350 *
Venus	-18239-10-05 19:40 J	-4940093.88	-4940093.68	-4940093.48	0.0529	0.0110
Mars	-18237-04-01 09:36 J	-4939550.36	-4939550.10	-4939549.84	0.0528	0.0255
Mercury	-18237-05-17 18:00 J	-4939503.88	-4939503.75	-4939503.62	0.0528	0.0007
Venus	-18234-12-14 11:02 J	-4938198.20	-4938198.04	-4938197.89	0.0499	0.0319
Venus	-18233-08-06 14:52 J	-4937962.08	-4937961.88	-4937961.68	0.0496	0.0097
Mercury	-18231-07-13 06:14 J	-4937256.41	-4937256.24	-4937256.08	0.0499	0.0227
Earth	-18227-05-05 13:11 J	-4935864.17	-4935863.95	-4935863.73	0.0529	0.0159
Moon	-18227-05-05 16:48 J	-4935864.01	-4935863.80	-4935863.58	0.0529	0.0146 *
Venus	-18227-06-10 11:02 J	-4935828.24	-4935828.04	-4935827.84	0.0529	0.0031
Venus	-18226-02-03 07:26 J	-4935590.27	-4935590.19	-4935590.09	0.0531	0.0476
Mercury	-18225-03-05 22:48 J	-4935193.67	-4935193.55	-4935193.43	0.0528	0.0140
Mercury	-18225-06-03 04:19 J	-4935104.39	-4935104.32	-4935104.25	0.0527	0.0426
Venus	-18222-08-19 13:55 J	-4933932.01	-4933931.92	-4933931.81	0.0500	0.0430
Venus	-18221-04-11 17:45 J	-4933695.96	-4933695.76	-4933695.55	0.0497	0.0020
Venus	-18221-12-03 22:04 J	-4933459.69	-4933459.58	-4933459.45	0.0495	0.0395
Mars	-18219-02-07 12:43 J	-4933029.17	-4933028.97	-4933028.76	0.0498	0.0289
Mercury	-18219-05-01 03:36 J	-4932946.54	-4932946.35	-4932946.16	0.0499	0.0052
Venus	-18215-02-13 03:21 J	-4931562.55	-4931562.36	-4931562.16	0.0528	0.0168
Venus	-18215-10-09 00:14 J	-4931324.65	-4931324.49	-4931324.34	0.0530	0.0343
Mercury	-18214-12-24 03:07 J	-4930883.48	-4930883.37	-4930883.27	0.0528	0.0280
Mercury	-18213-03-22 08:23 J	-4930794.25	-4930794.15	-4930794.04	0.0526	0.0283
Earth	-18210-10-26 11:16 J	-4929481.16	-4929481.03	-4929480.89	0.0499	0.0404
Moon	-18210-10-26 12:14 J	-4929481.12	-4929480.99	-4929480.86	0.0499	0.0404 *
Venus	-18210-12-16 18:00 J	-4929429.94	-4929429.75	-4929429.55	0.0498	0.0135
Venus	-18209-08-08 22:33 J	-4929193.72	-4929193.56	-4929193.39	0.0496	0.0283
Mercury	-18207-02-17 00:28 J	-4928636.66	-4928636.48	-4928636.30	0.0499	0.0130
Venus	-18204-10-18 19:11 J	-4927296.87	-4927296.70	-4927296.53	0.0527	0.0306
Venus	-18203-06-13 15:50 J	-4927059.02	-4927058.84	-4927058.65	0.0529	0.0206

Mercury	-18202-10-12 07:26 J	-4926573.26	-4926573.19	-4926573.11	0.0528	0.0417
Mars	-18201-01-09 14:23 J	-4926484.16	-4926483.90	-4926483.63	0.0526	0.0225
Mercury	-18201-01-09 12:57 J	-4926484.08	-4926483.96	-4926483.84	0.0526	0.0145 *
Venus	-18198-08-21 20:52 J	-4925163.80	-4925163.63	-4925163.45	0.0499	0.0248
Earth	-18198-10-31 01:55 J	-4925093.66	-4925093.42	-4925093.18	0.0498	0.0027
Moon	-18198-10-31 02:52 J	-4925093.62	-4925093.38	-4925093.13	0.0498	0.0059 *
Venus	-18197-04-14 01:11 J	-4924927.64	-4924927.45	-4924927.25	0.0497	0.0171
Mercury	-18196-12-05 21:36 J	-4924326.74	-4924326.60	-4924326.45	0.0498	0.0308
Mercury	-18195-03-06 08:38 J	-4924236.23	-4924236.14	-4924236.04	0.0500	0.0426
Venus	-18192-06-23 08:38 J	-4923031.24	-4923031.14	-4923031.03	0.0526	0.0444
Venus	-18191-02-16 05:45 J	-4922793.46	-4922793.26	-4922793.06	0.0529	0.0062
Mercury	-18190-10-28 17:02 J	-4922173.91	-4922173.79	-4922173.66	0.0527	0.0007
Venus	-18186-04-27 00:00 J	-4920897.63	-4920897.50	-4920897.35	0.0500	0.0361
Moon	-18186-11-04 15:21 J	-4920705.92	-4920705.86	-4920705.78	0.0497	0.0472
Earth	-18186-11-04 17:45 J	-4920705.84	-4920705.76	-4920705.67	0.0497	0.0464 *
Venus	-18186-12-19 04:33 J	-4920661.52	-4920661.31	-4920661.11	0.0497	0.0057
Venus	-18185-08-11 09:50 J	-4920425.15	-4920425.09	-4920425.02	0.0496	0.0467
Mercury	-18184-09-23 18:43 J	-4920016.76	-4920016.72	-4920016.68	0.0498	0.0486
Mars	-18184-11-11 12:28 J	-4919968.24	-4919967.98	-4919967.73	0.0499	0.0007
Mercury	-18184-12-23 06:00 J	-4919926.41	-4919926.25	-4919926.09	0.0499	0.0248
Venus	-18180-10-21 20:23 J	-4918527.85	-4918527.65	-4918527.44	0.0528	0.0082
Venus	-18179-06-16 16:33 J	-4918289.92	-4918289.81	-4918289.68	0.0530	0.0428
Mercury	-18178-08-16 21:36 J	-4917863.72	-4917863.60	-4917863.48	0.0528	0.0134
Mercury	-18178-11-14 03:07 J	-4917774.44	-4917774.37	-4917774.30	0.0526	0.0431
Venus	-18175-12-31 03:36 J	-4916631.42	-4916631.35	-4916631.28	0.0501	0.0470
Venus	-18174-08-24 07:40 J	-4916395.38	-4916395.18	-4916394.97	0.0497	0.0058
Venus	-18173-04-16 12:14 J	-4916159.13	-4916158.99	-4916158.85	0.0496	0.0358
Mercury	-18172-10-11 02:52 J	-4915616.57	-4915616.38	-4915616.20	0.0499	0.0067
Venus	-18168-06-26 11:31 J	-4914262.20	-4914262.02	-4914261.83	0.0528	0.0221
Venus	-18167-02-19 08:52 J	-4914024.30	-4914024.13	-4914023.96	0.0530	0.0293

Mercury	-18166-06-05 02:23 J	-4913553.51	-4913553.40	-4913553.29	0.0528	0.0266
Mercury	-18166-09-02 07:40 J	-4913464.28	-4913464.18	-4913464.07	0.0527	0.0299
Venus	-18162-04-29 10:33 J	-4912129.24	-4912129.06	-4912128.86	0.0498	0.0172
Venus	-18162-12-21 14:52 J	-4911893.06	-4911892.88	-4911892.71	0.0496	0.0246
Mercury	-18160-07-30 00:00 J	-4911306.68	-4911306.50	-4911306.31	0.0498	0.0110
Venus	-18156-03-01 04:04 J	-4909996.47	-4909996.33	-4909996.17	0.0527	0.0356
Earth	-18156-04-30 03:50 J	-4909936.48	-4909936.34	-4909936.18	0.0527	0.0391
Moon	-18156-04-30 07:40 J	-4909936.31	-4909936.18	-4909936.04	0.0527	0.0424 *
Venus	-18156-10-25 01:26 J	-4909758.63	-4909758.44	-4909758.24	0.0529	0.0156
Mercury	-18154-03-24 06:43 J	-4909243.29	-4909243.22	-4909243.14	0.0528	0.0404
Mercury	-18154-06-21 12:14 J	-4909154.11	-4909153.99	-4909153.87	0.0527	0.0158
Venus	-18150-01-02 10:33 J	-4907863.22	-4907863.06	-4907862.89	0.0499	0.0289
Venus	-18150-08-26 15:07 J	-4907627.07	-4907626.87	-4907626.68	0.0497	0.0131
Mercury	-18148-05-17 20:38 J	-4906996.79	-4906996.64	-4906996.49	0.0499	0.0295
Mars	-18148-08-15 10:19 J	-4906907.28	-4906907.07	-4906906.87	0.0500	0.0296
Mercury	-18148-08-16 07:40 J	-4906906.26	-4906906.18	-4906906.09	0.0500	0.0440
Venus	-18145-11-03 20:09 J	-4905730.73	-4905730.66	-4905730.59	0.0525	0.0488
Moon	-18144-05-05 01:11 J	-4905548.68	-4905548.45	-4905548.22	0.0528	0.0110
Earth	-18144-05-05 03:50 J	-4905548.56	-4905548.34	-4905548.11	0.0528	0.0121 *
Venus	-18144-06-29 17:16 J	-4905492.98	-4905492.78	-4905492.57	0.0529	0.0017
Venus	-18143-02-22 12:43 J	-4905255.00	-4905254.97	-4905254.92	0.0530	0.0519
Mercury	-18142-04-09 16:33 J	-4904843.94	-4904843.81	-4904843.68	0.0527	0.0020
Venus	-18139-09-07 13:11 J	-4903597.06	-4903596.95	-4903596.82	0.0500	0.0401
Venus	-18138-05-01 17:31 J	-4903360.97	-4903360.77	-4903360.56	0.0497	0.0019
Venus	-18138-12-23 22:48 J	-4903124.64	-4903124.55	-4903124.44	0.0496	0.0430
Mercury	-18136-03-05 17:45 J	-4902686.81	-4902686.76	-4902686.70	0.0498	0.0473
Mercury	-18136-06-04 05:02 J	-4902596.44	-4902596.29	-4902596.13	0.0499	0.0264
Venus	-18132-03-04 06:57 J	-4901227.41	-4901227.21	-4901227.01	0.0528	0.0129
Venus	-18132-10-28 02:52 J	-4900989.51	-4900989.38	-4900989.23	0.0530	0.0383
Mercury	-18130-01-26 20:38 J	-4900533.76	-4900533.64	-4900533.51	0.0527	0.0125

Mercury	-18130-04-26 02:09 J	-4900444.48	-4900444.41	-4900444.34	0.0526	0.0439
Earth	-18127-10-25 23:31 J	-4899165.62	-4899165.52	-4899165.40	0.0499	0.0442
Moon	-18127-10-26 00:57 J	-4899165.58	-4899165.46	-4899165.34	0.0499	0.0430 *
Venus	-18126-01-04 20:52 J	-4899094.83	-4899094.63	-4899094.43	0.0498	0.0099
Venus	-18126-08-29 01:40 J	-4898858.58	-4898858.43	-4898858.27	0.0496	0.0320
Mercury	-18124-03-23 02:23 J	-4898286.59	-4898286.40	-4898286.22	0.0499	0.0086
Venus	-18121-11-06 21:21 J	-4896961.78	-4896961.61	-4896961.43	0.0527	0.0270
Venus	-18120-07-02 18:14 J	-4896723.92	-4896723.74	-4896723.56	0.0530	0.0244
Mercury	-18119-11-15 01:11 J	-4896223.56	-4896223.45	-4896223.34	0.0528	0.0260
Mercury	-18118-02-12 06:43 J	-4896134.32	-4896134.22	-4896134.12	0.0527	0.0303
Venus	-18115-09-10 00:14 J	-4894828.67	-4894828.49	-4894828.30	0.0499	0.0213
Moon	-18115-10-30 12:57 J	-4894778.18	-4894777.96	-4894777.72	0.0498	0.0027
Earth	-18115-10-30 15:36 J	-4894778.09	-4894777.85	-4894777.62	0.0498	0.0009 *
Venus	-18114-05-04 04:33 J	-4894592.50	-4894592.31	-4894592.13	0.0496	0.0207
Mercury	-18112-01-08 23:02 J	-4893976.72	-4893976.54	-4893976.35	0.0498	0.0097
Venus	-18109-07-12 12:00 J	-4892696.12	-4892696.00	-4892695.87	0.0526	0.0407
Venus	-18108-03-07 09:36 J	-4892458.30	-4892458.10	-4892457.90	0.0529	0.0104
Mercury	-18107-09-03 06:00 J	-4891913.33	-4891913.25	-4891913.17	0.0528	0.0393
Mercury	-18107-12-01 11:16 J	-4891824.15	-4891824.03	-4891823.91	0.0527	0.0171
Venus	-18103-05-16 03:07 J	-4890562.52	-4890562.37	-4890562.21	0.0499	0.0326
Earth	-18103-11-04 06:14 J	-4890390.36	-4890390.24	-4890390.12	0.0497	0.0425
Moon	-18103-11-04 09:50 J	-4890390.21	-4890390.09	-4890389.97	0.0497	0.0424 *
Venus	-18102-01-07 07:11 J	-4890326.40	-4890326.20	-4890326.00	0.0497	0.0093
Mars	-18101-07-31 08:52 J	-4889755.16	-4889755.13	-4889755.08	0.0497	0.0490
Mercury	-18101-10-27 20:23 J	-4889666.81	-4889666.65	-4889666.50	0.0498	0.0273
Mercury	-18100-01-26 07:26 J	-4889576.26	-4889576.19	-4889576.12	0.0499	0.0459
Venus	-18097-11-10 02:09 J	-4888192.61	-4888192.41	-4888192.20	0.0528	0.0037
Venus	-18096-07-05 22:19 J	-4887954.65	-4887954.57	-4887954.48	0.0530	0.0474
Mercury	-18095-09-19 15:50 J	-4887513.97	-4887513.84	-4887513.71	0.0527	0.0032
Venus	-18091-01-19 03:07 J	-4886296.46	-4886296.37	-4886296.28	0.0500	0.0441

Venus	-18091-09-12 07:11 J	-4886060.40	-4886060.20	-4886060.00	0.0497	0.0025
Venus	-18090-05-06 12:14 J	-4885824.12	-4885823.99	-4885823.87	0.0496	0.0392
Mercury	-18089-08-15 16:33 J	-4885356.87	-4885356.81	-4885356.74	0.0499	0.0463
Mercury	-18089-11-14 03:50 J	-4885266.49	-4885266.34	-4885266.18	0.0500	0.0275
Venus	-18085-07-15 18:00 J	-4883926.94	-4883926.75	-4883926.55	0.0528	0.0176
Venus	-18084-03-10 14:38 J	-4883689.04	-4883688.89	-4883688.73	0.0530	0.0339
Mars	-18083-06-28 00:00 J	-4883214.79	-4883214.50	-4883214.21	0.0527	0.0113
Mercury	-18083-07-08 20:23 J	-4883203.78	-4883203.65	-4883203.53	0.0527	0.0107
Mercury	-18083-10-06 01:40 J	-4883114.49	-4883114.43	-4883114.37	0.0525	0.0456
Venus	-18079-05-18 09:36 J	-4881794.29	-4881794.10	-4881793.90	0.0498	0.0141
Venus	-18078-01-09 14:09 J	-4881558.07	-4881557.91	-4881557.73	0.0496	0.0281
Mercury	-18077-09-02 01:11 J	-4880956.63	-4880956.45	-4880956.26	0.0499	0.0097
Venus	-18073-03-20 07:40 J	-4879661.34	-4879661.18	-4879661.02	0.0526	0.0318
Moon	-18073-04-29 10:48 J	-4879621.14	-4879621.05	-4879620.94	0.0527	0.0477
Earth	-18073-04-29 13:40 J	-4879621.05	-4879620.93	-4879620.80	0.0527	0.0444 *
Venus	-18073-11-13 04:19 J	-4879423.51	-4879423.32	-4879423.13	0.0529	0.0196
Mercury	-18071-04-27 00:28 J	-4878893.59	-4878893.48	-4878893.37	0.0527	0.0250
Mercury	-18071-07-25 05:45 J	-4878804.36	-4878804.26	-4878804.16	0.0526	0.0312
Venus	-18067-01-21 12:57 J	-4877528.13	-4877527.96	-4877527.79	0.0499	0.0256
Venus	-18067-09-14 17:31 J	-4877291.96	-4877291.77	-4877291.58	0.0497	0.0167
Mars	-18065-05-04 05:16 J	-4876694.51	-4876694.28	-4876694.04	0.0498	0.0205
Mercury	-18065-06-20 22:19 J	-4876646.75	-4876646.57	-4876646.38	0.0499	0.0082
Venus	-18062-11-23 21:50 J	-4875395.69	-4875395.59	-4875395.49	0.0525	0.0455
Earth	-18061-05-04 10:48 J	-4875233.28	-4875233.05	-4875232.82	0.0528	0.0053
Moon	-18061-05-04 11:31 J	-4875233.24	-4875233.02	-4875232.80	0.0528	0.0055 *
Venus	-18061-07-18 18:43 J	-4875157.92	-4875157.72	-4875157.51	0.0529	0.0054
Mercury	-18059-02-13 04:48 J	-4874583.38	-4874583.30	-4874583.21	0.0528	0.0388
Mercury	-18059-05-13 10:04 J	-4874494.19	-4874494.08	-4874493.96	0.0527	0.0176
Venus	-18056-09-26 16:19 J	-4873261.95	-4873261.82	-4873261.68	0.0500	0.0367
Venus	-18055-05-20 20:23 J	-4873025.85	-4873025.65	-4873025.45	0.0497	0.0052

Venus	-18054-01-12 01:26 J	-4872789.51	-4872789.44	-4872789.37	0.0496	0.0465
Mercury	-18053-04-08 19:11 J	-4872336.86	-4872336.70	-4872336.54	0.0498	0.0263
Mercury	-18053-07-08 06:14 J	-4872246.30	-4872246.24	-4872246.18	0.0499	0.0469
Venus	-18049-03-23 09:50 J	-4870892.29	-4870892.09	-4870891.89	0.0528	0.0090
Venus	-18049-11-16 06:14 J	-4870654.36	-4870654.24	-4870654.12	0.0530	0.0423
Mercury	-18048-12-02 09:36 J	-4870273.12	-4870273.10	-4870273.09	0.0528	0.0521
Mercury	-18047-03-01 14:52 J	-4870184.01	-4870183.88	-4870183.76	0.0527	0.0041
Mars	-18047-04-05 22:19 J	-4870148.77	-4870148.57	-4870148.34	0.0527	0.0360
Venus	-18044-06-01 18:57 J	-4868995.76	-4868995.71	-4868995.65	0.0501	0.0479
Moon	-18044-10-25 08:52 J	-4868850.20	-4868850.13	-4868850.05	0.0499	0.0470
Earth	-18044-10-25 11:31 J	-4868850.08	-4868850.02	-4868849.96	0.0499	0.0482 *
Venus	-18043-01-23 23:02 J	-4868759.74	-4868759.54	-4868759.33	0.0498	0.0064
Venus	-18043-09-17 03:36 J	-4868523.48	-4868523.35	-4868523.20	0.0496	0.0355
Mercury	-18041-01-26 16:04 J	-4868026.91	-4868026.83	-4868026.74	0.0498	0.0442
Mercury	-18041-04-26 03:21 J	-4867936.51	-4867936.36	-4867936.21	0.0499	0.0293
Venus	-18038-11-27 02:09 J	-4866626.59	-4866626.41	-4866626.22	0.0527	0.0228
Venus	-18037-07-21 23:02 J	-4866388.70	-4866388.54	-4866388.36	0.0530	0.0290
Mercury	-18036-12-18 19:26 J	-4865873.82	-4865873.69	-4865873.57	0.0527	0.0096
Mercury	-18035-03-18 00:57 J	-4865784.52	-4865784.46	-4865784.41	0.0525	0.0466
Venus	-18032-09-28 23:02 J	-4864493.73	-4864493.54	-4864493.35	0.0498	0.0183
Earth	-18032-10-29 20:52 J	-4864462.86	-4864462.63	-4864462.39	0.0498	0.0072
Moon	-18032-10-30 00:28 J	-4864462.72	-4864462.48	-4864462.24	0.0498	0.0042 *
Venus	-18031-05-23 03:21 J	-4864257.54	-4864257.36	-4864257.18	0.0496	0.0239
Mars	-18029-02-05 23:16 J	-4863633.78	-4863633.53	-4863633.28	0.0499	0.0082
Mercury	-18029-02-12 23:45 J	-4863626.69	-4863626.51	-4863626.33	0.0499	0.0103
Venus	-18026-08-01 17:45 J	-4862360.90	-4862360.76	-4862360.61	0.0526	0.0367
Venus	-18025-03-26 15:07 J	-4862123.06	-4862122.87	-4862122.67	0.0529	0.0149
Mercury	-18024-10-06 23:45 J	-4861563.62	-4861563.51	-4861563.39	0.0527	0.0234
Mercury	-18023-01-04 05:16 J	-4861474.38	-4861474.28	-4861474.18	0.0526	0.0328
Venus	-18020-06-04 01:11 J	-4860227.60	-4860227.45	-4860227.28	0.0499	0.0299

Moon	-18020-11-03 07:11 J	-4860075.37	-4860075.20	-4860075.03	0.0498	0.0345
Earth	-18020-11-03 11:02 J	-4860075.20	-4860075.04	-4860074.87	0.0498	0.0355 *
Venus	-18019-01-26 05:31 J	-4859991.47	-4859991.27	-4859991.07	0.0497	0.0124
Mercury	-18018-12-01 20:52 J	-4859316.81	-4859316.63	-4859316.44	0.0499	0.0075
Venus	-18014-04-06 07:26 J	-4858095.24	-4858095.19	-4858095.13	0.0525	0.0503
Venus	-18014-11-30 04:19 J	-4857857.52	-4857857.32	-4857857.11	0.0528	0.0011
Venus	-18013-07-25 00:00 J	-4857619.55	-4857619.50	-4857619.45	0.0530	0.0510
Mercury	-18012-07-26 03:50 J	-4857253.42	-4857253.34	-4857253.25	0.0528	0.0379
Mercury	-18012-10-23 09:07 J	-4857164.24	-4857164.12	-4857164.00	0.0526	0.0182
Venus	-18008-02-07 04:19 J	-4855961.43	-4855961.32	-4855961.20	0.0501	0.0412
Venus	-18008-10-01 08:52 J	-4855725.34	-4855725.13	-4855724.93	0.0498	0.0014
Venus	-18007-05-25 13:55 J	-4855489.02	-4855488.92	-4855488.82	0.0496	0.0426
Mercury	-18006-09-19 18:00 J	-4855006.91	-4855006.75	-4855006.59	0.0499	0.0253
Mercury	-18006-12-19 05:02 J	-4854916.33	-4854916.29	-4854916.24	0.0500	0.0480
Venus	-18002-08-04 18:28 J	-4853591.92	-4853591.73	-4853591.53	0.0527	0.0142
Venus	-18001-03-29 14:52 J	-4853354.02	-4853353.88	-4853353.73	0.0530	0.0373

# 18TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 18th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-18000-05-14 08:09 J	-4852943.18	-4852943.16	-4852943.14	0.0528	0.0518		
Mercury	-18000-08-11 13:26 J	-4852854.06	-4852853.94	-4852853.81	0.0527	0.0046		



Venus	-17996-06-06 11:45 J	-4851459.21	-4851459.01	-4851458.81	0.0498	0.0107
Venus	-17995-01-28 16:04 J	-4851222.98	-4851222.83	-4851222.67	0.0496	0.0315
Mercury	-17994-07-08 14:38 J	-4850696.98	-4850696.89	-4850696.80	0.0498	0.0437
Mercury	-17994-10-07 01:55 J	-4850606.57	-4850606.42	-4850606.27	0.0499	0.0298
Mars	-17994-11-09 23:16 J	-4850572.69	-4850572.53	-4850572.36	0.0500	0.0380
Venus	-17990-04-09 08:38 J	-4849326.30	-4849326.14	-4849325.96	0.0527	0.0284
Earth	-17990-04-29 20:09 J	-4849305.70	-4849305.66	-4849305.61	0.0527	0.0513
Venus	-17990-12-03 06:00 J	-4849088.43	-4849088.25	-4849088.07	0.0530	0.0234
Mercury	-17988-05-30 18:00 J	-4848543.87	-4848543.75	-4848543.62	0.0527	0.0094
Mercury	-17988-08-27 23:31 J	-4848454.57	-4848454.52	-4848454.46	0.0526	0.0471
Venus	-17984-02-09 14:23 J	-4847193.08	-4847192.90	-4847192.72	0.0499	0.0222
Venus	-17984-10-03 18:28 J	-4846956.91	-4846956.73	-4846956.54	0.0496	0.0201
Mercury	-17982-07-25 23:02 J	-4846296.72	-4846296.54	-4846296.36	0.0499	0.0119
Venus	-17979-12-13 00:57 J	-4845060.58	-4845060.46	-4845060.33	0.0526	0.0419
Earth	-17978-05-04 20:52 J	-4844917.86	-4844917.63	-4844917.40	0.0528	0.0004
Moon	-17978-05-04 22:33 J	-4844917.80	-4844917.56	-4844917.32	0.0528	0.0011 *
Venus	-17978-08-07 22:33 J	-4844822.76	-4844822.56	-4844822.36	0.0529	0.0095
Mercury	-17976-03-18 22:48 J	-4844233.66	-4844233.55	-4844233.44	0.0527	0.0227
Mercury	-17976-06-16 04:04 J	-4844144.42	-4844144.33	-4844144.23	0.0526	0.0334
Venus	-17973-10-15 14:09 J	-4842927.05	-4842926.91	-4842926.76	0.0500	0.0342
Venus	-17972-06-08 18:00 J	-4842690.95	-4842690.75	-4842690.54	0.0497	0.0082
Venus	-17971-01-30 23:16 J	-4842454.54	-4842454.53	-4842454.52	0.0496	0.0495
Mercury	-17970-05-13 18:57 J	-4841986.90	-4841986.71	-4841986.53	0.0499	0.0075
Venus	-17966-04-12 14:09 J	-4840557.11	-4840556.91	-4840556.70	0.0528	0.0048
Earth	-17966-05-09 20:09 J	-4840529.72	-4840529.66	-4840529.59	0.0529	0.0505
Venus	-17966-12-06 10:19 J	-4840319.16	-4840319.07	-4840318.97	0.0530	0.0465
Mars	-17965-12-13 23:31 J	-4839945.65	-4839945.52	-4839945.38	0.0528	0.0466
Mercury	-17964-01-05 03:07 J	-4839923.45	-4839923.37	-4839923.28	0.0527	0.0365
Mercury	-17964-04-04 08:38 J	-4839834.26	-4839834.14	-4839834.03	0.0526	0.0196
Venus	-17961-06-20 16:19 J	-4838660.90	-4838660.82	-4838660.73	0.0501	0.0455

Venus	-17960-02-11 20:23 J	-4838424.85	-4838424.65	-4838424.45	0.0498	0.0036
Venus	-17960-10-06 00:57 J	-4838188.58	-4838188.46	-4838188.32	0.0496	0.0386
Mercury	-17958-03-01 15:50 J	-4837677.00	-4837676.84	-4837676.68	0.0499	0.0255
Mercury	-17958-05-31 03:07 J	-4837586.42	-4837586.37	-4837586.32	0.0500	0.0480
Venus	-17955-12-16 03:07 J	-4836291.56	-4836291.37	-4836291.18	0.0527	0.0195
Venus	-17954-08-10 23:45 J	-4836053.67	-4836053.51	-4836053.35	0.0529	0.0323
Mercury	-17953-10-24 07:11 J	-4835613.23	-4835613.20	-4835613.17	0.0528	0.0511
Mercury	-17952-01-21 12:28 J	-4835524.11	-4835523.98	-4835523.86	0.0527	0.0049
Venus	-17949-10-17 23:16 J	-4834158.72	-4834158.53	-4834158.33	0.0499	0.0153
Moon	-17949-10-29 01:11 J	-4834147.68	-4834147.45	-4834147.21	0.0498	0.0101
Earth	-17949-10-29 05:02 J	-4834147.52	-4834147.29	-4834147.06	0.0498	0.0125 *
Venus	-17948-06-11 03:50 J	-4833922.51	-4833922.34	-4833922.17	0.0497	0.0272
Mars	-17947-10-25 14:38 J	-4833421.02	-4833420.89	-4833420.75	0.0498	0.0421
Mercury	-17947-12-18 12:57 J	-4833367.05	-4833366.96	-4833366.87	0.0498	0.0433
Mercury	-17946-03-19 00:14 J	-4833276.63	-4833276.49	-4833276.34	0.0500	0.0304
Venus	-17943-08-20 17:02 J	-4832025.94	-4832025.79	-4832025.63	0.0526	0.0337
Venus	-17942-04-15 14:09 J	-4831788.11	-4831787.91	-4831787.72	0.0529	0.0181
Mercury	-17941-11-09 16:48 J	-4831213.93	-4831213.80	-4831213.68	0.0527	0.0094
Mercury	-17940-02-06 22:04 J	-4831124.63	-4831124.58	-4831124.52	0.0526	0.0469
Venus	-17937-06-23 02:09 J	-4829892.58	-4829892.41	-4829892.24	0.0499	0.0268
Earth	-17937-11-02 19:55 J	-4829759.86	-4829759.67	-4829759.49	0.0498	0.0304
Moon	-17937-11-02 22:48 J	-4829759.74	-4829759.55	-4829759.36	0.0498	0.0288 *
Venus	-17936-02-14 06:14 J	-4829656.43	-4829656.24	-4829656.04	0.0497	0.0158
Mercury	-17934-01-04 20:52 J	-4828966.81	-4828966.63	-4828966.44	0.0499	0.0120
Venus	-17931-04-25 06:43 J	-4827760.30	-4827760.22	-4827760.13	0.0525	0.0475
Venus	-17931-12-19 04:04 J	-4827522.53	-4827522.33	-4827522.12	0.0529	0.0038
Mercury	-17929-08-28 21:07 J	-4826903.73	-4826903.62	-4826903.50	0.0528	0.0230
Mars	-17929-09-21 14:09 J	-4826880.21	-4826879.91	-4826879.61	0.0527	0.0006
Mercury	-17929-11-26 02:38 J	-4826814.49	-4826814.39	-4826814.29	0.0526	0.0332
Venus	-17925-02-27 04:48 J	-4825626.43	-4825626.30	-4825626.17	0.0500	0.0382

Venus	-17925-10-20 08:38 J	-4825390.34	-4825390.14	-4825389.93	0.0497	0.0042
Venus	-17924-06-13 13:11 J	-4825154.01	-4825153.95	-4825153.86	0.0496	0.0458
Mercury	-17923-10-23 17:45 J	-4824656.94	-4824656.76	-4824656.57	0.0499	0.0063
Venus	-17919-08-23 20:23 J	-4823256.85	-4823256.65	-4823256.45	0.0528	0.0105
Venus	-17918-04-18 17:02 J	-4823018.91	-4823018.79	-4823018.66	0.0530	0.0414
Mercury	-17917-06-17 01:55 J	-4822593.51	-4822593.42	-4822593.33	0.0528	0.0364
Mercury	-17917-09-14 07:11 J	-4822504.32	-4822504.20	-4822504.08	0.0526	0.0197
Venus	-17914-11-02 04:33 J	-4821360.31	-4821360.31	-4821360.28	0.0501	0.0499
Venus	-17913-06-25 08:23 J	-4821124.35	-4821124.15	-4821123.94	0.0498	0.0081
Venus	-17912-02-16 12:43 J	-4820888.12	-4820887.97	-4820887.82	0.0496	0.0342
Mars	-17911-07-29 03:07 J	-4820360.61	-4820360.37	-4820360.12	0.0499	0.0145
Mercury	-17911-08-11 13:26 J	-4820347.10	-4820346.94	-4820346.78	0.0499	0.0260
Mercury	-17911-11-10 00:28 J	-4820256.52	-4820256.48	-4820256.42	0.0500	0.0476
Venus	-17907-04-28 11:31 J	-4818991.20	-4818991.02	-4818990.84	0.0527	0.0247
Venus	-17907-12-22 08:38 J	-4818753.31	-4818753.14	-4818752.96	0.0529	0.0274
Mercury	-17905-04-05 06:14 J	-4818283.27	-4818283.24	-4818283.20	0.0528	0.0501
Mercury	-17905-07-03 11:31 J	-4818194.14	-4818194.02	-4818193.89	0.0526	0.0059
Venus	-17901-02-29 10:33 J	-4816858.24	-4816858.06	-4816857.87	0.0499	0.0198
Venus	-17901-10-22 14:38 J	-4816622.07	-4816621.89	-4816621.71	0.0497	0.0228
Mercury	-17899-05-30 10:19 J	-4816037.15	-4816037.07	-4816036.98	0.0499	0.0441
Mercury	-17899-08-28 21:36 J	-4815946.74	-4815946.60	-4815946.44	0.0500	0.0297
Venus	-17895-01-01 00:28 J	-4814725.61	-4814725.48	-4814725.34	0.0526	0.0391
Moon	-17895-05-03 21:07 J	-4814602.84	-4814602.62	-4814602.40	0.0527	0.0066
Earth	-17895-05-04 00:00 J	-4814602.72	-4814602.50	-4814602.27	0.0527	0.0085 *
Venus	-17895-08-26 21:50 J	-4814487.79	-4814487.59	-4814487.40	0.0529	0.0127
Mercury	-17893-04-21 15:21 J	-4813883.98	-4813883.86	-4813883.73	0.0527	0.0091
Mars	-17893-06-30 06:00 J	-4813814.40	-4813814.25	-4813814.10	0.0526	0.0453
Mercury	-17893-07-19 20:38 J	-4813794.69	-4813794.64	-4813794.58	0.0525	0.0471
Venus	-17890-11-04 13:11 J	-4812592.11	-4812591.95	-4812591.79	0.0500	0.0315
Venus	-17889-06-27 17:16 J	-4812355.98	-4812355.78	-4812355.58	0.0497	0.0111

Mercury	-17887-06-16 18:57 J	-4811636.89	-4811636.71	-4811636.53	0.0499	0.0119
Venus	-17883-05-01 11:31 J	-4810222.23	-4810222.02	-4810221.82	0.0528	0.0019
Earth	-17883-05-08 19:55 J	-4810214.81	-4810214.67	-4810214.52	0.0528	0.0408
Moon	-17883-05-08 23:45 J	-4810214.63	-4810214.51	-4810214.38	0.0528	0.0440 *
Venus	-17883-12-25 07:11 J	-4809984.26	-4809984.20	-4809984.12	0.0530	0.0494
Mercury	-17881-02-08 19:26 J	-4809573.80	-4809573.69	-4809573.57	0.0527	0.0234
Mercury	-17881-05-08 00:57 J	-4809484.56	-4809484.46	-4809484.36	0.0526	0.0328
Venus	-17878-07-10 15:50 J	-4808325.95	-4808325.84	-4808325.74	0.0501	0.0428
Venus	-17877-03-02 19:55 J	-4808089.87	-4808089.67	-4808089.47	0.0498	0.0006
Venus	-17877-10-25 00:28 J	-4807853.59	-4807853.48	-4807853.37	0.0496	0.0416
Mercury	-17875-04-04 15:21 J	-4807327.04	-4807326.86	-4807326.67	0.0499	0.0068
Mars	-17875-05-01 23:45 J	-4807299.75	-4807299.51	-4807299.26	0.0499	0.0149
Venus	-17871-01-04 00:57 J	-4805956.65	-4805956.46	-4805956.26	0.0527	0.0165
Venus	-17871-08-29 21:50 J	-4805718.74	-4805718.59	-4805718.44	0.0530	0.0356
Mercury	-17870-11-28 00:00 J	-4805263.59	-4805263.50	-4805263.41	0.0528	0.0372
Mercury	-17869-02-25 05:16 J	-4805174.40	-4805174.28	-4805174.16	0.0527	0.0190
Earth	-17866-10-29 10:19 J	-4803832.29	-4803832.07	-4803831.85	0.0498	0.0190
Moon	-17866-10-29 13:11 J	-4803832.16	-4803831.95	-4803831.73	0.0498	0.0171 *
Venus	-17866-11-06 22:04 J	-4803823.77	-4803823.58	-4803823.38	0.0498	0.0123
Venus	-17865-06-30 02:09 J	-4803587.57	-4803587.41	-4803587.25	0.0496	0.0302
Mercury	-17863-01-21 12:00 J	-4803017.16	-4803017.00	-4803016.84	0.0498	0.0252
Mercury	-17863-04-21 23:02 J	-4802926.58	-4802926.54	-4802926.49	0.0500	0.0482
Venus	-17860-09-08 16:33 J	-4801690.97	-4801690.81	-4801690.64	0.0527	0.0305
Venus	-17859-05-04 13:55 J	-4801453.10	-4801452.92	-4801452.73	0.0529	0.0218
Mercury	-17858-09-16 04:33 J	-4800953.34	-4800953.31	-4800953.27	0.0528	0.0505
Mercury	-17858-12-14 09:50 J	-4800864.21	-4800864.09	-4800863.96	0.0527	0.0058
Venus	-17854-07-12 22:19 J	-4799557.75	-4799557.57	-4799557.39	0.0499	0.0244
Moon	-17854-11-02 17:45 J	-4799444.98	-4799444.76	-4799444.54	0.0497	0.0199
Earth	-17854-11-02 19:55 J	-4799444.88	-4799444.67	-4799444.46	0.0497	0.0220 *
Venus	-17853-03-05 01:55 J	-4799321.61	-4799321.42	-4799321.23	0.0496	0.0182

Mercury	-17852-11-09 07:26 J	-4798707.27	-4798707.19	-4798707.11	0.0498	0.0451
Mercury	-17851-02-07 18:43 J	-4798616.86	-4798616.72	-4798616.56	0.0500	0.0287
Venus	-17848-05-14 07:26 J	-4797425.30	-4797425.19	-4797425.08	0.0526	0.0445
Venus	-17847-01-07 05:16 J	-4797187.48	-4797187.28	-4797187.08	0.0529	0.0073
Mercury	-17846-10-02 14:23 J	-4796554.03	-4796553.90	-4796553.78	0.0527	0.0084
Mercury	-17846-12-30 19:40 J	-4796464.73	-4796464.68	-4796464.63	0.0525	0.0477
Venus	-17842-03-18 00:00 J	-4795291.63	-4795291.50	-4795291.35	0.0500	0.0361
Venus	-17842-11-09 03:50 J	-4795055.55	-4795055.34	-4795055.14	0.0497	0.0065
Venus	-17841-07-02 08:23 J	-4794819.19	-4794819.15	-4794819.10	0.0496	0.0482
Mercury	-17840-11-26 15:50 J	-4794307.02	-4794306.84	-4794306.66	0.0499	0.0105
Mars	-17839-02-02 14:09 J	-4794239.03	-4794238.91	-4794238.78	0.0500	0.0433
Venus	-17836-09-11 18:00 J	-4792921.95	-4792921.75	-4792921.54	0.0528	0.0077
Venus	-17835-05-07 14:23 J	-4792684.01	-4792683.90	-4792683.79	0.0530	0.0442
Mercury	-17834-07-21 18:00 J	-4792243.86	-4792243.75	-4792243.63	0.0527	0.0235
Mercury	-17834-10-18 23:16 J	-4792154.62	-4792154.53	-4792154.43	0.0526	0.0327
Venus	-17831-11-21 01:55 J	-4791025.48	-4791025.42	-4791025.36	0.0501	0.0476
Venus	-17830-07-15 06:14 J	-4790789.44	-4790789.24	-4790789.04	0.0498	0.0054
Venus	-17829-03-07 10:48 J	-4790553.19	-4790553.05	-4790552.92	0.0496	0.0370
Mercury	-17828-09-14 12:57 J	-4789997.15	-4789996.96	-4789996.78	0.0499	0.0074
Venus	-17824-05-17 07:26 J	-4788656.37	-4788656.19	-4788656.00	0.0527	0.0222
Venus	-17823-01-10 04:04 J	-4788418.49	-4788418.33	-4788418.16	0.0529	0.0300
Mercury	-17822-05-09 22:19 J	-4787933.66	-4787933.57	-4787933.49	0.0528	0.0378
Mercury	-17822-08-07 03:36 J	-4787844.47	-4787844.35	-4787844.23	0.0526	0.0183
Venus	-17818-03-20 08:38 J	-4786523.33	-4786523.14	-4786522.95	0.0499	0.0171
Venus	-17818-11-11 12:43 J	-4786287.14	-4786286.97	-4786286.79	0.0496	0.0256
Mercury	-17816-07-03 09:21 J	-4785687.27	-4785687.11	-4785686.95	0.0498	0.0260
Mercury	-17816-10-01 20:23 J	-4785596.70	-4785596.65	-4785596.59	0.0500	0.0473
Venus	-17812-01-19 20:38 J	-4784390.79	-4784390.64	-4784390.49	0.0526	0.0365
Earth	-17812-05-02 21:50 J	-4784287.80	-4784287.59	-4784287.37	0.0527	0.0190
Moon	-17812-05-03 01:40 J	-4784287.65	-4784287.43	-4784287.21	0.0527	0.0165 *

Venus	-17812-09-14 18:00 J	-4784152.95	-4784152.75	-4784152.56	0.0529	0.0156
Mercury	-17810-02-26 02:38 J	-4783623.41	-4783623.39	-4783623.37	0.0528	0.0518
Mars	-17810-03-09 09:07 J	-4783612.31	-4783612.12	-4783611.92	0.0528	0.0395
Mercury	-17810-05-26 07:55 J	-4783534.30	-4783534.17	-4783534.05	0.0527	0.0045
Venus	-17807-11-23 10:48 J	-4782257.22	-4782257.05	-4782256.89	0.0500	0.0289
Venus	-17806-07-17 14:38 J	-4782021.09	-4782020.89	-4782020.69	0.0497	0.0139
Mercury	-17804-04-21 05:45 J	-4781377.34	-4781377.26	-4781377.18	0.0498	0.0446
Mercury	-17804-07-20 17:02 J	-4781286.94	-4781286.79	-4781286.64	0.0499	0.0289
Venus	-17801-09-24 11:31 J	-4780125.07	-4780125.02	-4780124.96	0.0525	0.0502
Moon	-17800-05-07 17:02 J	-4779899.96	-4779899.79	-4779899.61	0.0528	0.0342
Earth	-17800-05-07 20:52 J	-4779899.81	-4779899.63	-4779899.44	0.0528	0.0314 *
Venus	-17800-05-20 09:21 J	-4779887.32	-4779887.11	-4779886.91	0.0529	0.0014
Venus	-17799-01-13 05:45 J	-4779649.27	-4779649.26	-4779649.24	0.0530	0.0527
Mercury	-17798-03-14 12:28 J	-4779224.10	-4779223.98	-4779223.86	0.0527	0.0092
Mercury	-17798-06-11 17:45 J	-4779134.81	-4779134.76	-4779134.70	0.0526	0.0470
Venus	-17795-07-29 11:16 J	-4777991.14	-4777991.03	-4777990.91	0.0500	0.0407
Venus	-17794-03-22 14:52 J	-4777755.09	-4777754.88	-4777754.68	0.0497	0.0020
Venus	-17794-11-13 18:57 J	-4777518.80	-4777518.71	-4777518.62	0.0496	0.0438
Mars	-17792-01-17 21:07 J	-4777087.78	-4777087.62	-4777087.45	0.0498	0.0380
Mercury	-17792-05-08 12:43 J	-4776977.16	-4776976.97	-4776976.79	0.0499	0.0092
Venus	-17788-01-23 00:00 J	-4775621.69	-4775621.50	-4775621.30	0.0528	0.0134
Venus	-17788-09-17 21:21 J	-4775383.74	-4775383.61	-4775383.47	0.0530	0.0389
Mercury	-17787-12-31 16:48 J	-4774913.91	-4774913.80	-4774913.68	0.0527	0.0231
Mercury	-17786-03-30 22:04 J	-4774824.67	-4774824.58	-4774824.48	0.0526	0.0330
Moon	-17783-10-28 06:00 J	-4773517.45	-4773517.25	-4773517.04	0.0498	0.0264
Earth	-17783-10-28 08:23 J	-4773517.35	-4773517.15	-4773516.96	0.0498	0.0281 *
Venus	-17783-11-25 16:33 J	-4773489.01	-4773488.81	-4773488.61	0.0498	0.0102
Venus	-17782-07-19 20:23 J	-4773252.80	-4773252.65	-4773252.50	0.0496	0.0324
Mercury	-17780-02-24 09:21 J	-4772667.29	-4772667.11	-4772666.92	0.0499	0.0091
Venus	-17777-09-27 12:57 J	-4771356.13	-4771355.96	-4771355.78	0.0526	0.0281

Venus -17776-05-23 10:04 J -4771118.26 -4771118.08 -4771117.90 0.0529 0.0243

Mercury -17775-10-19 20:23 J -4770603.73 -4770603.65 -4770603.56 0.0527 0.0383

Mars -17775-12-16 00:43 J -4770546.76 -4770546.47 -4770546.17 0.0527 0.0068

Mercury -17774-01-17 01:55 J -4770514.54 -4770514.42 -4770514.30 0.0526 0.0178

Venus -17771-07-31 18:28 J -4769222.91 -4769222.73 -4769222.54 0.0499 0.0221

Earth -17771-11-01 21:21 J -4769129.84 -4769129.61 -4769129.38 0.0498 0.0142

Moon -17771-11-01 22:04 J -4769129.80 -4769129.58 -4769129.36 0.0498 0.0121 \*

Venus -17770-03-24 22:33 J -4768986.74 -4768986.56 -4768986.37 0.0497 0.0209

Mercury -17769-12-13 06:28 J -4768357.39 -4768357.23 -4768357.08 0.0499 0.0270

Mercury -17768-03-13 17:31 J -4768266.83 -4768266.77 -4768266.70 0.0500 0.0465

Venus -17765-06-02 02:23 J -4767090.52 -4767090.40 -4767090.27 0.0525 0.0422

Venus -17764-01-25 23:45 J -4766852.71 -4766852.51 -4766852.31 0.0528 0.0097

Mercury -17763-08-08 00:43 J -4766293.48 -4766293.47 -4766293.47 0.0528 0.0526

Mercury -17763-11-05 05:45 J -4766204.38 -4766204.26 -4766204.13 0.0527 0.0039

Venus -17759-04-05 20:38 J -4764956.78 -4764956.64 -4764956.49 0.0500 0.0338

Venus -17759-11-28 00:43 J -4764720.67 -4764720.47 -4764720.27 0.0497 0.0091

Mercury -17757-10-01 02:38 J -4764047.46 -4764047.39 -4764047.31 0.0498 0.0457

Mars -17757-10-21 16:33 J -4764027.06 -4764026.81 -4764026.56 0.0498 0.0091

Mercury -17757-12-30 14:09 J -4763957.06 -4763956.91 -4763956.76 0.0499 0.0278

Venus -17753-09-30 12:43 J -4762587.17 -4762586.97 -4762586.77 0.0528 0.0051

Venus -17752-05-26 09:21 J -4762349.20 -4762349.11 -4762349.02 0.0530 0.0468

Mercury -17751-08-24 10:04 J -4761894.20 -4761894.08 -4761893.96 0.0527 0.0109

Mercury -17751-11-21 15:36 J -4761804.91 -4761804.85 -4761804.79 0.0526 0.0453

Venus -17748-12-09 22:33 J -4760690.64 -4760690.56 -4760690.47 0.0501 0.0453

Venus -17747-08-03 02:52 J -4760454.59 -4760454.38 -4760454.18 0.0498 0.0028

Venus -17746-03-27 06:57 J -4760218.33 -4760218.21 -4760218.08 0.0496 0.0397

Mercury -17745-10-18 10:33 J -4759647.24 -4759647.06 -4759646.87 0.0499 0.0092

Venus -17741-06-05 03:21 J -4758321.54 -4758321.36 -4758321.16 0.0527 0.0196

Venus -17740-01-29 00:57 J -4758083.62 -4758083.46 -4758083.30 0.0530 0.0330

Mercury -17739-06-12 14:38 J -4757584.00 -4757583.89 -4757583.77 0.0528 0.0244

Mercury	-17739-09-09 20:09 J	-4757494.76	-4757494.66	-4757494.56	0.0526	0.0319
Venus	-17735-04-08 03:21 J	-4756188.55	-4756188.36	-4756188.16	0.0498	0.0150
Venus	-17735-11-30 06:57 J	-4755952.38	-4755952.21	-4755952.04	0.0496	0.0278
Mercury	-17733-08-06 06:00 J	-4755337.43	-4755337.25	-4755337.06	0.0499	0.0107
Venus	-17729-02-08 18:00 J	-4754055.90	-4754055.75	-4754055.59	0.0527	0.0339
Moon	-17729-05-01 18:28 J	-4753972.92	-4753972.73	-4753972.53	0.0528	0.0261
Earth	-17729-05-01 22:19 J	-4753972.75	-4753972.57	-4753972.37	0.0528	0.0282 *
Venus	-17729-10-03 16:04 J	-4753818.02	-4753817.83	-4753817.64	0.0529	0.0186
Mercury	-17727-03-31 19:11 J	-4753273.79	-4753273.70	-4753273.62	0.0528	0.0381
Mercury	-17727-06-29 00:28 J	-4753184.60	-4753184.48	-4753184.36	0.0526	0.0180
Venus	-17724-12-12 05:16 J	-4751922.45	-4751922.28	-4751922.11	0.0499	0.0268
Venus	-17723-08-05 08:38 J	-4751686.33	-4751686.14	-4751685.94	0.0497	0.0161
Mercury	-17721-05-25 02:38 J	-4751027.54	-4751027.39	-4751027.23	0.0499	0.0290
Mars	-17721-07-25 02:52 J	-4750966.61	-4750966.38	-4750966.14	0.0499	0.0188
Mercury	-17721-08-23 13:55 J	-4750937.00	-4750936.92	-4750936.83	0.0500	0.0446
Venus	-17718-10-14 07:11 J	-4749790.27	-4749790.20	-4749790.11	0.0525	0.0480
Earth	-17717-05-06 18:00 J	-4749584.96	-4749584.75	-4749584.54	0.0528	0.0207
Moon	-17717-05-06 21:07 J	-4749584.82	-4749584.62	-4749584.42	0.0528	0.0233 *
Venus	-17717-06-08 04:48 J	-4749552.50	-4749552.30	-4749552.10	0.0528	0.0037
Mercury	-17715-04-17 04:04 J	-4748874.45	-4748874.33	-4748874.20	0.0527	0.0027
Venus	-17712-08-17 06:43 J	-4747656.35	-4747656.22	-4747656.09	0.0501	0.0387
Venus	-17711-04-10 10:33 J	-4747420.26	-4747420.06	-4747419.85	0.0498	0.0043
Venus	-17711-12-02 15:21 J	-4747183.93	-4747183.86	-4747183.79	0.0496	0.0464
Mercury	-17709-03-12 23:45 J	-4746717.57	-4746717.51	-4746717.45	0.0498	0.0468
Mercury	-17709-06-11 11:16 J	-4746627.19	-4746627.03	-4746626.87	0.0500	0.0268
Venus	-17705-02-11 18:28 J	-4745286.93	-4745286.73	-4745286.53	0.0527	0.0110
Venus	-17705-10-06 14:52 J	-4745049.00	-4745048.88	-4745048.75	0.0529	0.0412
Mercury	-17703-02-03 08:09 J	-4744564.28	-4744564.16	-4744564.04	0.0527	0.0118
Mercury	-17703-05-03 13:26 J	-4744475.00	-4744474.94	-4744474.87	0.0526	0.0443
Venus	-17700-04-22 08:23 J	-4743390.16	-4743390.15	-4743390.14	0.0502	0.0501



Earth	-17700-10-27 09:07 J	-4743202.28	-4743202.12	-4743201.96	0.0499	0.0363
Moon	-17700-10-27 09:50 J	-4743202.25	-4743202.09	-4743201.92	0.0499	0.0350 *
Venus	-17700-12-14 12:43 J	-4743154.17	-4743153.97	-4743153.77	0.0498	0.0077
Venus	-17699-08-07 17:02 J	-4742917.93	-4742917.79	-4742917.64	0.0496	0.0351
Mercury	-17697-03-30 07:40 J	-4742317.36	-4742317.18	-4742316.99	0.0499	0.0082
Venus	-17694-10-17 06:57 J	-4741021.38	-4741021.21	-4741021.03	0.0526	0.0258
Venus	-17693-06-11 04:19 J	-4740783.50	-4740783.32	-4740783.15	0.0529	0.0268
Mercury	-17692-11-22 12:14 J	-4740254.09	-4740253.99	-4740253.88	0.0528	0.0262
Mercury	-17691-02-19 17:45 J	-4740164.86	-4740164.76	-4740164.66	0.0526	0.0301
Venus	-17688-08-19 14:52 J	-4738888.06	-4738887.88	-4738887.69	0.0499	0.0196
Earth	-17688-10-31 22:19 J	-4738814.80	-4738814.57	-4738814.33	0.0498	0.0061
Moon	-17688-10-31 23:02 J	-4738814.78	-4738814.54	-4738814.29	0.0498	0.0038 *
Venus	-17687-04-12 18:43 J	-4738651.89	-4738651.72	-4738651.54	0.0497	0.0235
Mercury	-17685-01-17 04:04 J	-4738007.51	-4738007.33	-4738007.15	0.0499	0.0106
Mars	-17685-04-27 20:38 J	-4737905.71	-4737905.64	-4737905.56	0.0500	0.0477
Venus	-17682-06-21 21:21 J	-4736755.74	-4736755.61	-4736755.47	0.0526	0.0399
Venus	-17681-02-14 19:11 J	-4736517.89	-4736517.70	-4736517.50	0.0529	0.0125
Mercury	-17680-09-10 17:02 J	-4735943.87	-4735943.79	-4735943.71	0.0528	0.0395
Mercury	-17680-12-08 22:19 J	-4735854.69	-4735854.57	-4735854.45	0.0527	0.0166
Venus	-17676-04-24 16:04 J	-4734621.98	-4734621.83	-4734621.67	0.0499	0.0316
Moon	-17676-11-05 06:57 J	-4734427.30	-4734427.21	-4734427.12	0.0497	0.0457
Earth	-17676-11-05 09:21 J	-4734427.17	-4734427.11	-4734427.03	0.0497	0.0474 *
Venus	-17676-12-16 19:26 J	-4734385.89	-4734385.69	-4734385.49	0.0497	0.0113
Mercury	-17674-11-04 23:31 J	-4733697.67	-4733697.52	-4733697.37	0.0498	0.0303
Mercury	-17673-02-03 10:48 J	-4733607.14	-4733607.05	-4733606.96	0.0500	0.0431
Venus	-17670-10-20 09:50 J	-4732252.29	-4732252.09	-4732251.88	0.0529	0.0023
Venus	-17669-06-14 06:57 J	-4732014.27	-4732014.21	-4732014.14	0.0530	0.0498
Mercury	-17668-09-27 02:38 J	-4731544.51	-4731544.39	-4731544.26	0.0527	0.0033
Venus	-17665-12-28 17:45 J	-4730355.86	-4730355.76	-4730355.66	0.0501	0.0432
Venus	-17664-08-21 21:21 J	-4730119.81	-4730119.61	-4730119.40	0.0497	0.0008

Venus	-17663-04-15 01:11 J	-4729883.55	-4729883.45	-4729883.34	0.0496	0.0418
Mercury	-17662-08-23 20:09 J	-4729387.69	-4729387.66	-4729387.62	0.0498	0.0486
Mercury	-17662-11-22 07:40 J	-4729297.34	-4729297.18	-4729297.02	0.0499	0.0250
Venus	-17658-06-24 23:02 J	-4727986.73	-4727986.54	-4727986.34	0.0527	0.0171
Venus	-17657-02-17 20:09 J	-4727748.80	-4727748.66	-4727748.50	0.0529	0.0356
Mars	-17656-06-01 07:55 J	-4727279.40	-4727279.17	-4727278.94	0.0528	0.0334
Mercury	-17656-07-16 06:28 J	-4727234.36	-4727234.23	-4727234.11	0.0527	0.0125
Mercury	-17656-10-13 11:45 J	-4727145.08	-4727145.01	-4727144.94	0.0526	0.0436
Venus	-17652-04-26 22:48 J	-4725853.75	-4725853.55	-4725853.35	0.0499	0.0126
Venus	-17652-12-19 02:52 J	-4725617.54	-4725617.38	-4725617.22	0.0497	0.0304
Mercury	-17650-09-10 04:48 J	-4724987.48	-4724987.30	-4724987.11	0.0499	0.0073
Venus	-17646-02-27 13:11 J	-4723721.12	-4723720.95	-4723720.79	0.0526	0.0315
Earth	-17646-05-01 18:14 J	-4723657.89	-4723657.74	-4723657.59	0.0527	0.0394
Moon	-17646-05-01 21:50 J	-4723657.75	-4723657.59	-4723657.43	0.0527	0.0369 *
Venus	-17646-10-23 10:04 J	-4723483.26	-4723483.08	-4723482.89	0.0529	0.0211
Mercury	-17644-05-04 10:33 J	-4722924.17	-4722924.06	-4722923.96	0.0527	0.0269
Mercury	-17644-08-01 15:50 J	-4722834.95	-4722834.84	-4722834.74	0.0526	0.0292
Venus	-17641-12-31 00:43 J	-4721587.64	-4721587.47	-4721587.29	0.0500	0.0245
Venus	-17640-08-24 05:02 J	-4721351.48	-4721351.29	-4721351.10	0.0497	0.0187
Mars	-17638-04-13 06:43 J	-4720754.40	-4720754.22	-4720754.02	0.0498	0.0330
Mercury	-17638-06-29 01:11 J	-4720677.63	-4720677.45	-4720677.26	0.0499	0.0115
Venus	-17635-11-02 01:40 J	-4719455.52	-4719455.43	-4719455.33	0.0525	0.0457
Moon	-17634-05-06 10:48 J	-4719270.29	-4719270.05	-4719269.82	0.0528	0.0108
Earth	-17634-05-06 12:57 J	-4719270.19	-4719269.96	-4719269.74	0.0528	0.0089 *
Venus	-17634-06-27 23:02 J	-4719217.74	-4719217.54	-4719217.34	0.0528	0.0062
Mercury	-17632-02-20 14:38 J	-4718613.97	-4718613.89	-4718613.81	0.0528	0.0412
Mercury	-17632-05-20 19:55 J	-4718524.79	-4718524.67	-4718524.55	0.0527	0.0149
Venus	-17629-09-05 03:07 J	-4717321.51	-4717321.37	-4717321.23	0.0501	0.0363
Venus	-17628-04-29 06:57 J	-4717085.41	-4717085.21	-4717085.01	0.0497	0.0069
Venus	-17628-12-21 11:31 J	-4716849.05	-4716849.02	-4716848.99	0.0496	0.0490

Mercury	-17626-04-16 21:36 J	-4716367.75	-4716367.60	-4716367.45	0.0498	0.0301
Mercury	-17626-07-16 08:52 J	-4716277.22	-4716277.13	-4716277.04	0.0499	0.0433
Venus	-17622-03-02 13:40 J	-4714952.13	-4714951.93	-4714951.73	0.0528	0.0085
Venus	-17622-10-26 10:48 J	-4714714.16	-4714714.05	-4714713.94	0.0530	0.0440
Mercury	-17620-03-09 00:28 J	-4714214.60	-4714214.48	-4714214.35	0.0527	0.0019
Mars	-17620-03-10 01:26 J	-4714213.72	-4714213.44	-4714213.15	0.0527	0.0130
Venus	-17617-05-11 04:33 J	-4713055.36	-4713055.31	-4713055.24	0.0501	0.0480
Earth	-17617-10-26 09:36 J	-4712887.21	-4712887.10	-4712887.00	0.0499	0.0444
Moon	-17617-10-26 09:50 J	-4712887.20	-4712887.09	-4712886.96	0.0499	0.0432 *
Venus	-17616-01-02 08:23 J	-4712819.35	-4712819.15	-4712818.95	0.0498	0.0053
Venus	-17616-08-26 12:14 J	-4712583.12	-4712582.99	-4712582.86	0.0496	0.0374
Mercury	-17614-02-02 17:16 J	-4712057.79	-4712057.78	-4712057.77	0.0498	0.0496
Mercury	-17614-05-04 04:33 J	-4711967.47	-4711967.31	-4711967.14	0.0499	0.0239
Venus	-17611-11-05 03:50 J	-4710686.52	-4710686.34	-4710686.15	0.0527	0.0231
Venus	-17610-07-01 01:40 J	-4710448.59	-4710448.43	-4710448.26	0.0530	0.0299
Mercury	-17609-12-26 05:02 J	-4709904.41	-4709904.29	-4709904.17	0.0527	0.0123
Mercury	-17608-03-25 10:19 J	-4709815.13	-4709815.07	-4709815.00	0.0526	0.0439
Venus	-17605-09-07 10:33 J	-4708553.25	-4708553.06	-4708552.87	0.0499	0.0173
Moon	-17605-10-30 19:55 J	-4708499.90	-4708499.67	-4708499.44	0.0498	0.0051
Earth	-17605-10-30 22:19 J	-4708499.81	-4708499.57	-4708499.34	0.0498	0.0024 *
Venus	-17604-05-01 13:55 J	-4708317.09	-4708316.92	-4708316.74	0.0496	0.0258
Mars	-17602-01-14 18:28 J	-4707693.98	-4707693.73	-4707693.47	0.0498	0.0049
Mercury	-17602-02-20 01:40 J	-4707657.62	-4707657.43	-4707657.25	0.0499	0.0059
Venus	-17599-07-10 17:45 J	-4706420.89	-4706420.76	-4706420.61	0.0526	0.0374
Venus	-17598-03-05 15:21 J	-4706183.05	-4706182.86	-4706182.66	0.0529	0.0153
Mercury	-17597-10-14 08:38 J	-4705594.24	-4705594.14	-4705594.03	0.0527	0.0275
Mercury	-17596-01-11 14:09 J	-4705505.02	-4705504.91	-4705504.81	0.0526	0.0287
Venus	-17593-05-13 11:16 J	-4704287.19	-4704287.03	-4704286.87	0.0500	0.0293
Earth	-17593-11-04 09:36 J	-4704112.24	-4704112.10	-4704111.94	0.0498	0.0390
Moon	-17593-11-04 13:40 J	-4704112.09	-4704111.93	-4704111.78	0.0498	0.0380 *

Venus	-17592-01-04 15:21 J	-4704051.06	-4704050.86	-4704050.67	0.0497	0.0140
Mercury	-17591-12-08 22:48 J	-4703347.74	-4703347.55	-4703347.37	0.0499	0.0121
Venus	-17587-03-15 08:38 J	-4702155.18	-4702155.14	-4702155.10	0.0524	0.0510
Venus	-17587-11-08 05:31 J	-4701917.47	-4701917.27	-4701917.06	0.0528	0.0009
Venus	-17586-07-04 01:40 J	-4701679.45	-4701679.43	-4701679.40	0.0530	0.0523
Mercury	-17585-08-02 12:57 J	-4701284.04	-4701283.96	-4701283.88	0.0528	0.0416
Mercury	-17585-10-30 18:14 J	-4701194.86	-4701194.74	-4701194.62	0.0526	0.0143
Venus	-17581-01-17 13:11 J	-4700021.06	-4700020.95	-4700020.83	0.0501	0.0411
Venus	-17581-09-09 17:31 J	-4699784.97	-4699784.77	-4699784.56	0.0498	0.0023
Venus	-17580-05-03 22:19 J	-4699548.66	-4699548.57	-4699548.49	0.0496	0.0447
Mercury	-17579-09-26 19:11 J	-4699037.84	-4699037.70	-4699037.55	0.0498	0.0305
Mercury	-17579-12-26 06:28 J	-4698947.32	-4698947.23	-4698947.13	0.0500	0.0429
Venus	-17575-07-13 18:14 J	-4697651.93	-4697651.74	-4697651.54	0.0527	0.0145
Venus	-17574-03-08 15:21 J	-4697414.00	-4697413.86	-4697413.72	0.0529	0.0383
Mercury	-17573-08-18 22:19 J	-4696884.69	-4696884.57	-4696884.44	0.0527	0.0007
Venus	-17569-05-15 19:55 J	-4695518.87	-4695518.67	-4695518.47	0.0499	0.0099
Venus	-17568-01-07 00:00 J	-4695282.65	-4695282.50	-4695282.35	0.0496	0.0332
Mercury	-17567-07-15 15:36 J	-4694727.87	-4694727.85	-4694727.82	0.0498	0.0491
Mercury	-17567-10-14 03:07 J	-4694637.53	-4694637.37	-4694637.21	0.0499	0.0244
Mars	-17567-10-18 13:55 J	-4694633.14	-4694632.92	-4694632.70	0.0499	0.0240
Venus	-17563-03-18 08:38 J	-4693386.31	-4693386.14	-4693385.97	0.0526	0.0289
Moon	-17563-04-30 12:43 J	-4693343.06	-4693342.97	-4693342.86	0.0527	0.0475
Earth	-17563-04-30 15:50 J	-4693342.91	-4693342.84	-4693342.78	0.0527	0.0500 *
Venus	-17563-11-11 06:14 J	-4693148.42	-4693148.24	-4693148.06	0.0529	0.0239
Mercury	-17561-06-07 02:52 J	-4692574.50	-4692574.38	-4692574.25	0.0528	0.0136
Mercury	-17561-09-04 08:23 J	-4692485.22	-4692485.15	-4692485.08	0.0526	0.0427
Venus	-17557-01-19 21:50 J	-4691252.77	-4691252.59	-4691252.40	0.0499	0.0220
Venus	-17557-09-12 01:26 J	-4691016.62	-4691016.44	-4691016.25	0.0496	0.0214
Mercury	-17555-08-01 23:02 J	-4690327.72	-4690327.54	-4690327.35	0.0499	0.0052
Venus	-17552-11-20 23:02 J	-4689120.65	-4689120.54	-4689120.42	0.0525	0.0431

Earth	-17551-05-05 13:40 J	-4688955.16	-4688954.93	-4688954.70	0.0528	0.0005
Moon	-17551-05-05 14:09 J	-4688955.13	-4688954.91	-4688954.69	0.0528	0.0010 *
Venus	-17551-07-16 20:52 J	-4688882.83	-4688882.63	-4688882.42	0.0529	0.0094
Mercury	-17549-03-26 07:26 J	-4688264.29	-4688264.19	-4688264.08	0.0528	0.0271
Mercury	-17549-06-23 12:57 J	-4688175.07	-4688174.96	-4688174.86	0.0527	0.0291
Venus	-17546-09-25 00:14 J	-4686986.64	-4686986.49	-4686986.34	0.0500	0.0337
Venus	-17545-05-18 03:36 J	-4686750.55	-4686750.35	-4686750.15	0.0497	0.0095
Mercury	-17543-05-20 19:55 J	-4686017.85	-4686017.67	-4686017.49	0.0499	0.0129
Venus	-17539-03-21 11:16 J	-4684617.23	-4684617.03	-4684616.82	0.0528	0.0054
Earth	-17539-05-10 11:02 J	-4684567.12	-4684567.04	-4684566.96	0.0528	0.0491
Moon	-17539-05-10 12:14 J	-4684567.10	-4684566.99	-4684566.87	0.0528	0.0461 *
Venus	-17539-11-14 07:55 J	-4684379.25	-4684379.17	-4684379.07	0.0530	0.0471
Mercury	-17537-01-13 11:16 J	-4683954.10	-4683954.03	-4683953.95	0.0528	0.0419
Mercury	-17537-04-11 16:33 J	-4683864.93	-4683864.81	-4683864.68	0.0526	0.0141
Venus	-17534-05-31 00:14 J	-4682720.57	-4682720.49	-4682720.41	0.0502	0.0457
Venus	-17533-01-22 04:33 J	-4682484.51	-4682484.31	-4682484.11	0.0498	0.0026
Venus	-17533-09-14 09:07 J	-4682248.23	-4682248.12	-4682248.00	0.0496	0.0403
Mercury	-17531-03-08 17:02 J	-4681707.94	-4681707.79	-4681707.64	0.0499	0.0308
Mercury	-17531-06-07 04:19 J	-4681617.41	-4681617.32	-4681617.22	0.0500	0.0428
Venus	-17528-11-24 01:55 J	-4680351.61	-4680351.42	-4680351.23	0.0526	0.0199
Venus	-17527-07-19 22:33 J	-4680113.71	-4680113.56	-4680113.39	0.0529	0.0329
Mercury	-17525-01-29 20:52 J	-4679554.76	-4679554.63	-4679554.51	0.0527	0.0008
Venus	-17522-09-27 06:57 J	-4678218.41	-4678218.21	-4678218.02	0.0499	0.0146
Earth	-17522-10-31 00:00 J	-4678184.73	-4678184.50	-4678184.27	0.0499	0.0105
Moon	-17522-10-31 03:36 J	-4678184.58	-4678184.35	-4678184.12	0.0499	0.0134 *
Venus	-17521-05-20 11:16 J	-4677982.20	-4677982.03	-4677981.86	0.0497	0.0288
Mercury	-17520-12-25 13:40 J	-4677397.96	-4677397.93	-4677397.90	0.0498	0.0491
Mercury	-17519-03-26 01:11 J	-4677307.61	-4677307.45	-4677307.29	0.0499	0.0246
Venus	-17516-07-29 14:52 J	-4676086.03	-4676085.88	-4676085.72	0.0525	0.0346
Venus	-17515-03-24 12:00 J	-4675848.19	-4675848.00	-4675847.81	0.0529	0.0182

Mercury	-17514-11-18 00:57 J	-4675244.58	-4675244.46	-4675244.34	0.0527	0.0145
Mercury	-17513-02-15 06:14 J	-4675155.31	-4675155.24	-4675155.16	0.0526	0.0417
Venus	-17510-06-02 09:21 J	-4673952.28	-4673952.11	-4673951.93	0.0500	0.0266
Moon	-17510-11-04 10:19 J	-4673797.25	-4673797.07	-4673796.88	0.0498	0.0311
Earth	-17510-11-04 14:38 J	-4673797.07	-4673796.89	-4673796.71	0.0498	0.0321 *
Venus	-17509-01-24 13:26 J	-4673716.13	-4673715.94	-4673715.74	0.0497	0.0170
Mercury	-17507-01-11 21:50 J	-4672997.78	-4672997.59	-4672997.41	0.0499	0.0062
Venus	-17504-04-03 05:16 J	-4671820.35	-4671820.28	-4671820.20	0.0524	0.0485
Venus	-17504-11-27 02:38 J	-4671582.60	-4671582.39	-4671582.19	0.0528	0.0036
Mars	-17502-08-25 16:48 J	-4670946.05	-4670945.80	-4670945.53	0.0528	0.0261
Mercury	-17502-09-06 05:31 J	-4670934.37	-4670934.27	-4670934.16	0.0528	0.0280
Mercury	-17502-12-04 11:02 J	-4670845.15	-4670845.04	-4670844.94	0.0527	0.0283
Venus	-17498-02-05 12:14 J	-4669686.12	-4669685.99	-4669685.87	0.0501	0.0383
Venus	-17498-09-29 15:50 J	-4669450.04	-4669449.84	-4669449.63	0.0497	0.0051
Venus	-17497-05-22 19:55 J	-4669213.72	-4669213.67	-4669213.61	0.0496	0.0474
Mercury	-17496-10-30 17:45 J	-4668687.94	-4668687.76	-4668687.57	0.0498	0.0129
Venus	-17492-08-01 17:16 J	-4667316.98	-4667316.78	-4667316.58	0.0528	0.0112
Venus	-17491-03-27 14:52 J	-4667079.00	-4667078.88	-4667078.75	0.0530	0.0417
Mercury	-17490-06-25 10:19 J	-4666624.15	-4666624.07	-4666624.00	0.0528	0.0414
Mercury	-17490-09-22 15:36 J	-4666534.97	-4666534.85	-4666534.73	0.0527	0.0148
Venus	-17487-10-11 14:23 J	-4665419.92	-4665419.90	-4665419.88	0.0502	0.0498
Venus	-17486-06-04 18:14 J	-4665183.94	-4665183.74	-4665183.54	0.0498	0.0070
Venus	-17485-01-26 22:04 J	-4664947.72	-4664947.58	-4664947.44	0.0496	0.0361
Mars	-17484-07-06 20:52 J	-4664420.85	-4664420.63	-4664420.42	0.0498	0.0271
Mercury	-17484-08-18 14:52 J	-4664378.03	-4664377.88	-4664377.74	0.0498	0.0308
Mercury	-17484-11-17 01:55 J	-4664287.50	-4664287.42	-4664287.31	0.0499	0.0427
Venus	-17480-04-06 08:23 J	-4663051.32	-4663051.15	-4663050.97	0.0526	0.0255
Venus	-17480-11-30 05:31 J	-4662813.44	-4662813.27	-4662813.09	0.0529	0.0275
Mercury	-17478-07-11 19:26 J	-4662224.81	-4662224.69	-4662224.56	0.0527	0.0006
Venus	-17474-02-07 18:43 J	-4660917.90	-4660917.72	-4660917.53	0.0500	0.0192

Venus	-17474-10-01 23:02 J	-4660681.71	-4660681.54	-4660681.36	0.0497	0.0244
Mercury	-17472-06-06 11:45 J	-4660068.04	-4660068.01	-4660067.98	0.0498	0.0488
Mercury	-17472-09-04 23:16 J	-4659977.69	-4659977.53	-4659977.36	0.0500	0.0250
Venus	-17469-12-09 23:31 J	-4658785.65	-4658785.52	-4658785.38	0.0525	0.0397
Earth	-17468-05-04 18:00 J	-4658639.98	-4658639.75	-4658639.53	0.0527	0.0084
Moon	-17468-05-04 18:57 J	-4658639.95	-4658639.71	-4658639.47	0.0527	0.0074 *
Venus	-17468-08-04 20:38 J	-4658547.84	-4658547.64	-4658547.44	0.0528	0.0129
Mercury	-17466-04-29 23:45 J	-4657914.63	-4657914.51	-4657914.39	0.0527	0.0141
Mars	-17466-06-03 10:04 J	-4657880.35	-4657880.08	-4657879.80	0.0526	0.0204
Mercury	-17466-07-28 05:02 J	-4657825.36	-4657825.29	-4657825.21	0.0526	0.0420
Venus	-17463-10-13 21:07 J	-4656651.78	-4656651.62	-4656651.46	0.0501	0.0311
Venus	-17462-06-07 01:26 J	-4656415.64	-4656415.44	-4656415.24	0.0498	0.0125
Mercury	-17460-06-23 20:23 J	-4655667.84	-4655667.65	-4655667.47	0.0499	0.0069
Venus	-17456-04-09 10:04 J	-4654282.29	-4654282.08	-4654281.88	0.0527	0.0023
Moon	-17456-05-09 10:33 J	-4654252.21	-4654252.06	-4654251.90	0.0528	0.0372
Earth	-17456-05-09 12:57 J	-4654252.10	-4654251.96	-4654251.81	0.0528	0.0402 *
Venus	-17456-12-03 06:14 J	-4654044.30	-4654044.24	-4654044.18	0.0529	0.0503
Mercury	-17454-02-16 04:04 J	-4653604.44	-4653604.33	-4653604.23	0.0528	0.0284
Mercury	-17454-05-16 09:21 J	-4653515.22	-4653515.11	-4653515.01	0.0526	0.0278
Venus	-17451-06-18 23:45 J	-4652385.61	-4652385.51	-4652385.40	0.0502	0.0429
Venus	-17450-02-10 04:19 J	-4652149.53	-4652149.32	-4652149.12	0.0498	0.0008
Venus	-17450-10-04 08:52 J	-4651913.22	-4651913.13	-4651913.03	0.0496	0.0435
Mars	-17448-04-09 17:31 J	-4651360.02	-4651359.77	-4651359.51	0.0499	0.0020
Mercury	-17448-04-11 17:02 J	-4651357.97	-4651357.79	-4651357.61	0.0499	0.0115
Venus	-17445-12-13 00:14 J	-4650016.68	-4650016.49	-4650016.29	0.0527	0.0168
Venus	-17444-08-07 21:21 J	-4649778.76	-4649778.61	-4649778.46	0.0529	0.0362
Mercury	-17443-12-05 08:38 J	-4649294.22	-4649294.14	-4649294.07	0.0528	0.0418
Mercury	-17442-03-04 13:55 J	-4649205.04	-4649204.92	-4649204.80	0.0527	0.0143
Venus	-17439-10-16 06:57 J	-4647883.40	-4647883.21	-4647883.01	0.0499	0.0115
Moon	-17439-10-30 03:50 J	-4647869.56	-4647869.34	-4647869.12	0.0499	0.0193

Earth	-17439-10-30 07:40 J	-4647869.40	-4647869.18	-4647868.95	0.0499	0.0160 *
Venus	-17438-06-09 10:48 J	-4647647.20	-4647647.05	-4647646.89	0.0496	0.0320
Mercury	-17436-01-28 13:11 J	-4647048.09	-4647047.95	-4647047.80	0.0498	0.0303
Mercury	-17436-04-29 00:28 J	-4646957.57	-4646957.48	-4646957.38	0.0499	0.0431
Venus	-17433-08-17 15:07 J	-4645751.03	-4645750.87	-4645750.70	0.0526	0.0312
Venus	-17432-04-12 12:57 J	-4645513.15	-4645512.96	-4645512.78	0.0529	0.0219
Mercury	-17431-12-21 18:28 J	-4644894.85	-4644894.73	-4644894.60	0.0527	0.0019
Venus	-17427-06-21 09:36 J	-4643617.27	-4643617.10	-4643616.92	0.0500	0.0234
Earth	-17427-11-03 21:50 J	-4643481.79	-4643481.59	-4643481.39	0.0498	0.0264
Moon	-17427-11-04 01:26 J	-4643481.64	-4643481.44	-4643481.24	0.0498	0.0261 *
Venus	-17426-02-12 13:26 J	-4643381.13	-4643380.94	-4643380.75	0.0497	0.0202
Mercury	-17425-11-16 10:04 J	-4642738.12	-4642738.08	-4642738.03	0.0498	0.0481
Mercury	-17424-02-14 21:36 J	-4642647.75	-4642647.60	-4642647.43	0.0499	0.0256
Venus	-17421-04-22 06:57 J	-4641485.31	-4641485.21	-4641485.10	0.0524	0.0450
Venus	-17421-12-16 04:19 J	-4641247.53	-4641247.32	-4641247.12	0.0528	0.0075
Mercury	-17419-10-09 22:33 J	-4640584.68	-4640584.56	-4640584.43	0.0527	0.0136
Mercury	-17418-01-07 04:04 J	-4640495.41	-4640495.33	-4640495.26	0.0526	0.0425
Venus	-17415-02-24 09:36 J	-4639351.23	-4639351.10	-4639350.95	0.0501	0.0356
Venus	-17415-10-18 14:09 J	-4639115.11	-4639114.91	-4639114.71	0.0498	0.0082
Mercury	-17413-12-03 18:57 J	-4638337.90	-4638337.71	-4638337.53	0.0499	0.0076
Mars	-17412-01-11 14:52 J	-4638299.08	-4638298.88	-4638298.68	0.0500	0.0312
Venus	-17409-08-20 19:40 J	-4636981.88	-4636981.68	-4636981.48	0.0527	0.0072
Venus	-17408-04-15 16:04 J	-4636743.93	-4636743.83	-4636743.73	0.0529	0.0455
Mercury	-17407-07-29 03:07 J	-4636274.48	-4636274.37	-4636274.27	0.0527	0.0274
Mercury	-17407-10-26 08:09 J	-4636185.26	-4636185.16	-4636185.05	0.0526	0.0286
Venus	-17404-10-30 11:45 J	-4635085.07	-4635085.01	-4635084.94	0.0502	0.0473
Venus	-17403-06-23 16:33 J	-4634849.01	-4634848.81	-4634848.61	0.0499	0.0039
Venus	-17402-02-14 21:07 J	-4634612.73	-4634612.62	-4634612.49	0.0497	0.0395
Mercury	-17401-09-21 15:50 J	-4634028.02	-4634027.84	-4634027.66	0.0499	0.0104
Venus	-17397-04-25 09:07 J	-4632716.30	-4632716.12	-4632715.93	0.0526	0.0221



Venus	-17397-12-19 05:45 J	-4632478.42	-4632478.26	-4632478.09	0.0529	0.0311
Mercury	-17395-05-17 07:11 J	-4631964.27	-4631964.20	-4631964.12	0.0528	0.0416
Mercury	-17395-08-14 12:28 J	-4631875.10	-4631874.98	-4631874.86	0.0527	0.0144
Venus	-17391-02-26 19:40 J	-4630582.87	-4630582.68	-4630582.49	0.0500	0.0159
Venus	-17391-10-21 00:00 J	-4630346.66	-4630346.50	-4630346.33	0.0497	0.0279
Mercury	-17389-07-10 12:43 J	-4629718.13	-4629717.97	-4629717.82	0.0498	0.0285
Mercury	-17389-10-09 00:00 J	-4629627.58	-4629627.50	-4629627.42	0.0500	0.0449
Venus	-17386-12-29 23:31 J	-4628450.66	-4628450.52	-4628450.36	0.0525	0.0365
Moon	-17385-05-03 19:55 J	-4628324.88	-4628324.67	-4628324.45	0.0527	0.0157
Earth	-17385-05-03 22:19 J	-4628324.79	-4628324.57	-4628324.35	0.0527	0.0162 *
Venus	-17385-08-23 20:38 J	-4628212.83	-4628212.64	-4628212.44	0.0528	0.0165
Mercury	-17383-06-02 17:02 J	-4627564.91	-4627564.79	-4627564.66	0.0527	0.0014
Venus	-17380-11-01 22:48 J	-4626316.71	-4626316.55	-4626316.38	0.0500	0.0278
Venus	-17379-06-26 02:52 J	-4626080.57	-4626080.38	-4626080.19	0.0497	0.0160
Mercury	-17377-04-28 08:52 J	-4625408.18	-4625408.13	-4625408.06	0.0498	0.0471
Mercury	-17377-07-27 20:38 J	-4625317.80	-4625317.64	-4625317.48	0.0499	0.0265
Venus	-17374-09-03 14:38 J	-4624184.94	-4624184.89	-4624184.83	0.0524	0.0503
Venus	-17373-04-28 12:00 J	-4623947.21	-4623947.00	-4623946.80	0.0528	0.0022
Earth	-17373-05-08 20:23 J	-4623936.82	-4623936.65	-4623936.47	0.0528	0.0336
Moon	-17373-05-09 00:00 J	-4623936.69	-4623936.50	-4623936.31	0.0528	0.0305 *
Mercury	-17371-03-21 21:50 J	-4623254.71	-4623254.59	-4623254.47	0.0528	0.0124
Mercury	-17371-06-19 03:07 J	-4623165.43	-4623165.37	-4623165.30	0.0526	0.0438
Venus	-17368-07-08 01:40 J	-4622050.56	-4622050.43	-4622050.31	0.0501	0.0396
Venus	-17367-03-01 05:45 J	-4621814.47	-4621814.26	-4621814.06	0.0498	0.0042
Venus	-17367-10-23 09:50 J	-4621578.15	-4621578.09	-4621578.02	0.0496	0.0469
Mars	-17366-12-28 10:33 J	-4621147.12	-4621147.06	-4621146.99	0.0497	0.0478
Mercury	-17365-05-15 17:45 J	-4621007.94	-4621007.76	-4621007.57	0.0499	0.0088
Venus	-17361-01-02 03:50 J	-4619681.54	-4619681.34	-4619681.14	0.0527	0.0126
Venus	-17361-08-27 00:43 J	-4619443.60	-4619443.47	-4619443.34	0.0529	0.0405
Mercury	-17359-01-08 02:09 J	-4618944.52	-4618944.41	-4618944.30	0.0527	0.0265

Mercury	-17359-04-07 07:11 J	-4618855.30	-4618855.20	-4618855.09	0.0526	0.0295
Earth	-17356-10-29 12:57 J	-4617554.16	-4617553.96	-4617553.74	0.0499	0.0228
Moon	-17356-10-29 16:48 J	-4617554.00	-4617553.80	-4617553.60	0.0499	0.0258 *
Venus	-17356-11-04 06:00 J	-4617548.45	-4617548.25	-4617548.05	0.0499	0.0084
Venus	-17355-06-28 10:19 J	-4617312.21	-4617312.07	-4617311.93	0.0497	0.0354
Mercury	-17353-03-03 14:38 J	-4616698.07	-4616697.89	-4616697.70	0.0499	0.0094
Venus	-17350-09-06 19:55 J	-4615415.85	-4615415.67	-4615415.50	0.0525	0.0270
Venus	-17349-05-01 16:33 J	-4615177.99	-4615177.81	-4615177.63	0.0528	0.0262
Mercury	-17348-10-27 06:28 J	-4614634.31	-4614634.23	-4614634.15	0.0527	0.0402
Mars	-17348-11-19 06:14 J	-4614611.52	-4614611.24	-4614610.95	0.0527	0.0151
Mercury	-17347-01-24 11:45 J	-4614545.13	-4614545.01	-4614544.89	0.0526	0.0156
Venus	-17344-07-10 08:23 J	-4613282.33	-4613282.15	-4613281.96	0.0500	0.0203
Moon	-17344-11-03 01:11 J	-4613166.67	-4613166.45	-4613166.22	0.0499	0.0196
Earth	-17344-11-03 03:50 J	-4613166.56	-4613166.34	-4613166.12	0.0499	0.0199 *
Venus	-17343-03-03 12:57 J	-4613046.14	-4613045.96	-4613045.78	0.0498	0.0237
Mercury	-17342-12-21 11:45 J	-4612388.17	-4612388.01	-4612387.85	0.0499	0.0272
Mercury	-17341-03-20 23:16 J	-4612297.60	-4612297.53	-4612297.47	0.0500	0.0464
Venus	-17338-05-12 09:36 J	-4611150.22	-4611150.10	-4611149.98	0.0524	0.0414
Venus	-17337-01-05 06:14 J	-4610912.44	-4610912.24	-4610912.04	0.0528	0.0113
Mercury	-17336-11-12 16:04 J	-4610234.96	-4610234.83	-4610234.71	0.0527	0.0022
Venus	-17332-03-15 11:31 J	-4609016.17	-4609016.02	-4609015.86	0.0501	0.0323
Venus	-17332-11-06 16:04 J	-4608780.03	-4608779.83	-4608779.63	0.0498	0.0118
Mars	-17330-10-01 09:07 J	-4608086.35	-4608086.12	-4608085.88	0.0498	0.0190
Mercury	-17330-10-09 08:38 J	-4608078.21	-4608078.14	-4608078.06	0.0498	0.0452
Mercury	-17329-01-07 20:09 J	-4607987.81	-4607987.66	-4607987.50	0.0499	0.0286
Venus	-17326-09-09 20:52 J	-4606646.83	-4606646.63	-4606646.42	0.0527	0.0037
Venus	-17325-05-04 17:16 J	-4606408.84	-4606408.78	-4606408.70	0.0529	0.0493
Mercury	-17324-08-31 20:38 J	-4605924.76	-4605924.64	-4605924.52	0.0527	0.0120
Mercury	-17324-11-29 01:55 J	-4605835.49	-4605835.42	-4605835.35	0.0526	0.0441
Venus	-17321-11-18 14:38 J	-4604749.98	-4604749.89	-4604749.79	0.0502	0.0440

Venus	-17320-07-12 19:11 J	-4604513.90	-4604513.70	-4604513.49	0.0499	0.0012
Venus	-17319-03-05 23:31 J	-4604277.61	-4604277.52	-4604277.41	0.0497	0.0431
Mercury	-17318-10-26 17:02 J	-4603677.98	-4603677.79	-4603677.61	0.0499	0.0102
Venus	-17314-05-15 12:00 J	-4602381.20	-4602381.00	-4602380.81	0.0526	0.0182
Venus	-17313-01-08 09:07 J	-4602143.27	-4602143.12	-4602142.97	0.0529	0.0353
Mercury	-17312-06-20 01:26 J	-4601614.55	-4601614.44	-4601614.33	0.0528	0.0253
Mars	-17312-08-28 11:02 J	-4601545.26	-4601545.04	-4601544.80	0.0527	0.0331
Mercury	-17312-09-17 06:43 J	-4601525.32	-4601525.22	-4601525.12	0.0526	0.0309
Venus	-17308-03-17 22:19 J	-4600247.77	-4600247.57	-4600247.38	0.0499	0.0123
Venus	-17308-11-09 02:23 J	-4600011.56	-4600011.40	-4600011.25	0.0497	0.0315
Mercury	-17306-08-14 14:09 J	-4599368.10	-4599367.91	-4599367.73	0.0499	0.0075
Venus	-17302-01-18 04:33 J	-4598115.47	-4598115.31	-4598115.15	0.0525	0.0322
Earth	-17302-05-04 10:19 J	-4598009.27	-4598009.07	-4598008.85	0.0527	0.0209
Moon	-17302-05-04 13:55 J	-4598009.13	-4598008.92	-4598008.70	0.0527	0.0211 *
Venus	-17302-09-13 01:26 J	-4597877.62	-4597877.44	-4597877.25	0.0528	0.0211
Mercury	-17300-04-08 05:45 J	-4597304.34	-4597304.26	-4597304.18	0.0527	0.0391
Mercury	-17300-07-06 11:02 J	-4597215.16	-4597215.04	-4597214.92	0.0526	0.0168
Venus	-17297-11-20 22:04 J	-4595981.75	-4595981.58	-4595981.40	0.0500	0.0247
Venus	-17296-07-15 02:23 J	-4595745.58	-4595745.40	-4595745.21	0.0498	0.0195
Mercury	-17294-06-02 10:48 J	-4595058.21	-4595058.05	-4595057.89	0.0499	0.0260
Mars	-17294-07-05 06:00 J	-4595025.50	-4595025.25	-4595025.00	0.0500	0.0102
Mercury	-17294-08-31 22:04 J	-4594967.62	-4594967.58	-4594967.52	0.0500	0.0479
Venus	-17291-09-22 20:52 J	-4593849.72	-4593849.63	-4593849.53	0.0524	0.0461
Moon	-17290-05-09 06:28 J	-4593621.42	-4593621.23	-4593621.02	0.0527	0.0260
Earth	-17290-05-09 10:19 J	-4593621.26	-4593621.07	-4593620.88	0.0527	0.0293 *
Venus	-17290-05-18 17:31 J	-4593611.97	-4593611.77	-4593611.57	0.0527	0.0065
Mercury	-17288-01-25 10:19 J	-4592994.07	-4592994.07	-4592994.06	0.0527	0.0526
Mercury	-17288-04-24 15:21 J	-4592904.98	-4592904.86	-4592904.73	0.0526	0.0035
Venus	-17285-07-27 00:28 J	-4591715.61	-4591715.48	-4591715.34	0.0502	0.0367
Venus	-17284-03-20 05:16 J	-4591479.48	-4591479.28	-4591479.08	0.0499	0.0075

Mercury	-17282-03-21 07:55 J	-4590748.26	-4590748.17	-4590748.08	0.0499	0.0438
Mercury	-17282-06-19 19:26 J	-4590657.83	-4590657.69	-4590657.54	0.0500	0.0301
Venus	-17278-01-21 07:11 J	-4589346.40	-4589346.20	-4589345.99	0.0526	0.0086
Venus	-17278-09-16 03:36 J	-4589108.46	-4589108.35	-4589108.24	0.0529	0.0445
Mercury	-17276-02-10 19:40 J	-4588594.80	-4588594.68	-4588594.56	0.0527	0.0111
Mercury	-17276-05-11 00:57 J	-4588505.52	-4588505.46	-4588505.39	0.0526	0.0448
Venus	-17273-04-01 03:21 J	-4587449.40	-4587449.36	-4587449.30	0.0503	0.0485
Moon	-17273-10-28 22:33 J	-4587238.75	-4587238.56	-4587238.36	0.0500	0.0295
Earth	-17273-10-29 01:11 J	-4587238.65	-4587238.45	-4587238.25	0.0500	0.0266 *
Venus	-17273-11-23 08:23 J	-4587213.35	-4587213.15	-4587212.94	0.0499	0.0048
Venus	-17272-07-17 13:11 J	-4586977.07	-4586976.95	-4586976.82	0.0497	0.0391
Mercury	-17270-04-07 16:33 J	-4586347.99	-4586347.81	-4586347.63	0.0499	0.0123
Venus	-17267-09-25 21:50 J	-4585080.77	-4585080.59	-4585080.40	0.0525	0.0233
Venus	-17266-05-21 18:28 J	-4584842.89	-4584842.73	-4584842.56	0.0528	0.0302
Mercury	-17265-11-30 00:14 J	-4584284.60	-4584284.49	-4584284.38	0.0527	0.0246
Mercury	-17264-02-27 05:31 J	-4584195.37	-4584195.27	-4584195.17	0.0526	0.0314
Venus	-17261-07-29 12:00 J	-4582947.19	-4582947.00	-4582946.81	0.0500	0.0166
Earth	-17261-11-02 17:16 J	-4582851.00	-4582850.78	-4582850.56	0.0499	0.0165
Moon	-17261-11-02 17:31 J	-4582850.98	-4582850.77	-4582850.55	0.0499	0.0176 *
Venus	-17260-03-22 16:04 J	-4582710.99	-4582710.83	-4582710.65	0.0497	0.0276
Mercury	-17258-01-24 13:26 J	-4582038.13	-4582037.94	-4582037.76	0.0499	0.0061
Mars	-17258-04-08 05:16 J	-4581964.42	-4581964.28	-4581964.12	0.0500	0.0401
Venus	-17255-05-31 12:43 J	-4580815.11	-4580814.97	-4580814.82	0.0525	0.0376
Venus	-17254-01-24 09:50 J	-4580577.28	-4580577.09	-4580576.89	0.0528	0.0157
Mercury	-17253-09-18 05:02 J	-4579974.38	-4579974.29	-4579974.20	0.0528	0.0378
Mercury	-17253-12-16 10:19 J	-4579885.19	-4579885.07	-4579884.95	0.0527	0.0182
Venus	-17249-04-03 14:52 J	-4578681.05	-4578680.88	-4578680.71	0.0501	0.0286
Venus	-17249-11-25 18:57 J	-4578444.90	-4578444.71	-4578444.51	0.0498	0.0156
Mercury	-17247-11-12 10:19 J	-4577728.23	-4577728.07	-4577727.90	0.0499	0.0238
Mercury	-17246-02-10 21:50 J	-4577637.60	-4577637.59	-4577637.58	0.0500	0.0498

Venus	-17243-02-03 05:45 J	-4576549.30	-4576549.26	-4576549.22	0.0523	0.0512
Venus	-17243-09-29 02:38 J	-4576311.59	-4576311.39	-4576311.18	0.0527	0.0012
Mercury	-17241-07-07 09:36 J	-4575664.13	-4575664.10	-4575664.08	0.0527	0.0514
Mercury	-17241-10-04 14:38 J	-4575575.01	-4575574.89	-4575574.76	0.0526	0.0045
Venus	-17238-12-08 14:23 J	-4574415.01	-4574414.90	-4574414.78	0.0502	0.0410
Venus	-17237-07-31 19:11 J	-4574178.91	-4574178.70	-4574178.50	0.0499	0.0033
Venus	-17236-03-25 00:00 J	-4573942.57	-4573942.50	-4573942.43	0.0497	0.0466
Mercury	-17235-08-31 06:43 J	-4573418.31	-4573418.22	-4573418.12	0.0499	0.0426
Mercury	-17235-11-29 18:43 J	-4573327.87	-4573327.72	-4573327.58	0.0500	0.0315
Venus	-17231-06-03 18:43 J	-4572045.92	-4572045.72	-4572045.52	0.0526	0.0134
Venus	-17230-01-27 15:07 J	-4571808.00	-4571807.87	-4571807.73	0.0529	0.0400
Mars	-17229-05-07 14:38 J	-4571341.98	-4571341.89	-4571341.77	0.0527	0.0490
Mercury	-17229-07-23 19:11 J	-4571264.82	-4571264.70	-4571264.57	0.0526	0.0093
Mercury	-17229-10-21 00:28 J	-4571175.53	-4571175.48	-4571175.42	0.0525	0.0465
Venus	-17225-04-05 21:50 J	-4569912.79	-4569912.59	-4569912.40	0.0500	0.0091
Venus	-17225-11-28 02:23 J	-4569676.54	-4569676.40	-4569676.26	0.0497	0.0350
Mercury	-17223-09-17 15:50 J	-4569018.02	-4569017.84	-4569017.66	0.0500	0.0137
Venus	-17219-02-06 08:38 J	-4567780.31	-4567780.14	-4567779.96	0.0525	0.0283
Moon	-17219-05-03 17:45 J	-4567693.96	-4567693.76	-4567693.56	0.0526	0.0270
Earth	-17219-05-03 21:21 J	-4567693.81	-4567693.61	-4567693.41	0.0526	0.0257 *
Venus	-17219-10-02 05:16 J	-4567542.46	-4567542.28	-4567542.10	0.0528	0.0252
Mercury	-17217-05-11 23:31 J	-4566954.63	-4566954.52	-4566954.41	0.0527	0.0235
Mercury	-17217-08-09 04:48 J	-4566865.40	-4566865.30	-4566865.21	0.0526	0.0324
Venus	-17214-12-11 00:57 J	-4565646.65	-4565646.46	-4565646.28	0.0501	0.0212
Venus	-17213-08-03 05:31 J	-4565410.44	-4565410.27	-4565410.09	0.0498	0.0233
Mars	-17211-03-24 03:50 J	-4564812.49	-4564812.34	-4564812.18	0.0498	0.0393
Mercury	-17211-07-06 12:57 J	-4564708.15	-4564707.96	-4564707.77	0.0499	0.0041
Venus	-17208-10-11 23:31 J	-4563514.64	-4563514.52	-4563514.41	0.0524	0.0426
Earth	-17207-05-08 18:28 J	-4563305.93	-4563305.73	-4563305.52	0.0527	0.0232
Moon	-17207-05-08 21:21 J	-4563305.82	-4563305.61	-4563305.41	0.0527	0.0204 *

Venus	-17207-06-06 19:55 J	-4563276.87	-4563276.67	-4563276.47	0.0527	0.0104
Mercury	-17205-02-29 04:04 J	-4562644.42	-4562644.33	-4562644.24	0.0527	0.0371
Mercury	-17205-05-28 09:07 J	-4562555.23	-4562555.12	-4562555.00	0.0526	0.0189
Venus	-17202-08-16 04:19 J	-4561380.47	-4561380.32	-4561380.17	0.0501	0.0331
Venus	-17201-04-08 08:52 J	-4561144.33	-4561144.13	-4561143.93	0.0498	0.0113
Mercury	-17199-04-24 09:36 J	-4560398.26	-4560398.10	-4560397.93	0.0499	0.0224
Venus	-17195-02-09 11:02 J	-4559011.25	-4559011.04	-4559010.84	0.0527	0.0044
Venus	-17195-10-05 07:26 J	-4558773.26	-4558773.19	-4558773.11	0.0529	0.0489
Mercury	-17194-12-18 08:38 J	-4558334.17	-4558334.14	-4558334.10	0.0528	0.0503
Mars	-17193-02-14 17:02 J	-4558276.09	-4558275.79	-4558275.50	0.0527	0.0014
Mercury	-17193-03-16 13:55 J	-4558245.04	-4558244.92	-4558244.79	0.0527	0.0056
Venus	-17190-04-21 06:57 J	-4557114.29	-4557114.21	-4557114.12	0.0503	0.0449
Earth	-17190-10-29 14:09 J	-4556923.09	-4556922.91	-4556922.71	0.0499	0.0302
Moon	-17190-10-29 14:38 J	-4556923.06	-4556922.89	-4556922.72	0.0499	0.0323 *
Venus	-17190-12-13 11:45 J	-4556878.21	-4556878.01	-4556877.81	0.0499	0.0008
Venus	-17189-08-05 16:19 J	-4556641.92	-4556641.82	-4556641.72	0.0497	0.0429
Mercury	-17187-02-10 06:43 J	-4556088.33	-4556088.22	-4556088.11	0.0499	0.0402
Mercury	-17187-05-11 18:14 J	-4555997.87	-4555997.74	-4555997.60	0.0500	0.0336
Venus	-17184-10-15 03:36 J	-4554745.54	-4554745.35	-4554745.16	0.0526	0.0188
Venus	-17183-06-10 00:28 J	-4554507.63	-4554507.48	-4554507.33	0.0529	0.0349
Mercury	-17181-01-03 18:28 J	-4553934.85	-4553934.73	-4553934.60	0.0526	0.0081
Mercury	-17181-04-01 23:45 J	-4553845.56	-4553845.51	-4553845.46	0.0525	0.0478
Venus	-17178-08-18 11:31 J	-4552612.21	-4552612.02	-4552611.82	0.0500	0.0135
Earth	-17178-11-03 00:00 J	-4552535.73	-4552535.50	-4552535.27	0.0499	0.0104
Moon	-17178-11-03 01:55 J	-4552535.66	-4552535.42	-4552535.18	0.0499	0.0124 *
Venus	-17177-04-10 16:04 J	-4552375.99	-4552375.83	-4552375.67	0.0497	0.0309
Mars	-17176-12-25 23:31 J	-4551751.77	-4551751.52	-4551751.27	0.0499	0.0107
Mercury	-17175-02-27 14:38 J	-4551688.06	-4551687.89	-4551687.71	0.0500	0.0149
Venus	-17172-06-19 19:55 J	-4550479.83	-4550479.67	-4550479.51	0.0525	0.0332
Venus	-17171-02-12 16:48 J	-4550241.99	-4550241.80	-4550241.61	0.0528	0.0204

Mercury	-17170-10-22 23:02 J	-4549624.65	-4549624.54	-4549624.42	0.0527	0.0216
Mercury	-17169-01-20 04:19 J	-4549535.42	-4549535.32	-4549535.23	0.0525	0.0342
Venus	-17166-04-23 13:55 J	-4548346.09	-4548345.92	-4548345.74	0.0501	0.0256
Venus	-17166-12-15 18:28 J	-4548109.92	-4548109.73	-4548109.54	0.0498	0.0189
Mercury	-17164-12-16 12:00 J	-4547378.19	-4547378.00	-4547377.82	0.0500	0.0031
Venus	-17160-02-22 10:04 J	-4546214.16	-4546214.08	-4546213.99	0.0523	0.0476
Venus	-17160-10-18 06:28 J	-4545976.43	-4545976.23	-4545976.03	0.0527	0.0053
Mercury	-17158-08-11 03:07 J	-4545314.46	-4545314.37	-4545314.27	0.0527	0.0359
Mercury	-17158-11-08 08:23 J	-4545225.27	-4545225.15	-4545225.03	0.0526	0.0199
Mars	-17158-11-23 14:23 J	-4545210.04	-4545209.90	-4545209.74	0.0526	0.0452
Venus	-17155-12-27 16:48 J	-4544079.93	-4544079.80	-4544079.66	0.0502	0.0377
Venus	-17154-08-20 21:50 J	-4543843.79	-4543843.59	-4543843.39	0.0499	0.0069
Mercury	-17152-10-04 09:07 J	-4543068.29	-4543068.12	-4543067.95	0.0499	0.0208
Venus	-17148-06-22 20:52 J	-4541710.83	-4541710.63	-4541710.43	0.0526	0.0097
Venus	-17147-02-15 17:02 J	-4541472.89	-4541472.79	-4541472.67	0.0529	0.0439
Mercury	-17146-05-30 07:40 J	-4541004.22	-4541004.18	-4541004.14	0.0527	0.0496
Mercury	-17146-08-27 12:57 J	-4540915.09	-4540914.96	-4540914.84	0.0526	0.0064
Venus	-17143-09-01 19:55 J	-4539813.70	-4539813.67	-4539813.63	0.0503	0.0495
Venus	-17142-04-26 01:11 J	-4539577.66	-4539577.45	-4539577.25	0.0499	0.0054
Venus	-17142-12-18 05:31 J	-4539341.39	-4539341.27	-4539341.14	0.0497	0.0389
Mercury	-17140-07-23 05:45 J	-4538758.38	-4538758.26	-4538758.15	0.0499	0.0390
Mars	-17140-09-29 00:14 J	-4538690.72	-4538690.49	-4538690.25	0.0499	0.0194
Mercury	-17140-10-21 17:16 J	-4538667.91	-4538667.78	-4538667.64	0.0500	0.0348
Venus	-17136-02-25 11:31 J	-4537445.20	-4537445.02	-4537444.83	0.0525	0.0245
Earth	-17136-05-03 06:28 J	-4537378.41	-4537378.23	-4537378.04	0.0526	0.0315
Moon	-17136-05-03 09:21 J	-4537378.28	-4537378.11	-4537377.93	0.0526	0.0337 *
Venus	-17136-10-21 08:23 J	-4537207.31	-4537207.15	-4537206.98	0.0528	0.0294
Mercury	-17134-06-15 17:31 J	-4536604.89	-4536604.77	-4536604.64	0.0527	0.0072
Mercury	-17134-09-12 22:48 J	-4536515.59	-4536515.55	-4536515.50	0.0526	0.0488
Venus	-17131-12-30 03:50 J	-4535311.53	-4535311.34	-4535311.15	0.0500	0.0175

Venus	-17130-08-23 08:09 J	-4535075.32	-4535075.16	-4535074.98	0.0498	0.0271
Mercury	-17128-08-09 14:23 J	-4534358.08	-4534357.90	-4534357.72	0.0500	0.0170
Venus	-17125-10-31 04:04 J	-4533179.46	-4533179.33	-4533179.18	0.0524	0.0386
Moon	-17124-05-08 06:00 J	-4532990.48	-4532990.25	-4532990.02	0.0527	0.0160
Earth	-17124-05-08 07:26 J	-4532990.40	-4532990.19	-4532989.97	0.0527	0.0188 *
Venus	-17124-06-26 01:11 J	-4532941.65	-4532941.45	-4532941.25	0.0528	0.0150
Mercury	-17122-04-03 22:19 J	-4532294.69	-4532294.57	-4532294.46	0.0527	0.0206
Mercury	-17122-07-02 03:21 J	-4532205.45	-4532205.36	-4532205.26	0.0525	0.0352
Venus	-17119-09-04 03:36 J	-4531045.51	-4531045.35	-4531045.19	0.0501	0.0302
Venus	-17118-04-28 07:55 J	-4530809.36	-4530809.17	-4530808.97	0.0498	0.0146
Mercury	-17116-05-28 10:33 J	-4530048.25	-4530048.06	-4530047.87	0.0500	0.0023
Venus	-17112-02-28 17:16 J	-4528675.98	-4528675.78	-4528675.57	0.0527	0.0007
Mercury	-17110-01-21 02:52 J	-4527984.48	-4527984.38	-4527984.29	0.0527	0.0341
Mercury	-17110-04-20 07:55 J	-4527895.28	-4527895.17	-4527895.05	0.0525	0.0216
Venus	-17107-05-10 05:31 J	-4526779.37	-4526779.27	-4526779.15	0.0502	0.0423
Earth	-17107-10-28 19:26 J	-4526607.84	-4526607.69	-4526607.53	0.0500	0.0367
Moon	-17107-10-28 21:21 J	-4526607.77	-4526607.61	-4526607.45	0.0500	0.0379 *
Venus	-17106-01-01 10:19 J	-4526543.27	-4526543.07	-4526542.87	0.0499	0.0023
Venus	-17106-08-25 15:07 J	-4526306.94	-4526306.87	-4526306.79	0.0497	0.0462
Mercury	-17104-03-16 07:26 J	-4525738.36	-4525738.19	-4525738.01	0.0499	0.0201
Mars	-17104-07-02 21:36 J	-4525629.66	-4525629.60	-4525629.54	0.0501	0.0486
Venus	-17101-11-03 06:57 J	-4524410.41	-4524410.21	-4524410.01	0.0526	0.0150
Venus	-17100-06-29 03:21 J	-4524172.50	-4524172.36	-4524172.23	0.0528	0.0388
Mercury	-17099-11-09 06:57 J	-4523674.26	-4523674.21	-4523674.17	0.0527	0.0484
Mercury	-17098-02-06 12:00 J	-4523585.12	-4523585.00	-4523584.87	0.0526	0.0072
Venus	-17095-09-06 13:26 J	-4522277.14	-4522276.94	-4522276.74	0.0500	0.0100
Moon	-17095-11-02 07:40 J	-4522220.40	-4522220.18	-4522219.95	0.0499	0.0088
Earth	-17095-11-02 11:02 J	-4522220.27	-4522220.04	-4522219.80	0.0499	0.0062 *
Venus	-17094-04-30 18:14 J	-4522040.88	-4522040.74	-4522040.59	0.0498	0.0345
Mercury	-17092-01-02 04:33 J	-4521428.43	-4521428.31	-4521428.19	0.0499	0.0379



Mercury	-17092-04-02 16:19 J	-4521337.95	-4521337.82	-4521337.69	0.0500	0.0361
Venus	-17089-07-08 21:21 J	-4520144.78	-4520144.61	-4520144.44	0.0524	0.0298
Venus	-17088-03-03 17:45 J	-4519906.94	-4519906.76	-4519906.57	0.0528	0.0241
Mercury	-17087-11-25 16:19 J	-4519274.94	-4519274.82	-4519274.69	0.0527	0.0069
Mercury	-17086-02-22 21:36 J	-4519185.64	-4519185.60	-4519185.55	0.0525	0.0492
Venus	-17083-05-12 16:33 J	-4518010.99	-4518010.81	-4518010.63	0.0501	0.0222
Earth	-17083-11-07 02:38 J	-4517832.43	-4517832.39	-4517832.34	0.0498	0.0488
Venus	-17082-01-03 21:07 J	-4517774.80	-4517774.62	-4517774.44	0.0498	0.0226
Mercury	-17080-01-19 12:57 J	-4517028.13	-4517027.96	-4517027.78	0.0500	0.0178
Venus	-17077-03-13 11:31 J	-4515879.12	-4515879.02	-4515878.90	0.0523	0.0442
Venus	-17077-11-06 08:23 J	-4515641.35	-4515641.15	-4515640.95	0.0527	0.0092
Mars	-17075-08-02 18:28 J	-4515006.94	-4515006.73	-4515006.51	0.0528	0.0363
Mercury	-17075-09-13 21:07 J	-4514964.74	-4514964.62	-4514964.51	0.0527	0.0201
Mercury	-17075-12-12 02:09 J	-4514875.50	-4514875.41	-4514875.31	0.0526	0.0359
Venus	-17071-01-15 18:57 J	-4513744.85	-4513744.71	-4513744.56	0.0502	0.0344
Venus	-17071-09-08 23:45 J	-4513508.71	-4513508.51	-4513508.31	0.0498	0.0104
Mercury	-17069-11-07 10:04 J	-4512718.27	-4512718.08	-4512717.90	0.0499	0.0008
Venus	-17065-07-12 00:43 J	-4511375.67	-4511375.47	-4511375.26	0.0527	0.0055
Venus	-17064-03-06 21:36 J	-4511137.68	-4511137.60	-4511137.52	0.0529	0.0483
Mercury	-17063-07-03 01:40 J	-4510654.52	-4510654.43	-4510654.33	0.0527	0.0334
Mercury	-17063-09-30 06:57 J	-4510565.32	-4510565.21	-4510565.10	0.0526	0.0224
Venus	-17060-09-20 18:57 J	-4509478.78	-4509478.71	-4509478.64	0.0502	0.0468
Venus	-17059-05-14 23:31 J	-4509242.73	-4509242.52	-4509242.32	0.0499	0.0025
Venus	-17058-01-06 03:50 J	-4509006.45	-4509006.34	-4509006.23	0.0497	0.0419
Mars	-17057-06-17 10:33 J	-4508478.25	-4508478.06	-4508477.86	0.0499	0.0322
Mercury	-17057-08-26 05:45 J	-4508408.43	-4508408.26	-4508408.09	0.0499	0.0198
Venus	-17053-03-16 16:48 J	-4507109.99	-4507109.80	-4507109.61	0.0526	0.0203
Moon	-17053-05-02 17:45 J	-4507062.92	-4507062.76	-4507062.59	0.0526	0.0381
Earth	-17053-05-02 19:26 J	-4507062.86	-4507062.69	-4507062.52	0.0526	0.0355 *
Venus	-17053-11-09 13:26 J	-4506872.09	-4506871.94	-4506871.78	0.0528	0.0340

Mercury	-17051-04-21 06:14 J	-4506344.29	-4506344.24	-4506344.18	0.0527	0.0469
Mercury	-17051-07-19 11:31 J	-4506255.15	-4506255.02	-4506254.90	0.0526	0.0088
Venus	-17047-01-18 01:26 J	-4504976.63	-4504976.44	-4504976.24	0.0500	0.0148
Venus	-17047-09-11 06:00 J	-4504740.41	-4504740.25	-4504740.09	0.0498	0.0300
Mercury	-17045-06-14 02:38 J	-4504098.51	-4504098.39	-4504098.27	0.0499	0.0379
Mercury	-17045-09-12 14:23 J	-4504008.02	-4504007.90	-4504007.77	0.0500	0.0362
Venus	-17042-11-20 06:28 J	-4502844.38	-4502844.23	-4502844.08	0.0524	0.0352
Earth	-17041-05-07 15:07 J	-4502675.10	-4502674.87	-4502674.65	0.0527	0.0127
Moon	-17041-05-07 14:52 J	-4502675.09	-4502674.88	-4502674.66	0.0527	0.0106 *
Venus	-17041-07-15 03:07 J	-4502606.56	-4502606.37	-4502606.18	0.0527	0.0188
Mercury	-17039-05-07 15:21 J	-4501944.98	-4501944.86	-4501944.73	0.0526	0.0060
Mars	-17039-05-11 16:19 J	-4501941.12	-4501940.82	-4501940.53	0.0526	0.0106
Mercury	-17039-08-04 20:38 J	-4501855.67	-4501855.64	-4501855.60	0.0525	0.0499
Venus	-17036-09-23 04:19 J	-4500710.49	-4500710.32	-4500710.15	0.0501	0.0271
Venus	-17035-05-17 08:52 J	-4500474.32	-4500474.13	-4500473.94	0.0498	0.0179
Mercury	-17033-07-01 11:31 J	-4499698.19	-4499698.02	-4499697.84	0.0500	0.0185
Venus	-17030-07-25 20:38 J	-4498578.70	-4498578.64	-4498578.57	0.0523	0.0495
Venus	-17029-03-19 17:16 J	-4498340.99	-4498340.78	-4498340.58	0.0527	0.0037
Mercury	-17027-02-23 19:40 J	-4497634.79	-4497634.68	-4497634.56	0.0527	0.0199
Mercury	-17027-05-24 00:57 J	-4497545.55	-4497545.46	-4497545.37	0.0525	0.0360
Venus	-17024-05-29 06:57 J	-4496444.33	-4496444.21	-4496444.08	0.0502	0.0392
Moon	-17024-10-28 02:09 J	-4496292.52	-4496292.41	-4496292.28	0.0500	0.0423
Earth	-17024-10-28 05:31 J	-4496292.40	-4496292.27	-4496292.13	0.0500	0.0413 *
Venus	-17023-01-20 11:45 J	-4496208.21	-4496208.01	-4496207.81	0.0499	0.0058
Venus	-17023-09-13 16:33 J	-4495971.81	-4495971.81	-4495971.80	0.0497	0.0496
Mars	-17021-03-21 09:36 J	-4495417.36	-4495417.10	-4495416.85	0.0499	0.0026
Mercury	-17021-04-19 08:09 J	-4495388.34	-4495388.16	-4495387.97	0.0499	0.0009
Venus	-17018-11-23 07:11 J	-4494075.40	-4494075.20	-4494075.00	0.0526	0.0115
Venus	-17017-07-18 03:50 J	-4493837.46	-4493837.34	-4493837.22	0.0529	0.0426
Mercury	-17016-12-13 00:14 J	-4493324.58	-4493324.49	-4493324.39	0.0527	0.0335

Mercury	-17015-03-12 05:31 J	-4493235.39	-4493235.27	-4493235.16	0.0526	0.0224
Venus	-17012-09-25 14:23 J	-4491942.11	-4491941.90	-4491941.70	0.0500	0.0067
Earth	-17012-11-01 19:55 J	-4491904.90	-4491904.67	-4491904.43	0.0499	0.0013
Moon	-17012-11-02 00:00 J	-4491904.73	-4491904.50	-4491904.26	0.0499	0.0042 *
Venus	-17011-05-19 18:28 J	-4491705.85	-4491705.73	-4491705.59	0.0497	0.0379
Mercury	-17009-02-06 04:48 J	-4491078.47	-4491078.30	-4491078.12	0.0499	0.0183
Venus	-17006-07-28 23:02 J	-4489809.71	-4489809.54	-4489809.36	0.0525	0.0261
Venus	-17005-03-22 20:23 J	-4489571.82	-4489571.65	-4489571.48	0.0528	0.0282
Mercury	-17004-10-01 05:02 J	-4489014.34	-4489014.29	-4489014.23	0.0527	0.0466
Mercury	-17004-12-29 10:04 J	-4488925.20	-4488925.08	-4488924.95	0.0526	0.0092

# 17TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 17th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Venus	-17000-05-31 14:09 J	-4487676.09	-4487675.91	-4487675.72	0.0500	0.0195		
Moon	-17000-11-06 01:40 J	-4487517.54	-4487517.43	-4487517.31	0.0498	0.0435		
Earth	-17000-11-06 05:45 J	-4487517.39	-4487517.26	-4487517.13	0.0498	0.0414 *		
Venus	-16999-01-22 18:00 J	-4487439.92	-4487439.75	-4487439.57	0.0498	0.0255		
Mercury	-16998-11-25 00:28 J	-4486768.60	-4486768.48	-4486768.36	0.0499	0.0381		
Mercury	-16997-02-23 12:14 J	-4486678.12	-4486677.99	-4486677.86	0.0500	0.0359		
Venus	-16994-04-02 14:52 J	-4485544.01	-4485543.88	-4485543.75	0.0524	0.0406		
Venus	-16994-11-26 12:00 J	-4485306.20	-4485306.00	-4485305.81	0.0528	0.0134		

Mercury	-16992-10-17 14:38 J	-4484615.01	-4484614.89	-4484614.76	0.0526	0.0046
Mercury	-16991-01-14 19:55 J	-4484525.70	-4484525.67	-4484525.65	0.0525	0.0510
Venus	-16988-02-03 16:04 J	-4483409.98	-4483409.83	-4483409.67	0.0501	0.0319
Venus	-16988-09-27 20:23 J	-4483173.85	-4483173.65	-4483173.46	0.0498	0.0132
Mercury	-16986-12-12 09:07 J	-4482368.29	-4482368.12	-4482367.94	0.0500	0.0179
Mars	-16986-12-24 01:55 J	-4482356.64	-4482356.42	-4482356.20	0.0500	0.0260
Venus	-16982-08-01 01:11 J	-4481040.65	-4481040.45	-4481040.24	0.0526	0.0021
Venus	-16981-03-25 21:36 J	-4480802.64	-4480802.60	-4480802.56	0.0529	0.0516
Mercury	-16980-08-05 18:28 J	-4480304.84	-4480304.73	-4480304.61	0.0526	0.0195
Mercury	-16980-11-02 23:45 J	-4480215.60	-4480215.51	-4480215.42	0.0525	0.0363
Venus	-16977-10-09 18:00 J	-4479143.84	-4479143.75	-4479143.65	0.0503	0.0442
Venus	-16976-06-02 22:48 J	-4478907.75	-4478907.55	-4478907.34	0.0499	0.0013
Venus	-16975-01-25 03:36 J	-4478671.43	-4478671.35	-4478671.26	0.0497	0.0451
Mercury	-16974-09-30 06:14 J	-4478058.43	-4478058.24	-4478058.05	0.0500	0.0002
Venus	-16970-04-05 15:07 J	-4476775.06	-4476774.87	-4476774.67	0.0525	0.0173
Earth	-16970-05-02 21:21 J	-4476747.74	-4476747.61	-4476747.49	0.0526	0.0438
Moon	-16970-05-02 21:21 J	-4476747.70	-4476747.61	-4476747.50	0.0526	0.0468 *
Venus	-16970-11-29 11:45 J	-4476537.16	-4476537.01	-4476536.87	0.0528	0.0370
Mercury	-16968-05-24 22:48 J	-4475994.64	-4475994.55	-4475994.45	0.0527	0.0335
Mercury	-16968-08-22 04:04 J	-4475905.45	-4475905.33	-4475905.22	0.0526	0.0223
Venus	-16964-02-06 01:26 J	-4474641.63	-4474641.44	-4474641.24	0.0500	0.0117
Venus	-16964-09-30 06:14 J	-4474405.39	-4474405.24	-4474405.09	0.0498	0.0333
Mercury	-16962-07-19 02:38 J	-4473748.56	-4473748.39	-4473748.21	0.0499	0.0186
Venus	-16959-12-09 04:33 J	-4472509.46	-4472509.31	-4472509.14	0.0524	0.0322
Earth	-16958-05-07 16:48 J	-4472360.03	-4472359.80	-4472359.57	0.0527	0.0040
Moon	-16958-05-07 18:43 J	-4472359.96	-4472359.72	-4472359.48	0.0527	0.0024 *
Venus	-16958-08-04 01:26 J	-4472271.62	-4472271.44	-4472271.25	0.0528	0.0221
Mercury	-16956-03-13 03:07 J	-4471684.42	-4471684.37	-4471684.31	0.0527	0.0474
Mercury	-16956-06-10 08:23 J	-4471595.27	-4471595.15	-4471595.02	0.0526	0.0084
Venus	-16953-10-12 03:50 J	-4470375.51	-4470375.34	-4470375.16	0.0501	0.0240

Venus	-16952-06-05 08:09 J	-4470139.34	-4470139.16	-4470138.98	0.0498	0.0211
Mercury	-16950-05-06 23:16 J	-4469438.66	-4469438.53	-4469438.41	0.0499	0.0370
Mercury	-16950-08-05 10:48 J	-4469348.17	-4469348.05	-4469347.92	0.0500	0.0369
Venus	-16947-08-13 20:23 J	-4468243.74	-4468243.65	-4468243.56	0.0523	0.0465
Venus	-16946-04-08 17:31 J	-4468005.97	-4468005.77	-4468005.57	0.0527	0.0073
Mercury	-16944-03-29 13:11 J	-4467285.08	-4467284.95	-4467284.83	0.0526	0.0049
Mercury	-16944-06-26 18:14 J	-4467195.76	-4467195.74	-4467195.71	0.0525	0.0509
Venus	-16941-06-17 04:04 J	-4466109.46	-4466109.33	-4466109.19	0.0502	0.0368
Earth	-16941-10-27 06:57 J	-4465977.25	-4465977.21	-4465977.16	0.0500	0.0488
Moon	-16941-10-27 11:02 J	-4465977.07	-4465977.04	-4465977.00	0.0500	0.0491
Venus	-16940-02-08 08:09 J	-4465873.36	-4465873.16	-4465872.96	0.0498	0.0083
Mercury	-16938-05-24 06:28 J	-4465038.41	-4465038.23	-4465038.05	0.0500	0.0171
Venus	-16935-12-12 08:38 J	-4463740.35	-4463740.14	-4463739.94	0.0526	0.0080
Venus	-16934-08-07 05:31 J	-4463502.36	-4463502.27	-4463502.17	0.0529	0.0464
Mercury	-16932-01-15 17:31 J	-4462974.88	-4462974.77	-4462974.65	0.0526	0.0186
Mercury	-16932-04-14 22:48 J	-4462885.64	-4462885.55	-4462885.46	0.0525	0.0371
Venus	-16929-02-21 05:45 J	-4461843.30	-4461843.26	-4461843.22	0.0503	0.0489
Venus	-16929-10-14 10:04 J	-4461607.28	-4461607.08	-4461606.88	0.0499	0.0042
Moon	-16929-10-31 16:04 J	-4461590.06	-4461589.83	-4461589.59	0.0499	0.0045
Earth	-16929-10-31 20:09 J	-4461589.89	-4461589.66	-4461589.43	0.0499	0.0072 *
Venus	-16928-06-07 13:55 J	-4461371.03	-4461370.92	-4461370.79	0.0497	0.0404
Mercury	-16926-03-12 03:21 J	-4460728.55	-4460728.36	-4460728.18	0.0500	0.0016
Venus	-16923-08-16 22:04 J	-4459474.77	-4459474.58	-4459474.40	0.0525	0.0232
Venus	-16922-04-11 18:43 J	-4459236.88	-4459236.72	-4459236.55	0.0528	0.0314
Mars	-16921-10-26 23:16 J	-4458672.79	-4458672.53	-4458672.28	0.0527	0.0266
Mercury	-16921-11-03 21:21 J	-4458664.70	-4458664.61	-4458664.51	0.0527	0.0335
Mercury	-16920-02-01 02:38 J	-4458575.51	-4458575.39	-4458575.28	0.0525	0.0223
Venus	-16917-06-19 12:00 J	-4457341.18	-4457341.00	-4457340.80	0.0500	0.0169
Earth	-16917-11-05 09:50 J	-4457202.25	-4457202.09	-4457201.92	0.0499	0.0348
Moon	-16917-11-05 12:43 J	-4457202.12	-4457201.97	-4457201.81	0.0499	0.0362 *

Venus	-16916-02-10 16:19 J	-4457104.98	-4457104.82	-4457104.64	0.0498	0.0284
Mercury	-16915-12-29 00:14 J	-4456418.66	-4456418.49	-4456418.32	0.0499	0.0191
Venus	-16911-04-21 12:00 J	-4455209.14	-4455209.00	-4455208.86	0.0524	0.0380
Venus	-16911-12-15 08:23 J	-4454971.34	-4454971.15	-4454970.95	0.0527	0.0162
Mercury	-16909-08-23 01:40 J	-4454354.48	-4454354.43	-4454354.38	0.0527	0.0476
Mercury	-16909-11-20 06:43 J	-4454265.34	-4454265.22	-4454265.09	0.0526	0.0080
Venus	-16905-02-23 14:23 J	-4453075.06	-4453074.90	-4453074.73	0.0501	0.0292
Venus	-16905-10-16 18:57 J	-4452838.90	-4452838.71	-4452838.52	0.0498	0.0162
Mars	-16903-09-11 08:23 J	-4452144.37	-4452144.15	-4452143.93	0.0498	0.0257
Mercury	-16903-10-16 20:38 J	-4452108.76	-4452108.64	-4452108.52	0.0499	0.0377
Mercury	-16902-01-15 08:23 J	-4452018.28	-4452018.15	-4452018.02	0.0500	0.0362
Venus	-16899-08-19 21:50 J	-4450705.79	-4450705.59	-4450705.39	0.0527	0.0008
Mercury	-16897-09-08 11:02 J	-4449955.16	-4449955.04	-4449954.91	0.0527	0.0061
Mercury	-16897-12-06 16:19 J	-4449865.86	-4449865.82	-4449865.78	0.0525	0.0498
Venus	-16894-10-29 16:19 J	-4448808.92	-4448808.82	-4448808.70	0.0502	0.0416
Venus	-16893-06-21 20:52 J	-4448572.83	-4448572.63	-4448572.42	0.0499	0.0038
Venus	-16892-02-13 01:26 J	-4448336.49	-4448336.44	-4448336.39	0.0497	0.0479
Mercury	-16891-11-03 04:48 J	-4447708.47	-4447708.30	-4447708.12	0.0500	0.0176
Venus	-16887-04-24 13:11 J	-4446440.15	-4446439.95	-4446439.76	0.0526	0.0142
Venus	-16887-12-18 10:04 J	-4446202.20	-4446202.08	-4446201.94	0.0529	0.0404
Mercury	-16885-06-27 15:50 J	-4445644.96	-4445644.84	-4445644.72	0.0527	0.0193
Mars	-16885-08-04 19:40 J	-4445606.95	-4445606.68	-4445606.40	0.0526	0.0200
Mercury	-16885-09-24 20:52 J	-4445555.71	-4445555.63	-4445555.54	0.0525	0.0365
Venus	-16881-02-25 21:21 J	-4444306.81	-4444306.61	-4444306.41	0.0499	0.0093
Venus	-16881-10-19 01:11 J	-4444070.59	-4444070.45	-4444070.31	0.0497	0.0356
Mercury	-16879-08-22 00:14 J	-4443398.68	-4443398.49	-4443398.30	0.0500	0.0025
Venus	-16876-12-28 03:36 J	-4442174.51	-4442174.35	-4442174.17	0.0525	0.0293
Moon	-16875-05-06 17:16 J	-4442045.00	-4442044.78	-4442044.55	0.0527	0.0048
Earth	-16875-05-06 20:23 J	-4442044.88	-4442044.65	-4442044.42	0.0527	0.0040 *
Venus	-16875-08-23 01:11 J	-4441936.62	-4441936.45	-4441936.27	0.0528	0.0255

Mercury	-16873-04-15 20:09 J	-4441334.75	-4441334.66	-4441334.56	0.0527	0.0330
Mercury	-16873-07-14 01:26 J	-4441245.56	-4441245.44	-4441245.33	0.0526	0.0227
Venus	-16870-10-31 23:02 J	-4440040.72	-4440040.54	-4440040.35	0.0500	0.0219
Venus	-16869-06-24 02:52 J	-4439804.56	-4439804.38	-4439804.20	0.0498	0.0234
Mercury	-16867-06-09 20:52 J	-4439088.80	-4439088.63	-4439088.46	0.0499	0.0208
Mars	-16867-06-14 19:11 J	-4439083.96	-4439083.70	-4439083.45	0.0499	0.0023
Venus	-16864-09-01 17:31 J	-4437908.87	-4437908.77	-4437908.65	0.0523	0.0440
Venus	-16863-04-27 14:23 J	-4437671.10	-4437670.90	-4437670.69	0.0527	0.0102
Earth	-16863-05-11 15:36 J	-4437656.97	-4437656.85	-4437656.72	0.0527	0.0440
Moon	-16863-05-11 19:40 J	-4437656.78	-4437656.68	-4437656.58	0.0527	0.0475 *
Mercury	-16861-02-03 00:00 J	-4437024.55	-4437024.50	-4437024.45	0.0527	0.0479
Mercury	-16861-05-02 05:02 J	-4436935.41	-4436935.29	-4436935.16	0.0526	0.0079
Venus	-16858-07-07 00:28 J	-4435774.62	-4435774.48	-4435774.33	0.0502	0.0344
Venus	-16857-02-28 05:02 J	-4435538.49	-4435538.29	-4435538.10	0.0499	0.0110
Mercury	-16855-03-28 17:45 J	-4434778.88	-4434778.76	-4434778.64	0.0499	0.0387
Mercury	-16855-06-27 05:31 J	-4434688.40	-4434688.27	-4434688.14	0.0500	0.0353
Venus	-16852-12-31 04:04 J	-4433405.53	-4433405.33	-4433405.13	0.0526	0.0053
Venus	-16851-08-26 00:28 J	-4433167.55	-4433167.48	-4433167.40	0.0528	0.0489
Mercury	-16849-02-19 09:21 J	-4432625.24	-4432625.11	-4432624.99	0.0526	0.0069
Mercury	-16849-05-18 14:23 J	-4432535.94	-4432535.90	-4432535.85	0.0525	0.0490
Venus	-16846-03-12 02:09 J	-4431508.47	-4431508.41	-4431508.33	0.0503	0.0467
Earth	-16846-10-31 22:33 J	-4431274.79	-4431274.56	-4431274.34	0.0500	0.0147
Moon	-16846-11-01 01:40 J	-4431274.66	-4431274.43	-4431274.21	0.0499	0.0117 *
Venus	-16846-11-03 07:11 J	-4431272.41	-4431272.20	-4431272.00	0.0499	0.0017
Venus	-16845-06-26 11:31 J	-4431036.12	-4431036.02	-4431035.92	0.0497	0.0432
Mercury	-16843-04-15 01:55 J	-4430378.59	-4430378.42	-4430378.24	0.0500	0.0166
Venus	-16840-09-04 17:02 J	-4429139.98	-4429139.79	-4429139.60	0.0525	0.0207
Venus	-16839-04-30 13:55 J	-4428902.07	-4428901.92	-4428901.76	0.0528	0.0341
Mercury	-16838-12-08 13:26 J	-4428315.05	-4428314.94	-4428314.82	0.0527	0.0209
Mercury	-16837-03-06 18:43 J	-4428225.81	-4428225.72	-4428225.63	0.0526	0.0349

Venus	-16834-07-09 09:07 J	-4427006.31	-4427006.12	-4427005.92	0.0500	0.0141
Moon	-16834-11-05 10:48 J	-4426887.25	-4426887.05	-4426886.85	0.0499	0.0276
Earth	-16834-11-05 12:00 J	-4426887.19	-4426887.00	-4426886.79	0.0499	0.0272 *
Venus	-16833-03-01 13:11 J	-4426770.10	-4426769.95	-4426769.79	0.0498	0.0312
Mercury	-16831-01-31 22:19 J	-4426068.76	-4426068.57	-4426068.38	0.0499	0.0022
Mars	-16831-03-18 12:57 J	-4426023.16	-4426022.96	-4426022.76	0.0500	0.0312
Venus	-16828-05-10 07:40 J	-4424874.33	-4424874.18	-4424874.03	0.0524	0.0355
Venus	-16827-01-03 05:02 J	-4424636.48	-4424636.29	-4424636.10	0.0528	0.0191
Mercury	-16826-09-26 18:14 J	-4424004.83	-4424004.74	-4424004.65	0.0527	0.0342
Mercury	-16826-12-24 23:16 J	-4423915.64	-4423915.53	-4423915.41	0.0526	0.0217
Venus	-16822-03-14 10:04 J	-4422740.25	-4422740.08	-4422739.91	0.0501	0.0269
Venus	-16822-11-05 13:40 J	-4422504.12	-4422503.93	-4422503.74	0.0498	0.0184
Mercury	-16820-11-19 17:31 J	-4421758.94	-4421758.77	-4421758.60	0.0499	0.0222
Venus	-16816-01-12 22:04 J	-4420608.63	-4420608.58	-4420608.51	0.0523	0.0502
Venus	-16816-09-07 19:40 J	-4420370.88	-4420370.68	-4420370.47	0.0527	0.0039
Mercury	-16814-07-15 22:33 J	-4419694.60	-4419694.56	-4419694.50	0.0527	0.0479
Mercury	-16814-10-13 03:50 J	-4419605.47	-4419605.34	-4419605.22	0.0526	0.0078
Venus	-16811-11-17 11:31 J	-4418474.14	-4418474.02	-4418473.90	0.0502	0.0394
Venus	-16810-07-11 15:21 J	-4418238.06	-4418237.86	-4418237.65	0.0498	0.0059
Mercury	-16808-09-07 13:55 J	-4417449.02	-4417448.92	-4417448.81	0.0499	0.0407
Mercury	-16808-12-07 01:55 J	-4417358.56	-4417358.42	-4417358.28	0.0500	0.0334
Venus	-16804-05-13 09:07 J	-4416105.32	-4416105.12	-4416104.92	0.0526	0.0117
Venus	-16803-01-06 05:45 J	-4415867.37	-4415867.26	-4415867.14	0.0528	0.0431
Mercury	-16802-08-01 07:26 J	-4415295.31	-4415295.19	-4415295.06	0.0526	0.0075
Mercury	-16802-10-29 12:43 J	-4415206.01	-4415205.97	-4415205.92	0.0525	0.0484
Venus	-16798-03-16 17:02 J	-4413971.99	-4413971.79	-4413971.59	0.0500	0.0068
Venus	-16798-11-07 21:07 J	-4413735.74	-4413735.62	-4413735.48	0.0497	0.0383
Mercury	-16796-09-24 23:02 J	-4413048.72	-4413048.54	-4413048.36	0.0500	0.0155
Venus	-16792-01-15 23:02 J	-4411839.72	-4411839.54	-4411839.37	0.0524	0.0268
Earth	-16792-05-05 16:04 J	-4411730.05	-4411729.83	-4411729.60	0.0526	0.0150



Moon	-16792-05-05 20:09 J	-4411729.89	-4411729.66	-4411729.44	0.0526	0.0149 *
Venus	-16792-09-10 19:40 J	-4411601.85	-4411601.68	-4411601.50	0.0528	0.0280
Mercury	-16790-05-20 11:45 J	-4410985.13	-4410985.01	-4410984.90	0.0527	0.0217
Mercury	-16790-08-17 16:48 J	-4410895.89	-4410895.80	-4410895.70	0.0525	0.0340
Venus	-16787-11-19 18:43 J	-4409705.90	-4409705.72	-4409705.53	0.0501	0.0195
Venus	-16786-07-13 23:16 J	-4409469.70	-4409469.53	-4409469.36	0.0498	0.0261
Mars	-16784-03-02 22:04 J	-4408871.58	-4408871.58	-4408871.55	0.0498	0.0497
Mercury	-16784-07-13 19:26 J	-4408738.88	-4408738.69	-4408738.51	0.0499	0.0035
Venus	-16781-09-20 11:45 J	-4407574.13	-4407574.01	-4407573.88	0.0523	0.0418
Moon	-16780-05-10 06:43 J	-4407342.39	-4407342.22	-4407342.05	0.0527	0.0354
Earth	-16780-05-10 10:33 J	-4407342.24	-4407342.06	-4407341.88	0.0527	0.0323 *
Venus	-16780-05-16 08:38 J	-4407336.34	-4407336.14	-4407335.95	0.0527	0.0126
Mercury	-16778-03-08 15:50 J	-4406674.93	-4406674.84	-4406674.75	0.0527	0.0359
Mercury	-16778-06-05 20:52 J	-4406585.74	-4406585.63	-4406585.51	0.0526	0.0199
Venus	-16775-07-25 20:52 J	-4405439.78	-4405439.63	-4405439.47	0.0502	0.0320
Venus	-16774-03-19 01:11 J	-4405203.64	-4405203.45	-4405203.25	0.0498	0.0137
Mercury	-16772-05-01 15:21 J	-4404429.02	-4404428.86	-4404428.68	0.0499	0.0222
Venus	-16768-01-18 23:02 J	-4403070.74	-4403070.54	-4403070.33	0.0526	0.0029
Venus	-16768-09-13 20:09 J	-4402832.69	-4402832.66	-4402832.62	0.0529	0.0518
Mercury	-16767-12-25 20:23 J	-4402364.69	-4402364.65	-4402364.60	0.0528	0.0493
Mars	-16766-01-20 03:21 J	-4402339.63	-4402339.36	-4402339.08	0.0527	0.0201
Mercury	-16766-03-25 01:40 J	-4402275.56	-4402275.43	-4402275.31	0.0526	0.0065
Venus	-16763-03-30 22:04 J	-4401173.66	-4401173.58	-4401173.48	0.0502	0.0445
Moon	-16763-10-30 19:55 J	-4400959.89	-4400959.67	-4400959.45	0.0499	0.0203
Earth	-16763-10-30 21:36 J	-4400959.81	-4400959.60	-4400959.39	0.0499	0.0232 *
Venus	-16763-11-22 02:09 J	-4400937.61	-4400937.41	-4400937.20	0.0499	0.0013
Venus	-16762-07-16 05:45 J	-4400701.33	-4400701.26	-4400701.17	0.0497	0.0455
Mercury	-16760-02-17 10:48 J	-4400119.15	-4400119.05	-4400118.95	0.0499	0.0421
Mercury	-16760-05-18 22:33 J	-4400028.70	-4400028.56	-4400028.41	0.0500	0.0318
Venus	-16757-09-23 13:26 J	-4398805.13	-4398804.94	-4398804.75	0.0526	0.0180

Venus	-16756-05-19 11:02 J	-4398567.18	-4398567.04	-4398566.89	0.0529	0.0371
Mercury	-16754-01-11 06:00 J	-4397965.37	-4397965.25	-4397965.12	0.0527	0.0074
Mercury	-16754-04-10 11:16 J	-4397876.07	-4397876.03	-4397875.98	0.0525	0.0484
Venus	-16751-07-28 04:04 J	-4396671.53	-4396671.33	-4396671.13	0.0500	0.0119
Earth	-16751-11-04 10:04 J	-4396572.30	-4396572.08	-4396571.86	0.0498	0.0181
Moon	-16751-11-04 09:50 J	-4396572.30	-4396572.09	-4396571.87	0.0498	0.0182 *
Venus	-16750-03-21 07:40 J	-4396435.33	-4396435.18	-4396435.03	0.0497	0.0334
Mars	-16749-12-04 08:52 J	-4395811.36	-4395811.13	-4395810.90	0.0498	0.0219
Mercury	-16748-03-06 19:11 J	-4395718.88	-4395718.70	-4395718.52	0.0500	0.0135
Venus	-16745-05-29 03:21 J	-4394539.52	-4394539.36	-4394539.20	0.0524	0.0331
Venus	-16744-01-22 00:28 J	-4394301.66	-4394301.48	-4394301.29	0.0528	0.0218
Mercury	-16743-10-30 09:50 J	-4393655.20	-4393655.09	-4393654.98	0.0527	0.0223
Mercury	-16742-01-27 14:52 J	-4393565.97	-4393565.88	-4393565.78	0.0525	0.0334
Venus	-16739-04-02 04:48 J	-4392405.47	-4392405.30	-4392405.12	0.0501	0.0247
Venus	-16739-11-24 09:07 J	-4392169.30	-4392169.12	-4392168.94	0.0498	0.0210
Mercury	-16737-12-23 16:19 J	-4391409.01	-4391408.82	-4391408.63	0.0500	0.0045
Venus	-16733-02-01 18:00 J	-4390273.83	-4390273.75	-4390273.67	0.0523	0.0476
Venus	-16733-09-26 14:23 J	-4390036.10	-4390035.90	-4390035.69	0.0527	0.0065
Mercury	-16731-08-18 13:55 J	-4389345.01	-4389344.92	-4389344.83	0.0527	0.0367
Mars	-16731-10-28 08:52 J	-4389274.39	-4389274.13	-4389273.87	0.0526	0.0249
Mercury	-16731-11-15 18:57 J	-4389255.82	-4389255.71	-4389255.59	0.0526	0.0190
Venus	-16728-12-06 06:14 J	-4388139.37	-4388139.24	-4388139.10	0.0502	0.0373
Venus	-16727-07-30 11:02 J	-4387903.24	-4387903.04	-4387902.84	0.0499	0.0086
Mercury	-16725-10-11 12:28 J	-4387099.14	-4387098.98	-4387098.81	0.0499	0.0232
Venus	-16721-06-01 03:07 J	-4385770.57	-4385770.37	-4385770.17	0.0526	0.0092
Venus	-16720-01-24 23:45 J	-4385532.60	-4385532.51	-4385532.40	0.0528	0.0456
Mercury	-16719-06-06 18:00 J	-4385034.77	-4385034.75	-4385034.72	0.0527	0.0511
Mercury	-16719-09-03 23:16 J	-4384945.66	-4384945.53	-4384945.41	0.0526	0.0047
Venus	-16716-08-11 08:23 J	-4383873.18	-4383873.15	-4383873.12	0.0504	0.0496
Venus	-16715-04-04 13:11 J	-4383637.15	-4383636.95	-4383636.75	0.0500	0.0042

Venus	-16715-11-26 17:16 J	-4383400.89	-4383400.78	-4383400.66	0.0497	0.0410
Mercury	-16713-07-30 08:52 J	-4382789.23	-4382789.13	-4382789.03	0.0499	0.0420
Mars	-16713-09-07 02:23 J	-4382750.65	-4382750.40	-4382750.15	0.0499	0.0068
Mercury	-16713-10-28 20:38 J	-4382698.78	-4382698.64	-4382698.50	0.0500	0.0319
Venus	-16709-02-04 17:31 J	-4381504.95	-4381504.77	-4381504.59	0.0525	0.0244
Moon	-16709-05-04 07:40 J	-4381415.37	-4381415.18	-4381414.97	0.0526	0.0266
Earth	-16709-05-04 11:45 J	-4381415.21	-4381415.01	-4381414.81	0.0526	0.0262 *
Venus	-16709-09-29 14:38 J	-4381267.05	-4381266.89	-4381266.72	0.0528	0.0308
Mercury	-16707-06-23 03:50 J	-4380635.46	-4380635.34	-4380635.21	0.0527	0.0088
Mercury	-16707-09-20 09:07 J	-4380546.17	-4380546.12	-4380546.07	0.0525	0.0470
Venus	-16704-12-08 14:52 J	-4379371.07	-4379370.88	-4379370.69	0.0500	0.0170
Venus	-16703-08-01 18:28 J	-4379134.89	-4379134.73	-4379134.56	0.0497	0.0285
Mercury	-16701-08-16 16:19 J	-4378389.01	-4378388.82	-4378388.64	0.0499	0.0123
Venus	-16698-10-10 07:40 J	-4377239.32	-4377239.18	-4377239.05	0.0524	0.0394
Earth	-16697-05-09 09:07 J	-4377027.33	-4377027.12	-4377026.91	0.0527	0.0223
Moon	-16697-05-09 12:14 J	-4377027.18	-4377026.99	-4377026.79	0.0527	0.0258 *
Venus	-16697-06-04 05:02 J	-4377001.48	-4377001.29	-4377001.09	0.0528	0.0155
Mercury	-16695-04-11 08:23 J	-4376325.26	-4376325.15	-4376325.04	0.0527	0.0224
Mercury	-16695-07-09 13:40 J	-4376236.03	-4376235.93	-4376235.84	0.0526	0.0334
Venus	-16692-08-13 16:33 J	-4375104.97	-4375104.81	-4375104.64	0.0501	0.0297
Venus	-16691-04-06 20:23 J	-4374868.84	-4374868.65	-4374868.46	0.0498	0.0160
Mercury	-16689-06-04 12:57 J	-4374079.15	-4374078.96	-4374078.78	0.0499	0.0062
Venus	-16685-02-07 19:11 J	-4372735.91	-4372735.70	-4372735.50	0.0526	0.0002
Mercury	-16683-01-28 12:14 J	-4372015.08	-4372014.99	-4372014.90	0.0527	0.0373
Mercury	-16683-04-27 17:16 J	-4371925.90	-4371925.78	-4371925.66	0.0526	0.0183
Venus	-16680-04-18 16:33 J	-4370838.92	-4370838.81	-4370838.70	0.0503	0.0424
Earth	-16680-10-29 20:09 J	-4370644.83	-4370644.66	-4370644.47	0.0500	0.0323
Moon	-16680-10-29 20:23 J	-4370644.83	-4370644.65	-4370644.46	0.0500	0.0295 *
Venus	-16680-12-10 21:21 J	-4370602.82	-4370602.61	-4370602.41	0.0499	0.0034
Venus	-16679-08-04 01:26 J	-4370366.47	-4370366.44	-4370366.38	0.0497	0.0483

Mercury -16677-03-23 09:50 J -4369769.26 -4369769.09 -4369768.93 0.0499 0.0241

Mars -16677-06-10 17:31 J -4369689.94 -4369689.77 -4369689.58 0.0500 0.0357

Mercury -16677-06-21 21:36 J -4369678.62 -4369678.60 -4369678.59 0.0500 0.0498

Venus -16674-10-13 09:36 J -4368470.30 -4368470.10 -4368469.91 0.0525 0.0152

Venus -16673-06-07 06:14 J -4368232.38 -4368232.24 -4368232.11 0.0528 0.0398

Mercury -16672-11-16 16:19 J -4367704.84 -4367704.82 -4367704.79 0.0527 0.0515

Mercury -16671-02-13 21:21 J -4367615.73 -4367615.61 -4367615.48 0.0526 0.0045

Venus -16668-08-15 23:16 J -4366336.73 -4366336.53 -4366336.33 0.0500 0.0094

Earth -16668-11-03 09:50 J -4366257.32 -4366257.09 -4366256.86 0.0499 0.0095

Moon -16668-11-03 11:16 J -4366257.27 -4366257.03 -4366256.79 0.0499 0.0092 \*

Venus -16667-04-09 03:36 J -4366100.48 -4366100.35 -4366100.21 0.0498 0.0362

Mercury -16665-01-10 06:14 J -4365459.34 -4365459.24 -4365459.15 0.0499 0.0427

Mercury -16665-04-09 18:00 J -4365368.89 -4365368.75 -4365368.60 0.0500 0.0313

Venus -16662-06-17 22:19 J -4364204.73 -4364204.57 -4364204.40 0.0524 0.0306

Venus -16661-02-10 19:11 J -4363966.88 -4363966.70 -4363966.52 0.0527 0.0245

Mercury -16660-12-03 01:40 J -4363305.56 -4363305.43 -4363305.31 0.0527 0.0104

Mercury -16659-03-02 06:43 J -4363216.28 -4363216.22 -4363216.15 0.0525 0.0455

Venus -16656-04-21 01:26 J -4362070.62 -4362070.44 -4362070.26 0.0501 0.0221

Moon -16656-11-07 21:07 J -4361869.67 -4361869.62 -4361869.56 0.0499 0.0482

Venus -16656-12-13 05:45 J -4361834.44 -4361834.26 -4361834.08 0.0498 0.0238

Mercury -16653-01-27 14:23 J -4361059.08 -4361058.90 -4361058.72 0.0499 0.0126

Venus -16650-02-20 12:43 J -4359939.07 -4359938.97 -4359938.87 0.0523 0.0453

Venus -16650-10-16 09:36 J -4359701.30 -4359701.10 -4359700.90 0.0527 0.0092

Mercury -16648-09-21 06:14 J -4358995.35 -4358995.24 -4358995.13 0.0527 0.0238

Mercury -16648-12-19 11:16 J -4358906.12 -4358906.03 -4358905.93 0.0526 0.0321

Venus -16645-12-25 03:21 J -4357804.50 -4357804.36 -4357804.21 0.0502 0.0347

Venus -16644-08-18 07:40 J -4357568.38 -4357568.18 -4357567.98 0.0498 0.0112

Mercury -16642-11-15 10:04 J -4356749.26 -4356749.08 -4356748.89 0.0499 0.0069

Venus -16638-06-20 23:45 J -4355435.71 -4355435.51 -4355435.31 0.0526 0.0063

Venus -16637-02-13 21:21 J -4355197.68 -4355197.61 -4355197.53 0.0529 0.0488

Mercury	-16636-07-10 10:48 J	-4354685.14	-4354685.05	-4354684.96	0.0527	0.0373
Mercury	-16636-10-07 15:50 J	-4354595.95	-4354595.84	-4354595.72	0.0526	0.0186
Venus	-16633-08-30 05:16 J	-4353538.35	-4353538.28	-4353538.21	0.0503	0.0471
Venus	-16632-04-23 09:36 J	-4353302.30	-4353302.10	-4353301.89	0.0499	0.0017
Venus	-16632-12-15 13:26 J	-4353066.04	-4353065.94	-4353065.84	0.0497	0.0435
Mars	-16630-05-27 02:23 J	-4352538.49	-4352538.40	-4352538.29	0.0498	0.0453
Mercury	-16630-09-03 06:43 J	-4352439.38	-4352439.22	-4352439.06	0.0499	0.0252
Mercury	-16630-12-02 18:28 J	-4352348.77	-4352348.73	-4352348.69	0.0500	0.0486
Venus	-16626-02-23 14:38 J	-4351170.08	-4351169.89	-4351169.70	0.0525	0.0214
Earth	-16626-05-04 11:16 J	-4351100.19	-4351100.03	-4351099.85	0.0526	0.0358
Moon	-16626-05-04 14:52 J	-4351100.04	-4351099.88	-4351099.71	0.0526	0.0357 *
Venus	-16626-10-19 11:45 J	-4350932.17	-4350932.01	-4350931.86	0.0528	0.0339
Mercury	-16624-04-28 14:38 J	-4350374.90	-4350374.89	-4350374.87	0.0527	0.0520
Mercury	-16624-07-26 19:40 J	-4350285.80	-4350285.68	-4350285.55	0.0526	0.0041
Venus	-16621-12-27 09:50 J	-4349036.28	-4349036.09	-4349035.89	0.0501	0.0145
Venus	-16620-08-20 14:23 J	-4348800.06	-4348799.90	-4348799.74	0.0498	0.0314
Mercury	-16618-06-22 03:36 J	-4348129.44	-4348129.35	-4348129.26	0.0499	0.0433
Mercury	-16618-09-20 15:36 J	-4348039.00	-4348038.85	-4348038.70	0.0500	0.0307
Venus	-16615-10-29 05:31 J	-4346904.41	-4346904.27	-4346904.12	0.0523	0.0363
Moon	-16614-05-09 06:57 J	-4346712.43	-4346712.21	-4346711.98	0.0526	0.0157
Earth	-16614-05-09 09:07 J	-4346712.34	-4346712.12	-4346711.89	0.0526	0.0126 *
Venus	-16614-06-24 02:09 J	-4346666.60	-4346666.41	-4346666.22	0.0527	0.0187
Mars	-16612-04-13 22:04 J	-4346006.87	-4346006.58	-4346006.30	0.0527	0.0146
Mercury	-16612-05-15 00:00 J	-4345975.62	-4345975.50	-4345975.38	0.0526	0.0106
Mercury	-16612-08-12 05:02 J	-4345886.35	-4345886.29	-4345886.22	0.0525	0.0451
Venus	-16609-09-01 11:45 J	-4344770.18	-4344770.01	-4344769.84	0.0502	0.0272
Venus	-16608-04-25 16:33 J	-4344534.00	-4344533.81	-4344533.63	0.0499	0.0189
Mercury	-16606-07-09 12:14 J	-4343729.17	-4343728.99	-4343728.81	0.0500	0.0123
Venus	-16603-07-03 18:57 J	-4342638.75	-4342638.71	-4342638.67	0.0522	0.0510
Venus	-16602-02-26 15:21 J	-4342401.07	-4342400.86	-4342400.66	0.0526	0.0031

Mercury	-16600-03-03 04:04 J	-4341665.43	-4341665.33	-4341665.21	0.0527	0.0250
Mercury	-16600-05-31 09:21 J	-4341576.21	-4341576.11	-4341576.01	0.0526	0.0308
Venus	-16597-05-07 13:55 J	-4340504.04	-4340503.92	-4340503.80	0.0503	0.0398
Earth	-16597-10-28 23:45 J	-4340329.65	-4340329.51	-4340329.36	0.0500	0.0394
Moon	-16597-10-29 01:11 J	-4340329.62	-4340329.45	-4340329.28	0.0500	0.0364 *
Venus	-16597-12-29 18:43 J	-4340267.92	-4340267.72	-4340267.51	0.0499	0.0064
Mars	-16594-02-27 21:36 J	-4339477.84	-4339477.60	-4339477.35	0.0499	0.0166
Mercury	-16594-04-27 08:38 J	-4339419.33	-4339419.14	-4339418.95	0.0499	0.0063
Venus	-16591-11-01 05:31 J	-4338135.47	-4338135.27	-4338135.07	0.0525	0.0124
Venus	-16590-06-27 02:23 J	-4337897.52	-4337897.40	-4337897.28	0.0528	0.0428
Mercury	-16589-12-20 08:52 J	-4337355.22	-4337355.13	-4337355.05	0.0527	0.0384
Mercury	-16588-03-19 13:55 J	-4337266.04	-4337265.92	-4337265.80	0.0526	0.0174
Venus	-16585-09-03 21:21 J	-4336001.81	-4336001.61	-4336001.41	0.0500	0.0064
Moon	-16585-11-02 11:16 J	-4335942.26	-4335942.03	-4335941.80	0.0499	0.0021
Earth	-16585-11-02 13:55 J	-4335942.15	-4335941.92	-4335941.68	0.0499	0.0026 *
Venus	-16584-04-28 01:11 J	-4335765.57	-4335765.45	-4335765.32	0.0497	0.0390
Mercury	-16582-02-13 04:33 J	-4335109.47	-4335109.31	-4335109.15	0.0499	0.0254
Mercury	-16582-05-14 16:04 J	-4335018.87	-4335018.83	-4335018.78	0.0500	0.0483
Venus	-16579-07-06 19:40 J	-4333869.85	-4333869.68	-4333869.50	0.0524	0.0277
Venus	-16578-03-01 17:16 J	-4333631.95	-4333631.78	-4333631.60	0.0528	0.0279
Mercury	-16577-10-08 13:26 J	-4333044.96	-4333044.94	-4333044.92	0.0528	0.0518
Mercury	-16576-01-05 18:28 J	-4332955.85	-4332955.73	-4332955.60	0.0527	0.0042
Mars	-16576-01-20 21:50 J	-4332940.82	-4332940.59	-4332940.36	0.0526	0.0328
Venus	-16573-05-09 23:31 J	-4331735.71	-4331735.52	-4331735.34	0.0501	0.0192
Earth	-16573-11-07 03:07 J	-4331554.46	-4331554.37	-4331554.25	0.0498	0.0442
Moon	-16573-11-07 06:57 J	-4331554.34	-4331554.21	-4331554.07	0.0498	0.0412 *
Venus	-16572-01-01 03:21 J	-4331499.53	-4331499.36	-4331499.19	0.0498	0.0267
Mercury	-16571-12-02 01:11 J	-4330799.54	-4330799.45	-4330799.36	0.0499	0.0436
Mercury	-16570-03-02 13:11 J	-4330709.10	-4330708.95	-4330708.80	0.0500	0.0303
Venus	-16567-03-11 11:31 J	-4329604.14	-4329604.02	-4329603.90	0.0523	0.0422

Venus	-16567-11-04 08:09 J	-4329366.35	-4329366.16	-4329365.96	0.0527	0.0128
Mercury	-16565-10-24 22:33 J	-4328645.68	-4328645.56	-4328645.44	0.0526	0.0107
Mercury	-16564-01-22 03:36 J	-4328556.41	-4328556.35	-4328556.28	0.0525	0.0450
Venus	-16561-01-13 23:02 J	-4327469.69	-4327469.54	-4327469.38	0.0502	0.0322
Venus	-16561-09-06 03:50 J	-4327233.53	-4327233.34	-4327233.14	0.0499	0.0141
Mars	-16559-12-01 16:19 J	-4326417.07	-4326416.82	-4326416.57	0.0500	0.0123
Mercury	-16559-12-19 10:04 J	-4326399.26	-4326399.08	-4326398.90	0.0500	0.0123
Venus	-16555-07-09 23:31 J	-4325100.73	-4325100.52	-4325100.32	0.0526	0.0028
Venus	-16554-03-04 19:55 J	-4324862.69	-4324862.67	-4324862.64	0.0528	0.0522
Mercury	-16553-08-13 02:52 J	-4324335.49	-4324335.38	-4324335.27	0.0527	0.0246
Mercury	-16553-11-10 07:55 J	-4324246.27	-4324246.17	-4324246.06	0.0525	0.0310
Venus	-16550-09-19 00:43 J	-4323203.55	-4323203.47	-4323203.37	0.0504	0.0448
Venus	-16549-05-12 06:00 J	-4322967.45	-4322967.25	-4322967.05	0.0500	0.0015
Venus	-16548-01-03 10:48 J	-4322731.12	-4322731.05	-4322730.98	0.0498	0.0467
Mercury	-16547-10-07 06:57 J	-4322089.40	-4322089.21	-4322089.03	0.0499	0.0060
Venus	-16543-03-14 12:43 J	-4320835.16	-4320834.97	-4320834.77	0.0524	0.0183
Moon	-16543-05-03 10:19 J	-4320785.19	-4320785.07	-4320784.94	0.0525	0.0443
Earth	-16543-05-03 12:43 J	-4320785.08	-4320784.97	-4320784.84	0.0525	0.0445 *
Venus	-16543-11-07 09:21 J	-4320597.25	-4320597.11	-4320596.97	0.0528	0.0371
Mercury	-16541-06-01 07:11 J	-4320025.29	-4320025.20	-4320025.12	0.0527	0.0389
Mercury	-16541-08-29 12:14 J	-4319936.11	-4319935.99	-4319935.87	0.0526	0.0168
Venus	-16537-01-16 08:38 J	-4318701.34	-4318701.14	-4318700.94	0.0501	0.0114
Venus	-16537-09-08 13:11 J	-4318465.09	-4318464.95	-4318464.80	0.0498	0.0346
Mercury	-16535-07-26 03:21 J	-4317779.52	-4317779.36	-4317779.19	0.0499	0.0244
Mercury	-16535-10-24 15:07 J	-4317688.89	-4317688.87	-4317688.84	0.0500	0.0494
Venus	-16532-11-17 03:07 J	-4316569.52	-4316569.37	-4316569.21	0.0523	0.0334
Earth	-16531-05-08 09:36 J	-4316397.33	-4316397.10	-4316396.86	0.0526	0.0036
Moon	-16531-05-08 09:50 J	-4316397.31	-4316397.09	-4316396.87	0.0526	0.0063 *
Venus	-16531-07-12 23:45 J	-4316331.69	-4316331.51	-4316331.32	0.0527	0.0220
Mercury	-16529-03-20 11:45 J	-4315715.02	-4315715.01	-4315715.00	0.0528	0.0524

Mercury	-16529-06-17 16:48 J	-4315625.93	-4315625.80	-4315625.67	0.0527	0.0033
Venus	-16526-09-21 11:31 J	-4314435.19	-4314435.02	-4314434.84	0.0502	0.0241
Venus	-16525-05-14 15:50 J	-4314199.02	-4314198.84	-4314198.66	0.0498	0.0222
Mercury	-16523-05-13 23:31 J	-4313469.61	-4313469.52	-4313469.43	0.0498	0.0433
Mercury	-16523-08-12 11:16 J	-4313379.17	-4313379.03	-4313378.88	0.0500	0.0306
Mars	-16523-09-04 09:21 J	-4313356.24	-4313356.11	-4313355.96	0.0500	0.0413
Venus	-16520-07-22 17:45 J	-4312303.83	-4312303.76	-4312303.68	0.0522	0.0481
Venus	-16519-03-17 14:38 J	-4312066.09	-4312065.89	-4312065.69	0.0527	0.0066
Earth	-16519-05-13 07:11 J	-4312009.23	-4312009.20	-4312009.16	0.0527	0.0519
Moon	-16519-05-13 09:21 J	-4312009.16	-4312009.11	-4312009.04	0.0527	0.0508 *
Mercury	-16517-04-05 21:36 J	-4311315.73	-4311315.60	-4311315.48	0.0527	0.0102
Mercury	-16517-07-04 02:38 J	-4311226.45	-4311226.39	-4311226.33	0.0526	0.0458
Venus	-16514-05-27 13:40 J	-4310169.06	-4310168.93	-4310168.79	0.0503	0.0367
Moon	-16514-10-29 03:50 J	-4310014.45	-4310014.34	-4310014.22	0.0500	0.0428
Earth	-16514-10-29 06:28 J	-4310014.32	-4310014.23	-4310014.13	0.0500	0.0453 *
Venus	-16513-01-18 18:14 J	-4309932.94	-4309932.74	-4309932.54	0.0499	0.0095
Mercury	-16511-05-31 08:23 J	-4309069.33	-4309069.15	-4309068.97	0.0499	0.0127
Venus	-16508-11-20 06:14 J	-4307800.44	-4307800.24	-4307800.03	0.0525	0.0086
Venus	-16507-07-16 02:52 J	-4307562.46	-4307562.38	-4307562.28	0.0528	0.0468
Mercury	-16505-01-24 01:40 J	-4307005.54	-4307005.43	-4307005.32	0.0527	0.0244
Mercury	-16505-04-22 06:43 J	-4306916.32	-4306916.22	-4306916.12	0.0525	0.0313
Venus	-16502-01-30 12:57 J	-4305902.99	-4305902.96	-4305902.92	0.0504	0.0496
Venus	-16502-09-23 18:28 J	-4305666.94	-4305666.73	-4305666.53	0.0500	0.0036
Earth	-16502-11-02 16:33 J	-4305627.04	-4305626.81	-4305626.58	0.0500	0.0052
Moon	-16502-11-02 20:09 J	-4305626.90	-4305626.66	-4305626.42	0.0500	0.0063 *
Venus	-16501-05-16 22:48 J	-4305430.65	-4305430.55	-4305430.44	0.0498	0.0423
Mercury	-16499-03-19 05:16 J	-4304759.47	-4304759.28	-4304759.10	0.0500	0.0057
Venus	-16496-07-25 22:04 J	-4303534.76	-4303534.58	-4303534.39	0.0524	0.0237
Venus	-16495-03-20 18:43 J	-4303296.88	-4303296.72	-4303296.56	0.0527	0.0319
Mars	-16494-09-30 05:16 J	-4302738.32	-4302738.28	-4302738.23	0.0527	0.0520



Mercury	-16494-11-12 06:00 J	-4302695.33	-4302695.25	-4302695.16	0.0527	0.0381
Mercury	-16493-02-09 11:02 J	-4302606.16	-4302606.04	-4302605.92	0.0526	0.0175
Venus	-16490-05-29 20:23 J	-4301400.84	-4301400.65	-4301400.46	0.0501	0.0163
Moon	-16490-11-07 03:07 J	-4301239.54	-4301239.37	-4301239.19	0.0499	0.0338
Earth	-16490-11-07 06:57 J	-4301239.36	-4301239.21	-4301239.05	0.0499	0.0367 *
Venus	-16489-01-21 01:11 J	-4301164.61	-4301164.45	-4301164.29	0.0499	0.0300
Mercury	-16487-01-05 01:55 J	-4300449.58	-4300449.42	-4300449.25	0.0499	0.0237
Venus	-16484-03-30 12:00 J	-4299269.13	-4299269.00	-4299268.86	0.0523	0.0388
Venus	-16484-11-23 08:09 J	-4299031.35	-4299031.16	-4299030.96	0.0526	0.0163
Mercury	-16482-08-31 10:19 J	-4298385.08	-4298385.07	-4298385.06	0.0527	0.0523
Mercury	-16482-11-28 15:21 J	-4298295.99	-4298295.86	-4298295.73	0.0526	0.0032
Venus	-16478-02-01 23:16 J	-4297134.70	-4297134.53	-4297134.37	0.0502	0.0291
Venus	-16478-09-26 04:19 J	-4296898.51	-4296898.32	-4296898.13	0.0499	0.0175
Mars	-16476-08-20 05:16 J	-4296204.43	-4296204.28	-4296204.11	0.0498	0.0386
Mercury	-16476-10-23 22:33 J	-4296139.65	-4296139.56	-4296139.45	0.0499	0.0419
Mercury	-16475-01-22 10:33 J	-4296049.20	-4296049.06	-4296048.91	0.0500	0.0322
Venus	-16472-07-28 22:48 J	-4294765.76	-4294765.55	-4294765.35	0.0526	0.0010
Mercury	-16470-09-16 19:55 J	-4293985.79	-4293985.67	-4293985.54	0.0527	0.0102
Mercury	-16470-12-15 01:11 J	-4293896.51	-4293896.45	-4293896.39	0.0525	0.0455
Venus	-16467-10-08 02:09 J	-4292868.52	-4292868.41	-4292868.29	0.0503	0.0415
Venus	-16466-06-01 07:11 J	-4292632.40	-4292632.20	-4292632.00	0.0500	0.0049
Mercury	-16464-11-10 06:57 J	-4291739.39	-4291739.21	-4291739.03	0.0499	0.0135
Venus	-16460-04-02 13:26 J	-4290500.13	-4290499.94	-4290499.74	0.0525	0.0146
Earth	-16460-05-02 18:14 J	-4290469.77	-4290469.74	-4290469.69	0.0525	0.0517
Moon	-16460-05-02 18:57 J	-4290469.76	-4290469.71	-4290469.65	0.0525	0.0507 *
Venus	-16460-11-26 10:33 J	-4290262.18	-4290262.06	-4290261.93	0.0528	0.0411
Mercury	-16458-07-06 00:43 J	-4289675.58	-4289675.47	-4289675.36	0.0527	0.0235
Mars	-16458-07-09 06:43 J	-4289672.52	-4289672.22	-4289671.92	0.0527	0.0043
Mercury	-16458-10-03 05:45 J	-4289586.35	-4289586.26	-4289586.16	0.0526	0.0324
Venus	-16454-02-04 09:50 J	-4288366.29	-4288366.09	-4288365.89	0.0500	0.0079

Venus	-16454-09-28 14:09 J	-4288130.04	-4288129.91	-4288129.78	0.0498	0.0381
Mercury	-16452-08-29 04:04 J	-4287429.52	-4287429.33	-4287429.15	0.0499	0.0045
Venus	-16449-12-06 05:45 J	-4286234.42	-4286234.26	-4286234.09	0.0524	0.0294
Earth	-16448-05-07 18:28 J	-4286081.96	-4286081.73	-4286081.50	0.0526	0.0027
Moon	-16448-05-07 20:23 J	-4286081.88	-4286081.65	-4286081.41	0.0526	0.0009 *
Venus	-16448-08-01 02:38 J	-4285996.57	-4285996.39	-4285996.22	0.0527	0.0263
Mercury	-16446-04-24 05:02 J	-4285365.38	-4285365.29	-4285365.20	0.0527	0.0375
Mercury	-16446-07-22 10:04 J	-4285276.20	-4285276.08	-4285275.96	0.0526	0.0181
Venus	-16443-10-10 09:36 J	-4284100.29	-4284100.10	-4284099.92	0.0502	0.0211
Venus	-16442-06-03 14:09 J	-4283864.08	-4283863.91	-4283863.73	0.0499	0.0255
Mars	-16440-05-24 01:11 J	-4283143.70	-4283143.45	-4283143.20	0.0499	0.0096
Mercury	-16440-06-17 00:28 J	-4283119.64	-4283119.48	-4283119.31	0.0500	0.0230
Venus	-16437-08-10 22:19 J	-4281968.67	-4281968.57	-4281968.46	0.0522	0.0440
Venus	-16436-04-05 18:43 J	-4281730.92	-4281730.72	-4281730.52	0.0526	0.0111
Moon	-16436-05-12 14:23 J	-4281694.02	-4281693.90	-4281693.78	0.0527	0.0448
Earth	-16436-05-12 17:45 J	-4281693.86	-4281693.76	-4281693.65	0.0527	0.0464 *
Mercury	-16434-02-10 09:36 J	-4281055.13	-4281055.10	-4281055.07	0.0527	0.0510
Mercury	-16434-05-10 14:38 J	-4280966.02	-4280965.89	-4280965.77	0.0526	0.0045
Venus	-16431-06-15 11:31 J	-4279834.16	-4279834.02	-4279833.87	0.0503	0.0339
Moon	-16431-10-28 14:09 J	-4279698.92	-4279698.91	-4279698.90	0.0501	0.0500
Venus	-16430-02-06 16:33 J	-4279598.00	-4279597.81	-4279597.61	0.0500	0.0128
Mercury	-16428-04-04 21:36 J	-4278809.71	-4278809.60	-4278809.49	0.0499	0.0408
Mercury	-16428-07-04 09:36 J	-4278719.23	-4278719.10	-4278718.96	0.0500	0.0333
Venus	-16425-12-09 08:23 J	-4277465.36	-4277465.15	-4277464.95	0.0525	0.0047
Venus	-16424-08-04 04:33 J	-4277227.37	-4277227.31	-4277227.26	0.0528	0.0506
Mercury	-16422-02-26 18:57 J	-4276655.84	-4276655.71	-4276655.59	0.0526	0.0099
Mars	-16422-04-16 22:48 J	-4276606.72	-4276606.55	-4276606.36	0.0526	0.0415
Mercury	-16422-05-27 00:00 J	-4276566.56	-4276566.50	-4276566.44	0.0525	0.0459
Venus	-16419-02-18 14:09 J	-4275567.98	-4275567.91	-4275567.83	0.0504	0.0465
Venus	-16419-10-12 19:40 J	-4275331.88	-4275331.68	-4275331.47	0.0500	0.0009

Moon	-16419-11-01 22:48 J	-4275311.78	-4275311.55	-4275311.32	0.0500	0.0119
Earth	-16419-11-02 02:38 J	-4275311.62	-4275311.39	-4275311.16	0.0500	0.0098 *
Venus	-16418-06-06 00:28 J	-4275095.55	-4275095.48	-4275095.40	0.0498	0.0459
Mercury	-16416-04-22 06:28 J	-4274409.40	-4274409.23	-4274409.05	0.0500	0.0153
Venus	-16413-08-13 23:02 J	-4273199.73	-4273199.54	-4273199.35	0.0524	0.0201
Venus	-16412-04-08 19:26 J	-4272961.84	-4272961.69	-4272961.54	0.0527	0.0357
Mercury	-16411-12-15 23:31 J	-4272345.63	-4272345.52	-4272345.41	0.0527	0.0232
Mercury	-16410-03-15 04:33 J	-4272256.41	-4272256.31	-4272256.21	0.0526	0.0325
Venus	-16407-06-17 23:02 J	-4271065.74	-4271065.54	-4271065.35	0.0501	0.0126
Earth	-16407-11-06 18:28 J	-4270923.90	-4270923.73	-4270923.55	0.0499	0.0325
Moon	-16407-11-06 21:21 J	-4270923.79	-4270923.61	-4270923.43	0.0499	0.0303 *
Venus	-16406-02-09 03:21 J	-4270829.50	-4270829.36	-4270829.21	0.0498	0.0338
Mercury	-16404-02-08 03:07 J	-4270099.56	-4270099.37	-4270099.19	0.0499	0.0033
Mars	-16404-02-24 23:31 J	-4270082.75	-4270082.52	-4270082.28	0.0499	0.0201
Venus	-16401-04-18 13:55 J	-4268934.07	-4268933.92	-4268933.77	0.0523	0.0351
Venus	-16401-12-12 10:33 J	-4268696.25	-4268696.06	-4268695.87	0.0527	0.0205
Mercury	-16399-10-04 04:04 J	-4268035.41	-4268035.33	-4268035.23	0.0527	0.0365
Mercury	-16398-01-01 09:21 J	-4267946.23	-4267946.11	-4267945.99	0.0526	0.0193
Venus	-16395-02-21 01:40 J	-4266799.60	-4266799.43	-4266799.25	0.0502	0.0254
Venus	-16395-10-15 06:14 J	-4266563.42	-4266563.24	-4266563.05	0.0499	0.0213
Mercury	-16393-11-27 00:00 J	-4265789.67	-4265789.50	-4265789.33	0.0499	0.0211
Venus	-16390-12-23 06:43 J	-4264668.28	-4264668.22	-4264668.15	0.0522	0.0494
Venus	-16389-08-17 03:07 J	-4264430.58	-4264430.37	-4264430.17	0.0526	0.0055
Mercury	-16387-07-23 08:38 J	-4263725.17	-4263725.14	-4263725.10	0.0527	0.0501
Mercury	-16387-10-20 13:40 J	-4263636.05	-4263635.93	-4263635.80	0.0526	0.0054
Venus	-16384-10-27 00:57 J	-4262533.58	-4262533.46	-4262533.32	0.0503	0.0387
Venus	-16383-06-20 06:14 J	-4262297.44	-4262297.24	-4262297.04	0.0500	0.0083
Mercury	-16381-09-14 20:23 J	-4261479.76	-4261479.65	-4261479.54	0.0499	0.0398
Mercury	-16381-12-14 08:38 J	-4261389.28	-4261389.14	-4261389.01	0.0501	0.0345
Venus	-16377-04-21 19:26 J	-4260164.89	-4260164.69	-4260164.49	0.0525	0.0099

Venus	-16377-12-15 15:36 J	-4259926.94	-4259926.85	-4259926.74	0.0528	0.0458
Mercury	-16375-08-08 18:14 J	-4259325.86	-4259325.74	-4259325.61	0.0526	0.0082
Mercury	-16375-11-05 23:16 J	-4259236.58	-4259236.53	-4259236.47	0.0525	0.0473
Venus	-16371-02-23 08:38 J	-4258031.34	-4258031.14	-4258030.94	0.0501	0.0047
Venus	-16371-10-17 13:26 J	-4257795.05	-4257794.94	-4257794.83	0.0498	0.0417
Mercury	-16369-10-02 05:45 J	-4257079.44	-4257079.26	-4257079.09	0.0500	0.0167
Mars	-16369-11-29 01:11 J	-4257021.46	-4257021.45	-4257021.42	0.0501	0.0499
Venus	-16366-12-26 09:36 J	-4255899.28	-4255899.10	-4255898.92	0.0523	0.0254
Moon	-16365-05-07 01:11 J	-4255766.68	-4255766.45	-4255766.23	0.0525	0.0057
Earth	-16365-05-07 04:19 J	-4255766.54	-4255766.32	-4255766.09	0.0525	0.0080 *
Venus	-16365-08-20 05:45 J	-4255661.43	-4255661.26	-4255661.10	0.0527	0.0304
Mercury	-16363-05-27 22:33 J	-4255015.67	-4255015.56	-4255015.45	0.0526	0.0223
Mercury	-16363-08-25 03:36 J	-4254926.45	-4254926.35	-4254926.25	0.0525	0.0333
Venus	-16360-10-29 11:45 J	-4253765.20	-4253765.01	-4253764.82	0.0502	0.0175
Venus	-16359-06-22 16:33 J	-4253528.97	-4253528.81	-4253528.64	0.0499	0.0293
Mercury	-16357-07-21 02:38 J	-4252769.58	-4252769.39	-4252769.20	0.0500	0.0013
Venus	-16354-08-31 00:28 J	-4251633.61	-4251633.48	-4251633.35	0.0522	0.0404
Venus	-16353-04-24 20:23 J	-4251395.84	-4251395.65	-4251395.45	0.0526	0.0151
Earth	-16353-05-12 01:11 J	-4251378.59	-4251378.45	-4251378.30	0.0526	0.0401
Moon	-16353-05-12 05:16 J	-4251378.44	-4251378.28	-4251378.12	0.0526	0.0382 *
Mercury	-16351-03-16 03:07 J	-4250705.46	-4250705.37	-4250705.28	0.0527	0.0357
Mercury	-16351-06-13 08:09 J	-4250616.27	-4250616.16	-4250616.04	0.0526	0.0199
Venus	-16348-07-04 14:52 J	-4249499.03	-4249498.88	-4249498.71	0.0503	0.0302
Venus	-16347-02-25 19:55 J	-4249262.86	-4249262.67	-4249262.48	0.0499	0.0168
Mercury	-16345-05-08 23:16 J	-4248459.70	-4248459.53	-4248459.36	0.0499	0.0196
Venus	-16342-12-29 11:16 J	-4247130.23	-4247130.03	-4247129.82	0.0525	0.0007
Mars	-16340-12-25 08:38 J	-4246403.33	-4246403.14	-4246402.94	0.0527	0.0393
Mercury	-16339-01-02 07:55 J	-4246395.21	-4246395.17	-4246395.13	0.0527	0.0489
Mercury	-16339-04-01 12:57 J	-4246306.08	-4246305.96	-4246305.83	0.0526	0.0067
Venus	-16336-03-09 17:31 J	-4245232.87	-4245232.77	-4245232.66	0.0504	0.0429

Venus	-16336-10-31 22:48 J	-4244996.75	-4244996.55	-4244996.35	0.0500	0.0041
Earth	-16336-11-01 15:21 J	-4244996.09	-4244995.86	-4244995.63	0.0500	0.0135
Moon	-16336-11-01 18:00 J	-4244995.96	-4244995.75	-4244995.53	0.0500	0.0162 *
Mercury	-16333-02-25 20:09 J	-4244149.78	-4244149.66	-4244149.53	0.0499	0.0375
Mercury	-16333-05-26 08:09 J	-4244059.28	-4244059.16	-4244059.03	0.0500	0.0366
Venus	-16330-09-03 04:19 J	-4242864.52	-4242864.32	-4242864.13	0.0524	0.0155
Venus	-16329-04-28 00:43 J	-4242626.59	-4242626.47	-4242626.33	0.0527	0.0406
Mercury	-16327-01-18 17:31 J	-4241995.89	-4241995.77	-4241995.64	0.0526	0.0070
Mercury	-16327-04-17 22:33 J	-4241906.60	-4241906.56	-4241906.51	0.0525	0.0485
Venus	-16324-07-06 22:33 J	-4240730.76	-4240730.56	-4240730.36	0.0501	0.0094
Moon	-16324-11-05 23:31 J	-4240608.73	-4240608.52	-4240608.30	0.0500	0.0242
Earth	-16324-11-06 01:11 J	-4240608.64	-4240608.45	-4240608.24	0.0500	0.0265 *
Venus	-16323-02-28 03:07 J	-4240494.50	-4240494.37	-4240494.23	0.0498	0.0373
Mars	-16322-11-14 18:14 J	-4239869.93	-4239869.74	-4239869.53	0.0499	0.0307
Mercury	-16321-03-14 04:48 J	-4239749.48	-4239749.30	-4239749.13	0.0500	0.0179
Venus	-16318-05-08 20:38 J	-4238598.80	-4238598.64	-4238598.47	0.0523	0.0306
Venus	-16317-01-01 17:02 J	-4238360.96	-4238360.79	-4238360.61	0.0527	0.0255
Mercury	-16316-11-06 22:04 J	-4237685.69	-4237685.58	-4237685.46	0.0526	0.0204
Mercury	-16315-02-04 03:07 J	-4237596.46	-4237596.37	-4237596.27	0.0525	0.0351
Venus	-16312-03-12 00:57 J	-4236464.64	-4236464.46	-4236464.28	0.0502	0.0223
Venus	-16312-11-03 05:45 J	-4236228.43	-4236228.26	-4236228.08	0.0499	0.0248
Mercury	-16309-01-01 01:55 J	-4235439.61	-4235439.42	-4235439.23	0.0500	0.0008
Venus	-16306-01-11 11:31 J	-4234333.11	-4234333.02	-4234332.92	0.0522	0.0456
Venus	-16306-09-06 07:11 J	-4234095.40	-4234095.20	-4234094.99	0.0526	0.0098
Mercury	-16304-08-26 02:23 J	-4233375.49	-4233375.40	-4233375.31	0.0526	0.0345
Mars	-16304-10-03 07:55 J	-4233337.46	-4233337.17	-4233336.88	0.0526	0.0076
Mercury	-16304-11-23 07:26 J	-4233286.31	-4233286.19	-4233286.07	0.0525	0.0209
Venus	-16301-11-15 03:36 J	-4232198.49	-4232198.35	-4232198.20	0.0503	0.0352
Venus	-16300-07-09 09:07 J	-4231962.32	-4231962.12	-4231961.93	0.0500	0.0121
Mercury	-16298-10-19 22:48 J	-4231129.72	-4231129.55	-4231129.37	0.0500	0.0177

Venus	-16294-05-11 22:04 J	-4229829.79	-4229829.58	-4229829.38	0.0525	0.0060
Venus	-16293-01-04 18:00 J	-4229591.81	-4229591.75	-4229591.68	0.0528	0.0498
Mercury	-16292-06-14 06:57 J	-4229065.26	-4229065.21	-4229065.16	0.0527	0.0480
Mercury	-16292-09-11 12:00 J	-4228976.12	-4228976.00	-4228975.87	0.0526	0.0074
Venus	-16289-07-21 06:43 J	-4227932.28	-4227932.22	-4227932.15	0.0505	0.0477
Venus	-16288-03-14 12:28 J	-4227696.18	-4227695.98	-4227695.78	0.0501	0.0009
Venus	-16288-11-05 17:02 J	-4227459.86	-4227459.79	-4227459.70	0.0498	0.0457
Mercury	-16286-08-07 19:26 J	-4226819.82	-4226819.69	-4226819.56	0.0499	0.0360
Mars	-16286-08-18 19:55 J	-4226808.92	-4226808.67	-4226808.41	0.0499	0.0008
Mercury	-16286-11-06 07:26 J	-4226729.31	-4226729.19	-4226729.07	0.0500	0.0381
Venus	-16282-01-14 12:43 J	-4225564.15	-4225563.97	-4225563.78	0.0524	0.0214
Earth	-16282-05-07 14:09 J	-4225451.13	-4225450.91	-4225450.68	0.0526	0.0133
Moon	-16282-05-07 18:14 J	-4225450.97	-4225450.74	-4225450.51	0.0526	0.0110 *
Venus	-16282-09-09 09:21 J	-4225326.26	-4225326.11	-4225325.96	0.0527	0.0349
Mercury	-16280-06-30 16:48 J	-4224665.93	-4224665.80	-4224665.68	0.0526	0.0058
Mercury	-16280-09-27 21:50 J	-4224576.62	-4224576.59	-4224576.55	0.0525	0.0499
Venus	-16277-11-17 15:21 J	-4223430.05	-4223429.86	-4223429.67	0.0502	0.0136
Venus	-16276-07-11 19:55 J	-4223193.82	-4223193.67	-4223193.52	0.0499	0.0333
Mercury	-16274-08-25 04:33 J	-4222419.48	-4222419.31	-4222419.14	0.0500	0.0203
Venus	-16271-09-19 05:45 J	-4221298.40	-4221298.26	-4221298.11	0.0523	0.0362
Moon	-16270-05-12 11:31 J	-4221063.20	-4221063.02	-4221062.84	0.0526	0.0336
Earth	-16270-05-12 15:07 J	-4221063.03	-4221062.87	-4221062.70	0.0526	0.0360 *
Venus	-16270-05-15 02:09 J	-4221060.60	-4221060.41	-4221060.22	0.0526	0.0199
Mercury	-16268-04-18 21:21 J	-4220355.72	-4220355.61	-4220355.49	0.0526	0.0192
Mercury	-16268-07-17 02:23 J	-4220266.49	-4220266.40	-4220266.31	0.0525	0.0363
Venus	-16265-07-23 15:07 J	-4219164.04	-4219163.87	-4219163.70	0.0502	0.0270
Venus	-16264-03-16 19:40 J	-4218927.86	-4218927.68	-4218927.49	0.0499	0.0203
Mercury	-16262-06-13 00:43 J	-4218109.66	-4218109.47	-4218109.28	0.0500	0.0013
Venus	-16259-05-24 22:33 J	-4217032.60	-4217032.56	-4217032.52	0.0522	0.0507
Venus	-16258-01-17 18:43 J	-4216794.93	-4216794.72	-4216794.52	0.0525	0.0045

Mercury	-16256-02-05 02:09 J	-4216045.51	-4216045.41	-4216045.32	0.0526	0.0325
Mercury	-16256-05-05 06:57 J	-4215956.32	-4215956.21	-4215956.09	0.0525	0.0229
Venus	-16253-03-28 17:02 J	-4214897.91	-4214897.79	-4214897.66	0.0504	0.0400
Moon	-16253-10-31 20:09 J	-4214680.88	-4214680.66	-4214680.44	0.0500	0.0225
Earth	-16253-10-31 21:50 J	-4214680.81	-4214680.59	-4214680.38	0.0500	0.0196 *
Venus	-16253-11-19 22:19 J	-4214661.77	-4214661.57	-4214661.37	0.0500	0.0073
Mercury	-16250-03-31 21:50 J	-4213799.77	-4213799.59	-4213799.41	0.0500	0.0166
Mars	-16250-05-22 18:28 J	-4213747.94	-4213747.73	-4213747.52	0.0501	0.0290
Venus	-16247-09-22 08:52 J	-4212529.33	-4212529.13	-4212528.93	0.0524	0.0114
Venus	-16246-05-18 05:02 J	-4212291.39	-4212291.29	-4212291.18	0.0527	0.0447
Mercury	-16245-11-24 06:14 J	-4211735.29	-4211735.24	-4211735.18	0.0527	0.0467
Mercury	-16244-02-21 11:16 J	-4211646.16	-4211646.03	-4211645.91	0.0525	0.0087
Venus	-16241-07-26 01:26 J	-4210395.64	-4210395.44	-4210395.24	0.0501	0.0056
Earth	-16241-11-05 13:40 J	-4210293.14	-4210292.93	-4210292.72	0.0500	0.0229
Moon	-16241-11-05 13:40 J	-4210293.13	-4210292.93	-4210292.72	0.0500	0.0215 *
Venus	-16240-03-19 06:14 J	-4210159.35	-4210159.24	-4210159.12	0.0499	0.0412
Mercury	-16238-01-17 18:43 J	-4209489.85	-4209489.72	-4209489.58	0.0500	0.0344
Mercury	-16238-04-18 06:57 J	-4209399.32	-4209399.21	-4209399.10	0.0501	0.0399
Venus	-16235-05-27 23:31 J	-4208263.69	-4208263.52	-4208263.34	0.0523	0.0268
Venus	-16234-01-20 19:40 J	-4208025.85	-4208025.68	-4208025.51	0.0527	0.0295
Mercury	-16233-12-10 15:50 J	-4207335.97	-4207335.84	-4207335.72	0.0526	0.0051
Mercury	-16232-03-09 20:52 J	-4207246.66	-4207246.63	-4207246.60	0.0525	0.0505
Venus	-16229-03-31 04:48 J	-4206129.49	-4206129.30	-4206129.12	0.0502	0.0185
Venus	-16229-11-22 09:21 J	-4205893.27	-4205893.11	-4205892.94	0.0499	0.0288
Mercury	-16226-02-04 03:36 J	-4205089.51	-4205089.35	-4205089.18	0.0500	0.0217
Venus	-16223-01-30 14:23 J	-4203998.02	-4203997.90	-4203997.78	0.0522	0.0419
Venus	-16223-09-25 10:33 J	-4203760.26	-4203760.06	-4203759.86	0.0526	0.0140
Mercury	-16221-09-28 20:23 J	-4203025.76	-4203025.65	-4203025.53	0.0527	0.0183
Mercury	-16221-12-27 01:26 J	-4202936.52	-4202936.44	-4202936.35	0.0525	0.0375
Venus	-16218-12-05 07:11 J	-4201863.35	-4201863.20	-4201863.04	0.0503	0.0314

Venus	-16217-07-28 12:28 J	-4201627.17	-4201626.98	-4201626.79	0.0500	0.0161
Mercury	-16215-11-23 00:43 J	-4200779.66	-4200779.47	-4200779.28	0.0500	0.0037
Venus	-16211-05-31 03:07 J	-4199494.57	-4199494.37	-4199494.16	0.0525	0.0018
Mercury	-16209-07-18 01:11 J	-4198715.55	-4198715.45	-4198715.35	0.0526	0.0314
Mercury	-16209-10-15 06:14 J	-4198626.35	-4198626.24	-4198626.13	0.0525	0.0240
Venus	-16206-08-10 07:11 J	-4197597.29	-4197597.20	-4197597.11	0.0504	0.0447
Venus	-16205-04-02 12:14 J	-4197361.19	-4197360.99	-4197360.79	0.0500	0.0026
Venus	-16205-11-24 16:48 J	-4197124.84	-4197124.80	-4197124.77	0.0498	0.0489
Mercury	-16203-09-10 20:38 J	-4196469.82	-4196469.64	-4196469.46	0.0500	0.0157
Venus	-16199-02-02 19:40 J	-4195228.87	-4195228.68	-4195228.48	0.0524	0.0167
Moon	-16199-05-07 02:09 J	-4195135.63	-4195135.41	-4195135.18	0.0526	0.0146
Earth	-16199-05-07 06:00 J	-4195135.47	-4195135.25	-4195135.03	0.0526	0.0161 *
Venus	-16199-09-28 16:19 J	-4194990.95	-4194990.82	-4194990.69	0.0527	0.0398
Mercury	-16197-05-06 06:00 J	-4194405.32	-4194405.25	-4194405.19	0.0526	0.0447
Mercury	-16197-08-03 10:48 J	-4194316.17	-4194316.05	-4194315.92	0.0525	0.0107
Venus	-16194-12-07 14:24 J	-4193095.10	-4193094.90	-4193094.70	0.0501	0.0106
Venus	-16193-07-30 19:11 J	-4192858.84	-4192858.70	-4192858.57	0.0499	0.0366
Mercury	-16191-06-29 17:31 J	-4192159.91	-4192159.77	-4192159.63	0.0500	0.0336
Mercury	-16191-09-28 05:45 J	-4192069.37	-4192069.26	-4192069.15	0.0501	0.0408
Venus	-16188-10-08 10:04 J	-4190963.24	-4190963.08	-4190962.92	0.0523	0.0323
Earth	-16187-05-12 01:55 J	-4190747.60	-4190747.42	-4190747.23	0.0526	0.0313
Moon	-16187-05-12 04:04 J	-4190747.51	-4190747.33	-4190747.14	0.0526	0.0286 *
Venus	-16187-06-03 06:14 J	-4190725.42	-4190725.24	-4190725.06	0.0526	0.0240
Mars	-16185-03-21 18:57 J	-4190067.97	-4190067.71	-4190067.45	0.0526	0.0260
Mercury	-16185-05-22 15:07 J	-4190006.00	-4190005.87	-4190005.75	0.0526	0.0038
Mercury	-16185-08-19 20:09 J	-4189916.68	-4189916.66	-4189916.64	0.0524	0.0516
Venus	-16182-08-12 17:16 J	-4188828.96	-4188828.78	-4188828.60	0.0503	0.0236
Venus	-16181-04-04 22:19 J	-4188592.75	-4188592.57	-4188592.39	0.0499	0.0239
Mercury	-16179-07-17 02:52 J	-4187759.55	-4187759.38	-4187759.21	0.0500	0.0231
Venus	-16176-06-13 00:57 J	-4186697.54	-4186697.46	-4186697.37	0.0521	0.0473



Venus	-16175-02-05 20:52 J	-4186459.84	-4186459.63	-4186459.43	0.0525	0.0084
Mercury	-16173-03-10 19:26 J	-4185695.80	-4185695.69	-4185695.57	0.0526	0.0175
Mercury	-16173-06-08 00:28 J	-4185606.56	-4185606.48	-4185606.39	0.0525	0.0380
Venus	-16170-04-17 19:55 J	-4184562.80	-4184562.67	-4184562.53	0.0504	0.0365
Earth	-16170-11-01 10:33 J	-4184365.26	-4184365.06	-4184364.85	0.0501	0.0230
Moon	-16170-11-01 10:33 J	-4184365.25	-4184365.06	-4184364.87	0.0501	0.0261 *
Venus	-16170-12-10 01:26 J	-4184326.64	-4184326.44	-4184326.24	0.0500	0.0112
Mars	-16167-02-08 12:00 J	-4183535.22	-4183535.00	-4183534.76	0.0499	0.0215
Mercury	-16167-05-04 23:31 J	-4183449.71	-4183449.52	-4183449.33	0.0500	0.0047
Venus	-16164-10-11 11:02 J	-4182194.24	-4182194.04	-4182193.83	0.0525	0.0075
Venus	-16163-06-06 07:26 J	-4181956.26	-4181956.19	-4181956.11	0.0528	0.0489
Mercury	-16162-12-29 00:14 J	-4181385.59	-4181385.49	-4181385.39	0.0527	0.0309
Mercury	-16161-03-27 05:16 J	-4181296.39	-4181296.28	-4181296.17	0.0525	0.0247
Venus	-16159-12-21 22:19 J	-4180296.61	-4180296.57	-4180296.52	0.0505	0.0492
Venus	-16158-08-15 04:19 J	-4180060.53	-4180060.32	-4180060.12	0.0501	0.0021
Earth	-16158-11-06 01:40 J	-4179977.65	-4179977.43	-4179977.21	0.0500	0.0190
Moon	-16158-11-06 03:50 J	-4179977.57	-4179977.34	-4179977.11	0.0500	0.0185 *
Venus	-16157-04-07 08:52 J	-4179824.22	-4179824.13	-4179824.05	0.0498	0.0449
Mercury	-16155-02-20 20:24 J	-4179139.83	-4179139.65	-4179139.47	0.0500	0.0134
Venus	-16152-06-16 03:35 J	-4177928.54	-4177928.35	-4177928.17	0.0524	0.0226
Venus	-16151-02-09 00:14 J	-4177690.64	-4177690.49	-4177690.33	0.0527	0.0341
Mercury	-16150-10-17 05:02 J	-4177075.36	-4177075.29	-4177075.22	0.0526	0.0439
Mars	-16150-12-30 00:14 J	-4177001.76	-4177001.49	-4177001.21	0.0526	0.0217
Mercury	-16149-01-14 09:50 J	-4176986.21	-4176986.09	-4176985.96	0.0525	0.0116
Venus	-16146-04-20 04:04 J	-4175794.52	-4175794.33	-4175794.14	0.0501	0.0155
Venus	-16146-12-12 08:24 J	-4175558.30	-4175558.15	-4175557.99	0.0499	0.0319
Mercury	-16144-12-09 15:50 J	-4174829.98	-4174829.84	-4174829.70	0.0500	0.0331
Mercury	-16143-03-10 04:04 J	-4174739.43	-4174739.33	-4174739.22	0.0501	0.0413
Venus	-16140-02-18 19:55 J	-4173662.81	-4173662.67	-4173662.53	0.0523	0.0379
Venus	-16140-10-14 16:19 J	-4173425.01	-4173424.82	-4173424.62	0.0526	0.0187

Mercury	-16138-11-02 14:38 J	-4172676.02	-4172675.89	-4172675.77	0.0525	0.0022
Venus	-16135-12-24 06:00 J	-4171528.42	-4171528.25	-4171528.09	0.0503	0.0286
Venus	-16134-08-17 10:48 J	-4171292.24	-4171292.05	-4171291.86	0.0499	0.0191
Mars	-16132-11-12 07:26 J	-4170474.45	-4170474.19	-4170473.94	0.0500	0.0075
Mercury	-16132-12-27 01:11 J	-4170429.62	-4170429.45	-4170429.29	0.0501	0.0234
Venus	-16128-06-19 06:14 J	-4169159.44	-4169159.24	-4169159.03	0.0525	0.0028
Mercury	-16126-08-21 18:43 J	-4168365.84	-4168365.72	-4168365.60	0.0526	0.0164
Mercury	-16126-11-18 23:45 J	-4168276.60	-4168276.51	-4168276.43	0.0525	0.0390
Venus	-16123-08-29 08:09 J	-4167262.27	-4167262.16	-4167262.05	0.0504	0.0416
Venus	-16122-04-22 13:40 J	-4167026.14	-4167025.93	-4167025.73	0.0500	0.0061
Mercury	-16120-10-14 22:19 J	-4166119.76	-4166119.57	-4166119.39	0.0500	0.0057
Venus	-16116-02-21 20:52 J	-4164893.83	-4164893.63	-4164893.43	0.0524	0.0132
Earth	-16116-05-06 12:00 J	-4164820.21	-4164820.00	-4164819.79	0.0525	0.0227
Moon	-16116-05-06 14:09 J	-4164820.10	-4164819.91	-4164819.70	0.0525	0.0223 *
Venus	-16116-10-17 17:02 J	-4164655.90	-4164655.79	-4164655.68	0.0527	0.0434
Mercury	-16114-06-09 23:02 J	-4164055.64	-4164055.54	-4164055.44	0.0526	0.0302
Mercury	-16114-09-07 04:04 J	-4163966.44	-4163966.33	-4163966.22	0.0525	0.0252
Venus	-16111-12-26 16:19 J	-4162760.02	-4162759.82	-4162759.62	0.0501	0.0070
Venus	-16110-08-19 21:07 J	-4162523.73	-4162523.62	-4162523.49	0.0499	0.0404
Mercury	-16108-08-02 18:43 J	-4161809.90	-4161809.72	-4161809.53	0.0500	0.0129
Venus	-16105-10-27 10:48 J	-4160628.22	-4160628.05	-4160627.88	0.0523	0.0288
Moon	-16104-05-11 07:55 J	-4160432.39	-4160432.17	-4160431.95	0.0526	0.0212
Earth	-16104-05-11 08:09 J	-4160432.36	-4160432.16	-4160431.96	0.0526	0.0244 *
Venus	-16104-06-22 07:11 J	-4160390.37	-4160390.20	-4160390.03	0.0527	0.0279
Mercury	-16102-03-29 03:35 J	-4159745.42	-4159745.35	-4159745.28	0.0527	0.0438
Mercury	-16102-06-26 08:38 J	-4159656.26	-4159656.14	-4159656.02	0.0526	0.0116
Venus	-16099-08-31 18:57 J	-4158493.89	-4158493.71	-4158493.52	0.0502	0.0201
Venus	-16098-04-24 23:45 J	-4158257.68	-4158257.51	-4158257.34	0.0499	0.0276
Mercury	-16096-05-21 15:21 J	-4157500.00	-4157499.86	-4157499.71	0.0499	0.0312
Mars	-16096-08-16 06:43 J	-4157413.39	-4157413.22	-4157413.05	0.0501	0.0375

Mercury	-16096-08-20 03:21 J	-4157409.45	-4157409.36	-4157409.26	0.0501	0.0431
Venus	-16093-07-02 03:07 J	-4156362.48	-4156362.37	-4156362.26	0.0522	0.0437
Venus	-16092-02-24 23:31 J	-4156124.72	-4156124.52	-4156124.32	0.0526	0.0125
Mercury	-16090-04-14 13:26 J	-4155346.07	-4155345.94	-4155345.82	0.0526	0.0016
Venus	-16087-05-06 18:43 J	-4154227.86	-4154227.72	-4154227.56	0.0503	0.0337
Earth	-16087-10-31 15:07 J	-4154050.05	-4154049.87	-4154049.67	0.0500	0.0294
Moon	-16087-10-31 17:02 J	-4154049.97	-4154049.79	-4154049.60	0.0500	0.0321 *
Venus	-16087-12-28 23:31 J	-4153991.71	-4153991.52	-4153991.32	0.0500	0.0141
Mercury	-16084-06-07 23:02 J	-4153099.70	-4153099.54	-4153099.37	0.0501	0.0234
Venus	-16081-10-30 15:07 J	-4151859.07	-4151858.87	-4151858.66	0.0525	0.0033
Mercury	-16078-01-31 18:00 J	-4151035.87	-4151035.75	-4151035.63	0.0526	0.0150
Mercury	-16078-04-30 23:02 J	-4150946.62	-4150946.54	-4150946.46	0.0524	0.0403
Venus	-16075-01-09 20:24 J	-4149961.72	-4149961.65	-4149961.57	0.0504	0.0467
Venus	-16075-09-03 01:40 J	-4149725.63	-4149725.43	-4149725.23	0.0500	0.0011
Moon	-16075-11-05 01:26 J	-4149662.66	-4149662.44	-4149662.21	0.0500	0.0120
Earth	-16075-11-05 04:48 J	-4149662.52	-4149662.30	-4149662.07	0.0500	0.0119 *
Venus	-16074-04-27 06:00 J	-4149489.30	-4149489.25	-4149489.19	0.0498	0.0478
Mercury	-16072-03-26 19:55 J	-4148789.85	-4148789.67	-4148789.48	0.0500	0.0053
Venus	-16069-07-05 05:16 J	-4147593.47	-4147593.28	-4147593.09	0.0524	0.0191
Venus	-16068-02-28 01:40 J	-4147355.57	-4147355.43	-4147355.28	0.0527	0.0378
Mercury	-16067-11-19 22:04 J	-4146725.68	-4146725.58	-4146725.48	0.0526	0.0295
Mercury	-16066-02-17 02:52 J	-4146636.48	-4146636.38	-4146636.26	0.0525	0.0259
Venus	-16063-05-09 03:50 J	-4145459.53	-4145459.34	-4145459.14	0.0502	0.0123
Venus	-16063-12-31 08:38 J	-4145223.28	-4145223.14	-4145222.99	0.0499	0.0353
Mercury	-16060-01-12 17:02 J	-4144479.97	-4144479.79	-4144479.61	0.0500	0.0126
Venus	-16057-03-09 19:40 J	-4143327.83	-4143327.68	-4143327.52	0.0522	0.0347
Venus	-16057-11-02 15:50 J	-4143090.03	-4143089.84	-4143089.66	0.0526	0.0220
Mercury	-16055-09-08 02:24 J	-4142415.47	-4142415.40	-4142415.33	0.0526	0.0435
Mercury	-16055-12-06 07:11 J	-4142326.32	-4142326.20	-4142326.07	0.0525	0.0120
Venus	-16051-01-12 06:14 J	-4141193.41	-4141193.24	-4141193.06	0.0503	0.0254

Venus	-16051-09-05 11:31 J	-4140957.20	-4140957.02	-4140956.84	0.0500	0.0226
Mars	-16049-07-31 18:57 J	-4140261.83	-4140261.71	-4140261.59	0.0499	0.0436
Mercury	-16049-10-31 13:26 J	-4140170.08	-4140169.94	-4140169.79	0.0499	0.0311
Mercury	-16048-01-30 01:40 J	-4140079.53	-4140079.43	-4140079.34	0.0501	0.0431
Venus	-16046-11-13 09:35 J	-4139062.15	-4139062.10	-4139062.04	0.0521	0.0498
Venus	-16045-07-08 05:31 J	-4138824.48	-4138824.27	-4138824.07	0.0525	0.0061
Mercury	-16043-09-24 11:45 J	-4138016.13	-4138016.01	-4138015.88	0.0526	0.0020
Venus	-16040-09-17 08:38 J	-4136927.27	-4136927.14	-4136927.01	0.0504	0.0385
Venus	-16039-05-11 13:40 J	-4136691.12	-4136690.93	-4136690.73	0.0500	0.0095
Mercury	-16037-08-19 09:50 J	-4135860.10	-4135860.09	-4135860.07	0.0499	0.0496
Mercury	-16037-11-17 22:04 J	-4135769.74	-4135769.58	-4135769.41	0.0500	0.0247
Venus	-16033-03-12 21:21 J	-4134558.81	-4134558.61	-4134558.41	0.0524	0.0096
Moon	-16033-05-05 16:48 J	-4134504.99	-4134504.80	-4134504.60	0.0525	0.0301
Earth	-16033-05-05 17:31 J	-4134504.96	-4134504.77	-4134504.58	0.0525	0.0297 *
Venus	-16033-11-05 18:00 J	-4134320.83	-4134320.75	-4134320.66	0.0528	0.0474
Mars	-16031-06-16 17:31 J	-4133733.05	-4133732.77	-4133732.48	0.0526	0.0141
Mercury	-16031-07-13 16:33 J	-4133705.93	-4133705.81	-4133705.69	0.0526	0.0150
Mercury	-16031-10-10 21:35 J	-4133616.68	-4133616.60	-4133616.52	0.0525	0.0403
Venus	-16027-01-14 13:55 J	-4132425.12	-4132424.92	-4132424.72	0.0501	0.0042
Venus	-16027-09-07 18:00 J	-4132188.84	-4132188.75	-4132188.64	0.0498	0.0430
Mercury	-16025-09-05 17:31 J	-4131459.96	-4131459.77	-4131459.59	0.0500	0.0047
Venus	-16022-11-16 12:28 J	-4130293.16	-4130292.98	-4130292.80	0.0524	0.0253
Moon	-16021-05-10 14:52 J	-4130117.09	-4130116.88	-4130116.67	0.0526	0.0154
Earth	-16021-05-10 16:04 J	-4130117.04	-4130116.83	-4130116.61	0.0526	0.0187 *
Venus	-16021-07-11 09:35 J	-4130055.26	-4130055.10	-4130054.94	0.0527	0.0320
Mercury	-16019-05-01 21:07 J	-4129395.72	-4129395.62	-4129395.51	0.0526	0.0285
Mercury	-16019-07-30 02:09 J	-4129306.52	-4129306.41	-4129306.30	0.0525	0.0268
Venus	-16016-09-19 15:50 J	-4128159.03	-4128158.84	-4128158.65	0.0502	0.0175
Venus	-16015-05-13 19:55 J	-4127922.83	-4127922.67	-4127922.50	0.0499	0.0302
Mars	-16013-05-04 08:24 J	-4127201.39	-4127201.15	-4127200.91	0.0499	0.0153

Mercury	-16013-06-24 14:09 J	-4127150.09	-4127149.91	-4127149.73	0.0500	0.0136
Venus	-16010-07-22 02:52 J	-4126027.50	-4126027.38	-4126027.25	0.0522	0.0408
Venus	-16009-03-15 23:16 J	-4125789.72	-4125789.53	-4125789.33	0.0526	0.0159
Mercury	-16007-02-18 01:11 J	-4125085.52	-4125085.45	-4125085.38	0.0526	0.0432
Mercury	-16007-05-18 06:00 J	-4124996.37	-4124996.25	-4124996.13	0.0525	0.0121
Venus	-16004-05-25 17:16 J	-4123892.94	-4123892.78	-4123892.62	0.0503	0.0309
Moon	-16004-10-30 17:16 J	-4123734.92	-4123734.78	-4123734.63	0.0501	0.0386
Earth	-16004-10-30 20:24 J	-4123734.81	-4123734.65	-4123734.48	0.0501	0.0356 *
Venus	-16003-01-16 22:04 J	-4123656.76	-4123656.58	-4123656.38	0.0500	0.0173
Mercury	-16001-04-12 11:02 J	-4122840.18	-4122840.04	-4122839.89	0.0500	0.0315
Mercury	-16001-07-11 23:16 J	-4122749.62	-4122749.53	-4122749.43	0.0501	0.0429

# 16TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 16th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Venus	-15998-11-19 13:11 J	-4121524.15	-4121523.95	-4121523.74	0.0525	0.0001		
Mercury	-15995-03-06 10:19 J	-4120686.20	-4120686.07	-4120685.95	0.0526	0.0022		
Mars	-15995-03-25 01:55 J	-4120667.64	-4120667.42	-4120667.17	0.0525	0.0316		
Venus	-15992-01-28 19:11 J	-4119626.80	-4119626.70	-4119626.60	0.0504	0.0440		
Venus	-15992-09-22 00:43 J	-4119390.67	-4119390.47	-4119390.27	0.0501	0.0041		
Earth	-15992-11-04 10:48 J	-4119347.28	-4119347.05	-4119346.82	0.0500	0.0058		
Moon	-15992-11-04 14:52 J	-4119347.12	-4119346.88	-4119346.65	0.0500	0.0072 *		

Mercury	-15989-04-29 19:40 J	-4118439.84	-4118439.68	-4118439.51	0.0500	0.0242
Venus	-15986-07-25 02:38 J	-4117258.59	-4117258.39	-4117258.20	0.0524	0.0162
Venus	-15985-03-18 23:02 J	-4117020.66	-4117020.54	-4117020.41	0.0527	0.0410
Mercury	-15984-12-23 14:38 J	-4116376.01	-4116375.89	-4116375.77	0.0526	0.0160
Mercury	-15983-03-22 19:40 J	-4116286.76	-4116286.68	-4116286.60	0.0525	0.0394
Venus	-15980-05-28 02:52 J	-4115124.58	-4115124.38	-4115124.18	0.0501	0.0092
Earth	-15980-11-09 00:57 J	-4114959.53	-4114959.46	-4114959.38	0.0499	0.0471
Venus	-15979-01-19 07:11 J	-4114888.32	-4114888.20	-4114888.06	0.0499	0.0385
Mars	-15977-02-06 05:16 J	-4114140.53	-4114140.28	-4114140.04	0.0500	0.0142
Mercury	-15977-02-16 16:04 J	-4114130.02	-4114129.83	-4114129.64	0.0500	0.0056
Venus	-15974-03-29 18:00 J	-4112992.91	-4112992.75	-4112992.59	0.0523	0.0317
Venus	-15974-11-22 14:38 J	-4112755.07	-4112754.89	-4112754.71	0.0527	0.0255
Mercury	-15972-10-11 19:26 J	-4112065.79	-4112065.69	-4112065.59	0.0526	0.0291
Mercury	-15971-01-09 00:28 J	-4111976.59	-4111976.48	-4111976.37	0.0525	0.0263
Venus	-15968-01-31 03:21 J	-4110858.54	-4110858.36	-4110858.18	0.0502	0.0229
Venus	-15968-09-24 07:40 J	-4110622.36	-4110622.18	-4110622.01	0.0499	0.0251
Mercury	-15966-12-05 11:16 J	-4109820.21	-4109820.03	-4109819.85	0.0500	0.0146
Venus	-15963-12-02 08:38 J	-4108727.22	-4108727.14	-4108727.05	0.0522	0.0471
Venus	-15962-07-28 05:31 J	-4108489.47	-4108489.27	-4108489.07	0.0526	0.0096
Mercury	-15960-07-31 00:00 J	-4107755.57	-4107755.50	-4107755.43	0.0526	0.0426
Mercury	-15960-10-28 05:02 J	-4107666.42	-4107666.29	-4107666.17	0.0525	0.0128
Venus	-15957-10-06 04:48 J	-4106592.43	-4106592.30	-4106592.16	0.0503	0.0362
Venus	-15956-05-30 09:21 J	-4106356.31	-4106356.11	-4106355.91	0.0500	0.0119
Mercury	-15954-09-23 07:40 J	-4105510.32	-4105510.18	-4105510.03	0.0500	0.0331
Mercury	-15954-12-22 19:55 J	-4105419.77	-4105419.67	-4105419.56	0.0501	0.0414
Venus	-15950-04-01 19:26 J	-4104223.90	-4104223.69	-4104223.49	0.0525	0.0065
Moon	-15950-05-05 17:45 J	-4104189.91	-4104189.76	-4104189.61	0.0525	0.0392
Earth	-15950-05-05 18:28 J	-4104189.88	-4104189.73	-4104189.56	0.0525	0.0381 *
Venus	-15950-11-25 15:50 J	-4103985.89	-4103985.84	-4103985.78	0.0527	0.0505
Mercury	-15948-08-16 08:52 J	-4103356.26	-4103356.13	-4103356.01	0.0525	0.0024

Venus	-15945-06-11 05:31 J	-4102326.30	-4102326.27	-4102326.23	0.0505	0.0494
Venus	-15944-02-02 11:02 J	-4102090.24	-4102090.04	-4102089.84	0.0501	0.0015
Venus	-15944-09-26 15:35 J	-4101853.92	-4101853.85	-4101853.77	0.0498	0.0459
Mercury	-15942-10-10 17:02 J	-4101109.96	-4101109.79	-4101109.62	0.0501	0.0234
Mars	-15942-11-09 21:35 J	-4101079.73	-4101079.60	-4101079.47	0.0501	0.0430
Venus	-15939-12-05 09:21 J	-4099958.29	-4099958.11	-4099957.92	0.0523	0.0225
Earth	-15938-05-10 14:38 J	-4099802.12	-4099801.89	-4099801.66	0.0526	0.0089
Moon	-15938-05-10 17:16 J	-4099802.02	-4099801.78	-4099801.55	0.0526	0.0057 *
Venus	-15938-07-31 05:45 J	-4099720.41	-4099720.26	-4099720.11	0.0527	0.0348
Mercury	-15936-06-04 12:57 J	-4099046.08	-4099045.96	-4099045.84	0.0526	0.0164
Mercury	-15936-09-01 18:00 J	-4098956.83	-4098956.75	-4098956.67	0.0525	0.0389
Venus	-15933-10-08 12:57 J	-4097824.15	-4097823.96	-4097823.76	0.0502	0.0148
Venus	-15932-06-01 17:31 J	-4097587.91	-4097587.77	-4097587.61	0.0499	0.0333
Mercury	-15930-07-29 13:26 J	-4096800.13	-4096799.94	-4096799.75	0.0500	0.0047
Venus	-15927-08-09 22:33 J	-4095692.69	-4095692.56	-4095692.41	0.0522	0.0383
Venus	-15926-04-04 18:57 J	-4095454.90	-4095454.71	-4095454.52	0.0526	0.0188
Mercury	-15924-03-23 17:16 J	-4094735.88	-4094735.78	-4094735.68	0.0526	0.0305
Mercury	-15924-06-20 22:19 J	-4094646.68	-4094646.57	-4094646.46	0.0525	0.0249
Venus	-15921-06-13 14:52 J	-4093558.04	-4093557.88	-4093557.71	0.0503	0.0282
Earth	-15921-10-29 23:31 J	-4093419.64	-4093419.52	-4093419.39	0.0501	0.0427
Moon	-15921-10-30 03:35 J	-4093419.45	-4093419.35	-4093419.25	0.0501	0.0451 *
Venus	-15920-02-04 19:40 J	-4093321.86	-4093321.68	-4093321.49	0.0500	0.0201
Mercury	-15918-05-17 09:35 J	-4092490.28	-4092490.10	-4092489.92	0.0500	0.0142
Venus	-15915-12-08 09:50 J	-4091189.30	-4091189.09	-4091188.89	0.0525	0.0030
Mars	-15913-12-01 13:11 J	-4090464.96	-4090464.95	-4090464.91	0.0527	0.0525
Mercury	-15912-01-09 21:50 J	-4090425.65	-4090425.59	-4090425.51	0.0527	0.0438
Mercury	-15912-04-09 02:52 J	-4090336.50	-4090336.38	-4090336.25	0.0526	0.0118
Venus	-15909-02-17 15:50 J	-4089291.95	-4089291.84	-4089291.72	0.0504	0.0416
Venus	-15909-10-10 20:24 J	-4089055.85	-4089055.65	-4089055.44	0.0500	0.0067
Moon	-15909-11-03 07:11 J	-4089032.44	-4089032.20	-4089031.96	0.0500	0.0014

Earth	-15909-11-03 11:02 J	-4089032.28	-4089032.04	-4089031.81	0.0500	0.0023 *
Mercury	-15906-03-05 04:33 J	-4088180.44	-4088180.31	-4088180.17	0.0499	0.0344
Mercury	-15906-06-03 16:48 J	-4088089.91	-4088089.80	-4088089.69	0.0501	0.0399
Venus	-15903-08-13 00:14 J	-4086923.69	-4086923.49	-4086923.29	0.0525	0.0133
Venus	-15902-04-07 21:35 J	-4086685.70	-4086685.60	-4086685.49	0.0528	0.0443
Mercury	-15900-01-26 07:26 J	-4086026.31	-4086026.19	-4086026.06	0.0526	0.0021
Venus	-15897-06-15 22:04 J	-4084789.78	-4084789.58	-4084789.38	0.0501	0.0069
Earth	-15897-11-07 23:16 J	-4084644.67	-4084644.53	-4084644.37	0.0499	0.0383
Moon	-15897-11-08 02:24 J	-4084644.53	-4084644.40	-4084644.28	0.0499	0.0415 *
Venus	-15896-02-07 01:55 J	-4084553.53	-4084553.42	-4084553.30	0.0498	0.0407
Mars	-15895-10-25 00:43 J	-4083928.62	-4083928.47	-4083928.30	0.0499	0.0392
Mercury	-15894-03-22 13:26 J	-4083780.11	-4083779.94	-4083779.77	0.0500	0.0215
Venus	-15891-04-17 14:24 J	-4082658.07	-4082657.90	-4082657.73	0.0523	0.0291
Venus	-15891-12-11 11:02 J	-4082420.21	-4082420.04	-4082419.87	0.0526	0.0284
Mercury	-15889-11-14 11:16 J	-4081716.15	-4081716.03	-4081715.91	0.0526	0.0168
Mercury	-15888-02-11 16:19 J	-4081626.91	-4081626.82	-4081626.74	0.0525	0.0384
Venus	-15885-02-19 23:02 J	-4080523.72	-4080523.54	-4080523.35	0.0502	0.0204
Venus	-15885-10-13 03:35 J	-4080287.51	-4080287.35	-4080287.18	0.0499	0.0279
Mercury	-15882-01-08 10:19 J	-4079470.26	-4079470.07	-4079469.88	0.0500	0.0035
Venus	-15880-12-21 04:48 J	-4078392.40	-4078392.30	-4078392.19	0.0521	0.0445
Venus	-15879-08-16 00:57 J	-4078154.66	-4078154.46	-4078154.26	0.0525	0.0123
Mercury	-15877-09-02 15:21 J	-4077405.96	-4077405.86	-4077405.75	0.0526	0.0312
Mars	-15877-09-08 18:43 J	-4077400.01	-4077399.72	-4077399.42	0.0526	0.0075
Mercury	-15877-11-30 20:24 J	-4077316.76	-4077316.65	-4077316.54	0.0525	0.0242
Venus	-15874-10-26 00:28 J	-4076257.63	-4076257.48	-4076257.33	0.0504	0.0338
Venus	-15873-06-18 05:31 J	-4076021.46	-4076021.27	-4076021.07	0.0500	0.0147
Mercury	-15871-10-27 06:43 J	-4075160.40	-4075160.22	-4075160.05	0.0500	0.0153
Venus	-15867-04-20 13:55 J	-4073889.13	-4073888.92	-4073888.72	0.0524	0.0040
Earth	-15867-05-04 14:09 J	-4073874.99	-4073874.91	-4073874.83	0.0525	0.0490
Moon	-15867-05-04 15:50 J	-4073874.89	-4073874.84	-4073874.76	0.0525	0.0501 *



Mercury	-15865-06-21 19:40 J	-4073095.74	-4073095.68	-4073095.62	0.0527	0.0454
Mercury	-15865-09-19 00:43 J	-4073006.60	-4073006.47	-4073006.35	0.0526	0.0101
Venus	-15862-07-01 01:55 J	-4071991.48	-4071991.42	-4071991.34	0.0505	0.0471
Venus	-15861-02-22 07:40 J	-4071755.38	-4071755.18	-4071754.98	0.0501	0.0014
Venus	-15861-10-15 12:00 J	-4071519.04	-4071519.00	-4071518.96	0.0498	0.0487
Mars	-15859-07-28 19:26 J	-4070867.94	-4070867.69	-4070867.44	0.0499	0.0102
Mercury	-15859-08-15 02:38 J	-4070850.52	-4070850.39	-4070850.25	0.0499	0.0342
Mercury	-15859-11-13 14:52 J	-4070759.99	-4070759.88	-4070759.77	0.0500	0.0400
Venus	-15856-12-24 04:19 J	-4069623.51	-4069623.32	-4069623.13	0.0524	0.0200
Moon	-15855-05-09 08:09 J	-4069487.39	-4069487.16	-4069486.93	0.0526	0.0051
Earth	-15855-05-09 11:16 J	-4069487.26	-4069487.03	-4069486.80	0.0526	0.0019 *
Venus	-15855-08-19 00:57 J	-4069385.59	-4069385.46	-4069385.31	0.0527	0.0377
Mercury	-15853-07-08 05:16 J	-4068696.40	-4068696.28	-4068696.15	0.0526	0.0034
Mercury	-15853-10-05 10:19 J	-4068607.08	-4068607.07	-4068607.06	0.0525	0.0520
Venus	-15850-10-28 08:52 J	-4067489.33	-4067489.13	-4067488.93	0.0501	0.0123
Venus	-15849-06-20 12:43 J	-4067253.11	-4067252.97	-4067252.83	0.0498	0.0356
Mercury	-15847-09-01 10:04 J	-4066450.25	-4066450.08	-4066449.91	0.0500	0.0200
Venus	-15844-08-28 18:28 J	-4065357.87	-4065357.73	-4065357.58	0.0523	0.0358
Venus	-15843-04-23 15:35 J	-4065120.03	-4065119.85	-4065119.66	0.0527	0.0218
Earth	-15843-05-14 08:09 J	-4065099.26	-4065099.16	-4065099.04	0.0527	0.0458
Moon	-15843-05-14 12:00 J	-4065099.10	-4065099.00	-4065098.90	0.0527	0.0470 *
Mercury	-15841-04-26 09:50 J	-4064386.21	-4064386.09	-4064385.97	0.0526	0.0169
Mars	-15841-06-17 15:07 J	-4064334.06	-4064333.87	-4064333.67	0.0525	0.0394
Mercury	-15841-07-24 14:52 J	-4064296.97	-4064296.88	-4064296.80	0.0525	0.0384
Venus	-15838-07-03 10:19 J	-4063223.24	-4063223.07	-4063222.90	0.0502	0.0258
Venus	-15837-02-24 14:24 J	-4062987.08	-4062986.90	-4062986.72	0.0499	0.0225
Mercury	-15835-06-20 06:43 J	-4062140.41	-4062140.22	-4062140.04	0.0500	0.0019
Venus	-15832-05-03 09:21 J	-4061092.15	-4061092.11	-4061092.07	0.0521	0.0509
Venus	-15832-12-27 05:31 J	-4060854.48	-4060854.27	-4060854.07	0.0525	0.0057
Mercury	-15829-02-13 13:40 J	-4060076.03	-4060075.93	-4060075.83	0.0526	0.0318

Mercury	-15829-05-12 18:43 J	-4059986.84	-4059986.72	-4059986.61	0.0525	0.0235
Venus	-15826-03-08 10:19 J	-4058957.19	-4058957.07	-4058956.94	0.0504	0.0394
Venus	-15826-10-30 15:21 J	-4058721.05	-4058720.86	-4058720.66	0.0500	0.0092
Earth	-15826-11-03 09:50 J	-4058717.32	-4058717.09	-4058716.86	0.0500	0.0111
Moon	-15826-11-03 12:57 J	-4058717.19	-4058716.96	-4058716.73	0.0500	0.0097 *
Mercury	-15823-04-08 03:21 J	-4057830.53	-4057830.36	-4057830.18	0.0500	0.0166
Mars	-15823-05-01 09:21 J	-4057807.34	-4057807.11	-4057806.87	0.0500	0.0185
Venus	-15820-08-31 19:40 J	-4056588.88	-4056588.68	-4056588.47	0.0524	0.0105
Venus	-15819-04-26 16:19 J	-4056350.91	-4056350.82	-4056350.73	0.0527	0.0470
Mercury	-15818-12-02 17:45 J	-4055765.81	-4055765.76	-4055765.70	0.0526	0.0461
Mercury	-15817-02-29 22:48 J	-4055676.67	-4055676.55	-4055676.43	0.0525	0.0092
Venus	-15814-07-05 17:16 J	-4054454.98	-4054454.78	-4054454.58	0.0501	0.0044
Moon	-15814-11-07 21:35 J	-4054329.79	-4054329.60	-4054329.41	0.0500	0.0324
Earth	-15814-11-07 23:02 J	-4054329.72	-4054329.54	-4054329.34	0.0500	0.0298 *
Venus	-15813-02-26 21:35 J	-4054218.69	-4054218.60	-4054218.50	0.0499	0.0436
Mercury	-15811-01-24 23:45 J	-4053520.64	-4053520.51	-4053520.38	0.0499	0.0353
Mercury	-15811-04-25 12:00 J	-4053430.12	-4053430.00	-4053429.88	0.0501	0.0389
Venus	-15808-05-06 08:38 J	-4052323.31	-4052323.14	-4052322.96	0.0523	0.0267
Venus	-15808-12-30 05:02 J	-4052085.45	-4052085.29	-4052085.13	0.0526	0.0310
Mercury	-15806-12-19 02:52 J	-4051366.50	-4051366.38	-4051366.25	0.0526	0.0053
Mercury	-15805-03-17 07:55 J	-4051277.20	-4051277.17	-4051277.13	0.0525	0.0503
Venus	-15802-03-10 19:11 J	-4050188.89	-4050188.70	-4050188.51	0.0502	0.0178
Venus	-15802-11-01 23:45 J	-4049952.67	-4049952.51	-4049952.35	0.0499	0.0306
Mercury	-15799-02-11 08:09 J	-4049120.33	-4049120.16	-4049119.99	0.0500	0.0200
Venus	-15796-01-08 23:02 J	-4048057.65	-4048057.54	-4048057.41	0.0522	0.0422
Venus	-15796-09-03 19:26 J	-4047819.89	-4047819.69	-4047819.49	0.0526	0.0150
Mercury	-15794-10-07 07:40 J	-4047056.30	-4047056.18	-4047056.07	0.0526	0.0185
Mercury	-15793-01-04 12:43 J	-4046967.06	-4046966.97	-4046966.88	0.0525	0.0370
Venus	-15791-11-13 20:38 J	-4045922.79	-4045922.64	-4045922.48	0.0503	0.0314
Venus	-15790-07-08 01:11 J	-4045686.64	-4045686.45	-4045686.26	0.0499	0.0172

Mercury	-15788-11-30 03:21 J	-4044810.54	-4044810.36	-4044810.17	0.0500	0.0011
Mars	-15787-02-01 19:40 J	-4044746.76	-4044746.68	-4044746.57	0.0501	0.0465
Venus	-15784-05-09 09:35 J	-4043554.31	-4043554.10	-4043553.90	0.0525	0.0014
Mercury	-15782-07-26 12:14 J	-4042746.09	-4042745.99	-4042745.90	0.0527	0.0321
Mercury	-15782-10-23 17:02 J	-4042656.90	-4042656.79	-4042656.67	0.0525	0.0234
Venus	-15779-07-19 22:04 J	-4041656.67	-4041656.58	-4041656.48	0.0504	0.0446
Venus	-15778-03-13 03:07 J	-4041420.58	-4041420.37	-4041420.17	0.0500	0.0040
Mercury	-15776-09-17 23:45 J	-4040500.68	-4040500.51	-4040500.33	0.0500	0.0184
Venus	-15772-01-12 00:00 J	-4039288.69	-4039288.50	-4039288.30	0.0524	0.0172
Earth	-15772-05-08 08:38 J	-4039172.37	-4039172.14	-4039171.92	0.0525	0.0121
Moon	-15772-05-08 12:14 J	-4039172.21	-4039171.99	-4039171.76	0.0525	0.0148 *
Venus	-15772-09-06 20:52 J	-4039050.76	-4039050.63	-4039050.50	0.0527	0.0406
Mercury	-15770-05-14 16:04 J	-4038435.89	-4038435.83	-4038435.78	0.0527	0.0468
Mercury	-15770-08-11 20:52 J	-4038346.75	-4038346.63	-4038346.50	0.0525	0.0086
Venus	-15767-11-16 03:21 J	-4037154.56	-4037154.36	-4037154.17	0.0502	0.0100
Venus	-15766-07-10 07:40 J	-4036918.31	-4036918.18	-4036918.05	0.0499	0.0383
Mercury	-15764-07-06 20:38 J	-4036190.77	-4036190.64	-4036190.51	0.0500	0.0366
Mercury	-15764-10-05 08:52 J	-4036100.25	-4036100.13	-4036100.01	0.0501	0.0378
Venus	-15761-09-16 14:52 J	-4035023.03	-4035022.88	-4035022.71	0.0522	0.0329
Venus	-15760-05-12 11:16 J	-4034785.21	-4034785.03	-4034784.85	0.0526	0.0247
Moon	-15760-05-13 02:09 J	-4034784.58	-4034784.41	-4034784.24	0.0526	0.0364
Earth	-15760-05-13 05:31 J	-4034784.44	-4034784.27	-4034784.10	0.0526	0.0350 *
Mars	-15758-02-24 04:04 J	-4034132.45	-4034132.33	-4034132.20	0.0527	0.0476
Mercury	-15758-05-31 01:11 J	-4034036.58	-4034036.45	-4034036.33	0.0526	0.0058
Mercury	-15758-08-28 06:00 J	-4033947.28	-4033947.25	-4033947.20	0.0524	0.0495
Venus	-15755-07-22 04:48 J	-4032888.48	-4032888.30	-4032888.12	0.0503	0.0234
Venus	-15754-03-15 09:35 J	-4032652.27	-4032652.10	-4032651.92	0.0500	0.0253
Mercury	-15752-07-24 05:16 J	-4031790.45	-4031790.28	-4031790.10	0.0500	0.0192
Venus	-15749-05-22 04:19 J	-4030757.39	-4030757.32	-4030757.25	0.0521	0.0486
Venus	-15748-01-15 00:00 J	-4030519.70	-4030519.50	-4030519.30	0.0525	0.0083

Mercury	-15746-03-19 05:16 J	-4029726.40	-4029726.28	-4029726.16	0.0526	0.0201
Mercury	-15746-06-16 10:19 J	-4029637.16	-4029637.07	-4029636.98	0.0525	0.0353
Venus	-15743-03-27 06:28 J	-4028622.36	-4028622.23	-4028622.09	0.0504	0.0370
Moon	-15743-11-02 08:52 J	-4028402.36	-4028402.13	-4028401.90	0.0501	0.0177
Earth	-15743-11-02 10:48 J	-4028402.26	-4028402.05	-4028401.83	0.0501	0.0191 *
Venus	-15743-11-18 11:45 J	-4028386.20	-4028386.01	-4028385.81	0.0500	0.0119
Mars	-15740-01-17 08:09 J	-4027595.33	-4027595.16	-4027594.96	0.0499	0.0346
Mercury	-15740-05-12 01:26 J	-4027480.62	-4027480.44	-4027480.25	0.0500	0.0011
Venus	-15737-09-19 14:09 J	-4026254.11	-4026253.91	-4026253.70	0.0524	0.0080
Venus	-15736-05-15 11:02 J	-4026016.10	-4026016.04	-4026015.98	0.0527	0.0498
Mercury	-15734-01-05 09:50 J	-4025416.18	-4025416.09	-4025415.99	0.0527	0.0336
Mercury	-15734-04-04 14:52 J	-4025326.99	-4025326.88	-4025326.76	0.0526	0.0219
Venus	-15732-11-30 08:24 J	-4024356.17	-4024356.15	-4024356.13	0.0505	0.0501
Venus	-15731-07-24 13:55 J	-4024120.13	-4024119.92	-4024119.72	0.0501	0.0017
Moon	-15731-11-06 23:45 J	-4024014.70	-4024014.51	-4024014.31	0.0499	0.0242
Earth	-15731-11-07 00:14 J	-4024014.70	-4024014.49	-4024014.28	0.0499	0.0219 *
Venus	-15730-03-17 17:45 J	-4023883.83	-4023883.76	-4023883.69	0.0498	0.0462
Mercury	-15728-02-27 20:52 J	-4023170.80	-4023170.63	-4023170.45	0.0499	0.0194
Venus	-15725-05-25 04:04 J	-4021988.51	-4021988.33	-4021988.14	0.0523	0.0240
Venus	-15724-01-18 01:11 J	-4021750.60	-4021750.45	-4021750.29	0.0527	0.0341
Mercury	-15723-10-24 14:24 J	-4021105.95	-4021105.90	-4021105.84	0.0527	0.0471
Mars	-15723-12-02 22:33 J	-4021066.86	-4021066.56	-4021066.26	0.0527	0.0010
Mercury	-15722-01-21 19:26 J	-4021016.81	-4021016.69	-4021016.56	0.0526	0.0084
Venus	-15719-03-29 15:35 J	-4019854.04	-4019853.85	-4019853.66	0.0502	0.0152
Venus	-15719-11-20 19:40 J	-4019617.83	-4019617.68	-4019617.53	0.0499	0.0333
Mercury	-15717-12-16 17:31 J	-4018860.89	-4018860.77	-4018860.65	0.0499	0.0378
Mercury	-15716-03-17 05:45 J	-4018770.39	-4018770.26	-4018770.13	0.0500	0.0364
Venus	-15713-01-28 19:40 J	-4017722.81	-4017722.68	-4017722.55	0.0522	0.0394
Venus	-15713-09-22 16:04 J	-4017485.02	-4017484.83	-4017484.64	0.0526	0.0182
Mercury	-15711-11-09 23:31 J	-4016706.65	-4016706.52	-4016706.40	0.0526	0.0066

Mercury	-15710-02-07 04:19 J	-4016617.36	-4016617.32	-4016617.27	0.0524	0.0489
Venus	-15708-12-02 15:07 J	-4015588.03	-4015587.87	-4015587.70	0.0503	0.0290
Venus	-15707-07-26 20:09 J	-4015351.85	-4015351.66	-4015351.48	0.0500	0.0200
Mars	-15705-10-21 00:43 J	-4014534.73	-4014534.47	-4014534.22	0.0500	0.0060
Mercury	-15704-01-03 02:38 J	-4014460.57	-4014460.39	-4014460.22	0.0500	0.0183
Venus	-15701-05-28 06:43 J	-4013219.42	-4013219.22	-4013219.01	0.0524	0.0021
Mercury	-15699-08-29 03:35 J	-4012396.46	-4012396.35	-4012396.23	0.0526	0.0205
Mercury	-15699-11-26 08:38 J	-4012307.23	-4012307.14	-4012307.05	0.0525	0.0348
Venus	-15696-08-07 16:19 J	-4011321.92	-4011321.82	-4011321.71	0.0505	0.0425
Venus	-15695-03-31 22:04 J	-4011085.78	-4011085.58	-4011085.38	0.0501	0.0065
Mercury	-15693-10-21 23:02 J	-4010150.73	-4010150.54	-4010150.35	0.0500	0.0007
Venus	-15689-01-31 19:55 J	-4008953.86	-4008953.67	-4008953.47	0.0523	0.0144
Moon	-15689-05-07 02:24 J	-4008857.61	-4008857.40	-4008857.20	0.0525	0.0251
Earth	-15689-05-07 05:45 J	-4008857.46	-4008857.26	-4008857.05	0.0525	0.0224 *
Venus	-15689-09-25 16:19 J	-4008715.93	-4008715.82	-4008715.70	0.0527	0.0435
Mercury	-15687-06-17 07:55 J	-4008086.27	-4008086.17	-4008086.08	0.0526	0.0348
Mars	-15687-09-10 00:57 J	-4008001.62	-4008001.46	-4008001.28	0.0525	0.0432
Mercury	-15687-09-14 12:43 J	-4007997.08	-4007996.97	-4007996.85	0.0525	0.0207
Venus	-15684-12-05 00:14 J	-4006819.69	-4006819.49	-4006819.29	0.0502	0.0071
Venus	-15683-07-29 04:48 J	-4006583.41	-4006583.30	-4006583.18	0.0499	0.0413
Mercury	-15681-08-09 19:11 J	-4005840.87	-4005840.70	-4005840.52	0.0500	0.0191
Venus	-15678-10-06 10:19 J	-4004688.24	-4004688.07	-4004687.90	0.0522	0.0303
Earth	-15677-05-12 02:09 J	-4004469.61	-4004469.41	-4004469.20	0.0526	0.0245
Moon	-15677-05-12 04:48 J	-4004469.49	-4004469.30	-4004469.11	0.0526	0.0266 *
Venus	-15677-05-31 06:28 J	-4004450.40	-4004450.23	-4004450.05	0.0526	0.0276
Mercury	-15675-04-05 12:28 J	-4003776.03	-4003775.98	-4003775.93	0.0527	0.0483
Mercury	-15675-07-03 17:31 J	-4003686.90	-4003686.77	-4003686.65	0.0526	0.0073
Venus	-15672-08-10 02:38 J	-4002553.57	-4002553.39	-4002553.21	0.0503	0.0206
Venus	-15671-04-03 07:11 J	-4002317.37	-4002317.20	-4002317.04	0.0499	0.0283
Mercury	-15669-05-28 15:07 J	-4001530.99	-4001530.87	-4001530.75	0.0499	0.0383

Mars	-15669-07-24 15:07 J	-4001474.10	-4001473.87	-4001473.65	0.0500	0.0227
Mercury	-15669-08-27 03:07 J	-4001440.49	-4001440.37	-4001440.23	0.0500	0.0358
Venus	-15666-06-11 00:28 J	-4000422.58	-4000422.48	-4000422.39	0.0521	0.0459
Venus	-15665-02-03 20:52 J	-4000184.83	-4000184.63	-4000184.43	0.0526	0.0115
Mercury	-15663-04-21 22:04 J	-3999376.71	-3999376.58	-3999376.46	0.0526	0.0063
Mercury	-15663-07-20 03:07 J	-3999287.41	-3999287.37	-3999287.33	0.0525	0.0491
Venus	-15660-04-15 04:19 J	-3998287.47	-3998287.32	-3998287.17	0.0504	0.0341
Earth	-15660-11-01 13:40 J	-3998087.12	-3998086.93	-3998086.72	0.0500	0.0264
Moon	-15660-11-01 13:55 J	-3998087.12	-3998086.92	-3998086.73	0.0500	0.0244 *
Venus	-15660-12-07 09:07 J	-3998051.31	-3998051.12	-3998050.93	0.0500	0.0149
Mercury	-15657-06-15 00:00 J	-3997130.68	-3997130.50	-3997130.33	0.0500	0.0176
Venus	-15654-10-09 12:14 J	-3995919.20	-3995918.99	-3995918.79	0.0524	0.0046
Mercury	-15651-02-08 02:09 J	-3995066.53	-3995066.41	-3995066.30	0.0526	0.0208
Mercury	-15651-05-08 06:57 J	-3994977.30	-3994977.21	-3994977.11	0.0525	0.0345
Venus	-15649-12-19 03:07 J	-3994021.43	-3994021.37	-3994021.30	0.0505	0.0479
Venus	-15648-08-12 09:07 J	-3993785.32	-3993785.12	-3993784.92	0.0501	0.0012
Earth	-15648-11-05 23:45 J	-3993699.73	-3993699.51	-3993699.28	0.0500	0.0132
Moon	-15648-11-06 01:55 J	-3993699.65	-3993699.42	-3993699.18	0.0500	0.0151 *
Venus	-15647-04-05 13:40 J	-3993548.96	-3993548.93	-3993548.90	0.0499	0.0492
Mercury	-15645-04-02 20:38 J	-3992820.83	-3992820.64	-3992820.45	0.0500	0.0008
Venus	-15642-06-14 03:35 J	-3991653.54	-3991653.35	-3991653.16	0.0523	0.0204
Venus	-15641-02-07 00:00 J	-3991415.64	-3991415.50	-3991415.36	0.0526	0.0377
Mercury	-15640-11-27 06:28 J	-3990756.32	-3990756.23	-3990756.14	0.0526	0.0347
Mercury	-15639-02-24 11:16 J	-3990667.14	-3990667.03	-3990666.91	0.0525	0.0206
Venus	-15636-04-17 10:48 J	-3989519.24	-3989519.05	-3989518.85	0.0502	0.0125
Venus	-15636-12-09 15:35 J	-3989282.98	-3989282.85	-3989282.71	0.0499	0.0363
Mercury	-15633-01-20 17:16 J	-3988510.95	-3988510.78	-3988510.61	0.0500	0.0191
Venus	-15630-02-16 17:31 J	-3987387.91	-3987387.77	-3987387.62	0.0521	0.0364
Venus	-15630-10-12 13:11 J	-3987150.13	-3987149.95	-3987149.76	0.0525	0.0214
Mercury	-15628-09-15 10:33 J	-3986446.10	-3986446.06	-3986446.01	0.0527	0.0490

Mercury	-15628-12-13 15:35 J	-3986356.98	-3986356.85	-3986356.73	0.0526	0.0064
Venus	-15625-12-21 12:57 J	-3985253.13	-3985252.96	-3985252.79	0.0504	0.0261
Venus	-15624-08-14 18:14 J	-3985016.92	-3985016.74	-3985016.56	0.0500	0.0231
Mercury	-15622-11-08 13:26 J	-3984201.05	-3984200.94	-3984200.81	0.0499	0.0377
Mercury	-15621-02-07 01:55 J	-3984110.54	-3984110.42	-3984110.29	0.0500	0.0367
Venus	-15619-10-22 08:09 J	-3983122.17	-3983122.16	-3983122.14	0.0520	0.0518
Venus	-15618-06-17 03:35 J	-3982884.56	-3982884.35	-3982884.15	0.0525	0.0052
Mercury	-15616-10-01 20:09 J	-3982046.78	-3982046.66	-3982046.53	0.0526	0.0071
Mercury	-15616-12-30 01:11 J	-3981957.50	-3981957.45	-3981957.40	0.0525	0.0483
Venus	-15613-08-26 15:35 J	-3980986.97	-3980986.85	-3980986.72	0.0505	0.0395
Venus	-15612-04-19 20:52 J	-3980750.82	-3980750.63	-3980750.43	0.0501	0.0099
Mercury	-15610-11-25 21:50 J	-3979800.76	-3979800.59	-3979800.41	0.0500	0.0176
Venus	-15606-02-19 18:00 J	-3978618.95	-3978618.75	-3978618.55	0.0524	0.0111
Earth	-15606-05-07 07:11 J	-3978542.38	-3978542.20	-3978542.01	0.0525	0.0311
Moon	-15606-05-07 09:50 J	-3978542.26	-3978542.09	-3978541.91	0.0525	0.0333 *
Venus	-15606-10-15 14:52 J	-3978380.97	-3978380.88	-3978380.79	0.0527	0.0471
Mars	-15604-05-19 18:14 J	-3977798.93	-3977798.74	-3977798.55	0.0527	0.0400
Mercury	-15604-07-21 00:57 J	-3977736.58	-3977736.46	-3977736.35	0.0527	0.0206
Mercury	-15604-10-18 05:45 J	-3977647.35	-3977647.26	-3977647.16	0.0525	0.0350
Venus	-15601-12-23 23:02 J	-3976484.74	-3976484.54	-3976484.33	0.0501	0.0039
Venus	-15600-08-17 03:35 J	-3976248.44	-3976248.35	-3976248.26	0.0499	0.0446
Mercury	-15598-09-13 18:43 J	-3975490.91	-3975490.72	-3975490.53	0.0500	0.0008
Venus	-15595-10-25 09:50 J	-3974353.26	-3974353.09	-3974352.91	0.0522	0.0268
Moon	-15594-05-12 05:16 J	-3974154.51	-3974154.28	-3974154.06	0.0526	0.0186
Earth	-15594-05-12 06:28 J	-3974154.45	-3974154.23	-3974154.01	0.0526	0.0165 *
Venus	-15594-06-20 06:14 J	-3974115.40	-3974115.24	-3974115.07	0.0526	0.0316
Mercury	-15592-05-09 05:02 J	-3973426.38	-3973426.29	-3973426.19	0.0526	0.0347
Mercury	-15592-08-06 10:04 J	-3973337.20	-3973337.08	-3973336.97	0.0525	0.0206
Venus	-15589-08-28 22:33 J	-3972218.74	-3972218.56	-3972218.36	0.0503	0.0179
Venus	-15588-04-22 03:35 J	-3971982.51	-3971982.35	-3971982.19	0.0500	0.0313

Mars	-15586-04-12 23:45 J	-3971261.71	-3971261.51	-3971261.30	0.0499	0.0293
Mercury	-15586-07-02 15:07 J	-3971181.04	-3971180.87	-3971180.69	0.0500	0.0191
Venus	-15583-06-30 02:24 J	-3970087.52	-3970087.40	-3970087.28	0.0521	0.0422
Venus	-15582-02-22 22:04 J	-3969849.77	-3969849.58	-3969849.38	0.0525	0.0156
Mercury	-15580-02-25 09:35 J	-3969116.15	-3969116.10	-3969116.05	0.0526	0.0483
Mercury	-15580-05-25 14:24 J	-3969027.02	-3969026.90	-3969026.77	0.0525	0.0069
Venus	-15577-05-04 00:14 J	-3967952.65	-3967952.49	-3967952.33	0.0504	0.0315
Earth	-15577-10-31 15:21 J	-3967772.03	-3967771.86	-3967771.69	0.0501	0.0345
Moon	-15577-10-31 17:16 J	-3967771.97	-3967771.78	-3967771.59	0.0501	0.0316 *
Venus	-15577-12-26 05:45 J	-3967716.45	-3967716.26	-3967716.07	0.0501	0.0180
Mercury	-15574-04-20 12:00 J	-3966871.12	-3966871.00	-3966870.88	0.0500	0.0373
Mercury	-15574-07-20 00:14 J	-3966780.61	-3966780.49	-3966780.36	0.0501	0.0372
Venus	-15571-10-28 11:45 J	-3965584.22	-3965584.01	-3965583.81	0.0524	0.0009
Mars	-15568-02-25 05:31 J	-3964733.57	-3964733.27	-3964732.98	0.0526	0.0053
Mercury	-15568-03-13 18:43 J	-3964716.85	-3964716.72	-3964716.60	0.0526	0.0074
Mercury	-15568-06-10 23:31 J	-3964627.56	-3964627.52	-3964627.46	0.0525	0.0480
Venus	-15565-01-08 02:09 J	-3963686.49	-3963686.41	-3963686.32	0.0505	0.0450
Venus	-15565-08-31 08:24 J	-3963450.35	-3963450.15	-3963449.94	0.0501	0.0046
Moon	-15565-11-05 03:07 J	-3963384.60	-3963384.37	-3963384.14	0.0501	0.0089
Earth	-15565-11-05 06:28 J	-3963384.46	-3963384.23	-3963384.00	0.0501	0.0072 *
Mercury	-15562-05-07 20:52 J	-3962470.80	-3962470.63	-3962470.45	0.0500	0.0189
Venus	-15559-07-03 02:09 J	-3961318.60	-3961318.41	-3961318.21	0.0523	0.0172
Venus	-15558-02-25 22:33 J	-3961080.69	-3961080.56	-3961080.43	0.0526	0.0412
Mercury	-15557-12-30 23:16 J	-3960406.64	-3960406.53	-3960406.41	0.0526	0.0208
Mercury	-15556-03-30 04:19 J	-3960317.42	-3960317.32	-3960317.23	0.0525	0.0346
Venus	-15553-05-06 11:31 J	-3959184.22	-3959184.02	-3959183.83	0.0502	0.0091
Earth	-15553-11-09 21:50 J	-3958996.63	-3958996.59	-3958996.54	0.0500	0.0487
Moon	-15553-11-10 01:40 J	-3958996.50	-3958996.43	-3958996.33	0.0500	0.0465
Venus	-15553-12-28 15:50 J	-3958947.95	-3958947.84	-3958947.71	0.0499	0.0399
Mars	-15550-01-14 20:52 J	-3958200.88	-3958200.63	-3958200.37	0.0499	0.0009



Mercury	-15550-02-23 17:16 J	-3958160.97	-3958160.78	-3958160.60	0.0500	0.0009
Venus	-15547-03-07 16:48 J	-3957052.95	-3957052.80	-3957052.64	0.0522	0.0331
Venus	-15547-10-31 13:11 J	-3956815.13	-3956814.95	-3956814.77	0.0526	0.0252
Mercury	-15545-10-19 04:04 J	-3956096.43	-3956096.33	-3956096.24	0.0527	0.0341
Mercury	-15544-01-16 08:52 J	-3956007.24	-3956007.13	-3956007.01	0.0526	0.0214
Venus	-15541-01-10 13:40 J	-3954918.11	-3954917.93	-3954917.75	0.0503	0.0226
Venus	-15541-09-02 18:43 J	-3954681.89	-3954681.72	-3954681.55	0.0500	0.0267
Mercury	-15539-12-12 13:55 J	-3953851.09	-3953850.92	-3953850.74	0.0500	0.0181
Venus	-15536-11-10 09:35 J	-3952787.17	-3952787.10	-3952787.02	0.0521	0.0481
Venus	-15535-07-06 05:16 J	-3952549.48	-3952549.28	-3952549.08	0.0525	0.0094
Mercury	-15533-08-07 08:24 J	-3951786.20	-3951786.15	-3951786.10	0.0526	0.0479
Mercury	-15533-11-04 13:11 J	-3951697.07	-3951696.95	-3951696.82	0.0525	0.0075
Mars	-15533-12-04 05:31 J	-3951667.28	-3951667.27	-3951667.24	0.0525	0.0523
Venus	-15530-09-15 12:43 J	-3950652.10	-3950651.97	-3950651.83	0.0504	0.0367
Venus	-15529-05-08 18:14 J	-3950415.93	-3950415.74	-3950415.54	0.0501	0.0130
Mercury	-15527-09-30 10:19 J	-3949541.19	-3949541.07	-3949540.94	0.0500	0.0368
Mercury	-15527-12-29 22:48 J	-3949450.67	-3949450.55	-3949450.43	0.0501	0.0377
Venus	-15523-03-10 21:35 J	-3948283.80	-3948283.60	-3948283.39	0.0524	0.0067
Moon	-15523-05-06 15:50 J	-3948227.00	-3948226.84	-3948226.67	0.0524	0.0382
Earth	-15523-05-06 17:16 J	-3948226.94	-3948226.78	-3948226.61	0.0524	0.0364 *
Venus	-15523-11-03 18:00 J	-3948045.79	-3948045.75	-3948045.72	0.0527	0.0515
Mercury	-15521-08-23 17:45 J	-3947386.88	-3947386.76	-3947386.63	0.0525	0.0064
Mercury	-15521-11-20 22:48 J	-3947297.59	-3947297.55	-3947297.51	0.0524	0.0488
Venus	-15518-05-21 14:09 J	-3946385.93	-3946385.91	-3946385.89	0.0506	0.0502
Venus	-15517-01-12 20:24 J	-3946149.85	-3946149.65	-3946149.44	0.0502	0.0011
Venus	-15517-09-05 01:40 J	-3945913.49	-3945913.43	-3945913.38	0.0499	0.0480
Mercury	-15515-10-17 19:40 J	-3945140.85	-3945140.68	-3945140.51	0.0501	0.0197
Mars	-15515-10-18 20:38 J	-3945139.83	-3945139.64	-3945139.43	0.0501	0.0300
Venus	-15512-11-13 11:45 J	-3944018.19	-3944018.01	-3944017.82	0.0522	0.0230
Moon	-15511-05-11 12:43 J	-3943839.18	-3943838.97	-3943838.75	0.0525	0.0126

Earth	-15511-05-11 13:11 J	-3943839.18	-3943838.95	-3943838.72	0.0525	0.0101 *
Venus	-15511-07-09 07:40 J	-3943780.33	-3943780.18	-3943780.03	0.0526	0.0355
Mercury	-15509-06-11 22:04 J	-3943076.70	-3943076.58	-3943076.46	0.0526	0.0204
Mercury	-15509-09-09 02:52 J	-3942987.47	-3942987.38	-3942987.28	0.0525	0.0349
Venus	-15506-09-17 23:16 J	-3941883.72	-3941883.53	-3941883.34	0.0503	0.0144
Venus	-15505-05-11 04:19 J	-3941647.46	-3941647.32	-3941647.17	0.0500	0.0350
Mercury	-15503-08-05 16:33 J	-3940831.00	-3940830.81	-3940830.63	0.0500	0.0018
Venus	-15500-07-19 02:38 J	-3939752.52	-3939752.39	-3939752.25	0.0521	0.0388
Venus	-15499-03-13 22:19 J	-3939514.76	-3939514.57	-3939514.38	0.0525	0.0193
Mercury	-15497-03-31 02:38 J	-3938766.48	-3938766.39	-3938766.29	0.0526	0.0339
Mercury	-15497-06-28 07:40 J	-3938677.30	-3938677.18	-3938677.07	0.0525	0.0214
Venus	-15494-05-24 02:09 J	-3937617.57	-3937617.41	-3937617.24	0.0504	0.0279
Moon	-15494-10-31 22:48 J	-3937456.71	-3937456.55	-3937456.39	0.0501	0.0358
Earth	-15494-11-01 02:09 J	-3937456.55	-3937456.41	-3937456.26	0.0501	0.0388 *
Venus	-15493-01-15 07:26 J	-3937381.37	-3937381.19	-3937381.00	0.0500	0.0219
Mercury	-15491-05-24 12:43 J	-3936521.14	-3936520.97	-3936520.79	0.0500	0.0171
Venus	-15488-11-16 12:57 J	-3935249.17	-3935248.96	-3935248.76	0.0524	0.0031
Mercury	-15485-01-18 07:26 J	-3934456.24	-3934456.19	-3934456.14	0.0527	0.0471
Mercury	-15485-04-16 12:28 J	-3934367.11	-3934366.98	-3934366.86	0.0526	0.0084
Venus	-15482-01-27 04:33 J	-3933351.42	-3933351.31	-3933351.20	0.0505	0.0414
Venus	-15482-09-20 10:19 J	-3933115.27	-3933115.07	-3933114.87	0.0501	0.0083
Earth	-15482-11-05 17:02 J	-3933069.02	-3933068.79	-3933068.55	0.0500	0.0027
Moon	-15482-11-05 21:07 J	-3933068.86	-3933068.62	-3933068.38	0.0500	0.0041 *
Mercury	-15479-03-12 09:35 J	-3932211.23	-3932211.10	-3932210.96	0.0499	0.0351
Mercury	-15479-06-10 21:50 J	-3932120.70	-3932120.59	-3932120.47	0.0500	0.0392
Venus	-15476-07-22 05:31 J	-3930983.47	-3930983.27	-3930983.07	0.0523	0.0128
Venus	-15475-03-17 01:55 J	-3930745.51	-3930745.42	-3930745.31	0.0526	0.0458
Mercury	-15473-02-03 16:48 J	-3930056.92	-3930056.80	-3930056.67	0.0525	0.0056
Mercury	-15473-05-02 21:50 J	-3929967.63	-3929967.59	-3929967.55	0.0524	0.0496
Venus	-15470-05-26 09:50 J	-3928849.29	-3928849.09	-3928848.89	0.0502	0.0059

Moon	-15470-11-09 23:02 J	-3928681.68	-3928681.54	-3928681.39	0.0500	0.0395
Earth	-15470-11-10 02:52 J	-3928681.50	-3928681.38	-3928681.25	0.0500	0.0420 *
Venus	-15469-01-17 14:38 J	-3928612.99	-3928612.89	-3928612.79	0.0499	0.0433
Mercury	-15467-03-29 18:28 J	-3927810.90	-3927810.73	-3927810.56	0.0501	0.0206
Venus	-15464-03-26 22:19 J	-3926717.74	-3926717.57	-3926717.39	0.0522	0.0286
Venus	-15464-11-19 18:14 J	-3926479.90	-3926479.74	-3926479.57	0.0526	0.0301
Mercury	-15462-11-22 21:21 J	-3925746.72	-3925746.61	-3925746.49	0.0526	0.0191
Mercury	-15461-02-20 02:24 J	-3925657.49	-3925657.40	-3925657.31	0.0524	0.0362
Venus	-15458-01-29 11:45 J	-3924583.19	-3924583.01	-3924582.82	0.0503	0.0197
Venus	-15458-09-22 17:16 J	-3924346.94	-3924346.78	-3924346.62	0.0500	0.0301
Mercury	-15455-01-15 15:21 J	-3923501.04	-3923500.86	-3923500.67	0.0500	0.0028
Venus	-15453-11-29 13:26 J	-3922452.05	-3922451.94	-3922451.84	0.0520	0.0444
Venus	-15452-07-25 08:24 J	-3922214.35	-3922214.15	-3922213.95	0.0524	0.0136
Mars	-15450-08-14 06:28 J	-3921464.47	-3921464.23	-3921463.98	0.0526	0.0299
Mercury	-15450-09-11 01:40 J	-3921436.52	-3921436.43	-3921436.33	0.0526	0.0331
Mercury	-15450-12-09 06:43 J	-3921347.34	-3921347.22	-3921347.11	0.0525	0.0222
Venus	-15447-10-04 14:09 J	-3920317.05	-3920316.91	-3920316.75	0.0505	0.0334
Venus	-15446-05-28 20:09 J	-3920080.85	-3920080.66	-3920080.47	0.0501	0.0167
Mercury	-15444-11-03 12:14 J	-3919191.17	-3919190.99	-3919190.81	0.0500	0.0154
Venus	-15440-03-29 23:16 J	-3917948.73	-3917948.53	-3917948.32	0.0523	0.0028
Earth	-15440-05-06 00:28 J	-3917911.61	-3917911.48	-3917911.34	0.0524	0.0424
Moon	-15440-05-06 00:14 J	-3917911.60	-3917911.49	-3917911.36	0.0524	0.0439 *
Mercury	-15438-06-30 06:14 J	-3917126.29	-3917126.24	-3917126.18	0.0526	0.0465
Mercury	-15438-09-27 11:16 J	-3917037.15	-3917037.03	-3917036.91	0.0525	0.0088
Venus	-15435-06-09 17:02 J	-3916050.86	-3916050.79	-3916050.71	0.0506	0.0467
Venus	-15434-01-31 23:31 J	-3915814.72	-3915814.52	-3915814.32	0.0502	0.0033
Mars	-15432-07-07 12:28 J	-3914927.21	-3914926.98	-3914926.75	0.0499	0.0210
Mercury	-15432-08-22 08:52 J	-3914881.27	-3914881.13	-3914880.99	0.0499	0.0338
Mercury	-15432-11-20 21:07 J	-3914790.73	-3914790.62	-3914790.51	0.0501	0.0405
Venus	-15429-12-02 13:55 J	-3913683.11	-3913682.92	-3913682.73	0.0523	0.0190

Earth	-15428-05-10 21:35 J	-3913523.83	-3913523.60	-3913523.37	0.0525	0.0041
Moon	-15428-05-10 23:45 J	-3913523.74	-3913523.51	-3913523.27	0.0525	0.0071 *
Venus	-15428-07-28 10:04 J	-3913445.21	-3913445.08	-3913444.94	0.0526	0.0398
Mercury	-15426-07-16 16:04 J	-3912726.96	-3912726.83	-3912726.71	0.0526	0.0044
Mercury	-15426-10-13 21:07 J	-3912637.65	-3912637.62	-3912637.59	0.0525	0.0509
Venus	-15423-10-07 02:09 J	-3911548.60	-3911548.41	-3911548.21	0.0503	0.0105
Venus	-15422-05-31 06:57 J	-3911312.33	-3911312.21	-3911312.08	0.0499	0.0390
Mercury	-15420-09-08 18:00 J	-3910480.91	-3910480.75	-3910480.58	0.0500	0.0227
Venus	-15417-08-07 06:57 J	-3909417.36	-3909417.21	-3909417.05	0.0521	0.0346
Venus	-15416-04-02 03:07 J	-3909179.56	-3909179.37	-3909179.19	0.0525	0.0242
Earth	-15416-05-15 22:04 J	-3909135.60	-3909135.58	-3909135.55	0.0526	0.0522
Mercury	-15414-05-04 20:38 J	-3908416.76	-3908416.64	-3908416.52	0.0526	0.0179
Mars	-15414-05-23 11:02 J	-3908398.32	-3908398.04	-3908397.76	0.0525	0.0178
Mercury	-15414-08-02 01:40 J	-3908327.52	-3908327.43	-3908327.35	0.0524	0.0372
Venus	-15411-06-12 01:40 J	-3907282.61	-3907282.43	-3907282.26	0.0504	0.0248
Earth	-15411-10-31 08:24 J	-3907141.25	-3907141.15	-3907141.05	0.0501	0.0448
Moon	-15411-10-31 12:14 J	-3907141.11	-3907140.99	-3907140.85	0.0501	0.0414 *
Venus	-15410-02-03 06:43 J	-3907046.39	-3907046.22	-3907046.04	0.0500	0.0253
Mercury	-15408-06-27 14:24 J	-3906171.09	-3906170.90	-3906170.72	0.0501	0.0038
Venus	-15405-04-12 00:14 J	-3905151.54	-3905151.49	-3905151.43	0.0520	0.0498
Venus	-15405-12-05 19:26 J	-3904913.89	-3904913.69	-3904913.48	0.0524	0.0081
Mercury	-15402-02-21 01:11 J	-3904106.54	-3904106.45	-3904106.34	0.0526	0.0313
Mercury	-15402-05-21 06:14 J	-3904017.35	-3904017.24	-3904017.13	0.0524	0.0239
Venus	-15399-02-15 03:35 J	-3903016.48	-3903016.35	-3903016.22	0.0505	0.0385
Venus	-15399-10-09 09:21 J	-3902780.31	-3902780.11	-3902779.92	0.0501	0.0117
Moon	-15399-11-04 19:11 J	-3902753.93	-3902753.70	-3902753.46	0.0501	0.0026
Earth	-15399-11-04 23:02 J	-3902753.77	-3902753.54	-3902753.30	0.0501	0.0036 *
Mars	-15396-04-10 11:31 J	-3901866.28	-3901866.02	-3901865.77	0.0500	0.0087
Mercury	-15396-04-15 11:16 J	-3901861.21	-3901861.03	-3901860.85	0.0500	0.0142
Venus	-15393-08-10 10:04 J	-3900648.28	-3900648.08	-3900647.88	0.0523	0.0085

Venus	-15392-04-05 06:00 J	-3900410.30	-3900410.25	-3900410.19	0.0526	0.0502
Mercury	-15391-12-10 05:31 J	-3899796.33	-3899796.27	-3899796.20	0.0526	0.0453
Mercury	-15390-03-09 10:33 J	-3899707.19	-3899707.06	-3899706.94	0.0525	0.0099
Venus	-15387-06-14 12:14 J	-3898514.19	-3898513.99	-3898513.79	0.0502	0.0021
Earth	-15387-11-09 15:07 J	-3898366.02	-3898365.87	-3898365.72	0.0500	0.0383
Moon	-15387-11-09 17:31 J	-3898365.93	-3898365.77	-3898365.61	0.0500	0.0356 *
Venus	-15386-02-05 17:16 J	-3898277.84	-3898277.78	-3898277.71	0.0499	0.0472
Mercury	-15384-02-01 08:09 J	-3897551.30	-3897551.16	-3897551.01	0.0500	0.0320
Mercury	-15384-05-02 20:38 J	-3897460.73	-3897460.64	-3897460.54	0.0501	0.0425
Venus	-15381-04-15 01:11 J	-3896382.63	-3896382.45	-3896382.27	0.0522	0.0247
Venus	-15381-12-08 20:38 J	-3896144.79	-3896144.64	-3896144.48	0.0525	0.0342
Mercury	-15379-12-26 15:07 J	-3895397.00	-3895396.87	-3895396.75	0.0526	0.0037
Mercury	-15378-03-25 19:55 J	-3895307.68	-3895307.67	-3895307.65	0.0524	0.0516
Venus	-15375-02-17 15:21 J	-3894248.05	-3894247.86	-3894247.66	0.0503	0.0157
Venus	-15375-10-11 20:38 J	-3894011.78	-3894011.64	-3894011.49	0.0500	0.0343
Mercury	-15372-02-18 17:16 J	-3893150.94	-3893150.78	-3893150.61	0.0500	0.0242
Venus	-15370-12-19 15:50 J	-3892116.96	-3892116.84	-3892116.70	0.0521	0.0406
Venus	-15369-08-13 11:31 J	-3891879.21	-3891879.02	-3891878.83	0.0525	0.0180
Mercury	-15367-10-14 19:55 J	-3891086.79	-3891086.67	-3891086.56	0.0526	0.0169
Mercury	-15366-01-12 00:43 J	-3890997.55	-3890997.47	-3890997.38	0.0525	0.0385
Venus	-15364-10-23 18:00 J	-3889981.91	-3889981.75	-3889981.58	0.0504	0.0294
Venus	-15363-06-16 23:31 J	-3889745.70	-3889745.52	-3889745.33	0.0501	0.0208
Mercury	-15361-12-07 14:09 J	-3888841.09	-3888840.91	-3888840.72	0.0500	0.0063
Mars	-15360-01-12 13:26 J	-3888805.09	-3888804.94	-3888804.77	0.0501	0.0392
Venus	-15357-04-18 04:19 J	-3887613.52	-3887613.32	-3887613.11	0.0524	0.0024
Earth	-15357-05-05 13:11 J	-3887596.04	-3887595.95	-3887595.84	0.0524	0.0466
Moon	-15357-05-05 15:21 J	-3887595.96	-3887595.86	-3887595.74	0.0524	0.0465 *
Mercury	-15355-08-03 00:28 J	-3886776.58	-3886776.48	-3886776.37	0.0526	0.0301
Mercury	-15355-10-31 05:31 J	-3886687.38	-3886687.27	-3886687.16	0.0525	0.0251
Venus	-15352-06-28 17:31 J	-3885715.87	-3885715.77	-3885715.67	0.0505	0.0436

Venus	-15351-02-19 23:16 J	-3885479.73	-3885479.53	-3885479.33	0.0501	0.0067
Mercury	-15349-09-25 10:04 J	-3884531.26	-3884531.08	-3884530.89	0.0501	0.0132
Venus	-15346-12-22 21:07 J	-3883347.82	-3883347.62	-3883347.42	0.0523	0.0142
Moon	-15345-05-10 10:19 J	-3883208.30	-3883208.07	-3883207.84	0.0525	0.0046
Earth	-15345-05-10 13:55 J	-3883208.15	-3883207.92	-3883207.69	0.0525	0.0015 *
Venus	-15345-08-16 17:16 J	-3883109.88	-3883109.78	-3883109.67	0.0526	0.0449
Mercury	-15343-05-22 05:16 J	-3882466.35	-3882466.28	-3882466.21	0.0526	0.0432
Mercury	-15343-08-19 10:04 J	-3882377.20	-3882377.08	-3882376.95	0.0525	0.0119
Venus	-15340-10-26 01:40 J	-3881213.63	-3881213.43	-3881213.23	0.0502	0.0072
Venus	-15339-06-19 06:28 J	-3880977.33	-3880977.23	-3880977.12	0.0500	0.0425
Mercury	-15337-07-14 07:11 J	-3880221.35	-3880221.20	-3880221.05	0.0500	0.0309
Mercury	-15337-10-12 19:40 J	-3880130.76	-3880130.68	-3880130.59	0.0501	0.0438
Venus	-15334-08-27 12:14 J	-3879082.16	-3879081.99	-3879081.82	0.0521	0.0304
Venus	-15333-04-21 07:40 J	-3878844.35	-3878844.18	-3878844.00	0.0525	0.0287
Earth	-15333-05-15 10:19 J	-3878820.16	-3878820.07	-3878819.98	0.0525	0.0481
Moon	-15333-05-15 14:09 J	-3878820.00	-3878819.91	-3878819.82	0.0525	0.0482 *
Mercury	-15331-06-07 14:24 J	-3878067.03	-3878066.90	-3878066.77	0.0525	0.0023
Venus	-15328-07-01 04:19 J	-3876947.50	-3876947.32	-3876947.14	0.0504	0.0211
Moon	-15328-10-30 16:33 J	-3876825.90	-3876825.81	-3876825.70	0.0502	0.0453
Earth	-15328-10-30 20:38 J	-3876825.70	-3876825.64	-3876825.58	0.0502	0.0483 *
Venus	-15327-02-22 09:35 J	-3876711.26	-3876711.10	-3876710.93	0.0500	0.0292
Mercury	-15325-05-02 04:04 J	-3875911.36	-3875911.33	-3875911.28	0.0500	0.0487
Mercury	-15325-07-31 16:48 J	-3875820.96	-3875820.80	-3875820.64	0.0501	0.0260
Venus	-15322-05-02 03:21 J	-3874816.45	-3874816.36	-3874816.26	0.0520	0.0462
Venus	-15322-12-25 22:33 J	-3874578.76	-3874578.56	-3874578.36	0.0524	0.0122
Mercury	-15319-03-26 18:57 J	-3873756.83	-3873756.71	-3873756.59	0.0526	0.0158
Mercury	-15319-06-23 23:45 J	-3873667.59	-3873667.51	-3873667.42	0.0524	0.0393
Venus	-15316-03-06 07:11 J	-3872681.34	-3872681.20	-3872681.05	0.0505	0.0347
Venus	-15316-10-28 13:11 J	-3872445.15	-3872444.95	-3872444.76	0.0501	0.0159
Earth	-15316-11-04 12:57 J	-3872438.19	-3872437.96	-3872437.72	0.0501	0.0066

Moon	-15316-11-04 15:35 J	-3872438.08	-3872437.85	-3872437.63	0.0501	0.0067 *
Mars	-15314-12-29 06:00 J	-3871653.39	-3871653.25	-3871653.11	0.0499	0.0419
Mercury	-15313-05-19 13:26 J	-3871511.12	-3871510.94	-3871510.75	0.0500	0.0077
Venus	-15310-08-30 13:11 J	-3870313.16	-3870312.95	-3870312.75	0.0523	0.0043
Mercury	-15307-01-12 23:45 J	-3869446.62	-3869446.51	-3869446.41	0.0526	0.0291
Mercury	-15307-04-12 04:33 J	-3869357.42	-3869357.31	-3869357.20	0.0525	0.0262
Venus	-15305-11-09 09:35 J	-3868415.16	-3868415.10	-3868415.05	0.0506	0.0483
Venus	-15304-07-03 15:50 J	-3868179.04	-3868178.84	-3868178.64	0.0502	0.0021
Moon	-15304-11-09 04:04 J	-3868050.52	-3868050.33	-3868050.14	0.0500	0.0318
Earth	-15304-11-09 04:33 J	-3868050.48	-3868050.31	-3868050.14	0.0500	0.0349 *
Mercury	-15301-03-07 10:19 J	-3867201.25	-3867201.07	-3867200.89	0.0500	0.0104
Venus	-15298-05-05 06:00 J	-3866047.44	-3866047.25	-3866047.06	0.0522	0.0202
Venus	-15298-12-29 02:09 J	-3865809.54	-3865809.41	-3865809.27	0.0526	0.0391
Mercury	-15296-11-01 04:33 J	-3865136.38	-3865136.31	-3865136.24	0.0526	0.0421
Mars	-15296-11-09 01:11 J	-3865128.73	-3865128.45	-3865128.16	0.0526	0.0155
Mercury	-15295-01-29 09:21 J	-3865047.23	-3865047.11	-3865046.99	0.0525	0.0129
Venus	-15292-03-08 15:50 J	-3863913.04	-3863912.84	-3863912.65	0.0503	0.0124
Venus	-15292-10-30 20:24 J	-3863676.78	-3863676.65	-3863676.51	0.0500	0.0377
Mercury	-15290-12-25 06:00 J	-3862891.40	-3862891.25	-3862891.10	0.0500	0.0300
Mercury	-15289-03-24 18:28 J	-3862800.81	-3862800.73	-3862800.64	0.0501	0.0447
Venus	-15286-01-07 22:48 J	-3861781.70	-3861781.55	-3861781.40	0.0521	0.0361
Venus	-15286-09-02 18:43 J	-3861543.90	-3861543.72	-3861543.53	0.0525	0.0230
Mercury	-15284-11-17 14:09 J	-3860737.04	-3860736.91	-3860736.79	0.0525	0.0012
Venus	-15281-11-11 17:45 J	-3859646.93	-3859646.76	-3859646.59	0.0504	0.0263
Venus	-15280-07-05 22:48 J	-3859410.72	-3859410.55	-3859410.37	0.0500	0.0242
Mars	-15278-10-02 03:21 J	-3858592.61	-3858592.36	-3858592.11	0.0500	0.0126
Mercury	-15278-10-13 02:52 J	-3858581.43	-3858581.38	-3858581.33	0.0500	0.0479
Mercury	-15277-01-11 15:35 J	-3858491.01	-3858490.85	-3858490.69	0.0501	0.0269
Venus	-15275-09-12 14:09 J	-3857515.91	-3857515.91	-3857515.89	0.0520	0.0518
Moon	-15274-05-05 22:04 J	-3857280.65	-3857280.58	-3857280.51	0.0524	0.0496

Earth	-15274-05-06 01:40 J	-3857280.49	-3857280.43	-3857280.37	0.0524	0.0503
Venus	-15274-05-08 09:07 J	-3857278.32	-3857278.12	-3857277.91	0.0524	0.0065
Mercury	-15272-09-05 18:14 J	-3856426.86	-3856426.74	-3856426.62	0.0525	0.0145
Mercury	-15272-12-03 23:02 J	-3856337.61	-3856337.54	-3856337.46	0.0524	0.0406
Venus	-15269-07-17 19:55 J	-3855380.79	-3855380.67	-3855380.55	0.0505	0.0402
Venus	-15268-03-11 01:55 J	-3855144.62	-3855144.42	-3855144.22	0.0502	0.0105
Mercury	-15266-10-30 12:43 J	-3854181.16	-3854180.97	-3854180.79	0.0501	0.0091
Venus	-15262-01-11 00:00 J	-3853012.70	-3853012.50	-3853012.30	0.0523	0.0101
Earth	-15262-05-10 22:19 J	-3852892.80	-3852892.57	-3852892.34	0.0525	0.0041
Moon	-15262-05-11 02:09 J	-3852892.63	-3852892.41	-3852892.18	0.0525	0.0012 *
Venus	-15262-09-05 19:55 J	-3852774.74	-3852774.67	-3852774.60	0.0526	0.0490
Mercury	-15260-06-24 22:48 J	-3852116.66	-3852116.55	-3852116.44	0.0526	0.0281
Mars	-15260-08-17 18:43 J	-3852062.95	-3852062.72	-3852062.48	0.0525	0.0316
Mercury	-15260-09-22 03:35 J	-3852027.45	-3852027.35	-3852027.24	0.0525	0.0270
Venus	-15257-11-14 05:02 J	-3850878.49	-3850878.29	-3850878.09	0.0503	0.0033
Venus	-15256-07-08 09:50 J	-3850642.15	-3850642.09	-3850642.01	0.0500	0.0466
Mercury	-15254-08-18 09:21 J	-3849871.30	-3849871.11	-3849870.93	0.0500	0.0093
Venus	-15251-09-15 14:38 J	-3848747.07	-3848746.89	-3848746.71	0.0522	0.0265
Venus	-15250-05-11 10:19 J	-3848509.23	-3848509.07	-3848508.91	0.0525	0.0329
Moon	-15250-05-15 15:35 J	-3848504.99	-3848504.85	-3848504.71	0.0525	0.0419
Earth	-15250-05-15 18:57 J	-3848504.84	-3848504.71	-3848504.57	0.0525	0.0423 *
Mercury	-15248-04-13 03:21 J	-3847806.43	-3847806.36	-3847806.28	0.0526	0.0415
Mercury	-15248-07-11 08:24 J	-3847717.27	-3847717.15	-3847717.03	0.0525	0.0137
Venus	-15245-07-20 07:40 J	-3846612.37	-3846612.18	-3846611.99	0.0503	0.0171
Moon	-15245-10-30 11:45 J	-3846510.05	-3846510.01	-3846509.96	0.0502	0.0491
Venus	-15244-03-13 12:43 J	-3846376.12	-3846375.97	-3846375.82	0.0500	0.0333
Mercury	-15242-06-06 06:00 J	-3845561.41	-3845561.25	-3845561.09	0.0500	0.0274
Mars	-15242-07-06 05:31 J	-3845531.50	-3845531.27	-3845531.03	0.0500	0.0181
Mercury	-15242-09-04 18:14 J	-3845470.79	-3845470.74	-3845470.67	0.0501	0.0471
Venus	-15239-05-21 07:11 J	-3844481.32	-3844481.20	-3844481.08	0.0521	0.0422



Venus	-15238-01-14 02:52 J	-3844243.57	-3844243.38	-3844243.18	0.0525	0.0168
Mercury	-15236-04-29 13:11 J	-3843407.08	-3843406.95	-3843406.82	0.0525	0.0007
Venus	-15233-03-25 07:26 J	-3842346.34	-3842346.19	-3842346.03	0.0504	0.0316
Moon	-15233-11-03 19:11 J	-3842122.94	-3842122.70	-3842122.47	0.0501	0.0132
Earth	-15233-11-03 19:40 J	-3842122.90	-3842122.68	-3842122.45	0.0501	0.0121 *
Venus	-15233-11-16 12:43 J	-3842110.16	-3842109.97	-3842109.78	0.0501	0.0191
Mercury	-15230-03-25 01:26 J	-3841251.50	-3841251.44	-3841251.38	0.0500	0.0472
Mercury	-15230-06-23 14:09 J	-3841161.07	-3841160.91	-3841160.75	0.0501	0.0275
Venus	-15227-09-18 19:11 J	-3839977.90	-3839977.70	-3839977.49	0.0524	0.0012
Mercury	-15224-02-15 18:00 J	-3839096.88	-3839096.75	-3839096.63	0.0525	0.0127
Mercury	-15224-05-15 22:48 J	-3839007.62	-3839007.55	-3839007.48	0.0524	0.0423
Venus	-15222-11-29 09:07 J	-3838080.20	-3838080.12	-3838080.03	0.0505	0.0454
Venus	-15221-07-22 14:52 J	-3837844.08	-3837843.88	-3837843.68	0.0502	0.0053
Moon	-15221-11-08 08:52 J	-3837735.33	-3837735.13	-3837734.94	0.0500	0.0258
Earth	-15221-11-08 09:50 J	-3837735.28	-3837735.09	-3837734.89	0.0500	0.0288 *
Mercury	-15218-04-11 11:02 J	-3836851.22	-3836851.04	-3836850.85	0.0501	0.0096
Venus	-15215-05-24 09:50 J	-3835712.28	-3835712.09	-3835711.89	0.0522	0.0162
Venus	-15214-01-17 05:45 J	-3835474.36	-3835474.26	-3835474.14	0.0526	0.0434
Mercury	-15213-12-04 22:04 J	-3834786.69	-3834786.58	-3834786.47	0.0525	0.0268
Mercury	-15212-03-04 02:52 J	-3834697.48	-3834697.38	-3834697.27	0.0524	0.0281
Venus	-15209-03-27 17:31 J	-3833577.97	-3833577.77	-3833577.58	0.0503	0.0088
Venus	-15209-11-18 22:33 J	-3833341.68	-3833341.56	-3833341.45	0.0500	0.0414
Mercury	-15206-01-28 08:09 J	-3832541.35	-3832541.16	-3832540.98	0.0501	0.0083
Mars	-15206-04-09 02:52 J	-3832470.44	-3832470.38	-3832470.29	0.0501	0.0478
Venus	-15203-01-27 00:57 J	-3831446.62	-3831446.46	-3831446.30	0.0521	0.0324
Venus	-15203-09-21 20:24 J	-3831208.82	-3831208.65	-3831208.47	0.0525	0.0270
Mercury	-15201-09-23 02:24 J	-3830476.47	-3830476.40	-3830476.32	0.0526	0.0406
Mercury	-15201-12-21 07:11 J	-3830387.32	-3830387.20	-3830387.07	0.0525	0.0146
Venus	-15198-12-01 19:55 J	-3829311.85	-3829311.67	-3829311.49	0.0504	0.0227
Venus	-15197-07-25 01:26 J	-3829075.60	-3829075.44	-3829075.27	0.0501	0.0281

Mercury	-15195-11-16 04:33 J	-3828231.46	-3828231.31	-3828231.15	0.0500	0.0267
Mercury	-15194-02-14 17:16 J	-3828140.84	-3828140.78	-3828140.73	0.0501	0.0479
Venus	-15192-10-01 15:21 J	-3827180.93	-3827180.86	-3827180.78	0.0520	0.0484
Venus	-15191-05-27 10:33 J	-3826943.26	-3826943.06	-3826942.86	0.0524	0.0103
Mercury	-15189-10-09 12:00 J	-3826077.13	-3826077.00	-3826076.88	0.0525	0.0012
Venus	-15186-08-06 22:19 J	-3825045.70	-3825045.57	-3825045.43	0.0505	0.0366
Venus	-15185-03-30 04:04 J	-3824809.52	-3824809.33	-3824809.13	0.0501	0.0144
Mercury	-15183-09-04 01:11 J	-3823921.53	-3823921.45	-3823921.37	0.0500	0.0450
Mercury	-15183-12-03 13:55 J	-3823831.07	-3823830.92	-3823830.77	0.0501	0.0296
Venus	-15179-01-30 02:52 J	-3822677.59	-3822677.38	-3822677.18	0.0523	0.0060
Moon	-15179-05-10 04:33 J	-3822577.55	-3822577.31	-3822577.08	0.0525	0.0062
Earth	-15179-05-10 07:55 J	-3822577.40	-3822577.17	-3822576.94	0.0525	0.0093 *
Mars	-15177-04-27 08:52 J	-3821859.22	-3821859.13	-3821859.02	0.0526	0.0494
Mercury	-15177-07-28 16:48 J	-3821766.92	-3821766.80	-3821766.68	0.0525	0.0120
Mercury	-15177-10-25 21:35 J	-3821677.67	-3821677.60	-3821677.53	0.0524	0.0430
Venus	-15174-12-04 04:19 J	-3820543.53	-3820543.32	-3820543.12	0.0502	0.0011
Venus	-15173-07-27 08:24 J	-3820307.16	-3820307.15	-3820307.12	0.0499	0.0496
Mercury	-15171-09-21 09:07 J	-3819521.30	-3819521.12	-3819520.93	0.0501	0.0098
Venus	-15168-10-04 18:43 J	-3818411.90	-3818411.72	-3818411.53	0.0522	0.0225
Earth	-15167-05-15 07:11 J	-3818189.35	-3818189.20	-3818189.04	0.0526	0.0384
Moon	-15167-05-15 08:52 J	-3818189.28	-3818189.13	-3818188.97	0.0526	0.0376 *
Venus	-15167-05-30 15:07 J	-3818174.01	-3818173.87	-3818173.72	0.0526	0.0375
Mercury	-15165-05-16 21:35 J	-3817456.71	-3817456.60	-3817456.49	0.0525	0.0253
Mercury	-15165-08-14 02:24 J	-3817367.51	-3817367.40	-3817367.30	0.0524	0.0297
Venus	-15162-08-09 06:14 J	-3816277.43	-3816277.24	-3816277.05	0.0503	0.0142
Venus	-15161-04-01 10:48 J	-3816041.18	-3816041.05	-3816040.91	0.0500	0.0363
Mars	-15159-03-24 10:33 J	-3815319.24	-3815319.06	-3815318.87	0.0500	0.0346
Mercury	-15159-07-10 06:00 J	-3815211.44	-3815211.25	-3815211.06	0.0501	0.0084
Venus	-15156-06-09 09:35 J	-3814146.23	-3814146.10	-3814145.96	0.0521	0.0387
Venus	-15155-02-02 05:31 J	-3813908.46	-3813908.27	-3813908.08	0.0525	0.0209

Mercury -15153-03-05 01:40 J -3813146.51 -3813146.43 -3813146.35 0.0526 0.0396

Mercury -15153-06-02 06:28 J -3813057.35 -3813057.23 -3813057.11 0.0524 0.0153

Venus -15150-04-14 07:55 J -3812011.34 -3812011.17 -3812011.00 0.0504 0.0283

Moon -15150-11-04 03:21 J -3811807.57 -3811807.36 -3811807.15 0.0501 0.0189

Earth -15150-11-04 04:33 J -3811807.53 -3811807.31 -3811807.09 0.0501 0.0170 \*

Venus -15150-12-06 13:11 J -3811775.12 -3811774.95 -3811774.76 0.0501 0.0227

Mercury -15147-04-28 02:52 J -3810901.54 -3810901.38 -3810901.22 0.0500 0.0263

Mercury -15147-07-27 15:21 J -3810810.90 -3810810.86 -3810810.81 0.0501 0.0485

Venus -15144-10-07 19:55 J -3809642.88 -3809642.67 -3809642.47 0.0524 0.0041

Mars -15141-02-03 20:52 J -3808793.93 -3808793.63 -3808793.34 0.0525 0.0031

Mercury -15141-03-21 10:48 J -3808747.18 -3808747.05 -3808746.93 0.0525 0.0015

Venus -15139-12-18 09:35 J -3807745.20 -3807745.10 -3807744.98 0.0506 0.0423

Venus -15138-08-11 16:04 J -3807509.03 -3807508.83 -3807508.63 0.0502 0.0089

Earth -15138-11-08 19:26 J -3807419.89 -3807419.69 -3807419.48 0.0501 0.0241

Moon -15138-11-08 22:04 J -3807419.80 -3807419.58 -3807419.36 0.0501 0.0213 \*

Mercury -15135-02-13 23:16 J -3806591.60 -3806591.53 -3806591.44 0.0500 0.0447

Mercury -15135-05-15 12:00 J -3806501.15 -3806501.00 -3806500.85 0.0501 0.0299

Venus -15132-06-12 09:35 J -3805377.30 -3805377.10 -3805376.90 0.0523 0.0127

Venus -15131-02-05 05:45 J -3805139.34 -3805139.26 -3805139.17 0.0526 0.0471

Mercury -15129-01-08 15:21 J -3804436.99 -3804436.86 -3804436.74 0.0525 0.0123

Mercury -15129-04-06 20:09 J -3804347.73 -3804347.66 -3804347.59 0.0524 0.0428

Venus -15126-04-16 18:28 J -3803242.93 -3803242.73 -3803242.53 0.0503 0.0052

Venus -15126-12-08 23:16 J -3803006.62 -3803006.53 -3803006.44 0.0500 0.0450

Mars -15124-12-26 12:14 J -3802258.25 -3802257.99 -3802257.74 0.0500 0.0043

Mercury -15123-03-03 08:24 J -3802191.33 -3802191.15 -3802190.96 0.0501 0.0115

Venus -15120-02-15 01:40 J -3801111.60 -3801111.43 -3801111.26 0.0522 0.0289

Venus -15120-10-10 21:50 J -3800873.76 -3800873.59 -3800873.43 0.0525 0.0310

Mercury -15118-10-27 20:09 J -3800126.77 -3800126.66 -3800126.55 0.0526 0.0252

Mercury -15117-01-25 00:57 J -3800037.56 -3800037.46 -3800037.36 0.0524 0.0298

Venus -15115-12-20 18:43 J -3798976.90 -3798976.72 -3798976.53 0.0503 0.0197

Venus	-15114-08-13 23:16 J	-3798740.68	-3798740.53	-3798740.37	0.0500	0.0311
Mercury	-15112-12-20 03:35 J	-3797881.53	-3797881.35	-3797881.16	0.0501	0.0088
Venus	-15109-10-20 17:02 J	-3796845.89	-3796845.79	-3796845.68	0.0521	0.0451
Venus	-15108-06-15 13:11 J	-3796608.15	-3796607.95	-3796607.75	0.0525	0.0144
Mercury	-15106-08-16 00:43 J	-3795816.55	-3795816.47	-3795816.38	0.0526	0.0385
Mars	-15106-11-13 00:00 J	-3795727.65	-3795727.50	-3795727.34	0.0524	0.0446
Mercury	-15106-11-13 05:31 J	-3795727.39	-3795727.27	-3795727.15	0.0524	0.0166 *
Venus	-15103-08-25 20:24 J	-3794710.80	-3794710.65	-3794710.50	0.0504	0.0338
Venus	-15102-04-19 01:26 J	-3794474.63	-3794474.44	-3794474.25	0.0501	0.0172
Mercury	-15100-10-08 00:14 J	-3793571.65	-3793571.49	-3793571.33	0.0500	0.0270
Mercury	-15099-01-06 12:57 J	-3793481.02	-3793480.96	-3793480.91	0.0502	0.0477
Venus	-15096-02-18 03:35 J	-3792342.55	-3792342.35	-3792342.14	0.0523	0.0024
Earth	-15096-05-09 13:26 J	-3792262.16	-3792261.94	-3792261.72	0.0525	0.0158
Moon	-15096-05-09 15:35 J	-3792262.07	-3792261.85	-3792261.63	0.0525	0.0130 *
Mercury	-15094-09-01 09:35 J	-3791417.22	-3791417.10	-3791416.97	0.0525	0.0021
Venus	-15091-04-30 21:07 J	-3790444.68	-3790444.62	-3790444.56	0.0506	0.0479
Venus	-15091-12-23 03:21 J	-3790208.57	-3790208.36	-3790208.16	0.0502	0.0033
Mercury	-15088-07-26 21:07 J	-3789261.70	-3789261.62	-3789261.54	0.0500	0.0449
Mars	-15088-09-29 06:14 J	-3789197.46	-3789197.24	-3789197.02	0.0501	0.0250
Mercury	-15088-10-25 09:50 J	-3789171.24	-3789171.09	-3789170.94	0.0501	0.0298
Venus	-15085-10-23 18:00 J	-3788076.94	-3788076.75	-3788076.56	0.0522	0.0191
Moon	-15084-05-14 09:50 J	-3787874.29	-3787874.09	-3787873.88	0.0525	0.0287
Earth	-15084-05-14 09:50 J	-3787874.28	-3787874.09	-3787873.90	0.0525	0.0304 *
Venus	-15084-06-18 13:55 J	-3787839.04	-3787838.92	-3787838.79	0.0526	0.0409
Mercury	-15082-06-20 13:55 J	-3787107.04	-3787106.92	-3787106.80	0.0525	0.0121
Mercury	-15082-09-17 18:43 J	-3787017.79	-3787017.72	-3787017.65	0.0524	0.0429
Venus	-15079-08-28 05:31 J	-3785942.47	-3785942.27	-3785942.07	0.0503	0.0110
Venus	-15078-04-21 10:33 J	-3785706.18	-3785706.06	-3785705.94	0.0500	0.0397
Mercury	-15076-08-13 06:14 J	-3784861.42	-3784861.24	-3784861.05	0.0501	0.0112
Venus	-15073-06-28 07:55 J	-3783811.32	-3783811.17	-3783811.03	0.0521	0.0356

Venus	-15072-02-21 03:35 J	-3783573.53	-3783573.35	-3783573.17	0.0525	0.0242
Mercury	-15070-04-08 18:14 J	-3782796.84	-3782796.74	-3782796.63	0.0526	0.0260
Mercury	-15070-07-06 23:16 J	-3782707.64	-3782707.53	-3782707.43	0.0525	0.0292
Venus	-15067-05-03 07:26 J	-3781676.36	-3781676.19	-3781676.01	0.0504	0.0252
Earth	-15067-11-03 11:02 J	-3781492.24	-3781492.04	-3781491.83	0.0501	0.0227
Moon	-15067-11-03 13:40 J	-3781492.14	-3781491.93	-3781491.72	0.0501	0.0248 *
Venus	-15067-12-25 12:43 J	-3781440.14	-3781439.97	-3781439.79	0.0501	0.0260
Mercury	-15064-06-01 02:38 J	-3780551.58	-3780551.39	-3780551.21	0.0500	0.0076
Venus	-15061-03-02 23:31 J	-3779545.54	-3779545.52	-3779545.49	0.0520	0.0514
Venus	-15061-10-26 18:43 J	-3779307.92	-3779307.72	-3779307.51	0.0524	0.0077
Mercury	-15058-01-25 23:16 J	-3778486.62	-3778486.53	-3778486.45	0.0526	0.0390
Mercury	-15058-04-25 04:04 J	-3778397.45	-3778397.33	-3778397.21	0.0525	0.0161
Venus	-15055-01-06 08:09 J	-3777410.28	-3777410.16	-3777410.04	0.0505	0.0395
Venus	-15055-08-30 13:26 J	-3777174.14	-3777173.94	-3777173.74	0.0501	0.0117
Moon	-15055-11-07 18:43 J	-3777104.94	-3777104.72	-3777104.50	0.0500	0.0143
Earth	-15055-11-07 22:04 J	-3777104.80	-3777104.58	-3777104.36	0.0500	0.0170 *
Mercury	-15052-03-19 21:35 J	-3776241.76	-3776241.60	-3776241.44	0.0500	0.0278
Mercury	-15052-06-18 10:04 J	-3776151.14	-3776151.08	-3776151.01	0.0501	0.0468
Venus	-15049-07-01 09:35 J	-3775042.30	-3775042.10	-3775041.89	0.0523	0.0093
Venus	-15048-02-24 06:43 J	-3774804.26	-3774804.22	-3774804.17	0.0527	0.0510
Mercury	-15047-11-14 03:50 J	-3774176.35	-3774176.34	-3774176.33	0.0526	0.0523
Mercury	-15046-02-11 08:38 J	-3774087.27	-3774087.14	-3774087.01	0.0525	0.0027
Venus	-15043-05-05 15:07 J	-3772908.07	-3772907.87	-3772907.67	0.0502	0.0026
Venus	-15043-12-27 19:11 J	-3772671.75	-3772671.70	-3772671.64	0.0499	0.0476
Mercury	-15040-01-05 18:00 J	-3771931.82	-3771931.75	-3771931.68	0.0500	0.0463
Mercury	-15040-04-06 06:43 J	-3771841.37	-3771841.22	-3771841.06	0.0501	0.0285
Venus	-15037-03-06 00:28 J	-3770776.66	-3770776.48	-3770776.30	0.0522	0.0258
Venus	-15037-10-29 20:38 J	-3770538.79	-3770538.64	-3770538.48	0.0525	0.0344
Mercury	-15035-11-30 12:28 J	-3769777.10	-3769776.98	-3769776.85	0.0525	0.0121
Mercury	-15034-02-27 17:16 J	-3769687.84	-3769687.78	-3769687.70	0.0524	0.0430

Venus	-15031-01-08 16:04 J	-3768642.02	-3768641.83	-3768641.64	0.0503	0.0169
Venus	-15031-09-01 21:21 J	-3768405.76	-3768405.61	-3768405.47	0.0500	0.0341
Mercury	-15028-01-23 03:35 J	-3767531.53	-3767531.35	-3767531.16	0.0501	0.0105
Venus	-15026-11-09 15:07 J	-3766510.98	-3766510.87	-3766510.74	0.0520	0.0420
Venus	-15025-07-04 10:33 J	-3766273.25	-3766273.06	-3766272.86	0.0524	0.0177
Mars	-15023-07-22 04:33 J	-3765525.50	-3765525.31	-3765525.12	0.0526	0.0401
Mercury	-15023-09-18 16:48 J	-3765466.91	-3765466.80	-3765466.69	0.0525	0.0261
Mercury	-15023-12-16 21:35 J	-3765377.70	-3765377.60	-3765377.49	0.0524	0.0289
Venus	-15020-09-13 17:45 J	-3764375.92	-3764375.76	-3764375.60	0.0505	0.0311
Venus	-15019-05-07 23:16 J	-3764139.71	-3764139.53	-3764139.34	0.0501	0.0203
Mercury	-15017-11-11 00:00 J	-3763221.69	-3763221.50	-3763221.31	0.0500	0.0083
Venus	-15013-03-09 00:00 J	-3762007.71	-3762007.50	-3762007.30	0.0523	0.0009
Moon	-15013-05-08 11:16 J	-3761947.25	-3761947.03	-3761946.82	0.0524	0.0230
Earth	-15013-05-08 11:45 J	-3761947.21	-3761947.01	-3761946.80	0.0524	0.0254 *
Mercury	-15011-07-07 21:07 J	-3761156.70	-3761156.62	-3761156.54	0.0526	0.0402
Mercury	-15011-10-05 01:55 J	-3761067.54	-3761067.42	-3761067.30	0.0525	0.0149
Venus	-15008-05-19 19:11 J	-3760109.78	-3760109.70	-3760109.61	0.0506	0.0452
Venus	-15007-01-11 01:26 J	-3759873.64	-3759873.44	-3759873.24	0.0502	0.0063
Mars	-15005-06-17 06:28 J	-3758985.44	-3758985.23	-3758985.02	0.0499	0.0281
Mercury	-15005-08-29 20:09 J	-3758911.82	-3758911.66	-3758911.51	0.0500	0.0271
Mercury	-15005-11-28 08:24 J	-3758821.20	-3758821.15	-3758821.08	0.0501	0.0475
Venus	-15002-11-12 14:52 J	-3757742.08	-3757741.88	-3757741.69	0.0522	0.0161
Moon	-15001-05-13 07:40 J	-3757559.38	-3757559.18	-3757558.97	0.0525	0.0190
Earth	-15001-05-13 09:35 J	-3757559.31	-3757559.10	-3757558.89	0.0525	0.0213 *
Venus	-15001-07-07 11:16 J	-3757504.14	-3757504.03	-3757503.92	0.0526	0.0442

# 15TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 15th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-14999-07-24 06:43 J		-3756757.35	-3756757.22	-3756757.09	0.0525	0.0018	
Venus	-14996-09-16 02:24 J		-3755607.60	-3755607.40	-3755607.20	0.0502	0.0083	
Venus	-14995-05-10 06:28 J		-3755371.33	-3755371.23	-3755371.12	0.0499	0.0423	
Mercury	-14993-06-17 14:52 J		-3754601.93	-3754601.88	-3754601.82	0.0500	0.0474	
Mercury	-14993-09-16 03:35 J		-3754511.50	-3754511.35	-3754511.19	0.0501	0.0272	
Venus	-14990-07-18 05:02 J		-3753476.44	-3753476.29	-3753476.12	0.0522	0.0329	
Venus	-14989-03-12 01:55 J		-3753238.59	-3753238.42	-3753238.24	0.0526	0.0276	
Mars	-14987-04-30 00:28 J		-3752459.77	-3752459.48	-3752459.18	0.0526	0.0069	
Mercury	-14987-05-12 11:16 J		-3752447.15	-3752447.03	-3752446.91	0.0525	0.0117	
Mercury	-14987-08-09 16:04 J		-3752357.90	-3752357.83	-3752357.76	0.0524	0.0433	
Venus	-14984-05-22 03:35 J		-3751341.52	-3751341.35	-3751341.16	0.0503	0.0226	
Moon	-14984-11-02 07:55 J		-3751177.34	-3751177.17	-3751176.99	0.0501	0.0331	
Earth	-14984-11-02 11:16 J		-3751177.21	-3751177.03	-3751176.84	0.0501	0.0306	*
Venus	-14983-01-13 08:09 J		-3751105.32	-3751105.16	-3751104.99	0.0500	0.0286	
Mercury	-14981-07-05 00:00 J		-3750201.68	-3750201.50	-3750201.31	0.0501	0.0088	
Venus	-14978-03-22 20:24 J		-3749210.71	-3749210.65	-3749210.58	0.0520	0.0488	
Venus	-14978-11-15 16:04 J		-3748973.03	-3748972.83	-3748972.63	0.0524	0.0108	
Mercury	-14975-02-28 15:07 J		-3748136.97	-3748136.87	-3748136.76	0.0525	0.0265	
Mercury	-14975-05-28 19:55 J		-3748047.77	-3748047.67	-3748047.56	0.0524	0.0286	
Venus	-14972-01-25 03:50 J		-3747075.47	-3747075.34	-3747075.20	0.0505	0.0370	
Venus	-14972-09-18 09:35 J		-3746839.29	-3746839.10	-3746838.91	0.0501	0.0145	

Earth	-14972-11-06 23:02 J	-3746789.77	-3746789.54	-3746789.30	0.0501	0.0091
Moon	-14972-11-07 02:52 J	-3746789.61	-3746789.38	-3746789.15	0.0501	0.0072 *
Mars	-14969-03-20 21:21 J	-3745924.86	-3745924.61	-3745924.35	0.0500	0.0009
Mercury	-14969-04-22 20:52 J	-3745891.81	-3745891.63	-3745891.44	0.0501	0.0094
Venus	-14966-07-21 06:14 J	-3744707.44	-3744707.24	-3744707.03	0.0523	0.0062
Mercury	-14964-12-17 19:26 J	-3743826.77	-3743826.69	-3743826.61	0.0526	0.0406
Mercury	-14963-03-17 00:14 J	-3743737.61	-3743737.49	-3743737.37	0.0525	0.0144
Venus	-14960-05-24 11:16 J	-3742573.24	-3742573.03	-3742572.83	0.0502	0.0010
Earth	-14960-11-11 12:28 J	-3742402.00	-3742401.98	-3742401.93	0.0500	0.0493
Mercury	-14957-02-09 17:02 J	-3741581.94	-3741581.79	-3741581.63	0.0500	0.0282
Mercury	-14957-05-10 05:45 J	-3741491.33	-3741491.26	-3741491.19	0.0501	0.0464
Venus	-14954-03-25 19:40 J	-3740441.87	-3740441.68	-3740441.50	0.0522	0.0232
Venus	-14954-11-18 15:21 J	-3740204.00	-3740203.86	-3740203.71	0.0525	0.0373
Mercury	-14951-01-03 04:33 J	-3739427.44	-3739427.31	-3739427.19	0.0525	0.0019
Mars	-14951-02-04 23:02 J	-3739394.61	-3739394.54	-3739394.46	0.0525	0.0506
Venus	-14948-01-27 12:57 J	-3738307.15	-3738306.96	-3738306.76	0.0503	0.0141
Venus	-14948-09-20 18:00 J	-3738070.88	-3738070.75	-3738070.61	0.0500	0.0371
Mercury	-14946-11-28 13:11 J	-3737272.01	-3737271.95	-3737271.89	0.0500	0.0471
Mercury	-14945-02-27 01:40 J	-3737181.58	-3737181.43	-3737181.27	0.0501	0.0275
Venus	-14943-11-28 10:19 J	-3736176.20	-3736176.07	-3736175.94	0.0521	0.0396
Venus	-14942-07-24 06:00 J	-3735938.44	-3735938.25	-3735938.06	0.0525	0.0205
Mercury	-14940-10-22 09:07 J	-3735117.24	-3735117.12	-3735117.00	0.0526	0.0131
Mercury	-14939-01-19 13:55 J	-3735027.99	-3735027.92	-3735027.84	0.0524	0.0420
Venus	-14937-10-02 14:09 J	-3734041.07	-3734040.91	-3734040.74	0.0504	0.0285
Venus	-14936-05-26 19:11 J	-3733804.88	-3733804.70	-3733804.52	0.0500	0.0230
Mercury	-14934-12-15 20:52 J	-3732871.82	-3732871.63	-3732871.44	0.0500	0.0072
Mars	-14934-12-23 08:52 J	-3732864.34	-3732864.13	-3732863.92	0.0501	0.0290
Venus	-14930-03-28 20:09 J	-3731672.86	-3731672.66	-3731672.45	0.0524	0.0036
Moon	-14930-05-08 09:07 J	-3731632.28	-3731632.12	-3731631.94	0.0525	0.0333
Earth	-14930-05-08 10:33 J	-3731632.23	-3731632.06	-3731631.89	0.0525	0.0348 *



Mercury	-14928-08-10 13:40 J	-3730807.03	-3730806.93	-3730806.82	0.0526	0.0266
Mercury	-14928-11-07 18:28 J	-3730717.83	-3730717.73	-3730717.62	0.0525	0.0286
Venus	-14925-06-07 15:21 J	-3729774.96	-3729774.86	-3729774.75	0.0505	0.0427
Venus	-14924-01-29 20:38 J	-3729538.84	-3729538.64	-3729538.44	0.0501	0.0088
Mercury	-14922-10-03 17:16 J	-3728561.97	-3728561.78	-3728561.60	0.0500	0.0114
Venus	-14919-12-01 10:33 J	-3727407.25	-3727407.06	-3727406.86	0.0523	0.0134
Earth	-14918-05-13 07:26 J	-3727244.41	-3727244.19	-3727243.96	0.0525	0.0114
Moon	-14918-05-13 10:48 J	-3727244.29	-3727244.05	-3727243.82	0.0525	0.0086 *
Venus	-14918-07-27 07:11 J	-3727169.28	-3727169.20	-3727169.11	0.0526	0.0473
Mercury	-14916-05-29 17:45 J	-3726496.84	-3726496.76	-3726496.69	0.0526	0.0413
Mercury	-14916-08-26 22:33 J	-3726407.68	-3726407.56	-3726407.44	0.0525	0.0138
Venus	-14913-10-04 21:07 J	-3725272.82	-3725272.62	-3725272.42	0.0503	0.0057
Venus	-14912-05-29 01:40 J	-3725036.51	-3725036.43	-3725036.34	0.0500	0.0451
Mercury	-14910-07-22 13:55 J	-3724252.07	-3724251.92	-3724251.77	0.0500	0.0296
Mercury	-14910-10-21 02:38 J	-3724161.47	-3724161.39	-3724161.31	0.0501	0.0450
Venus	-14907-08-06 01:26 J	-3723141.60	-3723141.44	-3723141.27	0.0521	0.0299
Venus	-14906-03-31 21:21 J	-3722903.77	-3722903.61	-3722903.44	0.0525	0.0306
Mercury	-14904-06-15 02:38 J	-3722097.52	-3722097.39	-3722097.26	0.0525	0.0005
Venus	-14901-06-09 22:19 J	-3721006.75	-3721006.57	-3721006.38	0.0504	0.0202
Earth	-14901-11-01 10:19 J	-3720862.21	-3720862.07	-3720861.92	0.0502	0.0394
Moon	-14901-11-01 14:09 J	-3720862.04	-3720861.91	-3720861.78	0.0502	0.0419 *
Venus	-14900-02-01 03:35 J	-3720770.51	-3720770.35	-3720770.19	0.0500	0.0314
Mercury	-14898-05-10 10:04 J	-3719942.12	-3719942.08	-3719942.03	0.0500	0.0483
Mercury	-14898-08-08 22:48 J	-3719851.71	-3719851.55	-3719851.39	0.0501	0.0263
Venus	-14895-04-10 15:07 J	-3718875.96	-3718875.87	-3718875.77	0.0520	0.0464
Venus	-14895-12-04 10:19 J	-3718638.27	-3718638.07	-3718637.88	0.0524	0.0134
Mercury	-14892-04-03 06:43 J	-3717787.34	-3717787.22	-3717787.09	0.0525	0.0149
Mercury	-14892-07-01 11:45 J	-3717698.09	-3717698.01	-3717697.93	0.0524	0.0403
Venus	-14889-02-14 00:00 J	-3716740.65	-3716740.50	-3716740.36	0.0505	0.0345
Venus	-14889-10-07 05:31 J	-3716504.45	-3716504.27	-3716504.08	0.0501	0.0174

Moon	-14889-11-05 20:38 J	-3716474.87	-3716474.64	-3716474.40	0.0501	0.0011
Earth	-14889-11-06 00:14 J	-3716474.73	-3716474.49	-3716474.26	0.0501	0.0013 *
Mercury	-14886-05-27 18:57 J	-3715541.90	-3715541.71	-3715541.53	0.0500	0.0073
Venus	-14883-08-09 00:28 J	-3714372.68	-3714372.48	-3714372.27	0.0523	0.0036
Mercury	-14880-01-20 11:31 J	-3713477.13	-3713477.02	-3713476.92	0.0526	0.0281
Mercury	-14880-04-19 16:19 J	-3713387.93	-3713387.82	-3713387.71	0.0525	0.0270
Venus	-14878-10-20 01:26 J	-3712474.49	-3712474.44	-3712474.39	0.0506	0.0486
Venus	-14877-06-12 07:11 J	-3712238.40	-3712238.20	-3712238.00	0.0502	0.0030
Earth	-14877-11-10 12:43 J	-3712087.10	-3712086.97	-3712086.84	0.0500	0.0410
Moon	-14877-11-10 14:52 J	-3712086.99	-3712086.88	-3712086.77	0.0500	0.0437 *
Mercury	-14874-03-15 13:55 J	-3711232.10	-3711231.92	-3711231.73	0.0500	0.0129
Venus	-14871-04-13 14:24 J	-3710107.09	-3710106.90	-3710106.71	0.0522	0.0206
Venus	-14871-12-07 11:16 J	-3709869.16	-3709869.03	-3709868.90	0.0526	0.0403
Mars	-14869-10-14 10:19 J	-3709192.29	-3709192.07	-3709191.83	0.0527	0.0334
Mercury	-14869-11-08 16:04 J	-3709166.91	-3709166.83	-3709166.76	0.0526	0.0417
Mercury	-14868-02-05 20:52 J	-3709077.75	-3709077.63	-3709077.51	0.0525	0.0135
Venus	-14865-02-16 08:52 J	-3707972.33	-3707972.13	-3707971.94	0.0503	0.0115
Venus	-14865-10-09 12:57 J	-3707736.08	-3707735.96	-3707735.83	0.0499	0.0397
Mercury	-14862-01-01 10:19 J	-3706922.22	-3706922.07	-3706921.92	0.0500	0.0315
Mercury	-14862-04-01 22:48 J	-3706831.64	-3706831.55	-3706831.45	0.0501	0.0431
Venus	-14860-12-17 05:31 J	-3705841.41	-3705841.27	-3705841.12	0.0521	0.0370
Venus	-14859-08-12 01:26 J	-3705603.62	-3705603.44	-3705603.25	0.0525	0.0236
Mercury	-14857-11-25 00:43 J	-3704767.59	-3704767.47	-3704767.34	0.0525	0.0020
Venus	-14854-10-22 08:24 J	-3703706.32	-3703706.15	-3703705.98	0.0504	0.0261
Venus	-14853-06-14 13:26 J	-3703470.11	-3703469.94	-3703469.76	0.0501	0.0256
Mars	-14851-09-10 08:24 J	-3702652.37	-3702652.15	-3702651.92	0.0500	0.0242
Mercury	-14851-10-20 06:43 J	-3702612.22	-3702612.22	-3702612.20	0.0500	0.0498
Mercury	-14850-01-18 19:40 J	-3702521.84	-3702521.68	-3702521.52	0.0501	0.0249
Venus	-14847-04-16 16:19 J	-3701338.03	-3701337.82	-3701337.62	0.0524	0.0067
Earth	-14847-05-07 08:09 J	-3701317.28	-3701317.16	-3701317.04	0.0524	0.0447

Moon	-14847-05-07 10:48 J	-3701317.17	-3701317.05	-3701316.91	0.0524	0.0434 *
Mercury	-14845-09-13 05:02 J	-3700457.41	-3700457.29	-3700457.17	0.0525	0.0154
Mercury	-14845-12-11 09:50 J	-3700368.17	-3700368.09	-3700368.01	0.0524	0.0395
Venus	-14842-06-27 09:07 J	-3699440.24	-3699440.12	-3699440.00	0.0506	0.0406
Venus	-14841-02-18 15:07 J	-3699204.06	-3699203.87	-3699203.67	0.0502	0.0114
Mercury	-14839-11-06 16:04 J	-3698212.02	-3698211.83	-3698211.65	0.0501	0.0062
Venus	-14836-12-20 05:16 J	-3697072.48	-3697072.28	-3697072.08	0.0522	0.0107
Moon	-14835-05-11 22:48 J	-3696929.78	-3696929.55	-3696929.32	0.0525	0.0027
Earth	-14835-05-12 02:38 J	-3696929.62	-3696929.39	-3696929.16	0.0525	0.0007 *
Venus	-14835-08-15 01:26 J	-3696834.50	-3696834.44	-3696834.38	0.0526	0.0499
Mercury	-14833-07-02 09:07 J	-3696147.22	-3696147.12	-3696147.01	0.0526	0.0298
Mars	-14833-07-22 07:55 J	-3696127.46	-3696127.17	-3696126.88	0.0526	0.0104
Mercury	-14833-09-29 13:55 J	-3696058.03	-3696057.92	-3696057.81	0.0525	0.0253
Venus	-14830-10-24 17:02 J	-3694937.99	-3694937.79	-3694937.59	0.0503	0.0031
Venus	-14829-06-16 21:50 J	-3694701.64	-3694701.59	-3694701.54	0.0500	0.0480
Mercury	-14827-08-25 12:00 J	-3693902.18	-3693902.00	-3693901.82	0.0500	0.0128
Venus	-14824-08-24 19:40 J	-3692806.85	-3692806.68	-3692806.50	0.0521	0.0275
Venus	-14823-04-19 15:35 J	-3692569.01	-3692568.85	-3692568.69	0.0525	0.0333
Earth	-14823-05-16 22:48 J	-3692541.66	-3692541.55	-3692541.44	0.0526	0.0463
Moon	-14823-05-17 02:38 J	-3692541.51	-3692541.39	-3692541.26	0.0526	0.0442 *
Mercury	-14821-04-20 13:40 J	-3691836.99	-3691836.93	-3691836.86	0.0526	0.0433
Mercury	-14821-07-18 18:43 J	-3691747.85	-3691747.72	-3691747.60	0.0525	0.0120
Venus	-14818-06-29 18:57 J	-3690671.89	-3690671.71	-3690671.52	0.0503	0.0174
Moon	-14818-11-01 08:09 J	-3690547.17	-3690547.16	-3690547.14	0.0501	0.0500
Earth	-14818-11-01 11:31 J	-3690547.09	-3690547.02	-3690546.93	0.0501	0.0471
Venus	-14817-02-20 23:31 J	-3690435.66	-3690435.52	-3690435.36	0.0500	0.0342
Mercury	-14815-06-13 07:11 J	-3689592.34	-3689592.20	-3689592.05	0.0500	0.0327
Mars	-14815-06-13 21:35 J	-3689591.85	-3689591.60	-3689591.34	0.0500	0.0045
Mercury	-14815-09-11 19:55 J	-3689501.77	-3689501.67	-3689501.57	0.0501	0.0418
Venus	-14812-04-29 09:35 J	-3688541.21	-3688541.10	-3688540.99	0.0520	0.0440

Venus	-14812-12-23 05:16 J	-3688303.47	-3688303.28	-3688303.08	0.0525	0.0164
Mercury	-14809-05-06 23:16 J	-3687437.66	-3687437.53	-3687437.41	0.0526	0.0017
Venus	-14806-03-04 20:38 J	-3686405.80	-3686405.64	-3686405.49	0.0505	0.0318
Venus	-14806-10-27 01:26 J	-3686169.62	-3686169.44	-3686169.25	0.0501	0.0202
Earth	-14806-11-06 00:28 J	-3686159.71	-3686159.48	-3686159.25	0.0501	0.0070
Moon	-14806-11-06 02:52 J	-3686159.61	-3686159.38	-3686159.15	0.0501	0.0080 *
Mercury	-14803-06-30 16:19 J	-3685191.99	-3685191.82	-3685191.65	0.0501	0.0233
Venus	-14800-08-27 20:24 J	-3684037.85	-3684037.65	-3684037.44	0.0523	0.0012
Mercury	-14797-02-24 03:07 J	-3683127.48	-3683127.37	-3683127.25	0.0525	0.0163
Mercury	-14797-05-23 08:09 J	-3683038.25	-3683038.16	-3683038.08	0.0524	0.0388
Venus	-14795-11-07 19:11 J	-3682139.77	-3682139.70	-3682139.62	0.0506	0.0465
Venus	-14794-07-02 01:26 J	-3681903.64	-3681903.44	-3681903.24	0.0502	0.0055
Moon	-14794-11-10 09:07 J	-3681772.29	-3681772.12	-3681771.93	0.0500	0.0343
Earth	-14794-11-10 10:33 J	-3681772.24	-3681772.06	-3681771.88	0.0500	0.0318 *
Mercury	-14791-04-18 12:57 J	-3680882.15	-3680881.96	-3680881.77	0.0501	0.0050
Venus	-14788-05-02 11:45 J	-3679772.20	-3679772.01	-3679771.81	0.0522	0.0173
Venus	-14788-12-26 07:55 J	-3679534.28	-3679534.17	-3679534.06	0.0525	0.0436
Mercury	-14786-12-13 07:26 J	-3678817.29	-3678817.19	-3678817.08	0.0526	0.0303
Mercury	-14785-03-11 12:14 J	-3678728.10	-3678727.99	-3678727.88	0.0524	0.0248
Venus	-14782-03-07 02:52 J	-3677637.58	-3677637.38	-3677637.18	0.0503	0.0090
Venus	-14782-10-29 07:55 J	-3677401.28	-3677401.17	-3677401.07	0.0500	0.0425
Mercury	-14779-02-04 09:21 J	-3676572.29	-3676572.11	-3676571.93	0.0500	0.0136
Mars	-14779-03-17 18:28 J	-3676530.91	-3676530.73	-3676530.54	0.0501	0.0340
Venus	-14776-01-05 01:26 J	-3675506.59	-3675506.44	-3675506.28	0.0520	0.0343
Venus	-14776-08-30 20:52 J	-3675268.81	-3675268.63	-3675268.45	0.0524	0.0264
Mercury	-14774-10-01 11:31 J	-3674507.08	-3674507.02	-3674506.95	0.0526	0.0446
Mercury	-14774-12-29 16:33 J	-3674417.94	-3674417.81	-3674417.69	0.0525	0.0105
Venus	-14771-11-10 04:33 J	-3673371.48	-3673371.31	-3673371.13	0.0504	0.0235
Venus	-14770-07-04 10:04 J	-3673135.25	-3673135.08	-3673134.91	0.0501	0.0286
Mercury	-14768-11-23 05:16 J	-3672262.41	-3672262.28	-3672262.13	0.0500	0.0325

Mercury	-14767-02-21 18:00 J	-3672171.85	-3672171.75	-3672171.65	0.0501	0.0421
Venus	-14765-09-09 16:04 J	-3671240.86	-3671240.83	-3671240.77	0.0519	0.0506
Venus	-14764-05-05 11:02 J	-3671003.24	-3671003.04	-3671002.84	0.0524	0.0094
Mercury	-14762-10-17 21:07 J	-3670107.75	-3670107.62	-3670107.50	0.0526	0.0030
Mercury	-14761-01-15 01:55 J	-3670018.43	-3670018.42	-3670018.41	0.0524	0.0521
Venus	-14759-07-16 06:43 J	-3669105.35	-3669105.22	-3669105.08	0.0505	0.0377
Venus	-14758-03-09 12:28 J	-3668869.17	-3668868.98	-3668868.79	0.0501	0.0145
Mercury	-14756-12-10 13:40 J	-3667862.10	-3667861.93	-3667861.76	0.0500	0.0225
Venus	-14752-01-08 00:57 J	-3666737.67	-3666737.46	-3666737.26	0.0523	0.0078
Earth	-14752-05-11 00:00 J	-3666614.72	-3666614.50	-3666614.27	0.0525	0.0098
Moon	-14752-05-11 04:04 J	-3666614.55	-3666614.33	-3666614.10	0.0525	0.0126 *
Mercury	-14750-08-06 01:40 J	-3665797.55	-3665797.43	-3665797.31	0.0526	0.0164
Mercury	-14750-11-03 06:28 J	-3665708.31	-3665708.23	-3665708.14	0.0525	0.0387
Venus	-14747-11-12 14:24 J	-3664603.11	-3664602.90	-3664602.70	0.0502	0.0008
Mercury	-14744-09-28 10:04 J	-3663552.27	-3663552.08	-3663551.89	0.0500	0.0041
Venus	-14741-09-12 16:33 J	-3662471.99	-3662471.81	-3662471.62	0.0521	0.0244
Venus	-14740-05-08 12:43 J	-3662234.11	-3662233.97	-3662233.82	0.0525	0.0368
Moon	-14740-05-15 19:11 J	-3662226.87	-3662226.70	-3662226.52	0.0525	0.0348
Earth	-14740-05-15 22:33 J	-3662226.72	-3662226.56	-3662226.39	0.0525	0.0367 *
Mercury	-14738-05-25 05:45 J	-3661487.36	-3661487.26	-3661487.16	0.0526	0.0308
Mercury	-14738-08-22 10:33 J	-3661398.17	-3661398.06	-3661397.95	0.0524	0.0242
Venus	-14735-07-18 13:40 J	-3660337.12	-3660336.93	-3660336.74	0.0504	0.0148
Venus	-14734-03-11 18:43 J	-3660100.85	-3660100.72	-3660100.58	0.0500	0.0370
Mars	-14732-03-01 22:19 J	-3659379.62	-3659379.57	-3659379.52	0.0499	0.0489
Mercury	-14732-07-17 06:28 J	-3659242.40	-3659242.23	-3659242.04	0.0500	0.0146
Venus	-14729-05-18 08:52 J	-3658206.26	-3658206.13	-3658206.00	0.0520	0.0406
Venus	-14728-01-11 04:04 J	-3657968.52	-3657968.33	-3657968.14	0.0524	0.0200
Mercury	-14726-03-13 10:04 J	-3657177.14	-3657177.08	-3657177.01	0.0526	0.0446
Mercury	-14726-06-10 14:52 J	-3657088.00	-3657087.88	-3657087.75	0.0525	0.0105
Venus	-14723-03-23 14:52 J	-3656071.04	-3656070.88	-3656070.72	0.0505	0.0294

Moon	-14723-11-04 21:50 J	-3655844.82	-3655844.59	-3655844.36	0.0501	0.0169
Earth	-14723-11-04 23:16 J	-3655844.75	-3655844.53	-3655844.31	0.0501	0.0160 *
Venus	-14723-11-14 20:24 J	-3655834.82	-3655834.65	-3655834.47	0.0501	0.0230
Mercury	-14720-05-05 03:07 J	-3654932.51	-3654932.37	-3654932.23	0.0500	0.0329
Mercury	-14720-08-03 15:50 J	-3654841.94	-3654841.84	-3654841.74	0.0501	0.0418
Venus	-14717-09-15 17:45 J	-3653702.97	-3653702.76	-3653702.56	0.0523	0.0028
Mars	-14714-01-07 01:40 J	-3652859.66	-3652859.43	-3652859.17	0.0526	0.0293
Mercury	-14714-03-29 19:11 J	-3652777.83	-3652777.70	-3652777.58	0.0525	0.0039
Mercury	-14714-06-27 00:00 J	-3652688.52	-3652688.50	-3652688.47	0.0524	0.0510
Venus	-14712-11-26 16:04 J	-3651804.92	-3651804.83	-3651804.73	0.0506	0.0439
Venus	-14711-07-20 22:48 J	-3651568.75	-3651568.55	-3651568.35	0.0502	0.0086
Moon	-14711-11-09 13:26 J	-3651457.13	-3651456.94	-3651456.75	0.0501	0.0274
Earth	-14711-11-09 13:40 J	-3651457.13	-3651456.93	-3651456.72	0.0501	0.0247 *
Mercury	-14708-05-22 12:00 J	-3650532.16	-3650532.00	-3650531.83	0.0501	0.0232
Venus	-14705-05-21 07:55 J	-3649437.37	-3649437.17	-3649436.97	0.0522	0.0145
Venus	-14704-01-14 03:50 J	-3649199.43	-3649199.34	-3649199.25	0.0525	0.0467
Mercury	-14702-01-15 23:45 J	-3648467.63	-3648467.51	-3648467.39	0.0526	0.0174
Mercury	-14702-04-15 04:33 J	-3648378.39	-3648378.31	-3648378.22	0.0525	0.0377
Venus	-14699-03-26 01:26 J	-3647302.64	-3647302.44	-3647302.24	0.0503	0.0058
Venus	-14699-11-17 06:14 J	-3647066.32	-3647066.24	-3647066.16	0.0500	0.0458
Mars	-14697-12-03 18:43 J	-3646318.96	-3646318.72	-3646318.49	0.0499	0.0194
Mercury	-14696-03-10 07:55 J	-3646222.36	-3646222.17	-3646221.98	0.0500	0.0039
Venus	-14693-01-24 22:04 J	-3645171.74	-3645171.58	-3645171.41	0.0521	0.0313
Venus	-14693-09-18 18:00 J	-3644933.91	-3644933.75	-3644933.58	0.0525	0.0299
Mercury	-14691-11-04 04:19 J	-3644157.42	-3644157.32	-3644157.21	0.0526	0.0308
Mercury	-14690-02-01 09:21 J	-3644068.22	-3644068.11	-3644068.00	0.0525	0.0244
Venus	-14688-11-29 03:21 J	-3643036.55	-3643036.36	-3643036.18	0.0504	0.0203
Venus	-14687-07-23 08:24 J	-3642800.30	-3642800.15	-3642799.99	0.0500	0.0319
Mercury	-14685-12-27 04:33 J	-3641912.49	-3641912.31	-3641912.13	0.0500	0.0146
Venus	-14682-09-29 14:24 J	-3640905.97	-3640905.90	-3640905.80	0.0519	0.0474

Venus	-14681-05-24 09:50 J	-3640668.29	-3640668.09	-3640667.89	0.0524	0.0132
Mercury	-14679-08-23 08:38 J	-3639847.20	-3639847.14	-3639847.07	0.0526	0.0449
Mars	-14679-10-15 19:40 J	-3639793.96	-3639793.68	-3639793.40	0.0525	0.0172
Mercury	-14679-11-20 13:26 J	-3639758.06	-3639757.94	-3639757.81	0.0525	0.0103
Venus	-14676-08-04 02:09 J	-3638770.55	-3638770.41	-3638770.26	0.0505	0.0352
Venus	-14675-03-28 08:09 J	-3638534.35	-3638534.16	-3638533.97	0.0502	0.0174
Mercury	-14673-10-15 00:43 J	-3637602.60	-3637602.47	-3637602.32	0.0500	0.0333
Mercury	-14672-01-13 13:26 J	-3637512.04	-3637511.94	-3637511.83	0.0501	0.0415
Venus	-14669-01-28 01:55 J	-3636402.63	-3636402.42	-3636402.21	0.0523	0.0037
Moon	-14669-05-10 01:55 J	-3636299.63	-3636299.42	-3636299.19	0.0524	0.0198
Earth	-14669-05-10 05:45 J	-3636299.48	-3636299.26	-3636299.04	0.0524	0.0167 *
Mercury	-14667-09-08 18:00 J	-3635447.87	-3635447.75	-3635447.62	0.0525	0.0035
Mercury	-14667-12-06 22:48 J	-3635358.57	-3635358.55	-3635358.53	0.0524	0.0512
Venus	-14664-04-09 03:07 J	-3634504.41	-3634504.37	-3634504.33	0.0507	0.0497
Venus	-14664-12-01 09:50 J	-3634268.29	-3634268.09	-3634267.89	0.0503	0.0029
Mars	-14661-09-06 17:02 J	-3633258.04	-3633257.79	-3633257.54	0.0500	0.0102
Mercury	-14661-11-01 10:19 J	-3633202.24	-3633202.07	-3633201.90	0.0501	0.0232
Venus	-14658-10-02 16:04 J	-3632137.02	-3632136.83	-3632136.64	0.0521	0.0209
Earth	-14657-05-15 00:57 J	-3631911.65	-3631911.46	-3631911.26	0.0525	0.0286
Moon	-14657-05-15 02:52 J	-3631911.57	-3631911.38	-3631911.19	0.0525	0.0280 *
Venus	-14657-05-27 11:31 J	-3631899.15	-3631899.02	-3631898.89	0.0525	0.0404
Mercury	-14655-06-27 22:19 J	-3631137.69	-3631137.57	-3631137.46	0.0525	0.0178
Mercury	-14655-09-25 03:07 J	-3631048.46	-3631048.37	-3631048.29	0.0524	0.0372
Venus	-14652-08-06 12:14 J	-3630002.19	-3630001.99	-3630001.80	0.0504	0.0117
Venus	-14651-03-30 17:31 J	-3629765.89	-3629765.77	-3629765.65	0.0501	0.0404
Mercury	-14649-08-20 06:43 J	-3628892.41	-3628892.22	-3628892.03	0.0501	0.0048
Venus	-14646-06-07 06:43 J	-3627871.36	-3627871.22	-3627871.07	0.0520	0.0376
Venus	-14645-01-31 01:55 J	-3627633.60	-3627633.42	-3627633.24	0.0524	0.0234
Mercury	-14643-04-16 02:38 J	-3626827.48	-3626827.39	-3626827.28	0.0526	0.0313
Mercury	-14643-07-14 07:40 J	-3626738.29	-3626738.18	-3626738.07	0.0525	0.0239

Venus	-14640-04-11 14:38 J	-3625736.06	-3625735.89	-3625735.71	0.0505	0.0261
Earth	-14640-11-04 06:43 J	-3625529.43	-3625529.22	-3625529.01	0.0502	0.0215
Moon	-14640-11-04 06:28 J	-3625529.43	-3625529.23	-3625529.02	0.0502	0.0220 *
Venus	-14640-12-03 20:24 J	-3625499.82	-3625499.65	-3625499.48	0.0501	0.0265
Mercury	-14637-06-08 02:52 J	-3624582.56	-3624582.38	-3624582.20	0.0500	0.0142
Venus	-14634-10-05 16:19 J	-3623368.03	-3623367.82	-3623367.62	0.0523	0.0064
Mercury	-14631-02-02 07:26 J	-3622517.25	-3622517.19	-3622517.12	0.0526	0.0445
Mercury	-14631-05-02 12:14 J	-3622428.11	-3622427.99	-3622427.86	0.0525	0.0107
Venus	-14629-12-15 16:33 J	-3621469.93	-3621469.81	-3621469.69	0.0506	0.0405
Venus	-14628-08-08 22:48 J	-3621233.74	-3621233.55	-3621233.35	0.0502	0.0123
Earth	-14628-11-08 20:52 J	-3621141.84	-3621141.63	-3621141.41	0.0501	0.0190
Moon	-14628-11-08 23:02 J	-3621141.75	-3621141.54	-3621141.31	0.0501	0.0219 *
Mercury	-14625-03-26 23:16 J	-3620272.67	-3620272.53	-3620272.38	0.0500	0.0325
Mars	-14625-06-10 13:26 J	-3620197.09	-3620196.94	-3620196.79	0.0501	0.0401
Mercury	-14625-06-25 12:00 J	-3620182.10	-3620182.00	-3620181.90	0.0501	0.0421
Venus	-14622-06-10 08:24 J	-3619102.35	-3619102.15	-3619101.95	0.0522	0.0105
Venus	-14621-02-03 04:48 J	-3618864.35	-3618864.30	-3618864.25	0.0526	0.0510
Mercury	-14619-02-18 16:48 J	-3618117.93	-3618117.80	-3618117.68	0.0525	0.0035
Mercury	-14619-05-18 21:35 J	-3618028.62	-3618028.60	-3618028.58	0.0524	0.0515
Venus	-14616-04-13 22:04 J	-3616967.78	-3616967.58	-3616967.37	0.0503	0.0030
Venus	-14616-12-06 02:52 J	-3616731.41	-3616731.38	-3616731.33	0.0500	0.0490
Mercury	-14613-04-13 08:24 J	-3615872.31	-3615872.15	-3615871.98	0.0501	0.0235
Venus	-14610-02-13 01:26 J	-3614836.62	-3614836.44	-3614836.27	0.0521	0.0271
Venus	-14610-10-08 20:52 J	-3614598.78	-3614598.63	-3614598.47	0.0525	0.0344
Mercury	-14608-12-07 21:21 J	-3613807.73	-3613807.61	-3613807.49	0.0525	0.0169
Mercury	-14607-03-07 02:09 J	-3613718.50	-3613718.41	-3613718.33	0.0524	0.0380
Venus	-14605-12-17 23:45 J	-3612701.70	-3612701.51	-3612701.32	0.0504	0.0174
Venus	-14604-08-11 05:16 J	-3612465.42	-3612465.28	-3612465.13	0.0501	0.0352
Mercury	-14601-01-31 05:16 J	-3611562.47	-3611562.28	-3611562.09	0.0501	0.0053
Venus	-14599-10-18 16:19 J	-3610570.93	-3610570.82	-3610570.71	0.0519	0.0437



Venus	-14598-06-13 10:48 J	-3610333.24	-3610333.05	-3610332.85	0.0523	0.0172
Mercury	-14596-09-26 01:26 J	-3609497.54	-3609497.44	-3609497.33	0.0525	0.0310
Mercury	-14596-12-24 06:14 J	-3609408.35	-3609408.24	-3609408.12	0.0524	0.0240
Venus	-14593-08-23 01:55 J	-3608435.57	-3608435.42	-3608435.26	0.0506	0.0320
Venus	-14592-04-16 08:09 J	-3608199.34	-3608199.16	-3608198.98	0.0502	0.0209
Mercury	-14590-11-19 01:55 J	-3607252.60	-3607252.42	-3607252.24	0.0500	0.0129
Venus	-14586-02-16 01:40 J	-3606067.64	-3606067.43	-3606067.22	0.0522	0.0001
Earth	-14586-05-10 09:21 J	-3605984.31	-3605984.11	-3605983.90	0.0524	0.0241
Moon	-14586-05-10 11:31 J	-3605984.21	-3605984.02	-3605983.82	0.0524	0.0271 *
Mercury	-14584-07-15 06:14 J	-3605187.31	-3605187.24	-3605187.18	0.0526	0.0444
Mercury	-14584-10-12 11:02 J	-3605098.17	-3605098.04	-3605097.92	0.0525	0.0107
Venus	-14581-04-28 04:19 J	-3604169.40	-3604169.32	-3604169.24	0.0507	0.0463
Venus	-14581-12-20 11:16 J	-3603933.23	-3603933.03	-3603932.83	0.0503	0.0067
Mars	-14578-05-27 01:26 J	-3603045.57	-3603045.44	-3603045.30	0.0499	0.0420
Mercury	-14578-09-06 22:04 J	-3602942.72	-3602942.58	-3602942.43	0.0500	0.0316
Mercury	-14578-12-06 10:48 J	-3602852.14	-3602852.05	-3602851.95	0.0501	0.0429
Venus	-14575-10-21 16:04 J	-3601802.02	-3601801.83	-3601801.63	0.0521	0.0172
Moon	-14574-05-15 06:00 J	-3601596.46	-3601596.25	-3601596.02	0.0525	0.0214
Earth	-14574-05-15 06:14 J	-3601596.45	-3601596.24	-3601596.03	0.0525	0.0214 *
Venus	-14574-06-16 12:00 J	-3601564.11	-3601564.00	-3601563.89	0.0525	0.0445
Mercury	-14572-07-31 15:35 J	-3600787.97	-3600787.85	-3600787.72	0.0525	0.0031
Mercury	-14572-10-28 20:38 J	-3600698.64	-3600698.64	-3600698.64	0.0524	0.0524
Venus	-14569-08-25 13:40 J	-3599667.12	-3599666.93	-3599666.73	0.0504	0.0079
Venus	-14568-04-18 18:43 J	-3599430.80	-3599430.72	-3599430.62	0.0500	0.0443
Mercury	-14566-06-25 18:43 J	-3598632.73	-3598632.72	-3598632.70	0.0500	0.0497
Mercury	-14566-09-24 07:26 J	-3598542.35	-3598542.19	-3598542.02	0.0501	0.0249
Venus	-14563-06-26 09:07 J	-3597536.28	-3597536.12	-3597535.97	0.0520	0.0336
Venus	-14562-02-19 04:33 J	-3597298.48	-3597298.31	-3597298.13	0.0524	0.0280
Mars	-14560-04-02 15:21 J	-3596525.13	-3596524.86	-3596524.58	0.0526	0.0192
Mercury	-14560-05-19 20:09 J	-3596477.77	-3596477.66	-3596477.54	0.0525	0.0163

Mercury	-14560-08-17 00:57 J	-3596388.54	-3596388.46	-3596388.37	0.0524	0.0386
Venus	-14557-04-30 12:43 J	-3595401.14	-3595400.97	-3595400.79	0.0505	0.0231
Earth	-14557-11-03 10:48 J	-3595214.24	-3595214.05	-3595213.86	0.0502	0.0283
Moon	-14557-11-03 12:43 J	-3595214.17	-3595213.97	-3595213.77	0.0502	0.0278 *
Venus	-14557-12-22 18:28 J	-3595164.89	-3595164.73	-3595164.57	0.0501	0.0298
Mercury	-14554-07-13 03:50 J	-3594232.53	-3594232.34	-3594232.15	0.0501	0.0060
Venus	-14551-03-01 02:24 J	-3593270.45	-3593270.40	-3593270.34	0.0519	0.0497
Venus	-14551-10-24 21:07 J	-3593032.82	-3593032.62	-3593032.42	0.0523	0.0111
Mercury	-14548-03-08 00:57 J	-3592167.56	-3592167.46	-3592167.36	0.0525	0.0295
Mercury	-14548-06-05 05:45 J	-3592078.37	-3592078.26	-3592078.15	0.0524	0.0253
Venus	-14545-01-04 14:09 J	-3591135.04	-3591134.91	-3591134.77	0.0506	0.0377
Venus	-14545-08-27 20:38 J	-3590898.83	-3590898.64	-3590898.44	0.0502	0.0155
Moon	-14545-11-07 21:35 J	-3590826.82	-3590826.60	-3590826.38	0.0501	0.0150
Earth	-14545-11-08 00:57 J	-3590826.68	-3590826.46	-3590826.23	0.0501	0.0121 *
Mars	-14542-02-28 00:57 J	-3589984.71	-3589984.46	-3589984.21	0.0500	0.0122
Mercury	-14542-05-01 00:43 J	-3589922.65	-3589922.47	-3589922.29	0.0501	0.0121
Venus	-14539-06-29 11:45 J	-3588767.21	-3588767.01	-3588766.80	0.0522	0.0062
Mercury	-14537-12-25 05:16 J	-3587857.35	-3587857.28	-3587857.21	0.0526	0.0436
Mercury	-14536-03-24 10:04 J	-3587768.21	-3587768.08	-3587767.96	0.0525	0.0114
Venus	-14533-05-02 23:16 J	-3586632.73	-3586632.53	-3586632.32	0.0503	0.0013
Mercury	-14530-02-16 21:21 J	-3585612.76	-3585612.61	-3585612.46	0.0500	0.0301
Mercury	-14530-05-18 10:19 J	-3585522.16	-3585522.07	-3585521.99	0.0501	0.0447
Venus	-14527-03-04 02:52 J	-3584501.56	-3584501.38	-3584501.19	0.0521	0.0233
Venus	-14527-10-27 22:04 J	-3584263.71	-3584263.58	-3584263.44	0.0525	0.0384
Mars	-14524-01-09 08:24 J	-3583459.40	-3583459.15	-3583458.90	0.0525	0.0282
Mercury	-14524-01-10 14:38 J	-3583458.02	-3583457.89	-3583457.77	0.0525	0.0024
Venus	-14521-01-07 02:24 J	-3582366.60	-3582366.40	-3582366.21	0.0504	0.0135
Venus	-14521-08-30 07:55 J	-3582130.29	-3582130.17	-3582130.04	0.0501	0.0393
Mercury	-14519-12-05 17:45 J	-3581302.79	-3581302.76	-3581302.71	0.0500	0.0485
Mercury	-14518-03-06 06:43 J	-3581212.38	-3581212.22	-3581212.06	0.0501	0.0261

Venus	-14516-11-06 17:45 J	-3580235.89	-3580235.76	-3580235.63	0.0520	0.0400
Venus	-14515-07-02 12:43 J	-3579998.16	-3579997.97	-3579997.79	0.0524	0.0214
Mercury	-14513-10-29 19:26 J	-3579147.81	-3579147.69	-3579147.57	0.0526	0.0154
Mercury	-14512-01-27 00:14 J	-3579058.57	-3579058.49	-3579058.41	0.0524	0.0397
Venus	-14510-09-12 04:48 J	-3578100.47	-3578100.30	-3578100.13	0.0505	0.0281
Venus	-14509-05-05 10:48 J	-3577864.23	-3577864.05	-3577863.88	0.0502	0.0251
Mars	-14507-12-02 03:50 J	-3576923.58	-3576923.34	-3576923.10	0.0500	0.0185
Mercury	-14507-12-23 03:21 J	-3576902.54	-3576902.36	-3576902.17	0.0501	0.0081
Venus	-14503-03-07 05:31 J	-3575732.47	-3575732.27	-3575732.06	0.0523	0.0046
Moon	-14503-05-09 20:09 J	-3575668.85	-3575668.66	-3575668.47	0.0524	0.0318
Earth	-14503-05-09 20:24 J	-3575668.84	-3575668.65	-3575668.46	0.0524	0.0289 *
Mercury	-14501-08-18 00:00 J	-3574837.60	-3574837.50	-3574837.39	0.0525	0.0286
Mercury	-14501-11-15 04:48 J	-3574748.41	-3574748.30	-3574748.19	0.0524	0.0262
Venus	-14498-05-18 03:50 J	-3573834.44	-3573834.34	-3573834.24	0.0506	0.0432
Venus	-14497-01-09 10:19 J	-3573598.27	-3573598.07	-3573597.87	0.0502	0.0101
Mercury	-14495-10-10 23:31 J	-3572592.71	-3572592.52	-3572592.34	0.0501	0.0112
Venus	-14492-11-09 22:19 J	-3571466.76	-3571466.57	-3571466.36	0.0522	0.0124
Moon	-14491-05-14 19:26 J	-3571280.90	-3571280.69	-3571280.48	0.0525	0.0190
Earth	-14491-05-14 20:52 J	-3571280.84	-3571280.63	-3571280.41	0.0525	0.0183 *
Venus	-14491-07-05 18:14 J	-3571228.80	-3571228.74	-3571228.67	0.0525	0.0496
Mercury	-14489-06-06 04:48 J	-3570527.38	-3570527.30	-3570527.23	0.0525	0.0418
Mercury	-14489-09-03 09:21 J	-3570438.23	-3570438.11	-3570437.98	0.0524	0.0132
Venus	-14486-09-14 12:28 J	-3569332.18	-3569331.98	-3569331.78	0.0503	0.0046
Venus	-14485-05-07 17:45 J	-3569095.82	-3569095.76	-3569095.70	0.0500	0.0478
Mercury	-14483-07-29 20:24 J	-3568282.80	-3568282.65	-3568282.50	0.0501	0.0290
Mercury	-14483-10-28 09:07 J	-3568192.19	-3568192.12	-3568192.04	0.0502	0.0459
Venus	-14480-07-15 13:40 J	-3567201.10	-3567200.93	-3567200.76	0.0520	0.0294
Venus	-14479-03-10 08:52 J	-3566963.29	-3566963.13	-3566962.97	0.0524	0.0325
Mercury	-14477-06-22 13:55 J	-3566128.05	-3566127.92	-3566127.80	0.0525	0.0022
Venus	-14474-05-20 14:52 J	-3565066.07	-3565065.88	-3565065.70	0.0505	0.0193

Moon	-14474-11-03 18:57 J	-3564898.89	-3564898.71	-3564898.53	0.0502	0.0310
Earth	-14474-11-03 22:04 J	-3564898.75	-3564898.58	-3564898.39	0.0502	0.0323 *
Venus	-14473-01-11 20:38 J	-3564829.78	-3564829.64	-3564829.49	0.0501	0.0339
Mercury	-14471-05-17 17:16 J	-3563972.84	-3563972.78	-3563972.72	0.0500	0.0469
Mercury	-14471-08-16 06:00 J	-3563882.40	-3563882.25	-3563882.09	0.0501	0.0280
Mars	-14471-09-05 04:33 J	-3563862.35	-3563862.31	-3563862.24	0.0502	0.0488
Venus	-14468-03-20 05:31 J	-3562935.37	-3562935.27	-3562935.18	0.0519	0.0458
Venus	-14468-11-12 23:45 J	-3562697.71	-3562697.51	-3562697.32	0.0523	0.0153
Mercury	-14465-04-10 18:28 J	-3561817.85	-3561817.73	-3561817.61	0.0525	0.0145
Mercury	-14465-07-08 23:02 J	-3561728.61	-3561728.54	-3561728.45	0.0524	0.0405
Venus	-14462-01-23 17:31 J	-3560799.92	-3560799.77	-3560799.62	0.0506	0.0338
Venus	-14462-09-17 00:14 J	-3560563.68	-3560563.49	-3560563.31	0.0502	0.0198
Earth	-14462-11-08 14:38 J	-3560511.12	-3560510.89	-3560510.66	0.0501	0.0089
Moon	-14462-11-08 18:28 J	-3560510.95	-3560510.73	-3560510.50	0.0501	0.0119 *
Mercury	-14459-06-04 02:38 J	-3559572.57	-3559572.39	-3559572.20	0.0501	0.0096
Venus	-14456-07-18 14:24 J	-3558432.11	-3558431.90	-3558431.70	0.0522	0.0021
Mercury	-14453-01-28 23:02 J	-3557507.64	-3557507.54	-3557507.43	0.0526	0.0277
Mercury	-14453-04-27 03:50 J	-3557418.44	-3557418.34	-3557418.23	0.0525	0.0274
Venus	-14451-09-28 19:40 J	-3556533.73	-3556533.68	-3556533.62	0.0507	0.0483
Venus	-14450-05-23 02:52 J	-3556297.58	-3556297.38	-3556297.18	0.0503	0.0053
Moon	-14450-11-13 02:09 J	-3556123.45	-3556123.41	-3556123.35	0.0501	0.0488
Earth	-14450-11-13 06:00 J	-3556123.28	-3556123.25	-3556123.21	0.0501	0.0495
Mercury	-14447-03-22 23:31 J	-3555262.71	-3555262.52	-3555262.33	0.0500	0.0085
Venus	-14444-03-23 07:26 J	-3554166.38	-3554166.19	-3554166.00	0.0521	0.0187
Venus	-14444-11-16 03:07 J	-3553928.48	-3553928.37	-3553928.25	0.0525	0.0435
Mars	-14442-09-20 06:28 J	-3553255.23	-3553255.23	-3553255.23	0.0526	0.0526
Mercury	-14442-11-17 04:04 J	-3553197.41	-3553197.33	-3553197.26	0.0525	0.0407
Mercury	-14441-02-14 08:38 J	-3553108.26	-3553108.14	-3553108.02	0.0524	0.0142
Venus	-14438-01-26 02:24 J	-3552031.59	-3552031.40	-3552031.20	0.0504	0.0101
Venus	-14438-09-19 07:40 J	-3551795.28	-3551795.18	-3551795.07	0.0501	0.0427

Mercury	-14435-01-08 19:11 J	-3550952.85	-3550952.70	-3550952.54	0.0501	0.0280
Mercury	-14435-04-09 08:09 J	-3550862.22	-3550862.16	-3550862.10	0.0502	0.0470
Venus	-14433-11-26 00:28 J	-3549900.63	-3549900.48	-3549900.33	0.0520	0.0354
Venus	-14432-07-21 19:55 J	-3549662.85	-3549662.67	-3549662.49	0.0524	0.0266
Mercury	-14430-12-03 13:26 J	-3548798.06	-3548797.94	-3548797.81	0.0524	0.0015
Venus	-14427-10-01 04:19 J	-3547765.49	-3547765.32	-3547765.14	0.0505	0.0249
Venus	-14426-05-25 10:04 J	-3547529.24	-3547529.08	-3547528.91	0.0501	0.0285
Mars	-14424-08-20 15:50 J	-3546711.03	-3546710.84	-3546710.65	0.0500	0.0337
Mercury	-14424-10-27 16:04 J	-3546642.90	-3546642.83	-3546642.75	0.0501	0.0459
Mercury	-14423-01-26 05:02 J	-3546552.44	-3546552.29	-3546552.13	0.0502	0.0292
Venus	-14421-07-31 16:33 J	-3545634.81	-3545634.81	-3545634.80	0.0519	0.0518
Venus	-14420-03-26 10:48 J	-3545397.25	-3545397.05	-3545396.85	0.0523	0.0093
Moon	-14420-05-09 07:55 J	-3545353.34	-3545353.17	-3545353.01	0.0523	0.0354
Earth	-14420-05-09 09:21 J	-3545353.29	-3545353.11	-3545352.93	0.0523	0.0323 *
Mercury	-14418-09-21 17:45 J	-3544487.88	-3544487.76	-3544487.64	0.0525	0.0130
Mercury	-14418-12-19 22:33 J	-3544398.63	-3544398.56	-3544398.49	0.0524	0.0417
Venus	-14415-06-06 06:14 J	-3543499.36	-3543499.24	-3543499.11	0.0506	0.0396
Venus	-14414-01-28 12:57 J	-3543263.15	-3543262.96	-3543262.77	0.0503	0.0141
Mercury	-14412-11-14 02:09 J	-3542242.59	-3542242.41	-3542242.22	0.0501	0.0113
Venus	-14409-11-29 01:55 J	-3541131.63	-3541131.42	-3541131.22	0.0522	0.0081
Earth	-14408-05-14 06:28 J	-3540965.45	-3540965.23	-3540965.01	0.0524	0.0132
Moon	-14408-05-14 09:21 J	-3540965.33	-3540965.11	-3540964.88	0.0524	0.0146 *
Mars	-14406-06-28 22:33 J	-3540189.85	-3540189.56	-3540189.26	0.0525	0.0054
Mercury	-14406-07-10 22:19 J	-3540177.68	-3540177.57	-3540177.46	0.0525	0.0265
Mercury	-14406-10-08 03:07 J	-3540088.47	-3540088.37	-3540088.26	0.0524	0.0284
Venus	-14403-10-03 16:04 J	-3538997.03	-3538996.83	-3538996.62	0.0504	0.0012
Mercury	-14400-09-01 22:48 J	-3537932.74	-3537932.55	-3537932.36	0.0501	0.0070
Venus	-14397-08-03 16:33 J	-3536865.98	-3536865.81	-3536865.62	0.0520	0.0253
Venus	-14396-03-29 12:00 J	-3536628.14	-3536628.00	-3536627.85	0.0524	0.0371
Mercury	-14394-04-29 03:07 J	-3535867.45	-3535867.37	-3535867.29	0.0526	0.0398

Mercury	-14394-07-27 07:55 J	-3535778.29	-3535778.17	-3535778.05	0.0525	0.0152
Venus	-14391-06-08 18:43 J	-3534730.91	-3534730.72	-3534730.53	0.0504	0.0151
Earth	-14391-11-03 12:14 J	-3534583.15	-3534582.99	-3534582.82	0.0502	0.0352
Moon	-14391-11-03 16:19 J	-3534583.00	-3534582.82	-3534582.64	0.0502	0.0327 *
Venus	-14390-01-31 00:14 J	-3534494.61	-3534494.49	-3534494.35	0.0501	0.0382
Mars	-14388-05-24 21:07 J	-3533649.88	-3533649.62	-3533649.36	0.0500	0.0026
Mercury	-14388-06-20 19:26 J	-3533622.85	-3533622.69	-3533622.52	0.0500	0.0252
Mercury	-14388-09-19 08:09 J	-3533532.18	-3533532.16	-3533532.13	0.0501	0.0496
Venus	-14385-04-08 09:50 J	-3532600.21	-3532600.09	-3532599.97	0.0519	0.0416
Venus	-14385-12-02 04:48 J	-3532362.49	-3532362.30	-3532362.11	0.0524	0.0203
Mercury	-14382-05-15 12:43 J	-3531468.10	-3531467.97	-3531467.84	0.0524	0.0022
Venus	-14379-02-11 18:43 J	-3530464.88	-3530464.72	-3530464.57	0.0505	0.0305
Venus	-14379-10-06 00:14 J	-3530228.66	-3530228.49	-3530228.31	0.0502	0.0233
Moon	-14379-11-07 18:43 J	-3530195.95	-3530195.72	-3530195.48	0.0501	0.0065
Earth	-14379-11-07 22:33 J	-3530195.80	-3530195.56	-3530195.33	0.0501	0.0037 *
Mercury	-14376-04-08 15:07 J	-3529312.95	-3529312.87	-3529312.79	0.0501	0.0448
Mercury	-14376-07-08 04:04 J	-3529222.48	-3529222.33	-3529222.18	0.0502	0.0302
Venus	-14373-08-06 21:21 J	-3528096.81	-3528096.61	-3528096.40	0.0523	0.0033
Mercury	-14370-03-03 17:31 J	-3527157.89	-3527157.77	-3527157.65	0.0525	0.0109
Mars	-14370-04-07 05:02 J	-3527123.45	-3527123.29	-3527123.11	0.0524	0.0430
Mercury	-14370-05-31 22:04 J	-3527068.64	-3527068.58	-3527068.51	0.0523	0.0438
Venus	-14368-10-17 20:09 J	-3526198.75	-3526198.66	-3526198.57	0.0506	0.0451
Venus	-14367-06-11 02:38 J	-3525962.59	-3525962.39	-3525962.19	0.0503	0.0086
Earth	-14367-11-12 12:43 J	-3525808.07	-3525807.97	-3525807.85	0.0501	0.0439
Moon	-14367-11-12 15:21 J	-3525807.98	-3525807.86	-3525807.75	0.0501	0.0430 *
Mercury	-14364-04-26 00:57 J	-3524912.64	-3524912.46	-3524912.28	0.0501	0.0123
Venus	-14361-04-11 12:43 J	-3523831.16	-3523830.97	-3523830.77	0.0521	0.0143
Venus	-14361-12-05 08:24 J	-3523593.23	-3523593.15	-3523593.07	0.0525	0.0481
Mercury	-14359-12-20 21:50 J	-3522847.70	-3522847.59	-3522847.48	0.0525	0.0249
Mercury	-14358-03-20 02:24 J	-3522758.50	-3522758.40	-3522758.29	0.0524	0.0298

Venus	-14355-02-14 05:02 J	-3521696.49	-3521696.29	-3521696.09	0.0504	0.0062
Venus	-14355-10-08 10:19 J	-3521460.13	-3521460.07	-3521459.99	0.0501	0.0469
Mercury	-14352-02-11 22:04 J	-3520602.77	-3520602.58	-3520602.39	0.0501	0.0055
Mars	-14352-02-25 21:21 J	-3520588.82	-3520588.61	-3520588.40	0.0501	0.0277
Venus	-14350-12-16 04:04 J	-3519565.49	-3519565.33	-3519565.16	0.0520	0.0313
Venus	-14349-08-09 23:02 J	-3519327.70	-3519327.54	-3519327.37	0.0524	0.0310
Mercury	-14347-10-09 02:24 J	-3518537.49	-3518537.40	-3518537.32	0.0525	0.0385
Mercury	-14346-01-06 06:57 J	-3518448.33	-3518448.21	-3518448.09	0.0524	0.0164
Venus	-14344-10-20 07:40 J	-3517430.36	-3517430.18	-3517429.99	0.0505	0.0209
Venus	-14343-06-13 13:40 J	-3517194.08	-3517193.93	-3517193.77	0.0501	0.0329
Mercury	-14341-11-30 18:43 J	-3516292.89	-3516292.72	-3516292.56	0.0501	0.0238
Venus	-14338-08-20 19:11 J	-3515299.77	-3515299.70	-3515299.62	0.0519	0.0480
Venus	-14337-04-14 13:40 J	-3515062.13	-3515061.93	-3515061.73	0.0523	0.0137
Earth	-14337-05-08 18:14 J	-3515037.90	-3515037.74	-3515037.58	0.0523	0.0376
Moon	-14337-05-08 21:07 J	-3515037.77	-3515037.62	-3515037.46	0.0523	0.0400 *
Mercury	-14335-07-28 06:57 J	-3514227.23	-3514227.21	-3514227.19	0.0526	0.0519
Mercury	-14335-10-25 11:45 J	-3514138.14	-3514138.01	-3514137.89	0.0525	0.0030
Venus	-14332-06-25 10:19 J	-3513164.22	-3513164.07	-3513163.93	0.0506	0.0356
Venus	-14331-02-16 16:33 J	-3512927.99	-3512927.81	-3512927.62	0.0502	0.0184
Mercury	-14329-09-18 15:21 J	-3511982.96	-3511982.86	-3511982.76	0.0500	0.0419
Mercury	-14329-12-18 04:04 J	-3511892.47	-3511892.33	-3511892.18	0.0501	0.0329
Venus	-14326-12-19 06:14 J	-3510796.45	-3510796.24	-3510796.04	0.0522	0.0035
Moon	-14325-05-13 14:52 J	-3510650.10	-3510649.88	-3510649.65	0.0524	0.0107
Earth	-14325-05-13 18:43 J	-3510649.95	-3510649.72	-3510649.49	0.0524	0.0090 *
Mercury	-14323-08-13 16:48 J	-3509827.93	-3509827.80	-3509827.68	0.0525	0.0101
Mercury	-14323-11-10 21:21 J	-3509738.67	-3509738.61	-3509738.54	0.0523	0.0448
Venus	-14320-10-22 16:48 J	-3508662.00	-3508661.80	-3508661.60	0.0503	0.0032
Mercury	-14317-10-05 23:45 J	-3507582.70	-3507582.51	-3507582.33	0.0501	0.0131
Venus	-14314-08-23 22:48 J	-3506530.74	-3506530.55	-3506530.36	0.0521	0.0206
Venus	-14313-04-17 18:43 J	-3506292.83	-3506292.72	-3506292.59	0.0525	0.0422

Mercury	-14311-06-01 21:21 J	-3505517.72	-3505517.61	-3505517.49	0.0525	0.0230
Mercury	-14311-08-30 02:09 J	-3505428.51	-3505428.41	-3505428.31	0.0524	0.0317
Venus	-14308-06-27 18:43 J	-3504395.91	-3504395.72	-3504395.52	0.0504	0.0118
Moon	-14308-11-02 15:21 J	-3504268.00	-3504267.86	-3504267.70	0.0502	0.0381
Earth	-14308-11-02 19:11 J	-3504267.84	-3504267.70	-3504267.56	0.0502	0.0405 *
Venus	-14307-02-18 23:45 J	-3504159.62	-3504159.51	-3504159.40	0.0501	0.0415
Mercury	-14305-07-24 20:38 J	-3503272.83	-3503272.64	-3503272.46	0.0501	0.0050
Venus	-14302-04-28 14:24 J	-3502265.03	-3502264.90	-3502264.75	0.0520	0.0376
Venus	-14302-12-22 09:21 J	-3502027.28	-3502027.11	-3502026.92	0.0524	0.0249
Mercury	-14299-03-21 01:40 J	-3501207.52	-3501207.43	-3501207.34	0.0525	0.0370
Mercury	-14299-06-18 06:28 J	-3501118.35	-3501118.23	-3501118.11	0.0524	0.0177
Venus	-14296-03-02 20:38 J	-3500129.81	-3500129.64	-3500129.47	0.0505	0.0267
Venus	-14296-10-25 02:24 J	-3499893.56	-3499893.40	-3499893.22	0.0502	0.0273
Earth	-14296-11-07 09:50 J	-3499880.32	-3499880.09	-3499879.85	0.0502	0.0010
Moon	-14296-11-07 12:14 J	-3499880.21	-3499879.99	-3499879.76	0.0502	0.0023 *
Mercury	-14293-05-12 17:31 J	-3498962.93	-3498962.77	-3498962.60	0.0501	0.0227
Venus	-14290-08-27 00:28 J	-3497761.69	-3497761.48	-3497761.28	0.0523	0.0074
Mars	-14288-12-15 14:38 J	-3496920.08	-3496919.89	-3496919.68	0.0526	0.0384
Mercury	-14287-01-07 06:14 J	-3496897.27	-3496897.24	-3496897.21	0.0525	0.0507
Mercury	-14287-04-06 10:48 J	-3496808.17	-3496808.05	-3496807.92	0.0524	0.0045
Venus	-14285-11-05 22:33 J	-3495863.67	-3495863.56	-3495863.44	0.0507	0.0416
Venus	-14284-06-30 05:31 J	-3495627.47	-3495627.27	-3495627.08	0.0503	0.0127
Moon	-14284-11-12 01:11 J	-3495492.60	-3495492.45	-3495492.29	0.0501	0.0385
Earth	-14284-11-12 01:40 J	-3495492.57	-3495492.43	-3495492.29	0.0501	0.0404 *
Mercury	-14281-02-29 14:09 J	-3494653.01	-3494652.91	-3494652.80	0.0500	0.0409
Mercury	-14281-05-30 03:07 J	-3494562.51	-3494562.37	-3494562.23	0.0501	0.0339
Venus	-14278-05-01 14:38 J	-3493496.09	-3493495.89	-3493495.68	0.0521	0.0103
Venus	-14278-12-25 10:19 J	-3493258.07	-3493258.07	-3493258.05	0.0525	0.0524
Mercury	-14275-01-23 15:35 J	-3492497.98	-3492497.85	-3492497.73	0.0525	0.0095
Mercury	-14275-04-22 20:09 J	-3492408.71	-3492408.66	-3492408.59	0.0524	0.0454



Venus	-14272-03-05 08:09 J	-3491361.36	-3491361.16	-3491360.96	0.0504	0.0021
Mars	-14270-11-15 10:04 J	-3490376.30	-3490376.08	-3490375.85	0.0500	0.0242
Mercury	-14269-03-17 23:31 J	-3490252.69	-3490252.52	-3490252.34	0.0501	0.0157
Venus	-14266-01-04 07:11 J	-3489230.37	-3489230.20	-3489230.02	0.0521	0.0272
Venus	-14266-08-30 02:38 J	-3488992.53	-3488992.39	-3488992.23	0.0524	0.0357
Mercury	-14264-11-11 20:24 J	-3488187.76	-3488187.65	-3488187.53	0.0525	0.0223
Mercury	-14263-02-09 01:11 J	-3488098.55	-3488098.45	-3488098.35	0.0524	0.0325
Venus	-14261-11-08 08:24 J	-3487095.34	-3487095.15	-3487094.96	0.0504	0.0175
Venus	-14260-07-02 13:26 J	-3486859.08	-3486858.94	-3486858.80	0.0501	0.0362
Mercury	-14257-01-04 18:57 J	-3485942.90	-3485942.71	-3485942.52	0.0501	0.0045
Venus	-14255-09-08 23:31 J	-3484964.63	-3484964.52	-3484964.41	0.0520	0.0441
Venus	-14254-05-04 18:43 J	-3484726.91	-3484726.72	-3484726.52	0.0524	0.0184
Moon	-14254-05-09 03:21 J	-3484722.48	-3484722.36	-3484722.23	0.0524	0.0435
Earth	-14254-05-09 07:11 J	-3484722.34	-3484722.20	-3484722.06	0.0524	0.0411 *
Mercury	-14252-08-31 01:11 J	-3483877.54	-3483877.45	-3483877.36	0.0525	0.0353
Mars	-14252-09-23 18:57 J	-3483854.00	-3483853.71	-3483853.42	0.0525	0.0098
Mercury	-14252-11-28 06:00 J	-3483788.37	-3483788.25	-3483788.14	0.0524	0.0194
Venus	-14249-07-14 10:04 J	-3482829.23	-3482829.08	-3482828.92	0.0505	0.0324
Venus	-14248-03-07 15:35 J	-3482593.03	-3482592.85	-3482592.66	0.0502	0.0217
Mercury	-14246-10-23 15:35 J	-3481633.02	-3481632.85	-3481632.68	0.0501	0.0226
Venus	-14242-01-07 09:35 J	-3480461.30	-3480461.10	-3480460.89	0.0522	0.0014
Earth	-14242-05-14 04:33 J	-3480334.54	-3480334.31	-3480334.08	0.0524	0.0044
Moon	-14242-05-14 07:55 J	-3480334.39	-3480334.17	-3480333.94	0.0524	0.0073 *
Mercury	-14240-06-19 05:16 J	-3479567.31	-3479567.28	-3479567.24	0.0525	0.0495
Mercury	-14240-09-16 10:04 J	-3479478.20	-3479478.08	-3479477.95	0.0524	0.0052
Venus	-14237-03-19 11:02 J	-3478563.10	-3478563.04	-3478562.97	0.0507	0.0474
Venus	-14237-11-10 18:00 J	-3478326.95	-3478326.75	-3478326.55	0.0503	0.0069
Mercury	-14234-08-11 12:28 J	-3477323.08	-3477322.98	-3477322.86	0.0501	0.0404
Mars	-14234-08-19 07:40 J	-3477315.43	-3477315.18	-3477314.92	0.0501	0.0059
Mercury	-14234-11-10 01:26 J	-3477232.57	-3477232.44	-3477232.30	0.0502	0.0347

Venus	-14231-09-12 00:43 J	-3476195.66	-3476195.47	-3476195.27	0.0521	0.0167
Venus	-14230-05-07 20:09 J	-3475957.75	-3475957.66	-3475957.56	0.0525	0.0463
Moon	-14230-05-18 23:02 J	-3475946.58	-3475946.54	-3475946.48	0.0525	0.0513
Earth	-14230-05-19 01:26 J	-3475946.51	-3475946.44	-3475946.36	0.0525	0.0497 *
Mercury	-14228-07-05 14:24 J	-3475168.02	-3475167.90	-3475167.77	0.0525	0.0088
Mercury	-14228-10-02 19:11 J	-3475078.76	-3475078.70	-3475078.64	0.0523	0.0460
Venus	-14225-07-16 20:09 J	-3474060.85	-3474060.66	-3474060.46	0.0504	0.0081
Earth	-14225-11-02 05:31 J	-3473952.37	-3473952.27	-3473952.17	0.0502	0.0448
Moon	-14225-11-02 07:40 J	-3473952.29	-3473952.18	-3473952.05	0.0502	0.0422 *
Venus	-14224-03-10 01:40 J	-3473824.51	-3473824.43	-3473824.35	0.0501	0.0455
Mercury	-14222-08-28 22:04 J	-3472922.76	-3472922.58	-3472922.40	0.0501	0.0162
Venus	-14219-05-17 15:07 J	-3471930.03	-3471929.87	-3471929.72	0.0520	0.0340
Venus	-14218-01-10 10:04 J	-3471692.25	-3471692.08	-3471691.91	0.0524	0.0288
Mercury	-14216-04-23 18:57 J	-3470857.82	-3470857.71	-3470857.59	0.0525	0.0223
Mercury	-14216-07-21 23:45 J	-3470768.61	-3470768.51	-3470768.41	0.0524	0.0326
Venus	-14213-03-21 22:33 J	-3469794.74	-3469794.56	-3469794.38	0.0505	0.0230
Moon	-14213-11-06 19:55 J	-3469564.91	-3469564.67	-3469564.42	0.0502	0.0029
Earth	-14213-11-06 20:24 J	-3469564.88	-3469564.65	-3469564.41	0.0502	0.0044 *
Venus	-14213-11-13 04:04 J	-3469558.48	-3469558.33	-3469558.16	0.0501	0.0312
Mercury	-14210-06-16 18:28 J	-3468612.92	-3468612.73	-3468612.54	0.0501	0.0025
Venus	-14207-01-20 07:40 J	-3467664.23	-3467664.18	-3467664.14	0.0519	0.0505
Venus	-14207-09-15 02:09 J	-3467426.61	-3467426.41	-3467426.21	0.0523	0.0115
Mercury	-14204-02-10 00:00 J	-3466547.59	-3466547.50	-3466547.41	0.0525	0.0351
Mercury	-14204-05-10 04:48 J	-3466458.42	-3466458.30	-3466458.19	0.0524	0.0197
Venus	-14202-11-25 23:02 J	-3465528.67	-3465528.54	-3465528.41	0.0506	0.0383
Venus	-14201-07-19 04:48 J	-3465292.49	-3465292.30	-3465292.11	0.0502	0.0160
Moon	-14201-11-11 05:31 J	-3465177.44	-3465177.27	-3465177.10	0.0500	0.0320
Earth	-14201-11-11 07:11 J	-3465177.37	-3465177.20	-3465177.03	0.0500	0.0345 *
Mercury	-14198-04-04 13:26 J	-3464303.10	-3464302.94	-3464302.77	0.0501	0.0227
Mars	-14198-05-23 00:14 J	-3464254.67	-3464254.49	-3464254.30	0.0501	0.0350

Venus	-14195-05-20 17:31 J	-3463160.98	-3463160.77	-3463160.57	0.0522	0.0061
Mercury	-14193-11-29 04:33 J	-3462237.35	-3462237.31	-3462237.26	0.0525	0.0483
Mercury	-14192-02-26 09:21 J	-3462148.23	-3462148.11	-3462147.98	0.0524	0.0067
Venus	-14189-03-24 06:43 J	-3461026.42	-3461026.22	-3461026.02	0.0503	0.0011
Mercury	-14186-01-21 10:04 J	-3459993.18	-3459993.08	-3459992.97	0.0501	0.0409
Mercury	-14186-04-21 23:02 J	-3459902.67	-3459902.54	-3459902.40	0.0502	0.0342
Venus	-14183-01-23 08:52 J	-3458895.31	-3458895.13	-3458894.95	0.0521	0.0234
Venus	-14183-09-18 04:33 J	-3458657.44	-3458657.31	-3458657.17	0.0525	0.0397
Mercury	-14181-12-15 13:26 J	-3457838.06	-3457837.94	-3457837.81	0.0524	0.0081
Mercury	-14180-03-14 18:14 J	-3457748.79	-3457748.74	-3457748.68	0.0523	0.0467
Venus	-14178-11-28 08:09 J	-3456760.36	-3456760.16	-3456759.97	0.0504	0.0141
Venus	-14177-07-21 13:11 J	-3456524.06	-3456523.95	-3456523.82	0.0501	0.0398
Mercury	-14174-02-07 20:09 J	-3455592.84	-3455592.66	-3455592.48	0.0501	0.0163
Venus	-14172-09-28 00:14 J	-3454629.62	-3454629.49	-3454629.36	0.0519	0.0405
Earth	-14171-05-08 11:45 J	-3454407.10	-3454407.01	-3454406.92	0.0523	0.0479
Moon	-14171-05-08 15:21 J	-3454406.93	-3454406.86	-3454406.78	0.0523	0.0490 *
Venus	-14171-05-23 18:57 J	-3454391.89	-3454391.71	-3454391.52	0.0523	0.0222
Mercury	-14169-10-03 18:00 J	-3453527.87	-3453527.75	-3453527.64	0.0525	0.0217
Mercury	-14169-12-31 22:33 J	-3453438.65	-3453438.56	-3453438.46	0.0524	0.0330
Venus	-14166-08-03 09:50 J	-3452494.25	-3452494.09	-3452493.93	0.0506	0.0291
Venus	-14165-03-26 15:50 J	-3452258.01	-3452257.84	-3452257.66	0.0502	0.0253
Mercury	-14163-11-26 16:33 J	-3451283.00	-3451282.81	-3451282.62	0.0501	0.0023
Venus	-14159-01-26 08:38 J	-3450126.34	-3450126.14	-3450125.93	0.0522	0.0044
Moon	-14159-05-13 04:33 J	-3450019.55	-3450019.31	-3450019.07	0.0524	0.0006
Earth	-14159-05-13 07:11 J	-3450019.43	-3450019.20	-3450018.97	0.0524	0.0034 *
Mercury	-14157-07-22 22:19 J	-3449217.66	-3449217.57	-3449217.48	0.0525	0.0355
Mercury	-14157-10-20 03:07 J	-3449128.49	-3449128.37	-3449128.26	0.0524	0.0193
Venus	-14154-04-08 11:16 J	-3448228.12	-3448228.03	-3448227.92	0.0507	0.0442
Venus	-14154-11-30 18:14 J	-3447991.94	-3447991.74	-3447991.54	0.0503	0.0104
Mars	-14151-05-07 11:02 J	-3447103.12	-3447103.04	-3447102.95	0.0499	0.0470

Mercury	-14151-09-14 12:43 J	-3446973.14	-3446972.97	-3446972.79	0.0501	0.0211
Venus	-14148-10-01 00:14 J	-3445860.69	-3445860.49	-3445860.29	0.0521	0.0131
Earth	-14147-05-18 05:45 J	-3445631.39	-3445631.26	-3445631.12	0.0525	0.0425
Moon	-14147-05-18 06:28 J	-3445631.34	-3445631.23	-3445631.10	0.0525	0.0441 *
Venus	-14147-05-26 20:09 J	-3445622.71	-3445622.66	-3445622.60	0.0525	0.0501
Mercury	-14145-05-11 03:07 J	-3444907.41	-3444907.37	-3444907.32	0.0526	0.0485
Mercury	-14145-08-08 07:55 J	-3444818.29	-3444818.17	-3444818.05	0.0524	0.0063
Venus	-14142-08-05 19:11 J	-3443725.90	-3443725.70	-3443725.50	0.0503	0.0049
Moon	-14142-11-02 09:35 J	-3443637.17	-3443637.10	-3443637.03	0.0502	0.0479
Venus	-14141-03-28 23:31 J	-3443489.56	-3443489.52	-3443489.47	0.0500	0.0485
Mercury	-14139-07-03 07:40 J	-3442663.28	-3442663.18	-3442663.07	0.0500	0.0414
Mercury	-14139-10-01 20:38 J	-3442572.78	-3442572.64	-3442572.50	0.0502	0.0336
Venus	-14136-06-05 15:07 J	-3441595.04	-3441594.87	-3441594.70	0.0521	0.0306
Venus	-14135-01-29 11:16 J	-3441357.19	-3441357.03	-3441356.87	0.0525	0.0328
Mars	-14133-03-11 14:24 J	-3440585.15	-3440584.90	-3440584.64	0.0526	0.0258
Mercury	-14133-05-27 12:43 J	-3440508.10	-3440507.97	-3440507.85	0.0525	0.0072
Mercury	-14133-08-24 17:16 J	-3440418.83	-3440418.78	-3440418.73	0.0523	0.0476
Venus	-14130-04-10 20:38 J	-3439459.83	-3439459.64	-3439459.46	0.0504	0.0200
Moon	-14130-11-06 21:35 J	-3439249.82	-3439249.60	-3439249.37	0.0501	0.0107
Earth	-14130-11-06 23:16 J	-3439249.76	-3439249.53	-3439249.30	0.0501	0.0113 *
Venus	-14130-12-03 01:26 J	-3439223.59	-3439223.44	-3439223.29	0.0501	0.0340
Mercury	-14127-07-20 17:16 J	-3438262.96	-3438262.78	-3438262.60	0.0501	0.0152
Venus	-14124-02-08 06:43 J	-3437329.29	-3437329.22	-3437329.13	0.0519	0.0474
Venus	-14124-10-04 01:55 J	-3437091.62	-3437091.42	-3437091.22	0.0523	0.0152
Mercury	-14121-03-15 16:33 J	-3436197.92	-3436197.81	-3436197.69	0.0525	0.0214
Mercury	-14121-06-12 21:21 J	-3436108.71	-3436108.61	-3436108.51	0.0524	0.0332
Venus	-14119-12-14 20:52 J	-3435193.77	-3435193.63	-3435193.48	0.0506	0.0353
Venus	-14118-08-08 03:07 J	-3434957.56	-3434957.37	-3434957.19	0.0502	0.0193
Earth	-14118-11-11 12:00 J	-3434862.20	-3434862.00	-3434861.81	0.0501	0.0281
Moon	-14118-11-11 15:07 J	-3434862.08	-3434861.87	-3434861.66	0.0501	0.0251 *

Mars	-14115-02-08 05:45 J	-3434042.50	-3434042.26	-3434042.02	0.0500	0.0175
Mercury	-14115-05-08 13:55 J	-3433953.10	-3433952.92	-3433952.73	0.0501	0.0031
Venus	-14112-06-08 16:19 J	-3432826.02	-3432825.82	-3432825.61	0.0522	0.0026
Mercury	-14109-01-02 20:52 J	-3431887.72	-3431887.63	-3431887.54	0.0525	0.0354
Mercury	-14109-04-01 01:40 J	-3431798.55	-3431798.43	-3431798.32	0.0524	0.0193
Venus	-14107-08-19 21:50 J	-3430927.61	-3430927.59	-3430927.56	0.0507	0.0503
Venus	-14106-04-13 05:02 J	-3430691.49	-3430691.29	-3430691.09	0.0503	0.0043
Mercury	-14103-02-24 10:19 J	-3429643.24	-3429643.07	-3429642.90	0.0501	0.0216
Venus	-14100-02-11 06:14 J	-3428560.43	-3428560.24	-3428560.05	0.0521	0.0204
Venus	-14100-10-07 01:40 J	-3428322.54	-3428322.43	-3428322.31	0.0525	0.0430
Mercury	-14098-10-22 01:11 J	-3427577.49	-3427577.45	-3427577.41	0.0526	0.0494
Mars	-14098-12-18 13:55 J	-3427520.20	-3427519.92	-3427519.64	0.0525	0.0186
Mercury	-14097-01-19 06:00 J	-3427488.38	-3427488.25	-3427488.13	0.0524	0.0054
Venus	-14095-12-17 06:43 J	-3426425.41	-3426425.22	-3426425.02	0.0504	0.0109
Venus	-14094-08-10 12:00 J	-3426189.09	-3426189.00	-3426188.89	0.0501	0.0432
Mercury	-14092-12-13 06:28 J	-3425333.34	-3425333.23	-3425333.12	0.0500	0.0404
Mercury	-14091-03-13 19:26 J	-3425242.83	-3425242.69	-3425242.56	0.0501	0.0345
Venus	-14089-10-16 21:21 J	-3424294.75	-3424294.61	-3424294.47	0.0520	0.0376
Venus	-14088-06-11 16:33 J	-3424056.99	-3424056.81	-3424056.63	0.0524	0.0256
Mercury	-14086-11-07 10:48 J	-3423178.17	-3423178.05	-3423177.93	0.0525	0.0077
Mercury	-14085-02-04 15:35 J	-3423088.90	-3423088.85	-3423088.80	0.0524	0.0470
Venus	-14083-08-22 07:55 J	-3422159.33	-3422159.17	-3422158.99	0.0505	0.0262
Venus	-14082-04-15 13:11 J	-3421923.11	-3421922.95	-3421922.78	0.0501	0.0282
Mars	-14080-11-11 20:09 J	-3420981.90	-3420981.66	-3420981.40	0.0501	0.0114
Mercury	-14080-12-30 14:09 J	-3420933.09	-3420932.91	-3420932.72	0.0501	0.0142
Venus	-14076-02-14 07:11 J	-3419791.41	-3419791.20	-3419791.00	0.0523	0.0078
Earth	-14076-05-12 09:21 J	-3419704.33	-3419704.11	-3419703.88	0.0525	0.0112
Moon	-14076-05-12 10:33 J	-3419704.28	-3419704.06	-3419703.83	0.0525	0.0080 *
Mercury	-14074-08-26 15:21 J	-3418867.97	-3418867.86	-3418867.74	0.0525	0.0211
Mercury	-14074-11-23 20:09 J	-3418778.76	-3418778.66	-3418778.56	0.0524	0.0337

Venus	-14071-04-27 08:52 J	-3417893.24	-3417893.13	-3417893.01	0.0506	0.0413
Venus	-14071-12-19 14:52 J	-3417657.08	-3417656.88	-3417656.69	0.0502	0.0133
Mercury	-14068-10-18 10:33 J	-3416623.24	-3416623.06	-3416622.87	0.0501	0.0046
Venus	-14065-10-19 21:50 J	-3415525.79	-3415525.59	-3415525.38	0.0522	0.0099
Earth	-14064-05-17 06:43 J	-3415316.39	-3415316.22	-3415316.04	0.0525	0.0341
Moon	-14064-05-17 07:11 J	-3415316.37	-3415316.20	-3415316.02	0.0525	0.0350 *
Mercury	-14062-06-14 19:26 J	-3414557.78	-3414557.69	-3414557.60	0.0525	0.0356
Mercury	-14062-09-12 00:14 J	-3414468.61	-3414468.49	-3414468.38	0.0524	0.0192
Venus	-14059-08-24 15:35 J	-3413391.05	-3413390.85	-3413390.65	0.0503	0.0020
Mercury	-14056-08-06 07:26 J	-3412313.36	-3412313.19	-3412313.02	0.0501	0.0226
Venus	-14053-06-24 12:57 J	-3411260.14	-3411259.96	-3411259.79	0.0520	0.0273
Venus	-14052-02-17 08:24 J	-3411022.29	-3411022.15	-3411022.00	0.0524	0.0362
Mercury	-14050-04-02 23:45 J	-3410247.55	-3410247.51	-3410247.47	0.0525	0.0496
Mercury	-14050-07-01 04:19 J	-3410158.44	-3410158.32	-3410158.19	0.0524	0.0053
Venus	-14047-04-29 16:48 J	-3409124.99	-3409124.80	-3409124.61	0.0505	0.0172
Earth	-14047-11-06 01:11 J	-3408934.67	-3408934.45	-3408934.23	0.0502	0.0188
Moon	-14047-11-06 04:19 J	-3408934.54	-3408934.32	-3408934.10	0.0502	0.0187 *
Venus	-14047-12-21 22:19 J	-3408888.70	-3408888.57	-3408888.44	0.0501	0.0372
Mercury	-14044-05-25 03:35 J	-3408003.45	-3408003.35	-3408003.24	0.0500	0.0413
Mars	-14044-08-15 19:26 J	-3407920.82	-3407920.69	-3407920.54	0.0501	0.0415
Mercury	-14044-08-23 16:33 J	-3407912.95	-3407912.81	-3407912.67	0.0501	0.0336
Venus	-14041-02-28 02:52 J	-3406994.48	-3406994.38	-3406994.27	0.0519	0.0447
Venus	-14041-10-22 21:21 J	-3406756.80	-3406756.61	-3406756.41	0.0523	0.0182
Mercury	-14038-04-19 08:38 J	-3405848.26	-3405848.14	-3405848.02	0.0525	0.0091
Mercury	-14038-07-17 13:26 J	-3405759.00	-3405758.94	-3405758.88	0.0524	0.0456
Venus	-14035-01-02 18:14 J	-3404858.89	-3404858.74	-3404858.59	0.0506	0.0325
Venus	-14035-08-27 00:28 J	-3404622.66	-3404622.48	-3404622.30	0.0502	0.0224
Moon	-14035-11-10 11:02 J	-3404547.26	-3404547.04	-3404546.82	0.0501	0.0178
Earth	-14035-11-10 14:52 J	-3404547.09	-3404546.88	-3404546.67	0.0501	0.0211 *
Mercury	-14032-06-11 12:28 J	-3403603.15	-3403602.98	-3403602.79	0.0501	0.0146

Venus	-14029-06-27 12:00 J	-3402491.21	-3402491.00	-3402490.79	0.0522	0.0004
Mercury	-14026-02-05 13:26 J	-3401538.06	-3401537.94	-3401537.83	0.0525	0.0223
Mercury	-14026-05-05 18:00 J	-3401448.84	-3401448.75	-3401448.65	0.0524	0.0326
Venus	-14024-09-07 19:26 J	-3400592.75	-3400592.69	-3400592.62	0.0507	0.0476
Venus	-14023-05-02 01:40 J	-3400356.62	-3400356.43	-3400356.23	0.0502	0.0073
Mercury	-14020-03-30 07:26 J	-3399293.37	-3399293.19	-3399293.00	0.0501	0.0059
Venus	-14017-03-02 02:09 J	-3398225.61	-3398225.41	-3398225.22	0.0522	0.0175
Venus	-14017-10-25 22:33 J	-3397987.65	-3397987.56	-3397987.46	0.0525	0.0464
Mercury	-14015-11-24 18:00 J	-3397227.84	-3397227.75	-3397227.66	0.0526	0.0357
Mercury	-14014-02-21 22:48 J	-3397138.67	-3397138.55	-3397138.44	0.0524	0.0192
Venus	-14011-01-05 03:07 J	-3396090.57	-3396090.37	-3396090.17	0.0503	0.0080
Venus	-14011-08-29 07:40 J	-3395854.25	-3395854.18	-3395854.10	0.0500	0.0458
Mercury	-14008-01-16 03:35 J	-3394983.51	-3394983.35	-3394983.18	0.0501	0.0246
Venus	-14006-11-05 17:31 J	-3393959.93	-3393959.77	-3393959.62	0.0520	0.0347
Venus	-14005-06-30 12:57 J	-3393722.13	-3393721.96	-3393721.79	0.0524	0.0288
Mercury	-14003-09-12 21:50 J	-3392917.62	-3392917.59	-3392917.55	0.0525	0.0503
Mercury	-14003-12-11 02:38 J	-3392828.51	-3392828.39	-3392828.26	0.0524	0.0046

# 14TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 14th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Venus	-14000-09-10 02:52 J	-3391824.55	-3391824.38	-3391824.20	0.0505	0.0236		

Venus	-13999-05-04 08:24 J	-3391588.30	-3391588.15	-3391587.99	0.0501	0.0311
Mars	-13997-07-30 17:31 J	-3390769.91	-3390769.77	-3390769.64	0.0500	0.0425
Mercury	-13997-11-04 00:14 J	-3390673.58	-3390673.49	-3390673.39	0.0501	0.0428
Mercury	-13996-02-02 13:26 J	-3390583.09	-3390582.94	-3390582.80	0.0502	0.0322
Venus	-13994-07-11 09:07 J	-3389694.13	-3389694.12	-3389694.10	0.0518	0.0516
Venus	-13993-03-05 03:35 J	-3389456.55	-3389456.35	-3389456.15	0.0523	0.0110
Moon	-13993-05-11 07:26 J	-3389389.41	-3389389.19	-3389388.96	0.0524	0.0176
Earth	-13993-05-11 07:40 J	-3389389.39	-3389389.18	-3389388.97	0.0524	0.0208 *
Mercury	-13991-09-29 06:57 J	-3388518.34	-3388518.21	-3388518.09	0.0525	0.0097
Mercury	-13991-12-27 11:31 J	-3388429.08	-3388429.02	-3388428.95	0.0523	0.0450
Venus	-13988-05-16 03:21 J	-3387558.48	-3387558.36	-3387558.23	0.0506	0.0390
Venus	-13987-01-07 09:50 J	-3387322.28	-3387322.09	-3387321.90	0.0502	0.0162
Mercury	-13985-11-21 09:35 J	-3386273.28	-3386273.10	-3386272.92	0.0501	0.0134
Venus	-13982-11-08 16:48 J	-3385191.01	-3385190.80	-3385190.60	0.0521	0.0071
Moon	-13981-05-16 00:28 J	-3385001.68	-3385001.48	-3385001.28	0.0524	0.0241
Earth	-13981-05-16 02:09 J	-3385001.62	-3385001.41	-3385001.20	0.0524	0.0234 *
Mars	-13979-06-04 07:26 J	-3384252.45	-3384252.19	-3384251.91	0.0526	0.0208
Mercury	-13979-07-18 11:02 J	-3384208.15	-3384208.04	-3384207.93	0.0525	0.0239
Mercury	-13979-10-15 15:50 J	-3384118.94	-3384118.84	-3384118.74	0.0524	0.0308
Venus	-13976-09-12 11:45 J	-3383056.21	-3383056.01	-3383055.81	0.0503	0.0011
Mercury	-13973-09-09 05:31 J	-3381963.46	-3381963.27	-3381963.08	0.0501	0.0057
Venus	-13970-07-14 07:11 J	-3380925.38	-3380925.20	-3380925.02	0.0520	0.0249
Venus	-13969-03-08 02:52 J	-3380687.51	-3380687.38	-3380687.24	0.0524	0.0390
Mercury	-13967-05-06 15:35 J	-3379897.93	-3379897.85	-3379897.76	0.0526	0.0373
Mercury	-13967-08-03 20:24 J	-3379808.76	-3379808.65	-3379808.53	0.0524	0.0177
Venus	-13964-05-18 13:11 J	-3378790.14	-3378789.95	-3378789.75	0.0504	0.0145
Moon	-13964-11-04 22:33 J	-3378619.75	-3378619.56	-3378619.36	0.0501	0.0266
Earth	-13964-11-05 02:24 J	-3378619.60	-3378619.40	-3378619.20	0.0501	0.0264 *
Venus	-13963-01-09 18:00 J	-3378553.86	-3378553.75	-3378553.62	0.0501	0.0401
Mars	-13961-05-03 07:26 J	-3377709.43	-3377709.19	-3377708.94	0.0500	0.0136



Mercury	-13961-06-28 00:28 J	-3377653.64	-3377653.48	-3377653.32	0.0500	0.0259
Mercury	-13961-09-26 13:11 J	-3377562.98	-3377562.95	-3377562.90	0.0501	0.0489
Venus	-13958-03-18 21:07 J	-3376659.73	-3376659.62	-3376659.50	0.0520	0.0423
Venus	-13958-11-11 16:33 J	-3376422.00	-3376421.81	-3376421.62	0.0524	0.0212
Mercury	-13955-02-22 20:24 J	-3375587.68	-3375587.65	-3375587.62	0.0526	0.0507
Mercury	-13955-05-23 00:57 J	-3375498.58	-3375498.46	-3375498.33	0.0525	0.0046
Venus	-13952-01-21 14:24 J	-3374524.06	-3374523.90	-3374523.73	0.0505	0.0297
Venus	-13952-09-14 19:55 J	-3374287.84	-3374287.67	-3374287.49	0.0501	0.0252
Earth	-13952-11-09 14:38 J	-3374232.12	-3374231.89	-3374231.67	0.0501	0.0128
Moon	-13952-11-09 18:28 J	-3374231.96	-3374231.73	-3374231.50	0.0501	0.0098 *
Mercury	-13949-04-15 20:38 J	-3373343.72	-3373343.64	-3373343.55	0.0500	0.0446
Mercury	-13949-07-15 09:35 J	-3373253.25	-3373253.10	-3373252.95	0.0501	0.0302
Venus	-13946-07-17 07:26 J	-3372156.40	-3372156.19	-3372155.99	0.0523	0.0034
Mercury	-13943-03-11 05:02 J	-3371188.41	-3371188.29	-3371188.16	0.0525	0.0105
Mars	-13943-03-12 17:16 J	-3371187.04	-3371186.78	-3371186.52	0.0525	0.0252
Mercury	-13943-06-08 09:50 J	-3371099.16	-3371099.09	-3371099.03	0.0523	0.0442
Venus	-13941-09-26 13:26 J	-3370258.03	-3370257.94	-3370257.86	0.0507	0.0453
Venus	-13940-05-20 19:55 J	-3370021.87	-3370021.67	-3370021.47	0.0503	0.0099
Moon	-13940-11-13 21:35 J	-3369844.62	-3369844.60	-3369844.57	0.0500	0.0497
Mercury	-13937-05-03 06:14 J	-3368943.42	-3368943.24	-3368943.05	0.0501	0.0118
Venus	-13934-03-21 22:33 J	-3367890.75	-3367890.56	-3367890.36	0.0521	0.0143
Venus	-13934-11-14 18:28 J	-3367652.79	-3367652.73	-3367652.66	0.0525	0.0496
Mercury	-13932-12-28 09:21 J	-3366878.22	-3366878.11	-3366878.00	0.0525	0.0245
Mercury	-13931-03-27 13:55 J	-3366789.02	-3366788.92	-3366788.81	0.0524	0.0302
Venus	-13928-01-23 20:52 J	-3365755.82	-3365755.63	-3365755.42	0.0504	0.0057
Venus	-13928-09-17 02:09 J	-3365519.45	-3365519.41	-3365519.36	0.0501	0.0487
Mars	-13925-02-05 05:16 J	-3364648.52	-3364648.28	-3364648.03	0.0501	0.0163
Mercury	-13925-02-20 02:24 J	-3364633.58	-3364633.40	-3364633.21	0.0501	0.0071
Venus	-13923-11-24 12:14 J	-3363625.15	-3363624.99	-3363624.82	0.0520	0.0322
Venus	-13922-07-20 07:11 J	-3363387.36	-3363387.20	-3363387.03	0.0524	0.0316

Mercury	-13920-10-16 13:26 J	-3362568.02	-3362567.94	-3362567.86	0.0525	0.0389
Mercury	-13919-01-13 18:14 J	-3362478.86	-3362478.74	-3362478.62	0.0524	0.0159
Venus	-13917-09-28 22:19 J	-3361489.74	-3361489.57	-3361489.38	0.0505	0.0211
Venus	-13916-05-23 04:04 J	-3361253.47	-3361253.33	-3361253.18	0.0502	0.0341
Mercury	-13914-12-08 22:19 J	-3360323.72	-3360323.57	-3360323.40	0.0500	0.0261
Mercury	-13913-03-08 11:16 J	-3360233.07	-3360233.03	-3360232.99	0.0502	0.0488
Venus	-13911-07-30 03:07 J	-3359359.43	-3359359.37	-3359359.31	0.0518	0.0493
Venus	-13910-03-24 21:21 J	-3359121.81	-3359121.61	-3359121.41	0.0523	0.0137
Moon	-13910-05-11 00:57 J	-3359074.65	-3359074.46	-3359074.27	0.0524	0.0287
Earth	-13910-05-11 01:55 J	-3359074.60	-3359074.42	-3359074.23	0.0524	0.0317 *
Mercury	-13908-08-04 18:00 J	-3358257.76	-3358257.75	-3358257.74	0.0526	0.0524
Mercury	-13908-11-01 22:48 J	-3358168.67	-3358168.55	-3358168.42	0.0525	0.0026
Venus	-13905-06-04 00:00 J	-3357223.63	-3357223.50	-3357223.35	0.0506	0.0362
Venus	-13904-01-26 06:14 J	-3356987.43	-3356987.24	-3356987.05	0.0502	0.0191
Mercury	-13902-09-26 17:31 J	-3356013.83	-3356013.77	-3356013.69	0.0500	0.0459
Mercury	-13902-12-26 06:28 J	-3355923.38	-3355923.23	-3355923.07	0.0501	0.0288
Venus	-13899-11-27 11:02 J	-3354856.25	-3354856.04	-3354855.84	0.0522	0.0045
Earth	-13898-05-15 21:50 J	-3354686.81	-3354686.59	-3354686.36	0.0525	0.0129
Moon	-13898-05-16 00:57 J	-3354686.69	-3354686.46	-3354686.23	0.0525	0.0128 *
Mercury	-13896-08-21 03:21 J	-3353858.48	-3353858.36	-3353858.24	0.0525	0.0110
Mercury	-13896-11-18 08:09 J	-3353769.23	-3353769.16	-3353769.09	0.0524	0.0438
Venus	-13893-10-01 07:55 J	-3352721.37	-3352721.17	-3352720.97	0.0503	0.0039
Mercury	-13890-10-14 02:52 J	-3351613.57	-3351613.38	-3351613.20	0.0501	0.0101
Mars	-13890-11-08 18:57 J	-3351587.81	-3351587.71	-3351587.60	0.0501	0.0454
Venus	-13887-08-02 02:24 J	-3350590.58	-3350590.40	-3350590.21	0.0521	0.0220
Venus	-13886-03-27 22:19 J	-3350352.68	-3350352.57	-3350352.44	0.0525	0.0423
Mercury	-13884-06-09 07:26 J	-3349548.30	-3349548.19	-3349548.08	0.0525	0.0254
Mercury	-13884-09-06 12:14 J	-3349459.10	-3349458.99	-3349458.89	0.0524	0.0293
Venus	-13881-06-06 06:57 J	-3348455.40	-3348455.21	-3348455.01	0.0504	0.0120
Earth	-13881-11-03 23:31 J	-3348304.68	-3348304.52	-3348304.36	0.0502	0.0358

Moon	-13881-11-04 03:21 J	-3348304.51	-3348304.36	-3348304.19	0.0502	0.0360 *
Venus	-13880-01-28 12:14 J	-3348219.09	-3348218.99	-3348218.88	0.0501	0.0428
Mercury	-13878-08-01 23:16 J	-3347303.72	-3347303.53	-3347303.34	0.0501	0.0084
Venus	-13875-04-06 18:28 J	-3346324.86	-3346324.73	-3346324.59	0.0519	0.0392
Venus	-13875-11-30 13:11 J	-3346087.12	-3346086.95	-3346086.76	0.0523	0.0247
Mercury	-13872-03-28 11:45 J	-3345238.09	-3345238.01	-3345237.93	0.0525	0.0394
Mercury	-13872-06-25 16:33 J	-3345148.93	-3345148.81	-3345148.69	0.0524	0.0154
Venus	-13869-02-10 07:55 J	-3344189.34	-3344189.17	-3344189.00	0.0506	0.0275
Venus	-13869-10-03 13:55 J	-3343953.09	-3343952.92	-3343952.75	0.0502	0.0279
Moon	-13869-11-08 08:38 J	-3343917.38	-3343917.14	-3343916.90	0.0501	0.0009
Earth	-13869-11-08 12:14 J	-3343917.23	-3343916.99	-3343916.76	0.0501	0.0036 *
Mercury	-13866-08-19 08:24 J	-3342903.20	-3342903.15	-3342903.09	0.0502	0.0478
Venus	-13863-08-05 02:38 J	-3341821.59	-3341821.39	-3341821.18	0.0522	0.0063
Mercury	-13860-04-13 20:38 J	-3340838.77	-3340838.64	-3340838.52	0.0525	0.0012
Venus	-13858-10-16 08:52 J	-3339923.24	-3339923.13	-3339923.03	0.0507	0.0429
Venus	-13857-06-08 15:50 J	-3339687.04	-3339686.84	-3339686.65	0.0503	0.0127
Earth	-13857-11-13 01:40 J	-3339529.54	-3339529.43	-3339529.31	0.0501	0.0430
Moon	-13857-11-13 03:35 J	-3339529.46	-3339529.35	-3339529.23	0.0501	0.0431 *
Mercury	-13854-03-08 15:35 J	-3338683.92	-3338683.85	-3338683.78	0.0500	0.0460
Mercury	-13854-06-07 04:33 J	-3338593.46	-3338593.31	-3338593.16	0.0501	0.0288
Venus	-13851-04-09 17:02 J	-3337555.99	-3337555.79	-3337555.59	0.0521	0.0117
Venus	-13851-12-03 12:28 J	-3337317.98	-3337317.98	-3337317.96	0.0525	0.0524
Mercury	-13848-01-31 01:11 J	-3336528.57	-3336528.45	-3336528.33	0.0525	0.0124
Mercury	-13848-04-30 06:00 J	-3336439.32	-3336439.25	-3336439.18	0.0524	0.0423
Venus	-13845-02-12 18:00 J	-3335420.95	-3335420.75	-3335420.55	0.0504	0.0026
Mars	-13843-10-23 19:55 J	-3334436.83	-3334436.67	-3334436.50	0.0499	0.0387
Mercury	-13842-03-26 00:00 J	-3334283.69	-3334283.50	-3334283.31	0.0501	0.0091
Venus	-13840-12-13 06:43 J	-3333290.39	-3333290.22	-3333290.05	0.0520	0.0296
Venus	-13839-08-08 02:09 J	-3333052.56	-3333052.41	-3333052.25	0.0524	0.0347
Mercury	-13837-11-19 05:45 J	-3332218.37	-3332218.26	-3332218.15	0.0526	0.0259

Mercury	-13836-02-16 10:33 J	-3332129.16	-3332129.06	-3332128.96	0.0524	0.0290
Venus	-13834-10-18 19:26 J	-3331154.87	-3331154.69	-3331154.50	0.0505	0.0180
Venus	-13833-06-11 00:43 J	-3330918.60	-3330918.47	-3330918.33	0.0501	0.0371
Mercury	-13830-01-11 20:09 J	-3329973.84	-3329973.66	-3329973.47	0.0500	0.0097
Venus	-13828-08-17 23:02 J	-3329024.63	-3329024.54	-3329024.45	0.0519	0.0465
Venus	-13827-04-12 17:45 J	-3328786.96	-3328786.76	-3328786.57	0.0523	0.0171
Earth	-13827-05-10 00:00 J	-3328759.64	-3328759.50	-3328759.36	0.0523	0.0414
Moon	-13827-05-10 02:38 J	-3328759.55	-3328759.39	-3328759.22	0.0523	0.0383 *
Mars	-13825-08-27 08:09 J	-3327919.44	-3327919.16	-3327918.88	0.0525	0.0155
Mercury	-13825-09-07 09:50 J	-3327908.16	-3327908.09	-3327908.01	0.0525	0.0402
Mercury	-13825-12-05 14:38 J	-3327819.01	-3327818.89	-3327818.77	0.0524	0.0146
Venus	-13822-06-23 18:00 J	-3326888.89	-3326888.75	-3326888.59	0.0506	0.0339
Venus	-13821-02-15 00:28 J	-3326652.66	-3326652.48	-3326652.30	0.0502	0.0218
Mercury	-13819-10-30 16:33 J	-3325663.96	-3325663.81	-3325663.65	0.0501	0.0283
Mercury	-13818-01-29 05:31 J	-3325573.33	-3325573.27	-3325573.20	0.0502	0.0467
Venus	-13816-12-16 09:21 J	-3324521.31	-3324521.11	-3324520.90	0.0522	0.0009
Moon	-13815-05-14 19:11 J	-3324371.93	-3324371.70	-3324371.47	0.0524	0.0033
Earth	-13815-05-14 23:02 J	-3324371.77	-3324371.54	-3324371.31	0.0524	0.0042 *
Mercury	-13813-09-23 18:57 J	-3323508.83	-3323508.71	-3323508.58	0.0524	0.0018
Venus	-13810-02-26 18:28 J	-3322622.77	-3322622.73	-3322622.68	0.0507	0.0493
Venus	-13810-10-21 01:40 J	-3322386.63	-3322386.43	-3322386.23	0.0503	0.0065
Mars	-13807-07-27 18:00 J	-3321376.00	-3321375.75	-3321375.50	0.0500	0.0090
Mercury	-13807-08-18 12:57 J	-3321354.02	-3321353.96	-3321353.89	0.0500	0.0468
Mercury	-13807-11-17 01:55 J	-3321263.57	-3321263.42	-3321263.26	0.0501	0.0282
Venus	-13804-08-20 23:31 J	-3320255.71	-3320255.52	-3320255.33	0.0520	0.0189
Venus	-13803-04-15 18:43 J	-3320017.82	-3320017.72	-3320017.62	0.0524	0.0454
Earth	-13803-05-19 17:45 J	-3319983.84	-3319983.76	-3319983.67	0.0525	0.0485
Moon	-13803-05-19 21:35 J	-3319983.71	-3319983.60	-3319983.48	0.0525	0.0452 *
Mercury	-13801-07-12 23:16 J	-3319198.65	-3319198.53	-3319198.41	0.0525	0.0135
Mercury	-13801-10-10 03:50 J	-3319109.41	-3319109.34	-3319109.26	0.0524	0.0412

Venus	-13798-06-26 03:21 J	-3318120.55	-3318120.36	-3318120.16	0.0505	0.0092
Moon	-13798-11-03 21:21 J	-3317989.72	-3317989.61	-3317989.49	0.0503	0.0438
Earth	-13798-11-04 00:57 J	-3317989.56	-3317989.46	-3317989.33	0.0503	0.0434 *
Venus	-13797-02-17 09:07 J	-3317884.20	-3317884.12	-3317884.04	0.0501	0.0458
Mercury	-13795-09-04 22:19 J	-3316953.76	-3316953.57	-3316953.39	0.0501	0.0094
Venus	-13792-04-25 14:09 J	-3315990.05	-3315989.91	-3315989.76	0.0519	0.0365
Venus	-13792-12-19 08:38 J	-3315752.31	-3315752.14	-3315751.96	0.0523	0.0275
Mercury	-13789-05-01 03:50 J	-3314888.45	-3314888.34	-3314888.23	0.0525	0.0271
Mars	-13789-06-04 14:09 J	-3314854.15	-3314853.91	-3314853.67	0.0525	0.0306
Mercury	-13789-07-29 08:24 J	-3314799.25	-3314799.15	-3314799.04	0.0524	0.0279
Venus	-13786-03-01 05:45 J	-3313854.43	-3313854.26	-3313854.08	0.0506	0.0244
Venus	-13786-10-23 11:45 J	-3313618.17	-3313618.01	-3313617.85	0.0502	0.0312
Earth	-13786-11-08 15:50 J	-3313602.07	-3313601.84	-3313601.60	0.0502	0.0035
Moon	-13786-11-08 18:00 J	-3313601.97	-3313601.75	-3313601.52	0.0502	0.0062 *
Mercury	-13783-06-23 18:00 J	-3312643.94	-3312643.75	-3312643.57	0.0500	0.0102
Venus	-13780-08-23 22:33 J	-3311486.76	-3311486.56	-3311486.36	0.0523	0.0095
Mercury	-13777-02-18 08:24 J	-3310578.23	-3310578.15	-3310578.07	0.0526	0.0405
Mercury	-13777-05-17 13:11 J	-3310489.07	-3310488.95	-3310488.83	0.0525	0.0144
Venus	-13775-11-04 07:11 J	-3309588.32	-3309588.20	-3309588.08	0.0507	0.0398
Venus	-13774-06-28 13:40 J	-3309352.12	-3309351.93	-3309351.74	0.0503	0.0161
Moon	-13774-11-13 04:48 J	-3309214.46	-3309214.30	-3309214.12	0.0501	0.0365
Earth	-13774-11-13 05:16 J	-3309214.44	-3309214.28	-3309214.11	0.0501	0.0360 *
Mercury	-13771-04-11 14:09 J	-3308334.06	-3308333.91	-3308333.75	0.0500	0.0286
Mars	-13771-04-30 12:14 J	-3308315.22	-3308314.99	-3308314.76	0.0500	0.0209
Mercury	-13771-07-11 02:52 J	-3308243.44	-3308243.38	-3308243.30	0.0501	0.0462
Venus	-13768-04-28 14:24 J	-3307221.10	-3307220.90	-3307220.69	0.0521	0.0083
Mercury	-13765-03-05 17:31 J	-3306178.90	-3306178.77	-3306178.65	0.0525	0.0014
Venus	-13762-03-03 12:57 J	-3305086.16	-3305085.96	-3305085.76	0.0504	0.0005
Mercury	-13759-01-28 10:19 J	-3304024.12	-3304024.07	-3304024.01	0.0501	0.0475
Mercury	-13759-04-28 23:31 J	-3303933.68	-3303933.52	-3303933.36	0.0502	0.0275

Venus	-13756-01-01 06:57 J	-3302955.38	-3302955.21	-3302955.02	0.0520	0.0258
Venus	-13756-08-27 02:09 J	-3302717.54	-3302717.41	-3302717.27	0.0524	0.0388
Mercury	-13754-12-23 21:50 J	-3301868.71	-3301868.59	-3301868.47	0.0525	0.0134
Mercury	-13753-03-22 02:38 J	-3301779.47	-3301779.39	-3301779.32	0.0523	0.0412
Venus	-13751-11-06 14:09 J	-3300820.10	-3300819.91	-3300819.72	0.0505	0.0154
Venus	-13750-06-30 19:40 J	-3300583.80	-3300583.68	-3300583.56	0.0502	0.0400
Mercury	-13747-02-14 19:55 J	-3299623.85	-3299623.67	-3299623.48	0.0501	0.0091
Venus	-13745-09-05 22:04 J	-3298689.69	-3298689.58	-3298689.46	0.0518	0.0433
Venus	-13744-05-01 16:04 J	-3298452.02	-3298451.83	-3298451.64	0.0523	0.0206
Moon	-13744-05-08 22:04 J	-3298444.67	-3298444.58	-3298444.47	0.0523	0.0465
Earth	-13744-05-09 01:40 J	-3298444.50	-3298444.43	-3298444.35	0.0523	0.0493 *
Mercury	-13742-10-12 02:09 J	-3297558.52	-3297558.41	-3297558.31	0.0525	0.0276
Mercury	-13741-01-09 06:43 J	-3297469.32	-3297469.22	-3297469.11	0.0524	0.0272
Venus	-13739-07-12 15:35 J	-3296554.01	-3296553.85	-3296553.69	0.0506	0.0310
Venus	-13738-03-05 22:04 J	-3296317.75	-3296317.58	-3296317.40	0.0503	0.0251
Mercury	-13736-12-03 16:19 J	-3295314.00	-3295313.82	-3295313.63	0.0501	0.0095
Venus	-13732-01-04 06:28 J	-3294186.44	-3294186.23	-3294186.02	0.0522	0.0025
Earth	-13732-05-13 22:19 J	-3294056.80	-3294056.57	-3294056.34	0.0524	0.0048
Moon	-13732-05-14 02:09 J	-3294056.64	-3294056.41	-3294056.18	0.0524	0.0059 *
Mercury	-13730-07-31 06:28 J	-3293248.30	-3293248.23	-3293248.15	0.0526	0.0412
Mercury	-13730-10-28 11:16 J	-3293159.15	-3293159.03	-3293158.90	0.0525	0.0138
Venus	-13727-03-17 17:31 J	-3292287.84	-3292287.77	-3292287.68	0.0508	0.0463
Venus	-13727-11-09 00:57 J	-3292051.66	-3292051.46	-3292051.26	0.0503	0.0100
Mercury	-13724-09-21 12:14 J	-3291004.14	-3291003.99	-3291003.83	0.0500	0.0286
Mercury	-13724-12-21 01:11 J	-3290913.52	-3290913.45	-3290913.38	0.0501	0.0462
Venus	-13721-09-08 20:38 J	-3289920.83	-3289920.64	-3289920.44	0.0521	0.0156
Venus	-13720-05-04 16:19 J	-3289682.89	-3289682.82	-3289682.75	0.0525	0.0491
Moon	-13720-05-18 15:21 J	-3289669.03	-3289668.86	-3289668.69	0.0525	0.0361
Earth	-13720-05-18 18:28 J	-3289668.88	-3289668.73	-3289668.58	0.0525	0.0397 *
Mercury	-13718-08-16 16:04 J	-3288848.96	-3288848.83	-3288848.70	0.0525	0.0004

Venus	-13715-07-15 03:07 J	-3287785.57	-3287785.37	-3287785.17	0.0504	0.0055
Earth	-13715-11-03 07:26 J	-3287674.23	-3287674.19	-3287674.14	0.0503	0.0491
Venus	-13714-03-08 08:09 J	-3287549.18	-3287549.16	-3287549.13	0.0501	0.0495
Mercury	-13712-07-10 08:38 J	-3286694.20	-3286694.14	-3286694.07	0.0500	0.0470
Mercury	-13712-10-08 21:35 J	-3286603.75	-3286603.60	-3286603.44	0.0501	0.0278
Venus	-13709-05-14 13:11 J	-3285655.11	-3285654.95	-3285654.79	0.0519	0.0330
Venus	-13708-01-07 08:09 J	-3285417.32	-3285417.16	-3285416.99	0.0524	0.0317
Mercury	-13706-06-04 20:24 J	-3284538.77	-3284538.65	-3284538.52	0.0525	0.0136
Mercury	-13706-09-02 01:11 J	-3284449.53	-3284449.45	-3284449.37	0.0523	0.0411
Venus	-13703-03-20 01:55 J	-3283519.60	-3283519.42	-3283519.24	0.0505	0.0216
Moon	-13703-11-07 16:04 J	-3283287.06	-3283286.83	-3283286.59	0.0502	0.0140
Earth	-13703-11-07 16:33 J	-3283287.03	-3283286.81	-3283286.57	0.0502	0.0114 *
Venus	-13703-11-11 07:40 J	-3283283.32	-3283283.18	-3283283.03	0.0502	0.0342
Mercury	-13700-07-27 17:45 J	-3282293.94	-3282293.76	-3282293.57	0.0501	0.0090
Venus	-13697-01-18 06:43 J	-3281389.27	-3281389.22	-3281389.17	0.0518	0.0499
Venus	-13697-09-12 00:43 J	-3281151.67	-3281151.47	-3281151.27	0.0522	0.0139
Mercury	-13694-03-24 01:11 J	-3280228.56	-3280228.45	-3280228.35	0.0525	0.0269
Mercury	-13694-06-21 05:45 J	-3280139.37	-3280139.26	-3280139.15	0.0524	0.0277
Venus	-13692-11-23 02:52 J	-3279253.51	-3279253.38	-3279253.24	0.0507	0.0373
Venus	-13691-07-17 09:35 J	-3279017.28	-3279017.10	-3279016.91	0.0503	0.0190
Moon	-13691-11-12 05:16 J	-3278899.46	-3278899.28	-3278899.10	0.0501	0.0291
Earth	-13691-11-12 06:14 J	-3278899.43	-3278899.24	-3278899.04	0.0501	0.0281 *
Mars	-13688-01-16 15:07 J	-3278103.06	-3278102.87	-3278102.67	0.0500	0.0331
Mercury	-13688-05-15 14:38 J	-3277984.08	-3277983.89	-3277983.71	0.0501	0.0094
Venus	-13685-05-17 15:21 J	-3276886.07	-3276885.86	-3276885.66	0.0521	0.0044
Mercury	-13682-01-10 05:16 J	-3275918.35	-3275918.28	-3275918.20	0.0525	0.0410
Mercury	-13682-04-09 10:04 J	-3275829.20	-3275829.08	-3275828.96	0.0524	0.0137
Venus	-13679-03-22 12:00 J	-3274751.20	-3274751.00	-3274750.80	0.0504	0.0036
Mercury	-13676-03-03 11:02 J	-3273674.19	-3273674.04	-3273673.88	0.0501	0.0277
Mercury	-13676-06-02 00:00 J	-3273583.55	-3273583.50	-3273583.43	0.0502	0.0473

Venus	-13673-01-21 06:14 J	-3272620.42	-3272620.24	-3272620.05	0.0520	0.0223
Venus	-13673-09-15 01:11 J	-3272382.57	-3272382.45	-3272382.33	0.0524	0.0424
Mars	-13671-11-21 01:11 J	-3271585.74	-3271585.45	-3271585.15	0.0525	0.0074
Mercury	-13670-01-26 14:38 J	-3271519.02	-3271518.89	-3271518.76	0.0525	0.0003
Venus	-13668-11-25 14:38 J	-3270485.09	-3270484.89	-3270484.69	0.0505	0.0117
Venus	-13667-07-19 20:24 J	-3270248.74	-3270248.65	-3270248.55	0.0501	0.0439
Mercury	-13665-12-20 07:11 J	-3269364.26	-3269364.20	-3269364.13	0.0500	0.0464
Mercury	-13664-03-20 20:09 J	-3269273.81	-3269273.66	-3269273.50	0.0501	0.0284
Venus	-13662-09-25 20:52 J	-3268354.76	-3268354.63	-3268354.50	0.0519	0.0400
Venus	-13661-05-20 15:07 J	-3268117.04	-3268116.87	-3268116.68	0.0523	0.0245
Mercury	-13659-11-14 19:26 J	-3267208.82	-3267208.69	-3267208.57	0.0525	0.0131
Mercury	-13658-02-12 00:00 J	-3267119.57	-3267119.50	-3267119.42	0.0524	0.0418
Venus	-13656-07-31 16:33 J	-3266218.97	-3266218.81	-3266218.63	0.0506	0.0273
Venus	-13655-03-24 23:02 J	-3265982.70	-3265982.54	-3265982.38	0.0502	0.0290
Mars	-13653-10-20 17:16 J	-3265042.04	-3265041.78	-3265041.53	0.0500	0.0024
Mercury	-13652-01-06 16:48 J	-3264963.98	-3264963.80	-3264963.61	0.0501	0.0101
Venus	-13649-01-24 07:40 J	-3263851.38	-3263851.18	-3263850.97	0.0522	0.0069
Moon	-13649-05-13 01:26 J	-3263741.67	-3263741.44	-3263741.21	0.0524	0.0125
Earth	-13649-05-13 05:02 J	-3263741.52	-3263741.29	-3263741.07	0.0524	0.0112 *
Mercury	-13647-09-03 00:00 J	-3262898.61	-3262898.50	-3262898.39	0.0525	0.0266
Mercury	-13647-12-01 04:33 J	-3262809.41	-3262809.31	-3262809.20	0.0524	0.0281
Venus	-13644-04-05 15:21 J	-3261952.96	-3261952.86	-3261952.76	0.0507	0.0434
Venus	-13644-11-27 22:19 J	-3261716.76	-3261716.57	-3261716.37	0.0503	0.0131
Mercury	-13641-10-25 12:43 J	-3260654.15	-3260653.97	-3260653.78	0.0501	0.0092
Venus	-13638-09-29 00:43 J	-3259585.67	-3259585.47	-3259585.26	0.0521	0.0111
Earth	-13637-05-18 05:31 J	-3259353.44	-3259353.27	-3259353.10	0.0524	0.0350
Moon	-13637-05-18 06:57 J	-3259353.38	-3259353.21	-3259353.03	0.0524	0.0323 *
Mercury	-13635-06-22 04:33 J	-3258588.39	-3258588.31	-3258588.23	0.0525	0.0398
Mars	-13635-08-29 22:04 J	-3258519.76	-3258519.58	-3258519.38	0.0524	0.0400
Mercury	-13635-09-19 09:21 J	-3258499.23	-3258499.11	-3258498.99	0.0524	0.0149



Venus	-13632-08-03 00:14 J	-3257450.69	-3257450.49	-3257450.29	0.0504	0.0025
Mercury	-13629-08-13 09:35 J	-3256344.26	-3256344.10	-3256343.94	0.0501	0.0271
Mercury	-13629-11-11 22:33 J	-3256253.60	-3256253.56	-3256253.50	0.0502	0.0480
Venus	-13626-06-03 16:04 J	-3255320.00	-3255319.83	-3255319.66	0.0519	0.0289
Venus	-13625-01-27 10:48 J	-3255082.19	-3255082.05	-3255081.90	0.0523	0.0360
Mercury	-13623-07-08 13:40 J	-3254189.06	-3254188.93	-3254188.81	0.0524	0.0021
Venus	-13620-04-08 02:09 J	-3253184.60	-3253184.41	-3253184.22	0.0506	0.0181
Moon	-13620-11-07 00:14 J	-3252971.70	-3252971.49	-3252971.28	0.0502	0.0188
Earth	-13620-11-07 01:11 J	-3252971.67	-3252971.45	-3252971.22	0.0502	0.0163 *
Venus	-13620-11-30 08:24 J	-3252948.28	-3252948.15	-3252948.02	0.0502	0.0380
Mercury	-13617-06-01 06:14 J	-3252034.31	-3252034.24	-3252034.16	0.0501	0.0452
Mars	-13617-07-24 18:14 J	-3251980.95	-3251980.74	-3251980.53	0.0501	0.0283
Mercury	-13617-08-30 19:26 J	-3251943.84	-3251943.69	-3251943.54	0.0502	0.0298
Venus	-13614-02-06 07:55 J	-3251054.26	-3251054.17	-3251054.08	0.0518	0.0463
Venus	-13614-10-02 01:40 J	-3250816.63	-3250816.43	-3250816.24	0.0522	0.0179
Mercury	-13611-04-26 18:14 J	-3249878.87	-3249878.74	-3249878.62	0.0525	0.0127
Mercury	-13611-07-24 22:48 J	-3249789.62	-3249789.55	-3249789.48	0.0524	0.0420
Venus	-13609-12-12 04:33 J	-3248918.46	-3248918.31	-3248918.16	0.0507	0.0335
Venus	-13608-08-05 11:31 J	-3248682.19	-3248682.02	-3248681.84	0.0503	0.0232
Earth	-13608-11-11 17:16 J	-3248583.99	-3248583.78	-3248583.58	0.0502	0.0239
Moon	-13608-11-11 19:40 J	-3248583.88	-3248583.68	-3248583.47	0.0502	0.0255 *
Mercury	-13605-06-18 15:50 J	-3247634.03	-3247633.84	-3247633.66	0.0501	0.0112
Venus	-13602-06-06 15:50 J	-3246551.04	-3246550.84	-3246550.63	0.0521	0.0012
Mercury	-13599-02-12 22:48 J	-3245568.65	-3245568.55	-3245568.44	0.0525	0.0259
Mercury	-13599-05-13 03:35 J	-3245479.45	-3245479.35	-3245479.25	0.0524	0.0289
Venus	-13597-08-17 06:28 J	-3244652.28	-3244652.23	-3244652.18	0.0508	0.0490
Venus	-13596-04-10 14:09 J	-3244416.11	-3244415.91	-3244415.71	0.0504	0.0078
Mercury	-13593-04-06 12:28 J	-3243324.17	-3243323.98	-3243323.80	0.0501	0.0071
Venus	-13590-02-09 08:52 J	-3242285.32	-3242285.13	-3242284.93	0.0520	0.0180
Venus	-13590-10-05 04:19 J	-3242047.40	-3242047.32	-3242047.23	0.0524	0.0472

Mercury	-13588-12-02 03:35 J	-3241258.43	-3241258.35	-3241258.27	0.0525	0.0391
Mercury	-13587-03-01 08:09 J	-3241169.27	-3241169.16	-3241169.03	0.0524	0.0157
Venus	-13585-12-14 13:26 J	-3240150.13	-3240149.94	-3240149.74	0.0505	0.0085
Venus	-13584-08-07 18:57 J	-3239913.77	-3239913.71	-3239913.64	0.0501	0.0473
Mercury	-13581-01-24 08:09 J	-3239014.32	-3239014.16	-3239014.00	0.0501	0.0265
Mercury	-13581-04-23 21:21 J	-3238923.65	-3238923.61	-3238923.57	0.0502	0.0487
Venus	-13579-10-15 02:09 J	-3238019.55	-3238019.41	-3238019.25	0.0519	0.0355
Venus	-13578-06-09 20:52 J	-3237781.79	-3237781.63	-3237781.45	0.0523	0.0297
Mercury	-13576-09-20 08:24 J	-3236948.16	-3236948.15	-3236948.14	0.0525	0.0521
Mercury	-13576-12-18 12:57 J	-3236859.08	-3236858.96	-3236858.83	0.0524	0.0028
Venus	-13573-08-19 15:21 J	-3235884.04	-3235883.86	-3235883.69	0.0506	0.0242
Venus	-13572-04-12 21:21 J	-3235647.76	-3235647.61	-3235647.45	0.0502	0.0323
Mercury	-13570-11-12 05:02 J	-3234704.37	-3234704.29	-3234704.20	0.0501	0.0444
Mercury	-13569-02-10 18:14 J	-3234613.89	-3234613.74	-3234613.59	0.0502	0.0308
Venus	-13566-02-12 12:14 J	-3233516.19	-3233515.99	-3233515.79	0.0522	0.0114
Earth	-13566-05-13 16:04 J	-3233426.05	-3233425.83	-3233425.61	0.0523	0.0153
Moon	-13566-05-13 18:00 J	-3233425.96	-3233425.75	-3233425.54	0.0523	0.0171 *
Mercury	-13564-10-06 17:16 J	-3232548.90	-3232548.78	-3232548.65	0.0524	0.0116
Mercury	-13563-01-03 22:04 J	-3232459.65	-3232459.58	-3232459.51	0.0523	0.0430
Venus	-13561-04-24 16:48 J	-3231617.92	-3231617.80	-3231617.68	0.0507	0.0398
Venus	-13561-12-17 00:00 J	-3231381.69	-3231381.50	-3231381.31	0.0503	0.0171
Mercury	-13558-11-29 15:07 J	-3230304.05	-3230303.87	-3230303.69	0.0502	0.0128
Venus	-13555-10-18 03:21 J	-3229250.57	-3229250.36	-3229250.16	0.0521	0.0068
Earth	-13554-05-18 13:11 J	-3229038.13	-3229037.95	-3229037.75	0.0524	0.0293
Moon	-13554-05-18 13:40 J	-3229038.13	-3229037.93	-3229037.72	0.0524	0.0271 *
Mars	-13552-05-09 11:02 J	-3228316.20	-3228316.04	-3228315.85	0.0526	0.0419
Mercury	-13552-07-25 21:50 J	-3228238.69	-3228238.59	-3228238.47	0.0525	0.0250
Mercury	-13552-10-23 02:38 J	-3228149.49	-3228149.39	-3228149.29	0.0524	0.0297
Venus	-13549-08-22 03:07 J	-3227115.57	-3227115.37	-3227115.17	0.0504	0.0018
Mercury	-13546-09-17 11:31 J	-3225994.20	-3225994.02	-3225993.83	0.0501	0.0058

Venus	-13543-06-22 18:00 J	-3224984.93	-3224984.75	-3224984.57	0.0520	0.0249
Venus	-13542-02-15 12:57 J	-3224747.09	-3224746.96	-3224746.83	0.0524	0.0405
Mercury	-13540-05-14 02:38 J	-3223928.47	-3223928.39	-3223928.30	0.0525	0.0382
Mercury	-13540-08-11 07:26 J	-3223839.31	-3223839.19	-3223839.07	0.0524	0.0166
Venus	-13537-04-27 05:31 J	-3222849.46	-3222849.27	-3222849.08	0.0505	0.0139
Earth	-13537-11-06 14:09 J	-3222656.12	-3222655.91	-3222655.69	0.0502	0.0196
Moon	-13537-11-06 17:02 J	-3222656.01	-3222655.79	-3222655.57	0.0502	0.0215 *
Venus	-13537-12-19 11:31 J	-3222613.13	-3222613.02	-3222612.91	0.0502	0.0424
Mars	-13534-04-13 05:31 J	-3221768.50	-3221768.27	-3221768.05	0.0500	0.0242
Mercury	-13534-07-06 08:09 J	-3221684.32	-3221684.16	-3221683.99	0.0501	0.0239
Venus	-13531-02-25 11:16 J	-3220719.14	-3220719.03	-3220718.90	0.0518	0.0422
Venus	-13531-10-21 05:45 J	-3220481.45	-3220481.26	-3220481.08	0.0523	0.0228
Mercury	-13528-03-02 07:26 J	-3219618.21	-3219618.19	-3219618.16	0.0525	0.0512
Mercury	-13528-05-30 12:14 J	-3219529.12	-3219528.99	-3219528.87	0.0524	0.0035
Venus	-13525-01-01 04:48 J	-3218583.45	-3218583.30	-3218583.13	0.0506	0.0302
Venus	-13525-08-24 11:31 J	-3218347.19	-3218347.02	-3218346.85	0.0502	0.0267
Moon	-13525-11-10 20:38 J	-3218268.85	-3218268.64	-3218268.43	0.0501	0.0202
Earth	-13525-11-11 00:00 J	-3218268.71	-3218268.50	-3218268.28	0.0501	0.0184 *
Mercury	-13522-04-24 03:50 J	-3217374.43	-3217374.34	-3217374.25	0.0501	0.0434
Mercury	-13522-07-23 17:02 J	-3217283.93	-3217283.79	-3217283.64	0.0502	0.0318
Venus	-13519-06-25 22:33 J	-3216215.76	-3216215.56	-3216215.35	0.0522	0.0048
Mars	-13516-02-15 12:57 J	-3215250.25	-3215249.96	-3215249.67	0.0525	0.0063
Mercury	-13516-03-18 17:02 J	-3215218.91	-3215218.79	-3215218.67	0.0524	0.0096
Mercury	-13516-06-15 21:35 J	-3215129.66	-3215129.60	-3215129.54	0.0523	0.0448
Venus	-13514-09-06 06:28 J	-3214317.31	-3214317.23	-3214317.15	0.0507	0.0458
Venus	-13513-04-29 13:26 J	-3214081.13	-3214080.94	-3214080.74	0.0503	0.0113
Mercury	-13510-05-11 13:55 J	-3212974.10	-3212973.92	-3212973.73	0.0502	0.0139
Venus	-13507-02-28 14:24 J	-3211950.10	-3211949.90	-3211949.70	0.0520	0.0133
Venus	-13507-10-24 09:21 J	-3211712.12	-3211712.11	-3211712.08	0.0524	0.0521
Mercury	-13504-01-04 21:21 J	-3210908.72	-3210908.61	-3210908.50	0.0524	0.0235

Mercury	-13504-04-04 01:55 J	-3210819.52	-3210819.42	-3210819.32	0.0523	0.0310
Venus	-13501-01-03 15:50 J	-3209815.04	-3209814.84	-3209814.64	0.0505	0.0045
Mars	-13498-01-15 08:09 J	-3208707.41	-3208707.16	-3208706.90	0.0501	0.0066
Mercury	-13498-02-27 11:02 J	-3208664.23	-3208664.04	-3208663.85	0.0501	0.0041
Venus	-13496-11-03 05:45 J	-3207684.42	-3207684.26	-3207684.09	0.0519	0.0312
Venus	-13495-06-29 00:14 J	-3207446.64	-3207446.49	-3207446.33	0.0523	0.0341
Mercury	-13493-10-24 01:55 J	-3206598.51	-3206598.42	-3206598.33	0.0525	0.0369
Mercury	-13492-01-21 06:28 J	-3206509.34	-3206509.23	-3206509.11	0.0524	0.0177
Venus	-13490-09-08 18:28 J	-3205548.91	-3205548.73	-3205548.54	0.0506	0.0200
Venus	-13489-05-02 00:57 J	-3205312.59	-3205312.46	-3205312.32	0.0502	0.0368
Mercury	-13487-12-16 07:26 J	-3204354.35	-3204354.19	-3204354.02	0.0501	0.0224
Venus	-13484-07-08 21:07 J	-3203418.68	-3203418.62	-3203418.55	0.0518	0.0488
Venus	-13483-03-03 14:52 J	-3203181.07	-3203180.88	-3203180.68	0.0522	0.0159
Earth	-13483-05-13 00:57 J	-3203110.67	-3203110.46	-3203110.24	0.0523	0.0206
Moon	-13483-05-13 01:11 J	-3203110.67	-3203110.45	-3203110.23	0.0523	0.0228 *
Mercury	-13481-08-12 06:28 J	-3202288.26	-3202288.23	-3202288.19	0.0525	0.0503
Mercury	-13481-11-09 11:16 J	-3202199.15	-3202199.03	-3202198.90	0.0524	0.0045
Venus	-13478-05-14 20:38 J	-3201282.78	-3201282.64	-3201282.50	0.0507	0.0357
Venus	-13477-01-06 03:35 J	-3201046.53	-3201046.35	-3201046.16	0.0503	0.0216
Mercury	-13475-10-04 04:04 J	-3200044.43	-3200044.33	-3200044.21	0.0501	0.0405
Mercury	-13474-01-02 17:16 J	-3199953.91	-3199953.78	-3199953.64	0.0502	0.0345
Venus	-13472-11-06 07:40 J	-3198915.39	-3198915.18	-3198914.97	0.0521	0.0020
Moon	-13471-05-17 23:02 J	-3198722.73	-3198722.54	-3198722.33	0.0524	0.0239
Earth	-13471-05-18 01:40 J	-3198722.63	-3198722.43	-3198722.22	0.0524	0.0253 *
Mercury	-13469-08-28 16:19 J	-3197888.95	-3197888.82	-3197888.70	0.0524	0.0086
Mercury	-13469-11-25 20:52 J	-3197799.69	-3197799.63	-3197799.57	0.0523	0.0459
Venus	-13466-09-11 03:50 J	-3196780.54	-3196780.34	-3196780.14	0.0504	0.0054
Mars	-13463-10-19 06:43 J	-3195646.38	-3195646.22	-3195646.04	0.0502	0.0367
Mercury	-13463-10-21 12:57 J	-3195644.14	-3195643.96	-3195643.78	0.0502	0.0149
Venus	-13460-07-12 00:28 J	-3194649.66	-3194649.48	-3194649.28	0.0520	0.0200

Venus	-13459-03-06 20:24 J	-3194411.75	-3194411.65	-3194411.56	0.0524	0.0458
Mercury	-13457-06-16 21:07 J	-3193578.74	-3193578.62	-3193578.51	0.0524	0.0214
Mercury	-13457-09-14 01:40 J	-3193489.53	-3193489.43	-3193489.33	0.0523	0.0330
Venus	-13454-05-17 05:45 J	-3192514.46	-3192514.26	-3192514.06	0.0505	0.0104
Moon	-13454-11-06 18:14 J	-3192340.93	-3192340.74	-3192340.54	0.0502	0.0266
Earth	-13454-11-06 21:50 J	-3192340.79	-3192340.59	-3192340.39	0.0502	0.0247 *
Venus	-13453-01-08 11:02 J	-3192278.11	-3192278.04	-3192277.95	0.0501	0.0460
Mercury	-13451-08-09 09:50 J	-3191334.28	-3191334.09	-3191333.90	0.0502	0.0031
Venus	-13448-03-16 16:48 J	-3190383.93	-3190383.80	-3190383.65	0.0519	0.0377
Venus	-13448-11-09 11:16 J	-3190146.20	-3190146.03	-3190145.85	0.0523	0.0277
Mercury	-13445-04-05 01:26 J	-3189268.53	-3189268.44	-3189268.35	0.0525	0.0353
Mercury	-13445-07-03 06:00 J	-3189179.36	-3189179.25	-3189179.13	0.0523	0.0192
Venus	-13442-01-20 07:26 J	-3188248.36	-3188248.19	-3188248.02	0.0506	0.0262
Venus	-13442-09-13 13:55 J	-3188012.07	-3188011.92	-3188011.75	0.0503	0.0309
Earth	-13442-11-11 12:28 J	-3187953.20	-3187952.98	-3187952.75	0.0502	0.0149
Moon	-13442-11-11 16:19 J	-3187953.04	-3187952.82	-3187952.61	0.0502	0.0177 *
Mercury	-13439-05-28 06:43 J	-3187024.39	-3187024.22	-3187024.04	0.0501	0.0208
Venus	-13436-07-15 02:24 J	-3185880.60	-3185880.40	-3185880.20	0.0522	0.0094
Mercury	-13433-01-23 06:00 J	-3184958.29	-3184958.25	-3184958.21	0.0525	0.0488
Mercury	-13433-04-21 10:33 J	-3184869.18	-3184869.06	-3184868.93	0.0524	0.0058
Venus	-13431-09-25 09:21 J	-3183982.21	-3183982.11	-3183981.99	0.0508	0.0419
Venus	-13430-05-19 17:02 J	-3183745.98	-3183745.79	-3183745.60	0.0504	0.0156
Mercury	-13427-03-16 03:21 J	-3182714.47	-3182714.36	-3182714.24	0.0501	0.0390
Mercury	-13427-06-14 16:33 J	-3182623.94	-3182623.81	-3182623.68	0.0502	0.0360
Venus	-13424-03-19 17:02 J	-3181614.99	-3181614.79	-3181614.58	0.0521	0.0091
Mercury	-13421-02-08 15:21 J	-3180558.99	-3180558.86	-3180558.74	0.0525	0.0076
Mercury	-13421-05-07 19:55 J	-3180469.72	-3180469.67	-3180469.61	0.0523	0.0469
Venus	-13418-01-22 19:40 J	-3179479.88	-3179479.68	-3179479.48	0.0504	0.0001
Mars	-13416-10-03 19:26 J	-3178494.79	-3178494.69	-3178494.59	0.0500	0.0457
Mercury	-13415-04-02 13:11 J	-3178314.13	-3178313.95	-3178313.77	0.0502	0.0178

Venus	-13413-11-22 09:50 J	-3177349.26	-3177349.09	-3177348.91	0.0520	0.0268
Venus	-13412-07-18 04:48 J	-3177111.43	-3177111.30	-3177111.16	0.0524	0.0391
Mercury	-13410-11-27 20:09 J	-3176248.77	-3176248.66	-3176248.54	0.0524	0.0205
Mercury	-13409-02-25 00:57 J	-3176159.56	-3176159.46	-3176159.37	0.0523	0.0341
Venus	-13407-09-27 19:55 J	-3175213.86	-3175213.67	-3175213.48	0.0505	0.0163
Venus	-13406-05-22 01:26 J	-3174977.56	-3174977.44	-3174977.32	0.0502	0.0404
Mercury	-13403-01-19 08:38 J	-3174004.33	-3174004.14	-3174003.96	0.0502	0.0024
Venus	-13401-07-28 02:38 J	-3173083.49	-3173083.39	-3173083.28	0.0519	0.0445
Venus	-13400-03-22 21:21 J	-3172845.79	-3172845.61	-3172845.42	0.0523	0.0211
Moon	-13400-05-12 14:09 J	-3172795.11	-3172794.91	-3172794.72	0.0524	0.0262
Earth	-13400-05-12 16:19 J	-3172795.02	-3172794.82	-3172794.61	0.0524	0.0230 *
Mars	-13398-08-05 11:45 J	-3171980.26	-3171980.01	-3171979.75	0.0525	0.0260
Mercury	-13398-09-16 01:11 J	-3171938.55	-3171938.45	-3171938.36	0.0525	0.0333
Mercury	-13398-12-14 05:45 J	-3171849.37	-3171849.26	-3171849.15	0.0523	0.0212
Venus	-13395-06-02 21:35 J	-3170947.75	-3170947.60	-3170947.45	0.0506	0.0322
Venus	-13394-01-25 03:50 J	-3170711.52	-3170711.34	-3170711.17	0.0502	0.0251
Mercury	-13392-11-07 05:16 J	-3169694.45	-3169694.28	-3169694.10	0.0501	0.0202
Venus	-13389-11-25 12:57 J	-3168580.17	-3168579.96	-3168579.76	0.0521	0.0028
Earth	-13388-05-17 14:38 J	-3168407.10	-3168406.89	-3168406.68	0.0524	0.0218
Moon	-13388-05-17 18:28 J	-3168406.94	-3168406.73	-3168406.51	0.0524	0.0212 *
Mercury	-13386-07-05 05:16 J	-3167628.33	-3167628.28	-3167628.22	0.0525	0.0473
Mercury	-13386-10-02 10:04 J	-3167539.21	-3167539.08	-3167538.96	0.0524	0.0073
Venus	-13383-02-05 22:33 J	-3166681.62	-3166681.56	-3166681.49	0.0508	0.0480
Venus	-13383-09-30 06:14 J	-3166445.44	-3166445.24	-3166445.05	0.0504	0.0096
Mars	-13380-07-07 20:52 J	-3165433.87	-3165433.63	-3165433.38	0.0501	0.0150
Mercury	-13380-08-26 02:24 J	-3165384.52	-3165384.40	-3165384.28	0.0501	0.0378
Mercury	-13380-11-24 15:35 J	-3165293.97	-3165293.85	-3165293.72	0.0502	0.0374
Venus	-13377-07-31 04:19 J	-3164314.51	-3164314.32	-3164314.12	0.0520	0.0155
Venus	-13376-03-25 23:31 J	-3164076.57	-3164076.52	-3164076.46	0.0524	0.0504
Mercury	-13374-07-21 14:38 J	-3163229.02	-3163228.89	-3163228.77	0.0524	0.0064

Mercury -13374-10-18 19:11 J -3163139.75 -3163139.70 -3163139.65 0.0523 0.0480  
 Venus -13371-06-05 08:38 J -3162179.34 -3162179.14 -3162178.94 0.0505 0.0062  
 Earth -13371-11-06 10:48 J -3162025.24 -3162025.05 -3162024.85 0.0503 0.0280  
 Moon -13371-11-06 14:24 J -3162025.09 -3162024.90 -3162024.70 0.0503 0.0285 \*  
 Mercury -13368-09-12 12:14 J -3160984.16 -3160983.99 -3160983.82 0.0502 0.0190  
 Venus -13365-04-04 19:26 J -3160048.85 -3160048.69 -3160048.54 0.0519 0.0336  
 Venus -13365-11-28 13:40 J -3159811.09 -3159810.93 -3159810.77 0.0523 0.0322  
 Mercury -13362-05-09 19:11 J -3158918.82 -3158918.70 -3158918.58 0.0525 0.0197  
 Mars -13362-05-13 19:26 J -3158914.96 -3158914.69 -3158914.41 0.0525 0.0202  
 Mercury -13362-08-06 23:45 J -3158829.60 -3158829.51 -3158829.41 0.0524 0.0348  
 Venus -13359-02-08 11:02 J -3157913.22 -3157913.04 -3157912.86 0.0506 0.0220  
 Venus -13359-10-02 17:16 J -3157676.92 -3157676.78 -3157676.63 0.0502 0.0353  
 Moon -13359-11-10 23:02 J -3157637.77 -3157637.54 -3157637.31 0.0502 0.0147  
 Earth -13359-11-11 01:55 J -3157637.64 -3157637.42 -3157637.19 0.0502 0.0117 \*  
 Mercury -13356-07-01 08:52 J -3156674.32 -3156674.13 -3156673.95 0.0501 0.0013  
 Venus -13354-12-09 12:14 J -3155783.02 -3155782.99 -3155782.96 0.0518 0.0510  
 Venus -13353-08-03 06:00 J -3155545.45 -3155545.25 -3155545.05 0.0522 0.0141  
 Mercury -13350-02-26 00:14 J -3154608.59 -3154608.49 -3154608.40 0.0525 0.0325  
 Mercury -13350-05-26 04:48 J -3154519.41 -3154519.30 -3154519.19 0.0524 0.0220  
 Venus -13348-10-14 11:31 J -3153647.15 -3153647.02 -3153646.89 0.0507 0.0382  
 Venus -13347-06-07 17:45 J -3153410.95 -3153410.76 -3153410.57 0.0503 0.0193  
 Earth -13347-11-15 12:28 J -3153250.00 -3153249.98 -3153249.95 0.0501 0.0497  
 Mars -13344-04-10 17:45 J -3152373.00 -3152372.76 -3152372.51 0.0501 0.0151  
 Mercury -13344-04-19 03:50 J -3152364.51 -3152364.34 -3152364.16 0.0501 0.0195  
 Venus -13341-04-07 22:04 J -3151279.78 -3151279.58 -3151279.37 0.0521 0.0043  
 Mercury -13339-12-15 05:02 J -3150298.35 -3150298.29 -3150298.23 0.0525 0.0454  
 Mercury -13338-03-14 09:35 J -3150209.22 -3150209.10 -3150208.97 0.0524 0.0091  
 Venus -13335-02-10 19:55 J -3149144.87 -3149144.67 -3149144.47 0.0504 0.0035  
 Mercury -13332-02-05 00:43 J -3148054.60 -3148054.47 -3148054.35 0.0501 0.0376  
 Mercury -13332-05-06 13:55 J -3147964.04 -3147963.92 -3147963.80 0.0502 0.0377

Venus	-13330-12-12 13:55 J	-3147014.10	-3147013.92	-3147013.73	0.0520	0.0224
Venus	-13329-08-06 09:07 J	-3146776.22	-3146776.12	-3146776.00	0.0524	0.0439
Mercury	-13327-12-31 13:55 J	-3145899.04	-3145898.92	-3145898.80	0.0524	0.0049
Mercury	-13326-03-30 18:28 J	-3145809.77	-3145809.73	-3145809.69	0.0523	0.0493
Venus	-13324-10-16 21:35 J	-3144878.80	-3144878.60	-3144878.41	0.0505	0.0124
Venus	-13323-06-10 03:07 J	-3144642.46	-3144642.37	-3144642.28	0.0502	0.0445
Mercury	-13320-02-22 10:48 J	-3143654.22	-3143654.05	-3143653.87	0.0502	0.0199
Venus	-13318-08-17 05:45 J	-3142748.38	-3142748.26	-3142748.12	0.0519	0.0403
Venus	-13317-04-11 00:14 J	-3142510.67	-3142510.49	-3142510.31	0.0523	0.0256
Earth	-13317-05-12 00:43 J	-3142479.66	-3142479.47	-3142479.27	0.0523	0.0282
Moon	-13317-05-12 04:33 J	-3142479.50	-3142479.31	-3142479.12	0.0523	0.0314 *
Mercury	-13315-10-19 18:14 J	-3141588.85	-3141588.74	-3141588.62	0.0524	0.0187
Mercury	-13314-01-16 23:02 J	-3141499.63	-3141499.54	-3141499.45	0.0523	0.0358
Venus	-13312-06-21 23:16 J	-3140612.69	-3140612.53	-3140612.36	0.0506	0.0283
Venus	-13311-02-13 06:00 J	-3140376.42	-3140376.25	-3140376.09	0.0503	0.0293
Mercury	-13309-12-11 07:26 J	-3139344.38	-3139344.19	-3139344.00	0.0501	0.0015
Mars	-13308-01-13 00:57 J	-3139311.54	-3139311.46	-3139311.36	0.0502	0.0467
Venus	-13306-12-15 14:09 J	-3138245.11	-3138244.91	-3138244.70	0.0521	0.0070
Moon	-13305-05-16 17:02 J	-3138092.01	-3138091.79	-3138091.57	0.0524	0.0148
Earth	-13305-05-16 21:07 J	-3138091.84	-3138091.62	-3138091.40	0.0524	0.0156 *
Mercury	-13303-08-07 22:48 J	-3137278.64	-3137278.55	-3137278.45	0.0525	0.0323
Mercury	-13303-11-05 03:35 J	-3137189.47	-3137189.35	-3137189.24	0.0524	0.0223
Venus	-13300-02-25 01:11 J	-3136346.55	-3136346.45	-3136346.35	0.0508	0.0442
Venus	-13300-10-19 08:24 J	-3136110.34	-3136110.15	-3136109.95	0.0504	0.0138
Mercury	-13297-09-29 03:50 J	-3135034.52	-3135034.34	-3135034.16	0.0501	0.0170
Venus	-13294-08-20 06:28 J	-3133979.43	-3133979.23	-3133979.03	0.0521	0.0114
Mercury	-13291-05-27 03:50 J	-3132968.40	-3132968.34	-3132968.28	0.0525	0.0450
Mercury	-13291-08-24 08:24 J	-3132879.27	-3132879.15	-3132879.02	0.0524	0.0098
Venus	-13288-06-24 09:21 J	-3131844.31	-3131844.11	-3131843.91	0.0504	0.0026
Moon	-13288-11-05 15:35 J	-3131710.02	-3131709.85	-3131709.66	0.0502	0.0327



Earth -13288-11-05 18:43 J -3131709.90 -3131709.72 -3131709.55 0.0502 0.0329 \*  
 Mercury -13285-07-17 22:48 J -3130724.67 -3130724.55 -3130724.42 0.0501 0.0373  
 Mercury -13285-10-16 12:00 J -3130634.12 -3130634.00 -3130633.88 0.0502 0.0379  
 Venus -13282-04-24 22:04 J -3129713.75 -3129713.58 -3129713.41 0.0520 0.0296  
 Venus -13282-12-18 17:31 J -3129475.91 -3129475.77 -3129475.62 0.0524 0.0369  
 Mercury -13279-06-12 13:11 J -3128569.07 -3128568.95 -3128568.82 0.0524 0.0040  
 Mercury -13279-09-09 18:00 J -3128479.78 -3128479.75 -3128479.73 0.0523 0.0508  
 Venus -13276-02-27 11:02 J -3127578.23 -3127578.04 -3127577.85 0.0505 0.0185  
 Venus -13276-10-21 16:19 J -3127341.94 -3127341.82 -3127341.69 0.0502 0.0386  
 Earth -13276-11-10 07:55 J -3127322.40 -3127322.17 -3127321.94 0.0501 0.0060  
 Moon -13276-11-10 09:21 J -3127322.33 -3127322.11 -3127321.89 0.0501 0.0092 \*  
 Mercury -13273-08-04 08:38 J -3126324.31 -3126324.14 -3126323.96 0.0502 0.0197  
 Venus -13271-12-28 14:09 J -3125447.98 -3125447.91 -3125447.82 0.0518 0.0473  
 Venus -13270-08-23 08:38 J -3125210.33 -3125210.14 -3125209.95 0.0523 0.0185  
 Mercury -13267-03-31 17:31 J -3124258.89 -3124258.77 -3124258.65 0.0524 0.0176  
 Mercury -13267-06-28 22:04 J -3124169.67 -3124169.58 -3124169.49 0.0523 0.0368  
 Venus -13265-11-02 11:45 J -3123312.16 -3123312.01 -3123311.87 0.0507 0.0347  
 Venus -13264-06-26 18:14 J -3123075.92 -3123075.74 -3123075.56 0.0503 0.0231  
 Earth -13264-11-14 21:07 J -3122934.71 -3122934.62 -3122934.51 0.0501 0.0448  
 Moon -13264-11-14 21:07 J -3122934.71 -3122934.62 -3122934.51 0.0501 0.0453 \*  
 Mars -13262-12-29 01:11 J -3122160.62 -3122160.45 -3122160.28 0.0500 0.0375  
 Mercury -13261-05-23 05:31 J -3122014.45 -3122014.27 -3122014.08 0.0502 0.0021  
 Venus -13258-04-27 23:45 J -3120944.72 -3120944.51 -3120944.30 0.0521 0.0003  
 Mercury -13255-01-17 21:50 J -3119948.69 -3119948.59 -3119948.49 0.0524 0.0314  
 Mercury -13255-04-17 02:24 J -3119859.51 -3119859.40 -3119859.28 0.0523 0.0231  
 Venus -13253-07-08 12:43 J -3119045.98 -3119045.97 -3119045.95 0.0508 0.0505  
 Venus -13252-03-01 20:24 J -3118809.85 -3118809.65 -3118809.45 0.0504 0.0074  
 Mercury -13249-03-11 02:09 J -3117704.59 -3117704.41 -3117704.23 0.0501 0.0167  
 Venus -13247-12-31 13:55 J -3116679.11 -3116678.92 -3116678.73 0.0520 0.0187  
 Venus -13246-08-26 08:52 J -3116441.20 -3116441.13 -3116441.04 0.0524 0.0478

Mars -13244-10-30 01:40 J -3115645.71 -3115645.43 -3115645.14 0.0525 0.0144  
 Mercury -13244-11-06 02:24 J -3115638.46 -3115638.40 -3115638.34 0.0525 0.0452  
 Mercury -13243-02-03 06:57 J -3115549.33 -3115549.21 -3115549.09 0.0524 0.0094  
 Venus -13241-11-04 22:33 J -3114543.76 -3114543.56 -3114543.36 0.0505 0.0086  
 Venus -13240-06-29 04:04 J -3114307.38 -3114307.33 -3114307.28 0.0502 0.0484  
 Mercury -13238-12-28 22:19 J -3113394.70 -3113394.57 -3113394.44 0.0501 0.0353  
 Mercury -13237-03-28 11:31 J -3113304.13 -3113304.02 -3113303.91 0.0502 0.0397  
 Venus -13235-09-05 06:00 J -3112413.39 -3112413.25 -3112413.10 0.0519 0.0367  
 Venus -13234-05-01 00:28 J -3112175.65 -3112175.48 -3112175.31 0.0523 0.0296  
 Moon -13234-05-12 01:40 J -3112164.58 -3112164.43 -3112164.27 0.0523 0.0384  
 Earth -13234-05-12 06:00 J -3112164.43 -3112164.25 -3112164.08 0.0523 0.0348 \*  
 Mercury -13232-11-22 12:00 J -3111239.13 -3111239.00 -3111238.88 0.0524 0.0039  
 Mercury -13231-02-19 16:33 J -3111149.84 -3111149.81 -3111149.79 0.0523 0.0509  
 Venus -13229-07-10 23:31 J -3110277.69 -3110277.52 -3110277.34 0.0506 0.0248  
 Venus -13228-03-04 05:16 J -3110041.43 -3110041.28 -3110041.13 0.0502 0.0327  
 Mars -13226-10-01 20:09 J -3109099.91 -3109099.66 -3109099.40 0.0501 0.0078  
 Mercury -13225-01-15 06:28 J -3108994.41 -3108994.23 -3108994.06 0.0502 0.0194  
 Venus -13222-01-03 15:21 J -3107910.06 -3107909.86 -3107909.66 0.0522 0.0110  
 Earth -13222-05-17 04:19 J -3107776.55 -3107776.32 -3107776.09 0.0524 0.0099  
 Moon -13222-05-17 07:40 J -3107776.40 -3107776.18 -3107775.95 0.0524 0.0101 \*  
 Mercury -13220-09-10 16:33 J -3106928.92 -3106928.81 -3106928.69 0.0524 0.0166  
 Mercury -13220-12-08 21:21 J -3106839.70 -3106839.61 -3106839.53 0.0523 0.0378  
 Venus -13217-03-16 00:43 J -3106011.58 -3106011.47 -3106011.35 0.0507 0.0408  
 Venus -13217-11-07 07:11 J -3105775.39 -3105775.20 -3105775.01 0.0503 0.0170  
 Mercury -13214-11-03 02:52 J -3104684.57 -3104684.38 -3104684.19 0.0502 0.0009  
 Venus -13211-09-08 06:57 J -3103644.42 -3103644.21 -3103644.01 0.0521 0.0074  
 Mercury -13208-06-29 20:52 J -3102618.73 -3102618.63 -3102618.53 0.0524 0.0309  
 Mars -13208-08-07 17:02 J -3102580.02 -3102579.79 -3102579.56 0.0524 0.0330  
 Mercury -13208-09-27 01:26 J -3102529.55 -3102529.44 -3102529.33 0.0523 0.0236  
 Venus -13205-07-13 08:09 J -3101509.36 -3101509.16 -3101508.96 0.0504 0.0010

Earth	-13205-11-05 00:28 J	-3101394.62	-3101394.48	-3101394.33	0.0502	0.0389
Moon	-13205-11-05 01:55 J	-3101394.56	-3101394.42	-3101394.27	0.0502	0.0380 *
Mercury	-13202-08-21 23:45 J	-3100374.69	-3100374.51	-3100374.33	0.0501	0.0171
Venus	-13199-05-13 22:19 J	-3099378.75	-3099378.57	-3099378.39	0.0520	0.0258
Venus	-13198-01-06 17:16 J	-3099140.90	-3099140.78	-3099140.65	0.0523	0.0409
Mercury	-13196-04-18 01:11 J	-3098308.52	-3098308.45	-3098308.39	0.0525	0.0448
Mercury	-13196-07-16 05:45 J	-3098219.38	-3098219.26	-3098219.14	0.0524	0.0097
Venus	-13193-03-18 09:35 J	-3097243.29	-3097243.10	-3097242.91	0.0505	0.0151
Moon	-13193-11-09 13:55 J	-3097007.16	-3097006.92	-3097006.67	0.0502	0.0032
Earth	-13193-11-09 14:09 J	-3097007.15	-3097006.91	-3097006.68	0.0502	0.0006 *
Venus	-13193-11-09 15:21 J	-3097006.96	-3097006.86	-3097006.75	0.0502	0.0423 *
Mercury	-13190-06-09 20:09 J	-3096064.79	-3096064.66	-3096064.53	0.0501	0.0356
Mars	-13190-07-06 00:14 J	-3096038.72	-3096038.49	-3096038.27	0.0501	0.0234
Mercury	-13190-09-08 09:21 J	-3095974.23	-3095974.11	-3095974.00	0.0502	0.0395
Venus	-13187-01-16 12:43 J	-3095113.07	-3095112.97	-3095112.85	0.0518	0.0440
Venus	-13187-09-11 06:57 J	-3094875.40	-3094875.21	-3094875.03	0.0522	0.0221
Mercury	-13184-05-04 10:04 J	-3093909.20	-3093909.08	-3093908.95	0.0524	0.0042
Mercury	-13184-08-01 14:38 J	-3093819.92	-3093819.89	-3093819.85	0.0523	0.0502
Venus	-13182-11-22 11:02 J	-3092977.19	-3092977.04	-3092976.88	0.0507	0.0313
Venus	-13181-07-15 17:45 J	-3092740.93	-3092740.76	-3092740.59	0.0503	0.0268
Moon	-13181-11-14 02:24 J	-3092619.54	-3092619.40	-3092619.26	0.0501	0.0393
Earth	-13181-11-14 03:50 J	-3092619.48	-3092619.34	-3092619.19	0.0501	0.0392 *
Mercury	-13178-06-27 05:16 J	-3091664.45	-3091664.28	-3091664.10	0.0502	0.0207
Venus	-13175-05-16 21:50 J	-3090609.79	-3090609.59	-3090609.38	0.0521	0.0035
Mercury	-13172-02-20 14:52 J	-3089598.99	-3089598.88	-3089598.76	0.0525	0.0172
Mercury	-13172-05-20 19:40 J	-3089509.77	-3089509.68	-3089509.60	0.0523	0.0373
Venus	-13170-07-28 12:14 J	-3088711.06	-3088710.99	-3088710.92	0.0507	0.0473
Venus	-13169-03-20 19:11 J	-3088474.90	-3088474.70	-3088474.51	0.0503	0.0108
Mercury	-13166-04-15 00:14 J	-3087354.68	-3087354.49	-3087354.30	0.0501	0.0002
Venus	-13163-01-19 12:14 J	-3086344.18	-3086343.99	-3086343.79	0.0521	0.0153

Venus	-13163-09-14 08:24 J	-3086106.17	-3086106.15	-3086106.11	0.0525	0.0518
Mercury	-13161-12-09 19:40 J	-3085288.78	-3085288.68	-3085288.58	0.0525	0.0304
Mercury	-13160-03-09 00:14 J	-3085199.60	-3085199.49	-3085199.38	0.0524	0.0242
Venus	-13158-11-24 20:38 J	-3084208.84	-3084208.64	-3084208.44	0.0504	0.0054
Mercury	-13154-01-31 20:38 J	-3083044.82	-3083044.64	-3083044.47	0.0501	0.0184
Venus	-13152-09-24 04:04 J	-3082078.48	-3082078.33	-3082078.17	0.0519	0.0334
Earth	-13151-05-11 07:40 J	-3081849.31	-3081849.18	-3081849.04	0.0523	0.0426
Moon	-13151-05-11 11:31 J	-3081849.12	-3081849.02	-3081848.91	0.0523	0.0458 *
Venus	-13151-05-19 23:02 J	-3081840.69	-3081840.54	-3081840.37	0.0523	0.0335
Mercury	-13149-09-27 23:45 J	-3080978.57	-3080978.51	-3080978.45	0.0525	0.0447
Mercury	-13149-12-26 04:19 J	-3080889.44	-3080889.32	-3080889.19	0.0524	0.0099
Venus	-13146-07-30 20:38 J	-3079942.82	-3079942.64	-3079942.45	0.0506	0.0217
Venus	-13145-03-23 02:24 J	-3079706.53	-3079706.40	-3079706.25	0.0502	0.0361
Mercury	-13143-11-19 17:16 J	-3078734.91	-3078734.78	-3078734.65	0.0501	0.0365
Mercury	-13142-02-18 06:28 J	-3078644.35	-3078644.23	-3078644.11	0.0502	0.0387
Venus	-13140-05-29 20:09 J	-3077812.69	-3077812.66	-3077812.63	0.0518	0.0511
Venus	-13139-01-22 13:55 J	-3077575.11	-3077574.92	-3077574.72	0.0522	0.0148
Moon	-13139-05-16 03:07 J	-3077461.61	-3077461.37	-3077461.13	0.0524	0.0021
Earth	-13139-05-16 05:31 J	-3077461.50	-3077461.27	-3077461.04	0.0524	0.0017 *
Mercury	-13137-10-14 08:38 J	-3076579.26	-3076579.14	-3076579.01	0.0524	0.0042
Mercury	-13136-01-11 13:11 J	-3076489.98	-3076489.95	-3076489.91	0.0523	0.0500
Venus	-13134-04-04 21:21 J	-3075676.74	-3075676.61	-3075676.48	0.0507	0.0380
Venus	-13134-11-27 04:04 J	-3075440.51	-3075440.33	-3075440.14	0.0503	0.0203
Mercury	-13131-12-07 02:38 J	-3074334.56	-3074334.39	-3074334.21	0.0502	0.0200
Venus	-13128-09-27 03:35 J	-3073309.55	-3073309.35	-3073309.14	0.0521	0.0043
Earth	-13127-05-21 00:28 J	-3073073.60	-3073073.48	-3073073.36	0.0524	0.0450
Moon	-13127-05-21 00:28 J	-3073073.56	-3073073.48	-3073073.39	0.0524	0.0481 *
Mars	-13125-04-16 13:11 J	-3072377.00	-3072376.95	-3072376.88	0.0526	0.0515
Mercury	-13125-08-02 12:57 J	-3072269.08	-3072268.96	-3072268.84	0.0525	0.0183
Mercury	-13125-10-30 17:31 J	-3072179.86	-3072179.77	-3072179.68	0.0523	0.0362

Venus	-13122-08-02 06:00 J	-3071174.45	-3071174.25	-3071174.04	0.0504	0.0045
Moon	-13122-11-05 04:04 J	-3071079.43	-3071079.33	-3071079.20	0.0503	0.0440
Earth	-13122-11-05 04:33 J	-3071079.41	-3071079.31	-3071079.21	0.0503	0.0453 *
Mercury	-13119-09-24 22:48 J	-3070024.74	-3070024.55	-3070024.36	0.0501	0.0009
Venus	-13116-06-01 18:28 J	-3069043.91	-3069043.73	-3069043.55	0.0520	0.0229
Venus	-13115-01-25 13:40 J	-3068806.03	-3068805.93	-3068805.82	0.0524	0.0441
Mercury	-13113-05-21 17:31 J	-3067958.86	-3067958.77	-3067958.66	0.0525	0.0315
Mercury	-13113-08-18 22:19 J	-3067869.68	-3067869.57	-3067869.46	0.0524	0.0231
Venus	-13110-04-07 07:40 J	-3066908.38	-3066908.18	-3066907.99	0.0505	0.0119
Moon	-13110-11-09 15:35 J	-3066692.08	-3066691.85	-3066691.62	0.0501	0.0040
Earth	-13110-11-09 17:02 J	-3066692.02	-3066691.79	-3066691.56	0.0501	0.0068 *
Venus	-13110-11-29 12:28 J	-3066672.05	-3066671.98	-3066671.89	0.0501	0.0454
Mars	-13107-03-23 10:33 J	-3065827.26	-3065827.06	-3065826.87	0.0500	0.0323
Mercury	-13107-07-13 17:31 J	-3065714.94	-3065714.77	-3065714.59	0.0501	0.0195
Venus	-13104-02-04 08:38 J	-3064778.26	-3064778.14	-3064778.01	0.0519	0.0413
Venus	-13104-09-30 03:35 J	-3064540.53	-3064540.35	-3064540.17	0.0523	0.0255
Mercury	-13101-03-09 22:19 J	-3063648.63	-3063648.57	-3063648.51	0.0525	0.0448
Mercury	-13101-06-07 02:52 J	-3063559.50	-3063559.38	-3063559.25	0.0524	0.0100
Venus	-13099-12-11 08:38 J	-3062642.31	-3062642.14	-3062641.97	0.0506	0.0282
Venus	-13098-08-04 14:24 J	-3062406.06	-3062405.90	-3062405.74	0.0502	0.0298
Earth	-13098-11-14 05:02 J	-3062304.47	-3062304.29	-3062304.10	0.0501	0.0316
Moon	-13098-11-14 08:24 J	-3062304.34	-3062304.15	-3062303.96	0.0501	0.0307 *
Mercury	-13095-05-01 13:55 J	-3061405.05	-3061404.92	-3061404.80	0.0501	0.0382
Mercury	-13095-07-31 02:52 J	-3061314.50	-3061314.38	-3061314.25	0.0502	0.0369
Venus	-13092-06-04 18:28 J	-3060274.93	-3060274.73	-3060274.52	0.0522	0.0069
Mars	-13089-01-23 20:52 J	-3059311.92	-3059311.63	-3059311.33	0.0525	0.0054
Mercury	-13089-03-26 06:57 J	-3059249.33	-3059249.21	-3059249.08	0.0524	0.0047
Mercury	-13089-06-23 11:31 J	-3059160.05	-3059160.02	-3059159.98	0.0523	0.0497
Venus	-13087-08-16 07:40 J	-3058376.27	-3058376.18	-3058376.08	0.0507	0.0447
Venus	-13086-04-09 14:52 J	-3058140.08	-3058139.88	-3058139.69	0.0503	0.0137

Mercury	-13083-05-18 23:31 J	-3057004.69	-3057004.52	-3057004.34	0.0502	0.0186
Venus	-13080-02-07 10:04 J	-3056009.28	-3056009.08	-3056008.88	0.0520	0.0118
Mercury	-13077-01-13 11:16 J	-3054939.15	-3054939.03	-3054938.91	0.0524	0.0186
Mercury	-13077-04-11 15:50 J	-3054849.93	-3054849.84	-3054849.75	0.0523	0.0357
Venus	-13075-12-13 15:50 J	-3053874.04	-3053873.84	-3053873.64	0.0505	0.0026
Mars	-13072-12-25 12:14 J	-3052766.25	-3052765.99	-3052765.73	0.0501	0.0017
Mercury	-13071-03-06 19:55 J	-3052694.86	-3052694.67	-3052694.48	0.0501	0.0009
Venus	-13069-10-12 23:45 J	-3051743.67	-3051743.51	-3051743.34	0.0519	0.0306
Venus	-13068-06-07 18:14 J	-3051505.88	-3051505.74	-3051505.58	0.0523	0.0365
Mercury	-13066-11-01 15:21 J	-3050628.95	-3050628.86	-3050628.76	0.0525	0.0330
Mercury	-13065-01-29 20:09 J	-3050539.78	-3050539.66	-3050539.55	0.0524	0.0216
Venus	-13063-08-18 17:16 J	-3049607.97	-3049607.78	-3049607.60	0.0506	0.0189
Venus	-13062-04-11 23:16 J	-3049371.65	-3049371.53	-3049371.41	0.0502	0.0392
Mercury	-13060-12-23 15:50 J	-3048385.02	-3048384.84	-3048384.67	0.0501	0.0193
Venus	-13057-06-17 14:52 J	-3047477.95	-3047477.88	-3047477.81	0.0518	0.0486
Venus	-13056-02-10 08:52 J	-3047240.33	-3047240.13	-3047239.94	0.0522	0.0176
Earth	-13056-05-15 01:11 J	-3047146.68	-3047146.45	-3047146.22	0.0524	0.0085
Moon	-13056-05-15 01:55 J	-3047146.64	-3047146.42	-3047146.20	0.0524	0.0072 *
Mercury	-13054-08-20 20:09 J	-3046318.72	-3046318.66	-3046318.60	0.0525	0.0462
Mars	-13054-11-01 00:14 J	-3046246.68	-3046246.49	-3046246.30	0.0524	0.0405
Mercury	-13054-11-18 00:43 J	-3046229.59	-3046229.47	-3046229.34	0.0524	0.0086
Venus	-13051-04-23 18:43 J	-3045341.87	-3045341.72	-3045341.58	0.0507	0.0350
Venus	-13051-12-16 00:57 J	-3045105.64	-3045105.46	-3045105.28	0.0503	0.0234
Mercury	-13048-10-11 10:33 J	-3044075.17	-3044075.06	-3044074.94	0.0500	0.0395
Mercury	-13047-01-09 23:45 J	-3043984.64	-3043984.51	-3043984.38	0.0502	0.0354
Venus	-13045-10-15 22:19 J	-3042974.78	-3042974.57	-3042974.37	0.0521	0.0015
Earth	-13044-05-19 21:21 J	-3042758.78	-3042758.61	-3042758.43	0.0525	0.0352
Moon	-13044-05-19 22:33 J	-3042758.71	-3042758.56	-3042758.39	0.0525	0.0381 *
Mercury	-13042-09-06 05:31 J	-3041919.40	-3041919.27	-3041919.15	0.0525	0.0052
Mercury	-13042-12-04 10:04 J	-3041830.12	-3041830.08	-3041830.04	0.0523	0.0494

Venus	-13039-08-21 02:38 J	-3040839.59	-3040839.39	-3040839.19	0.0503	0.0073
Mars	-13036-09-28 01:55 J	-3039705.62	-3039705.42	-3039705.20	0.0501	0.0279
Mercury	-13036-10-28 19:55 J	-3039674.85	-3039674.67	-3039674.49	0.0501	0.0166
Venus	-13033-06-20 13:40 J	-3038709.12	-3038708.93	-3038708.74	0.0520	0.0199
Venus	-13032-02-13 09:35 J	-3038471.19	-3038471.10	-3038471.02	0.0524	0.0475
Mercury	-13030-06-25 09:35 J	-3037609.22	-3037609.10	-3037608.99	0.0524	0.0195
Mercury	-13030-09-22 14:09 J	-3037520.00	-3037519.91	-3037519.82	0.0523	0.0350
Venus	-13027-04-26 01:55 J	-3036573.62	-3036573.42	-3036573.22	0.0505	0.0093
Earth	-13027-11-08 15:21 J	-3036377.08	-3036376.86	-3036376.64	0.0502	0.0156
Moon	-13027-11-08 18:14 J	-3036376.97	-3036376.74	-3036376.51	0.0502	0.0130 *
Venus	-13027-12-18 07:11 J	-3036337.25	-3036337.20	-3036337.14	0.0501	0.0483
Mercury	-13024-08-16 16:33 J	-3035365.00	-3035364.81	-3035364.62	0.0501	0.0020
Venus	-13021-02-24 05:45 J	-3034443.39	-3034443.26	-3034443.11	0.0519	0.0381
Venus	-13021-10-19 00:14 J	-3034205.66	-3034205.49	-3034205.32	0.0523	0.0289
Mercury	-13018-04-13 13:40 J	-3033299.02	-3033298.93	-3033298.83	0.0525	0.0335
Mercury	-13018-07-11 18:28 J	-3033209.85	-3033209.73	-3033209.62	0.0523	0.0211
Venus	-13016-12-30 02:09 J	-3032307.58	-3032307.41	-3032307.23	0.0506	0.0258
Venus	-13015-08-23 08:52 J	-3032071.29	-3032071.13	-3032070.98	0.0502	0.0327
Moon	-13015-11-12 23:45 J	-3031989.72	-3031989.51	-3031989.30	0.0501	0.0213
Earth	-13015-11-13 03:35 J	-3031989.56	-3031989.35	-3031989.14	0.0501	0.0228 *
Mercury	-13012-06-04 12:43 J	-3031055.14	-3031054.97	-3031054.80	0.0501	0.0206
Venus	-13009-06-23 13:26 J	-3029940.14	-3029939.94	-3029939.73	0.0521	0.0098
Mercury	-13006-01-30 17:45 J	-3028988.80	-3028988.76	-3028988.71	0.0525	0.0478
Mercury	-13006-04-29 22:33 J	-3028899.69	-3028899.56	-3028899.44	0.0524	0.0068
Venus	-13004-09-04 03:07 J	-3028041.48	-3028041.37	-3028041.26	0.0508	0.0422
Venus	-13003-04-28 10:33 J	-3027805.25	-3027805.06	-3027804.87	0.0504	0.0167

# 13TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 13th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-13000-03-23 08:24 J		-3026745.25	-3026745.15	-3026745.03	0.0501	0.0397	
Mercury	-13000-06-21 21:35 J		-3026654.73	-3026654.60	-3026654.46	0.0502	0.0354	
Venus	-12997-02-27 03:50 J		-3025674.54	-3025674.34	-3025674.13	0.0520	0.0092	
Mercury	-12994-02-16 03:07 J		-3024589.49	-3024589.37	-3024589.24	0.0525	0.0066	
Mercury	-12994-05-16 07:40 J		-3024500.22	-3024500.18	-3024500.13	0.0523	0.0479	
Venus	-12991-01-01 12:28 J		-3023539.18	-3023538.98	-3023538.78	0.0504	0.0010	
Mercury	-12988-04-09 16:48 J		-3022344.98	-3022344.80	-3022344.62	0.0501	0.0152	
Venus	-12986-11-01 17:16 J		-3021408.95	-3021408.78	-3021408.60	0.0519	0.0281	
Venus	-12985-06-26 12:28 J		-3021171.11	-3021170.98	-3021170.84	0.0524	0.0395	
Mercury	-12983-12-05 07:40 J		-3020279.29	-3020279.18	-3020279.06	0.0525	0.0201	
Mercury	-12982-03-04 12:28 J		-3020190.08	-3020189.98	-3020189.89	0.0524	0.0345	
Venus	-12980-09-06 13:40 J		-3019273.12	-3019272.93	-3019272.74	0.0505	0.0158	
Venus	-12979-04-30 19:11 J		-3019036.81	-3019036.70	-3019036.60	0.0502	0.0422	
Mercury	-12976-01-26 12:57 J		-3018035.15	-3018034.96	-3018034.77	0.0501	0.0036	
Venus	-12974-07-07 09:21 J		-3017143.19	-3017143.11	-3017143.01	0.0518	0.0460	
Venus	-12973-03-01 03:50 J		-3016905.53	-3016905.34	-3016905.15	0.0522	0.0209	
Earth	-12973-05-13 21:21 J		-3016831.82	-3016831.61	-3016831.39	0.0524	0.0189	
Moon	-12973-05-13 22:04 J		-3016831.80	-3016831.58	-3016831.35	0.0524	0.0170	*
Mars	-12971-07-10 14:38 J		-3016044.02	-3016043.89	-3016043.74	0.0526	0.0459	
Mercury	-12971-09-23 11:45 J		-3015969.10	-3015969.01	-3015968.91	0.0525	0.0345	
Mercury	-12971-12-21 16:33 J		-3015879.93	-3015879.81	-3015879.70	0.0524	0.0201	



Venus	-12968-05-12 12:14 J	-3015007.14	-3015006.99	-3015006.84	0.0507	0.0327
Venus	-12967-01-03 18:43 J	-3014770.89	-3014770.72	-3014770.55	0.0503	0.0261
Mercury	-12965-11-14 09:07 J	-3013725.28	-3013725.12	-3013724.94	0.0501	0.0224
Venus	-12962-11-04 19:26 J	-3012639.90	-3012639.69	-3012639.49	0.0521	0.0023
Moon	-12961-05-18 17:45 J	-3012443.94	-3012443.76	-3012443.57	0.0524	0.0288
Earth	-12961-05-18 20:09 J	-3012443.86	-3012443.66	-3012443.46	0.0524	0.0257 *
Mercury	-12959-07-12 16:04 J	-3011658.87	-3011658.83	-3011658.78	0.0525	0.0484
Mercury	-12959-10-09 20:52 J	-3011569.76	-3011569.63	-3011569.51	0.0524	0.0063
Venus	-12956-01-15 12:00 J	-3010741.04	-3010741.00	-3010740.95	0.0508	0.0492
Venus	-12956-09-08 19:55 J	-3010504.87	-3010504.67	-3010504.47	0.0504	0.0099
Mars	-12953-06-15 18:14 J	-3009493.95	-3009493.74	-3009493.53	0.0500	0.0278
Mercury	-12953-09-02 05:31 J	-3009415.37	-3009415.27	-3009415.16	0.0501	0.0409
Mercury	-12953-12-01 18:43 J	-3009324.85	-3009324.72	-3009324.58	0.0502	0.0342
Venus	-12950-07-10 09:21 J	-3008374.31	-3008374.11	-3008373.92	0.0520	0.0170
Venus	-12949-03-04 04:19 J	-3008136.37	-3008136.32	-3008136.26	0.0524	0.0505
Mercury	-12947-07-29 00:57 J	-3007259.58	-3007259.46	-3007259.34	0.0524	0.0081
Mercury	-12947-10-26 05:31 J	-3007170.32	-3007170.27	-3007170.21	0.0523	0.0462
Venus	-12944-05-14 21:07 J	-3006238.82	-3006238.62	-3006238.42	0.0505	0.0066
Moon	-12944-11-07 11:45 J	-3006062.21	-3006062.01	-3006061.79	0.0502	0.0214
Earth	-12944-11-07 15:35 J	-3006062.05	-3006061.85	-3006061.64	0.0502	0.0235 *
Mercury	-12941-09-19 14:38 J	-3005015.07	-3005014.89	-3005014.71	0.0501	0.0151
Venus	-12938-03-15 00:00 J	-3004108.65	-3004108.50	-3004108.35	0.0518	0.0356
Venus	-12938-11-07 18:14 J	-3003870.90	-3003870.74	-3003870.58	0.0523	0.0317
Mars	-12935-04-17 12:57 J	-3002979.25	-3002978.96	-3002978.66	0.0525	0.0007
Mercury	-12935-05-17 05:31 J	-3002949.38	-3002949.27	-3002949.16	0.0525	0.0216
Mercury	-12935-08-14 10:04 J	-3002860.17	-3002860.08	-3002859.98	0.0524	0.0330
Venus	-12932-01-17 23:02 J	-3001972.72	-3001972.54	-3001972.36	0.0506	0.0228
Venus	-12932-09-11 05:31 J	-3001736.41	-3001736.27	-3001736.13	0.0502	0.0358
Earth	-12932-11-12 05:16 J	-3001674.50	-3001674.28	-3001674.06	0.0501	0.0153
Moon	-12932-11-12 09:07 J	-3001674.34	-3001674.12	-3001673.89	0.0501	0.0135 *

Mercury	-12929-07-08 10:04 J	-3000705.27	-3000705.08	-3000704.89	0.0501	0.0048
Venus	-12926-07-13 07:26 J	-2999605.39	-2999605.19	-2999604.99	0.0522	0.0126
Mercury	-12923-03-05 10:04 J	-2998639.17	-2998639.08	-2998638.99	0.0525	0.0352
Mercury	-12923-06-02 14:52 J	-2998550.00	-2998549.88	-2998549.77	0.0524	0.0196
Venus	-12921-09-23 00:00 J	-2997706.62	-2997706.50	-2997706.37	0.0507	0.0392
Venus	-12920-05-17 06:57 J	-2997470.39	-2997470.21	-2997470.02	0.0503	0.0199
Mars	-12917-03-19 11:45 J	-2996433.27	-2996433.01	-2996432.75	0.0500	0.0022
Mercury	-12917-04-26 06:14 J	-2996395.41	-2996395.24	-2996395.08	0.0501	0.0236
Venus	-12914-03-17 23:16 J	-2995339.74	-2995339.53	-2995339.33	0.0521	0.0061
Mercury	-12912-12-22 14:24 J	-2994328.94	-2994328.90	-2994328.86	0.0525	0.0493
Mercury	-12911-03-21 18:57 J	-2994239.83	-2994239.71	-2994239.58	0.0524	0.0053
Venus	-12908-01-20 06:00 J	-2993204.45	-2993204.25	-2993204.05	0.0504	0.0032
Mercury	-12905-02-13 02:24 J	-2992085.50	-2992085.40	-2992085.30	0.0501	0.0424
Mercury	-12905-05-13 15:35 J	-2991994.99	-2991994.85	-2991994.71	0.0502	0.0328
Venus	-12903-11-20 15:35 J	-2991074.03	-2991073.85	-2991073.67	0.0519	0.0245
Venus	-12902-07-16 10:33 J	-2990836.18	-2990836.06	-2990835.95	0.0523	0.0432
Mercury	-12899-01-07 23:16 J	-2989929.65	-2989929.53	-2989929.40	0.0524	0.0086
Mars	-12899-01-23 17:31 J	-2989913.92	-2989913.77	-2989913.62	0.0524	0.0449
Mercury	-12899-04-07 03:50 J	-2989840.39	-2989840.34	-2989840.28	0.0523	0.0458
Venus	-12897-09-25 06:57 J	-2988938.41	-2988938.21	-2988938.02	0.0506	0.0135
Venus	-12896-05-19 12:43 J	-2988702.05	-2988701.97	-2988701.88	0.0502	0.0450
Mercury	-12893-03-01 12:00 J	-2987685.18	-2987685.00	-2987684.82	0.0502	0.0141
Venus	-12891-07-26 06:28 J	-2986808.34	-2986808.23	-2986808.11	0.0518	0.0431
Venus	-12890-03-21 00:14 J	-2986570.68	-2986570.49	-2986570.31	0.0522	0.0240
Moon	-12890-05-13 17:31 J	-2986516.96	-2986516.77	-2986516.57	0.0523	0.0262
Earth	-12890-05-13 19:26 J	-2986516.89	-2986516.69	-2986516.50	0.0523	0.0280 *
Mercury	-12888-10-27 03:35 J	-2985619.47	-2985619.35	-2985619.24	0.0525	0.0229
Mercury	-12887-01-24 08:09 J	-2985530.26	-2985530.16	-2985530.06	0.0523	0.0317
Venus	-12885-05-31 07:40 J	-2984672.34	-2984672.18	-2984672.01	0.0507	0.0301
Venus	-12884-01-22 14:38 J	-2984436.05	-2984435.89	-2984435.72	0.0503	0.0291

Mercury	-12882-12-19 07:55 J	-2983375.35	-2983375.17	-2983374.98	0.0501	0.0049
Mars	-12882-12-22 11:16 J	-2983372.22	-2983372.03	-2983371.83	0.0501	0.0325
Venus	-12879-11-23 14:09 J	-2982305.11	-2982304.91	-2982304.70	0.0521	0.0051
Earth	-12878-05-18 15:35 J	-2982129.07	-2982128.85	-2982128.63	0.0524	0.0155
Moon	-12878-05-18 18:43 J	-2982128.94	-2982128.72	-2982128.49	0.0524	0.0184 *
Mercury	-12876-08-15 07:55 J	-2981309.25	-2981309.17	-2981309.08	0.0525	0.0364
Mercury	-12876-11-12 12:43 J	-2981220.09	-2981219.97	-2981219.85	0.0524	0.0183
Venus	-12873-02-04 09:21 J	-2980406.18	-2980406.11	-2980406.02	0.0508	0.0463
Venus	-12873-09-27 17:16 J	-2980169.97	-2980169.78	-2980169.58	0.0504	0.0132
Mercury	-12870-10-07 03:35 J	-2979065.51	-2979065.35	-2979065.18	0.0501	0.0243
Venus	-12867-07-29 03:50 J	-2978039.53	-2978039.34	-2978039.14	0.0520	0.0142
Mercury	-12864-06-03 12:28 J	-2976999.01	-2976998.98	-2976998.94	0.0526	0.0499
Mercury	-12864-08-31 17:16 J	-2976909.90	-2976909.78	-2976909.65	0.0525	0.0049
Venus	-12861-06-02 18:57 J	-2975903.92	-2975903.71	-2975903.51	0.0505	0.0034
Earth	-12861-11-06 18:43 J	-2975746.90	-2975746.72	-2975746.53	0.0502	0.0305
Moon	-12861-11-06 22:48 J	-2975746.74	-2975746.55	-2975746.36	0.0502	0.0284 *
Mercury	-12858-07-25 23:45 J	-2974755.60	-2974755.51	-2974755.41	0.0500	0.0429
Mercury	-12858-10-24 12:57 J	-2974665.11	-2974664.96	-2974664.82	0.0501	0.0320
Venus	-12855-04-02 20:24 J	-2973773.81	-2973773.65	-2973773.49	0.0519	0.0325
Venus	-12855-11-26 14:52 J	-2973536.03	-2973535.88	-2973535.73	0.0523	0.0353
Mercury	-12852-06-19 21:35 J	-2972599.72	-2972599.60	-2972599.48	0.0524	0.0092
Mercury	-12852-09-17 02:09 J	-2972510.47	-2972510.41	-2972510.35	0.0523	0.0451
Venus	-12849-02-06 17:31 J	-2971637.95	-2971637.77	-2971637.59	0.0506	0.0204
Venus	-12849-09-29 23:45 J	-2971401.64	-2971401.51	-2971401.38	0.0502	0.0386
Moon	-12849-11-11 00:00 J	-2971359.74	-2971359.50	-2971359.27	0.0502	0.0047
Earth	-12849-11-11 03:21 J	-2971359.59	-2971359.36	-2971359.12	0.0502	0.0066 *
Mercury	-12846-08-12 09:07 J	-2970355.30	-2970355.12	-2970354.94	0.0502	0.0131
Venus	-12844-12-06 13:40 J	-2969507.97	-2969507.93	-2969507.89	0.0517	0.0504
Venus	-12843-08-01 06:57 J	-2969270.40	-2969270.21	-2969270.01	0.0522	0.0166
Mercury	-12840-04-08 02:09 J	-2968289.52	-2968289.41	-2968289.30	0.0524	0.0228

Mercury	-12840-07-06 06:43 J	-2968200.32	-2968200.22	-2968200.12	0.0523	0.0316
Venus	-12838-10-12 18:00 J	-2967371.88	-2967371.75	-2967371.61	0.0507	0.0370
Venus	-12837-06-05 00:57 J	-2967135.63	-2967135.46	-2967135.27	0.0503	0.0226
Earth	-12837-11-15 16:04 J	-2966971.93	-2966971.83	-2966971.72	0.0501	0.0448
Moon	-12837-11-15 18:14 J	-2966971.85	-2966971.74	-2966971.61	0.0501	0.0423 *
Mercury	-12834-05-31 05:31 J	-2966045.46	-2966045.27	-2966045.08	0.0501	0.0054
Venus	-12831-04-05 21:35 J	-2965004.81	-2965004.60	-2965004.40	0.0520	0.0026
Mercury	-12828-01-25 06:14 J	-2963979.33	-2963979.24	-2963979.15	0.0525	0.0370
Mercury	-12828-04-24 10:48 J	-2963890.16	-2963890.05	-2963889.93	0.0524	0.0176
Venus	-12825-02-09 02:52 J	-2962869.58	-2962869.38	-2962869.18	0.0505	0.0062
Mercury	-12822-03-19 01:55 J	-2961735.59	-2961735.42	-2961735.26	0.0501	0.0240
Venus	-12820-12-09 12:14 J	-2960739.18	-2960738.99	-2960738.80	0.0519	0.0215
Venus	-12819-08-04 06:43 J	-2960501.31	-2960501.22	-2960501.12	0.0523	0.0464
Mars	-12817-10-02 15:07 J	-2959711.05	-2959710.87	-2959710.68	0.0526	0.0403
Mercury	-12817-11-13 10:48 J	-2959669.08	-2959669.05	-2959669.02	0.0525	0.0506
Mercury	-12816-02-10 15:21 J	-2959579.98	-2959579.86	-2959579.73	0.0524	0.0044
Venus	-12814-10-15 05:16 J	-2958603.48	-2958603.28	-2958603.08	0.0506	0.0101
Venus	-12813-06-07 11:02 J	-2958367.08	-2958367.04	-2958366.98	0.0502	0.0486
Mercury	-12810-01-04 21:35 J	-2957425.69	-2957425.60	-2957425.50	0.0500	0.0431
Mercury	-12810-04-05 10:48 J	-2957335.19	-2957335.05	-2957334.90	0.0501	0.0318
Venus	-12808-08-14 02:38 J	-2956473.52	-2956473.39	-2956473.26	0.0518	0.0402
Venus	-12807-04-08 20:24 J	-2956235.82	-2956235.65	-2956235.47	0.0522	0.0275
Earth	-12807-05-12 17:31 J	-2956201.93	-2956201.77	-2956201.60	0.0523	0.0373
Moon	-12807-05-12 20:24 J	-2956201.82	-2956201.65	-2956201.47	0.0523	0.0349 *
Mercury	-12805-11-29 20:09 J	-2955269.78	-2955269.66	-2955269.54	0.0525	0.0094
Mercury	-12804-02-27 00:43 J	-2955180.53	-2955180.47	-2955180.41	0.0524	0.0451
Venus	-12802-06-20 06:43 J	-2954337.39	-2954337.22	-2954337.05	0.0507	0.0267
Venus	-12801-02-11 13:26 J	-2954101.09	-2954100.94	-2954100.79	0.0503	0.0327
Mars	-12799-09-09 05:31 J	-2953160.50	-2953160.27	-2953160.03	0.0500	0.0228
Mercury	-12798-01-22 07:11 J	-2953025.38	-2953025.20	-2953025.02	0.0501	0.0132

Venus	-12796-12-12 12:28 J	-2951970.18	-2951969.98	-2951969.77	0.0521	0.0087
Moon	-12795-05-17 13:55 J	-2951814.15	-2951813.92	-2951813.70	0.0524	0.0097
Earth	-12795-05-17 17:31 J	-2951814.00	-2951813.77	-2951813.54	0.0524	0.0073 *
Mercury	-12793-09-18 00:28 J	-2950959.59	-2950959.48	-2950959.36	0.0525	0.0232
Mercury	-12793-12-16 05:16 J	-2950870.38	-2950870.28	-2950870.18	0.0523	0.0313
Venus	-12790-02-23 05:02 J	-2950071.38	-2950071.29	-2950071.18	0.0508	0.0438
Venus	-12790-10-17 12:43 J	-2949835.16	-2949834.97	-2949834.78	0.0504	0.0160
Mercury	-12787-11-10 03:07 J	-2948715.56	-2948715.37	-2948715.18	0.0502	0.0060
Venus	-12784-08-17 05:31 J	-2947704.48	-2947704.27	-2947704.07	0.0520	0.0100
Earth	-12783-05-22 17:45 J	-2947425.77	-2947425.76	-2947425.75	0.0524	0.0524
Moon	-12783-05-22 20:52 J	-2947425.69	-2947425.63	-2947425.56	0.0524	0.0501
Mercury	-12781-07-07 05:16 J	-2946649.37	-2946649.28	-2946649.20	0.0525	0.0366
Mars	-12781-07-11 02:09 J	-2946645.70	-2946645.41	-2946645.12	0.0525	0.0062
Mercury	-12781-10-04 09:50 J	-2946560.21	-2946560.09	-2946559.97	0.0523	0.0179
Venus	-12778-06-22 13:55 J	-2945569.12	-2945568.92	-2945568.71	0.0505	0.0012
Moon	-12778-11-06 14:52 J	-2945432.04	-2945431.88	-2945431.72	0.0503	0.0366
Earth	-12778-11-06 18:28 J	-2945431.87	-2945431.73	-2945431.58	0.0503	0.0387 *
Mercury	-12775-08-28 23:45 J	-2944405.67	-2944405.51	-2944405.34	0.0501	0.0242
Venus	-12772-04-21 20:52 J	-2943438.80	-2943438.63	-2943438.46	0.0519	0.0288
Venus	-12772-12-15 14:52 J	-2943201.01	-2943200.88	-2943200.74	0.0523	0.0393
Mercury	-12769-04-25 09:21 J	-2942339.14	-2942339.11	-2942339.08	0.0525	0.0507
Mercury	-12769-07-23 13:55 J	-2942250.04	-2942249.92	-2942249.79	0.0524	0.0043
Venus	-12766-02-25 15:35 J	-2941303.04	-2941302.85	-2941302.66	0.0506	0.0171
Venus	-12766-10-19 21:50 J	-2941066.69	-2941066.59	-2941066.47	0.0503	0.0422
Earth	-12766-11-11 08:24 J	-2941044.38	-2941044.15	-2941043.91	0.0502	0.0009
Moon	-12766-11-11 10:48 J	-2941044.28	-2941044.05	-2941043.82	0.0502	0.0017 *
Mars	-12763-06-13 06:57 J	-2940099.47	-2940099.21	-2940098.96	0.0501	0.0081
Mercury	-12763-06-16 20:09 J	-2940095.75	-2940095.66	-2940095.56	0.0501	0.0425
Mercury	-12763-09-15 09:21 J	-2940005.25	-2940005.11	-2940004.96	0.0502	0.0326
Venus	-12761-12-25 12:14 J	-2939173.06	-2939172.99	-2939172.90	0.0517	0.0471

Venus	-12760-08-20 05:16 J	-2938935.46	-2938935.28	-2938935.08	0.0522	0.0203
Mercury	-12757-05-11 18:28 J	-2937939.85	-2937939.73	-2937939.60	0.0524	0.0098
Mercury	-12757-08-08 23:16 J	-2937850.60	-2937850.53	-2937850.47	0.0523	0.0448
Venus	-12755-10-31 17:31 J	-2937036.92	-2937036.77	-2937036.62	0.0508	0.0335
Venus	-12754-06-25 00:57 J	-2936800.63	-2936800.46	-2936800.29	0.0503	0.0264
Moon	-12754-11-15 23:31 J	-2936656.68	-2936656.52	-2936656.36	0.0501	0.0372
Earth	-12754-11-15 23:45 J	-2936656.65	-2936656.51	-2936656.36	0.0501	0.0393 *
Mercury	-12751-07-04 05:31 J	-2935695.45	-2935695.27	-2935695.09	0.0501	0.0135
Venus	-12748-04-24 19:26 J	-2934669.89	-2934669.69	-2934669.48	0.0521	0.0014
Mercury	-12745-02-28 23:16 J	-2933629.64	-2933629.53	-2933629.42	0.0525	0.0230
Mercury	-12745-05-28 03:50 J	-2933540.44	-2933540.34	-2933540.24	0.0524	0.0316
Venus	-12743-07-06 18:43 J	-2932770.74	-2932770.72	-2932770.68	0.0509	0.0500
Venus	-12742-02-28 03:07 J	-2932534.56	-2932534.37	-2932534.17	0.0504	0.0102
Mercury	-12739-04-22 01:55 J	-2931385.61	-2931385.42	-2931385.23	0.0501	0.0049
Venus	-12737-12-28 12:00 J	-2930404.19	-2930404.00	-2930403.80	0.0519	0.0177
Venus	-12736-08-23 07:11 J	-2930166.25	-2930166.20	-2930166.15	0.0524	0.0508
Mercury	-12734-12-18 03:50 J	-2929319.43	-2929319.34	-2929319.25	0.0525	0.0365
Mercury	-12733-03-16 08:24 J	-2929230.27	-2929230.15	-2929230.03	0.0524	0.0181
Venus	-12731-11-03 02:24 J	-2928268.60	-2928268.40	-2928268.20	0.0505	0.0072
Mercury	-12727-02-07 21:50 J	-2927075.76	-2927075.59	-2927075.43	0.0501	0.0243
Mars	-12727-03-17 04:19 J	-2927038.48	-2927038.32	-2927038.15	0.0502	0.0382
Venus	-12725-09-02 05:31 J	-2926138.41	-2926138.27	-2926138.11	0.0518	0.0361
Venus	-12724-04-27 23:45 J	-2925900.67	-2925900.51	-2925900.34	0.0523	0.0323
Moon	-12724-05-11 23:45 J	-2925886.66	-2925886.51	-2925886.36	0.0523	0.0396
Earth	-12724-05-12 03:21 J	-2925886.49	-2925886.36	-2925886.22	0.0523	0.0419 *
Mercury	-12722-10-06 08:24 J	-2925009.18	-2925009.15	-2925009.11	0.0525	0.0497
Mercury	-12721-01-03 13:11 J	-2924920.08	-2924919.95	-2924919.83	0.0524	0.0049
Venus	-12719-07-09 03:35 J	-2924002.53	-2924002.35	-2924002.17	0.0507	0.0238
Venus	-12718-03-02 10:04 J	-2923766.22	-2923766.08	-2923765.94	0.0503	0.0358
Mercury	-12716-11-26 18:28 J	-2922765.83	-2922765.73	-2922765.63	0.0501	0.0423

Mercury	-12715-02-25 07:40 J	-2922675.32	-2922675.18	-2922675.03	0.0502	0.0330
Venus	-12713-12-31 14:38 J	-2921635.08	-2921634.89	-2921634.69	0.0521	0.0131
Earth	-12712-05-17 00:57 J	-2921498.70	-2921498.46	-2921498.23	0.0523	0.0019
Moon	-12712-05-17 04:19 J	-2921498.55	-2921498.32	-2921498.09	0.0523	0.0034 *
Mercury	-12710-10-22 17:31 J	-2920609.90	-2920609.77	-2920609.65	0.0524	0.0092
Mercury	-12709-01-19 22:04 J	-2920520.64	-2920520.58	-2920520.52	0.0523	0.0451
Venus	-12707-03-14 04:33 J	-2919736.43	-2919736.31	-2919736.19	0.0508	0.0405
Venus	-12707-11-05 12:14 J	-2919500.17	-2919499.99	-2919499.80	0.0504	0.0198
Mercury	-12704-12-14 04:19 J	-2918365.50	-2918365.32	-2918365.14	0.0502	0.0147
Venus	-12701-09-05 06:00 J	-2917369.46	-2917369.25	-2917369.05	0.0520	0.0060
Moon	-12700-05-21 19:26 J	-2917110.82	-2917110.69	-2917110.54	0.0524	0.0425
Earth	-12700-05-21 21:50 J	-2917110.69	-2917110.59	-2917110.47	0.0524	0.0455 *
Mercury	-12698-08-10 22:04 J	-2916299.69	-2916299.58	-2916299.47	0.0525	0.0227
Mercury	-12698-11-08 02:38 J	-2916210.49	-2916210.39	-2916210.29	0.0523	0.0318
Venus	-12695-07-11 15:07 J	-2915234.07	-2915233.87	-2915233.67	0.0505	0.0036
Earth	-12695-11-06 04:04 J	-2915116.44	-2915116.33	-2915116.20	0.0503	0.0431
Moon	-12695-11-06 06:28 J	-2915116.35	-2915116.23	-2915116.10	0.0503	0.0417 *
Mercury	-12692-10-02 00:43 J	-2914055.66	-2914055.47	-2914055.28	0.0501	0.0040
Venus	-12689-05-10 20:38 J	-2913103.82	-2913103.64	-2913103.46	0.0519	0.0251
Venus	-12688-01-03 14:52 J	-2912865.99	-2912865.88	-2912865.77	0.0523	0.0434
Mercury	-12686-05-30 02:38 J	-2911989.48	-2911989.39	-2911989.30	0.0525	0.0360
Mercury	-12686-08-27 07:26 J	-2911900.31	-2911900.19	-2911900.08	0.0524	0.0186
Venus	-12683-03-16 17:16 J	-2910967.97	-2910967.78	-2910967.58	0.0506	0.0131
Venus	-12683-11-07 23:31 J	-2910731.59	-2910731.52	-2910731.44	0.0502	0.0463
Moon	-12683-11-10 18:28 J	-2910728.97	-2910728.73	-2910728.48	0.0502	0.0065
Earth	-12683-11-10 18:57 J	-2910728.94	-2910728.71	-2910728.48	0.0502	0.0040 *
Mars	-12680-03-01 08:24 J	-2909887.23	-2909887.15	-2909887.04	0.0500	0.0463
Mercury	-12680-07-20 21:07 J	-2909745.78	-2909745.62	-2909745.45	0.0501	0.0224
Venus	-12677-01-14 13:55 J	-2908838.03	-2908837.92	-2908837.81	0.0518	0.0432
Venus	-12677-09-08 07:26 J	-2908600.37	-2908600.19	-2908600.01	0.0522	0.0248

Mercury	-12674-03-18 07:26 J	-2907679.23	-2907679.19	-2907679.15	0.0525	0.0492
Mercury	-12674-06-15 12:00 J	-2907590.12	-2907590.00	-2907589.87	0.0524	0.0055
Venus	-12672-11-19 16:19 J	-2906701.97	-2906701.82	-2906701.65	0.0507	0.0304
Venus	-12671-07-13 23:16 J	-2906465.69	-2906465.53	-2906465.37	0.0503	0.0297
Moon	-12671-11-15 02:24 J	-2906341.57	-2906341.40	-2906341.22	0.0501	0.0317
Earth	-12671-11-15 04:04 J	-2906341.50	-2906341.33	-2906341.15	0.0501	0.0330 *
Mercury	-12668-05-08 16:48 J	-2905435.90	-2905435.80	-2905435.69	0.0501	0.0419
Mercury	-12668-08-07 06:14 J	-2905345.38	-2905345.24	-2905345.10	0.0502	0.0334
Venus	-12665-05-14 00:28 J	-2904334.69	-2904334.48	-2904334.28	0.0521	0.0060
Mars	-12663-12-28 09:50 J	-2903376.33	-2903376.09	-2903375.84	0.0525	0.0291
Mercury	-12662-04-03 16:48 J	-2903279.92	-2903279.80	-2903279.67	0.0524	0.0078
Mercury	-12662-07-01 21:21 J	-2903190.66	-2903190.61	-2903190.55	0.0523	0.0464
Venus	-12660-07-25 17:31 J	-2902435.84	-2902435.77	-2902435.69	0.0508	0.0469
Venus	-12659-03-19 01:11 J	-2902199.64	-2902199.45	-2902199.25	0.0504	0.0134
Mercury	-12656-05-26 03:07 J	-2901035.55	-2901035.37	-2901035.19	0.0502	0.0154
Venus	-12653-01-17 16:19 J	-2900069.02	-2900068.82	-2900068.62	0.0520	0.0131
Mercury	-12650-01-20 21:07 J	-2898969.73	-2898969.62	-2898969.50	0.0524	0.0217
Mercury	-12650-04-20 01:40 J	-2898880.52	-2898880.43	-2898880.33	0.0523	0.0327
Venus	-12648-11-22 03:07 J	-2897933.57	-2897933.37	-2897933.16	0.0505	0.0034
Mars	-12645-12-03 13:26 J	-2896826.18	-2896825.94	-2896825.69	0.0501	0.0150
Mercury	-12644-03-13 23:45 J	-2896725.70	-2896725.51	-2896725.32	0.0502	0.0028
Venus	-12642-09-22 08:09 J	-2895803.33	-2895803.16	-2895803.00	0.0518	0.0319
Earth	-12641-05-11 10:33 J	-2895571.15	-2895571.06	-2895570.96	0.0522	0.0474
Moon	-12641-05-11 14:09 J	-2895571.03	-2895570.91	-2895570.79	0.0522	0.0443 *
Venus	-12641-05-17 01:40 J	-2895565.57	-2895565.43	-2895565.28	0.0522	0.0367
Mercury	-12639-11-09 01:40 J	-2894659.52	-2894659.43	-2894659.33	0.0525	0.0351
Mercury	-12638-02-06 06:14 J	-2894570.35	-2894570.24	-2894570.12	0.0524	0.0195
Venus	-12636-07-28 05:45 J	-2893667.45	-2893667.26	-2893667.08	0.0507	0.0197
Venus	-12635-03-21 12:28 J	-2893431.09	-2893430.98	-2893430.86	0.0503	0.0403
Mercury	-12633-12-30 20:24 J	-2892415.82	-2892415.65	-2892415.48	0.0501	0.0211



Venus	-12630-05-27 23:16 J	-2891537.57	-2891537.53	-2891537.48	0.0517	0.0503
Venus	-12629-01-20 16:04 J	-2891300.02	-2891299.83	-2891299.63	0.0521	0.0175
Moon	-12629-05-16 04:48 J	-2891183.53	-2891183.30	-2891183.06	0.0523	0.0034
Earth	-12629-05-16 07:26 J	-2891183.42	-2891183.19	-2891182.96	0.0523	0.0042 *
Mercury	-12627-08-28 06:28 J	-2890349.28	-2890349.23	-2890349.19	0.0525	0.0485
Mars	-12627-10-05 17:45 J	-2890311.03	-2890310.76	-2890310.48	0.0525	0.0175
Mercury	-12627-11-25 11:02 J	-2890260.16	-2890260.04	-2890259.91	0.0524	0.0062
Venus	-12624-04-02 07:26 J	-2889401.32	-2889401.19	-2889401.04	0.0508	0.0364
Venus	-12624-11-24 15:07 J	-2889165.04	-2889164.87	-2889164.69	0.0504	0.0242
Mercury	-12621-10-18 16:48 J	-2888105.91	-2888105.80	-2888105.68	0.0501	0.0393
Mercury	-12620-01-17 06:00 J	-2888015.38	-2888015.25	-2888015.11	0.0502	0.0358
Venus	-12618-09-25 09:07 J	-2887034.33	-2887034.12	-2887033.92	0.0520	0.0016
Earth	-12617-05-21 08:09 J	-2886795.31	-2886795.16	-2886795.02	0.0524	0.0406
Moon	-12617-05-21 08:52 J	-2886795.28	-2886795.13	-2886794.97	0.0524	0.0377 *
Mercury	-12615-09-13 15:50 J	-2885949.96	-2885949.84	-2885949.71	0.0524	0.0071
Mercury	-12615-12-11 20:24 J	-2885860.70	-2885860.65	-2885860.60	0.0523	0.0473
Venus	-12612-07-30 15:07 J	-2884899.07	-2884898.87	-2884898.67	0.0504	0.0071
Moon	-12612-11-05 10:19 J	-2884801.14	-2884801.07	-2884800.98	0.0503	0.0474
Earth	-12612-11-05 11:02 J	-2884801.10	-2884801.04	-2884800.98	0.0503	0.0482 *
Mars	-12609-09-06 13:40 J	-2883765.17	-2883764.93	-2883764.68	0.0501	0.0157
Mercury	-12609-11-05 01:40 J	-2883705.61	-2883705.43	-2883705.25	0.0502	0.0162
Venus	-12606-05-31 02:09 J	-2882768.60	-2882768.41	-2882768.22	0.0519	0.0202
Venus	-12605-01-23 21:07 J	-2882530.68	-2882530.62	-2882530.54	0.0523	0.0488
Mercury	-12603-07-02 20:52 J	-2881639.75	-2881639.63	-2881639.52	0.0524	0.0199
Mercury	-12603-09-30 01:11 J	-2881550.54	-2881550.45	-2881550.35	0.0523	0.0345
Venus	-12600-04-04 16:48 J	-2880632.99	-2880632.80	-2880632.60	0.0506	0.0097
Moon	-12600-11-09 23:16 J	-2880413.75	-2880413.53	-2880413.31	0.0502	0.0125
Earth	-12600-11-10 00:57 J	-2880413.69	-2880413.46	-2880413.23	0.0502	0.0096 *
Venus	-12600-11-26 22:33 J	-2880396.58	-2880396.56	-2880396.53	0.0502	0.0498
Mercury	-12597-08-23 22:33 J	-2879395.75	-2879395.56	-2879395.37	0.0502	0.0018

Venus	-12594-02-02 18:57 J	-2878502.85	-2878502.71	-2878502.58	0.0518	0.0387
Venus	-12594-09-28 12:43 J	-2878265.14	-2878264.97	-2878264.81	0.0522	0.0298
Mercury	-12591-04-21 01:11 J	-2877329.55	-2877329.45	-2877329.36	0.0524	0.0337
Mercury	-12591-07-19 05:45 J	-2877240.38	-2877240.26	-2877240.15	0.0523	0.0207
Venus	-12589-12-08 18:14 J	-2876366.91	-2876366.74	-2876366.57	0.0507	0.0264
Venus	-12588-08-02 01:11 J	-2876130.59	-2876130.45	-2876130.30	0.0503	0.0340
Earth	-12588-11-14 15:21 J	-2876026.04	-2876025.86	-2876025.66	0.0502	0.0292
Moon	-12588-11-14 18:43 J	-2876025.91	-2876025.72	-2876025.52	0.0502	0.0286 *
Mercury	-12585-06-11 19:26 J	-2875085.86	-2875085.69	-2875085.51	0.0502	0.0197
Venus	-12582-06-03 03:35 J	-2873999.55	-2873999.35	-2873999.14	0.0521	0.0107
Mercury	-12579-02-07 05:45 J	-2873019.31	-2873019.26	-2873019.21	0.0525	0.0472
Mercury	-12579-05-07 10:19 J	-2872930.19	-2872930.07	-2872929.95	0.0524	0.0073
Venus	-12577-08-13 20:09 J	-2872100.76	-2872100.66	-2872100.55	0.0508	0.0430
Venus	-12576-04-07 04:19 J	-2871864.51	-2871864.32	-2871864.13	0.0504	0.0179
Mercury	-12573-03-30 16:04 J	-2870775.95	-2870775.83	-2870775.70	0.0501	0.0379
Mars	-12573-06-10 22:19 J	-2870703.64	-2870703.57	-2870703.49	0.0502	0.0478
Mercury	-12573-06-29 05:16 J	-2870685.40	-2870685.28	-2870685.15	0.0502	0.0373
Venus	-12570-02-05 18:43 J	-2869733.93	-2869733.72	-2869733.52	0.0520	0.0087
Mercury	-12567-02-23 15:07 J	-2868620.00	-2868619.87	-2868619.75	0.0524	0.0061
Mercury	-12567-05-23 19:40 J	-2868530.73	-2868530.68	-2868530.64	0.0523	0.0483
Venus	-12565-12-11 06:57 J	-2867598.41	-2867598.21	-2867598.01	0.0505	0.0015
Mercury	-12561-04-17 01:55 J	-2866375.59	-2866375.42	-2866375.24	0.0502	0.0190
Venus	-12559-10-11 11:31 J	-2865468.19	-2865468.02	-2865467.84	0.0519	0.0274
Moon	-12558-05-11 19:11 J	-2865255.79	-2865255.70	-2865255.61	0.0522	0.0483
Earth	-12558-05-11 21:50 J	-2865255.62	-2865255.59	-2865255.56	0.0522	0.0516 *
Venus	-12558-06-06 05:45 J	-2865230.37	-2865230.26	-2865230.13	0.0523	0.0417
Mercury	-12556-12-12 19:55 J	-2864309.78	-2864309.67	-2864309.55	0.0524	0.0188
Mercury	-12555-03-12 00:28 J	-2864220.57	-2864220.48	-2864220.39	0.0523	0.0355
Venus	-12553-08-16 06:57 J	-2863332.40	-2863332.21	-2863332.02	0.0506	0.0159
Venus	-12552-04-09 12:57 J	-2863096.05	-2863095.96	-2863095.86	0.0502	0.0439

Mercury	-12549-02-03 21:21 J	-2862065.80	-2862065.61	-2862065.42	0.0502	0.0011
Venus	-12547-06-16 04:48 J	-2861202.39	-2861202.30	-2861202.20	0.0518	0.0458
Venus	-12546-02-08 22:48 J	-2860964.73	-2860964.55	-2860964.36	0.0522	0.0228
Earth	-12546-05-16 22:48 J	-2860867.78	-2860867.55	-2860867.32	0.0524	0.0066
Moon	-12546-05-16 23:45 J	-2860867.73	-2860867.51	-2860867.29	0.0524	0.0064 *
Mercury	-12544-10-01 00:57 J	-2859999.56	-2859999.46	-2859999.36	0.0524	0.0317
Mercury	-12544-12-29 05:31 J	-2859910.39	-2859910.27	-2859910.16	0.0523	0.0227
Venus	-12541-04-21 08:24 J	-2859066.30	-2859066.15	-2859065.99	0.0507	0.0327
Venus	-12541-12-13 15:07 J	-2858830.03	-2858829.87	-2858829.70	0.0503	0.0279
Mercury	-12538-11-22 18:14 J	-2857755.91	-2857755.74	-2857755.56	0.0502	0.0188
Venus	-12535-10-14 14:38 J	-2856699.09	-2856698.89	-2856698.68	0.0521	0.0036
Earth	-12534-05-21 21:50 J	-2856479.75	-2856479.59	-2856479.43	0.0524	0.0374
Moon	-12534-05-21 22:48 J	-2856479.73	-2856479.55	-2856479.37	0.0524	0.0342 *
Mercury	-12532-07-20 05:16 J	-2855689.34	-2855689.28	-2855689.22	0.0524	0.0455
Mercury	-12532-10-17 09:50 J	-2855600.21	-2855600.09	-2855599.97	0.0523	0.0089
Venus	-12530-12-26 09:07 J	-2854800.16	-2854800.12	-2854800.07	0.0509	0.0495
Venus	-12529-08-18 17:31 J	-2854563.96	-2854563.77	-2854563.57	0.0504	0.0114
Mars	-12526-05-26 23:45 J	-2853552.68	-2853552.51	-2853552.33	0.0500	0.0371
Mercury	-12526-09-10 15:21 J	-2853445.99	-2853445.86	-2853445.73	0.0501	0.0364
Mercury	-12526-12-10 04:33 J	-2853355.42	-2853355.31	-2853355.19	0.0503	0.0389
Venus	-12523-06-19 06:14 J	-2852433.43	-2852433.24	-2852433.04	0.0519	0.0155
Mercury	-12520-08-05 14:24 J	-2851290.03	-2851289.90	-2851289.78	0.0524	0.0046
Mercury	-12520-11-02 18:57 J	-2851200.75	-2851200.71	-2851200.68	0.0523	0.0495
Venus	-12517-04-23 19:55 J	-2850297.87	-2850297.67	-2850297.47	0.0506	0.0053
Earth	-12517-11-09 14:38 J	-2850098.12	-2850097.89	-2850097.66	0.0503	0.0126
Moon	-12517-11-09 18:00 J	-2850097.97	-2850097.75	-2850097.52	0.0503	0.0157 *
Mercury	-12514-09-28 01:11 J	-2849045.62	-2849045.45	-2849045.27	0.0502	0.0206
Venus	-12511-02-21 21:35 J	-2848167.75	-2848167.60	-2848167.44	0.0518	0.0345
Venus	-12511-10-17 15:21 J	-2847930.01	-2847929.86	-2847929.70	0.0522	0.0345
Mars	-12508-03-24 16:04 J	-2847041.11	-2847040.83	-2847040.55	0.0525	0.0154

Mercury	-12508-05-24 18:57 J	-2846979.82	-2846979.71	-2846979.59	0.0524	0.0179
Mercury	-12508-08-21 23:31 J	-2846890.60	-2846890.52	-2846890.43	0.0523	0.0365
Venus	-12506-12-28 22:19 J	-2846031.75	-2846031.57	-2846031.39	0.0507	0.0219
Venus	-12505-08-21 05:16 J	-2845795.41	-2845795.28	-2845795.15	0.0503	0.0386
Moon	-12505-11-14 01:40 J	-2845710.62	-2845710.43	-2845710.23	0.0502	0.0259
Earth	-12505-11-14 05:45 J	-2845710.46	-2845710.26	-2845710.06	0.0502	0.0263 *
Mercury	-12502-07-16 21:50 J	-2844735.78	-2844735.59	-2844735.40	0.0502	0.0023
Venus	-12499-06-22 07:55 J	-2843664.37	-2843664.17	-2843663.97	0.0521	0.0155
Mercury	-12496-03-13 00:00 J	-2842669.60	-2842669.50	-2842669.40	0.0524	0.0306
Mercury	-12496-06-10 04:33 J	-2842580.42	-2842580.31	-2842580.20	0.0523	0.0237
Venus	-12494-09-02 22:33 J	-2841765.69	-2841765.56	-2841765.44	0.0507	0.0391
Venus	-12493-04-26 05:31 J	-2841529.45	-2841529.27	-2841529.08	0.0503	0.0218
Mars	-12490-02-28 00:57 J	-2840491.71	-2840491.46	-2840491.20	0.0501	0.0062
Mercury	-12490-05-04 17:02 J	-2840425.96	-2840425.79	-2840425.61	0.0502	0.0178
Venus	-12487-02-25 00:28 J	-2839398.68	-2839398.48	-2839398.27	0.0521	0.0036
Mercury	-12485-12-30 04:48 J	-2838359.36	-2838359.30	-2838359.23	0.0524	0.0434
Mercury	-12484-03-29 09:35 J	-2838270.23	-2838270.10	-2838269.98	0.0523	0.0111
Venus	-12482-12-31 07:40 J	-2837263.38	-2837263.18	-2837262.98	0.0504	0.0051
Mercury	-12478-02-20 13:55 J	-2836116.05	-2836115.92	-2836115.79	0.0502	0.0357
Mercury	-12478-05-22 03:21 J	-2836025.47	-2836025.36	-2836025.25	0.0503	0.0397
Venus	-12476-10-30 16:48 J	-2835132.98	-2835132.80	-2835132.61	0.0519	0.0226
Moon	-12475-05-11 12:00 J	-2834940.02	-2834940.00	-2834939.95	0.0522	0.0516
Venus	-12475-06-25 11:31 J	-2834895.10	-2834895.02	-2834894.93	0.0523	0.0469
Mars	-12473-12-31 10:48 J	-2833975.27	-2833975.05	-2833974.82	0.0524	0.0331
Mercury	-12472-01-15 13:55 J	-2833960.05	-2833959.92	-2833959.80	0.0524	0.0030
Mercury	-12472-04-14 18:14 J	-2833870.76	-2833870.74	-2833870.71	0.0522	0.0511
Venus	-12470-09-05 09:21 J	-2832997.30	-2832997.11	-2832996.91	0.0506	0.0117
Venus	-12469-04-28 15:35 J	-2832760.90	-2832760.85	-2832760.80	0.0502	0.0483
Mercury	-12466-03-10 00:28 J	-2831715.65	-2831715.48	-2831715.31	0.0502	0.0220
Venus	-12464-07-05 09:21 J	-2830867.24	-2830867.11	-2830866.99	0.0518	0.0412

Venus	-12463-02-28 02:52 J	-2830629.55	-2830629.38	-2830629.21	0.0522	0.0277
Earth	-12463-05-16 09:21 J	-2830552.33	-2830552.11	-2830551.88	0.0523	0.0110
Moon	-12463-05-16 10:19 J	-2830552.31	-2830552.07	-2830551.84	0.0523	0.0113 *
Mercury	-12461-11-03 18:28 J	-2829649.85	-2829649.73	-2829649.61	0.0524	0.0164
Mercury	-12460-01-31 22:48 J	-2829560.63	-2829560.55	-2829560.46	0.0523	0.0378
Venus	-12458-05-11 11:02 J	-2828731.20	-2828731.04	-2828730.87	0.0507	0.0285
Venus	-12457-01-02 18:14 J	-2828494.89	-2828494.74	-2828494.58	0.0503	0.0324
Mars	-12455-12-02 12:57 J	-2827430.18	-2827429.96	-2827429.74	0.0501	0.0265
Mercury	-12455-12-26 21:07 J	-2827405.81	-2827405.62	-2827405.44	0.0502	0.0038
Venus	-12452-11-02 17:16 J	-2826363.98	-2826363.78	-2826363.57	0.0521	0.0082
Moon	-12451-05-21 03:35 J	-2826164.53	-2826164.35	-2826164.16	0.0524	0.0292
Earth	-12451-05-21 06:14 J	-2826164.42	-2826164.24	-2826164.05	0.0524	0.0323 *
Mercury	-12449-08-22 23:02 J	-2825339.64	-2825339.54	-2825339.44	0.0525	0.0299
Mercury	-12449-11-20 03:35 J	-2825250.46	-2825250.35	-2825250.24	0.0523	0.0245
Venus	-12446-01-14 12:57 J	-2824465.05	-2824464.96	-2824464.87	0.0509	0.0453
Venus	-12446-09-07 21:07 J	-2824228.81	-2824228.62	-2824228.43	0.0504	0.0160
Mercury	-12443-10-14 17:31 J	-2823095.95	-2823095.77	-2823095.59	0.0501	0.0147
Venus	-12440-07-08 09:50 J	-2822098.29	-2822098.09	-2822097.89	0.0520	0.0109
Mercury	-12437-06-11 04:04 J	-2821029.40	-2821029.33	-2821029.26	0.0525	0.0426
Mercury	-12437-09-08 08:38 J	-2820940.26	-2820940.14	-2820940.02	0.0523	0.0119
Venus	-12434-05-13 21:50 J	-2819962.79	-2819962.59	-2819962.39	0.0505	0.0012
Moon	-12434-11-09 20:09 J	-2819782.86	-2819782.66	-2819782.44	0.0502	0.0202
Earth	-12434-11-10 00:14 J	-2819782.71	-2819782.49	-2819782.27	0.0502	0.0168 *
Mercury	-12431-08-02 12:28 J	-2818786.11	-2818785.98	-2818785.84	0.0501	0.0349
Mercury	-12431-11-01 01:55 J	-2818695.53	-2818695.42	-2818695.31	0.0503	0.0405
Venus	-12428-03-13 02:09 J	-2817832.58	-2817832.41	-2817832.24	0.0519	0.0299
Venus	-12428-11-05 20:52 J	-2817594.76	-2817594.63	-2817594.49	0.0523	0.0398
Mercury	-12425-06-27 13:26 J	-2816630.06	-2816629.94	-2816629.81	0.0524	0.0018
Venus	-12422-01-16 23:31 J	-2815696.71	-2815696.52	-2815696.33	0.0506	0.0180
Venus	-12422-09-10 05:31 J	-2815460.37	-2815460.27	-2815460.16	0.0502	0.0423

Earth	-12422-11-14 13:26 J	-2815395.14	-2815394.94	-2815394.72	0.0501	0.0215
Moon	-12422-11-14 17:16 J	-2815394.98	-2815394.78	-2815394.56	0.0501	0.0218 *
Mercury	-12419-08-19 22:48 J	-2814385.72	-2814385.55	-2814385.38	0.0502	0.0224
Venus	-12417-11-15 18:57 J	-2813566.78	-2813566.71	-2813566.63	0.0518	0.0483
Venus	-12416-07-11 12:43 J	-2813329.16	-2813328.97	-2813328.79	0.0522	0.0206
Mercury	-12413-04-15 17:45 J	-2812319.88	-2812319.76	-2812319.64	0.0524	0.0150
Mercury	-12413-07-13 22:19 J	-2812230.65	-2812230.57	-2812230.49	0.0522	0.0392
Venus	-12411-09-22 00:14 J	-2811430.63	-2811430.49	-2811430.34	0.0507	0.0351
Venus	-12410-05-16 07:40 J	-2811194.36	-2811194.18	-2811194.01	0.0503	0.0261
Mercury	-12407-06-07 19:40 J	-2810075.86	-2810075.68	-2810075.49	0.0502	0.0047
Venus	-12404-03-16 04:19 J	-2809063.53	-2809063.32	-2809063.12	0.0520	0.0017
Mercury	-12401-02-02 22:19 J	-2808009.67	-2808009.57	-2808009.46	0.0524	0.0285
Mercury	-12401-05-02 02:52 J	-2807920.49	-2807920.38	-2807920.27	0.0523	0.0258
Venus	-12398-01-19 09:50 J	-2806928.29	-2806928.09	-2806927.89	0.0505	0.0095
Mercury	-12395-03-26 16:19 J	-2805766.00	-2805765.82	-2805765.64	0.0502	0.0137
Venus	-12393-11-18 18:57 J	-2804797.90	-2804797.71	-2804797.52	0.0519	0.0183
Venus	-12392-07-14 13:26 J	-2804559.97	-2804559.94	-2804559.90	0.0523	0.0514
Mars	-12390-09-11 14:52 J	-2803770.99	-2803770.88	-2803770.76	0.0525	0.0479
Mercury	-12390-11-22 02:52 J	-2803699.45	-2803699.38	-2803699.31	0.0525	0.0421
Mercury	-12389-02-19 07:26 J	-2803610.31	-2803610.19	-2803610.07	0.0524	0.0123
Venus	-12387-09-24 12:14 J	-2802662.19	-2802661.99	-2802661.79	0.0506	0.0073
Mercury	-12383-01-12 12:43 J	-2801456.11	-2801455.97	-2801455.82	0.0501	0.0322
Mercury	-12383-04-13 01:55 J	-2801365.51	-2801365.42	-2801365.32	0.0502	0.0432
Venus	-12381-07-24 11:31 J	-2800532.16	-2800532.02	-2800531.88	0.0518	0.0371
Venus	-12380-03-19 05:31 J	-2800294.43	-2800294.27	-2800294.11	0.0522	0.0324
Moon	-12380-05-15 15:50 J	-2800237.06	-2800236.84	-2800236.63	0.0523	0.0172
Earth	-12380-05-15 18:14 J	-2800236.96	-2800236.74	-2800236.52	0.0523	0.0160 *
Mercury	-12378-12-08 12:28 J	-2799300.11	-2799299.98	-2799299.86	0.0524	0.0007
Venus	-12375-05-30 12:57 J	-2798396.13	-2798395.96	-2798395.78	0.0506	0.0245
Venus	-12374-01-21 19:11 J	-2798159.84	-2798159.70	-2798159.56	0.0502	0.0363

Mars -12372-08-20 07:55 J -2797218.38 -2797218.17 -2797217.95 0.0500 0.0285  
 Mercury -12371-01-29 21:07 J -2797055.79 -2797055.62 -2797055.45 0.0502 0.0228  
 Venus -12369-11-21 20:52 J -2796028.83 -2796028.63 -2796028.43 0.0522 0.0130  
 Earth -12368-05-20 17:45 J -2795848.96 -2795848.76 -2795848.57 0.0524 0.0283  
 Moon -12368-05-20 21:35 J -2795848.81 -2795848.60 -2795848.40 0.0524 0.0257 \*  
 Mercury -12366-09-26 17:16 J -2794989.90 -2794989.78 -2794989.66 0.0524 0.0133  
 Mercury -12366-12-24 21:50 J -2794900.67 -2794900.59 -2794900.51 0.0523 0.0409  
 Venus -12363-02-02 14:24 J -2794130.01 -2794129.90 -2794129.78 0.0507 0.0414  
 Venus -12363-09-26 21:21 J -2793893.79 -2793893.61 -2793893.42 0.0503 0.0198  
 Mercury -12360-11-17 17:45 J -2792745.95 -2792745.76 -2792745.57 0.0502 0.0046  
 Venus -12357-07-27 12:57 J -2791763.17 -2791762.96 -2791762.76 0.0520 0.0064  
 Mars -12354-06-20 05:31 J -2790705.57 -2790705.27 -2790704.98 0.0524 0.0006  
 Mercury -12354-07-15 21:35 J -2790679.71 -2790679.60 -2790679.49 0.0524 0.0273  
 Mercury -12354-10-13 02:09 J -2790590.52 -2790590.41 -2790590.31 0.0523 0.0270  
 Venus -12351-06-01 22:48 J -2789627.76 -2789627.55 -2789627.35 0.0505 0.0031  
 Earth -12351-11-09 09:50 J -2789467.30 -2789467.09 -2789466.88 0.0502 0.0214  
 Moon -12351-11-09 13:40 J -2789467.13 -2789466.93 -2789466.73 0.0502 0.0242 \*  
 Mercury -12348-09-05 14:38 J -2788436.07 -2788435.89 -2788435.71 0.0502 0.0133  
 Venus -12345-04-01 04:48 J -2787497.47 -2787497.30 -2787497.12 0.0519 0.0254  
 Venus -12345-11-24 23:16 J -2787259.63 -2787259.53 -2787259.42 0.0523 0.0445  
 Mercury -12342-05-04 01:55 J -2786369.49 -2786369.42 -2786369.34 0.0524 0.0410  
 Mercury -12342-08-01 06:28 J -2786280.35 -2786280.23 -2786280.11 0.0523 0.0134  
 Venus -12339-02-05 00:14 J -2785361.68 -2785361.49 -2785361.29 0.0506 0.0141  
 Venus -12339-09-29 06:43 J -2785125.29 -2785125.22 -2785125.15 0.0502 0.0466  
 Moon -12339-11-13 21:07 J -2785079.85 -2785079.62 -2785079.40 0.0502 0.0177  
 Earth -12339-11-13 23:45 J -2785079.73 -2785079.51 -2785079.29 0.0502 0.0170 \*  
 Mars -12336-05-24 18:00 J -2784157.01 -2784156.75 -2784156.50 0.0501 0.0040  
 Mercury -12336-06-24 11:02 J -2784126.18 -2784126.04 -2784125.89 0.0501 0.0317  
 Mercury -12336-09-23 00:28 J -2784035.57 -2784035.48 -2784035.38 0.0502 0.0437  
 Venus -12334-12-05 19:55 J -2783231.77 -2783231.67 -2783231.56 0.0517 0.0445

Venus	-12333-07-30 13:11 J	-2782994.13	-2782993.95	-2782993.77	0.0522	0.0248
Mercury	-12330-05-20 11:02 J	-2781970.17	-2781970.04	-2781969.92	0.0524	0.0005
Venus	-12328-10-11 01:55 J	-2781095.57	-2781095.42	-2781095.26	0.0507	0.0311
Venus	-12327-06-04 09:07 J	-2780859.28	-2780859.12	-2780858.96	0.0503	0.0303
Mercury	-12324-04-12 07:26 J	-2779816.19	-2779816.19	-2779816.19	0.0501	0.0501
Mercury	-12324-07-11 20:52 J	-2779725.79	-2779725.63	-2779725.47	0.0502	0.0250
Venus	-12321-04-04 05:02 J	-2778728.50	-2778728.29	-2778728.09	0.0521	0.0054
Mercury	-12318-03-08 16:04 J	-2777659.96	-2777659.83	-2777659.71	0.0524	0.0132
Mars	-12318-03-28 16:04 J	-2777639.94	-2777639.83	-2777639.69	0.0524	0.0473
Mercury	-12318-06-05 20:24 J	-2777570.72	-2777570.65	-2777570.57	0.0523	0.0411
Venus	-12316-06-16 02:52 J	-2776829.44	-2776829.38	-2776829.31	0.0508	0.0481
Venus	-12315-02-07 10:19 J	-2776593.26	-2776593.07	-2776592.87	0.0504	0.0134
Mercury	-12312-04-29 15:35 J	-2775416.04	-2775415.85	-2775415.66	0.0502	0.0046
Venus	-12310-12-08 19:55 J	-2774462.87	-2774462.67	-2774462.47	0.0520	0.0142
Mercury	-12307-12-25 20:52 J	-2773349.74	-2773349.63	-2773349.52	0.0524	0.0262
Mercury	-12306-03-25 01:26 J	-2773260.55	-2773260.44	-2773260.34	0.0523	0.0282
Venus	-12304-10-13 12:14 J	-2772327.19	-2772326.99	-2772326.79	0.0505	0.0035
Mercury	-12300-02-15 12:14 J	-2771106.18	-2771105.99	-2771105.81	0.0502	0.0139
Mars	-12300-02-25 13:11 J	-2771096.13	-2771095.95	-2771095.76	0.0502	0.0346
Venus	-12298-08-13 12:14 J	-2770197.14	-2770196.99	-2770196.83	0.0519	0.0332
Venus	-12297-04-07 06:43 J	-2769959.36	-2769959.22	-2769959.07	0.0523	0.0370
Earth	-12297-05-15 00:43 J	-2769921.68	-2769921.47	-2769921.26	0.0523	0.0219
Moon	-12297-05-15 04:19 J	-2769921.52	-2769921.32	-2769921.11	0.0523	0.0239 *
Mercury	-12295-10-14 00:57 J	-2769039.54	-2769039.46	-2769039.38	0.0524	0.0402
Mercury	-12294-01-11 05:31 J	-2768950.39	-2768950.27	-2768950.15	0.0523	0.0141
Venus	-12292-06-18 12:28 J	-2768061.16	-2768060.98	-2768060.79	0.0506	0.0208
Venus	-12291-02-09 18:43 J	-2767824.83	-2767824.72	-2767824.60	0.0503	0.0402
Mercury	-12289-12-04 09:07 J	-2766796.27	-2766796.12	-2766795.98	0.0502	0.0318
Mercury	-12288-03-04 22:19 J	-2766705.66	-2766705.57	-2766705.47	0.0503	0.0437
Venus	-12286-04-18 04:48 J	-2765931.30	-2765931.30	-2765931.29	0.0517	0.0517



Venus	-12286-12-11 21:50 J	-2765693.78	-2765693.59	-2765693.39	0.0521	0.0175
Moon	-12285-05-19 19:26 J	-2765533.91	-2765533.69	-2765533.48	0.0524	0.0189
Earth	-12285-05-19 23:16 J	-2765533.75	-2765533.53	-2765533.32	0.0524	0.0217 *
Mercury	-12283-10-30 10:04 J	-2764640.21	-2764640.08	-2764639.96	0.0523	0.0019
Venus	-12280-02-21 13:11 J	-2763795.07	-2763794.95	-2763794.81	0.0508	0.0380
Venus	-12280-10-15 20:38 J	-2763558.81	-2763558.64	-2763558.46	0.0504	0.0237
Mercury	-12277-12-21 18:43 J	-2762395.88	-2762395.72	-2762395.55	0.0502	0.0251
Venus	-12274-08-16 12:00 J	-2761428.20	-2761428.00	-2761427.79	0.0520	0.0028
Mercury	-12271-08-18 14:24 J	-2760330.02	-2760329.90	-2760329.78	0.0524	0.0136
Mercury	-12271-11-15 18:57 J	-2760240.79	-2760240.71	-2760240.64	0.0523	0.0406
Venus	-12268-06-20 22:48 J	-2759292.75	-2759292.55	-2759292.35	0.0505	0.0068
Moon	-12268-11-08 14:52 J	-2759152.07	-2759151.88	-2759151.68	0.0503	0.0289
Earth	-12268-11-08 18:00 J	-2759151.95	-2759151.75	-2759151.56	0.0503	0.0264 *
Mercury	-12265-10-09 14:52 J	-2758086.06	-2758085.88	-2758085.69	0.0502	0.0062
Venus	-12262-04-21 03:35 J	-2757162.53	-2757162.35	-2757162.16	0.0519	0.0219
Venus	-12262-12-14 22:19 J	-2756924.64	-2756924.57	-2756924.49	0.0523	0.0483
Mercury	-12259-06-06 19:11 J	-2756019.81	-2756019.70	-2756019.59	0.0524	0.0265
Mercury	-12259-09-03 23:45 J	-2755930.62	-2755930.51	-2755930.40	0.0523	0.0278
Venus	-12256-02-24 00:14 J	-2755026.69	-2755026.49	-2755026.29	0.0505	0.0103
Venus	-12256-10-18 05:31 J	-2754790.27	-2754790.27	-2754790.26	0.0502	0.0502
Earth	-12256-11-13 05:45 J	-2754764.49	-2754764.26	-2754764.03	0.0501	0.0112
Moon	-12256-11-13 06:28 J	-2754764.44	-2754764.23	-2754764.01	0.0501	0.0131 *
Mercury	-12253-07-28 09:35 J	-2753776.28	-2753776.10	-2753775.91	0.0501	0.0144
Venus	-12251-12-24 18:00 J	-2752896.86	-2752896.75	-2752896.62	0.0518	0.0413
Venus	-12250-08-19 12:28 J	-2752659.15	-2752658.98	-2752658.80	0.0523	0.0289
Mercury	-12247-03-26 00:00 J	-2751709.58	-2751709.50	-2751709.42	0.0525	0.0397
Mercury	-12247-06-23 04:33 J	-2751620.43	-2751620.31	-2751620.19	0.0523	0.0148
Venus	-12245-10-30 01:26 J	-2750760.61	-2750760.44	-2750760.27	0.0506	0.0275
Venus	-12244-06-23 07:40 J	-2750524.33	-2750524.18	-2750524.03	0.0503	0.0338
Earth	-12244-11-17 18:00 J	-2750376.79	-2750376.75	-2750376.69	0.0501	0.0488

Mercury	-12241-05-16 06:00 J	-2749466.39	-2749466.25	-2749466.11	0.0501	0.0329
Mercury	-12241-08-14 19:26 J	-2749375.79	-2749375.69	-2749375.59	0.0503	0.0425
Venus	-12238-04-24 04:04 J	-2748393.53	-2748393.33	-2748393.13	0.0521	0.0094
Mars	-12236-12-06 06:00 J	-2747436.45	-2747436.25	-2747436.03	0.0525	0.0359
Mercury	-12235-04-11 08:38 J	-2747310.26	-2747310.14	-2747310.01	0.0524	0.0012
Venus	-12233-07-05 00:43 J	-2746494.56	-2746494.47	-2746494.37	0.0508	0.0449
Venus	-12232-02-26 08:24 J	-2746258.34	-2746258.15	-2746257.96	0.0504	0.0169
Mercury	-12229-06-02 16:04 J	-2745065.99	-2745065.83	-2745065.66	0.0502	0.0243
Venus	-12227-12-27 19:40 J	-2744127.88	-2744127.68	-2744127.48	0.0520	0.0102
Mercury	-12223-01-28 12:57 J	-2743000.08	-2742999.96	-2742999.84	0.0524	0.0134
Mercury	-12223-04-27 17:31 J	-2742910.85	-2742910.77	-2742910.69	0.0523	0.0407
Venus	-12221-11-01 09:35 J	-2741992.30	-2741992.10	-2741991.90	0.0505	0.0005
Mars	-12218-11-14 11:16 J	-2740884.27	-2740884.03	-2740883.79	0.0500	0.0205
Mercury	-12217-03-21 12:28 J	-2740756.17	-2740755.98	-2740755.79	0.0502	0.0056
Venus	-12215-09-01 10:04 J	-2739862.24	-2739862.08	-2739861.91	0.0518	0.0298
Venus	-12214-04-27 04:19 J	-2739624.45	-2739624.32	-2739624.19	0.0523	0.0405
Moon	-12214-05-14 20:24 J	-2739606.82	-2739606.65	-2739606.46	0.0523	0.0329
Earth	-12214-05-15 00:28 J	-2739606.67	-2739606.48	-2739606.29	0.0523	0.0302 *
Mercury	-12212-11-16 17:16 J	-2738689.89	-2738689.78	-2738689.67	0.0524	0.0274
Mercury	-12211-02-13 21:50 J	-2738600.70	-2738600.59	-2738600.48	0.0523	0.0269
Venus	-12209-07-07 11:02 J	-2737726.23	-2737726.04	-2737725.85	0.0506	0.0174
Venus	-12208-02-28 17:16 J	-2737489.87	-2737489.78	-2737489.68	0.0503	0.0437
Mercury	-12205-01-08 08:24 J	-2736446.33	-2736446.15	-2736445.96	0.0501	0.0134
Venus	-12203-05-07 01:40 J	-2735596.49	-2735596.43	-2735596.36	0.0517	0.0488
Venus	-12203-12-30 18:57 J	-2735358.90	-2735358.71	-2735358.52	0.0522	0.0208
Earth	-12202-05-19 22:19 J	-2735218.80	-2735218.57	-2735218.35	0.0524	0.0131
Moon	-12202-05-20 01:26 J	-2735218.66	-2735218.44	-2735218.21	0.0524	0.0108 *
Mercury	-12200-09-04 22:04 J	-2734379.66	-2734379.58	-2734379.50	0.0525	0.0406
Mars	-12200-09-13 06:57 J	-2734371.49	-2734371.21	-2734370.92	0.0525	0.0102
Mercury	-12200-12-03 02:38 J	-2734290.51	-2734290.39	-2734290.27	0.0524	0.0139

Venus	-12197-03-12 12:14 J	-2733460.13	-2733459.99	-2733459.84	0.0507	0.0345
Venus	-12197-11-03 18:57 J	-2733223.87	-2733223.71	-2733223.53	0.0503	0.0272
Mercury	-12194-10-27 03:21 J	-2732136.50	-2732136.36	-2732136.22	0.0501	0.0337
Mercury	-12193-01-25 16:33 J	-2732045.91	-2732045.81	-2732045.70	0.0502	0.0414
Venus	-12191-09-04 08:38 J	-2731093.34	-2731093.14	-2731092.93	0.0521	0.0013
Mercury	-12188-09-21 07:26 J	-2729980.32	-2729980.19	-2729980.07	0.0524	0.0015
Venus	-12185-07-09 20:38 J	-2728957.83	-2728957.64	-2728957.44	0.0504	0.0103
Earth	-12185-11-07 21:07 J	-2728836.79	-2728836.62	-2728836.44	0.0502	0.0331
Moon	-12185-11-07 22:04 J	-2728836.74	-2728836.58	-2728836.41	0.0502	0.0348 *
Mars	-12182-08-18 04:19 J	-2727823.57	-2727823.32	-2727823.06	0.0501	0.0098
Mercury	-12182-11-13 12:43 J	-2727736.14	-2727735.97	-2727735.80	0.0502	0.0227
Venus	-12179-05-10 00:28 J	-2726827.67	-2726827.48	-2726827.29	0.0520	0.0185
Venus	-12178-01-02 19:55 J	-2726589.68	-2726589.67	-2726589.66	0.0524	0.0522
Mercury	-12176-07-10 11:31 J	-2725670.14	-2725670.02	-2725669.90	0.0524	0.0136
Mercury	-12176-10-07 16:04 J	-2725580.91	-2725580.83	-2725580.75	0.0523	0.0405
Venus	-12173-03-14 20:24 J	-2724691.85	-2724691.65	-2724691.45	0.0505	0.0073
Earth	-12173-11-12 07:11 J	-2724449.43	-2724449.20	-2724448.96	0.0502	0.0037
Moon	-12173-11-12 08:09 J	-2724449.40	-2724449.16	-2724448.92	0.0502	0.0060 *
Mercury	-12170-09-01 09:21 J	-2723426.30	-2723426.11	-2723425.92	0.0502	0.0044
Venus	-12167-01-12 16:48 J	-2722561.94	-2722561.80	-2722561.66	0.0518	0.0376
Venus	-12167-09-07 10:48 J	-2722324.21	-2722324.05	-2722323.89	0.0522	0.0327
Mercury	-12164-04-28 15:50 J	-2721359.95	-2721359.84	-2721359.74	0.0524	0.0276
Mercury	-12164-07-26 20:24 J	-2721270.76	-2721270.65	-2721270.55	0.0523	0.0267
Venus	-12162-11-18 20:52 J	-2720425.81	-2720425.63	-2720425.45	0.0507	0.0247
Venus	-12161-07-12 03:21 J	-2720189.49	-2720189.36	-2720189.22	0.0503	0.0370
Moon	-12161-11-16 17:16 J	-2720061.88	-2720061.78	-2720061.67	0.0501	0.0437
Earth	-12161-11-16 19:26 J	-2720061.82	-2720061.69	-2720061.56	0.0501	0.0411 *
Mercury	-12158-06-20 05:31 J	-2719116.45	-2719116.27	-2719116.08	0.0502	0.0144
Venus	-12155-05-13 00:14 J	-2718058.69	-2718058.49	-2718058.29	0.0521	0.0126
Mercury	-12152-02-14 19:55 J	-2717049.74	-2717049.67	-2717049.59	0.0525	0.0419

Mercury	-12152-05-15 00:28 J	-2716960.60	-2716960.48	-2716960.35	0.0524	0.0126
Venus	-12150-07-24 21:21 J	-2716159.71	-2716159.61	-2716159.49	0.0508	0.0420
Venus	-12149-03-17 05:16 J	-2715923.46	-2715923.28	-2715923.09	0.0504	0.0202
Mercury	-12146-04-08 01:26 J	-2714806.57	-2714806.44	-2714806.29	0.0501	0.0334
Mars	-12146-05-22 05:31 J	-2714762.41	-2714762.27	-2714762.12	0.0502	0.0409
Mercury	-12146-07-07 14:52 J	-2714715.98	-2714715.88	-2714715.78	0.0502	0.0418
Venus	-12143-01-15 14:52 J	-2713793.08	-2713792.88	-2713792.67	0.0520	0.0073
Mercury	-12140-03-03 05:16 J	-2712650.41	-2712650.28	-2712650.16	0.0524	0.0008
Venus	-12138-11-21 07:11 J	-2711657.40	-2711657.20	-2711657.00	0.0505	0.0032
Mercury	-12134-04-25 09:35 J	-2710406.27	-2710406.10	-2710405.92	0.0502	0.0214
Venus	-12132-09-20 04:33 J	-2709527.48	-2709527.31	-2709527.13	0.0519	0.0271
Earth	-12131-05-13 20:24 J	-2709291.79	-2709291.65	-2709291.49	0.0523	0.0401
Moon	-12131-05-14 00:14 J	-2709291.62	-2709291.49	-2709291.36	0.0523	0.0428 *
Venus	-12131-05-15 23:31 J	-2709289.63	-2709289.52	-2709289.41	0.0523	0.0438
Mercury	-12129-12-20 09:50 J	-2708340.21	-2708340.09	-2708339.97	0.0524	0.0140
Mercury	-12128-03-19 14:24 J	-2708250.98	-2708250.90	-2708250.82	0.0523	0.0403
Venus	-12126-07-27 08:24 J	-2707391.34	-2707391.15	-2707390.96	0.0506	0.0141
Venus	-12125-03-19 13:55 J	-2707154.98	-2707154.92	-2707154.85	0.0502	0.0470
Mercury	-12122-02-11 05:45 J	-2706096.45	-2706096.26	-2706096.07	0.0502	0.0026
Venus	-12120-05-25 20:38 J	-2705261.72	-2705261.64	-2705261.54	0.0518	0.0460
Venus	-12119-01-18 14:38 J	-2705024.07	-2705023.89	-2705023.71	0.0522	0.0243
Moon	-12119-05-18 17:02 J	-2704904.03	-2704903.79	-2704903.55	0.0524	0.0013
Earth	-12119-05-18 19:40 J	-2704903.91	-2704903.68	-2704903.45	0.0524	0.0034 *
Mercury	-12117-10-08 13:55 J	-2704030.02	-2704029.92	-2704029.81	0.0524	0.0284
Mercury	-12116-01-05 18:28 J	-2703940.83	-2703940.73	-2703940.62	0.0523	0.0260
Venus	-12114-04-01 06:57 J	-2703125.36	-2703125.21	-2703125.05	0.0507	0.0319
Venus	-12114-11-23 13:55 J	-2702889.08	-2702888.92	-2702888.76	0.0503	0.0301
Mercury	-12111-11-30 02:09 J	-2701786.59	-2701786.41	-2701786.23	0.0502	0.0160
Venus	-12108-09-23 06:14 J	-2700758.45	-2700758.24	-2700758.03	0.0521	0.0045
Earth	-12107-05-23 18:00 J	-2700515.84	-2700515.75	-2700515.64	0.0524	0.0469

Moon	-12107-05-23 18:28 J	-2700515.81	-2700515.73	-2700515.66	0.0524	0.0492 *
Mercury	-12105-07-27 18:14 J	-2699719.81	-2699719.74	-2699719.67	0.0525	0.0423
Mercury	-12105-10-24 22:48 J	-2699630.67	-2699630.55	-2699630.43	0.0523	0.0121
Venus	-12103-12-05 06:28 J	-2698859.26	-2698859.23	-2698859.17	0.0509	0.0494
Venus	-12102-07-29 14:52 J	-2698623.07	-2698622.88	-2698622.68	0.0504	0.0131
Earth	-12102-11-07 19:11 J	-2698521.82	-2698521.70	-2698521.56	0.0503	0.0418
Moon	-12102-11-07 19:55 J	-2698521.79	-2698521.67	-2698521.54	0.0503	0.0428 *
Mars	-12099-05-05 15:35 J	-2697611.92	-2697611.85	-2697611.75	0.0500	0.0470
Mercury	-12099-09-17 22:19 J	-2697476.70	-2697476.57	-2697476.43	0.0501	0.0347
Mercury	-12099-12-17 11:45 J	-2697386.12	-2697386.01	-2697385.90	0.0502	0.0406
Venus	-12096-05-28 20:09 J	-2696492.85	-2696492.66	-2696492.46	0.0519	0.0155
Mercury	-12093-08-13 03:07 J	-2695320.50	-2695320.37	-2695320.25	0.0524	0.0028
Mercury	-12093-11-10 07:26 J	-2695231.20	-2695231.19	-2695231.18	0.0523	0.0519
Venus	-12090-04-03 16:04 J	-2694357.03	-2694356.83	-2694356.63	0.0506	0.0044
Moon	-12090-11-12 06:14 J	-2694134.47	-2694134.24	-2694134.01	0.0502	0.0015
Earth	-12090-11-12 08:09 J	-2694134.39	-2694134.16	-2694133.93	0.0502	0.0040 *
Mercury	-12087-10-05 07:40 J	-2693076.35	-2693076.18	-2693076.01	0.0502	0.0214
Venus	-12084-01-31 11:16 J	-2692227.18	-2692227.03	-2692226.88	0.0518	0.0350
Venus	-12084-09-26 05:02 J	-2691989.44	-2691989.29	-2691989.14	0.0522	0.0356
Mars	-12081-02-29 05:31 J	-2691103.51	-2691103.27	-2691103.03	0.0526	0.0300
Mercury	-12081-06-01 07:40 J	-2691010.30	-2691010.18	-2691010.06	0.0524	0.0156
Mercury	-12081-08-29 12:14 J	-2690921.07	-2690920.99	-2690920.91	0.0523	0.0387
Venus	-12079-12-07 17:45 J	-2690090.94	-2690090.76	-2690090.58	0.0507	0.0215
Venus	-12078-08-01 00:14 J	-2689854.61	-2689854.49	-2689854.37	0.0503	0.0403
Earth	-12078-11-16 20:52 J	-2689746.79	-2689746.63	-2689746.45	0.0501	0.0337
Moon	-12078-11-17 00:00 J	-2689746.66	-2689746.50	-2689746.32	0.0501	0.0359 *
Mercury	-12075-07-24 02:38 J	-2688766.58	-2688766.39	-2688766.20	0.0501	0.0012
Venus	-12072-05-31 18:00 J	-2687723.95	-2687723.75	-2687723.56	0.0521	0.0155
Mercury	-12069-03-20 12:14 J	-2686700.10	-2686699.99	-2686699.89	0.0525	0.0291
Mercury	-12069-06-17 16:48 J	-2686610.91	-2686610.80	-2686610.69	0.0524	0.0254

Venus	-12067-08-12 18:28 J	-2685824.85	-2685824.73	-2685824.60	0.0508	0.0389
Venus	-12066-04-06 01:40 J	-2685588.60	-2685588.43	-2685588.25	0.0503	0.0235
Mars	-12063-02-06 11:02 J	-2684551.29	-2684551.04	-2684550.79	0.0500	0.0165
Mercury	-12063-05-11 22:48 J	-2684456.73	-2684456.55	-2684456.38	0.0501	0.0178
Venus	-12060-02-03 09:35 J	-2683458.31	-2683458.10	-2683457.89	0.0520	0.0042
Mercury	-12057-01-07 16:19 J	-2682389.89	-2682389.82	-2682389.75	0.0525	0.0433
Mercury	-12057-04-05 20:52 J	-2682300.75	-2682300.63	-2682300.50	0.0524	0.0113
Venus	-12055-12-10 00:57 J	-2681322.66	-2681322.46	-2681322.26	0.0505	0.0058
Mercury	-12051-02-27 18:57 J	-2680146.83	-2680146.71	-2680146.58	0.0501	0.0365
Mercury	-12051-05-29 08:24 J	-2680056.27	-2680056.15	-2680056.03	0.0502	0.0388
Venus	-12049-10-09 01:55 J	-2679192.60	-2679192.42	-2679192.24	0.0519	0.0237
Moon	-12048-05-12 16:33 J	-2678976.84	-2678976.81	-2678976.76	0.0523	0.0515
Earth	-12048-05-12 19:40 J	-2678976.75	-2678976.68	-2678976.59	0.0523	0.0488
Venus	-12048-06-03 20:24 J	-2678954.73	-2678954.65	-2678954.56	0.0523	0.0474
Mars	-12046-12-07 02:38 J	-2678038.66	-2678038.39	-2678038.10	0.0524	0.0152
Mercury	-12045-01-24 01:26 J	-2677990.57	-2677990.44	-2677990.32	0.0524	0.0033
Mercury	-12045-04-22 05:45 J	-2677901.28	-2677901.26	-2677901.24	0.0522	0.0512
Venus	-12043-08-15 01:26 J	-2677056.63	-2677056.44	-2677056.24	0.0506	0.0117
Venus	-12042-04-08 07:40 J	-2676820.21	-2676820.18	-2676820.16	0.0502	0.0497
Mercury	-12039-03-17 04:33 J	-2675746.48	-2675746.31	-2675746.14	0.0502	0.0200
Venus	-12037-06-13 16:48 J	-2674926.91	-2674926.80	-2674926.69	0.0517	0.0431
Venus	-12036-02-06 09:50 J	-2674689.26	-2674689.09	-2674688.91	0.0522	0.0274
Earth	-12036-05-17 15:21 J	-2674589.09	-2674588.86	-2674588.63	0.0523	0.0065
Moon	-12036-05-17 16:33 J	-2674589.03	-2674588.81	-2674588.59	0.0523	0.0083 *
Mercury	-12034-11-12 05:31 J	-2673680.39	-2673680.27	-2673680.15	0.0524	0.0171
Mercury	-12033-02-09 09:50 J	-2673591.17	-2673591.09	-2673591.00	0.0523	0.0372
Venus	-12031-04-20 01:55 J	-2672790.58	-2672790.42	-2672790.25	0.0508	0.0293
Venus	-12031-12-12 09:07 J	-2672554.27	-2672554.12	-2672553.96	0.0503	0.0331
Mars	-12028-11-10 12:14 J	-2671490.24	-2671489.99	-2671489.74	0.0501	0.0145
Mercury	-12027-01-03 00:28 J	-2671436.67	-2671436.48	-2671436.29	0.0502	0.0009

Venus	-12025-10-12 00:00 J	-2670423.70	-2670423.50	-2670423.29	0.0520	0.0073
Earth	-12024-05-22 12:00 J	-2670201.17	-2670201.00	-2670200.83	0.0524	0.0361
Moon	-12024-05-22 13:11 J	-2670201.10	-2670200.95	-2670200.78	0.0524	0.0387 *
Mercury	-12022-08-31 09:50 J	-2669370.19	-2669370.09	-2669369.98	0.0525	0.0307
Mercury	-12022-11-28 14:38 J	-2669281.00	-2669280.89	-2669280.78	0.0524	0.0238
Venus	-12020-12-24 03:07 J	-2668524.44	-2668524.37	-2668524.29	0.0509	0.0465
Venus	-12019-08-17 11:31 J	-2668288.21	-2668288.02	-2668287.83	0.0504	0.0163
Moon	-12019-11-06 19:26 J	-2668206.69	-2668206.69	-2668206.68	0.0503	0.0503
Earth	-12019-11-06 21:21 J	-2668206.66	-2668206.61	-2668206.56	0.0503	0.0490
Mercury	-12016-10-21 19:40 J	-2667126.85	-2667126.68	-2667126.50	0.0501	0.0190
Venus	-12013-06-16 13:11 J	-2666158.14	-2666157.95	-2666157.74	0.0519	0.0130
Mercury	-12010-06-19 14:24 J	-2665059.96	-2665059.90	-2665059.83	0.0525	0.0443
Mercury	-12010-09-16 19:11 J	-2664970.82	-2664970.70	-2664970.58	0.0524	0.0104
Venus	-12007-04-22 12:57 J	-2664022.17	-2664021.96	-2664021.76	0.0505	0.0015
Earth	-12007-11-11 09:35 J	-2663819.33	-2663819.10	-2663818.87	0.0502	0.0115
Moon	-12007-11-11 12:43 J	-2663819.21	-2663818.97	-2663818.74	0.0502	0.0086 *
Mercury	-12004-08-09 15:50 J	-2662816.96	-2662816.84	-2662816.72	0.0501	0.0378
Mercury	-12004-11-08 05:02 J	-2662726.41	-2662726.29	-2662726.16	0.0502	0.0372
Venus	-12001-02-20 05:45 J	-2661892.42	-2661892.26	-2661892.10	0.0518	0.0323
Venus	-12001-10-15 00:00 J	-2661654.64	-2661654.50	-2661654.37	0.0523	0.0389

# 12TH MILLENNIUM BCE

This is a list of transits visible from Jupiter in the 12th millennium BCE.

PLANET	MAX- TRANSIT	C	START	MAX	END	SUNRAD	DEPTH	S
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TIME

Mercury	-11998-07-05 23:16 J	-2660660.65	-2660660.53	-2660660.40	0.0524	0.0043
Mercury	-11998-10-03 03:50 J	-2660571.37	-2660571.34	-2660571.31	0.0523	0.0503
Venus	-11996-12-26 11:16 J	-2659756.22	-2659756.03	-2659755.84	0.0507	0.0191
Venus	-11995-08-19 17:45 J	-2659519.86	-2659519.76	-2659519.65	0.0503	0.0430
Moon	-11995-11-15 14:24 J	-2659432.10	-2659431.90	-2659431.70	0.0501	0.0264
Earth	-11995-11-15 18:00 J	-2659431.95	-2659431.75	-2659431.54	0.0501	0.0246 *
Mars	-11992-08-14 06:14 J	-2658429.34	-2658429.24	-2658429.11	0.0502	0.0445
Mercury	-11992-08-27 01:11 J	-2658416.62	-2658416.45	-2658416.27	0.0502	0.0184
Venus	-11990-10-25 22:48 J	-2657626.58	-2657626.55	-2657626.52	0.0517	0.0511
Venus	-11989-06-19 15:35 J	-2657389.04	-2657388.85	-2657388.66	0.0521	0.0192
Mercury	-11986-04-24 03:50 J	-2656350.46	-2656350.34	-2656350.22	0.0524	0.0176
Mercury	-11986-07-22 08:09 J	-2656261.24	-2656261.16	-2656261.07	0.0523	0.0367
Venus	-11984-08-31 11:16 J	-2655490.16	-2655490.03	-2655489.89	0.0508	0.0368
Venus	-11983-04-24 18:57 J	-2655253.88	-2655253.71	-2655253.54	0.0504	0.0259
Mercury	-11980-06-14 21:35 J	-2654106.79	-2654106.60	-2654106.41	0.0502	0.0011
Venus	-11977-02-23 06:00 J	-2653123.46	-2653123.25	-2653123.04	0.0520	0.0010
Mercury	-11974-02-10 07:55 J	-2652040.27	-2652040.17	-2652040.07	0.0524	0.0319
Mercury	-11974-05-10 12:28 J	-2651951.09	-2651950.98	-2651950.87	0.0523	0.0225
Venus	-11972-12-28 20:09 J	-2650987.86	-2650987.66	-2650987.46	0.0505	0.0087
Mercury	-11968-04-02 17:31 J	-2649796.94	-2649796.77	-2649796.59	0.0501	0.0192
Venus	-11966-10-28 20:38 J	-2648857.83	-2648857.64	-2648857.45	0.0519	0.0209
Venus	-11965-06-22 14:38 J	-2648619.94	-2648619.89	-2648619.83	0.0523	0.0503
Mercury	-11963-11-29 12:14 J	-2647730.04	-2647729.99	-2647729.92	0.0525	0.0456
Mercury	-11962-02-26 17:02 J	-2647640.91	-2647640.79	-2647640.67	0.0524	0.0090
Venus	-11960-09-02 22:19 J	-2646721.77	-2646721.57	-2646721.37	0.0506	0.0085
Mercury	-11956-01-19 12:57 J	-2645487.07	-2645486.96	-2645486.84	0.0501	0.0388
Mercury	-11956-04-20 02:09 J	-2645396.53	-2645396.41	-2645396.27	0.0502	0.0363
Venus	-11954-07-03 10:33 J	-2644592.19	-2644592.06	-2644591.93	0.0517	0.0406
Venus	-11953-02-26 04:04 J	-2644354.50	-2644354.33	-2644354.17	0.0522	0.0303



Earth	-11953-05-16 09:50 J	-2644274.31	-2644274.09	-2644273.87	0.0523	0.0170
Moon	-11953-05-16 10:33 J	-2644274.29	-2644274.06	-2644273.83	0.0523	0.0182 *
Mercury	-11951-12-15 21:35 J	-2643330.73	-2643330.60	-2643330.48	0.0524	0.0045
Mercury	-11950-03-15 02:09 J	-2643241.44	-2643241.41	-2643241.37	0.0523	0.0497
Venus	-11948-05-08 23:16 J	-2642455.70	-2642455.53	-2642455.36	0.0507	0.0261
Venus	-11948-12-31 06:14 J	-2642219.37	-2642219.24	-2642219.10	0.0503	0.0365
Mars	-11945-07-28 18:28 J	-2641278.85	-2641278.73	-2641278.59	0.0499	0.0430
Mercury	-11944-02-05 22:19 J	-2641086.74	-2641086.57	-2641086.39	0.0502	0.0174
Venus	-11942-10-31 19:40 J	-2640088.88	-2640088.68	-2640088.48	0.0521	0.0106
Moon	-11941-05-21 06:43 J	-2639886.40	-2639886.22	-2639886.03	0.0524	0.0294
Earth	-11941-05-21 09:35 J	-2639886.30	-2639886.10	-2639885.90	0.0524	0.0264 *
Mercury	-11939-10-04 01:55 J	-2639020.54	-2639020.42	-2639020.30	0.0524	0.0185
Mercury	-11938-01-01 06:28 J	-2638931.32	-2638931.23	-2638931.14	0.0523	0.0358
Venus	-11936-01-11 21:21 J	-2638189.71	-2638189.61	-2638189.51	0.0508	0.0443
Venus	-11936-09-05 05:31 J	-2637953.46	-2637953.27	-2637953.08	0.0504	0.0189
Mercury	-11933-11-24 18:28 J	-2636776.92	-2636776.73	-2636776.54	0.0502	0.0017
Venus	-11930-07-06 12:14 J	-2635823.19	-2635822.99	-2635822.78	0.0520	0.0092
Mars	-11927-05-24 05:02 J	-2634770.54	-2634770.29	-2634770.03	0.0525	0.0252
Mercury	-11927-07-23 06:28 J	-2634710.33	-2634710.23	-2634710.13	0.0524	0.0321
Mercury	-11927-10-20 11:02 J	-2634621.15	-2634621.04	-2634620.93	0.0523	0.0222
Venus	-11924-05-11 06:14 J	-2633687.44	-2633687.24	-2633687.04	0.0505	0.0014
Moon	-11924-11-10 03:07 J	-2633504.58	-2633504.37	-2633504.15	0.0503	0.0178
Earth	-11924-11-10 06:43 J	-2633504.43	-2633504.22	-2633504.01	0.0503	0.0205 *
Mercury	-11921-09-12 14:52 J	-2632467.05	-2632466.88	-2632466.71	0.0502	0.0202
Venus	-11918-03-11 03:35 J	-2631557.52	-2631557.35	-2631557.17	0.0518	0.0289
Venus	-11918-11-03 21:21 J	-2631319.73	-2631319.61	-2631319.49	0.0522	0.0424
Mercury	-11915-05-11 10:33 J	-2630400.12	-2630400.06	-2630400.00	0.0525	0.0463
Mercury	-11915-08-08 15:07 J	-2630310.99	-2630310.87	-2630310.74	0.0524	0.0082
Venus	-11912-01-14 07:11 J	-2629421.39	-2629421.20	-2629421.01	0.0507	0.0163
Venus	-11912-09-07 14:09 J	-2629184.99	-2629184.91	-2629184.83	0.0503	0.0461

Earth	-11912-11-14 19:26 J	-2629116.90	-2629116.69	-2629116.46	0.0502	0.0173
Moon	-11912-11-14 23:02 J	-2629116.75	-2629116.54	-2629116.32	0.0502	0.0185 *
Mars	-11909-05-01 20:38 J	-2628217.89	-2628217.64	-2628217.39	0.0500	0.0118
Mercury	-11909-07-01 11:02 J	-2628157.16	-2628157.04	-2628156.92	0.0501	0.0388
Mercury	-11909-09-30 00:14 J	-2628066.61	-2628066.49	-2628066.35	0.0502	0.0364
Venus	-11907-11-13 18:57 J	-2627291.77	-2627291.71	-2627291.63	0.0517	0.0482
Venus	-11906-07-09 11:31 J	-2627054.21	-2627054.02	-2627053.84	0.0521	0.0224
Mercury	-11903-05-27 19:40 J	-2626000.80	-2626000.68	-2626000.55	0.0524	0.0055
Mercury	-11903-08-25 00:14 J	-2625911.53	-2625911.49	-2625911.45	0.0523	0.0487
Venus	-11901-09-19 08:52 J	-2625155.28	-2625155.13	-2625154.98	0.0508	0.0336
Venus	-11900-05-13 16:48 J	-2624918.97	-2624918.80	-2624918.64	0.0504	0.0295
Mercury	-11897-07-18 20:09 J	-2623756.84	-2623756.66	-2623756.48	0.0501	0.0169
Venus	-11894-03-14 01:11 J	-2622788.66	-2622788.45	-2622788.24	0.0520	0.0021
Mars	-11891-03-01 03:35 J	-2621705.62	-2621705.35	-2621705.08	0.0525	0.0207
Mercury	-11891-03-16 00:14 J	-2621690.60	-2621690.49	-2621690.37	0.0525	0.0190
Mercury	-11891-06-13 04:48 J	-2621601.39	-2621601.30	-2621601.21	0.0524	0.0355
Venus	-11888-01-16 18:28 J	-2620652.93	-2620652.73	-2620652.54	0.0505	0.0123
Mercury	-11885-05-06 16:19 J	-2619447.01	-2619446.82	-2619446.63	0.0501	0.0018
Venus	-11883-11-16 17:31 J	-2618522.96	-2618522.77	-2618522.58	0.0519	0.0175
Mercury	-11879-01-02 04:48 J	-2617380.40	-2617380.30	-2617380.20	0.0525	0.0327
Mercury	-11879-04-01 09:21 J	-2617291.22	-2617291.11	-2617291.00	0.0523	0.0217
Venus	-11877-09-21 17:16 J	-2616386.98	-2616386.78	-2616386.58	0.0506	0.0059
Mars	-11873-02-03 18:28 J	-2615156.97	-2615156.73	-2615156.49	0.0501	0.0186
Mercury	-11873-02-23 12:14 J	-2615137.16	-2615136.99	-2615136.82	0.0502	0.0211
Venus	-11871-07-22 11:02 J	-2614257.19	-2614257.04	-2614256.90	0.0518	0.0369
Venus	-11870-03-17 04:33 J	-2614019.46	-2614019.31	-2614019.15	0.0522	0.0346
Moon	-11870-05-16 12:28 J	-2613959.17	-2613958.98	-2613958.77	0.0523	0.0241
Earth	-11870-05-16 15:07 J	-2613959.08	-2613958.87	-2613958.66	0.0523	0.0234 *
Mercury	-11868-10-21 09:21 J	-2613070.17	-2613070.11	-2613070.05	0.0525	0.0460
Mercury	-11867-01-18 13:55 J	-2612981.04	-2612980.92	-2612980.80	0.0523	0.0083

Venus	-11865-05-27 17:45 J	-2612120.93	-2612120.76	-2612120.58	0.0507	0.0237
Venus	-11864-01-19 00:43 J	-2611884.59	-2611884.47	-2611884.34	0.0503	0.0393
Mercury	-11862-12-12 08:38 J	-2610827.25	-2610827.14	-2610827.02	0.0501	0.0393
Mercury	-11861-03-11 22:04 J	-2610736.71	-2610736.58	-2610736.45	0.0502	0.0360
Venus	-11859-11-19 19:11 J	-2609753.89	-2609753.70	-2609753.50	0.0521	0.0146
Earth	-11858-05-21 12:14 J	-2609571.20	-2609570.99	-2609570.77	0.0523	0.0193
Moon	-11858-05-21 16:04 J	-2609571.04	-2609570.83	-2609570.61	0.0523	0.0228 *
Mercury	-11856-11-06 18:14 J	-2608670.87	-2608670.74	-2608670.62	0.0524	0.0059
Mercury	-11855-02-03 22:33 J	-2608581.60	-2608581.56	-2608581.51	0.0523	0.0483
Venus	-11853-01-31 18:14 J	-2607854.85	-2607854.74	-2607854.62	0.0509	0.0414
Venus	-11853-09-24 02:38 J	-2607618.56	-2607618.39	-2607618.20	0.0504	0.0223
Mercury	-11850-12-29 18:28 J	-2606426.91	-2606426.73	-2606426.55	0.0502	0.0174
Venus	-11847-07-25 10:19 J	-2605488.28	-2605488.07	-2605487.87	0.0519	0.0057
Mercury	-11844-08-25 22:33 J	-2604360.67	-2604360.56	-2604360.44	0.0524	0.0194
Mercury	-11844-11-23 03:07 J	-2604271.46	-2604271.37	-2604271.27	0.0523	0.0350
Venus	-11841-05-30 05:02 J	-2603352.49	-2603352.29	-2603352.09	0.0506	0.0052
Earth	-11841-11-09 12:57 J	-2603189.16	-2603188.96	-2603188.76	0.0503	0.0262
Moon	-11841-11-09 16:33 J	-2603189.01	-2603188.81	-2603188.60	0.0503	0.0231 *
Mercury	-11838-10-17 14:24 J	-2602117.09	-2602116.90	-2602116.71	0.0501	0.0018
Mars	-11838-11-07 21:50 J	-2602095.59	-2602095.59	-2602095.59	0.0502	0.0502
Venus	-11835-03-30 00:28 J	-2601222.65	-2601222.48	-2601222.29	0.0518	0.0257
Venus	-11835-11-22 18:14 J	-2600984.83	-2600984.74	-2600984.64	0.0522	0.0461
Mercury	-11832-06-14 03:07 J	-2600050.46	-2600050.37	-2600050.27	0.0525	0.0329
Mercury	-11832-09-11 07:55 J	-2599961.29	-2599961.17	-2599961.06	0.0524	0.0217
Venus	-11829-02-03 06:43 J	-2599086.41	-2599086.22	-2599086.02	0.0507	0.0126
Venus	-11829-09-26 13:26 J	-2598849.95	-2598849.94	-2598849.92	0.0503	0.0501
Moon	-11829-11-13 23:45 J	-2598801.74	-2598801.51	-2598801.27	0.0502	0.0122
Earth	-11829-11-14 02:38 J	-2598801.62	-2598801.39	-2598801.16	0.0502	0.0118 *
Mercury	-11826-08-05 10:48 J	-2597807.22	-2597807.05	-2597806.88	0.0501	0.0202
Venus	-11824-12-02 17:31 J	-2596956.86	-2596956.77	-2596956.66	0.0517	0.0449

Venus	-11823-07-28 10:19 J	-2596719.24	-2596719.07	-2596718.89	0.0521	0.0265
Mercury	-11820-04-02 07:55 J	-2595740.23	-2595740.17	-2595740.11	0.0525	0.0462
Mercury	-11820-06-30 12:28 J	-2595651.10	-2595650.98	-2595650.86	0.0524	0.0082
Venus	-11818-10-09 05:31 J	-2594820.43	-2594820.27	-2594820.11	0.0508	0.0308
Venus	-11817-06-01 12:43 J	-2594584.11	-2594583.97	-2594583.81	0.0504	0.0326
Earth	-11817-11-18 11:16 J	-2594414.10	-2594414.03	-2594413.96	0.0501	0.0478
Moon	-11817-11-18 12:43 J	-2594414.06	-2594413.97	-2594413.87	0.0501	0.0450 *
Mercury	-11814-05-24 06:28 J	-2593497.34	-2593497.23	-2593497.12	0.0501	0.0397
Mercury	-11814-08-22 19:55 J	-2593406.80	-2593406.67	-2593406.54	0.0503	0.0357
Venus	-11811-04-02 03:35 J	-2592453.56	-2592453.35	-2592453.15	0.0520	0.0067
Mercury	-11808-04-18 17:16 J	-2591340.91	-2591340.78	-2591340.66	0.0524	0.0051
Mercury	-11808-07-16 21:35 J	-2591251.64	-2591251.60	-2591251.56	0.0522	0.0490
Venus	-11806-06-14 06:00 J	-2590554.30	-2590554.25	-2590554.19	0.0509	0.0485
Venus	-11805-02-05 14:24 J	-2590318.09	-2590317.90	-2590317.70	0.0505	0.0152
Mercury	-11802-06-10 16:33 J	-2589096.99	-2589096.81	-2589096.63	0.0502	0.0174
Venus	-11800-12-05 19:11 J	-2588187.90	-2588187.70	-2588187.50	0.0519	0.0134
Mercury	-11796-02-04 21:21 J	-2587030.72	-2587030.61	-2587030.49	0.0524	0.0191
Mercury	-11796-05-05 01:55 J	-2586941.51	-2586941.42	-2586941.32	0.0523	0.0352
Venus	-11794-10-11 16:04 J	-2586052.04	-2586051.83	-2586051.63	0.0506	0.0025
Mars	-11791-10-22 15:21 J	-2584945.02	-2584944.86	-2584944.67	0.0500	0.0369
Mercury	-11790-03-29 13:11 J	-2584787.14	-2584786.95	-2584786.77	0.0502	0.0015
Venus	-11788-08-10 11:02 J	-2583922.20	-2583922.04	-2583921.88	0.0517	0.0331
Venus	-11787-04-05 04:19 J	-2583684.46	-2583684.32	-2583684.18	0.0522	0.0387
Earth	-11787-05-15 18:14 J	-2583643.92	-2583643.74	-2583643.54	0.0522	0.0302
Moon	-11787-05-15 22:04 J	-2583643.77	-2583643.58	-2583643.39	0.0522	0.0300 *
Mercury	-11785-11-24 01:55 J	-2582720.51	-2582720.42	-2582720.32	0.0524	0.0326
Mercury	-11784-02-21 06:28 J	-2582631.34	-2582631.23	-2582631.11	0.0523	0.0219
Venus	-11782-06-16 18:00 J	-2581785.93	-2581785.75	-2581785.56	0.0507	0.0198
Venus	-11781-02-08 01:11 J	-2581549.54	-2581549.45	-2581549.34	0.0503	0.0434
Mercury	-11778-01-15 09:21 J	-2580477.28	-2580477.11	-2580476.94	0.0501	0.0196

Venus	-11776-12-08 18:14 J	-2579418.93	-2579418.74	-2579418.55	0.0521	0.0184
Moon	-11775-05-20 10:48 J	-2579256.27	-2579256.05	-2579255.82	0.0523	0.0151
Earth	-11775-05-20 14:52 J	-2579256.11	-2579255.88	-2579255.65	0.0523	0.0119 *
Mars	-11773-08-17 02:09 J	-2578436.69	-2578436.41	-2578436.13	0.0525	0.0167
Mercury	-11773-09-12 06:28 J	-2578410.28	-2578410.23	-2578410.17	0.0525	0.0461
Mercury	-11773-12-10 11:16 J	-2578321.15	-2578321.03	-2578320.91	0.0524	0.0085
Venus	-11770-02-19 19:26 J	-2577519.82	-2577519.69	-2577519.55	0.0509	0.0375
Venus	-11770-10-14 03:50 J	-2577283.51	-2577283.34	-2577283.17	0.0504	0.0264
Mercury	-11767-11-03 05:45 J	-2576167.38	-2576167.26	-2576167.14	0.0501	0.0380
Mercury	-11766-02-01 18:57 J	-2576076.83	-2576076.71	-2576076.58	0.0502	0.0372
Venus	-11764-08-13 10:48 J	-2575153.25	-2575153.05	-2575152.84	0.0520	0.0018
Mercury	-11761-09-28 16:04 J	-2574010.96	-2574010.83	-2574010.71	0.0524	0.0048
Mercury	-11761-12-26 20:24 J	-2573921.68	-2573921.65	-2573921.61	0.0522	0.0493
Venus	-11758-06-19 03:07 J	-2573017.57	-2573017.37	-2573017.17	0.0505	0.0084
Moon	-11758-11-09 13:55 J	-2572874.10	-2572873.92	-2572873.72	0.0503	0.0293
Earth	-11758-11-09 17:02 J	-2572873.97	-2572873.79	-2572873.61	0.0503	0.0323 *
Mars	-11755-07-26 17:02 J	-2571884.04	-2571883.79	-2571883.53	0.0501	0.0057
Mercury	-11755-11-20 14:38 J	-2571767.06	-2571766.89	-2571766.71	0.0502	0.0177
Venus	-11752-04-18 04:19 J	-2570887.51	-2570887.32	-2570887.13	0.0519	0.0211
Venus	-11752-12-11 22:48 J	-2570649.59	-2570649.55	-2570649.51	0.0523	0.0512
Mercury	-11749-07-17 20:52 J	-2569700.75	-2569700.63	-2569700.52	0.0524	0.0177
Mercury	-11749-10-15 01:11 J	-2569611.53	-2569611.45	-2569611.36	0.0523	0.0364
Venus	-11746-02-22 04:48 J	-2568751.50	-2568751.30	-2568751.10	0.0506	0.0093
Earth	-11746-11-14 06:00 J	-2568486.48	-2568486.25	-2568486.01	0.0502	0.0054
Moon	-11746-11-14 07:40 J	-2568486.40	-2568486.18	-2568485.95	0.0502	0.0055 *
Mercury	-11743-09-08 11:31 J	-2567457.21	-2567457.02	-2567456.83	0.0502	0.0008
Venus	-11741-12-21 21:07 J	-2566621.75	-2566621.62	-2566621.49	0.0517	0.0405
Venus	-11740-08-16 13:55 J	-2566384.08	-2566383.92	-2566383.75	0.0521	0.0313
Mercury	-11737-05-06 01:11 J	-2565390.55	-2565390.45	-2565390.35	0.0524	0.0316
Mars	-11737-05-25 11:31 J	-2565371.25	-2565371.02	-2565370.78	0.0524	0.0310

Mercury	-11737-08-03 05:45 J	-2565301.38	-2565301.26	-2565301.15	0.0523	0.0227
Venus	-11735-10-28 05:45 J	-2564485.43	-2564485.26	-2564485.09	0.0508	0.0271
Venus	-11734-06-21 13:11 J	-2564249.09	-2564248.95	-2564248.81	0.0504	0.0366
Moon	-11734-11-18 19:55 J	-2564098.81	-2564098.67	-2564098.52	0.0502	0.0400
Earth	-11734-11-18 19:55 J	-2564098.78	-2564098.67	-2564098.54	0.0502	0.0431 *
Mercury	-11731-06-27 08:09 J	-2563147.33	-2563147.16	-2563146.98	0.0502	0.0185
Venus	-11728-04-21 05:16 J	-2562118.48	-2562118.28	-2562118.08	0.0520	0.0111
Mercury	-11725-02-23 05:31 J	-2561080.33	-2561080.27	-2561080.20	0.0525	0.0452
Mercury	-11725-05-22 10:19 J	-2560991.20	-2560991.07	-2560990.95	0.0523	0.0093
Venus	-11723-07-03 07:11 J	-2560219.29	-2560219.20	-2560219.10	0.0509	0.0446
Venus	-11722-02-24 16:04 J	-2559983.01	-2559982.83	-2559982.64	0.0505	0.0196
Mercury	-11719-04-15 04:48 J	-2558837.43	-2558837.30	-2558837.17	0.0501	0.0369
Mars	-11719-04-30 02:52 J	-2558822.59	-2558822.38	-2558822.16	0.0501	0.0272
Mercury	-11719-07-14 18:00 J	-2558746.87	-2558746.75	-2558746.63	0.0502	0.0383
Venus	-11717-12-24 19:55 J	-2557852.87	-2557852.67	-2557852.46	0.0519	0.0092
Mercury	-11713-03-10 14:52 J	-2556681.00	-2556680.88	-2556680.75	0.0524	0.0041
Mercury	-11713-06-07 19:26 J	-2556591.72	-2556591.69	-2556591.66	0.0523	0.0500
Venus	-11711-10-30 18:28 J	-2555716.93	-2555716.73	-2555716.53	0.0506	0.0022
Mercury	-11707-05-02 14:38 J	-2554437.07	-2554436.89	-2554436.72	0.0502	0.0199
Venus	-11705-08-29 13:11 J	-2553587.12	-2553586.95	-2553586.78	0.0518	0.0288
Venus	-11704-04-24 06:43 J	-2553349.33	-2553349.22	-2553349.10	0.0522	0.0435
Moon	-11704-05-14 22:33 J	-2553328.72	-2553328.56	-2553328.38	0.0522	0.0353
Earth	-11704-05-15 02:52 J	-2553328.56	-2553328.38	-2553328.21	0.0522	0.0353 *
Mercury	-11702-12-28 19:40 J	-2552370.79	-2552370.68	-2552370.56	0.0524	0.0171
Mercury	-11701-03-27 00:14 J	-2552281.57	-2552281.49	-2552281.40	0.0523	0.0371
Venus	-11699-07-05 18:00 J	-2551450.94	-2551450.75	-2551450.56	0.0507	0.0162
Venus	-11698-02-27 00:28 J	-2551214.54	-2551214.48	-2551214.41	0.0503	0.0470
Mercury	-11695-02-18 10:04 J	-2550127.27	-2550127.08	-2550126.89	0.0502	0.0005
Venus	-11693-05-04 06:43 J	-2549321.29	-2549321.22	-2549321.15	0.0517	0.0481
Venus	-11693-12-27 23:31 J	-2549083.70	-2549083.52	-2549083.33	0.0521	0.0237

Earth	-11692-05-20 04:19 J	-2548940.55	-2548940.32	-2548940.09	0.0524	0.0088
Moon	-11692-05-20 07:55 J	-2548940.40	-2548940.17	-2548939.95	0.0524	0.0121 *
Mercury	-11690-10-17 00:43 J	-2548060.57	-2548060.47	-2548060.37	0.0524	0.0299
Mercury	-11689-01-14 05:16 J	-2547971.39	-2547971.28	-2547971.17	0.0523	0.0243
Venus	-11687-03-10 19:26 J	-2547184.84	-2547184.69	-2547184.54	0.0508	0.0339
Venus	-11687-11-02 02:52 J	-2546948.54	-2546948.38	-2546948.22	0.0504	0.0300
Mercury	-11684-12-07 06:57 J	-2545817.39	-2545817.21	-2545817.04	0.0502	0.0178
Venus	-11681-09-01 15:50 J	-2544818.05	-2544817.84	-2544817.63	0.0520	0.0037
Moon	-11680-05-25 01:26 J	-2544552.47	-2544552.44	-2544552.38	0.0524	0.0514
Earth	-11680-05-25 03:21 J	-2544552.38	-2544552.36	-2544552.33	0.0524	0.0519 *
Mercury	-11678-08-05 05:02 J	-2543750.36	-2543750.29	-2543750.22	0.0524	0.0437
Mercury	-11678-11-02 09:35 J	-2543661.22	-2543661.10	-2543660.98	0.0523	0.0106
Venus	-11675-07-08 04:48 J	-2542682.50	-2542682.30	-2542682.11	0.0505	0.0126
Earth	-11675-11-09 03:35 J	-2542558.51	-2542558.35	-2542558.19	0.0503	0.0363
Moon	-11675-11-09 05:02 J	-2542558.46	-2542558.29	-2542558.12	0.0503	0.0334 *
Mercury	-11672-09-25 03:50 J	-2541507.47	-2541507.34	-2541507.21	0.0502	0.0356
Mercury	-11672-12-24 17:02 J	-2541416.89	-2541416.79	-2541416.67	0.0503	0.0399
Venus	-11669-05-07 07:40 J	-2540552.37	-2540552.18	-2540551.98	0.0519	0.0164
Mercury	-11666-08-21 14:09 J	-2539351.03	-2539350.91	-2539350.78	0.0524	0.0029
Mercury	-11666-11-18 18:43 J	-2539261.75	-2539261.72	-2539261.70	0.0522	0.0511
Venus	-11663-03-13 07:11 J	-2538416.40	-2538416.20	-2538416.00	0.0506	0.0048
Moon	-11663-11-13 18:43 J	-2538170.96	-2538170.72	-2538170.47	0.0503	0.0017
Earth	-11663-11-13 18:43 J	-2538170.95	-2538170.72	-2538170.48	0.0503	0.0021 *
Mercury	-11660-10-12 13:40 J	-2537107.09	-2537106.93	-2537106.75	0.0502	0.0214
Venus	-11657-01-10 23:02 J	-2536286.68	-2536286.54	-2536286.39	0.0517	0.0364
Venus	-11657-09-04 16:04 J	-2536048.97	-2536048.83	-2536048.68	0.0522	0.0359
Mars	-11654-02-03 23:31 J	-2535166.59	-2535166.52	-2535166.42	0.0526	0.0502
Mercury	-11654-06-09 18:43 J	-2535040.83	-2535040.72	-2535040.60	0.0524	0.0163
Mercury	-11654-09-06 23:16 J	-2534951.61	-2534951.53	-2534951.44	0.0523	0.0380
Venus	-11652-11-16 09:07 J	-2534150.30	-2534150.12	-2534149.94	0.0508	0.0226

Venus	-11651-07-10 16:33 J	-2533913.92	-2533913.81	-2533913.69	0.0504	0.0412
Moon	-11651-11-18 07:26 J	-2533783.33	-2533783.19	-2533783.03	0.0502	0.0372
Earth	-11651-11-18 09:21 J	-2533783.24	-2533783.11	-2533782.96	0.0502	0.0400 *
Mercury	-11648-07-31 10:19 J	-2532797.26	-2532797.07	-2532796.88	0.0502	0.0030
Venus	-11645-05-10 08:38 J	-2531783.33	-2531783.14	-2531782.94	0.0521	0.0160
Mercury	-11642-03-28 23:45 J	-2530730.61	-2530730.51	-2530730.40	0.0524	0.0290
Mercury	-11642-06-26 04:19 J	-2530641.43	-2530641.32	-2530641.21	0.0523	0.0252
Venus	-11640-07-22 09:07 J	-2529884.24	-2529884.12	-2529884.00	0.0508	0.0407
Venus	-11639-03-15 16:48 J	-2529647.97	-2529647.80	-2529647.62	0.0504	0.0236
Mars	-11636-01-15 23:16 J	-2528610.74	-2528610.53	-2528610.31	0.0501	0.0284
Mercury	-11636-05-19 05:31 J	-2528487.44	-2528487.27	-2528487.09	0.0502	0.0169
Venus	-11633-01-14 01:40 J	-2527517.64	-2527517.43	-2527517.23	0.0520	0.0041
Mercury	-11630-01-15 04:48 J	-2526420.38	-2526420.30	-2526420.23	0.0524	0.0418
Mercury	-11630-04-14 09:21 J	-2526331.24	-2526331.11	-2526330.99	0.0523	0.0126
Venus	-11628-11-18 18:57 J	-2525381.91	-2525381.71	-2525381.51	0.0505	0.0060
Mercury	-11624-03-07 02:24 J	-2524177.53	-2524177.40	-2524177.26	0.0502	0.0348
Mercury	-11624-06-05 15:50 J	-2524086.94	-2524086.84	-2524086.72	0.0503	0.0408
Venus	-11622-09-18 18:28 J	-2523251.91	-2523251.73	-2523251.54	0.0518	0.0238
Venus	-11621-05-13 12:28 J	-2523014.04	-2523013.98	-2523013.91	0.0522	0.0490
Earth	-11621-05-14 16:19 J	-2523012.98	-2523012.82	-2523012.67	0.0522	0.0383
Moon	-11621-05-14 19:55 J	-2523012.83	-2523012.67	-2523012.51	0.0522	0.0373 *
Mars	-11619-11-12 12:57 J	-2522101.25	-2522100.96	-2522100.67	0.0524	0.0018
Mercury	-11618-01-31 13:40 J	-2522021.06	-2522020.93	-2522020.81	0.0523	0.0012
Venus	-11616-07-24 20:24 J	-2521115.84	-2521115.65	-2521115.45	0.0507	0.0118
Mercury	-11612-03-24 12:57 J	-2519777.13	-2519776.96	-2519776.79	0.0503	0.0229
Venus	-11610-05-24 11:02 J	-2518986.15	-2518986.04	-2518985.92	0.0517	0.0434
Venus	-11609-01-17 03:50 J	-2518748.51	-2518748.34	-2518748.17	0.0521	0.0288
Moon	-11609-05-19 12:57 J	-2518625.20	-2518624.96	-2518624.72	0.0523	0.0073
Earth	-11609-05-19 15:07 J	-2518625.11	-2518624.87	-2518624.64	0.0523	0.0046 *
Mercury	-11607-11-19 18:14 J	-2517710.86	-2517710.74	-2517710.62	0.0524	0.0147



Mercury	-11606-02-16 22:48 J	-2517621.63	-2517621.55	-2517621.47	0.0522	0.0394
Venus	-11604-03-29 22:04 J	-2516849.74	-2516849.58	-2516849.41	0.0508	0.0296
Venus	-11604-11-21 06:00 J	-2516613.40	-2516613.25	-2516613.11	0.0504	0.0347
Mars	-11601-10-20 14:38 J	-2515549.15	-2515548.89	-2515548.63	0.0501	0.0052
Mercury	-11600-01-10 09:35 J	-2515467.29	-2515467.10	-2515466.91	0.0502	0.0047
Venus	-11598-09-21 18:43 J	-2514482.92	-2514482.72	-2514482.52	0.0520	0.0084
Moon	-11597-05-24 11:45 J	-2514237.11	-2514237.01	-2514236.90	0.0524	0.0456
Earth	-11597-05-24 12:00 J	-2514237.09	-2514237.00	-2514236.89	0.0524	0.0469 *
Mercury	-11595-09-07 22:48 J	-2513400.65	-2513400.55	-2513400.44	0.0524	0.0281
Mercury	-11595-12-06 03:21 J	-2513311.47	-2513311.36	-2513311.25	0.0523	0.0262
Venus	-11593-12-02 23:31 J	-2512583.58	-2512583.52	-2512583.44	0.0509	0.0473
Venus	-11592-07-27 08:38 J	-2512347.33	-2512347.14	-2512346.95	0.0505	0.0175
Moon	-11592-11-08 18:00 J	-2512242.91	-2512242.75	-2512242.57	0.0503	0.0362
Earth	-11592-11-08 18:00 J	-2512242.89	-2512242.75	-2512242.60	0.0503	0.0389 *
Mercury	-11589-10-29 06:14 J	-2511157.42	-2511157.24	-2511157.06	0.0502	0.0137
Venus	-11586-05-27 11:16 J	-2510217.23	-2510217.03	-2510216.82	0.0519	0.0117
Mercury	-11583-06-27 03:50 J	-2509090.42	-2509090.34	-2509090.26	0.0524	0.0408
Mars	-11583-08-21 02:38 J	-2509035.52	-2509035.39	-2509035.25	0.0524	0.0464
Mercury	-11583-09-24 08:24 J	-2509001.27	-2509001.15	-2509001.03	0.0523	0.0136
Venus	-11580-04-01 09:21 J	-2508081.32	-2508081.11	-2508080.91	0.0506	0.0011
Moon	-11580-11-13 02:52 J	-2507855.61	-2507855.38	-2507855.16	0.0502	0.0035
Earth	-11580-11-13 04:33 J	-2507855.54	-2507855.31	-2507855.07	0.0502	0.0022 *
Mercury	-11577-08-17 01:26 J	-2506847.58	-2506847.44	-2506847.30	0.0502	0.0337
Mercury	-11577-11-15 14:52 J	-2506756.98	-2506756.88	-2506756.78	0.0503	0.0418
Venus	-11574-01-30 04:04 J	-2505951.49	-2505951.33	-2505951.16	0.0518	0.0315
Venus	-11574-09-24 22:19 J	-2505713.69	-2505713.57	-2505713.44	0.0522	0.0415
Mercury	-11571-07-13 13:26 J	-2504691.07	-2504690.94	-2504690.82	0.0523	0.0014
Venus	-11569-12-05 10:48 J	-2503815.23	-2503815.05	-2503814.86	0.0507	0.0185
Venus	-11568-07-29 17:31 J	-2503578.86	-2503578.77	-2503578.69	0.0503	0.0452
Earth	-11568-11-17 17:45 J	-2503467.91	-2503467.76	-2503467.58	0.0501	0.0354

Moon	-11568-11-17 21:35 J	-2503467.78	-2503467.60	-2503467.43	0.0501	0.0328 *
Mars	-11565-07-24 16:33 J	-2502487.98	-2502487.81	-2502487.63	0.0502	0.0371
Mercury	-11565-09-03 11:45 J	-2502447.18	-2502447.01	-2502446.85	0.0503	0.0238
Venus	-11563-10-04 21:35 J	-2501685.63	-2501685.60	-2501685.56	0.0517	0.0507
Venus	-11562-05-30 14:24 J	-2501448.09	-2501447.90	-2501447.71	0.0521	0.0214
Mercury	-11559-05-01 17:45 J	-2500380.88	-2500380.76	-2500380.64	0.0524	0.0129
Mercury	-11559-07-29 22:19 J	-2500291.65	-2500291.57	-2500291.50	0.0522	0.0410
Venus	-11557-08-10 11:45 J	-2499549.15	-2499549.01	-2499548.87	0.0508	0.0364
Venus	-11556-04-03 19:40 J	-2499312.85	-2499312.68	-2499312.52	0.0504	0.0281
Mercury	-11553-06-22 08:38 J	-2498137.32	-2498137.14	-2498136.95	0.0502	0.0061
Venus	-11550-02-02 06:14 J	-2497182.44	-2497182.24	-2497182.03	0.0520	0.0017
Mercury	-11547-02-17 22:19 J	-2496070.68	-2496070.57	-2496070.46	0.0524	0.0264
Mercury	-11547-05-18 02:52 J	-2495981.49	-2495981.38	-2495981.28	0.0523	0.0277
Venus	-11545-12-07 21:50 J	-2495046.78	-2495046.59	-2495046.39	0.0505	0.0108
Mercury	-11541-04-10 05:31 J	-2493827.46	-2493827.27	-2493827.09	0.0502	0.0122
Venus	-11539-10-07 21:35 J	-2492916.79	-2492916.60	-2492916.41	0.0518	0.0192
Moon	-11538-05-14 22:48 J	-2492697.70	-2492697.55	-2492697.41	0.0522	0.0414
Earth	-11538-05-15 00:57 J	-2492697.58	-2492697.46	-2492697.32	0.0522	0.0430 *
Mercury	-11536-12-07 02:52 J	-2491760.46	-2491760.38	-2491760.30	0.0524	0.0399
Mercury	-11535-03-06 07:26 J	-2491671.31	-2491671.19	-2491671.07	0.0523	0.0144
Venus	-11533-08-13 00:14 J	-2490780.69	-2490780.49	-2490780.29	0.0507	0.0071
Mercury	-11529-01-28 01:55 J	-2489517.57	-2489517.42	-2489517.27	0.0502	0.0305
Mercury	-11529-04-27 15:21 J	-2489426.94	-2489426.86	-2489426.77	0.0503	0.0449
Venus	-11527-06-12 14:24 J	-2488651.03	-2488650.90	-2488650.76	0.0517	0.0389
Venus	-11526-02-05 07:40 J	-2488413.33	-2488413.18	-2488413.02	0.0522	0.0339
Earth	-11526-05-20 01:40 J	-2488309.66	-2488309.43	-2488309.20	0.0523	0.0004
Moon	-11526-05-20 01:40 J	-2488309.66	-2488309.43	-2488309.21	0.0523	0.0028 *
Mercury	-11524-12-23 12:28 J	-2487361.10	-2487360.98	-2487360.85	0.0523	0.0020
Venus	-11521-04-18 00:57 J	-2486514.63	-2486514.46	-2486514.28	0.0507	0.0252
Venus	-11521-12-10 07:55 J	-2486278.30	-2486278.17	-2486278.05	0.0503	0.0389

Mercury	-11517-02-14 10:19 J	-2485117.23	-2485117.07	-2485116.90	0.0503	0.0248
Venus	-11515-10-10 23:45 J	-2484147.71	-2484147.51	-2484147.31	0.0521	0.0136
Earth	-11514-05-25 02:09 J	-2483921.52	-2483921.41	-2483921.27	0.0525	0.0441
Moon	-11514-05-25 04:33 J	-2483921.45	-2483921.31	-2483921.16	0.0525	0.0418 *
Mercury	-11512-10-11 17:31 J	-2483050.89	-2483050.77	-2483050.65	0.0524	0.0109
Mercury	-11511-01-08 21:50 J	-2482961.65	-2482961.59	-2482961.52	0.0522	0.0430
Venus	-11510-12-23 02:09 J	-2482248.51	-2482248.41	-2482248.30	0.0508	0.0430
Venus	-11509-08-15 10:19 J	-2482012.26	-2482012.07	-2482011.89	0.0504	0.0217
Moon	-11509-11-08 01:55 J	-2481927.55	-2481927.42	-2481927.29	0.0503	0.0410
Earth	-11509-11-08 03:35 J	-2481927.46	-2481927.35	-2481927.22	0.0503	0.0430 *
Mercury	-11506-12-03 07:11 J	-2480807.39	-2480807.20	-2480807.01	0.0502	0.0067
Venus	-11503-06-15 16:04 J	-2479882.03	-2479881.83	-2479881.62	0.0520	0.0065
Mars	-11500-05-01 20:38 J	-2478830.87	-2478830.64	-2478830.42	0.0525	0.0335
Mercury	-11500-07-30 21:50 J	-2478740.70	-2478740.59	-2478740.48	0.0524	0.0247
Mercury	-11500-10-28 02:24 J	-2478651.51	-2478651.40	-2478651.30	0.0522	0.0294
Venus	-11497-04-20 11:31 J	-2477746.22	-2477746.02	-2477745.82	0.0505	0.0040
Earth	-11497-11-12 16:33 J	-2477540.04	-2477539.81	-2477539.57	0.0502	0.0059
Moon	-11497-11-12 20:09 J	-2477539.90	-2477539.66	-2477539.43	0.0502	0.0080 *
Mercury	-11494-09-21 04:19 J	-2476497.51	-2476497.32	-2476497.14	0.0502	0.0111
Venus	-11491-02-18 08:52 J	-2475616.31	-2475616.13	-2475615.96	0.0518	0.0264
Venus	-11491-10-14 02:38 J	-2475378.48	-2475378.39	-2475378.30	0.0522	0.0468
Mercury	-11488-05-19 02:24 J	-2474430.49	-2474430.40	-2474430.32	0.0524	0.0383
Mercury	-11488-08-16 06:57 J	-2474341.33	-2474341.21	-2474341.09	0.0523	0.0160
Venus	-11486-12-25 13:11 J	-2473480.14	-2473479.95	-2473479.75	0.0507	0.0140
Venus	-11485-08-17 20:09 J	-2473243.68	-2473243.66	-2473243.64	0.0503	0.0499
Moon	-11485-11-17 02:52 J	-2473152.56	-2473152.38	-2473152.19	0.0502	0.0294
Earth	-11485-11-17 06:57 J	-2473152.39	-2473152.21	-2473152.03	0.0502	0.0319 *
Mars	-11482-04-12 22:19 J	-2472275.81	-2472275.57	-2472275.32	0.0501	0.0171
Mercury	-11482-07-10 00:57 J	-2472187.61	-2472187.46	-2472187.31	0.0502	0.0292
Mercury	-11482-10-08 14:24 J	-2472096.97	-2472096.90	-2472096.82	0.0503	0.0462

Venus	-11480-10-24 00:28 J	-2471350.57	-2471350.48	-2471350.39	0.0517	0.0463
Venus	-11479-06-18 16:48 J	-2471112.97	-2471112.80	-2471112.62	0.0521	0.0262
Mercury	-11476-03-07 06:43 J	-2470120.23	-2470120.22	-2470120.20	0.0525	0.0520
Mercury	-11476-06-04 11:31 J	-2470031.15	-2470031.02	-2470030.90	0.0524	0.0028
Venus	-11474-08-30 15:07 J	-2469214.03	-2469213.87	-2469213.72	0.0508	0.0319
Venus	-11473-04-22 22:48 J	-2468977.70	-2468977.55	-2468977.39	0.0504	0.0328
Mercury	-11470-04-27 21:21 J	-2467877.66	-2467877.61	-2467877.55	0.0501	0.0475
Mercury	-11470-07-27 10:48 J	-2467787.20	-2467787.05	-2467786.89	0.0502	0.0277
Venus	-11467-02-21 09:07 J	-2466847.32	-2466847.12	-2466846.91	0.0520	0.0060
Mars	-11464-02-07 04:19 J	-2465765.60	-2465765.32	-2465765.04	0.0524	0.0141
Mercury	-11464-03-23 16:33 J	-2465720.94	-2465720.81	-2465720.69	0.0524	0.0103
Mercury	-11464-06-20 20:52 J	-2465631.69	-2465631.63	-2465631.56	0.0522	0.0438
Venus	-11462-05-05 15:35 J	-2464947.88	-2464947.85	-2464947.81	0.0509	0.0499
Venus	-11462-12-28 00:00 J	-2464711.69	-2464711.50	-2464711.30	0.0504	0.0151
Mercury	-11458-05-15 05:45 J	-2463477.45	-2463477.26	-2463477.07	0.0502	0.0073
Venus	-11456-10-27 00:43 J	-2462581.67	-2462581.47	-2462581.27	0.0519	0.0145
Earth	-11455-05-14 12:14 J	-2462382.09	-2462381.99	-2462381.89	0.0523	0.0470
Moon	-11455-05-14 12:28 J	-2462382.09	-2462381.98	-2462381.86	0.0523	0.0447 *
Mercury	-11452-01-09 21:21 J	-2461410.72	-2461410.61	-2461410.50	0.0524	0.0230
Mercury	-11452-04-09 01:55 J	-2461321.52	-2461321.42	-2461321.32	0.0523	0.0311
Venus	-11450-09-02 02:09 J	-2460445.61	-2460445.41	-2460445.21	0.0505	0.0027
Mars	-11446-01-14 23:31 J	-2459214.77	-2459214.52	-2459214.27	0.0502	0.0147
Mercury	-11446-03-03 02:24 J	-2459167.58	-2459167.40	-2459167.21	0.0502	0.0108
Venus	-11444-07-01 17:45 J	-2458315.92	-2458315.76	-2458315.61	0.0518	0.0342
Venus	-11443-02-24 11:45 J	-2458078.14	-2458078.01	-2458077.87	0.0522	0.0392
Earth	-11443-05-19 12:28 J	-2457994.21	-2457993.98	-2457993.75	0.0523	0.0039
Moon	-11443-05-19 14:24 J	-2457994.14	-2457993.90	-2457993.66	0.0523	0.0021 *
Mercury	-11441-10-29 01:40 J	-2457100.52	-2457100.43	-2457100.34	0.0524	0.0368
Mercury	-11440-01-26 06:14 J	-2457011.36	-2457011.24	-2457011.12	0.0523	0.0173
Venus	-11438-05-08 02:24 J	-2456179.58	-2456179.40	-2456179.21	0.0507	0.0209

Venus -11438-12-30 09:21 J -2455943.21 -2455943.11 -2455943.01 0.0503 0.0434

Mercury -11435-12-19 23:31 J -2454857.68 -2454857.52 -2454857.37 0.0502 0.0286

Mercury -11434-03-20 12:57 J -2454767.02 -2454766.96 -2454766.89 0.0503 0.0469

Venus -11432-10-30 03:07 J -2453812.56 -2453812.37 -2453812.17 0.0521 0.0188

Moon -11431-05-24 08:24 J -2453606.30 -2453606.15 -2453605.98 0.0524 0.0366

Earth -11431-05-24 11:45 J -2453606.16 -2453606.01 -2453605.86 0.0524 0.0390 \*

Mercury -11429-08-17 06:14 J -2452790.27 -2452790.24 -2452790.21 0.0524 0.0505

Mercury -11429-11-14 10:48 J -2452701.18 -2452701.05 -2452700.93 0.0523 0.0039

Venus -11426-01-11 03:21 J -2451913.48 -2451913.36 -2451913.23 0.0508 0.0390

Venus -11426-09-04 11:31 J -2451677.18 -2451677.02 -2451676.84 0.0504 0.0262

Earth -11426-11-08 14:24 J -2451611.98 -2451611.90 -2451611.82 0.0503 0.0471

Moon -11426-11-08 17:31 J -2451611.85 -2451611.77 -2451611.66 0.0503 0.0460 \*

Mercury -11423-10-07 19:55 J -2450547.73 -2450547.67 -2450547.59 0.0501 0.0468

Mercury -11422-01-06 09:21 J -2450457.26 -2450457.11 -2450456.95 0.0503 0.0286

Venus -11420-07-04 18:00 J -2449546.96 -2449546.75 -2449546.55 0.0519 0.0022

Mercury -11417-09-02 15:07 J -2448390.99 -2448390.87 -2448390.74 0.0524 0.0100

Mercury -11417-11-30 19:40 J -2448301.74 -2448301.68 -2448301.61 0.0522 0.0441

Venus -11414-05-10 13:55 J -2447411.12 -2447410.92 -2447410.73 0.0505 0.0084

Moon -11414-11-13 00:28 J -2447224.70 -2447224.48 -2447224.25 0.0503 0.0124

Earth -11414-11-13 04:33 J -2447224.54 -2447224.31 -2447224.08 0.0503 0.0094 \*

Mars -11411-10-19 09:35 J -2446153.17 -2446153.10 -2446153.01 0.0502 0.0475

Mercury -11411-10-25 05:45 J -2446147.44 -2446147.26 -2446147.07 0.0502 0.0099

Venus -11408-03-09 10:04 J -2445281.26 -2445281.08 -2445280.89 0.0518 0.0222

Venus -11408-11-02 04:19 J -2445043.35 -2445043.32 -2445043.29 0.0523 0.0514

Mercury -11405-06-21 20:09 J -2444080.77 -2444080.66 -2444080.55 0.0524 0.0226

Mercury -11405-09-19 00:43 J -2443991.57 -2443991.47 -2443991.37 0.0523 0.0315

Venus -11402-01-13 15:07 J -2443145.07 -2443144.87 -2443144.67 0.0506 0.0097

Earth -11402-11-17 15:50 J -2442837.03 -2442836.84 -2442836.64 0.0501 0.0272

Moon -11402-11-17 19:11 J -2442836.89 -2442836.70 -2442836.49 0.0501 0.0255 \*

Mercury -11399-08-13 00:43 J -2441837.66 -2441837.47 -2441837.29 0.0502 0.0106

Venus	-11397-11-12 01:11 J	-2441015.56	-2441015.45	-2441015.33	0.0518	0.0424
Venus	-11396-07-07 18:57 J	-2440777.87	-2440777.71	-2440777.54	0.0522	0.0310
Mercury	-11393-04-10 00:57 J	-2439770.55	-2439770.46	-2439770.37	0.0524	0.0356
Mercury	-11393-07-08 05:31 J	-2439681.38	-2439681.27	-2439681.15	0.0523	0.0187
Venus	-11391-09-18 16:33 J	-2438878.97	-2438878.81	-2438878.64	0.0507	0.0277
Venus	-11390-05-12 23:16 J	-2438642.66	-2438642.53	-2438642.39	0.0503	0.0369
Mercury	-11387-05-31 21:07 J	-2437527.77	-2437527.62	-2437527.46	0.0502	0.0288
Mercury	-11387-08-30 10:48 J	-2437437.12	-2437437.05	-2437436.99	0.0503	0.0466
Venus	-11384-03-12 11:02 J	-2436512.24	-2436512.04	-2436511.84	0.0521	0.0107
Mercury	-11381-01-28 05:16 J	-2435460.32	-2435460.28	-2435460.24	0.0524	0.0495
Mercury	-11381-04-26 09:50 J	-2435371.21	-2435371.09	-2435370.96	0.0523	0.0048
Venus	-11379-05-24 16:04 J	-2434612.91	-2434612.83	-2434612.74	0.0509	0.0460
Venus	-11378-01-16 00:28 J	-2434376.67	-2434376.48	-2434376.30	0.0504	0.0193
Mercury	-11375-03-19 18:00 J	-2433217.81	-2433217.75	-2433217.68	0.0502	0.0467
Mercury	-11375-06-18 07:26 J	-2433127.34	-2433127.19	-2433127.03	0.0503	0.0287
Venus	-11373-11-15 03:07 J	-2432246.57	-2432246.37	-2432246.17	0.0519	0.0097
Moon	-11372-05-13 21:21 J	-2432066.69	-2432066.61	-2432066.53	0.0522	0.0491
Mercury	-11369-02-13 14:24 J	-2431061.03	-2431060.90	-2431060.78	0.0523	0.0091
Mercury	-11369-05-12 18:43 J	-2430971.78	-2430971.72	-2430971.66	0.0522	0.0449
Venus	-11367-09-21 01:55 J	-2430110.62	-2430110.42	-2430110.22	0.0506	0.0014
Mars	-11364-10-02 21:07 J	-2429002.77	-2429002.62	-2429002.47	0.0500	0.0408
Mercury	-11363-04-06 04:04 J	-2428817.52	-2428817.33	-2428817.15	0.0502	0.0102
Venus	-11361-07-20 18:14 J	-2427980.91	-2427980.74	-2427980.57	0.0518	0.0302
Venus	-11360-03-15 11:45 J	-2427743.12	-2427743.01	-2427742.89	0.0522	0.0434
Moon	-11360-05-18 13:40 J	-2427679.16	-2427678.93	-2427678.71	0.0523	0.0089
Earth	-11360-05-18 16:33 J	-2427679.04	-2427678.81	-2427678.58	0.0523	0.0105 *
Mercury	-11358-12-02 18:43 J	-2426750.83	-2426750.72	-2426750.61	0.0524	0.0228
Mercury	-11357-02-29 23:02 J	-2426661.63	-2426661.54	-2426661.43	0.0523	0.0314
Venus	-11355-05-27 03:21 J	-2425844.55	-2425844.36	-2425844.17	0.0507	0.0168
Venus	-11354-01-18 10:04 J	-2425608.14	-2425608.08	-2425608.01	0.0503	0.0476

Mercury -11351-01-23 00:14 J -2424507.68 -2424507.49 -2424507.30 0.0502 0.0086  
 Venus -11349-03-25 10:33 J -2423715.11 -2423715.06 -2423715.01 0.0516 0.0499  
 Venus -11349-11-18 02:52 J -2423477.56 -2423477.38 -2423477.19 0.0521 0.0229  
 Earth -11348-05-23 15:21 J -2423291.04 -2423290.86 -2423290.67 0.0524 0.0323  
 Moon -11348-05-23 19:11 J -2423290.89 -2423290.70 -2423290.50 0.0524 0.0296 \*  
 Mars -11346-07-27 16:48 J -2422496.07 -2422495.80 -2422495.53 0.0525 0.0204  
 Mercury -11346-09-20 23:31 J -2422440.61 -2422440.52 -2422440.43 0.0524 0.0357  
 Mercury -11346-12-19 04:04 J -2422351.45 -2422351.33 -2422351.21 0.0523 0.0186  
 Venus -11343-01-30 04:33 J -2421578.45 -2421578.31 -2421578.16 0.0508 0.0349  
 Venus -11343-09-23 12:00 J -2421342.16 -2421342.00 -2421341.84 0.0504 0.0302  
 Mercury -11340-11-10 18:57 J -2420197.86 -2420197.71 -2420197.55 0.0501 0.0290  
 Mercury -11339-02-09 08:24 J -2420107.22 -2420107.15 -2420107.08 0.0503 0.0464  
 Venus -11337-07-23 17:16 J -2419211.99 -2419211.78 -2419211.58 0.0520 0.0023  
 Mercury -11334-07-10 04:19 J -2418130.36 -2418130.32 -2418130.28 0.0525 0.0488  
 Mercury -11334-10-07 08:52 J -2418041.25 -2418041.13 -2418041.00 0.0524 0.0056  
 Venus -11331-05-29 13:40 J -2417076.12 -2417075.93 -2417075.73 0.0505 0.0125  
 Earth -11331-11-12 11:16 J -2416909.25 -2416909.03 -2416908.81 0.0502 0.0148  
 Moon -11331-11-12 14:38 J -2416909.10 -2416908.89 -2416908.67 0.0502 0.0179 \*  
 Mars -11328-07-06 19:40 J -2415941.93 -2415941.68 -2415941.42 0.0501 0.0094  
 Mercury -11328-08-29 15:21 J -2415887.92 -2415887.86 -2415887.80 0.0501 0.0474  
 Mercury -11328-11-28 04:48 J -2415797.46 -2415797.30 -2415797.14 0.0503 0.0278  
 Venus -11325-03-28 09:35 J -2414946.29 -2414946.10 -2414945.91 0.0519 0.0181  
 Mercury -11322-07-26 13:11 J -2413731.07 -2413730.95 -2413730.83 0.0524 0.0084  
 Mercury -11322-10-23 17:31 J -2413641.82 -2413641.77 -2413641.71 0.0522 0.0455  
 Venus -11319-02-01 13:55 J -2412810.12 -2412809.92 -2412809.72 0.0506 0.0059  
 Moon -11319-11-16 19:11 J -2412521.92 -2412521.70 -2412521.48 0.0502 0.0194  
 Earth -11319-11-16 21:50 J -2412521.80 -2412521.59 -2412521.37 0.0502 0.0214 \*  
 Mercury -11316-09-16 01:40 J -2411487.62 -2411487.43 -2411487.25 0.0502 0.0097  
 Venus -11314-12-02 02:09 J -2410680.54 -2410680.41 -2410680.27 0.0517 0.0381  
 Venus -11313-07-26 19:40 J -2410442.83 -2410442.68 -2410442.53 0.0522 0.0356

Mars	-11310-05-04 15:21 J	-2409431.11	-2409430.86	-2409430.60	0.0524	0.0260
Mercury	-11310-05-14 17:31 J	-2409420.88	-2409420.77	-2409420.66	0.0524	0.0223
Mercury	-11310-08-11 22:04 J	-2409331.68	-2409331.58	-2409331.48	0.0523	0.0318
Venus	-11308-10-07 14:24 J	-2408544.07	-2408543.90	-2408543.72	0.0507	0.0242
Venus	-11307-05-31 21:35 J	-2408307.72	-2408307.60	-2408307.48	0.0503	0.0407
Mercury	-11304-07-04 22:04 J	-2407177.77	-2407177.58	-2407177.40	0.0502	0.0089
Venus	-11301-03-31 09:35 J	-2406177.29	-2406177.10	-2406176.90	0.0520	0.0147
Mercury	-11298-03-02 21:50 J	-2405110.68	-2405110.59	-2405110.50	0.0524	0.0364
Mercury	-11298-05-31 02:24 J	-2405021.52	-2405021.40	-2405021.28	0.0523	0.0179
Venus	-11296-06-12 15:07 J	-2404277.98	-2404277.87	-2404277.76	0.0509	0.0425
Venus	-11295-02-03 23:31 J	-2404041.70	-2404041.52	-2404041.34	0.0504	0.0231
Mars	-11292-04-10 02:52 J	-2402880.61	-2402880.38	-2402880.15	0.0501	0.0232
Mercury	-11292-04-22 18:00 J	-2402867.90	-2402867.75	-2402867.59	0.0501	0.0277
Mercury	-11292-07-22 07:26 J	-2402777.24	-2402777.19	-2402777.13	0.0503	0.0477
Venus	-11290-12-05 00:57 J	-2401911.67	-2401911.46	-2401911.26	0.0519	0.0062
Mercury	-11287-12-20 02:38 J	-2400800.43	-2400800.39	-2400800.36	0.0525	0.0495
Mercury	-11286-03-19 07:11 J	-2400711.33	-2400711.20	-2400711.08	0.0524	0.0050
Venus	-11284-10-10 01:26 J	-2399775.64	-2399775.44	-2399775.24	0.0505	0.0053
Mercury	-11280-02-08 12:43 J	-2398558.01	-2398557.97	-2398557.91	0.0501	0.0480
Mercury	-11280-05-10 02:09 J	-2398467.57	-2398467.41	-2398467.25	0.0502	0.0271
Venus	-11278-08-09 14:52 J	-2397646.06	-2397645.88	-2397645.70	0.0518	0.0269
Venus	-11277-04-03 09:21 J	-2397408.19	-2397408.11	-2397408.02	0.0523	0.0474
Earth	-11277-05-17 16:48 J	-2397364.01	-2397363.80	-2397363.58	0.0524	0.0187
Moon	-11277-05-17 20:38 J	-2397363.87	-2397363.64	-2397363.42	0.0524	0.0173 *
Mercury	-11274-01-05 12:00 J	-2396401.13	-2396401.00	-2396400.88	0.0524	0.0084
Mercury	-11274-04-04 16:19 J	-2396311.87	-2396311.82	-2396311.76	0.0523	0.0458
Venus	-11272-06-15 02:38 J	-2395509.59	-2395509.39	-2395509.20	0.0506	0.0130
Mercury	-11268-02-25 22:19 J	-2394157.75	-2394157.57	-2394157.38	0.0502	0.0084
Venus	-11266-04-14 07:40 J	-2393380.26	-2393380.18	-2393380.09	0.0517	0.0466
Venus	-11266-12-08 00:43 J	-2393142.64	-2393142.47	-2393142.29	0.0522	0.0270



Moon	-11265-05-22 12:57 J	-2392976.17	-2392975.96	-2392975.74	0.0524	0.0212
Earth	-11265-05-22 16:33 J	-2392976.01	-2392975.81	-2392975.59	0.0524	0.0243 *
Mercury	-11263-10-24 16:04 J	-2392090.94	-2392090.83	-2392090.72	0.0524	0.0224
Mercury	-11262-01-21 20:38 J	-2392001.74	-2392001.64	-2392001.54	0.0523	0.0317
Venus	-11260-02-18 01:40 J	-2391243.58	-2391243.43	-2391243.27	0.0508	0.0316
Venus	-11260-10-12 08:52 J	-2391007.27	-2391007.13	-2391006.97	0.0504	0.0338
Mercury	-11257-12-14 18:57 J	-2389847.89	-2389847.71	-2389847.52	0.0502	0.0100
Venus	-11254-08-12 16:33 J	-2388877.01	-2388876.81	-2388876.60	0.0520	0.0063
Mercury	-11251-08-12 20:24 J	-2387780.74	-2387780.65	-2387780.56	0.0524	0.0363
Mercury	-11251-11-10 00:57 J	-2387691.58	-2387691.46	-2387691.34	0.0523	0.0179
Venus	-11249-10-24 01:26 J	-2386977.48	-2386977.44	-2386977.41	0.0509	0.0501
Venus	-11248-06-17 10:04 J	-2386741.27	-2386741.08	-2386740.89	0.0505	0.0158
Moon	-11248-11-11 10:33 J	-2386594.26	-2386594.06	-2386593.85	0.0503	0.0252
Earth	-11248-11-11 13:26 J	-2386594.15	-2386593.94	-2386593.73	0.0503	0.0221 *
Mercury	-11245-10-02 15:21 J	-2385538.01	-2385537.86	-2385537.71	0.0502	0.0286
Mercury	-11244-01-01 04:48 J	-2385447.36	-2385447.30	-2385447.23	0.0503	0.0468
Venus	-11242-04-17 07:11 J	-2384611.40	-2384611.20	-2384611.00	0.0519	0.0146
Mercury	-11239-06-01 00:28 J	-2383470.51	-2383470.48	-2383470.45	0.0525	0.0506
Mercury	-11239-08-29 05:16 J	-2383381.41	-2383381.28	-2383381.16	0.0523	0.0042
Venus	-11236-02-20 11:16 J	-2382475.23	-2382475.03	-2382474.83	0.0506	0.0025
Earth	-11236-11-16 01:55 J	-2382206.64	-2382206.42	-2382206.20	0.0502	0.0149
Moon	-11236-11-16 02:52 J	-2382206.60	-2382206.38	-2382206.16	0.0502	0.0140 *
Mercury	-11233-07-21 11:16 J	-2381228.08	-2381228.03	-2381227.97	0.0501	0.0474
Mercury	-11233-10-20 00:43 J	-2381137.63	-2381137.47	-2381137.31	0.0502	0.0277
Venus	-11231-12-20 22:19 J	-2380345.72	-2380345.57	-2380345.41	0.0517	0.0351
Venus	-11230-08-15 15:35 J	-2380107.98	-2380107.85	-2380107.71	0.0522	0.0389
Mercury	-11227-06-17 09:50 J	-2379071.21	-2379071.09	-2379070.97	0.0524	0.0093
Mercury	-11227-09-14 14:24 J	-2378981.96	-2378981.90	-2378981.84	0.0523	0.0447
Venus	-11225-10-26 12:43 J	-2378209.15	-2378208.97	-2378208.78	0.0507	0.0206
Venus	-11224-06-19 19:26 J	-2377972.78	-2377972.69	-2377972.59	0.0503	0.0444

Mercury	-11221-08-07 19:26 J	-2376827.87	-2376827.69	-2376827.50	0.0502	0.0073
Venus	-11218-04-20 04:48 J	-2375842.49	-2375842.30	-2375842.10	0.0521	0.0179
Mercury	-11215-04-05 14:24 J	-2374761.01	-2374760.90	-2374760.78	0.0525	0.0228
Mercury	-11215-07-03 18:57 J	-2374671.80	-2374671.71	-2374671.61	0.0523	0.0316
Venus	-11213-07-01 13:26 J	-2373943.06	-2373942.94	-2373942.81	0.0508	0.0389
Venus	-11212-02-22 21:07 J	-2373706.78	-2373706.62	-2373706.44	0.0504	0.0268
Mars	-11210-12-27 04:19 J	-2372669.50	-2372669.32	-2372669.13	0.0500	0.0355
Mercury	-11209-05-26 15:35 J	-2372518.03	-2372517.85	-2372517.66	0.0501	0.0116
Venus	-11207-12-23 20:38 J	-2371576.85	-2371576.64	-2371576.43	0.0520	0.0027
Mercury	-11203-01-22 18:43 J	-2370450.81	-2370450.72	-2370450.63	0.0524	0.0369
Mercury	-11203-04-21 23:16 J	-2370361.65	-2370361.53	-2370361.41	0.0523	0.0174
Venus	-11201-10-28 20:38 J	-2369440.83	-2369440.64	-2369440.44	0.0505	0.0084
Mercury	-11197-03-14 12:00 J	-2368208.15	-2368208.00	-2368207.85	0.0502	0.0301
Mercury	-11197-06-13 01:26 J	-2368117.51	-2368117.44	-2368117.36	0.0503	0.0454
Venus	-11195-08-28 13:11 J	-2367311.13	-2367310.95	-2367310.76	0.0518	0.0231
Venus	-11194-04-23 07:11 J	-2367073.23	-2367073.20	-2367073.16	0.0523	0.0514
Moon	-11194-05-17 13:26 J	-2367049.14	-2367048.94	-2367048.74	0.0523	0.0261
Earth	-11194-05-17 17:16 J	-2367048.98	-2367048.78	-2367048.58	0.0523	0.0268 *
Mars	-11192-10-20 02:38 J	-2366162.66	-2366162.39	-2366162.10	0.0525	0.0131
Mercury	-11192-11-10 23:02 J	-2366140.57	-2366140.54	-2366140.51	0.0525	0.0508
Mercury	-11191-02-08 03:35 J	-2366051.48	-2366051.35	-2366051.22	0.0523	0.0035
Venus	-11189-07-03 21:07 J	-2365174.82	-2365174.62	-2365174.42	0.0506	0.0102
Mercury	-11185-01-01 08:24 J	-2363898.19	-2363898.15	-2363898.11	0.0501	0.0486
Mercury	-11185-03-31 21:35 J	-2363807.75	-2363807.60	-2363807.43	0.0502	0.0266
Venus	-11183-05-03 04:19 J	-2363045.42	-2363045.32	-2363045.21	0.0517	0.0436
Venus	-11183-12-26 20:52 J	-2362807.80	-2362807.63	-2362807.46	0.0521	0.0303
Earth	-11182-05-22 13:26 J	-2362661.16	-2362660.94	-2362660.72	0.0524	0.0148
Moon	-11182-05-22 16:04 J	-2362661.05	-2362660.83	-2362660.60	0.0524	0.0118 *
Mercury	-11180-11-27 07:40 J	-2361741.30	-2361741.18	-2361741.05	0.0524	0.0108
Mercury	-11179-02-24 12:14 J	-2361652.06	-2361651.99	-2361651.92	0.0523	0.0433

Venus	-11177-03-08 21:35 J	-2360908.77	-2360908.60	-2360908.44	0.0508	0.0287
Venus	-11177-10-31 05:02 J	-2360672.42	-2360672.29	-2360672.15	0.0504	0.0370
Mars	-11174-09-30 09:21 J	-2359608.37	-2359608.11	-2359607.85	0.0501	0.0034
Mercury	-11173-01-18 17:31 J	-2359497.95	-2359497.77	-2359497.58	0.0502	0.0075
Venus	-11171-08-31 11:16 J	-2358542.23	-2358542.03	-2358541.83	0.0520	0.0093
Mercury	-11168-09-15 12:14 J	-2357431.10	-2357430.99	-2357430.87	0.0524	0.0242
Mercury	-11168-12-13 16:48 J	-2357341.90	-2357341.80	-2357341.69	0.0523	0.0302
Venus	-11166-11-12 22:33 J	-2356642.63	-2356642.56	-2356642.48	0.0509	0.0469
Venus	-11165-07-06 07:11 J	-2356406.38	-2356406.20	-2356406.01	0.0505	0.0193
Earth	-11165-11-10 16:19 J	-2356279.01	-2356278.82	-2356278.63	0.0502	0.0289
Moon	-11165-11-10 17:31 J	-2356278.94	-2356278.77	-2356278.60	0.0502	0.0319 *
Mercury	-11162-11-06 12:28 J	-2355188.16	-2355187.98	-2355187.79	0.0501	0.0130
Venus	-11159-05-06 00:28 J	-2354276.68	-2354276.48	-2354276.28	0.0519	0.0120
Mercury	-11156-07-04 16:48 J	-2353120.88	-2353120.80	-2353120.71	0.0525	0.0377
Mars	-11156-07-27 23:02 J	-2353097.76	-2353097.54	-2353097.31	0.0525	0.0333
Mercury	-11156-10-01 21:35 J	-2353031.72	-2353031.60	-2353031.48	0.0524	0.0168
Venus	-11153-03-11 08:38 J	-2352140.34	-2352140.14	-2352139.94	0.0506	0.0013
Earth	-11153-11-15 04:04 J	-2351891.56	-2351891.33	-2351891.10	0.0502	0.0077
Moon	-11153-11-15 05:02 J	-2351891.53	-2351891.29	-2351891.05	0.0502	0.0075 *
Mercury	-11150-08-25 08:38 J	-2350878.28	-2350878.14	-2350877.99	0.0501	0.0317
Mercury	-11150-11-23 22:04 J	-2350787.68	-2350787.58	-2350787.49	0.0502	0.0435
Venus	-11147-01-08 16:48 J	-2350010.96	-2350010.80	-2350010.64	0.0518	0.0322
Venus	-11147-09-03 10:33 J	-2349773.17	-2349773.06	-2349772.94	0.0522	0.0424
Mercury	-11144-04-22 21:07 J	-2348810.64	-2348810.62	-2348810.60	0.0525	0.0518
Mercury	-11144-07-21 01:40 J	-2348721.55	-2348721.43	-2348721.30	0.0524	0.0029
Venus	-11142-11-15 06:57 J	-2347874.39	-2347874.21	-2347874.02	0.0507	0.0180
Venus	-11141-07-08 13:40 J	-2347637.99	-2347637.93	-2347637.86	0.0503	0.0473
Moon	-11141-11-19 09:50 J	-2347504.18	-2347504.09	-2347504.00	0.0501	0.0459
Earth	-11141-11-19 12:28 J	-2347504.10	-2347503.98	-2347503.86	0.0501	0.0428 *
Mars	-11138-07-04 05:31 J	-2346547.48	-2346547.27	-2346547.04	0.0501	0.0274

Mercury	-11138-09-11 18:14 J	-2346477.90	-2346477.74	-2346477.57	0.0502	0.0247
Venus	-11135-05-09 02:24 J	-2345507.59	-2345507.40	-2345507.21	0.0521	0.0217
Mercury	-11132-05-09 06:00 J	-2344411.37	-2344411.25	-2344411.12	0.0524	0.0114
Mercury	-11132-08-06 10:33 J	-2344322.13	-2344322.06	-2344321.99	0.0522	0.0427
Venus	-11130-07-21 06:43 J	-2343608.35	-2343608.22	-2343608.08	0.0508	0.0367
Venus	-11129-03-13 14:52 J	-2343372.04	-2343371.88	-2343371.72	0.0504	0.0295
Mercury	-11126-06-30 14:24 J	-2342168.09	-2342167.90	-2342167.71	0.0502	0.0060
Venus	-11123-01-11 16:33 J	-2341242.01	-2341241.81	-2341241.60	0.0519	0.0013
Mercury	-11120-02-25 10:04 J	-2340101.18	-2340101.08	-2340100.97	0.0524	0.0257
Mercury	-11120-05-25 14:38 J	-2340011.99	-2340011.89	-2340011.78	0.0523	0.0286
Venus	-11118-11-17 15:50 J	-2339106.04	-2339105.84	-2339105.64	0.0505	0.0112
Mercury	-11114-04-18 10:19 J	-2337858.25	-2337858.07	-2337857.88	0.0502	0.0131
Venus	-11112-09-16 07:26 J	-2336976.38	-2336976.19	-2336976.00	0.0518	0.0204
Earth	-11111-05-16 10:48 J	-2336734.21	-2336734.05	-2336733.88	0.0522	0.0370
Moon	-11111-05-16 13:55 J	-2336734.07	-2336733.92	-2336733.75	0.0522	0.0370 *
Mercury	-11109-12-14 14:38 J	-2335790.97	-2335790.89	-2335790.81	0.0525	0.0392
Mercury	-11108-03-13 19:11 J	-2335701.82	-2335701.70	-2335701.58	0.0524	0.0152
Venus	-11106-07-23 17:45 J	-2334839.96	-2334839.76	-2334839.56	0.0507	0.0069
Mercury	-11102-02-04 05:31 J	-2333548.41	-2333548.27	-2333548.12	0.0501	0.0330
Mercury	-11102-05-05 18:43 J	-2333457.81	-2333457.72	-2333457.61	0.0502	0.0421
Venus	-11100-05-21 20:52 J	-2332710.74	-2332710.63	-2332710.50	0.0517	0.0413
Venus	-11099-01-14 13:55 J	-2332473.08	-2332472.92	-2332472.76	0.0522	0.0332
Moon	-11099-05-21 04:33 J	-2332346.55	-2332346.31	-2332346.07	0.0524	0.0009
Earth	-11099-05-21 06:28 J	-2332346.46	-2332346.23	-2332346.00	0.0524	0.0039 *
Mercury	-11097-12-30 23:45 J	-2331391.63	-2331391.51	-2331391.38	0.0524	0.0022
Venus	-11094-03-28 18:28 J	-2330573.90	-2330573.73	-2330573.56	0.0508	0.0255
Venus	-11094-11-20 01:40 J	-2330337.54	-2330337.43	-2330337.31	0.0503	0.0404
Mercury	-11090-02-21 14:52 J	-2329148.05	-2329147.88	-2329147.71	0.0502	0.0231
Venus	-11088-09-19 05:31 J	-2328207.46	-2328207.27	-2328207.06	0.0520	0.0125
Earth	-11087-05-26 06:00 J	-2327958.35	-2327958.25	-2327958.14	0.0524	0.0465

Moon	-11087-05-26 06:14 J	-2327958.35	-2327958.24	-2327958.14	0.0524	0.0461 *
Mercury	-11085-10-19 04:04 J	-2327081.45	-2327081.33	-2327081.21	0.0524	0.0124
Mercury	-11084-01-16 08:38 J	-2326992.22	-2326992.14	-2326992.07	0.0523	0.0417
Venus	-11083-12-01 16:19 J	-2326307.91	-2326307.82	-2326307.73	0.0509	0.0446
Venus	-11082-07-26 00:57 J	-2326071.64	-2326071.46	-2326071.28	0.0505	0.0219
Earth	-11082-11-10 13:11 J	-2325964.10	-2325963.95	-2325963.79	0.0503	0.0377
Moon	-11082-11-10 13:40 J	-2325964.07	-2325963.93	-2325963.78	0.0503	0.0403 *
Mercury	-11079-12-10 11:02 J	-2324838.23	-2324838.04	-2324837.85	0.0502	0.0041
Venus	-11076-05-24 22:04 J	-2323941.78	-2323941.58	-2323941.37	0.0519	0.0084
Mercury	-11073-08-07 08:24 J	-2322771.25	-2322771.15	-2322771.04	0.0524	0.0262
Mercury	-11073-11-04 12:57 J	-2322682.06	-2322681.96	-2322681.85	0.0523	0.0280
Venus	-11070-03-31 01:26 J	-2321805.64	-2321805.44	-2321805.24	0.0506	0.0034
Moon	-11070-11-14 22:04 J	-2321576.81	-2321576.58	-2321576.36	0.0502	0.0015
Earth	-11070-11-15 00:28 J	-2321576.72	-2321576.48	-2321576.25	0.0502	0.0016 *
Mercury	-11067-09-28 07:11 J	-2320528.38	-2320528.20	-2320528.02	0.0502	0.0146
Venus	-11064-01-27 13:26 J	-2319676.11	-2319675.94	-2319675.77	0.0517	0.0291
Venus	-11064-09-22 06:28 J	-2319438.32	-2319438.23	-2319438.12	0.0522	0.0457
Mercury	-11061-05-26 12:28 J	-2318461.05	-2318460.98	-2318460.90	0.0524	0.0406
Mercury	-11061-08-23 17:16 J	-2318371.91	-2318371.78	-2318371.66	0.0523	0.0139
Venus	-11059-12-04 01:40 J	-2317539.62	-2317539.43	-2317539.23	0.0507	0.0153
Earth	-11058-11-19 12:28 J	-2317189.15	-2317188.98	-2317188.82	0.0502	0.0351
Moon	-11058-11-19 16:04 J	-2317188.98	-2317188.83	-2317188.68	0.0502	0.0384 *
Mars	-11055-03-21 09:35 J	-2316336.30	-2316336.10	-2316335.89	0.0500	0.0311
Mercury	-11055-07-17 03:07 J	-2316218.50	-2316218.37	-2316218.22	0.0501	0.0335
Mercury	-11055-10-15 16:33 J	-2316127.91	-2316127.81	-2316127.70	0.0502	0.0419
Venus	-11053-10-02 04:48 J	-2315410.35	-2315410.30	-2315410.24	0.0516	0.0494
Venus	-11052-05-27 20:38 J	-2315172.82	-2315172.64	-2315172.46	0.0521	0.0245
Mercury	-11049-06-11 21:35 J	-2314061.72	-2314061.60	-2314061.47	0.0524	0.0016
Venus	-11047-08-09 03:07 J	-2313273.52	-2313273.37	-2313273.22	0.0509	0.0337
Venus	-11046-04-02 11:31 J	-2313037.18	-2313037.02	-2313036.87	0.0504	0.0329

Mercury	-11043-08-03 12:00 J	-2311818.17	-2311818.00	-2311817.83	0.0502	0.0220
Venus	-11040-01-30 09:50 J	-2310907.29	-2310907.09	-2310906.88	0.0520	0.0032
Mars	-11037-01-12 20:09 J	-2309829.94	-2309829.66	-2309829.37	0.0526	0.0086
Mercury	-11037-03-31 02:09 J	-2309751.53	-2309751.41	-2309751.29	0.0525	0.0133
Mercury	-11037-06-28 06:43 J	-2309662.29	-2309662.22	-2309662.14	0.0523	0.0409
Venus	-11035-12-06 12:43 J	-2308771.16	-2308770.97	-2308770.77	0.0505	0.0147
Mercury	-11031-05-22 08:09 J	-2307508.35	-2307508.16	-2307507.97	0.0501	0.0032
Venus	-11029-10-05 02:09 J	-2306641.61	-2306641.41	-2306641.22	0.0518	0.0175
Moon	-11028-05-15 04:04 J	-2306419.43	-2306419.33	-2306419.22	0.0522	0.0470
Earth	-11028-05-15 06:28 J	-2306419.32	-2306419.23	-2306419.12	0.0522	0.0469 *
Mercury	-11025-01-18 06:28 J	-2305441.33	-2305441.23	-2305441.12	0.0524	0.0273
Mercury	-11025-04-16 11:02 J	-2305352.14	-2305352.04	-2305351.93	0.0523	0.0270
Venus	-11023-08-11 11:31 J	-2304505.22	-2304505.02	-2304504.82	0.0506	0.0044
Mars	-11020-12-23 09:07 J	-2303275.38	-2303275.12	-2303274.86	0.0501	0.0002
Mercury	-11019-03-10 04:04 J	-2303198.51	-2303198.33	-2303198.15	0.0502	0.0162
Venus	-11017-06-09 19:11 J	-2302375.83	-2302375.70	-2302375.55	0.0517	0.0378
Venus	-11016-02-02 12:14 J	-2302138.12	-2302137.99	-2302137.84	0.0522	0.0372
Earth	-11016-05-20 07:26 J	-2302031.42	-2302031.19	-2302030.96	0.0523	0.0038
Moon	-11016-05-20 08:09 J	-2302031.38	-2302031.16	-2302030.94	0.0523	0.0071 *
Mercury	-11014-11-06 11:02 J	-2301131.12	-2301131.04	-2301130.96	0.0524	0.0408
Mercury	-11013-02-03 15:35 J	-2301041.97	-2301041.85	-2301041.73	0.0523	0.0135
Venus	-11011-04-16 11:31 J	-2300239.19	-2300239.02	-2300238.84	0.0508	0.0233
Venus	-11011-12-08 18:57 J	-2300002.81	-2300002.71	-2300002.61	0.0504	0.0429
Mercury	-11008-12-27 00:14 J	-2298888.62	-2298888.49	-2298888.35	0.0501	0.0347
Mercury	-11007-03-27 13:40 J	-2298798.03	-2298797.93	-2298797.82	0.0503	0.0407
Venus	-11005-10-08 03:07 J	-2297872.57	-2297872.37	-2297872.18	0.0520	0.0159
Earth	-11004-05-25 04:33 J	-2297643.47	-2297643.31	-2297643.15	0.0524	0.0378
Moon	-11004-05-25 05:45 J	-2297643.42	-2297643.26	-2297643.09	0.0524	0.0376 *
Mars	-11002-10-20 12:28 J	-2296765.19	-2296764.98	-2296764.78	0.0524	0.0371
Mercury	-11002-11-22 19:40 J	-2296731.80	-2296731.68	-2296731.55	0.0524	0.0016

# 11TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 11th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Venus	-11000-12-20 11:16 J		-2295973.14	-2295973.03	-2295972.92	0.0509	0.0421	
Venus	-10999-08-13 20:24 J		-2295736.83	-2295736.65	-2295736.48	0.0505	0.0249	
Moon	-10999-11-09 11:16 J		-2295649.08	-2295649.03	-2295648.96	0.0503	0.0482	
Earth	-10999-11-09 13:26 J		-2295649.03	-2295648.94	-2295648.83	0.0503	0.0453	*
Mercury	-10995-01-13 09:50 J		-2294488.26	-2294488.09	-2294487.92	0.0502	0.0218	
Venus	-10993-06-12 17:31 J		-2293606.97	-2293606.77	-2293606.56	0.0519	0.0054	
Mercury	-10990-09-11 00:14 J		-2292421.61	-2292421.49	-2292421.37	0.0524	0.0144	
Mercury	-10990-12-09 04:48 J		-2292332.38	-2292332.30	-2292332.22	0.0523	0.0398	
Venus	-10987-04-18 22:19 J		-2291470.77	-2291470.57	-2291470.37	0.0506	0.0069	
Earth	-10987-11-14 03:35 J		-2291261.58	-2291261.35	-2291261.12	0.0503	0.0082	
Moon	-10987-11-14 07:11 J		-2291261.44	-2291261.20	-2291260.97	0.0503	0.0072	*
Mars	-10984-09-26 11:02 J		-2290214.23	-2290214.04	-2290213.83	0.0501	0.0318	
Mercury	-10984-11-01 05:31 J		-2290178.46	-2290178.27	-2290178.08	0.0501	0.0024	
Venus	-10981-02-16 07:40 J		-2289341.35	-2289341.18	-2289341.00	0.0517	0.0264	
Venus	-10981-10-11 00:57 J		-2289103.53	-2289103.46	-2289103.38	0.0522	0.0488	
Mercury	-10978-06-30 04:48 J		-2288111.41	-2288111.30	-2288111.20	0.0525	0.0280	
Mercury	-10978-09-27 09:21 J		-2288022.22	-2288022.11	-2288022.00	0.0524	0.0264	
Venus	-10976-12-22 23:31 J		-2287204.71	-2287204.52	-2287204.32	0.0507	0.0118	

Moon	-10975-11-18 12:00 J	-2286874.17	-2286874.00	-2286873.81	0.0502	0.0317
Earth	-10975-11-18 16:04 J	-2286874.02	-2286873.83	-2286873.64	0.0502	0.0285 *
Mercury	-10972-08-20 01:40 J	-2285868.61	-2285868.43	-2285868.25	0.0501	0.0165
Venus	-10970-10-22 00:28 J	-2285075.56	-2285075.48	-2285075.39	0.0516	0.0465
Venus	-10969-06-15 16:33 J	-2284837.98	-2284837.81	-2284837.63	0.0521	0.0281
Mercury	-10966-04-18 09:07 J	-2283801.19	-2283801.12	-2283801.04	0.0525	0.0417
Mercury	-10966-07-16 13:40 J	-2283712.05	-2283711.93	-2283711.80	0.0523	0.0129
Venus	-10964-08-27 21:50 J	-2282938.74	-2282938.59	-2282938.43	0.0508	0.0312
Venus	-10963-04-21 05:45 J	-2282702.40	-2282702.26	-2282702.11	0.0504	0.0355
Mercury	-10960-06-07 21:21 J	-2281558.74	-2281558.61	-2281558.48	0.0501	0.0358
Mercury	-10960-09-06 10:48 J	-2281468.16	-2281468.05	-2281467.93	0.0503	0.0395
Venus	-10957-02-19 09:35 J	-2280572.30	-2280572.10	-2280571.90	0.0520	0.0072
Mercury	-10954-05-04 18:28 J	-2279401.86	-2279401.73	-2279401.61	0.0523	0.0014
Venus	-10952-05-02 21:35 J	-2278672.63	-2278672.60	-2278672.56	0.0509	0.0499
Venus	-10952-12-25 06:43 J	-2278436.40	-2278436.22	-2278436.03	0.0505	0.0173
Mercury	-10948-06-25 07:11 J	-2277158.37	-2277158.20	-2277158.03	0.0502	0.0211
Venus	-10946-10-25 01:11 J	-2276306.65	-2276306.45	-2276306.25	0.0518	0.0137
Mercury	-10942-02-20 22:33 J	-2275091.68	-2275091.56	-2275091.44	0.0524	0.0149
Mercury	-10942-05-21 03:07 J	-2275002.45	-2275002.37	-2275002.29	0.0523	0.0392
Venus	-10940-08-30 07:55 J	-2274170.37	-2274170.17	-2274169.97	0.0507	0.0015
Mercury	-10936-04-13 03:35 J	-2272848.54	-2272848.35	-2272848.16	0.0502	0.0024
Venus	-10934-06-29 16:33 J	-2272040.95	-2272040.81	-2272040.65	0.0517	0.0345
Venus	-10933-02-22 09:21 J	-2271803.23	-2271803.11	-2271802.98	0.0521	0.0407
Earth	-10933-05-19 06:00 J	-2271716.48	-2271716.25	-2271716.02	0.0523	0.0123
Moon	-10933-05-19 06:28 J	-2271716.46	-2271716.23	-2271715.99	0.0523	0.0154 *
Mercury	-10931-12-10 03:07 J	-2270781.48	-2270781.37	-2270781.27	0.0524	0.0285
Mercury	-10930-03-09 07:40 J	-2270692.29	-2270692.18	-2270692.07	0.0523	0.0258
Venus	-10928-05-05 09:21 J	-2269904.30	-2269904.11	-2269903.93	0.0508	0.0198
Venus	-10928-12-27 17:02 J	-2269667.86	-2269667.79	-2269667.71	0.0504	0.0467
Mercury	-10924-01-29 23:31 J	-2268538.69	-2268538.52	-2268538.34	0.0501	0.0167



Venus	-10922-10-27 23:02 J	-2267537.73	-2267537.54	-2267537.35	0.0520	0.0192
Moon	-10921-05-23 23:31 J	-2267328.71	-2267328.52	-2267328.33	0.0524	0.0291
Earth	-10921-05-24 02:09 J	-2267328.60	-2267328.41	-2267328.22	0.0524	0.0287 *
Mars	-10919-06-30 09:50 J	-2266561.19	-2266561.09	-2266560.96	0.0526	0.0480
Mercury	-10919-09-28 07:26 J	-2266471.26	-2266471.19	-2266471.11	0.0525	0.0422
Mercury	-10919-12-26 12:14 J	-2266382.11	-2266381.99	-2266381.87	0.0524	0.0124
Venus	-10916-01-08 10:04 J	-2265638.20	-2265638.08	-2265637.94	0.0509	0.0386
Venus	-10916-09-01 19:11 J	-2265401.86	-2265401.70	-2265401.53	0.0505	0.0287
Mercury	-10913-11-17 19:55 J	-2264228.81	-2264228.67	-2264228.54	0.0501	0.0352
Mercury	-10912-02-16 09:07 J	-2264138.23	-2264138.12	-2264138.01	0.0502	0.0399
Venus	-10910-07-02 15:07 J	-2263272.07	-2263271.87	-2263271.66	0.0519	0.0020
Mercury	-10907-10-14 16:48 J	-2262071.92	-2262071.80	-2262071.67	0.0524	0.0014
Venus	-10904-05-07 18:14 J	-2261135.94	-2261135.74	-2261135.54	0.0506	0.0097
Moon	-10904-11-13 00:00 J	-2260946.72	-2260946.50	-2260946.28	0.0503	0.0149
Earth	-10904-11-13 04:04 J	-2260946.55	-2260946.33	-2260946.11	0.0503	0.0155 *
Mars	-10901-06-13 18:14 J	-2260002.96	-2260002.74	-2260002.51	0.0500	0.0266
Mercury	-10901-12-05 04:48 J	-2259828.47	-2259828.30	-2259828.13	0.0502	0.0204
Venus	-10898-03-07 08:38 J	-2259006.32	-2259006.14	-2259005.95	0.0518	0.0223
Mercury	-10895-08-02 21:35 J	-2257761.72	-2257761.60	-2257761.48	0.0524	0.0143
Mercury	-10895-10-31 01:55 J	-2257672.50	-2257672.42	-2257672.34	0.0522	0.0397
Venus	-10892-01-10 19:11 J	-2256869.90	-2256869.70	-2256869.50	0.0507	0.0090
Earth	-10892-11-17 15:50 J	-2256559.05	-2256558.84	-2256558.62	0.0502	0.0209
Moon	-10892-11-17 19:40 J	-2256558.88	-2256558.68	-2256558.48	0.0502	0.0241 *
Mercury	-10889-09-23 01:26 J	-2255518.63	-2255518.44	-2255518.25	0.0502	0.0023
Venus	-10887-11-10 01:11 J	-2254740.55	-2254740.45	-2254740.33	0.0516	0.0427
Venus	-10886-07-05 17:31 J	-2254502.93	-2254502.77	-2254502.61	0.0521	0.0325
Mars	-10883-04-07 08:38 J	-2253496.43	-2253496.14	-2253495.85	0.0525	0.0012
Mercury	-10883-05-22 01:40 J	-2253451.53	-2253451.43	-2253451.32	0.0524	0.0284
Mercury	-10883-08-19 06:14 J	-2253362.35	-2253362.24	-2253362.13	0.0523	0.0258
Venus	-10881-09-15 19:40 J	-2252603.85	-2252603.68	-2252603.51	0.0508	0.0278

Venus	-10880-05-10 03:35 J	-2252367.47	-2252367.35	-2252367.22	0.0504	0.0392
Mercury	-10877-07-11 21:50 J	-2251208.77	-2251208.59	-2251208.41	0.0502	0.0163
Venus	-10874-03-10 08:38 J	-2250237.34	-2250237.14	-2250236.94	0.0520	0.0112
Mercury	-10871-03-10 06:14 J	-2249141.31	-2249141.24	-2249141.17	0.0525	0.0420
Mercury	-10871-06-07 10:48 J	-2249052.17	-2249052.05	-2249051.93	0.0523	0.0124
Venus	-10869-05-21 20:24 J	-2248337.73	-2248337.65	-2248337.57	0.0510	0.0465
Venus	-10868-01-13 06:00 J	-2248101.43	-2248101.25	-2248101.06	0.0505	0.0213
Mars	-10865-03-18 04:33 J	-2246941.57	-2246941.31	-2246941.05	0.0501	0.0067
Mercury	-10865-04-29 18:00 J	-2246898.88	-2246898.75	-2246898.61	0.0501	0.0349
Mercury	-10865-07-29 07:26 J	-2246808.30	-2246808.19	-2246808.08	0.0502	0.0403
Venus	-10863-11-12 23:02 J	-2245971.74	-2245971.54	-2245971.34	0.0518	0.0101
Mercury	-10859-03-26 15:21 J	-2244741.98	-2244741.86	-2244741.73	0.0524	0.0017
Venus	-10857-09-18 08:09 J	-2243835.36	-2243835.16	-2243834.96	0.0507	0.0028
Mercury	-10853-05-17 03:50 J	-2242498.51	-2242498.34	-2242498.17	0.0502	0.0217
Venus	-10851-07-18 16:04 J	-2241705.99	-2241705.83	-2241705.66	0.0517	0.0307
Venus	-10850-03-13 08:52 J	-2241468.22	-2241468.13	-2241468.02	0.0522	0.0450
Moon	-10850-05-19 07:26 J	-2241401.39	-2241401.19	-2241400.98	0.0523	0.0220
Earth	-10850-05-19 09:35 J	-2241401.31	-2241401.10	-2241400.88	0.0523	0.0190 *
Mercury	-10847-01-12 20:09 J	-2240431.78	-2240431.66	-2240431.54	0.0524	0.0143
Mars	-10847-01-13 12:28 J	-2240431.11	-2240430.98	-2240430.84	0.0524	0.0462
Mercury	-10847-04-12 00:43 J	-2240342.55	-2240342.47	-2240342.39	0.0523	0.0397
Venus	-10845-05-24 07:11 J	-2239569.39	-2239569.20	-2239569.01	0.0507	0.0166
Venus	-10844-01-15 14:09 J	-2239332.93	-2239332.91	-2239332.88	0.0503	0.0500
Mercury	-10841-03-04 23:16 J	-2238188.72	-2238188.53	-2238188.34	0.0502	0.0020
Venus	-10839-03-23 09:50 J	-2237440.12	-2237440.09	-2237440.05	0.0516	0.0509
Venus	-10839-11-16 01:40 J	-2237202.60	-2237202.43	-2237202.24	0.0521	0.0242
Earth	-10838-05-24 11:31 J	-2237013.22	-2237013.02	-2237012.81	0.0524	0.0243
Moon	-10838-05-24 15:21 J	-2237013.06	-2237012.86	-2237012.65	0.0524	0.0260 *
Mercury	-10836-11-01 00:57 J	-2236121.57	-2236121.46	-2236121.35	0.0524	0.0273
Mercury	-10835-01-29 05:31 J	-2236032.38	-2236032.27	-2236032.17	0.0523	0.0268

Venus	-10833-01-28 07:55 J	-2235303.31	-2235303.17	-2235303.03	0.0508	0.0354
Venus	-10833-09-20 16:04 J	-2235066.98	-2235066.83	-2235066.67	0.0504	0.0320
Mars	-10830-12-21 08:24 J	-2233880.30	-2233880.15	-2233879.98	0.0502	0.0390
Mercury	-10830-12-22 19:55 J	-2233878.85	-2233878.67	-2233878.49	0.0502	0.0162
Venus	-10827-07-21 18:00 J	-2232936.96	-2232936.75	-2232936.55	0.0519	0.0031
Mercury	-10824-08-20 05:16 J	-2231811.36	-2231811.28	-2231811.20	0.0524	0.0412
Mercury	-10824-11-17 09:50 J	-2231722.21	-2231722.09	-2231721.97	0.0523	0.0130
Venus	-10821-05-26 17:31 J	-2230800.96	-2230800.77	-2230800.57	0.0506	0.0137
Earth	-10821-11-12 11:16 J	-2230631.24	-2230631.03	-2230630.82	0.0503	0.0207
Moon	-10821-11-12 14:52 J	-2230631.09	-2230630.88	-2230630.66	0.0503	0.0193 *
Mercury	-10818-10-10 16:48 J	-2229568.94	-2229568.80	-2229568.66	0.0502	0.0342
Mercury	-10817-01-09 06:00 J	-2229478.35	-2229478.25	-2229478.13	0.0503	0.0413
Venus	-10815-03-26 09:50 J	-2228671.28	-2228671.09	-2228670.89	0.0518	0.0179
Mercury	-10812-09-05 14:24 J	-2227412.03	-2227411.90	-2227411.78	0.0524	0.0007
Venus	-10809-01-30 19:40 J	-2226534.88	-2226534.68	-2226534.48	0.0507	0.0050
Moon	-10809-11-16 23:02 J	-2226243.76	-2226243.54	-2226243.31	0.0502	0.0191
Earth	-10809-11-17 01:40 J	-2226243.65	-2226243.43	-2226243.21	0.0502	0.0165 *
Mercury	-10806-10-28 02:38 J	-2225168.56	-2225168.39	-2225168.22	0.0502	0.0226
Venus	-10804-11-29 01:11 J	-2224405.58	-2224405.45	-2224405.31	0.0516	0.0388
Venus	-10803-07-24 17:16 J	-2224167.92	-2224167.78	-2224167.63	0.0521	0.0367
Mercury	-10800-06-24 18:57 J	-2223101.83	-2223101.71	-2223101.59	0.0524	0.0139
Mercury	-10800-09-21 23:31 J	-2223012.60	-2223012.52	-2223012.44	0.0523	0.0402
Venus	-10798-10-05 21:07 J	-2222268.79	-2222268.62	-2222268.44	0.0508	0.0236
Venus	-10797-05-29 05:16 J	-2222032.38	-2222032.28	-2222032.18	0.0504	0.0437
Mercury	-10794-08-15 23:02 J	-2220858.73	-2220858.54	-2220858.35	0.0502	0.0041
Venus	-10791-03-29 09:50 J	-2219902.28	-2219902.09	-2219901.89	0.0520	0.0158
Mercury	-10788-04-12 23:45 J	-2218791.61	-2218791.51	-2218791.40	0.0524	0.0269
Mercury	-10788-07-11 04:19 J	-2218702.42	-2218702.32	-2218702.21	0.0523	0.0273
Venus	-10786-06-10 20:24 J	-2218002.75	-2218002.65	-2218002.54	0.0509	0.0429
Venus	-10785-02-02 05:16 J	-2217766.46	-2217766.28	-2217766.11	0.0505	0.0249

Mercury	-10782-06-03 18:14 J	-2216548.91	-2216548.74	-2216548.56	0.0502	0.0158
Venus	-10780-12-02 02:52 J	-2215636.58	-2215636.38	-2215636.17	0.0519	0.0052
Mercury	-10776-01-30 04:48 J	-2214481.38	-2214481.30	-2214481.22	0.0524	0.0397
Mercury	-10776-04-29 09:21 J	-2214392.23	-2214392.11	-2214391.99	0.0523	0.0146
Venus	-10774-10-08 06:57 J	-2213500.41	-2213500.21	-2213500.01	0.0506	0.0065
Mercury	-10770-03-22 15:07 J	-2212239.01	-2212238.87	-2212238.73	0.0502	0.0337
Mercury	-10770-06-21 04:33 J	-2212148.41	-2212148.31	-2212148.20	0.0503	0.0418
Venus	-10768-08-06 19:55 J	-2211370.84	-2211370.67	-2211370.49	0.0518	0.0259
Venus	-10767-04-01 13:11 J	-2211132.99	-2211132.95	-2211132.89	0.0522	0.0503
Earth	-10767-05-18 20:38 J	-2211085.84	-2211085.64	-2211085.42	0.0523	0.0228
Moon	-10767-05-19 00:28 J	-2211085.69	-2211085.48	-2211085.27	0.0523	0.0249 *
Mars	-10765-09-24 05:31 J	-2210226.47	-2210226.27	-2210226.05	0.0525	0.0354
Mercury	-10764-02-15 13:40 J	-2210082.06	-2210081.93	-2210081.81	0.0523	0.0009
Venus	-10762-06-13 07:55 J	-2209234.36	-2209234.17	-2209233.97	0.0507	0.0124
Mercury	-10758-04-09 01:26 J	-2207838.60	-2207838.44	-2207838.27	0.0503	0.0238
Venus	-10756-04-11 12:57 J	-2207105.05	-2207104.96	-2207104.87	0.0516	0.0463
Venus	-10756-12-05 04:33 J	-2206867.48	-2206867.31	-2206867.13	0.0521	0.0292
Moon	-10755-05-23 15:50 J	-2206698.06	-2206697.84	-2206697.63	0.0523	0.0211
Earth	-10755-05-23 19:40 J	-2206697.89	-2206697.68	-2206697.46	0.0523	0.0191 *
Mercury	-10753-12-04 18:14 J	-2205771.86	-2205771.74	-2205771.62	0.0524	0.0127
Mercury	-10752-03-03 22:33 J	-2205682.63	-2205682.56	-2205682.48	0.0522	0.0412
Venus	-10750-02-16 09:21 J	-2204968.27	-2204968.11	-2204967.95	0.0509	0.0312
Venus	-10750-10-10 18:00 J	-2204731.89	-2204731.75	-2204731.61	0.0505	0.0366
Mars	-10747-09-08 07:40 J	-2203668.42	-2203668.18	-2203667.93	0.0500	0.0170
Mercury	-10746-01-25 22:04 J	-2203528.77	-2203528.58	-2203528.39	0.0502	0.0054
Venus	-10744-08-09 19:26 J	-2202601.89	-2202601.69	-2202601.49	0.0519	0.0076
Mercury	-10741-09-22 22:48 J	-2201461.66	-2201461.55	-2201461.44	0.0524	0.0262
Mercury	-10741-12-21 03:21 J	-2201372.47	-2201372.36	-2201372.26	0.0523	0.0280
Venus	-10739-10-22 10:19 J	-2200702.10	-2200702.07	-2200702.02	0.0510	0.0500
Venus	-10738-06-15 20:24 J	-2200465.84	-2200465.65	-2200465.46	0.0506	0.0183

Moon	-10738-11-12 21:21 J	-2200315.82	-2200315.61	-2200315.39	0.0503	0.0220
Earth	-10738-11-13 00:00 J	-2200315.70	-2200315.50	-2200315.29	0.0503	0.0239 *
Mercury	-10735-11-13 18:28 J	-2199218.91	-2199218.73	-2199218.54	0.0502	0.0130
Venus	-10732-04-14 12:28 J	-2198336.18	-2198335.98	-2198335.78	0.0518	0.0133
Mars	-10729-07-02 10:04 J	-2197161.36	-2197161.08	-2197160.80	0.0524	0.0123
Mercury	-10729-07-12 03:35 J	-2197151.43	-2197151.35	-2197151.26	0.0524	0.0390
Mercury	-10729-10-09 08:09 J	-2197062.28	-2197062.16	-2197062.04	0.0523	0.0154
Venus	-10726-02-18 20:38 J	-2196199.84	-2196199.64	-2196199.44	0.0506	0.0008
Earth	-10726-11-17 09:35 J	-2195928.32	-2195928.10	-2195927.87	0.0502	0.0118
Moon	-10726-11-17 10:19 J	-2195928.28	-2195928.07	-2195927.85	0.0502	0.0140 *
Mercury	-10723-09-01 13:55 J	-2194909.07	-2194908.92	-2194908.78	0.0502	0.0329
Mercury	-10723-12-01 03:07 J	-2194818.46	-2194818.37	-2194818.26	0.0503	0.0426
Venus	-10721-12-18 05:31 J	-2194070.43	-2194070.27	-2194070.12	0.0517	0.0341
Venus	-10720-08-12 22:33 J	-2193832.67	-2193832.56	-2193832.43	0.0522	0.0423
Mercury	-10717-04-30 08:38 J	-2192841.16	-2192841.14	-2192841.12	0.0524	0.0517
Mercury	-10717-07-28 13:11 J	-2192752.07	-2192751.95	-2192751.82	0.0523	0.0026
Venus	-10715-10-24 22:04 J	-2191933.76	-2191933.58	-2191933.39	0.0507	0.0195
Venus	-10714-06-18 05:16 J	-2191697.34	-2191697.28	-2191697.22	0.0503	0.0475
Earth	-10714-11-21 22:33 J	-2191540.61	-2191540.56	-2191540.49	0.0501	0.0484
Moon	-10714-11-21 23:45 J	-2191540.60	-2191540.51	-2191540.41	0.0501	0.0463 *
Mars	-10711-06-12 12:43 J	-2190607.21	-2190606.97	-2190606.72	0.0502	0.0159
Mercury	-10711-09-19 00:00 J	-2190508.66	-2190508.50	-2190508.33	0.0503	0.0246
Venus	-10708-04-17 15:07 J	-2189567.06	-2189566.87	-2189566.68	0.0520	0.0213
Mercury	-10705-05-16 17:45 J	-2188441.89	-2188441.76	-2188441.64	0.0523	0.0113
Mercury	-10705-08-13 22:04 J	-2188352.65	-2188352.58	-2188352.51	0.0522	0.0427
Venus	-10703-06-29 22:33 J	-2187667.69	-2187667.56	-2187667.43	0.0509	0.0385
Venus	-10702-02-21 07:11 J	-2187431.36	-2187431.20	-2187431.04	0.0505	0.0295
Mercury	-10699-07-07 21:07 J	-2186198.81	-2186198.62	-2186198.43	0.0502	0.0067
Venus	-10697-12-21 07:11 J	-2185301.41	-2185301.20	-2185301.00	0.0519	0.0005
Mercury	-10693-03-04 22:04 J	-2184131.69	-2184131.58	-2184131.47	0.0524	0.0247

Mercury -10693-06-02 02:38 J -2184042.49 -2184042.39 -2184042.29 0.0523 0.0294  
 Venus -10691-10-27 09:21 J -2183165.30 -2183165.11 -2183164.91 0.0506 0.0112  
 Mercury -10687-04-25 17:45 J -2181888.94 -2181888.76 -2181888.57 0.0502 0.0115  
 Venus -10685-08-25 22:48 J -2181035.74 -2181035.55 -2181035.36 0.0518 0.0212  
 Moon -10684-05-18 00:57 J -2180770.66 -2180770.46 -2180770.27 0.0522 0.0299  
 Earth -10684-05-18 04:48 J -2180770.50 -2180770.30 -2180770.10 0.0522 0.0277 \*  
 Mercury -10682-12-23 02:52 J -2179821.47 -2179821.38 -2179821.30 0.0524 0.0382  
 Mercury -10681-03-21 07:26 J -2179732.31 -2179732.19 -2179732.08 0.0523 0.0162  
 Venus -10679-07-02 11:31 J -2178899.22 -2178899.02 -2178898.82 0.0507 0.0076  
 Mercury -10675-02-11 14:24 J -2177579.05 -2177578.90 -2177578.75 0.0502 0.0297  
 Mars -10675-03-17 02:09 J -2177545.44 -2177545.41 -2177545.37 0.0502 0.0496  
 Mercury -10675-05-13 03:50 J -2177488.42 -2177488.34 -2177488.26 0.0503 0.0456  
 Venus -10673-04-30 16:04 J -2176769.95 -2176769.83 -2176769.71 0.0516 0.0417  
 Venus -10673-12-24 08:09 J -2176532.31 -2176532.16 -2176532.01 0.0521 0.0342  
 Earth -10672-05-23 05:45 J -2176382.48 -2176382.26 -2176382.04 0.0523 0.0148  
 Moon -10672-05-23 08:52 J -2176382.34 -2176382.13 -2176381.91 0.0523 0.0175 \*  
 Mercury -10670-10-11 07:40 J -2175511.21 -2175511.18 -2175511.15 0.0525 0.0508  
 Mercury -10669-01-08 12:28 J -2175422.11 -2175421.98 -2175421.86 0.0523 0.0040  
 Venus -10667-03-07 12:00 J -2174633.17 -2174633.00 -2174632.83 0.0508 0.0267  
 Venus -10667-10-29 19:26 J -2174396.80 -2174396.69 -2174396.57 0.0504 0.0409  
 Mercury -10664-11-30 09:35 J -2173269.12 -2173269.10 -2173269.08 0.0502 0.0497  
 Mercury -10663-02-28 22:48 J -2173178.71 -2173178.55 -2173178.38 0.0503 0.0256  
 Venus -10661-08-29 00:28 J -2172266.68 -2172266.48 -2172266.28 0.0520 0.0131  
 Mercury -10658-10-27 17:16 J -2171111.90 -2171111.78 -2171111.65 0.0523 0.0092  
 Mercury -10657-01-24 21:50 J -2171022.66 -2171022.59 -2171022.53 0.0522 0.0447  
 Venus -10656-11-10 12:57 J -2170367.04 -2170366.96 -2170366.87 0.0509 0.0456  
 Venus -10655-07-04 21:50 J -2170130.77 -2170130.59 -2170130.41 0.0505 0.0226  
 Earth -10655-11-12 09:21 J -2170000.30 -2170000.11 -2169999.91 0.0503 0.0281  
 Moon -10655-11-12 09:50 J -2170000.27 -2170000.09 -2169999.89 0.0503 0.0256 \*  
 Mercury -10652-12-17 19:40 J -2168868.86 -2168868.68 -2168868.49 0.0503 0.0076

Venus	-10649-05-03 17:31 J	-2168000.97	-2168000.77	-2168000.56	0.0519	0.0079
Mercury	-10646-08-15 21:50 J	-2166801.70	-2166801.59	-2166801.48	0.0524	0.0228
Mercury	-10646-11-13 02:09 J	-2166712.51	-2166712.41	-2166712.31	0.0522	0.0312
Venus	-10643-03-09 23:16 J	-2165864.73	-2165864.53	-2165864.33	0.0506	0.0041
Earth	-10643-11-16 22:04 J	-2165612.81	-2165612.58	-2165612.35	0.0502	0.0084
Moon	-10643-11-16 23:16 J	-2165612.76	-2165612.53	-2165612.29	0.0502	0.0100 *
Mercury	-10640-10-05 16:48 J	-2164558.98	-2164558.80	-2164558.61	0.0502	0.0102
Venus	-10637-01-07 10:19 J	-2163735.24	-2163735.07	-2163734.89	0.0517	0.0288
Venus	-10637-09-01 03:35 J	-2163497.43	-2163497.35	-2163497.27	0.0522	0.0478
Mercury	-10634-06-04 02:09 J	-2162491.49	-2162491.41	-2162491.31	0.0524	0.0364
Mercury	-10634-09-01 06:43 J	-2162402.33	-2162402.22	-2162402.10	0.0523	0.0179
Venus	-10632-11-13 00:43 J	-2161598.66	-2161598.47	-2161598.28	0.0508	0.0149
Moon	-10631-11-21 10:04 J	-2161225.20	-2161225.08	-2161224.97	0.0502	0.0429
Earth	-10631-11-21 12:14 J	-2161225.08	-2161224.99	-2161224.88	0.0502	0.0452 *
Mars	-10628-02-28 12:57 J	-2160395.11	-2160394.96	-2160394.80	0.0500	0.0397
Mercury	-10628-07-24 13:26 J	-2160249.09	-2160248.94	-2160248.78	0.0502	0.0283
Mercury	-10628-10-23 03:07 J	-2160158.43	-2160158.37	-2160158.31	0.0503	0.0472
Venus	-10626-09-12 02:38 J	-2159469.44	-2159469.39	-2159469.33	0.0516	0.0495
Venus	-10625-05-06 18:14 J	-2159231.92	-2159231.74	-2159231.57	0.0520	0.0263
Mercury	-10622-03-23 06:43 J	-2158181.25	-2158181.22	-2158181.18	0.0525	0.0500
Mercury	-10622-06-20 11:31 J	-2158092.15	-2158092.02	-2158091.90	0.0523	0.0047
Venus	-10620-07-19 02:09 J	-2157332.55	-2157332.41	-2157332.25	0.0509	0.0338
Venus	-10619-03-12 11:02 J	-2157096.19	-2157096.04	-2157095.90	0.0505	0.0345
Mercury	-10616-05-12 10:04 J	-2155939.14	-2155939.08	-2155939.01	0.0501	0.0464
Mercury	-10616-08-10 23:31 J	-2155848.67	-2155848.52	-2155848.36	0.0503	0.0287
Venus	-10613-01-10 10:33 J	-2154966.26	-2154966.06	-2154965.85	0.0519	0.0052
Mars	-10611-12-20 19:55 J	-2153890.94	-2153890.67	-2153890.40	0.0525	0.0196
Mercury	-10610-04-08 16:33 J	-2153781.94	-2153781.81	-2153781.69	0.0524	0.0084
Mercury	-10610-07-06 20:52 J	-2153692.69	-2153692.63	-2153692.57	0.0522	0.0457
Venus	-10608-11-15 12:00 J	-2152830.19	-2152830.00	-2152829.81	0.0505	0.0158

Mercury	-10604-05-29 18:28 J	-2151538.91	-2151538.73	-2151538.54	0.0502	0.0086
Venus	-10602-09-15 02:52 J	-2150700.58	-2150700.38	-2150700.19	0.0519	0.0162
Earth	-10601-05-17 17:31 J	-2150454.95	-2150454.77	-2150454.58	0.0523	0.0310
Moon	-10601-05-17 20:52 J	-2150454.80	-2150454.63	-2150454.45	0.0523	0.0324 *
Mercury	-10598-01-25 21:21 J	-2149471.72	-2149471.61	-2149471.49	0.0524	0.0209
Mercury	-10598-04-25 01:55 J	-2149382.52	-2149382.42	-2149382.32	0.0522	0.0331
Venus	-10596-07-21 14:09 J	-2148564.11	-2148563.91	-2148563.71	0.0506	0.0031
Mars	-10593-12-02 19:55 J	-2147333.93	-2147333.67	-2147333.41	0.0501	0.0067
Mercury	-10592-03-17 15:21 J	-2147229.05	-2147228.86	-2147228.68	0.0502	0.0095
Venus	-10590-05-20 20:24 J	-2146434.80	-2146434.65	-2146434.51	0.0517	0.0368
Venus	-10589-01-13 13:26 J	-2146197.07	-2146196.94	-2146196.81	0.0522	0.0400
Moon	-10589-05-22 17:02 J	-2146067.03	-2146066.79	-2146066.56	0.0524	0.0140
Earth	-10589-05-22 18:57 J	-2146066.94	-2146066.71	-2146066.48	0.0524	0.0115 *
Mercury	-10587-11-14 01:55 J	-2145161.52	-2145161.42	-2145161.33	0.0524	0.0346
Mercury	-10586-02-11 06:14 J	-2145072.35	-2145072.24	-2145072.12	0.0523	0.0196
Venus	-10584-03-26 14:38 J	-2144298.07	-2144297.89	-2144297.71	0.0508	0.0220
Venus	-10584-11-17 22:04 J	-2144061.66	-2144061.58	-2144061.50	0.0504	0.0457
Mercury	-10580-01-03 12:14 J	-2142919.14	-2142918.99	-2142918.82	0.0502	0.0273
Mercury	-10580-04-04 01:55 J	-2142828.46	-2142828.42	-2142828.37	0.0503	0.0484
Venus	-10578-09-18 05:31 J	-2141931.46	-2141931.27	-2141931.08	0.0520	0.0187
Mercury	-10575-09-02 06:14 J	-2140851.28	-2140851.24	-2140851.19	0.0524	0.0482
Mars	-10575-09-27 23:16 J	-2140825.77	-2140825.53	-2140825.28	0.0524	0.0286
Mercury	-10575-11-30 10:48 J	-2140762.17	-2140762.05	-2140761.92	0.0523	0.0063
Venus	-10573-11-29 15:07 J	-2140031.98	-2140031.87	-2140031.74	0.0509	0.0412
Venus	-10572-07-24 00:14 J	-2139795.65	-2139795.49	-2139795.32	0.0505	0.0276
Earth	-10572-11-11 22:04 J	-2139684.76	-2139684.58	-2139684.40	0.0503	0.0315
Moon	-10572-11-11 23:31 J	-2139684.72	-2139684.52	-2139684.32	0.0503	0.0283 *
Mercury	-10569-10-22 09:21 J	-2138609.19	-2138609.11	-2138609.03	0.0502	0.0451
Mercury	-10568-01-20 22:33 J	-2138518.70	-2138518.56	-2138518.40	0.0503	0.0302
Venus	-10566-05-23 20:38 J	-2137665.85	-2137665.64	-2137665.44	0.0519	0.0030



Mercury	-10563-09-18 15:21 J	-2136451.98	-2136451.86	-2136451.73	0.0524	0.0076
Mercury	-10563-12-16 19:55 J	-2136362.73	-2136362.67	-2136362.62	0.0522	0.0464
Venus	-10560-03-29 02:38 J	-2135529.59	-2135529.39	-2135529.19	0.0506	0.0089
Moon	-10560-11-16 09:35 J	-2135297.33	-2135297.10	-2135296.88	0.0502	0.0067
Earth	-10560-11-16 12:14 J	-2135297.23	-2135296.99	-2135296.76	0.0502	0.0056 *
Mars	-10557-09-06 11:16 J	-2134272.24	-2134272.03	-2134271.81	0.0502	0.0275
Mercury	-10557-11-08 18:57 J	-2134208.89	-2134208.71	-2134208.52	0.0502	0.0118
Venus	-10554-01-26 13:11 J	-2133400.12	-2133399.95	-2133399.76	0.0518	0.0241
Mercury	-10551-07-07 20:24 J	-2132141.76	-2132141.65	-2132141.53	0.0524	0.0201
Mercury	-10551-10-05 00:57 J	-2132052.55	-2132052.46	-2132052.37	0.0523	0.0340
Venus	-10549-12-02 03:50 J	-2131263.54	-2131263.34	-2131263.14	0.0507	0.0101
Earth	-10548-11-20 22:48 J	-2130909.67	-2130909.55	-2130909.41	0.0501	0.0412
Moon	-10548-11-21 02:24 J	-2130909.54	-2130909.40	-2130909.24	0.0501	0.0385 *
Mercury	-10545-08-27 13:55 J	-2129899.10	-2129898.92	-2129898.73	0.0502	0.0087
Venus	-10543-10-01 05:16 J	-2129134.38	-2129134.28	-2129134.18	0.0517	0.0450
Venus	-10542-05-26 21:50 J	-2128896.75	-2128896.59	-2128896.42	0.0522	0.0317
Mercury	-10539-04-26 01:26 J	-2127831.54	-2127831.44	-2127831.34	0.0524	0.0328
Mercury	-10539-07-24 06:00 J	-2127742.37	-2127742.25	-2127742.14	0.0523	0.0214
Venus	-10537-08-07 05:31 J	-2126997.44	-2126997.27	-2126997.11	0.0508	0.0290
Venus	-10536-03-31 12:43 J	-2126761.09	-2126760.97	-2126760.84	0.0504	0.0391
Mercury	-10533-06-15 10:48 J	-2125589.21	-2125589.05	-2125588.89	0.0502	0.0267
Mercury	-10533-09-14 00:14 J	-2125498.53	-2125498.49	-2125498.44	0.0503	0.0488
Venus	-10530-01-29 14:38 J	-2124631.09	-2124630.89	-2124630.69	0.0520	0.0105
Mercury	-10527-02-12 05:45 J	-2123521.31	-2123521.26	-2123521.20	0.0524	0.0466
Mercury	-10527-05-12 10:19 J	-2123432.19	-2123432.07	-2123431.94	0.0523	0.0077
Venus	-10525-04-12 05:02 J	-2122731.35	-2122731.29	-2122731.23	0.0509	0.0483
Venus	-10525-12-04 14:09 J	-2122495.10	-2122494.91	-2122494.73	0.0505	0.0205
Mercury	-10521-04-03 07:40 J	-2121279.26	-2121279.18	-2121279.09	0.0502	0.0444
Mercury	-10521-07-02 21:21 J	-2121188.76	-2121188.61	-2121188.46	0.0503	0.0310
Venus	-10519-10-04 07:11 J	-2120365.40	-2120365.20	-2120365.00	0.0519	0.0108

Moon	-10518-05-18 01:55 J	-2120139.59	-2120139.42	-2120139.24	0.0523	0.0363
Earth	-10518-05-18 04:19 J	-2120139.49	-2120139.32	-2120139.15	0.0523	0.0352 *
Mercury	-10515-02-28 14:52 J	-2119122.01	-2119121.88	-2119121.76	0.0523	0.0059
Mercury	-10515-05-28 19:11 J	-2119032.74	-2119032.70	-2119032.65	0.0522	0.0478
Venus	-10513-08-09 15:35 J	-2118229.05	-2118228.85	-2118228.65	0.0506	0.0018
Mercury	-10509-04-20 18:00 J	-2116878.93	-2116878.75	-2116878.57	0.0502	0.0127
Venus	-10507-06-08 22:48 J	-2116099.71	-2116099.55	-2116099.39	0.0517	0.0321
Venus	-10506-02-01 15:35 J	-2115861.95	-2115861.85	-2115861.74	0.0521	0.0449
Earth	-10506-05-23 01:55 J	-2115751.65	-2115751.42	-2115751.19	0.0523	0.0061
Moon	-10506-05-23 01:55 J	-2115751.64	-2115751.42	-2115751.20	0.0523	0.0090 *
Mercury	-10504-12-17 19:11 J	-2114811.81	-2114811.70	-2114811.58	0.0524	0.0197
Mercury	-10503-03-16 23:45 J	-2114722.60	-2114722.51	-2114722.42	0.0523	0.0344
Venus	-10501-04-14 17:02 J	-2113962.97	-2113962.79	-2113962.59	0.0508	0.0175
Mercury	-10497-02-07 14:24 J	-2112569.09	-2112568.90	-2112568.72	0.0502	0.0060
Venus	-10495-10-07 07:26 J	-2111596.37	-2111596.19	-2111596.01	0.0520	0.0235
Earth	-10494-05-28 01:55 J	-2111363.50	-2111363.42	-2111363.33	0.0524	0.0483
Moon	-10494-05-28 04:33 J	-2111363.39	-2111363.31	-2111363.21	0.0524	0.0484 *
Mars	-10492-06-09 03:07 J	-2110620.40	-2110620.37	-2110620.31	0.0526	0.0519
Mercury	-10492-10-06 00:14 J	-2110501.59	-2110501.49	-2110501.39	0.0524	0.0323
Mercury	-10491-01-03 04:48 J	-2110412.41	-2110412.30	-2110412.19	0.0523	0.0219
Venus	-10490-12-19 18:14 J	-2109696.88	-2109696.74	-2109696.60	0.0508	0.0364
Venus	-10489-08-12 02:24 J	-2109460.55	-2109460.40	-2109460.24	0.0504	0.0322
Moon	-10489-11-11 06:28 J	-2109369.40	-2109369.23	-2109369.06	0.0503	0.0322
Earth	-10489-11-11 08:52 J	-2109369.29	-2109369.13	-2109368.96	0.0503	0.0353 *
Mercury	-10486-11-26 09:07 J	-2108259.28	-2108259.12	-2108258.96	0.0502	0.0262
Mercury	-10485-02-24 22:33 J	-2108168.59	-2108168.56	-2108168.52	0.0503	0.0493
Venus	-10483-06-11 22:04 J	-2107330.78	-2107330.58	-2107330.37	0.0520	0.0018
Mercury	-10480-07-25 05:02 J	-2106191.35	-2106191.29	-2106191.23	0.0525	0.0452
Mercury	-10480-10-22 09:35 J	-2106102.22	-2106102.10	-2106101.97	0.0523	0.0094
Venus	-10477-04-17 04:33 J	-2105194.50	-2105194.31	-2105194.12	0.0505	0.0135

Earth	-10477-11-15 21:35 J	-2104981.83	-2104981.60	-2104981.37	0.0502	0.0010
Moon	-10477-11-16 01:11 J	-2104981.69	-2104981.45	-2104981.22	0.0502	0.0017 *
Mars	-10474-05-25 19:55 J	-2104060.88	-2104060.67	-2104060.46	0.0500	0.0303
Mercury	-10474-09-14 05:45 J	-2103949.34	-2103949.26	-2103949.17	0.0502	0.0443
Mercury	-10474-12-13 19:11 J	-2103858.85	-2103858.70	-2103858.55	0.0503	0.0309
Venus	-10471-02-14 15:07 J	-2103065.06	-2103064.87	-2103064.67	0.0518	0.0193
Mercury	-10468-08-10 14:09 J	-2101792.04	-2101791.91	-2101791.79	0.0523	0.0048
Mercury	-10468-11-07 18:28 J	-2101702.77	-2101702.73	-2101702.69	0.0522	0.0490
Venus	-10466-12-22 04:48 J	-2100928.50	-2100928.30	-2100928.10	0.0507	0.0056
Moon	-10465-11-20 05:02 J	-2100594.46	-2100594.29	-2100594.11	0.0501	0.0336
Earth	-10465-11-20 08:52 J	-2100594.29	-2100594.13	-2100593.97	0.0501	0.0367 *
Mercury	-10462-10-01 16:04 J	-2099549.01	-2099548.83	-2099548.65	0.0503	0.0130
Venus	-10460-10-20 08:24 J	-2098799.28	-2098799.15	-2098799.02	0.0517	0.0401
Venus	-10459-06-15 00:57 J	-2098561.60	-2098561.46	-2098561.31	0.0521	0.0370
Mars	-10456-03-17 00:14 J	-2097555.77	-2097555.49	-2097555.20	0.0525	0.0049
Mercury	-10456-05-29 18:28 J	-2097481.84	-2097481.73	-2097481.61	0.0524	0.0184
Mercury	-10456-08-26 23:02 J	-2097392.63	-2097392.54	-2097392.45	0.0522	0.0355
Venus	-10454-08-27 05:31 J	-2096662.44	-2096662.27	-2096662.09	0.0508	0.0249
Venus	-10453-04-19 13:12 J	-2096426.04	-2096425.95	-2096425.84	0.0504	0.0435
Mercury	-10450-07-20 12:43 J	-2095239.16	-2095238.97	-2095238.78	0.0502	0.0053
Venus	-10447-02-17 15:50 J	-2094296.04	-2094295.84	-2094295.65	0.0520	0.0151
Mercury	-10444-03-17 22:47 J	-2093171.64	-2093171.55	-2093171.45	0.0524	0.0323
Mercury	-10444-06-15 03:21 J	-2093082.47	-2093082.36	-2093082.24	0.0523	0.0219
Venus	-10442-05-02 06:00 J	-2092396.34	-2092396.25	-2092396.15	0.0509	0.0442
Venus	-10442-12-24 15:21 J	-2092160.03	-2092159.86	-2092159.69	0.0505	0.0250
Mars	-10438-02-27 10:19 J	-2090999.33	-2090999.07	-2090998.81	0.0501	0.0038
Mercury	-10438-05-08 08:52 J	-2090929.29	-2090929.13	-2090928.96	0.0502	0.0240
Venus	-10436-10-23 07:26 J	-2090030.39	-2090030.19	-2090029.98	0.0519	0.0065
Earth	-10435-05-17 08:38 J	-2089824.27	-2089824.14	-2089823.99	0.0522	0.0414
Moon	-10435-05-17 09:07 J	-2089824.25	-2089824.12	-2089823.98	0.0522	0.0417 *

Mercury	-10432-01-04 03:35 J	-2088861.41	-2088861.35	-2088861.28	0.0525	0.0452
Mercury	-10432-04-03 08:24 J	-2088772.28	-2088772.15	-2088772.03	0.0523	0.0092
Venus	-10430-08-29 17:16 J	-2087893.98	-2087893.78	-2087893.58	0.0506	0.0062
Mercury	-10426-02-24 03:50 J	-2086619.42	-2086619.34	-2086619.25	0.0501	0.0442
Mercury	-10426-05-25 17:02 J	-2086528.93	-2086528.79	-2086528.63	0.0503	0.0310
Venus	-10424-06-27 21:50 J	-2085764.76	-2085764.59	-2085764.41	0.0518	0.0281
Venus	-10423-02-20 15:50 J	-2085526.90	-2085526.84	-2085526.77	0.0522	0.0496
Earth	-10423-05-22 06:57 J	-2085436.44	-2085436.21	-2085435.98	0.0524	0.0003
Moon	-10423-05-22 09:07 J	-2085436.36	-2085436.12	-2085435.88	0.0524	0.0029 *
Mars	-10421-12-23 05:31 J	-2084490.42	-2084490.27	-2084490.10	0.0524	0.0437
Mercury	-10420-01-20 13:12 J	-2084462.07	-2084461.95	-2084461.82	0.0524	0.0038
Mercury	-10420-04-19 17:45 J	-2084372.80	-2084372.76	-2084372.73	0.0522	0.0501
Venus	-10418-05-04 18:28 J	-2083627.92	-2083627.73	-2083627.53	0.0507	0.0129
Mercury	-10414-03-13 13:40 J	-2082219.12	-2082218.93	-2082218.75	0.0502	0.0125
Venus	-10412-03-02 15:35 J	-2081498.92	-2081498.85	-2081498.79	0.0516	0.0487
Venus	-10412-10-26 07:40 J	-2081261.35	-2081261.18	-2081261.00	0.0521	0.0283
Moon	-10411-05-27 04:04 J	-2081048.46	-2081048.33	-2081048.19	0.0525	0.0418
Earth	-10411-05-27 07:55 J	-2081048.31	-2081048.17	-2081048.03	0.0525	0.0420 *
Mercury	-10409-11-08 17:31 J	-2080151.89	-2080151.77	-2080151.65	0.0524	0.0177
Mercury	-10408-02-05 22:04 J	-2080062.67	-2080062.58	-2080062.49	0.0522	0.0363
Venus	-10406-01-07 17:45 J	-2079361.91	-2079361.76	-2079361.60	0.0508	0.0324
Venus	-10406-09-01 01:55 J	-2079125.55	-2079125.42	-2079125.28	0.0504	0.0364
Earth	-10406-11-11 16:04 J	-2079053.96	-2079053.83	-2079053.69	0.0503	0.0406
Moon	-10406-11-11 19:40 J	-2079053.83	-2079053.68	-2079053.52	0.0503	0.0373 *
Mars	-10403-12-01 13:40 J	-2077938.10	-2077937.93	-2077937.74	0.0502	0.0361
Mercury	-10403-12-30 10:19 J	-2077909.25	-2077909.07	-2077908.88	0.0502	0.0058
Venus	-10400-07-01 00:00 J	-2076995.71	-2076995.50	-2076995.30	0.0520	0.0068
Mercury	-10397-08-27 21:50 J	-2075841.69	-2075841.59	-2075841.49	0.0524	0.0315
Mercury	-10397-11-25 02:24 J	-2075752.51	-2075752.40	-2075752.29	0.0523	0.0226
Venus	-10394-05-07 03:07 J	-2074859.56	-2074859.37	-2074859.18	0.0505	0.0176

Moon	-10394-11-16 00:28 J	-2074666.72	-2074666.48	-2074666.25	0.0502	0.0049
Earth	-10394-11-16 04:04 J	-2074666.56	-2074666.33	-2074666.10	0.0502	0.0046 *
Mercury	-10391-10-18 06:57 J	-2073599.38	-2073599.21	-2073599.05	0.0502	0.0240
Venus	-10388-03-05 15:07 J	-2072730.07	-2072729.87	-2072729.67	0.0518	0.0151
Mercury	-10385-06-16 02:09 J	-2071531.47	-2071531.41	-2071531.35	0.0524	0.0456
Mercury	-10385-09-13 06:43 J	-2071442.34	-2071442.22	-2071442.10	0.0523	0.0088
Venus	-10382-01-10 04:19 J	-2070593.52	-2070593.32	-2070593.12	0.0507	0.0018
Earth	-10382-11-20 16:33 J	-2070278.99	-2070278.81	-2070278.63	0.0502	0.0317
Moon	-10382-11-20 19:26 J	-2070278.87	-2070278.69	-2070278.50	0.0502	0.0288 *
Mercury	-10379-08-06 03:07 J	-2069289.47	-2069289.37	-2069289.27	0.0501	0.0426
Mercury	-10379-11-04 16:33 J	-2069198.95	-2069198.81	-2069198.67	0.0503	0.0325
Venus	-10377-11-08 06:57 J	-2068464.35	-2068464.21	-2068464.06	0.0517	0.0364
Venus	-10376-07-03 23:31 J	-2068226.64	-2068226.52	-2068226.39	0.0521	0.0410
Mercury	-10373-07-02 11:31 J	-2067132.14	-2067132.02	-2067131.89	0.0524	0.0043
Mercury	-10373-09-29 16:04 J	-2067042.87	-2067042.83	-2067042.80	0.0522	0.0496
Venus	-10371-09-15 06:00 J	-2066327.43	-2066327.25	-2066327.06	0.0508	0.0206
Venus	-10370-05-09 13:12 J	-2066091.00	-2066090.95	-2066090.88	0.0503	0.0478
Mercury	-10367-08-23 11:16 J	-2064889.22	-2064889.03	-2064888.85	0.0502	0.0120
Venus	-10364-03-08 13:12 J	-2063961.14	-2063960.95	-2063960.76	0.0521	0.0191
Mercury	-10361-04-20 16:19 J	-2062821.94	-2062821.82	-2062821.70	0.0524	0.0174
Mercury	-10361-07-18 20:52 J	-2062732.72	-2062732.63	-2062732.54	0.0523	0.0367
Venus	-10359-05-21 06:43 J	-2062061.34	-2062061.22	-2062061.10	0.0509	0.0399
Venus	-10358-01-12 15:07 J	-2061825.03	-2061824.87	-2061824.71	0.0504	0.0293
Mercury	-10355-06-11 07:26 J	-2060579.37	-2060579.19	-2060579.00	0.0502	0.0067
Venus	-10353-11-11 05:31 J	-2059695.48	-2059695.27	-2059695.07	0.0519	0.0026
Earth	-10352-05-16 10:19 J	-2059509.15	-2059509.07	-2059508.99	0.0523	0.0490
Moon	-10352-05-16 12:00 J	-2059509.09	-2059509.00	-2059508.91	0.0523	0.0481 *
Mercury	-10349-02-07 20:38 J	-2058511.74	-2058511.64	-2058511.54	0.0524	0.0314
Mercury	-10349-05-07 00:57 J	-2058422.57	-2058422.46	-2058422.34	0.0523	0.0229
Venus	-10347-09-17 15:07 J	-2057559.07	-2057558.87	-2057558.68	0.0506	0.0100

Mercury	-10343-03-30 04:04 J	-2056269.49	-2056269.33	-2056269.16	0.0502	0.0249
Venus	-10341-07-16 22:19 J	-2055429.75	-2055429.57	-2055429.39	0.0518	0.0238
Moon	-10340-05-21 07:12 J	-2055121.43	-2055121.20	-2055120.97	0.0523	0.0040
Earth	-10340-05-21 10:33 J	-2055121.29	-2055121.06	-2055120.82	0.0523	0.0072 *
Mars	-10338-09-03 09:07 J	-2054286.29	-2054286.12	-2054285.94	0.0525	0.0414
Mercury	-10338-11-27 00:57 J	-2054201.52	-2054201.46	-2054201.40	0.0524	0.0453
Mercury	-10337-02-24 05:31 J	-2054112.39	-2054112.27	-2054112.15	0.0523	0.0091
Venus	-10335-05-23 15:21 J	-2053293.06	-2053292.86	-2053292.66	0.0507	0.0094
Mercury	-10331-01-16 00:28 J	-2051959.57	-2051959.48	-2051959.38	0.0501	0.0433
Mercury	-10331-04-16 13:55 J	-2051869.06	-2051868.92	-2051868.77	0.0503	0.0320
Venus	-10329-03-21 14:09 J	-2051164.01	-2051163.91	-2051163.81	0.0516	0.0450
Venus	-10329-11-14 05:45 J	-2050926.41	-2050926.26	-2050926.09	0.0521	0.0323
Earth	-10328-05-26 07:40 J	-2050733.35	-2050733.18	-2050733.00	0.0524	0.0339
Moon	-10328-05-26 11:45 J	-2050733.18	-2050733.01	-2050732.83	0.0524	0.0336 *
Mercury	-10326-12-13 09:35 J	-2049802.22	-2049802.10	-2049801.97	0.0524	0.0053
Mercury	-10325-03-11 14:09 J	-2049712.95	-2049712.91	-2049712.87	0.0522	0.0487
Venus	-10323-01-26 15:35 J	-2049027.01	-2049026.85	-2049026.68	0.0508	0.0290
Venus	-10323-09-20 00:00 J	-2048790.62	-2048790.50	-2048790.38	0.0504	0.0402
Moon	-10323-11-10 17:31 J	-2048738.89	-2048738.77	-2048738.66	0.0503	0.0437
Earth	-10323-11-10 21:07 J	-2048738.70	-2048738.62	-2048738.53	0.0503	0.0465 *
Mars	-10320-08-18 20:38 J	-2047726.87	-2047726.64	-2047726.40	0.0500	0.0224
Mercury	-10319-02-02 10:04 J	-2047559.27	-2047559.08	-2047558.90	0.0502	0.0130
Venus	-10317-07-19 20:38 J	-2046660.84	-2046660.64	-2046660.43	0.0520	0.0103
Mercury	-10314-10-01 14:24 J	-2045492.02	-2045491.90	-2045491.78	0.0524	0.0183
Mercury	-10314-12-29 18:57 J	-2045402.80	-2045402.71	-2045402.62	0.0523	0.0358
Venus	-10312-10-01 16:33 J	-2044760.87	-2044760.81	-2044760.74	0.0510	0.0481
Venus	-10311-05-26 01:55 J	-2044524.60	-2044524.42	-2044524.23	0.0505	0.0217
Earth	-10311-11-15 09:50 J	-2044351.32	-2044351.09	-2044350.86	0.0502	0.0104
Moon	-10311-11-15 12:43 J	-2044351.19	-2044350.97	-2044350.75	0.0502	0.0115 *
Mercury	-10308-11-21 04:47 J	-2043249.49	-2043249.30	-2043249.11	0.0502	0.0075

Venus	-10305-03-24 10:19 J	-2042395.27	-2042395.07	-2042394.87	0.0519	0.0119
Mars	-10302-06-11 01:40 J	-2041221.72	-2041221.43	-2041221.14	0.0525	0.0053
Mercury	-10302-07-20 18:57 J	-2041181.81	-2041181.71	-2041181.61	0.0525	0.0317
Mercury	-10302-10-17 23:31 J	-2041092.63	-2041092.52	-2041092.40	0.0523	0.0228
Venus	-10299-01-29 03:21 J	-2040258.56	-2040258.36	-2040258.16	0.0506	0.0025
Moon	-10299-11-19 19:26 J	-2039963.90	-2039963.69	-2039963.47	0.0501	0.0221
Earth	-10299-11-19 21:07 J	-2039963.81	-2039963.62	-2039963.41	0.0501	0.0253 *
Mercury	-10296-09-09 00:57 J	-2038939.62	-2038939.46	-2038939.30	0.0501	0.0262
Mercury	-10296-12-08 14:24 J	-2038848.94	-2038848.90	-2038848.86	0.0503	0.0491
Venus	-10294-11-28 02:52 J	-2038129.54	-2038129.38	-2038129.22	0.0517	0.0331
Venus	-10293-07-22 19:55 J	-2037891.76	-2037891.67	-2037891.56	0.0522	0.0450
Mercury	-10290-05-08 23:16 J	-2036871.59	-2036871.53	-2036871.47	0.0525	0.0457
Mercury	-10290-08-06 03:50 J	-2036782.46	-2036782.34	-2036782.21	0.0523	0.0088
Venus	-10288-10-04 02:09 J	-2035992.60	-2035992.41	-2035992.22	0.0507	0.0174
Mars	-10284-05-22 21:35 J	-2034665.86	-2034665.60	-2034665.34	0.0501	0.0095
Mercury	-10284-06-27 21:21 J	-2034629.69	-2034629.61	-2034629.52	0.0501	0.0447
Mercury	-10284-09-26 10:47 J	-2034539.20	-2034539.05	-2034538.90	0.0503	0.0306
Venus	-10281-03-27 12:00 J	-2033626.18	-2033626.00	-2033625.81	0.0521	0.0233
Mercury	-10278-05-25 08:09 J	-2032472.28	-2032472.16	-2032472.03	0.0523	0.0054
Mercury	-10278-08-22 12:43 J	-2032383.01	-2032382.97	-2032382.93	0.0522	0.0486
Venus	-10276-06-09 01:40 J	-2031726.57	-2031726.43	-2031726.29	0.0509	0.0371
Venus	-10275-01-31 10:04 J	-2031490.22	-2031490.08	-2031489.92	0.0504	0.0325
Mercury	-10272-07-15 07:12 J	-2030229.39	-2030229.20	-2030229.02	0.0502	0.0119
Venus	-10270-12-01 02:38 J	-2029360.60	-2029360.39	-2029360.18	0.0519	0.0012
Mercury	-10266-03-13 12:28 J	-2028162.10	-2028161.98	-2028161.87	0.0524	0.0195
Mars	-10266-03-18 09:50 J	-2028157.15	-2028157.09	-2028157.00	0.0524	0.0506
Mercury	-10266-06-10 16:47 J	-2028072.89	-2028072.80	-2028072.70	0.0523	0.0346
Venus	-10264-10-06 11:16 J	-2027224.22	-2027224.03	-2027223.83	0.0506	0.0134
Mercury	-10260-05-03 03:07 J	-2025919.56	-2025919.37	-2025919.19	0.0502	0.0072
Venus	-10258-08-05 17:45 J	-2025094.95	-2025094.76	-2025094.57	0.0518	0.0207

Earth	-10257-05-20 06:14 J	-2024806.46	-2024806.24	-2024806.02	0.0523	0.0165
Moon	-10257-05-20 10:19 J	-2024806.30	-2024806.07	-2024805.84	0.0523	0.0130 *
Mercury	-10255-12-30 17:02 J	-2023851.89	-2023851.79	-2023851.70	0.0525	0.0330
Mercury	-10254-03-29 21:35 J	-2023762.72	-2023762.60	-2023762.49	0.0523	0.0214
Venus	-10252-06-11 12:57 J	-2022958.16	-2022957.96	-2022957.76	0.0507	0.0058
Mercury	-10248-02-18 22:04 J	-2021609.74	-2021609.58	-2021609.42	0.0501	0.0273
Mars	-10248-02-23 20:24 J	-2021604.79	-2021604.65	-2021604.50	0.0501	0.0413
Mercury	-10248-05-20 11:16 J	-2021519.08	-2021519.03	-2021518.97	0.0502	0.0478
Venus	-10246-04-10 07:40 J	-2020829.29	-2020829.18	-2020829.06	0.0516	0.0424
Venus	-10246-12-03 23:45 J	-2020591.66	-2020591.51	-2020591.36	0.0521	0.0354
Moon	-10245-05-24 22:19 J	-2020418.78	-2020418.57	-2020418.36	0.0524	0.0235
Earth	-10245-05-25 02:24 J	-2020418.61	-2020418.40	-2020418.19	0.0524	0.0238 *
Mercury	-10243-10-18 21:21 J	-2019541.66	-2019541.61	-2019541.55	0.0525	0.0466
Mercury	-10242-01-16 02:09 J	-2019452.53	-2019452.41	-2019452.29	0.0524	0.0080
Venus	-10240-02-14 13:40 J	-2018692.10	-2018691.93	-2018691.75	0.0508	0.0253
Venus	-10240-10-08 21:21 J	-2018455.70	-2018455.61	-2018455.51	0.0504	0.0440
Mercury	-10237-12-07 18:00 J	-2017299.81	-2017299.75	-2017299.67	0.0501	0.0461
Mercury	-10236-03-08 07:26 J	-2017209.34	-2017209.19	-2017209.04	0.0502	0.0288
Venus	-10234-08-08 15:35 J	-2016326.05	-2016325.85	-2016325.65	0.0520	0.0136
Mercury	-10231-11-04 06:28 J	-2015142.36	-2015142.23	-2015142.11	0.0524	0.0061
Mercury	-10230-02-01 10:47 J	-2015053.10	-2015053.05	-2015053.00	0.0522	0.0478
Venus	-10229-10-20 11:31 J	-2014426.10	-2014426.02	-2014425.93	0.0509	0.0454
Venus	-10228-06-13 20:38 J	-2014189.81	-2014189.64	-2014189.46	0.0505	0.0246
Moon	-10228-11-14 06:57 J	-2014036.43	-2014036.21	-2014035.99	0.0502	0.0199
Earth	-10228-11-14 08:52 J	-2014036.34	-2014036.13	-2014035.91	0.0502	0.0185 *
Mercury	-10225-12-25 03:35 J	-2012899.53	-2012899.35	-2012899.16	0.0502	0.0101
Venus	-10222-04-13 08:09 J	-2012060.36	-2012060.16	-2012059.95	0.0519	0.0081
Mercury	-10219-08-23 10:47 J	-2010832.17	-2010832.05	-2010831.94	0.0524	0.0199
Mercury	-10219-11-20 15:07 J	-2010742.96	-2010742.87	-2010742.77	0.0523	0.0342
Venus	-10216-02-16 21:07 J	-2009923.82	-2009923.62	-2009923.42	0.0506	0.0051



Earth	-10216-11-18 19:26 J	-2009648.91	-2009648.69	-2009648.47	0.0502	0.0169
Moon	-10216-11-18 19:55 J	-2009648.88	-2009648.67	-2009648.45	0.0502	0.0141 *
Mercury	-10213-10-13 00:00 J	-2008589.69	-2008589.50	-2008589.32	0.0502	0.0087
Venus	-10211-12-16 23:45 J	-2007794.68	-2007794.51	-2007794.34	0.0517	0.0298
Venus	-10210-08-11 16:04 J	-2007556.89	-2007556.83	-2007556.75	0.0521	0.0485
Mercury	-10207-06-11 14:52 J	-2006521.98	-2006521.88	-2006521.79	0.0524	0.0343
Mercury	-10207-09-08 19:26 J	-2006432.81	-2006432.69	-2006432.58	0.0523	0.0200
Venus	-10205-10-22 21:07 J	-2005657.81	-2005657.62	-2005657.42	0.0508	0.0146
Mercury	-10201-07-31 19:55 J	-2004279.83	-2004279.67	-2004279.51	0.0501	0.0276
Mercury	-10201-10-30 09:07 J	-2004189.17	-2004189.12	-2004189.06	0.0503	0.0478
Venus	-10199-08-21 15:21 J	-2003528.88	-2003528.86	-2003528.83	0.0515	0.0510
Venus	-10198-04-16 06:28 J	-2003291.40	-2003291.23	-2003291.05	0.0520	0.0263
Mercury	-10195-03-30 19:12 J	-2002211.75	-2002211.70	-2002211.65	0.0525	0.0480
Mercury	-10195-06-28 00:00 J	-2002122.63	-2002122.50	-2002122.38	0.0524	0.0066
Venus	-10193-06-27 22:19 J	-2001391.72	-2001391.57	-2001391.42	0.0509	0.0339
Venus	-10192-02-19 06:57 J	-2001155.34	-2001155.21	-2001155.07	0.0504	0.0360
Mercury	-10189-05-19 15:07 J	-1999969.92	-1999969.87	-1999969.81	0.0501	0.0473
Mercury	-10189-08-18 04:19 J	-1999879.47	-1999879.32	-1999879.16	0.0502	0.0275
Venus	-10187-12-19 19:26 J	-1999025.89	-1999025.69	-1999025.48	0.0519	0.0038
Mars	-10184-11-26 08:09 J	-1997953.36	-1997953.16	-1997952.95	0.0526	0.0361
Mercury	-10183-04-16 04:33 J	-1997812.44	-1997812.31	-1997812.19	0.0524	0.0071
Mercury	-10183-07-14 09:07 J	-1997723.18	-1997723.12	-1997723.07	0.0523	0.0470
Venus	-10181-10-25 08:24 J	-1996889.34	-1996889.15	-1996888.96	0.0506	0.0169
Mercury	-10177-06-06 00:14 J	-1995569.67	-1995569.49	-1995569.30	0.0502	0.0086
Venus	-10175-08-24 11:45 J	-1994760.20	-1994760.01	-1994759.81	0.0518	0.0178
Moon	-10174-05-19 20:52 J	-1994491.84	-1994491.63	-1994491.42	0.0523	0.0233
Earth	-10174-05-20 00:57 J	-1994491.66	-1994491.46	-1994491.26	0.0523	0.0265 *
Mercury	-10171-02-02 08:52 J	-1993502.25	-1993502.13	-1993502.02	0.0524	0.0211
Mercury	-10171-05-02 13:26 J	-1993413.04	-1993412.94	-1993412.85	0.0523	0.0331
Venus	-10169-06-30 06:57 J	-1992623.41	-1992623.21	-1992623.01	0.0507	0.0032

Mars	-10166-11-11 21:07 J	-1991393.87	-1991393.62	-1991393.38	0.0500	0.0189
Mercury	-10165-03-24 20:24 J	-1991259.83	-1991259.65	-1991259.46	0.0502	0.0105
Venus	-10163-04-29 05:16 J	-1990494.41	-1990494.28	-1990494.15	0.0517	0.0391
Venus	-10163-12-22 21:35 J	-1990256.74	-1990256.60	-1990256.47	0.0521	0.0393
Earth	-10162-05-25 01:40 J	-1990103.65	-1990103.43	-1990103.20	0.0524	0.0156
Moon	-10162-05-25 04:47 J	-1990103.52	-1990103.30	-1990103.08	0.0524	0.0149 *
Mercury	-10160-11-21 13:12 J	-1989192.04	-1989191.95	-1989191.86	0.0524	0.0348
Mercury	-10159-02-18 17:45 J	-1989102.88	-1989102.76	-1989102.64	0.0523	0.0194
Venus	-10157-03-05 06:43 J	-1988357.40	-1988357.22	-1988357.04	0.0508	0.0230
Venus	-10157-10-27 14:24 J	-1988120.97	-1988120.90	-1988120.82	0.0504	0.0466
Mercury	-10153-01-11 16:47 J	-1986949.96	-1986949.80	-1986949.65	0.0502	0.0291
Mercury	-10153-04-11 06:00 J	-1986859.31	-1986859.25	-1986859.17	0.0503	0.0463
Venus	-10151-08-27 12:00 J	-1985991.19	-1985991.00	-1985990.80	0.0520	0.0171
Mars	-10148-09-02 15:35 J	-1984889.13	-1984888.85	-1984888.56	0.0525	0.0094
Mercury	-10148-09-09 17:16 J	-1984881.82	-1984881.78	-1984881.74	0.0525	0.0493
Mercury	-10148-12-07 21:50 J	-1984792.71	-1984792.59	-1984792.46	0.0523	0.0052
Venus	-10146-11-09 05:45 J	-1984091.36	-1984091.26	-1984091.14	0.0510	0.0430
Venus	-10145-07-02 15:35 J	-1983855.02	-1983854.85	-1983854.69	0.0505	0.0275
Earth	-10145-11-13 08:38 J	-1983721.34	-1983721.14	-1983720.94	0.0503	0.0261
Moon	-10145-11-13 09:21 J	-1983721.30	-1983721.11	-1983720.92	0.0503	0.0279 *
Mercury	-10142-10-30 12:43 J	-1982640.02	-1982639.97	-1982639.91	0.0501	0.0478
Mercury	-10141-01-29 01:55 J	-1982549.57	-1982549.42	-1982549.25	0.0502	0.0272
Venus	-10139-05-02 02:52 J	-1981725.59	-1981725.38	-1981725.18	0.0518	0.0052
Mercury	-10136-09-26 02:24 J	-1980482.53	-1980482.40	-1980482.28	0.0524	0.0085
Mercury	-10136-12-24 06:43 J	-1980393.27	-1980393.22	-1980393.16	0.0523	0.0456
Venus	-10133-03-07 17:31 J	-1979588.97	-1979588.77	-1979588.58	0.0506	0.0086
Earth	-10133-11-17 21:35 J	-1979333.83	-1979333.60	-1979333.37	0.0502	0.0099
Moon	-10133-11-17 22:33 J	-1979333.80	-1979333.56	-1979333.32	0.0502	0.0072 *
Mars	-10130-08-16 00:14 J	-1978332.74	-1978332.49	-1978332.24	0.0500	0.0137
Mercury	-10130-11-16 21:21 J	-1978239.79	-1978239.61	-1978239.42	0.0502	0.0074

Venus	-10127-01-04 16:33 J	-1977459.98	-1977459.81	-1977459.63	0.0517	0.0274
Venus	-10127-08-30 09:07 J	-1977222.15	-1977222.12	-1977222.08	0.0522	0.0513
Mercury	-10124-07-15 06:43 J	-1976172.33	-1976172.22	-1976172.10	0.0525	0.0222
Mercury	-10124-10-12 11:16 J	-1976083.12	-1976083.03	-1976082.93	0.0523	0.0322
Venus	-10122-11-11 18:14 J	-1975322.94	-1975322.74	-1975322.54	0.0508	0.0111
Moon	-10121-11-22 06:43 J	-1974946.30	-1974946.22	-1974946.14	0.0501	0.0465
Earth	-10121-11-22 09:07 J	-1974946.21	-1974946.12	-1974946.01	0.0501	0.0453 *
Mercury	-10118-09-04 17:31 J	-1973929.96	-1973929.77	-1973929.59	0.0501	0.0116
Venus	-10116-09-09 09:35 J	-1973194.17	-1973194.10	-1973194.03	0.0516	0.0485
Venus	-10115-05-05 00:43 J	-1972956.63	-1972956.47	-1972956.30	0.0521	0.0295
Mercury	-10112-05-03 11:02 J	-1971862.12	-1971862.04	-1971861.94	0.0525	0.0361
Mercury	-10112-07-31 15:50 J	-1971772.96	-1971772.84	-1971772.73	0.0523	0.0184
Venus	-10110-07-17 16:04 J	-1971056.98	-1971056.83	-1971056.66	0.0509	0.0316
Venus	-10109-03-10 00:43 J	-1970820.60	-1970820.47	-1970820.34	0.0504	0.0386
Mercury	-10106-06-23 13:12 J	-1969620.09	-1969619.95	-1969619.80	0.0501	0.0308
Mercury	-10106-09-22 02:38 J	-1969529.47	-1969529.39	-1969529.30	0.0503	0.0445
Venus	-10103-01-07 17:31 J	-1968690.97	-1968690.77	-1968690.57	0.0519	0.0076
Mercury	-10100-02-19 15:35 J	-1967551.89	-1967551.85	-1967551.81	0.0525	0.0497
Mercury	-10100-05-19 20:09 J	-1967462.78	-1967462.66	-1967462.53	0.0523	0.0050
Venus	-10098-11-14 01:12 J	-1966554.63	-1966554.45	-1966554.26	0.0505	0.0194
Mercury	-10094-04-11 09:35 J	-1965310.13	-1965310.10	-1965310.06	0.0501	0.0492
Mars	-10094-05-20 02:38 J	-1965271.48	-1965271.39	-1965271.28	0.0502	0.0462
Mercury	-10094-07-10 23:02 J	-1965219.70	-1965219.54	-1965219.38	0.0502	0.0258
Venus	-10092-09-12 09:07 J	-1964425.31	-1964425.12	-1964424.92	0.0518	0.0144
Earth	-10091-05-18 23:16 J	-1964176.70	-1964176.53	-1964176.35	0.0522	0.0346
Moon	-10091-05-19 02:52 J	-1964176.56	-1964176.38	-1964176.19	0.0522	0.0316 *
Mercury	-10088-03-08 00:14 J	-1963152.61	-1963152.49	-1963152.36	0.0524	0.0097
Mercury	-10088-06-05 04:47 J	-1963063.36	-1963063.30	-1963063.24	0.0522	0.0444
Venus	-10086-07-20 01:40 J	-1962288.63	-1962288.43	-1962288.22	0.0507	0.0010
Mercury	-10082-04-28 19:12 J	-1960909.89	-1960909.70	-1960909.52	0.0502	0.0070

Venus	-10080-05-18 00:43 J	-1960159.61	-1960159.47	-1960159.32	0.0516	0.0361
Venus	-10079-01-10 16:33 J	-1959921.93	-1959921.81	-1959921.69	0.0521	0.0424
Moon	-10079-05-23 18:57 J	-1959788.95	-1959788.71	-1959788.47	0.0523	0.0047
Earth	-10079-05-23 20:52 J	-1959788.86	-1959788.63	-1959788.40	0.0523	0.0060 *
Mercury	-10077-12-25 04:47 J	-1958842.41	-1958842.30	-1958842.19	0.0524	0.0232
Mercury	-10076-03-24 09:21 J	-1958753.21	-1958753.11	-1958753.01	0.0523	0.0309
Venus	-10074-03-25 02:52 J	-1958022.56	-1958022.38	-1958022.19	0.0508	0.0199
Venus	-10074-11-16 11:02 J	-1957786.05	-1957786.04	-1957786.01	0.0504	0.0501
Mercury	-10070-02-14 14:52 J	-1956600.07	-1956599.88	-1956599.70	0.0501	0.0125
Venus	-10068-09-15 05:45 J	-1955656.45	-1955656.26	-1955656.07	0.0520	0.0199
Moon	-10067-05-28 16:04 J	-1955400.95	-1955400.83	-1955400.70	0.0524	0.0433
Earth	-10067-05-28 16:33 J	-1955400.92	-1955400.81	-1955400.70	0.0524	0.0460 *
Mercury	-10065-10-13 09:07 J	-1954532.20	-1954532.12	-1954532.03	0.0525	0.0371
Mercury	-10064-01-10 13:55 J	-1954443.04	-1954442.92	-1954442.80	0.0524	0.0175
Venus	-10063-11-28 03:21 J	-1953756.49	-1953756.36	-1953756.24	0.0510	0.0397
Venus	-10062-07-22 12:43 J	-1953520.12	-1953519.97	-1953519.81	0.0505	0.0312
Earth	-10062-11-13 12:00 J	-1953406.18	-1953406.00	-1953405.82	0.0503	0.0325
Moon	-10062-11-13 12:28 J	-1953406.15	-1953405.98	-1953405.80	0.0503	0.0344 *
Mercury	-10059-12-03 10:47 J	-1952290.19	-1952290.05	-1952289.90	0.0501	0.0313
Mercury	-10058-03-04 00:00 J	-1952199.58	-1952199.50	-1952199.40	0.0502	0.0438
Venus	-10056-05-20 21:50 J	-1951390.79	-1951390.59	-1951390.38	0.0519	0.0021
Mercury	-10053-08-01 13:40 J	-1950221.96	-1950221.93	-1950221.90	0.0525	0.0507
Mercury	-10053-10-29 18:14 J	-1950132.86	-1950132.74	-1950132.61	0.0524	0.0042
Venus	-10050-03-27 11:45 J	-1949254.21	-1949254.01	-1949253.81	0.0506	0.0111
Moon	-10050-11-17 17:31 J	-1949019.00	-1949018.77	-1949018.55	0.0502	0.0009
Earth	-10050-11-17 19:40 J	-1949018.92	-1949018.68	-1949018.45	0.0502	0.0018 *
Mars	-10047-05-02 18:57 J	-1948121.79	-1948121.71	-1948121.63	0.0500	0.0473
Mercury	-10047-12-20 19:55 J	-1947889.84	-1947889.67	-1947889.51	0.0502	0.0244
Venus	-10044-01-23 15:21 J	-1947125.04	-1947124.86	-1947124.68	0.0517	0.0237
Mercury	-10041-08-17 23:02 J	-1945822.67	-1945822.54	-1945822.42	0.0524	0.0097

Mercury -10041-11-15 03:21 J -1945733.42 -1945733.36 -1945733.29 0.0522 0.0442

Venus -10039-11-30 12:00 J -1944988.20 -1944988.00 -1944987.80 0.0507 0.0087

Earth -10038-11-22 06:28 J -1944631.38 -1944631.23 -1944631.07 0.0501 0.0370

Moon -10038-11-22 10:04 J -1944631.22 -1944631.08 -1944630.93 0.0501 0.0390 \*

Mercury -10035-10-08 16:19 J -1943580.01 -1943579.82 -1943579.63 0.0502 0.0059

Venus -10033-09-28 08:09 J -1942859.26 -1942859.16 -1942859.06 0.0516 0.0450

Venus -10032-05-23 23:16 J -1942621.68 -1942621.53 -1942621.37 0.0520 0.0334

Mars -10029-02-19 06:28 J -1941620.46 -1941620.23 -1941619.99 0.0525 0.0308

Mercury -10029-06-06 03:07 J -1941512.48 -1941512.37 -1941512.26 0.0524 0.0238

Mercury -10029-09-03 07:40 J -1941423.28 -1941423.18 -1941423.08 0.0523 0.0303

Venus -10027-08-05 11:45 J -1940722.17 -1940722.01 -1940721.84 0.0509 0.0287

Venus -10026-03-29 20:38 J -1940485.75 -1940485.64 -1940485.53 0.0505 0.0419

Mercury -10023-07-27 12:28 J -1939270.16 -1939269.98 -1939269.79 0.0502 0.0128

Venus -10020-01-26 14:09 J -1938356.11 -1938355.91 -1938355.70 0.0519 0.0112

Mercury -10017-03-25 07:26 J -1937202.27 -1937202.19 -1937202.10 0.0525 0.0376

Mercury -10017-06-22 12:00 J -1937113.11 -1937113.00 -1937112.88 0.0523 0.0168

Venus -10015-04-10 12:14 J -1936456.05 -1936455.99 -1936455.93 0.0510 0.0484

Venus -10015-12-02 22:33 J -1936219.73 -1936219.56 -1936219.38 0.0506 0.0230

Mars -10011-02-04 06:00 J -1935060.50 -1935060.25 -1935059.99 0.0500 0.0135

Mercury -10011-05-15 08:38 J -1934960.28 -1934960.14 -1934959.99 0.0501 0.0316

Mercury -10011-08-13 21:50 J -1934869.68 -1934869.59 -1934869.49 0.0502 0.0434

Venus -10009-10-01 04:33 J -1934090.52 -1934090.31 -1934090.11 0.0518 0.0114

Moon -10008-05-17 16:19 J -1933861.96 -1933861.82 -1933861.67 0.0522 0.0411

Earth -10008-05-17 18:57 J -1933861.83 -1933861.71 -1933861.58 0.0522 0.0438 \*

Mercury -10005-01-12 11:45 J -1932892.03 -1932892.01 -1932891.98 0.0525 0.0515

Mercury -10005-04-10 16:33 J -1932802.93 -1932802.81 -1932802.68 0.0524 0.0033

Venus -10003-08-08 00:00 J -1931953.70 -1931953.50 -1931953.29 0.0507 0.0036

# 10TH MILLENNIUM BCE

**This is a list of transits visible from Jupiter in the 10th millennium BCE.**

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-9999-06-01 18:00 J		-1930559.91	-1930559.75	-1930559.58	0.0502	0.0246	
Venus	-9997-06-05 21:07 J		-1929824.77	-1929824.62	-1929824.46	0.0516	0.0329	
Venus	-9996-01-29 13:26 J		-1929587.04	-1929586.94	-1929586.85	0.0521	0.0462	
Earth	-9996-05-22 19:26 J		-1929473.92	-1929473.69	-1929473.45	0.0523	0.0025	
Moon	-9996-05-22 19:40 J		-1929473.90	-1929473.68	-1929473.45	0.0523	0.0044	*
Mars	-9994-11-26 22:47 J		-1928555.82	-1928555.55	-1928555.27	0.0525	0.0158	
Mercury	-9993-01-28 21:07 J		-1928492.74	-1928492.62	-1928492.49	0.0524	0.0104	
Mercury	-9993-04-27 01:40 J		-1928403.50	-1928403.43	-1928403.36	0.0523	0.0436	
Venus	-9991-04-12 22:47 J		-1927687.74	-1927687.55	-1927687.36	0.0508	0.0170	
Mercury	-9987-03-20 13:26 J		-1926250.12	-1926249.94	-1926249.75	0.0502	0.0051	
Venus	-9985-10-04 06:14 J		-1925321.42	-1925321.24	-1925321.06	0.0520	0.0243	
Earth	-9984-05-27 21:35 J		-1925085.75	-1925085.60	-1925085.45	0.0524	0.0400	
Moon	-9984-05-27 23:31 J		-1925085.69	-1925085.52	-1925085.36	0.0524	0.0372	*
Mercury	-9982-11-17 01:55 J		-1924182.53	-1924182.42	-1924182.31	0.0524	0.0235	
Mercury	-9981-02-14 06:28 J		-1924093.33	-1924093.23	-1924093.13	0.0523	0.0306	
Venus	-9980-12-16 22:47 J		-1923421.69	-1923421.55	-1923421.41	0.0509	0.0369	
Venus	-9979-08-10 07:55 J		-1923185.32	-1923185.17	-1923185.02	0.0505	0.0340	
Moon	-9979-11-12 09:21 J		-1923091.23	-1923091.11	-1923090.99	0.0503	0.0424	
Earth	-9979-11-12 11:16 J		-1923091.17	-1923091.03	-1923090.89	0.0503	0.0400	*
Mars	-9976-11-08 11:02 J		-1921999.28	-1921999.04	-1921998.79	0.0501	0.0195	
Mercury	-9975-01-06 10:04 J		-1921940.26	-1921940.08	-1921939.90	0.0502	0.0133	

Venus	-9973-06-08 22:04 J	-1921055.78	-1921055.58	-1921055.37	0.0519	0.0022
Mercury	-9970-09-05 06:00 J	-1919872.33	-1919872.25	-1919872.16	0.0524	0.0376
Mercury	-9970-12-03 10:33 J	-1919783.17	-1919783.06	-1919782.94	0.0523	0.0167
Venus	-9967-04-15 08:52 J	-1918919.33	-1918919.13	-1918918.94	0.0506	0.0146
Earth	-9967-11-16 23:02 J	-1918703.77	-1918703.54	-1918703.31	0.0503	0.0046
Moon	-9967-11-17 02:38 J	-1918703.62	-1918703.39	-1918703.15	0.0503	0.0062 *
Mercury	-9964-10-25 06:43 J	-1917630.37	-1917630.22	-1917630.08	0.0502	0.0316
Mercury	-9963-01-23 19:55 J	-1917539.75	-1917539.67	-1917539.57	0.0503	0.0438
Venus	-9961-02-12 14:09 J	-1916790.10	-1916789.91	-1916789.72	0.0517	0.0198
Mercury	-9958-06-24 10:33 J	-1915562.08	-1915562.06	-1915562.04	0.0525	0.0514
Mercury	-9958-09-21 15:07 J	-1915472.99	-1915472.87	-1915472.74	0.0524	0.0032
Venus	-9956-12-19 10:19 J	-1914653.27	-1914653.07	-1914652.87	0.0508	0.0050
Moon	-9955-11-21 08:38 J	-1914316.30	-1914316.14	-1914315.96	0.0502	0.0337
Earth	-9955-11-21 12:43 J	-1914316.14	-1914315.97	-1914315.78	0.0502	0.0315 *
Mercury	-9952-08-13 02:52 J	-1913320.38	-1913320.38	-1913320.37	0.0501	0.0501
Mercury	-9952-11-11 16:04 J	-1913229.99	-1913229.83	-1913229.66	0.0502	0.0248
Venus	-9950-10-18 05:16 J	-1912524.40	-1912524.28	-1912524.16	0.0516	0.0417
Venus	-9949-06-11 20:24 J	-1912286.79	-1912286.65	-1912286.51	0.0520	0.0371
Mercury	-9946-07-10 19:40 J	-1911162.80	-1911162.68	-1911162.56	0.0524	0.0105
Mercury	-9946-10-08 00:14 J	-1911073.56	-1911073.49	-1911073.42	0.0523	0.0435
Venus	-9944-08-24 11:16 J	-1910387.20	-1910387.03	-1910386.85	0.0509	0.0248
Venus	-9943-04-17 20:09 J	-1910150.74	-1910150.66	-1910150.58	0.0504	0.0460
Mercury	-9940-08-30 12:28 J	-1908920.17	-1908919.98	-1908919.80	0.0502	0.0061
Venus	-9937-02-15 12:43 J	-1908021.17	-1908020.97	-1908020.77	0.0519	0.0151
Mercury	-9934-04-29 00:14 J	-1906852.60	-1906852.49	-1906852.37	0.0524	0.0239
Mercury	-9934-07-27 04:47 J	-1906763.40	-1906763.30	-1906763.19	0.0523	0.0305
Venus	-9932-04-29 09:50 J	-1906121.17	-1906121.09	-1906120.99	0.0510	0.0452
Venus	-9932-12-21 19:40 J	-1905884.85	-1905884.68	-1905884.51	0.0505	0.0262
Mercury	-9928-06-18 07:55 J	-1904610.35	-1904610.17	-1904609.99	0.0502	0.0137
Venus	-9926-10-21 05:45 J	-1903755.46	-1903755.26	-1903755.05	0.0518	0.0069

Earth	-9925-05-17 02:24 J	-1903546.47	-1903546.40	-1903546.31	0.0522	0.0487
Moon	-9925-05-17 03:07 J	-1903546.46	-1903546.37	-1903546.27	0.0522	0.0468 *
Mercury	-9922-02-15 05:02 J	-1902542.37	-1902542.29	-1902542.20	0.0524	0.0368
Mercury	-9922-05-15 09:50 J	-1902453.21	-1902453.09	-1902452.98	0.0523	0.0175
Venus	-9920-08-26 21:07 J	-1901618.82	-1901618.62	-1901618.42	0.0506	0.0067
Mercury	-9916-04-06 04:33 J	-1900300.46	-1900300.31	-1900300.17	0.0502	0.0318
Mercury	-9916-07-05 18:00 J	-1900209.84	-1900209.75	-1900209.66	0.0503	0.0436
Venus	-9914-06-25 22:47 J	-1899489.72	-1899489.55	-1899489.37	0.0517	0.0285
Venus	-9913-02-18 15:21 J	-1899251.89	-1899251.86	-1899251.82	0.0521	0.0511
Earth	-9913-05-22 02:38 J	-1899158.62	-1899158.39	-1899158.16	0.0523	0.0074
Moon	-9913-05-22 04:04 J	-1899158.56	-1899158.33	-1899158.09	0.0523	0.0099 *
Mercury	-9911-12-04 09:21 J	-1898232.13	-1898232.11	-1898232.08	0.0524	0.0508
Mercury	-9910-03-03 14:09 J	-1898143.04	-1898142.91	-1898142.79	0.0523	0.0037
Venus	-9908-05-01 21:21 J	-1897352.80	-1897352.61	-1897352.42	0.0508	0.0132
Mercury	-9904-01-23 01:26 J	-1895990.47	-1895990.44	-1895990.42	0.0501	0.0497
Mercury	-9904-04-23 14:38 J	-1895900.05	-1895899.89	-1895899.73	0.0503	0.0254
Venus	-9902-02-28 16:04 J	-1895223.88	-1895223.83	-1895223.78	0.0515	0.0498
Venus	-9902-10-24 06:28 J	-1894986.39	-1894986.23	-1894986.05	0.0520	0.0289
Moon	-9901-05-26 22:47 J	-1894770.73	-1894770.55	-1894770.37	0.0524	0.0310
Earth	-9901-05-27 01:40 J	-1894770.61	-1894770.43	-1894770.25	0.0524	0.0335 *
Mercury	-9899-12-20 18:28 J	-1893832.85	-1893832.73	-1893832.60	0.0524	0.0101
Mercury	-9898-03-19 23:02 J	-1893743.61	-1893743.54	-1893743.47	0.0522	0.0439
Venus	-9896-01-04 22:04 J	-1893086.73	-1893086.58	-1893086.42	0.0509	0.0331
Venus	-9896-08-29 07:40 J	-1892850.31	-1892850.18	-1892850.05	0.0505	0.0383
Earth	-9896-11-11 19:12 J	-1892775.80	-1892775.70	-1892775.59	0.0504	0.0448
Moon	-9896-11-11 22:33 J	-1892775.62	-1892775.56	-1892775.47	0.0504	0.0476 *
Mars	-9893-07-26 20:52 J	-1891787.79	-1891787.63	-1891787.46	0.0500	0.0392
Mercury	-9892-02-09 11:02 J	-1891590.23	-1891590.04	-1891589.85	0.0502	0.0068
Venus	-9890-06-28 21:07 J	-1890720.82	-1890720.62	-1890720.41	0.0519	0.0063
Mercury	-9887-10-08 23:02 J	-1889522.65	-1889522.54	-1889522.43	0.0524	0.0236



Mercury	-9886-01-06 03:35 J	-1889433.45	-1889433.35	-1889433.25	0.0523	0.0306
Venus	-9884-05-04 09:35 J	-1888584.28	-1888584.10	-1888583.91	0.0506	0.0191
Moon	-9884-11-16 05:02 J	-1888388.52	-1888388.29	-1888388.06	0.0503	0.0102
Earth	-9884-11-16 08:52 J	-1888388.36	-1888388.13	-1888387.90	0.0503	0.0087 *
Mercury	-9881-11-28 07:26 J	-1887280.38	-1887280.19	-1887280.01	0.0502	0.0118
Venus	-9878-03-03 14:09 J	-1886455.10	-1886454.91	-1886454.71	0.0517	0.0156
Mars	-9875-05-15 13:26 J	-1885286.20	-1885285.94	-1885285.67	0.0525	0.0202
Mercury	-9875-07-28 03:50 J	-1885212.43	-1885212.34	-1885212.25	0.0524	0.0366
Mercury	-9875-10-25 08:24 J	-1885123.26	-1885123.15	-1885123.03	0.0523	0.0178
Venus	-9872-01-07 09:21 J	-1884318.31	-1884318.11	-1884317.91	0.0507	0.0012
Earth	-9872-11-20 17:31 J	-1884000.96	-1884000.77	-1884000.56	0.0502	0.0258
Moon	-9872-11-20 21:21 J	-1884000.80	-1884000.61	-1884000.43	0.0502	0.0285 *
Mercury	-9869-09-16 02:38 J	-1882970.53	-1882970.39	-1882970.24	0.0502	0.0316
Mercury	-9869-12-15 16:04 J	-1882879.92	-1882879.83	-1882879.74	0.0503	0.0438
Venus	-9867-11-06 07:26 J	-1882189.33	-1882189.19	-1882189.04	0.0517	0.0373
Venus	-9866-07-01 23:31 J	-1881951.63	-1881951.52	-1881951.39	0.0521	0.0425
Mercury	-9863-05-16 08:38 J	-1880902.17	-1880902.14	-1880902.10	0.0525	0.0495
Mercury	-9863-08-13 13:26 J	-1880813.07	-1880812.94	-1880812.82	0.0523	0.0050
Venus	-9861-09-12 10:33 J	-1880052.24	-1880052.06	-1880051.88	0.0508	0.0210
Venus	-9860-05-06 18:28 J	-1879815.76	-1879815.73	-1879815.70	0.0504	0.0496
Mars	-9857-04-30 04:19 J	-1878726.58	-1878726.32	-1878726.06	0.0501	0.0056
Mercury	-9857-07-04 23:31 J	-1878660.55	-1878660.52	-1878660.49	0.0502	0.0494
Mercury	-9857-10-03 12:57 J	-1878570.13	-1878569.96	-1878569.80	0.0503	0.0257
Venus	-9854-03-06 16:19 J	-1877686.01	-1877685.82	-1877685.63	0.0520	0.0204
Mercury	-9851-06-01 17:45 J	-1876502.88	-1876502.76	-1876502.64	0.0523	0.0089
Mercury	-9851-08-29 22:04 J	-1876413.64	-1876413.58	-1876413.51	0.0522	0.0449
Venus	-9849-05-18 10:19 J	-1875786.19	-1875786.07	-1875785.96	0.0510	0.0411
Venus	-9848-01-09 19:40 J	-1875549.83	-1875549.68	-1875549.51	0.0505	0.0307
Mercury	-9845-07-22 09:35 J	-1874260.28	-1874260.10	-1874259.91	0.0502	0.0077
Venus	-9843-11-09 08:24 J	-1873420.36	-1873420.15	-1873419.95	0.0518	0.0019

Moon	-9842-05-17 11:02 J	-1873231.05	-1873231.04	-1873231.00	0.0522	0.0519
Mars	-9839-02-20 09:50 J	-1872221.32	-1872221.09	-1872220.83	0.0524	0.0282
Mercury	-9839-03-20 22:19 J	-1872192.68	-1872192.57	-1872192.46	0.0524	0.0224
Mercury	-9839-06-18 02:38 J	-1872103.48	-1872103.39	-1872103.29	0.0523	0.0317
Venus	-9837-09-14 21:50 J	-1871283.78	-1871283.59	-1871283.39	0.0507	0.0113
Mercury	-9833-05-10 06:14 J	-1869950.42	-1869950.24	-1869950.05	0.0502	0.0107
Venus	-9831-07-15 00:00 J	-1869154.68	-1869154.50	-1869154.32	0.0517	0.0241
Moon	-9830-05-22 05:16 J	-1868843.50	-1868843.28	-1868843.07	0.0523	0.0161
Earth	-9830-05-22 07:40 J	-1868843.40	-1868843.18	-1868842.95	0.0523	0.0133 *
Mercury	-9827-01-07 02:38 J	-1867882.48	-1867882.39	-1867882.30	0.0525	0.0361
Mercury	-9827-04-06 07:26 J	-1867793.31	-1867793.19	-1867793.08	0.0523	0.0183
Venus	-9825-05-20 23:31 J	-1867017.72	-1867017.52	-1867017.32	0.0508	0.0086
Mars	-9821-02-02 20:24 J	-1865664.86	-1865664.65	-1865664.44	0.0501	0.0291
Mercury	-9821-02-27 02:52 J	-1865640.54	-1865640.38	-1865640.23	0.0501	0.0289
Mercury	-9821-05-27 16:04 J	-1865549.90	-1865549.83	-1865549.75	0.0503	0.0463
Venus	-9819-03-19 17:31 J	-1864888.86	-1864888.77	-1864888.67	0.0515	0.0455
Venus	-9819-11-12 08:24 J	-1864651.30	-1864651.15	-1864650.99	0.0520	0.0338
Earth	-9818-05-27 08:52 J	-1864455.32	-1864455.13	-1864454.93	0.0524	0.0284
Moon	-9818-05-27 12:28 J	-1864455.18	-1864454.98	-1864454.77	0.0524	0.0267 *
Mercury	-9816-10-26 07:40 J	-1863572.22	-1863572.18	-1863572.14	0.0525	0.0489
Mercury	-9815-01-23 12:14 J	-1863483.11	-1863482.99	-1863482.86	0.0523	0.0057
Venus	-9813-01-24 23:16 J	-1862751.69	-1862751.53	-1862751.36	0.0509	0.0289
Venus	-9813-09-17 07:55 J	-1862515.27	-1862515.17	-1862515.06	0.0504	0.0425
Earth	-9813-11-11 03:35 J	-1862460.39	-1862460.35	-1862460.30	0.0503	0.0491
Mercury	-9810-12-15 22:04 J	-1861330.62	-1861330.58	-1861330.54	0.0501	0.0488
Mercury	-9809-03-15 11:16 J	-1861240.19	-1861240.03	-1861239.87	0.0503	0.0263
Venus	-9807-07-18 01:12 J	-1860385.65	-1860385.45	-1860385.25	0.0520	0.0117
Mercury	-9804-11-11 17:16 J	-1859172.90	-1859172.78	-1859172.65	0.0523	0.0072
Mercury	-9803-02-08 21:35 J	-1859083.65	-1859083.60	-1859083.54	0.0522	0.0466
Venus	-9802-09-30 00:00 J	-1858485.55	-1858485.50	-1858485.43	0.0510	0.0487

Venus	-9801-05-23 09:50 J	-1858249.26	-1858249.09	-1858248.91	0.0505	0.0233
Earth	-9801-11-15 16:19 J	-1858073.04	-1858072.82	-1858072.59	0.0502	0.0135
Moon	-9801-11-15 19:55 J	-1858072.89	-1858072.67	-1858072.45	0.0502	0.0143 *
Mercury	-9797-01-02 08:09 J	-1856930.35	-1856930.16	-1856929.97	0.0503	0.0083
Venus	-9795-03-22 18:28 J	-1856119.93	-1856119.73	-1856119.53	0.0518	0.0103
Mercury	-9792-08-30 21:35 J	-1854862.71	-1854862.60	-1854862.48	0.0524	0.0210
Mercury	-9792-11-28 02:09 J	-1854773.50	-1854773.41	-1854773.31	0.0522	0.0331
Venus	-9789-01-27 10:47 J	-1853983.25	-1853983.05	-1853982.84	0.0507	0.0037
Moon	-9789-11-20 01:55 J	-1853685.63	-1853685.42	-1853685.21	0.0502	0.0243
Earth	-9789-11-20 04:33 J	-1853685.52	-1853685.31	-1853685.10	0.0502	0.0218 *
Mercury	-9786-10-21 05:16 J	-1852620.47	-1852620.28	-1852620.10	0.0502	0.0096
Venus	-9784-11-25 11:31 J	-1851854.18	-1851854.02	-1851853.86	0.0517	0.0320
Venus	-9783-07-21 03:35 J	-1851616.43	-1851616.35	-1851616.27	0.0521	0.0479
Mercury	-9780-06-19 02:09 J	-1850552.50	-1850552.41	-1850552.31	0.0524	0.0345
Mercury	-9780-09-16 06:43 J	-1850463.33	-1850463.22	-1850463.10	0.0523	0.0197
Venus	-9778-10-02 12:14 J	-1849717.18	-1849716.99	-1849716.80	0.0508	0.0163
Mercury	-9774-08-09 01:55 J	-1848310.57	-1848310.42	-1848310.26	0.0502	0.0276
Mercury	-9774-11-07 15:21 J	-1848219.91	-1848219.86	-1848219.80	0.0503	0.0478
Venus	-9771-03-25 18:28 J	-1847350.91	-1847350.73	-1847350.55	0.0520	0.0253
Mercury	-9768-04-07 06:43 J	-1846242.27	-1846242.22	-1846242.17	0.0525	0.0481
Mercury	-9768-07-05 11:16 J	-1846153.15	-1846153.03	-1846152.90	0.0523	0.0065
Venus	-9766-06-07 13:12 J	-1845451.09	-1845450.95	-1845450.81	0.0510	0.0364
Venus	-9765-01-29 22:47 J	-1845214.68	-1845214.55	-1845214.40	0.0505	0.0356
Mercury	-9762-05-27 22:33 J	-1844000.63	-1844000.56	-1844000.48	0.0501	0.0457
Mercury	-9762-08-26 11:45 J	-1843910.16	-1843910.01	-1843909.85	0.0502	0.0294
Venus	-9760-11-28 11:02 J	-1843085.24	-1843085.04	-1843084.83	0.0519	0.0034
Mars	-9757-11-02 00:43 J	-1842015.48	-1842015.47	-1842015.44	0.0526	0.0525
Mercury	-9756-04-23 16:19 J	-1841842.94	-1841842.82	-1841842.69	0.0524	0.0064
Mercury	-9756-07-21 20:52 J	-1841753.68	-1841753.63	-1841753.58	0.0522	0.0475
Venus	-9754-10-04 23:45 J	-1840948.70	-1840948.51	-1840948.31	0.0506	0.0159

Mercury	-9750-06-14 06:57 J	-1839600.40	-1839600.21	-1839600.03	0.0502	0.0092
Venus	-9748-08-03 03:50 J	-1838819.54	-1838819.34	-1838819.15	0.0518	0.0190
Earth	-9747-05-21 20:24 J	-1838527.87	-1838527.65	-1838527.43	0.0523	0.0165
Moon	-9747-05-22 00:00 J	-1838527.72	-1838527.50	-1838527.28	0.0523	0.0194 *
Mercury	-9744-02-09 21:21 J	-1837532.73	-1837532.61	-1837532.49	0.0524	0.0190
Mercury	-9744-05-10 01:40 J	-1837443.52	-1837443.43	-1837443.33	0.0522	0.0350
Venus	-9742-06-10 01:40 J	-1836682.64	-1836682.43	-1836682.23	0.0507	0.0040
Mars	-9739-10-21 05:16 J	-1835453.49	-1835453.28	-1835453.06	0.0500	0.0293
Mercury	-9738-04-02 03:50 J	-1835290.53	-1835290.34	-1835290.16	0.0502	0.0088
Venus	-9736-04-07 21:50 J	-1834553.71	-1834553.59	-1834553.46	0.0516	0.0403
Venus	-9736-12-01 13:40 J	-1834316.06	-1834315.93	-1834315.79	0.0521	0.0397
Moon	-9735-05-26 18:43 J	-1834139.93	-1834139.72	-1834139.51	0.0524	0.0241
Earth	-9735-05-26 22:04 J	-1834139.78	-1834139.58	-1834139.37	0.0524	0.0252 *
Mercury	-9733-11-29 01:40 J	-1833222.52	-1833222.43	-1833222.33	0.0524	0.0327
Mercury	-9732-02-26 06:14 J	-1833133.35	-1833133.24	-1833133.12	0.0523	0.0215
Venus	-9730-02-13 01:55 J	-1832416.60	-1832416.42	-1832416.24	0.0508	0.0240
Venus	-9730-10-07 10:19 J	-1832180.13	-1832180.07	-1832180.00	0.0504	0.0474
Mercury	-9726-01-19 00:43 J	-1830980.62	-1830980.47	-1830980.30	0.0502	0.0264
Mercury	-9726-04-19 14:24 J	-1830889.94	-1830889.90	-1830889.86	0.0503	0.0492
Venus	-9724-08-06 06:00 J	-1830050.44	-1830050.25	-1830050.06	0.0520	0.0174
Mars	-9721-08-09 22:04 J	-1828950.87	-1828950.58	-1828950.29	0.0525	0.0044
Mercury	-9721-09-17 06:14 J	-1828912.30	-1828912.24	-1828912.18	0.0524	0.0462
Mercury	-9721-12-15 10:47 J	-1828823.17	-1828823.05	-1828822.92	0.0523	0.0082
Venus	-9719-10-19 02:09 J	-1828150.50	-1828150.41	-1828150.30	0.0510	0.0441
Venus	-9718-06-12 12:14 J	-1827914.15	-1827913.99	-1827913.82	0.0506	0.0283
Moon	-9718-11-16 02:52 J	-1827757.60	-1827757.38	-1827757.15	0.0503	0.0173
Earth	-9718-11-16 05:16 J	-1827757.49	-1827757.28	-1827757.06	0.0503	0.0168 *
Mercury	-9715-11-06 21:50 J	-1826670.68	-1826670.59	-1826670.50	0.0501	0.0442
Mercury	-9714-02-05 11:02 J	-1826580.18	-1826580.04	-1826579.89	0.0503	0.0309
Venus	-9712-04-10 21:35 J	-1825784.80	-1825784.60	-1825784.39	0.0518	0.0052

Mercury	-9709-10-03 15:21 J	-1824512.98	-1824512.86	-1824512.73	0.0524	0.0055
Mercury	-9709-12-31 19:55 J	-1824423.72	-1824423.67	-1824423.63	0.0522	0.0483
Venus	-9706-02-15 14:24 J	-1823648.09	-1823647.90	-1823647.70	0.0507	0.0087
Earth	-9706-11-20 18:57 J	-1823369.92	-1823369.71	-1823369.49	0.0502	0.0192
Moon	-9706-11-20 19:26 J	-1823369.89	-1823369.69	-1823369.49	0.0502	0.0220 *
Mars	-9703-07-26 01:55 J	-1822391.68	-1822391.42	-1822391.16	0.0501	0.0063
Mercury	-9703-11-24 07:40 J	-1822270.37	-1822270.18	-1822270.00	0.0502	0.0125
Venus	-9701-12-14 14:52 J	-1821519.06	-1821518.88	-1821518.71	0.0517	0.0271
Mercury	-9697-07-22 20:24 J	-1820202.77	-1820202.65	-1820202.53	0.0524	0.0181
Mercury	-9697-10-20 00:57 J	-1820113.55	-1820113.46	-1820113.37	0.0523	0.0359
Venus	-9695-10-21 15:21 J	-1819382.05	-1819381.86	-1819381.66	0.0507	0.0114
Mercury	-9691-09-12 02:38 J	-1817960.58	-1817960.39	-1817960.20	0.0502	0.0077
Venus	-9689-08-19 07:12 J	-1817253.26	-1817253.20	-1817253.13	0.0516	0.0489
Venus	-9688-04-13 22:47 J	-1817015.71	-1817015.55	-1817015.38	0.0521	0.0311
Mercury	-9685-05-11 01:26 J	-1815892.54	-1815892.44	-1815892.34	0.0524	0.0307
Mars	-9685-05-18 06:28 J	-1815885.37	-1815885.23	-1815885.09	0.0524	0.0456
Mercury	-9685-08-08 06:00 J	-1815803.36	-1815803.25	-1815803.14	0.0523	0.0234
Venus	-9683-06-26 16:47 J	-1815115.96	-1815115.80	-1815115.64	0.0509	0.0313
Venus	-9682-02-18 01:12 J	-1814879.56	-1814879.45	-1814879.33	0.0504	0.0404
Mercury	-9679-06-30 23:31 J	-1813650.68	-1813650.52	-1813650.36	0.0502	0.0256
Mercury	-9679-09-29 12:57 J	-1813559.98	-1813559.96	-1813559.94	0.0503	0.0499
Venus	-9677-12-17 15:50 J	-1812750.04	-1812749.84	-1812749.63	0.0519	0.0090
Mercury	-9673-02-28 05:45 J	-1811582.32	-1811582.26	-1811582.19	0.0524	0.0444
Mercury	-9673-05-27 10:33 J	-1811493.19	-1811493.06	-1811492.94	0.0523	0.0100
Venus	-9671-10-24 02:24 J	-1810613.58	-1810613.40	-1810613.21	0.0506	0.0210
Mercury	-9667-04-18 20:38 J	-1809340.73	-1809340.64	-1809340.54	0.0502	0.0431
Mars	-9667-04-29 11:02 J	-1809330.18	-1809330.04	-1809329.87	0.0502	0.0402
Mercury	-9667-07-18 10:04 J	-1809250.23	-1809250.08	-1809249.94	0.0503	0.0321
Venus	-9665-08-22 09:07 J	-1808484.32	-1808484.12	-1808483.92	0.0518	0.0132
Moon	-9664-05-21 04:47 J	-1808212.51	-1808212.30	-1808212.09	0.0523	0.0234

Earth	-9664-05-21 08:24 J	-1808212.36	-1808212.15	-1808211.93	0.0523	0.0201 *
Mercury	-9661-03-15 15:07 J	-1807183.00	-1807182.87	-1807182.75	0.0523	0.0040
Mercury	-9661-06-12 19:26 J	-1807093.72	-1807093.69	-1807093.66	0.0522	0.0500
Venus	-9659-06-29 03:50 J	-1806347.54	-1806347.34	-1806347.13	0.0507	0.0016
Mercury	-9655-05-06 06:43 J	-1804940.40	-1804940.22	-1804940.03	0.0502	0.0140
Venus	-9653-04-27 01:26 J	-1804218.59	-1804218.44	-1804218.29	0.0516	0.0353
Venus	-9653-12-20 16:47 J	-1803980.89	-1803980.80	-1803980.69	0.0521	0.0450
Earth	-9652-05-26 06:57 J	-1803824.43	-1803824.21	-1803824.00	0.0523	0.0204
Moon	-9652-05-26 09:21 J	-1803824.32	-1803824.11	-1803823.90	0.0523	0.0207 *
Mercury	-9649-01-02 19:26 J	-1802872.81	-1802872.69	-1802872.57	0.0524	0.0172
Mercury	-9649-04-01 00:00 J	-1802783.59	-1802783.50	-1802783.41	0.0523	0.0367
Venus	-9647-03-04 05:31 J	-1802081.46	-1802081.27	-1802081.09	0.0508	0.0190
Mercury	-9643-02-22 03:21 J	-1800630.55	-1800630.36	-1800630.17	0.0502	0.0045
Venus	-9641-08-25 09:07 J	-1799715.30	-1799715.12	-1799714.93	0.0520	0.0227
Mercury	-9638-10-22 00:28 J	-1798562.58	-1798562.48	-1798562.38	0.0524	0.0299
Mercury	-9637-01-19 05:02 J	-1798473.40	-1798473.29	-1798473.18	0.0523	0.0243
Venus	-9636-11-07 06:14 J	-1797815.36	-1797815.24	-1797815.11	0.0509	0.0390
Venus	-9635-07-01 15:21 J	-1797579.01	-1797578.86	-1797578.71	0.0505	0.0333
Earth	-9635-11-15 17:31 J	-1797441.98	-1797441.77	-1797441.55	0.0502	0.0202
Moon	-9635-11-15 18:00 J	-1797441.95	-1797441.75	-1797441.54	0.0502	0.0197 *
Mercury	-9632-12-10 22:04 J	-1796320.74	-1796320.58	-1796320.41	0.0502	0.0247
Venus	-9629-04-30 00:43 J	-1795449.68	-1795449.47	-1795449.27	0.0519	0.0007
Mercury	-9626-08-10 05:16 J	-1794252.35	-1794252.28	-1794252.20	0.0525	0.0427
Mercury	-9626-11-07 10:04 J	-1794163.20	-1794163.08	-1794162.96	0.0523	0.0117
Venus	-9623-03-06 17:31 J	-1793312.96	-1793312.77	-1793312.57	0.0506	0.0138
Earth	-9623-11-20 06:14 J	-1793054.46	-1793054.24	-1793054.02	0.0502	0.0153
Moon	-9623-11-20 07:55 J	-1793054.39	-1793054.17	-1793053.94	0.0502	0.0182 *
Mercury	-9620-09-28 18:57 J	-1792010.80	-1792010.71	-1792010.61	0.0502	0.0425
Mercury	-9620-12-28 08:24 J	-1791920.29	-1791920.15	-1791920.01	0.0503	0.0327
Venus	-9617-01-03 18:14 J	-1791183.92	-1791183.74	-1791183.55	0.0518	0.0218

Mercury	-9614-08-26 14:24 J	-1789853.02	-1789852.90	-1789852.77	0.0523	0.0028
Mercury	-9614-11-23 18:57 J	-1789763.73	-1789763.71	-1789763.70	0.0522	0.0517
Venus	-9612-11-09 18:00 J	-1789046.95	-1789046.75	-1789046.55	0.0507	0.0064
Moon	-9611-11-24 14:38 J	-1788666.92	-1788666.89	-1788666.87	0.0501	0.0498
Earth	-9611-11-24 17:45 J	-1788666.76	-1788666.76	-1788666.76	0.0501	0.0501
Mercury	-9608-10-16 05:31 J	-1787610.45	-1787610.27	-1787610.09	0.0503	0.0149
Venus	-9606-09-08 12:14 J	-1786918.10	-1786917.99	-1786917.88	0.0516	0.0434
Venus	-9605-05-03 03:35 J	-1786680.49	-1786680.35	-1786680.20	0.0521	0.0370
Mars	-9602-01-28 13:26 J	-1785680.14	-1785679.94	-1785679.73	0.0525	0.0363
Mercury	-9602-06-14 18:57 J	-1785542.83	-1785542.71	-1785542.59	0.0524	0.0155
Mercury	-9602-09-11 23:31 J	-1785453.61	-1785453.52	-1785453.44	0.0522	0.0384
Venus	-9600-07-15 18:28 J	-1784780.89	-1784780.73	-1784780.55	0.0509	0.0267
Venus	-9599-03-09 03:07 J	-1784544.45	-1784544.37	-1784544.28	0.0504	0.0454
Mercury	-9596-08-04 02:09 J	-1783300.59	-1783300.41	-1783300.22	0.0502	0.0034
Venus	-9593-01-06 18:43 J	-1782414.91	-1782414.72	-1782414.51	0.0519	0.0143
Mercury	-9590-04-02 23:16 J	-1781232.63	-1781232.53	-1781232.42	0.0524	0.0293
Mercury	-9590-07-01 03:50 J	-1781143.45	-1781143.34	-1781143.23	0.0523	0.0250
Venus	-9588-03-20 18:57 J	-1780514.78	-1780514.71	-1780514.63	0.0510	0.0470
Venus	-9588-11-12 05:16 J	-1780278.45	-1780278.28	-1780278.10	0.0506	0.0260
Mars	-9584-01-15 03:07 J	-1779118.62	-1779118.37	-1779118.12	0.0500	0.0173
Mercury	-9584-05-22 22:33 J	-1778990.72	-1778990.56	-1778990.38	0.0502	0.0217
Venus	-9582-09-11 11:31 J	-1778149.23	-1778149.02	-1778148.82	0.0518	0.0083
Earth	-9581-05-20 16:04 J	-1777897.03	-1777896.83	-1777896.62	0.0523	0.0250
Moon	-9581-05-20 18:43 J	-1777896.91	-1777896.72	-1777896.52	0.0523	0.0281 *
Mercury	-9578-01-20 04:19 J	-1776922.39	-1776922.32	-1776922.25	0.0525	0.0420
Mercury	-9578-04-19 08:52 J	-1776833.25	-1776833.13	-1776833.01	0.0523	0.0124
Venus	-9576-07-18 07:12 J	-1776012.40	-1776012.20	-1776012.00	0.0506	0.0063
Mercury	-9572-03-10 17:45 J	-1774680.87	-1774680.76	-1774680.66	0.0501	0.0418
Mercury	-9572-06-09 06:57 J	-1774590.35	-1774590.21	-1774590.07	0.0503	0.0333
Venus	-9570-05-17 02:24 J	-1773883.56	-1773883.40	-1773883.23	0.0517	0.0308

Venus	-9569-01-09 19:12 J	-1773645.74	-1773645.70	-1773645.64	0.0522	0.0504
Moon	-9569-05-25 14:38 J	-1773509.12	-1773508.89	-1773508.66	0.0524	0.0161
Earth	-9569-05-25 15:50 J	-1773509.06	-1773508.84	-1773508.62	0.0524	0.0156 *
Mars	-9567-11-05 14:52 J	-1772615.16	-1772614.88	-1772614.60	0.0525	0.0127
Mercury	-9566-02-05 13:55 J	-1772523.05	-1772522.92	-1772522.79	0.0524	0.0004
Venus	-9564-03-23 08:38 J	-1771746.33	-1771746.14	-1771745.94	0.0507	0.0138
Mercury	-9560-03-28 03:35 J	-1770280.53	-1770280.35	-1770280.17	0.0503	0.0151
Venus	-9558-09-14 12:00 J	-1769380.17	-1769380.00	-1769379.83	0.0521	0.0282
Mercury	-9555-11-24 18:14 J	-1768212.86	-1768212.74	-1768212.61	0.0524	0.0142
Mercury	-9554-02-21 22:47 J	-1768123.63	-1768123.55	-1768123.47	0.0522	0.0397
Venus	-9553-11-26 08:09 J	-1767480.31	-1767480.16	-1767480.01	0.0509	0.0343
Venus	-9552-07-20 16:47 J	-1767243.92	-1767243.80	-1767243.66	0.0504	0.0382
Earth	-9552-11-15 04:19 J	-1767126.52	-1767126.32	-1767126.11	0.0503	0.0242
Moon	-9552-11-15 06:14 J	-1767126.45	-1767126.24	-1767126.02	0.0503	0.0225 *
Mars	-9549-10-19 12:14 J	-1766057.23	-1766056.99	-1766056.73	0.0501	0.0166
Mercury	-9548-01-14 00:28 J	-1765970.67	-1765970.48	-1765970.29	0.0502	0.0029
Venus	-9546-05-20 04:33 J	-1765114.51	-1765114.31	-1765114.10	0.0519	0.0058
Mercury	-9543-09-12 22:47 J	-1763902.66	-1763902.55	-1763902.44	0.0524	0.0278
Mercury	-9543-12-11 03:21 J	-1763813.47	-1763813.36	-1763813.25	0.0523	0.0263
Venus	-9540-03-25 18:28 J	-1762977.92	-1762977.73	-1762977.55	0.0506	0.0184
Moon	-9540-11-19 13:12 J	-1762739.17	-1762738.95	-1762738.73	0.0502	0.0137
Earth	-9540-11-19 16:33 J	-1762739.04	-1762738.81	-1762738.59	0.0502	0.0110 *
Mercury	-9537-11-01 21:21 J	-1761660.78	-1761660.61	-1761660.44	0.0502	0.0209
Venus	-9534-01-22 20:38 J	-1760848.84	-1760848.64	-1760848.45	0.0517	0.0169
Mercury	-9531-07-02 03:07 J	-1759592.45	-1759592.37	-1759592.30	0.0524	0.0417
Mercury	-9531-09-29 07:40 J	-1759503.30	-1759503.18	-1759503.06	0.0523	0.0126
Venus	-9529-11-28 19:40 J	-1758711.88	-1758711.68	-1758711.48	0.0507	0.0017
Earth	-9528-11-24 04:47 J	-1758351.37	-1758351.30	-1758351.20	0.0501	0.0465
Moon	-9528-11-24 09:07 J	-1758351.21	-1758351.12	-1758351.02	0.0501	0.0455 *
Mercury	-9525-08-20 17:45 J	-1757350.88	-1757350.76	-1757350.65	0.0501	0.0393



Mercury	-9525-11-19 06:57 J	-1757260.34	-1757260.21	-1757260.08	0.0503	0.0359
Venus	-9523-09-27 13:12 J	-1756583.08	-1756582.95	-1756582.81	0.0516	0.0390
Venus	-9522-05-23 04:33 J	-1756345.42	-1756345.31	-1756345.18	0.0521	0.0418
Mercury	-9519-07-18 12:43 J	-1755193.10	-1755192.97	-1755192.85	0.0524	0.0014
Venus	-9517-08-03 21:07 J	-1754445.80	-1754445.62	-1754445.43	0.0508	0.0217
Venus	-9516-03-28 05:02 J	-1754209.29	-1754209.29	-1754209.27	0.0504	0.0503
Mars	-9513-07-23 16:33 J	-1752995.84	-1752995.81	-1752995.77	0.0502	0.0496
Mercury	-9513-09-07 01:40 J	-1752950.60	-1752950.43	-1752950.24	0.0502	0.0154
Venus	-9510-01-25 18:57 J	-1752079.90	-1752079.71	-1752079.52	0.0520	0.0189
Mercury	-9507-05-06 17:31 J	-1750882.89	-1750882.77	-1750882.65	0.0524	0.0131
Mercury	-9507-08-03 22:04 J	-1750793.66	-1750793.58	-1750793.51	0.0523	0.0409
Venus	-9505-04-08 21:50 J	-1750179.69	-1750179.59	-1750179.47	0.0509	0.0420
Venus	-9505-12-01 07:12 J	-1749943.35	-1749943.20	-1749943.04	0.0505	0.0309
Mercury	-9501-06-25 22:19 J	-1748640.76	-1748640.57	-1748640.38	0.0502	0.0030
Venus	-9499-09-30 11:45 J	-1747814.21	-1747814.01	-1747813.80	0.0519	0.0037
Moon	-9498-05-20 20:38 J	-1747581.82	-1747581.64	-1747581.45	0.0523	0.0340
Earth	-9498-05-20 22:04 J	-1747581.76	-1747581.58	-1747581.39	0.0523	0.0310 *
Mercury	-9495-02-22 21:50 J	-1746572.70	-1746572.59	-1746572.48	0.0524	0.0269
Mercury	-9495-05-23 02:24 J	-1746483.51	-1746483.40	-1746483.29	0.0523	0.0272
Venus	-9493-08-06 07:26 J	-1745677.38	-1745677.19	-1745676.99	0.0506	0.0108
Mercury	-9489-04-13 19:12 J	-1744330.87	-1744330.70	-1744330.53	0.0502	0.0210
Venus	-9487-06-05 05:02 J	-1743548.46	-1743548.29	-1743548.10	0.0517	0.0257
Moon	-9486-05-25 23:02 J	-1743193.76	-1743193.54	-1743193.32	0.0524	0.0114
Earth	-9486-05-25 23:16 J	-1743193.76	-1743193.53	-1743193.30	0.0524	0.0103 *
Mercury	-9484-12-12 02:09 J	-1742262.48	-1742262.41	-1742262.33	0.0524	0.0407
Mercury	-9483-03-11 06:57 J	-1742173.34	-1742173.21	-1742173.09	0.0523	0.0137
Venus	-9481-04-11 07:55 J	-1741411.37	-1741411.17	-1741410.97	0.0508	0.0096
Mercury	-9477-01-31 15:50 J	-1740020.95	-1740020.84	-1740020.72	0.0502	0.0391
Mercury	-9477-05-01 05:16 J	-1739930.41	-1739930.28	-1739930.15	0.0503	0.0361
Venus	-9475-02-07 21:50 J	-1739282.66	-1739282.59	-1739282.51	0.0515	0.0477

Venus	-9475-10-03 12:43 J	-1739045.13	-1739044.97	-1739044.81	0.0520	0.0329
Earth	-9474-05-30 21:35 J	-1738805.66	-1738805.60	-1738805.54	0.0524	0.0505
Mercury	-9472-12-28 11:02 J	-1737863.16	-1737863.04	-1737862.91	0.0524	0.0019
Venus	-9470-12-16 08:09 J	-1737145.32	-1737145.16	-1737145.00	0.0509	0.0301
Venus	-9469-08-08 17:16 J	-1736908.88	-1736908.78	-1736908.67	0.0505	0.0426
Moon	-9469-11-14 09:50 J	-1736811.28	-1736811.09	-1736810.89	0.0503	0.0266
Earth	-9469-11-14 13:12 J	-1736811.14	-1736810.95	-1736810.76	0.0503	0.0288 *
Mars	-9466-07-07 17:16 J	-1735845.91	-1735845.78	-1735845.64	0.0500	0.0429
Mercury	-9465-02-18 01:12 J	-1735620.62	-1735620.45	-1735620.27	0.0502	0.0173
Venus	-9463-06-08 04:04 J	-1734779.54	-1734779.33	-1734779.13	0.0519	0.0101
Mercury	-9460-10-16 15:50 J	-1733552.96	-1733552.84	-1733552.71	0.0524	0.0134
Mercury	-9459-01-13 20:24 J	-1733463.72	-1733463.65	-1733463.57	0.0523	0.0407
Venus	-9458-08-21 09:07 J	-1732879.15	-1732879.12	-1732879.08	0.0510	0.0502
Venus	-9457-04-13 19:26 J	-1732642.87	-1732642.69	-1732642.51	0.0505	0.0231
Earth	-9457-11-19 01:26 J	-1732423.67	-1732423.44	-1732423.21	0.0502	0.0063
Moon	-9457-11-19 05:31 J	-1732423.50	-1732423.27	-1732423.04	0.0502	0.0090 *
Mercury	-9454-12-06 20:09 J	-1731310.85	-1731310.66	-1731310.47	0.0502	0.0032
Venus	-9451-02-10 18:00 J	-1730513.95	-1730513.75	-1730513.55	0.0518	0.0131
Mars	-9448-04-24 08:24 J	-1729345.40	-1729345.15	-1729344.89	0.0526	0.0232
Mercury	-9448-08-04 20:38 J	-1729242.75	-1729242.64	-1729242.53	0.0525	0.0265
Mercury	-9448-11-02 01:12 J	-1729153.55	-1729153.45	-1729153.34	0.0523	0.0278
Venus	-9446-12-18 20:52 J	-1728376.83	-1728376.63	-1728376.43	0.0507	0.0031
Moon	-9445-11-23 09:07 J	-1728036.25	-1728036.12	-1728035.98	0.0501	0.0400
Earth	-9445-11-23 12:57 J	-1728036.08	-1728035.96	-1728035.82	0.0501	0.0412 *
Mercury	-9442-09-24 16:33 J	-1727000.98	-1727000.81	-1727000.64	0.0502	0.0217
Venus	-9440-10-16 11:16 J	-1726248.18	-1726248.03	-1726247.88	0.0517	0.0351
Venus	-9439-06-11 03:35 J	-1726010.44	-1726010.35	-1726010.25	0.0522	0.0465
Mercury	-9436-05-24 00:57 J	-1724932.54	-1724932.46	-1724932.38	0.0525	0.0404
Mercury	-9436-08-21 05:31 J	-1724843.38	-1724843.27	-1724843.14	0.0523	0.0142
Venus	-9434-08-23 19:55 J	-1724110.85	-1724110.67	-1724110.48	0.0508	0.0177

Mars	-9430-04-11 00:43 J	-1722784.73	-1722784.47	-1722784.21	0.0500	0.0095
Mercury	-9430-07-13 13:12 J	-1722691.06	-1722690.95	-1722690.83	0.0501	0.0398
Mercury	-9430-10-12 02:24 J	-1722600.52	-1722600.40	-1722600.26	0.0503	0.0355
Venus	-9427-02-13 20:09 J	-1721744.85	-1721744.66	-1721744.48	0.0520	0.0239
Mercury	-9424-06-09 10:04 J	-1720533.21	-1720533.08	-1720532.95	0.0523	0.0003
Venus	-9422-04-28 19:26 J	-1719844.82	-1719844.69	-1719844.56	0.0509	0.0384
Venus	-9422-12-21 04:47 J	-1719608.44	-1719608.30	-1719608.15	0.0505	0.0348
Mercury	-9418-07-30 23:02 J	-1718290.72	-1718290.54	-1718290.36	0.0502	0.0169
Venus	-9416-10-19 11:16 J	-1717479.24	-1717479.03	-1717478.82	0.0518	0.0008
Earth	-9415-05-20 00:00 J	-1717266.66	-1717266.50	-1717266.34	0.0522	0.0380
Moon	-9415-05-20 00:00 J	-1717266.63	-1717266.50	-1717266.35	0.0522	0.0410 *
Mars	-9412-01-29 13:40 J	-1716281.18	-1716280.93	-1716280.66	0.0525	0.0229
Mercury	-9412-03-28 14:09 J	-1716223.03	-1716222.91	-1716222.78	0.0524	0.0140
Mercury	-9412-06-25 18:43 J	-1716133.80	-1716133.72	-1716133.64	0.0522	0.0400
Venus	-9410-08-26 06:00 J	-1715342.44	-1715342.25	-1715342.06	0.0506	0.0147
Mercury	-9406-05-18 19:12 J	-1713980.89	-1713980.70	-1713980.51	0.0502	0.0020
Venus	-9404-06-24 02:52 J	-1713213.56	-1713213.38	-1713213.19	0.0517	0.0219
Earth	-9403-05-24 22:47 J	-1712878.79	-1712878.55	-1712878.32	0.0523	0.0024
Moon	-9403-05-25 00:28 J	-1712878.72	-1712878.48	-1712878.23	0.0523	0.0040 *
Mercury	-9400-01-14 18:57 J	-1711912.82	-1711912.71	-1711912.60	0.0524	0.0272
Mercury	-9400-04-13 23:31 J	-1711823.63	-1711823.52	-1711823.41	0.0523	0.0271
Venus	-9398-05-01 07:40 J	-1711076.38	-1711076.18	-1711075.98	0.0507	0.0054
Mars	-9394-01-13 05:16 J	-1709723.51	-1709723.28	-1709723.05	0.0501	0.0237
Mercury	-9394-03-06 14:09 J	-1709671.08	-1709670.91	-1709670.74	0.0501	0.0222
Venus	-9392-02-26 17:16 J	-1708947.88	-1708947.78	-1708947.68	0.0516	0.0446
Venus	-9392-10-22 08:38 J	-1708710.29	-1708710.14	-1708710.00	0.0521	0.0366
Moon	-9391-05-29 16:19 J	-1708490.94	-1708490.82	-1708490.70	0.0525	0.0444
Earth	-9391-05-29 19:40 J	-1708490.81	-1708490.68	-1708490.54	0.0525	0.0418 *
Mercury	-9389-11-02 23:31 J	-1707602.60	-1707602.52	-1707602.44	0.0525	0.0406
Mercury	-9388-01-31 04:19 J	-1707513.44	-1707513.32	-1707513.20	0.0524	0.0140

Venus	-9386-01-04 08:09 J	-1706810.33	-1706810.16	-1706809.98	0.0509	0.0258
Venus	-9386-08-28 16:47 J	-1706573.87	-1706573.80	-1706573.73	0.0504	0.0469
Earth	-9386-11-14 19:55 J	-1706495.84	-1706495.67	-1706495.50	0.0503	0.0342
Moon	-9386-11-15 00:00 J	-1706495.68	-1706495.50	-1706495.32	0.0503	0.0313 *
Mercury	-9383-12-23 10:19 J	-1705361.17	-1705361.07	-1705360.96	0.0501	0.0408
Mercury	-9382-03-23 23:31 J	-1705270.66	-1705270.52	-1705270.38	0.0502	0.0342
Venus	-9380-06-27 00:28 J	-1704444.67	-1704444.48	-1704444.28	0.0520	0.0140
Mercury	-9377-11-19 08:38 J	-1703203.27	-1703203.14	-1703203.02	0.0524	0.0011
Venus	-9375-09-09 06:28 J	-1702544.31	-1702544.23	-1702544.16	0.0510	0.0468
Venus	-9374-05-03 16:19 J	-1702307.99	-1702307.82	-1702307.65	0.0505	0.0268
Moon	-9374-11-19 00:28 J	-1702108.71	-1702108.48	-1702108.24	0.0502	0.0024
Earth	-9374-11-19 04:33 J	-1702108.54	-1702108.31	-1702108.08	0.0502	0.0004 *
Mercury	-9370-01-09 19:55 J	-1700960.84	-1700960.67	-1700960.49	0.0502	0.0157
Venus	-9368-03-01 17:45 J	-1700178.96	-1700178.76	-1700178.56	0.0518	0.0087
Mercury	-9365-09-07 12:57 J	-1698893.08	-1698892.96	-1698892.84	0.0524	0.0138
Mercury	-9365-12-05 17:16 J	-1698803.85	-1698803.78	-1698803.70	0.0522	0.0401
Venus	-9362-01-06 16:33 J	-1698042.01	-1698041.81	-1698041.61	0.0507	0.0064
Earth	-9362-11-23 14:38 J	-1697721.05	-1697720.89	-1697720.72	0.0501	0.0341
Moon	-9362-11-23 17:31 J	-1697720.93	-1697720.77	-1697720.59	0.0501	0.0327 *
Mercury	-9359-10-28 16:19 J	-1696651.00	-1696650.82	-1696650.63	0.0502	0.0031
Venus	-9357-11-04 09:35 J	-1695913.26	-1695913.10	-1695912.93	0.0516	0.0313
Venus	-9356-06-30 01:26 J	-1695675.49	-1695675.44	-1695675.39	0.0521	0.0504
Mercury	-9353-06-26 17:02 J	-1694582.90	-1694582.79	-1694582.69	0.0524	0.0281
Mercury	-9353-09-23 21:35 J	-1694493.71	-1694493.60	-1694493.49	0.0523	0.0261
Venus	-9351-09-11 16:33 J	-1693776.00	-1693775.81	-1693775.61	0.0508	0.0143
Mercury	-9347-08-16 12:28 J	-1692341.15	-1692340.98	-1692340.81	0.0502	0.0217
Venus	-9344-03-04 16:04 J	-1691410.00	-1691409.83	-1691409.65	0.0520	0.0274
Mercury	-9341-04-14 21:35 J	-1690272.68	-1690272.60	-1690272.53	0.0525	0.0417
Mercury	-9341-07-13 02:09 J	-1690183.53	-1690183.41	-1690183.29	0.0524	0.0129
Venus	-9339-05-17 17:16 J	-1689509.92	-1689509.78	-1689509.63	0.0510	0.0347

Venus	-9338-01-09 02:52 J	-1689273.50	-1689273.38	-1689273.25	0.0505	0.0388
Mercury	-9335-06-04 07:40 J	-1688031.28	-1688031.18	-1688031.08	0.0501	0.0417
Mercury	-9335-09-02 20:38 J	-1687940.78	-1687940.64	-1687940.49	0.0502	0.0331
Venus	-9333-11-07 05:02 J	-1687144.49	-1687144.29	-1687144.08	0.0519	0.0040
Earth	-9332-05-18 18:14 J	-1686951.83	-1686951.74	-1686951.64	0.0523	0.0477
Moon	-9332-05-18 19:12 J	-1686951.76	-1686951.70	-1686951.63	0.0523	0.0502 *
Mercury	-9329-05-01 06:43 J	-1685873.34	-1685873.22	-1685873.09	0.0524	0.0015
Venus	-9327-09-14 04:19 J	-1685007.50	-1685007.32	-1685007.13	0.0506	0.0188
Mercury	-9323-06-21 16:47 J	-1683630.98	-1683630.80	-1683630.62	0.0502	0.0142
Venus	-9321-07-12 21:35 J	-1682878.79	-1682878.60	-1682878.40	0.0517	0.0188
Moon	-9320-05-23 16:04 J	-1682564.06	-1682563.83	-1682563.60	0.0524	0.0052
Earth	-9320-05-23 18:57 J	-1682563.94	-1682563.71	-1682563.47	0.0524	0.0071 *
Mercury	-9317-02-18 11:02 J	-1681563.16	-1681563.04	-1681562.92	0.0524	0.0147
Mercury	-9317-05-17 15:35 J	-1681473.93	-1681473.85	-1681473.77	0.0523	0.0394
Venus	-9315-05-20 03:07 J	-1680741.57	-1680741.37	-1680741.17	0.0507	0.0023
Mars	-9312-09-30 00:14 J	-1679512.66	-1679512.49	-1679512.32	0.0499	0.0380
Mercury	-9311-04-09 12:57 J	-1679321.14	-1679320.96	-1679320.77	0.0502	0.0047
Venus	-9309-03-17 15:21 J	-1678612.97	-1678612.86	-1678612.72	0.0516	0.0409
Venus	-9309-11-10 06:57 J	-1678375.33	-1678375.21	-1678375.08	0.0521	0.0409
Earth	-9308-05-28 20:09 J	-1678175.83	-1678175.66	-1678175.48	0.0524	0.0341
Moon	-9308-05-29 00:14 J	-1678175.65	-1678175.49	-1678175.32	0.0524	0.0365 *
Mercury	-9306-12-07 15:21 J	-1677252.96	-1677252.86	-1677252.75	0.0524	0.0285
Mercury	-9305-03-05 20:09 J	-1677163.77	-1677163.66	-1677163.56	0.0523	0.0258
Venus	-9303-01-23 02:24 J	-1676475.58	-1676475.40	-1676475.22	0.0509	0.0231
Venus	-9303-09-16 11:02 J	-1676239.06	-1676239.04	-1676239.01	0.0504	0.0499
Moon	-9303-11-13 14:38 J	-1676181.02	-1676180.89	-1676180.74	0.0503	0.0395
Earth	-9303-11-13 18:43 J	-1676180.84	-1676180.72	-1676180.59	0.0503	0.0420 *
Mercury	-9299-01-26 09:21 J	-1675011.27	-1675011.11	-1675010.94	0.0502	0.0231
Venus	-9297-07-15 21:35 J	-1674109.79	-1674109.60	-1674109.40	0.0519	0.0177
Mars	-9294-07-18 09:21 J	-1673012.38	-1673012.11	-1673011.84	0.0526	0.0172

Mercury	-9294-09-25 19:26 J	-1672942.76	-1672942.69	-1672942.62	0.0525	0.0429
Mercury	-9294-12-24 00:14 J	-1672853.62	-1672853.49	-1672853.37	0.0523	0.0116
Venus	-9292-09-28 01:26 J	-1672209.54	-1672209.44	-1672209.34	0.0510	0.0440
Venus	-9291-05-22 11:45 J	-1671973.17	-1671973.01	-1671972.85	0.0506	0.0301
Earth	-9291-11-18 05:31 J	-1671793.50	-1671793.27	-1671793.04	0.0502	0.0075
Moon	-9291-11-18 08:38 J	-1671793.36	-1671793.14	-1671792.91	0.0502	0.0054 *
Mercury	-9288-11-14 05:31 J	-1670701.37	-1670701.27	-1670701.17	0.0501	0.0418
Mercury	-9287-02-12 18:43 J	-1670610.86	-1670610.72	-1670610.58	0.0502	0.0331
Venus	-9285-03-20 12:57 J	-1669844.17	-1669843.96	-1669843.76	0.0518	0.0056
Mercury	-9282-10-12 04:47 J	-1668543.43	-1668543.30	-1668543.18	0.0524	0.0026
Mercury	-9281-01-09 09:07 J	-1668454.13	-1668454.12	-1668454.11	0.0523	0.0519
Venus	-9279-01-25 13:26 J	-1667707.14	-1667706.94	-1667706.74	0.0507	0.0100
Moon	-9279-11-22 16:33 J	-1667406.02	-1667405.81	-1667405.60	0.0501	0.0253
Earth	-9279-11-22 18:00 J	-1667405.94	-1667405.75	-1667405.55	0.0501	0.0275 *
Mars	-9276-07-04 06:43 J	-1666451.48	-1666451.22	-1666450.95	0.0500	0.0045
Mercury	-9276-12-01 13:55 J	-1666301.10	-1666300.92	-1666300.74	0.0502	0.0130
Venus	-9274-11-24 02:24 J	-1665578.57	-1665578.40	-1665578.22	0.0516	0.0288
Mercury	-9270-07-31 09:07 J	-1664233.24	-1664233.12	-1664233.00	0.0525	0.0157
Mercury	-9270-10-28 13:40 J	-1664144.01	-1664143.93	-1664143.84	0.0523	0.0386
Venus	-9268-09-30 14:09 J	-1663441.11	-1663440.91	-1663440.71	0.0508	0.0106
Mercury	-9264-09-19 09:50 J	-1661991.28	-1661991.09	-1661990.90	0.0501	0.0060
Venus	-9262-07-29 19:40 J	-1661312.71	-1661312.68	-1661312.65	0.0515	0.0508
Venus	-9261-03-23 10:04 J	-1661075.24	-1661075.08	-1661074.91	0.0520	0.0306
Mars	-9258-04-24 19:55 J	-1659947.91	-1659947.67	-1659947.43	0.0525	0.0294
Mercury	-9258-05-19 13:26 J	-1659923.04	-1659922.94	-1659922.83	0.0525	0.0296
Mercury	-9258-08-16 18:00 J	-1659833.86	-1659833.75	-1659833.64	0.0523	0.0248
Venus	-9256-06-05 12:00 J	-1659175.15	-1659175.00	-1659174.84	0.0509	0.0320
Venus	-9255-01-27 21:07 J	-1658938.73	-1658938.62	-1658938.50	0.0505	0.0417
Mercury	-9252-07-08 06:00 J	-1657681.41	-1657681.25	-1657681.09	0.0501	0.0249
Venus	-9250-11-27 02:52 J	-1656809.58	-1656809.38	-1656809.17	0.0519	0.0077

Mercury	-9246-03-07 17:45 J	-1655612.82	-1655612.76	-1655612.69	0.0525	0.0434
Mercury	-9246-06-04 22:33 J	-1655523.68	-1655523.56	-1655523.44	0.0523	0.0111
Venus	-9244-10-02 21:35 J	-1654672.78	-1654672.60	-1654672.42	0.0506	0.0214
Mars	-9240-04-07 12:57 J	-1653390.17	-1653389.96	-1653389.74	0.0501	0.0293
Mercury	-9240-04-26 02:24 J	-1653371.50	-1653371.40	-1653371.31	0.0501	0.0434
Mercury	-9240-07-25 15:21 J	-1653281.00	-1653280.86	-1653280.71	0.0503	0.0317
Venus	-9238-08-01 18:43 J	-1652543.92	-1652543.72	-1652543.52	0.0517	0.0153
Earth	-9237-05-22 16:19 J	-1652249.04	-1652248.82	-1652248.59	0.0523	0.0155
Moon	-9237-05-22 20:09 J	-1652248.89	-1652248.66	-1652248.43	0.0523	0.0128 *
Mercury	-9234-03-24 02:38 J	-1651213.52	-1651213.39	-1651213.27	0.0524	0.0033
Mercury	-9234-06-21 06:57 J	-1651124.23	-1651124.21	-1651124.18	0.0522	0.0505
Venus	-9232-06-07 21:35 J	-1650406.81	-1650406.60	-1650406.40	0.0507	0.0013
Mercury	-9228-05-13 11:31 J	-1648971.20	-1648971.02	-1648970.84	0.0502	0.0126
Venus	-9226-04-06 10:33 J	-1648278.20	-1648278.06	-1648277.92	0.0516	0.0379
Venus	-9226-11-30 01:12 J	-1648040.55	-1648040.45	-1648040.33	0.0521	0.0441
Moon	-9225-05-27 10:19 J	-1647861.27	-1647861.07	-1647860.86	0.0524	0.0266
Earth	-9225-05-27 14:09 J	-1647861.11	-1647860.91	-1647860.70	0.0524	0.0243 *
Mercury	-9222-01-10 06:57 J	-1646903.33	-1646903.21	-1646903.09	0.0524	0.0170
Mercury	-9222-04-09 11:31 J	-1646814.10	-1646814.02	-1646813.93	0.0523	0.0372
Venus	-9220-02-10 22:19 J	-1646140.75	-1646140.57	-1646140.38	0.0509	0.0199
Earth	-9220-11-12 20:38 J	-1645865.68	-1645865.64	-1645865.57	0.0504	0.0489
Moon	-9220-11-13 00:14 J	-1645865.58	-1645865.49	-1645865.40	0.0504	0.0461 *
Mercury	-9216-03-01 06:57 J	-1644661.40	-1644661.21	-1644661.02	0.0501	0.0072
Venus	-9214-08-04 14:24 J	-1643775.09	-1643774.90	-1643774.71	0.0519	0.0203
Mercury	-9211-10-29 11:16 J	-1642593.13	-1642593.03	-1642592.92	0.0525	0.0309
Mercury	-9210-01-26 16:04 J	-1642503.94	-1642503.83	-1642503.72	0.0524	0.0236
Venus	-9209-10-16 22:19 J	-1641874.69	-1641874.57	-1641874.45	0.0510	0.0408
Venus	-9208-06-10 08:38 J	-1641638.29	-1641638.14	-1641637.99	0.0505	0.0337
Moon	-9208-11-17 06:43 J	-1641478.45	-1641478.22	-1641477.98	0.0503	0.0127
Earth	-9208-11-17 08:24 J	-1641478.37	-1641478.15	-1641477.92	0.0503	0.0141 *

Mercury	-9205-12-18 02:52 J	-1640351.54	-1640351.38	-1640351.22	0.0501	0.0261
Mercury	-9204-03-18 16:04 J	-1640260.86	-1640260.83	-1640260.79	0.0502	0.0490
Venus	-9202-04-09 06:28 J	-1639509.43	-1639509.23	-1639509.02	0.0518	0.0027
Mercury	-9199-08-17 15:50 J	-1638282.91	-1638282.84	-1638282.78	0.0525	0.0447
Mercury	-9199-11-14 20:24 J	-1638193.77	-1638193.65	-1638193.52	0.0524	0.0099
Venus	-9196-02-13 07:26 J	-1637372.39	-1637372.19	-1637372.00	0.0506	0.0126
Earth	-9196-11-21 15:21 J	-1637091.07	-1637090.86	-1637090.64	0.0502	0.0194
Moon	-9196-11-21 15:21 J	-1637091.07	-1637090.86	-1637090.65	0.0502	0.0168 *
Mercury	-9193-10-05 22:47 J	-1636041.63	-1636041.55	-1636041.47	0.0501	0.0451
Mercury	-9192-01-04 12:00 J	-1635951.15	-1635951.00	-1635950.85	0.0502	0.0298
Venus	-9191-12-13 00:00 J	-1635243.68	-1635243.50	-1635243.32	0.0517	0.0253
Mercury	-9187-09-03 00:57 J	-1633883.58	-1633883.46	-1633883.33	0.0524	0.0038
Mercury	-9187-12-01 05:16 J	-1633794.31	-1633794.28	-1633794.24	0.0522	0.0501
Venus	-9185-10-19 07:12 J	-1633106.40	-1633106.20	-1633106.00	0.0508	0.0082
Mercury	-9181-10-23 08:09 J	-1631641.34	-1631641.16	-1631640.97	0.0502	0.0112
Venus	-9179-08-17 16:47 J	-1630977.87	-1630977.80	-1630977.71	0.0515	0.0476
Venus	-9178-04-12 07:12 J	-1630740.35	-1630740.20	-1630740.04	0.0520	0.0343
Mercury	-9175-06-22 05:02 J	-1629573.41	-1629573.29	-1629573.17	0.0524	0.0181
Mercury	-9175-09-19 09:35 J	-1629484.19	-1629484.10	-1629484.01	0.0523	0.0359
Venus	-9173-06-24 06:14 J	-1628840.40	-1628840.24	-1628840.07	0.0509	0.0294
Venus	-9172-02-15 15:50 J	-1628603.93	-1628603.84	-1628603.75	0.0505	0.0447
Mercury	-9169-08-11 04:19 J	-1627331.50	-1627331.32	-1627331.13	0.0502	0.0078
Venus	-9167-12-15 22:04 J	-1626474.78	-1626474.58	-1626474.38	0.0519	0.0109
Mercury	-9163-04-10 09:21 J	-1625263.21	-1625263.11	-1625263.01	0.0525	0.0320
Mercury	-9163-07-08 14:09 J	-1625174.03	-1625173.91	-1625173.80	0.0523	0.0225
Venus	-9161-02-28 06:14 J	-1624574.27	-1624574.24	-1624574.20	0.0511	0.0502
Venus	-9161-10-21 17:31 J	-1624337.94	-1624337.77	-1624337.59	0.0506	0.0249
Mars	-9158-12-24 03:50 J	-1623179.53	-1623179.34	-1623179.14	0.0499	0.0333
Mercury	-9157-05-30 00:14 J	-1623021.65	-1623021.49	-1623021.33	0.0501	0.0270
Mercury	-9157-08-28 13:26 J	-1622930.99	-1622930.94	-1622930.89	0.0502	0.0480



Venus	-9155-08-20 12:00 J	-1622209.20	-1622209.00	-1622208.80	0.0517	0.0127
Moon	-9154-05-22 04:33 J	-1621934.52	-1621934.31	-1621934.10	0.0523	0.0231
Earth	-9154-05-22 08:24 J	-1621934.35	-1621934.15	-1621933.94	0.0523	0.0258 *
Mercury	-9151-01-27 13:40 J	-1620952.99	-1620952.93	-1620952.87	0.0525	0.0460
Mercury	-9151-04-26 18:28 J	-1620863.85	-1620863.73	-1620863.60	0.0524	0.0088
Venus	-9149-06-26 18:28 J	-1620071.93	-1620071.73	-1620071.53	0.0507	0.0042
Mercury	-9145-03-17 20:24 J	-1618711.73	-1618711.65	-1618711.58	0.0501	0.0457
Mercury	-9145-06-16 09:21 J	-1618621.26	-1618621.11	-1618620.96	0.0502	0.0289
Venus	-9143-04-25 04:47 J	-1617943.45	-1617943.30	-1617943.15	0.0516	0.0353
Venus	-9143-12-18 19:55 J	-1617705.75	-1617705.67	-1617705.58	0.0521	0.0472
Earth	-9142-05-27 08:52 J	-1617546.35	-1617546.13	-1617545.90	0.0524	0.0148
Moon	-9142-05-27 12:14 J	-1617546.20	-1617545.99	-1617545.77	0.0524	0.0172 *
Mars	-9140-10-10 07:55 J	-1616679.45	-1616679.17	-1616678.89	0.0526	0.0121
Mercury	-9139-02-12 23:02 J	-1616553.67	-1616553.54	-1616553.42	0.0524	0.0050
Mercury	-9139-05-13 03:21 J	-1616464.40	-1616464.36	-1616464.31	0.0522	0.0490
Venus	-9137-03-01 16:47 J	-1615805.99	-1615805.80	-1615805.61	0.0509	0.0173
Mercury	-9133-04-04 05:02 J	-1614311.48	-1614311.29	-1614311.11	0.0502	0.0095
Venus	-9131-08-23 12:43 J	-1613440.15	-1613439.97	-1613439.79	0.0520	0.0243
Mercury	-9128-12-02 03:35 J	-1612243.47	-1612243.35	-1612243.23	0.0524	0.0184
Mercury	-9127-03-01 08:09 J	-1612154.25	-1612154.16	-1612154.07	0.0523	0.0357
Venus	-9126-11-05 16:04 J	-1611539.95	-1611539.83	-1611539.69	0.0510	0.0384
Venus	-9125-06-29 01:55 J	-1611303.55	-1611303.42	-1611303.27	0.0505	0.0363
Earth	-9125-11-16 05:31 J	-1611163.48	-1611163.27	-1611163.06	0.0503	0.0222
Moon	-9125-11-16 05:31 J	-1611163.47	-1611163.27	-1611163.07	0.0503	0.0216 *
Mars	-9122-09-27 10:33 J	-1610118.33	-1610118.06	-1610117.80	0.0500	0.0006
Mercury	-9121-01-22 01:26 J	-1610001.63	-1610001.44	-1610001.26	0.0502	0.0091
Venus	-9119-04-28 04:47 J	-1609174.51	-1609174.30	-1609174.10	0.0518	0.0014
Mercury	-9116-09-20 07:40 J	-1607933.28	-1607933.18	-1607933.08	0.0524	0.0327
Mercury	-9116-12-18 12:14 J	-1607844.10	-1607843.99	-1607843.88	0.0523	0.0216
Venus	-9113-03-04 02:24 J	-1607037.59	-1607037.40	-1607037.21	0.0507	0.0158

Earth	-9113-11-20 16:04 J	-1606776.05	-1606775.83	-1606775.60	0.0502	0.0122
Moon	-9113-11-20 17:45 J	-1606776.00	-1606775.76	-1606775.53	0.0502	0.0093 *
Mercury	-9110-11-09 21:50 J	-1605691.75	-1605691.59	-1605691.44	0.0501	0.0276
Mercury	-9109-02-08 11:02 J	-1605601.10	-1605601.04	-1605600.98	0.0503	0.0477
Venus	-9108-12-31 20:38 J	-1604908.83	-1604908.64	-1604908.46	0.0516	0.0218
Mercury	-9104-07-09 12:00 J	-1603623.06	-1603623.00	-1603622.95	0.0525	0.0466
Mars	-9104-07-17 14:52 J	-1603615.09	-1603614.88	-1603614.67	0.0525	0.0351
Mercury	-9104-10-06 16:33 J	-1603533.93	-1603533.81	-1603533.68	0.0524	0.0082
Venus	-9102-11-08 03:21 J	-1602771.56	-1602771.36	-1602771.15	0.0508	0.0050
Moon	-9101-11-25 02:24 J	-1602388.49	-1602388.40	-1602388.30	0.0501	0.0451
Earth	-9101-11-25 04:47 J	-1602388.37	-1602388.30	-1602388.21	0.0501	0.0470 *
Mercury	-9098-08-28 18:00 J	-1601381.82	-1601381.75	-1601381.69	0.0501	0.0463
Mercury	-9098-11-27 06:57 J	-1601291.37	-1601291.21	-1601291.06	0.0502	0.0283
Venus	-9096-09-05 11:45 J	-1600643.11	-1600643.01	-1600642.91	0.0515	0.0448
Venus	-9095-05-01 01:26 J	-1600405.57	-1600405.44	-1600405.29	0.0520	0.0374
Mercury	-9092-07-25 21:07 J	-1599223.75	-1599223.62	-1599223.50	0.0524	0.0058
Mercury	-9092-10-23 01:40 J	-1599134.48	-1599134.43	-1599134.39	0.0523	0.0482
Venus	-9090-07-14 03:50 J	-1598505.51	-1598505.34	-1598505.16	0.0510	0.0259
Venus	-9089-03-06 13:26 J	-1598268.99	-1598268.94	-1598268.88	0.0505	0.0485
Mars	-9086-07-01 18:57 J	-1597056.89	-1597056.71	-1597056.51	0.0501	0.0345
Mercury	-9086-09-15 02:52 J	-1596981.56	-1596981.38	-1596981.19	0.0502	0.0095
Venus	-9083-01-03 17:45 J	-1596139.96	-1596139.76	-1596139.56	0.0519	0.0142
Mercury	-9080-05-14 01:40 J	-1594913.55	-1594913.43	-1594913.31	0.0524	0.0193
Mercury	-9080-08-11 06:14 J	-1594824.33	-1594824.24	-1594824.15	0.0523	0.0348
Venus	-9078-03-19 01:55 J	-1594239.49	-1594239.42	-1594239.34	0.0511	0.0475
Venus	-9078-11-10 12:43 J	-1594003.14	-1594002.97	-1594002.80	0.0506	0.0277
Mercury	-9074-07-03 22:19 J	-1592671.75	-1592671.57	-1592671.38	0.0502	0.0103
Venus	-9072-09-08 11:02 J	-1591874.24	-1591874.04	-1591873.83	0.0518	0.0087
Earth	-9071-05-21 11:31 J	-1591619.20	-1591619.02	-1591618.83	0.0523	0.0320
Moon	-9071-05-21 15:07 J	-1591619.05	-1591618.87	-1591618.67	0.0523	0.0290 *

Mercury	-9068-03-02 06:14 J	-1590603.33	-1590603.24	-1590603.14	0.0524	0.0326
Mercury	-9068-05-30 10:47 J	-1590514.16	-1590514.05	-1590513.93	0.0523	0.0218
Venus	-9066-07-16 13:26 J	-1589737.14	-1589736.94	-1589736.74	0.0507	0.0071
Mercury	-9062-04-21 18:57 J	-1588361.86	-1588361.71	-1588361.55	0.0502	0.0285
Mercury	-9062-07-21 08:24 J	-1588271.22	-1588271.15	-1588271.09	0.0503	0.0468
Venus	-9060-05-14 04:04 J	-1587608.49	-1587608.33	-1587608.16	0.0516	0.0313
Venus	-9059-01-06 19:26 J	-1587370.71	-1587370.69	-1587370.66	0.0521	0.0517
Moon	-9059-05-26 09:21 J	-1587231.34	-1587231.11	-1587230.87	0.0523	0.0102
Earth	-9059-05-26 11:45 J	-1587231.24	-1587231.01	-1587230.78	0.0523	0.0082 *
Mercury	-9057-12-19 10:19 J	-1586293.12	-1586293.07	-1586293.01	0.0525	0.0468
Mercury	-9056-03-18 15:07 J	-1586203.99	-1586203.87	-1586203.74	0.0523	0.0077
Venus	-9054-03-21 12:57 J	-1585471.15	-1585470.96	-1585470.76	0.0509	0.0140
Mercury	-9050-02-07 15:35 J	-1584051.91	-1584051.85	-1584051.78	0.0501	0.0466
Mercury	-9050-05-09 04:47 J	-1583961.46	-1583961.30	-1583961.15	0.0502	0.0283
Venus	-9048-09-11 10:33 J	-1583105.23	-1583105.06	-1583104.88	0.0519	0.0284
Moon	-9047-05-31 10:04 J	-1582843.18	-1582843.08	-1582842.97	0.0524	0.0457
Earth	-9047-05-31 10:19 J	-1582843.16	-1582843.07	-1582842.98	0.0524	0.0481 *
Mercury	-9044-01-04 19:40 J	-1581893.81	-1581893.68	-1581893.56	0.0524	0.0061
Mercury	-9044-04-04 00:00 J	-1581804.54	-1581804.50	-1581804.45	0.0522	0.0479
Venus	-9043-11-24 13:12 J	-1581205.09	-1581204.95	-1581204.80	0.0510	0.0350
Venus	-9042-07-18 23:45 J	-1580968.63	-1580968.51	-1580968.39	0.0506	0.0401
Earth	-9042-11-16 09:50 J	-1580848.27	-1580848.09	-1580847.89	0.0503	0.0282
Moon	-9042-11-16 11:31 J	-1580848.22	-1580848.02	-1580847.82	0.0503	0.0278 *
Mercury	-9038-02-25 00:57 J	-1579651.65	-1579651.46	-1579651.28	0.0502	0.0093
Venus	-9036-05-17 00:57 J	-1578839.66	-1578839.46	-1578839.25	0.0518	0.0047
Mercury	-9033-10-24 00:00 J	-1577583.62	-1577583.50	-1577583.38	0.0525	0.0198
Mercury	-9032-01-21 04:33 J	-1577494.40	-1577494.31	-1577494.21	0.0523	0.0344
Venus	-9030-03-24 01:12 J	-1576702.63	-1576702.45	-1576702.26	0.0507	0.0197
Moon	-9030-11-20 19:55 J	-1576460.90	-1576460.67	-1576460.44	0.0502	0.0039
Earth	-9030-11-20 22:33 J	-1576460.79	-1576460.56	-1576460.33	0.0502	0.0069 *

Mercury	-9027-12-13 21:07 J	-1575341.80	-1575341.62	-1575341.43	0.0501	0.0094
Venus	-9024-01-19 18:00 J	-1574573.94	-1574573.75	-1574573.56	0.0517	0.0183
Mars	-9021-03-28 14:24 J	-1573409.98	-1573409.90	-1573409.82	0.0526	0.0503
Mercury	-9021-08-12 04:33 J	-1573273.40	-1573273.31	-1573273.21	0.0525	0.0331
Mercury	-9021-11-09 09:21 J	-1573184.23	-1573184.11	-1573184.00	0.0523	0.0213
Venus	-9019-11-27 00:28 J	-1572436.69	-1572436.48	-1572436.28	0.0508	0.0019
Earth	-9018-11-25 06:14 J	-1572073.38	-1572073.24	-1572073.10	0.0501	0.0402
Moon	-9018-11-25 09:50 J	-1572073.24	-1572073.09	-1572072.94	0.0501	0.0389 *
Mercury	-9015-10-01 16:33 J	-1571031.96	-1571031.81	-1571031.66	0.0502	0.0291
Mercury	-9015-12-31 05:45 J	-1570941.33	-1570941.26	-1570941.18	0.0503	0.0462
Venus	-9013-09-24 11:31 J	-1570308.14	-1570308.02	-1570307.89	0.0516	0.0408
Venus	-9012-05-20 02:24 J	-1570070.51	-1570070.40	-1570070.28	0.0521	0.0421
Mercury	-9009-05-31 09:21 J	-1568963.16	-1568963.11	-1568963.05	0.0525	0.0462
Mercury	-9009-08-28 14:09 J	-1568874.04	-1568873.91	-1568873.79	0.0523	0.0083
Venus	-9007-08-02 00:43 J	-1568170.65	-1568170.47	-1568170.29	0.0509	0.0226
Mars	-9003-03-18 14:09 J	-1566846.13	-1566845.91	-1566845.68	0.0500	0.0270
Mercury	-9003-07-20 13:12 J	-1566722.01	-1566721.95	-1566721.89	0.0501	0.0471
Mercury	-9003-10-19 02:24 J	-1566631.56	-1566631.40	-1566631.24	0.0503	0.0278

# 9TH MILLENNIUM BCE

This is a list of transits visible from Jupiter in the 9th millennium BCE.

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Venus	-9000-01-22 18:57 J	-1565804.90	-1565804.71	-1565804.52	0.0519	0.0191		

Mercury	-8997-06-16 18:28 J	-1564563.86	-1564563.73	-1564563.61	0.0524	0.0057
Mercury	-8997-09-13 22:47 J	-1564474.59	-1564474.55	-1564474.50	0.0522	0.0481
Venus	-8995-04-06 23:45 J	-1563904.61	-1563904.51	-1563904.40	0.0511	0.0439
Venus	-8995-11-29 10:33 J	-1563668.22	-1563668.06	-1563667.90	0.0506	0.0316
Mercury	-8991-08-06 23:02 J	-1562321.73	-1562321.54	-1562321.35	0.0502	0.0096
Venus	-8989-09-27 11:02 J	-1561539.24	-1561539.04	-1561538.83	0.0518	0.0043
Moon	-8988-05-20 11:45 J	-1561304.18	-1561304.01	-1561303.82	0.0522	0.0355
Earth	-8988-05-20 14:38 J	-1561304.04	-1561303.89	-1561303.73	0.0522	0.0383 *
Mars	-8985-01-04 00:00 J	-1560345.78	-1560345.50	-1560345.21	0.0525	0.0029
Mercury	-8985-04-04 22:47 J	-1560253.67	-1560253.55	-1560253.43	0.0524	0.0193
Mercury	-8985-07-03 03:21 J	-1560164.45	-1560164.36	-1560164.27	0.0523	0.0347
Venus	-8983-08-04 12:00 J	-1559402.19	-1559402.00	-1559401.80	0.0507	0.0112
Mercury	-8979-05-25 19:26 J	-1558011.87	-1558011.69	-1558011.50	0.0502	0.0089
Venus	-8977-06-02 02:38 J	-1557273.56	-1557273.39	-1557273.21	0.0516	0.0275
Earth	-8976-05-25 12:00 J	-1556916.23	-1556916.00	-1556915.76	0.0523	0.0011
Moon	-8976-05-25 12:28 J	-1556916.20	-1556915.98	-1556915.75	0.0523	0.0022 *
Mercury	-8973-01-23 03:07 J	-1555943.46	-1555943.37	-1555943.27	0.0525	0.0332
Mercury	-8973-04-21 07:55 J	-1555854.29	-1555854.17	-1555854.06	0.0523	0.0213
Venus	-8971-04-09 13:12 J	-1555136.15	-1555135.95	-1555135.76	0.0509	0.0098
Mars	-8968-12-21 08:24 J	-1553784.41	-1553784.15	-1553783.89	0.0500	0.0085
Mercury	-8967-03-13 15:50 J	-1553702.00	-1553701.84	-1553701.68	0.0501	0.0274
Mercury	-8967-06-12 05:02 J	-1553611.34	-1553611.29	-1553611.23	0.0502	0.0477
Venus	-8965-02-05 20:24 J	-1553007.69	-1553007.65	-1553007.60	0.0515	0.0497
Venus	-8965-09-30 09:50 J	-1552770.24	-1552770.09	-1552769.92	0.0520	0.0327
Earth	-8964-05-30 13:12 J	-1552528.09	-1552527.95	-1552527.81	0.0524	0.0415
Moon	-8964-05-30 15:21 J	-1552528.02	-1552527.86	-1552527.70	0.0524	0.0385 *
Mercury	-8962-11-11 07:55 J	-1551633.23	-1551633.17	-1551633.11	0.0525	0.0462
Mercury	-8961-02-08 12:43 J	-1551544.09	-1551543.97	-1551543.85	0.0524	0.0083
Venus	-8960-12-13 12:14 J	-1550870.14	-1550869.99	-1550869.83	0.0510	0.0312
Venus	-8959-08-06 21:50 J	-1550633.68	-1550633.59	-1550633.49	0.0505	0.0439

Moon	-8959-11-15 12:00 J	-1550533.16	-1550533.00	-1550532.83	0.0503	0.0337
Earth	-8959-11-15 14:38 J	-1550533.06	-1550532.89	-1550532.71	0.0503	0.0336 *
Mercury	-8956-12-30 11:02 J	-1549392.09	-1549392.04	-1549391.97	0.0501	0.0471
Mercury	-8955-03-31 00:14 J	-1549301.64	-1549301.49	-1549301.33	0.0503	0.0278
Venus	-8953-06-05 02:38 J	-1548504.59	-1548504.39	-1548504.18	0.0519	0.0095
Mars	-8950-10-11 23:31 J	-1547280.64	-1547280.52	-1547280.38	0.0524	0.0467
Mercury	-8950-11-27 17:31 J	-1547233.89	-1547233.77	-1547233.64	0.0524	0.0046
Mercury	-8949-02-24 22:04 J	-1547144.62	-1547144.58	-1547144.54	0.0522	0.0492
Venus	-8947-04-11 23:31 J	-1546367.70	-1546367.52	-1546367.34	0.0506	0.0235
Earth	-8947-11-20 02:24 J	-1546145.63	-1546145.40	-1546145.16	0.0502	0.0015
Moon	-8947-11-20 06:00 J	-1546145.48	-1546145.25	-1546145.01	0.0502	0.0020 *
Mercury	-8943-01-16 21:07 J	-1544991.81	-1544991.62	-1544991.44	0.0502	0.0097
Venus	-8941-02-08 20:09 J	-1544238.85	-1544238.66	-1544238.46	0.0517	0.0133
Mercury	-8938-09-15 21:50 J	-1542923.70	-1542923.59	-1542923.47	0.0524	0.0184
Mercury	-8938-12-14 02:24 J	-1542834.49	-1542834.40	-1542834.31	0.0522	0.0356
Venus	-8936-12-15 23:45 J	-1542101.71	-1542101.51	-1542101.30	0.0508	0.0030
Moon	-8935-11-24 10:04 J	-1541758.24	-1541758.08	-1541757.90	0.0502	0.0347
Earth	-8935-11-24 13:55 J	-1541758.08	-1541757.92	-1541757.75	0.0502	0.0353 *
Mars	-8932-09-24 18:28 J	-1540722.85	-1540722.73	-1540722.59	0.0501	0.0431
Mercury	-8932-11-04 18:00 J	-1540681.94	-1540681.75	-1540681.57	0.0502	0.0084
Venus	-8930-10-14 13:26 J	-1539973.08	-1539972.94	-1539972.79	0.0516	0.0360
Venus	-8929-06-08 04:19 J	-1539735.40	-1539735.32	-1539735.24	0.0520	0.0472
Mercury	-8926-07-05 02:24 J	-1538613.50	-1538613.40	-1538613.30	0.0524	0.0320
Mercury	-8926-10-02 06:57 J	-1538524.32	-1538524.21	-1538524.10	0.0523	0.0222
Venus	-8924-08-21 00:43 J	-1537835.66	-1537835.47	-1537835.28	0.0509	0.0183
Mercury	-8920-08-23 14:38 J	-1536372.05	-1536371.89	-1536371.73	0.0501	0.0265
Mercury	-8920-11-22 03:50 J	-1536281.38	-1536281.34	-1536281.29	0.0503	0.0487
Venus	-8917-02-11 19:12 J	-1535469.88	-1535469.70	-1535469.52	0.0519	0.0236
Mercury	-8914-04-23 06:43 J	-1534303.28	-1534303.22	-1534303.16	0.0525	0.0459
Mercury	-8914-07-21 11:31 J	-1534214.14	-1534214.02	-1534213.90	0.0524	0.0087

Venus	-8912-04-26 00:57 J	-1533569.58	-1533569.46	-1533569.33	0.0511	0.0395
Venus	-8912-12-18 12:00 J	-1533333.14	-1533333.00	-1533332.86	0.0506	0.0363
Mercury	-8908-06-11 11:02 J	-1532062.12	-1532062.04	-1532061.95	0.0501	0.0447
Mercury	-8908-09-10 00:14 J	-1531971.64	-1531971.49	-1531971.34	0.0502	0.0301
Venus	-8906-10-17 12:00 J	-1531204.21	-1531204.00	-1531203.80	0.0518	0.0006
Earth	-8905-05-19 20:09 J	-1530988.79	-1530988.66	-1530988.53	0.0522	0.0437
Moon	-8905-05-19 21:07 J	-1530988.76	-1530988.62	-1530988.48	0.0522	0.0409 *
Mercury	-8902-05-09 16:19 J	-1529903.94	-1529903.82	-1529903.69	0.0524	0.0044
Mercury	-8902-08-06 20:52 J	-1529814.67	-1529814.63	-1529814.59	0.0522	0.0496
Venus	-8900-08-23 12:28 J	-1529067.17	-1529066.98	-1529066.79	0.0507	0.0155
Mercury	-8896-06-28 19:26 J	-1527661.88	-1527661.69	-1527661.51	0.0502	0.0101
Venus	-8894-06-22 04:47 J	-1526938.48	-1526938.30	-1526938.11	0.0517	0.0226
Earth	-8893-05-24 22:19 J	-1526600.81	-1526600.57	-1526600.34	0.0524	0.0031
Moon	-8893-05-25 00:00 J	-1526600.74	-1526600.50	-1526600.25	0.0524	0.0030 *
Mercury	-8890-02-25 21:21 J	-1525593.73	-1525593.61	-1525593.49	0.0524	0.0169
Mercury	-8890-05-26 01:55 J	-1525504.51	-1525504.42	-1525504.34	0.0522	0.0371
Venus	-8888-04-28 13:40 J	-1524801.13	-1524800.93	-1524800.73	0.0508	0.0053
Mercury	-8884-04-16 16:04 J	-1523352.01	-1523351.83	-1523351.64	0.0502	0.0081
Venus	-8882-02-24 23:16 J	-1522672.62	-1522672.53	-1522672.43	0.0515	0.0448
Venus	-8882-10-20 13:55 J	-1522435.06	-1522434.92	-1522434.78	0.0520	0.0384
Moon	-8881-05-29 20:52 J	-1522212.80	-1522212.63	-1522212.46	0.0524	0.0342
Earth	-8881-05-30 00:14 J	-1522212.65	-1522212.49	-1522212.32	0.0524	0.0377 *
Mercury	-8879-12-15 01:40 J	-1521283.53	-1521283.43	-1521283.33	0.0524	0.0306
Mercury	-8878-03-14 06:14 J	-1521194.35	-1521194.24	-1521194.12	0.0523	0.0236
Venus	-8876-01-01 13:26 J	-1520535.11	-1520534.94	-1520534.77	0.0509	0.0265
Venus	-8876-08-25 22:47 J	-1520298.59	-1520298.55	-1520298.49	0.0505	0.0486
Earth	-8876-11-15 00:28 J	-1520217.63	-1520217.48	-1520217.33	0.0503	0.0377
Moon	-8876-11-15 04:04 J	-1520217.48	-1520217.33	-1520217.18	0.0503	0.0383 *
Mercury	-8872-02-02 13:12 J	-1519042.11	-1519041.95	-1519041.79	0.0502	0.0257
Mercury	-8872-05-04 02:38 J	-1518951.41	-1518951.39	-1518951.36	0.0503	0.0497

Venus	-8870-06-25 06:14 J	-1518169.44	-1518169.24	-1518169.04	0.0519	0.0151
Mars	-8867-06-23 10:04 J	-1517075.28	-1517075.08	-1517074.87	0.0526	0.0364
Mercury	-8867-10-03 06:14 J	-1516973.31	-1516973.24	-1516973.18	0.0525	0.0443
Mercury	-8867-12-31 10:47 J	-1516884.17	-1516884.05	-1516883.92	0.0523	0.0102
Venus	-8865-09-06 13:26 J	-1516269.00	-1516268.94	-1516268.87	0.0511	0.0477
Venus	-8864-05-01 00:43 J	-1516032.63	-1516032.47	-1516032.30	0.0506	0.0284
Moon	-8864-11-19 09:50 J	-1515830.32	-1515830.09	-1515829.85	0.0503	0.0059
Earth	-8864-11-19 13:40 J	-1515830.16	-1515829.93	-1515829.70	0.0503	0.0028 *
Mercury	-8861-11-21 10:04 J	-1514732.17	-1514732.08	-1514731.98	0.0501	0.0435
Mercury	-8860-02-19 23:16 J	-1514641.67	-1514641.53	-1514641.38	0.0502	0.0314
Venus	-8858-02-27 22:19 J	-1513903.78	-1513903.57	-1513903.37	0.0517	0.0084
Mercury	-8855-10-19 15:21 J	-1512573.99	-1512573.86	-1512573.73	0.0524	0.0035
Mercury	-8854-01-16 19:40 J	-1512484.70	-1512484.68	-1512484.64	0.0522	0.0504
Venus	-8852-01-04 02:24 J	-1511766.60	-1511766.40	-1511766.20	0.0508	0.0077
Earth	-8852-11-24 02:24 J	-1511442.57	-1511442.40	-1511442.21	0.0502	0.0322
Moon	-8852-11-24 05:16 J	-1511442.44	-1511442.28	-1511442.10	0.0502	0.0329 *
Mars	-8849-06-12 05:02 J	-1510511.54	-1510511.29	-1510511.04	0.0500	0.0160
Mercury	-8849-12-08 19:40 J	-1510331.86	-1510331.68	-1510331.49	0.0502	0.0130
Venus	-8847-11-02 15:35 J	-1509638.01	-1509637.85	-1509637.69	0.0516	0.0312
Mercury	-8843-08-07 20:09 J	-1508263.77	-1508263.66	-1508263.54	0.0524	0.0163
Mercury	-8843-11-05 00:43 J	-1508174.55	-1508174.47	-1508174.38	0.0523	0.0379
Venus	-8841-09-09 02:52 J	-1507500.57	-1507500.38	-1507500.18	0.0508	0.0134
Mercury	-8837-09-26 14:52 J	-1506022.07	-1506021.88	-1506021.69	0.0502	0.0071
Venus	-8834-03-02 22:33 J	-1505134.72	-1505134.56	-1505134.38	0.0520	0.0293
Mars	-8831-03-31 09:21 J	-1504010.38	-1504010.11	-1504009.83	0.0525	0.0133
Mercury	-8831-05-27 01:12 J	-1503953.55	-1503953.45	-1503953.34	0.0524	0.0289
Mercury	-8831-08-24 05:45 J	-1503864.37	-1503864.26	-1503864.15	0.0523	0.0254
Venus	-8829-05-15 03:50 J	-1503234.49	-1503234.34	-1503234.19	0.0510	0.0344
Venus	-8828-01-06 13:26 J	-1502998.05	-1502997.94	-1502997.82	0.0505	0.0411
Mercury	-8825-07-15 11:45 J	-1501712.17	-1501712.01	-1501711.85	0.0502	0.0250



Venus	-8823-11-05 16:04 J	-1500869.03	-1500868.83	-1500868.62	0.0519	0.0063
Earth	-8822-05-20 07:55 J	-1500673.26	-1500673.17	-1500673.06	0.0522	0.0473
Moon	-8822-05-20 09:21 J	-1500673.23	-1500673.11	-1500672.97	0.0522	0.0442 *
Mercury	-8819-03-15 05:45 J	-1499643.33	-1499643.26	-1499643.19	0.0524	0.0426
Mercury	-8819-06-12 10:19 J	-1499554.19	-1499554.07	-1499553.95	0.0523	0.0118
Venus	-8817-09-11 14:24 J	-1498732.08	-1498731.90	-1498731.71	0.0506	0.0206
Mars	-8813-03-16 18:14 J	-1497449.97	-1497449.74	-1497449.49	0.0501	0.0192
Mercury	-8813-05-03 08:52 J	-1497402.22	-1497402.13	-1497402.03	0.0502	0.0425
Mercury	-8813-08-01 22:04 J	-1497311.72	-1497311.58	-1497311.43	0.0503	0.0326
Venus	-8811-07-11 09:35 J	-1496603.30	-1496603.10	-1496602.91	0.0517	0.0168
Moon	-8810-05-25 06:00 J	-1496285.47	-1496285.25	-1496285.02	0.0523	0.0077
Earth	-8810-05-25 09:21 J	-1496285.34	-1496285.11	-1496284.88	0.0523	0.0069 *
Mercury	-8807-03-31 14:52 J	-1495244.00	-1495243.88	-1495243.75	0.0523	0.0017
Mercury	-8807-06-28 19:12 J	-1495154.70	-1495154.70	-1495154.69	0.0522	0.0520
Venus	-8805-05-17 15:35 J	-1494466.05	-1494465.85	-1494465.65	0.0508	0.0003
Mercury	-8801-05-20 18:57 J	-1493001.89	-1493001.71	-1493001.53	0.0502	0.0145
Venus	-8799-03-16 02:38 J	-1492337.52	-1492337.39	-1492337.26	0.0515	0.0397
Venus	-8799-11-08 16:47 J	-1492099.91	-1492099.80	-1492099.69	0.0520	0.0438
Earth	-8798-05-30 08:09 J	-1491897.34	-1491897.16	-1491896.98	0.0524	0.0328
Moon	-8798-05-30 12:14 J	-1491897.18	-1491896.99	-1491896.79	0.0524	0.0295 *
Mercury	-8795-01-17 19:26 J	-1490933.81	-1490933.69	-1490933.57	0.0524	0.0154
Mercury	-8795-04-17 00:00 J	-1490844.59	-1490844.50	-1490844.42	0.0523	0.0387
Venus	-8793-01-21 16:33 J	-1490199.99	-1490199.81	-1490199.63	0.0509	0.0215
Moon	-8793-11-14 10:33 J	-1489902.18	-1489902.06	-1489901.93	0.0504	0.0420
Earth	-8793-11-14 14:09 J	-1489902.04	-1489901.91	-1489901.76	0.0504	0.0405 *
Mercury	-8789-03-08 15:35 J	-1488692.04	-1488691.85	-1488691.66	0.0502	0.0039
Venus	-8787-07-14 09:07 J	-1487834.31	-1487834.12	-1487833.93	0.0519	0.0205
Mercury	-8784-11-06 00:14 J	-1486623.59	-1486623.49	-1486623.38	0.0524	0.0281
Mercury	-8783-02-03 04:47 J	-1486534.40	-1486534.30	-1486534.19	0.0523	0.0263
Venus	-8782-09-26 17:02 J	-1485933.90	-1485933.79	-1485933.68	0.0510	0.0425

Venus	-8781-05-20 03:35 J	-1485697.50	-1485697.35	-1485697.20	0.0505	0.0336
Earth	-8781-11-19 01:12 J	-1485514.68	-1485514.45	-1485514.21	0.0502	0.0063
Moon	-8781-11-19 04:04 J	-1485514.56	-1485514.33	-1485514.11	0.0502	0.0089 *
Mercury	-8778-12-26 10:33 J	-1484382.22	-1484382.06	-1484381.89	0.0502	0.0239
Venus	-8775-03-19 01:12 J	-1483568.65	-1483568.45	-1483568.24	0.0518	0.0030
Mercury	-8772-08-25 05:16 J	-1482313.36	-1482313.28	-1482313.20	0.0525	0.0407
Mercury	-8772-11-22 10:04 J	-1482224.20	-1482224.08	-1482223.96	0.0523	0.0138
Venus	-8769-01-24 05:31 J	-1481431.47	-1481431.27	-1481431.08	0.0507	0.0130
Moon	-8769-11-23 12:00 J	-1481127.19	-1481127.00	-1481126.80	0.0501	0.0292
Earth	-8769-11-23 13:40 J	-1481127.12	-1481126.93	-1481126.74	0.0501	0.0282 *
Mercury	-8766-10-14 07:40 J	-1480072.29	-1480072.18	-1480072.08	0.0501	0.0417
Mercury	-8765-01-12 20:38 J	-1479981.78	-1479981.64	-1479981.50	0.0503	0.0334
Venus	-8764-11-21 19:26 J	-1479302.87	-1479302.69	-1479302.51	0.0517	0.0257
Mercury	-8760-09-10 14:24 J	-1477914.02	-1477913.90	-1477913.77	0.0523	0.0018
Venus	-8758-09-29 05:45 J	-1477165.46	-1477165.26	-1477165.06	0.0508	0.0081
Mercury	-8754-10-31 17:45 J	-1475671.94	-1475671.76	-1475671.58	0.0503	0.0157
Venus	-8752-07-27 13:55 J	-1475036.99	-1475036.92	-1475036.85	0.0515	0.0481
Venus	-8751-03-22 03:50 J	-1474799.48	-1474799.34	-1474799.18	0.0520	0.0355
Mercury	-8748-06-29 18:57 J	-1473603.83	-1473603.71	-1473603.59	0.0524	0.0134
Mercury	-8748-09-26 23:31 J	-1473514.60	-1473514.52	-1473514.44	0.0522	0.0405
Venus	-8746-06-04 06:00 J	-1472899.41	-1472899.25	-1472899.09	0.0510	0.0294
Venus	-8745-01-26 15:50 J	-1472662.92	-1472662.84	-1472662.76	0.0505	0.0463
Mercury	-8742-08-19 14:38 J	-1471362.07	-1471361.89	-1471361.70	0.0502	0.0027
Venus	-8740-11-24 19:40 J	-1470533.88	-1470533.68	-1470533.48	0.0518	0.0118
Moon	-8739-05-19 14:09 J	-1470357.98	-1470357.91	-1470357.82	0.0522	0.0487
Earth	-8739-05-19 17:16 J	-1470357.81	-1470357.78	-1470357.74	0.0522	0.0514
Mercury	-8736-04-17 23:31 J	-1469293.63	-1469293.52	-1469293.42	0.0524	0.0271
Mercury	-8736-07-16 04:04 J	-1469204.44	-1469204.33	-1469204.23	0.0523	0.0271
Venus	-8734-02-07 06:00 J	-1468633.26	-1468633.25	-1468633.22	0.0511	0.0508
Venus	-8734-10-01 17:45 J	-1468396.93	-1468396.76	-1468396.58	0.0506	0.0260

Mars	-8731-12-03 04:19 J	-1467238.47	-1467238.32	-1467238.15	0.0499	0.0402
Mercury	-8730-06-07 11:16 J	-1467052.20	-1467052.03	-1467051.86	0.0502	0.0206
Venus	-8728-07-30 12:43 J	-1466268.17	-1466267.97	-1466267.77	0.0517	0.0116
Earth	-8727-05-24 18:14 J	-1465969.97	-1465969.74	-1465969.51	0.0523	0.0113
Moon	-8727-05-24 22:19 J	-1465969.80	-1465969.57	-1465969.34	0.0523	0.0124 *
Mercury	-8724-02-04 04:19 J	-1464983.40	-1464983.32	-1464983.24	0.0525	0.0399
Mercury	-8724-05-04 09:07 J	-1464894.24	-1464894.12	-1464894.00	0.0523	0.0146
Venus	-8722-06-06 19:12 J	-1464130.90	-1464130.70	-1464130.50	0.0507	0.0052
Mercury	-8718-03-26 06:14 J	-1462742.34	-1462742.24	-1462742.12	0.0501	0.0406
Mercury	-8718-06-24 19:26 J	-1462651.82	-1462651.69	-1462651.55	0.0503	0.0344
Venus	-8716-04-04 04:33 J	-1462002.46	-1462002.31	-1462002.16	0.0516	0.0348
Venus	-8716-11-27 20:09 J	-1461764.72	-1461764.66	-1461764.60	0.0521	0.0497
Moon	-8715-05-29 15:21 J	-1461582.06	-1461581.86	-1461581.65	0.0525	0.0255
Earth	-8715-05-29 19:12 J	-1461581.89	-1461581.70	-1461581.50	0.0525	0.0289 *
Mars	-8713-09-18 05:02 J	-1460739.55	-1460739.29	-1460739.02	0.0526	0.0189
Mercury	-8712-02-20 14:09 J	-1460584.04	-1460583.91	-1460583.79	0.0524	0.0027
Venus	-8710-02-09 20:38 J	-1459864.83	-1459864.64	-1459864.44	0.0508	0.0158
Earth	-8710-11-15 03:07 J	-1459586.48	-1459586.37	-1459586.25	0.0503	0.0436
Moon	-8710-11-15 05:31 J	-1459586.35	-1459586.27	-1459586.17	0.0503	0.0460 *
Mercury	-8706-04-12 16:19 J	-1458342.00	-1458341.82	-1458341.64	0.0502	0.0163
Venus	-8704-08-02 13:12 J	-1457499.13	-1457498.95	-1457498.77	0.0520	0.0265
Mercury	-8701-12-09 18:28 J	-1456273.85	-1456273.73	-1456273.60	0.0524	0.0117
Mercury	-8700-03-08 23:02 J	-1456184.61	-1456184.54	-1456184.47	0.0522	0.0422
Venus	-8699-10-15 19:55 J	-1455598.80	-1455598.67	-1455598.53	0.0510	0.0374
Venus	-8698-06-09 06:00 J	-1455362.37	-1455362.25	-1455362.12	0.0505	0.0389
Moon	-8698-11-19 12:43 J	-1455199.20	-1455198.97	-1455198.73	0.0502	0.0120
Earth	-8698-11-19 14:09 J	-1455199.14	-1455198.91	-1455198.68	0.0502	0.0097 *
Mars	-8695-09-06 19:26 J	-1454176.95	-1454176.69	-1454176.42	0.0500	0.0048
Mercury	-8694-01-29 13:26 J	-1454032.13	-1454031.94	-1454031.75	0.0502	0.0014
Venus	-8692-04-07 06:28 J	-1453233.43	-1453233.23	-1453233.02	0.0518	0.0032

Mercury	-8689-09-27 23:02 J	-1451963.65	-1451963.54	-1451963.43	0.0524	0.0252
Mercury	-8689-12-26 03:35 J	-1451874.45	-1451874.35	-1451874.25	0.0523	0.0289
Venus	-8686-02-12 07:26 J	-1451096.38	-1451096.19	-1451096.00	0.0507	0.0181
Earth	-8686-11-24 02:09 J	-1450811.62	-1450811.41	-1450811.21	0.0502	0.0247
Moon	-8686-11-24 01:55 J	-1450811.61	-1450811.42	-1450811.23	0.0502	0.0264 *
Mercury	-8683-11-17 10:19 J	-1449722.24	-1449722.07	-1449721.89	0.0502	0.0193
Venus	-8681-12-10 23:02 J	-1448967.73	-1448967.54	-1448967.35	0.0517	0.0203
Mars	-8677-06-25 13:26 J	-1447675.18	-1447674.94	-1447674.70	0.0525	0.0287
Mercury	-8677-07-17 03:21 J	-1447653.44	-1447653.36	-1447653.28	0.0525	0.0391
Mercury	-8677-10-14 08:09 J	-1447564.28	-1447564.16	-1447564.04	0.0523	0.0154
Venus	-8675-10-18 08:38 J	-1446830.34	-1446830.14	-1446829.94	0.0508	0.0029
Mercury	-8671-09-05 06:57 J	-1445412.33	-1445412.21	-1445412.08	0.0501	0.0374
Mercury	-8671-12-04 20:09 J	-1445321.78	-1445321.66	-1445321.54	0.0503	0.0376
Venus	-8669-08-15 16:33 J	-1444701.92	-1444701.81	-1444701.69	0.0515	0.0431
Venus	-8668-04-10 06:43 J	-1444464.34	-1444464.22	-1444464.09	0.0520	0.0409
Mercury	-8665-05-05 08:09 J	-1443343.17	-1443343.16	-1443343.14	0.0525	0.0520
Mercury	-8665-08-02 12:57 J	-1443254.08	-1443253.96	-1443253.83	0.0524	0.0030
Venus	-8663-06-23 09:50 J	-1442564.26	-1442564.09	-1442563.91	0.0509	0.0240
Mars	-8659-06-11 06:14 J	-1441115.45	-1441115.24	-1441115.02	0.0501	0.0300
Mercury	-8659-09-22 14:52 J	-1441012.05	-1441011.88	-1441011.70	0.0502	0.0173
Venus	-8657-12-13 21:21 J	-1440198.80	-1440198.61	-1440198.41	0.0519	0.0171
Mercury	-8653-05-21 18:00 J	-1438943.87	-1438943.75	-1438943.63	0.0524	0.0100
Mercury	-8653-08-18 22:33 J	-1438854.63	-1438854.56	-1438854.50	0.0523	0.0439
Venus	-8651-02-26 10:47 J	-1438298.14	-1438298.05	-1438297.96	0.0510	0.0451
Venus	-8651-10-20 21:07 J	-1438061.77	-1438061.62	-1438061.46	0.0505	0.0315
Mercury	-8647-07-11 11:45 J	-1436702.20	-1436702.01	-1436701.82	0.0502	0.0010
Venus	-8645-08-18 15:07 J	-1435933.07	-1435932.87	-1435932.67	0.0518	0.0061
Moon	-8644-05-24 00:00 J	-1435654.72	-1435654.50	-1435654.27	0.0523	0.0174
Earth	-8644-05-24 04:04 J	-1435654.55	-1435654.33	-1435654.10	0.0523	0.0159 *
Mercury	-8641-03-09 22:33 J	-1434633.68	-1434633.56	-1434633.45	0.0524	0.0237

Mercury	-8641-06-07 03:07 J	-1434544.47	-1434544.37	-1434544.27	0.0523	0.0305
Venus	-8639-06-25 21:35 J	-1433795.80	-1433795.60	-1433795.41	0.0507	0.0104
Mercury	-8635-04-29 08:52 J	-1432392.31	-1432392.13	-1432391.96	0.0502	0.0187
Venus	-8633-04-23 09:07 J	-1431667.28	-1431667.12	-1431666.94	0.0516	0.0291
Earth	-8632-05-29 06:00 J	-1431266.45	-1431266.25	-1431266.04	0.0524	0.0247
Moon	-8632-05-29 08:24 J	-1431266.35	-1431266.15	-1431265.94	0.0524	0.0223 *
Mercury	-8630-12-28 02:52 J	-1430323.47	-1430323.38	-1430323.29	0.0524	0.0373
Mercury	-8629-03-26 07:26 J	-1430234.30	-1430234.19	-1430234.07	0.0523	0.0171
Venus	-8627-02-28 21:50 J	-1429529.78	-1429529.59	-1429529.39	0.0508	0.0111
Earth	-8627-11-14 13:55 J	-1429270.99	-1429270.92	-1429270.84	0.0503	0.0476
Moon	-8627-11-14 12:43 J	-1429270.98	-1429270.97	-1429270.96	0.0503	0.0503 *
Mercury	-8623-02-15 05:45 J	-1428082.39	-1428082.26	-1428082.13	0.0501	0.0365
Mercury	-8623-05-16 18:57 J	-1427991.83	-1427991.71	-1427991.59	0.0503	0.0386
Venus	-8621-08-21 15:50 J	-1427163.99	-1427163.84	-1427163.67	0.0520	0.0320
Mercury	-8618-10-16 07:12 J	-1426013.22	-1426013.20	-1426013.18	0.0525	0.0514
Mercury	-8617-01-13 12:00 J	-1425924.13	-1425924.00	-1425923.88	0.0524	0.0035
Venus	-8616-11-03 22:04 J	-1425263.73	-1425263.58	-1425263.43	0.0510	0.0325
Venus	-8615-06-28 08:09 J	-1425027.25	-1425027.16	-1425027.06	0.0505	0.0440
Moon	-8615-11-19 01:55 J	-1424883.63	-1424883.42	-1424883.20	0.0503	0.0150
Earth	-8615-11-19 02:24 J	-1424883.63	-1424883.40	-1424883.18	0.0503	0.0131 *
Mercury	-8611-03-04 15:21 J	-1423682.04	-1423681.86	-1423681.69	0.0502	0.0200
Venus	-8609-04-26 08:09 J	-1422898.36	-1422898.16	-1422897.95	0.0518	0.0083
Mercury	-8606-11-01 16:47 J	-1421613.92	-1421613.80	-1421613.68	0.0524	0.0096
Mercury	-8605-01-29 21:21 J	-1421524.68	-1421524.61	-1421524.55	0.0523	0.0443
Venus	-8603-03-03 10:19 J	-1420761.24	-1420761.07	-1420760.89	0.0506	0.0236
Earth	-8603-11-23 14:09 J	-1420496.12	-1420495.91	-1420495.70	0.0501	0.0210
Moon	-8603-11-23 16:04 J	-1420496.05	-1420495.83	-1420495.62	0.0501	0.0232 *
Mercury	-8600-12-21 10:19 J	-1419372.26	-1419372.07	-1419371.89	0.0502	0.0012
Venus	-8598-12-30 22:47 J	-1418632.74	-1418632.55	-1418632.35	0.0517	0.0157
Mars	-8594-03-08 18:28 J	-1417468.74	-1417468.73	-1417468.69	0.0527	0.0524

Mercury	-8594-08-20 21:35 J	-1417303.71	-1417303.60	-1417303.48	0.0525	0.0226
Mercury	-8594-11-18 02:09 J	-1417214.50	-1417214.41	-1417214.31	0.0523	0.0317
Venus	-8592-11-06 12:00 J	-1416495.20	-1416495.00	-1416494.80	0.0507	0.0027
Mercury	-8588-10-09 06:43 J	-1415062.39	-1415062.22	-1415062.04	0.0502	0.0186
Venus	-8586-09-04 17:02 J	-1414366.92	-1414366.79	-1414366.65	0.0516	0.0385
Venus	-8585-04-29 08:09 J	-1414129.25	-1414129.16	-1414129.07	0.0521	0.0464
Mercury	-8582-06-09 01:55 J	-1412993.50	-1412993.42	-1412993.32	0.0525	0.0364
Mercury	-8582-09-06 06:43 J	-1412904.34	-1412904.22	-1412904.10	0.0523	0.0181
Venus	-8580-07-12 11:16 J	-1412229.22	-1412229.03	-1412228.84	0.0509	0.0191
Mars	-8576-02-26 12:00 J	-1410904.20	-1410904.00	-1410903.78	0.0500	0.0304
Mercury	-8576-07-28 03:50 J	-1410752.47	-1410752.34	-1410752.21	0.0501	0.0364
Mercury	-8576-10-26 17:02 J	-1410661.91	-1410661.79	-1410661.67	0.0503	0.0387
Venus	-8573-01-03 00:57 J	-1409863.64	-1409863.46	-1409863.27	0.0519	0.0228
Mercury	-8570-03-28 06:28 J	-1408683.27	-1408683.23	-1408683.20	0.0525	0.0501
Mercury	-8570-06-25 11:16 J	-1408594.16	-1408594.03	-1408593.91	0.0523	0.0047
Venus	-8568-03-17 10:47 J	-1407963.17	-1407963.05	-1407962.93	0.0510	0.0409
Venus	-8568-11-08 21:07 J	-1407726.76	-1407726.62	-1407726.48	0.0505	0.0361
Mercury	-8564-08-14 13:40 J	-1406352.10	-1406351.93	-1406351.76	0.0502	0.0204
Venus	-8562-09-07 17:02 J	-1405597.99	-1405597.79	-1405597.58	0.0518	0.0011
Earth	-8561-05-23 09:35 J	-1405339.31	-1405339.10	-1405338.88	0.0523	0.0214
Moon	-8561-05-23 12:43 J	-1405339.18	-1405338.97	-1405338.77	0.0523	0.0233 *
Mars	-8559-12-13 20:52 J	-1404404.91	-1404404.63	-1404404.34	0.0526	0.0058
Mercury	-8558-04-13 15:21 J	-1404283.98	-1404283.86	-1404283.73	0.0524	0.0097
Mercury	-8558-07-11 19:55 J	-1404194.73	-1404194.67	-1404194.60	0.0522	0.0444
Venus	-8556-07-14 22:19 J	-1403460.77	-1403460.57	-1403460.38	0.0507	0.0151
Mercury	-8552-06-02 10:04 J	-1402042.27	-1402042.08	-1402041.89	0.0502	0.0020
Venus	-8550-05-13 09:35 J	-1401332.28	-1401332.10	-1401331.92	0.0516	0.0246
Moon	-8549-05-28 09:07 J	-1400951.35	-1400951.12	-1400950.89	0.0524	0.0163
Earth	-8549-05-28 09:50 J	-1400951.31	-1400951.09	-1400950.87	0.0524	0.0184 *
Mercury	-8546-01-30 20:09 J	-1399973.77	-1399973.66	-1399973.54	0.0525	0.0226

Mercury	-8546-04-30 00:43 J	-1399884.56	-1399884.47	-1399884.37	0.0523	0.0318
Venus	-8544-03-19 23:45 J	-1399194.70	-1399194.51	-1399194.30	0.0508	0.0060
Mars	-8541-12-01 00:28 J	-1397842.75	-1397842.48	-1397842.22	0.0500	0.0046
Mercury	-8540-03-21 05:02 J	-1397732.47	-1397732.29	-1397732.12	0.0501	0.0184
Venus	-8538-01-16 00:14 J	-1397066.55	-1397066.49	-1397066.41	0.0515	0.0481
Venus	-8538-09-10 14:24 J	-1396829.04	-1396828.90	-1396828.75	0.0520	0.0365
Mercury	-8535-11-19 00:57 J	-1395663.55	-1395663.46	-1395663.37	0.0525	0.0358
Mercury	-8534-02-16 05:45 J	-1395574.38	-1395574.26	-1395574.15	0.0524	0.0188
Venus	-8533-11-23 00:28 J	-1394928.64	-1394928.48	-1394928.30	0.0509	0.0274
Venus	-8532-07-17 10:04 J	-1394692.13	-1394692.08	-1394692.04	0.0504	0.0491
Earth	-8532-11-18 12:28 J	-1394568.19	-1394567.98	-1394567.76	0.0502	0.0174
Moon	-8532-11-18 14:38 J	-1394568.11	-1394567.89	-1394567.67	0.0502	0.0183 *
Mercury	-8528-01-07 01:26 J	-1393422.56	-1393422.44	-1393422.31	0.0501	0.0367
Mercury	-8528-04-07 14:24 J	-1393332.01	-1393331.90	-1393331.77	0.0502	0.0383
Venus	-8526-05-16 07:26 J	-1392563.39	-1392563.19	-1392562.99	0.0519	0.0129
Mercury	-8523-09-07 05:16 J	-1391353.32	-1391353.28	-1391353.24	0.0525	0.0496
Mars	-8523-09-20 15:35 J	-1391340.00	-1391339.85	-1391339.68	0.0525	0.0434
Mercury	-8523-12-05 10:04 J	-1391264.20	-1391264.08	-1391263.95	0.0524	0.0051
Venus	-8521-07-28 22:47 J	-1390662.59	-1390662.55	-1390662.49	0.0511	0.0494
Venus	-8520-03-22 09:50 J	-1390426.25	-1390426.09	-1390425.91	0.0506	0.0281
Moon	-8520-11-22 18:28 J	-1390180.94	-1390180.73	-1390180.52	0.0502	0.0185
Earth	-8520-11-22 21:35 J	-1390180.82	-1390180.60	-1390180.38	0.0502	0.0159 *
Mercury	-8516-01-24 11:16 J	-1389022.20	-1389022.03	-1389021.85	0.0502	0.0200
Venus	-8514-01-19 00:57 J	-1388297.66	-1388297.46	-1388297.26	0.0517	0.0105
Mercury	-8511-09-23 14:38 J	-1386954.02	-1386953.89	-1386953.77	0.0524	0.0088
Mercury	-8511-12-21 18:57 J	-1386864.77	-1386864.71	-1386864.65	0.0522	0.0452
Venus	-8509-11-25 10:19 J	-1386160.27	-1386160.07	-1386159.87	0.0507	0.0067
Earth	-8508-11-27 07:55 J	-1385793.20	-1385793.17	-1385793.13	0.0501	0.0494
Mars	-8505-09-04 17:02 J	-1384780.94	-1384780.79	-1384780.63	0.0501	0.0404
Mercury	-8505-11-12 07:55 J	-1384712.36	-1384712.17	-1384711.98	0.0502	0.0017

Venus	-8503-09-23 17:45 J	-1384031.91	-1384031.76	-1384031.60	0.0516	0.0340
Venus	-8502-05-19 08:24 J	-1383794.18	-1383794.15	-1383794.11	0.0521	0.0512
Mercury	-8499-07-12 18:43 J	-1382643.83	-1382643.72	-1382643.61	0.0524	0.0229
Mercury	-8499-10-09 23:16 J	-1382554.63	-1382554.53	-1382554.43	0.0523	0.0313
Venus	-8497-07-31 10:19 J	-1381894.26	-1381894.07	-1381893.88	0.0509	0.0150
Mercury	-8493-08-31 04:04 J	-1380402.50	-1380402.33	-1380402.15	0.0501	0.0170
Venus	-8490-01-21 23:31 J	-1379528.69	-1379528.52	-1379528.34	0.0519	0.0272
Mercury	-8487-04-30 23:16 J	-1378333.62	-1378333.53	-1378333.44	0.0525	0.0362
Mercury	-8487-07-29 04:04 J	-1378244.45	-1378244.33	-1378244.21	0.0524	0.0183
Venus	-8485-04-05 11:02 J	-1377628.18	-1377628.04	-1377627.90	0.0510	0.0364
Venus	-8485-11-27 21:21 J	-1377391.72	-1377391.61	-1377391.49	0.0505	0.0409
Mercury	-8481-06-18 23:16 J	-1376092.65	-1376092.53	-1376092.40	0.0501	0.0369
Mercury	-8481-09-17 12:14 J	-1376002.11	-1376001.99	-1376001.86	0.0502	0.0378
Venus	-8479-09-26 13:12 J	-1375263.15	-1375262.95	-1375262.74	0.0518	0.0028
Moon	-8478-05-23 06:14 J	-1375024.43	-1375024.24	-1375024.04	0.0523	0.0320
Earth	-8478-05-23 07:55 J	-1375024.36	-1375024.17	-1375023.98	0.0523	0.0297 *
Mercury	-8475-02-17 03:50 J	-1374023.38	-1374023.34	-1374023.30	0.0526	0.0497
Mercury	-8475-05-17 08:38 J	-1373934.26	-1373934.14	-1373934.01	0.0524	0.0054
Venus	-8473-08-02 23:02 J	-1373125.73	-1373125.54	-1373125.36	0.0506	0.0200
Mercury	-8469-07-06 08:38 J	-1371692.32	-1371692.14	-1371691.97	0.0502	0.0191
Venus	-8467-06-01 06:28 J	-1370997.42	-1370997.23	-1370997.05	0.0517	0.0208
Moon	-8466-05-28 09:07 J	-1370636.35	-1370636.12	-1370635.90	0.0524	0.0088
Earth	-8466-05-28 09:50 J	-1370636.32	-1370636.09	-1370635.86	0.0524	0.0105 *
Mercury	-8463-03-05 13:12 J	-1369624.08	-1369623.95	-1369623.83	0.0524	0.0088
Mercury	-8463-06-02 17:31 J	-1369534.83	-1369534.77	-1369534.70	0.0523	0.0452
Venus	-8461-04-07 22:04 J	-1368859.79	-1368859.58	-1368859.38	0.0508	0.0022
Mercury	-8457-04-24 05:02 J	-1367382.47	-1367382.29	-1367382.10	0.0502	0.0012
Venus	-8455-02-04 00:43 J	-1366731.57	-1366731.47	-1366731.36	0.0515	0.0437
Venus	-8455-09-29 15:07 J	-1366493.99	-1366493.87	-1366493.75	0.0520	0.0414
Earth	-8454-06-02 11:45 J	-1366248.06	-1366248.01	-1366247.95	0.0525	0.0508



Mercury	-8452-12-22 17:31 J	-1365313.88	-1365313.77	-1365313.66	0.0524	0.0225
Mercury	-8451-03-21 22:04 J	-1365224.68	-1365224.58	-1365224.48	0.0523	0.0316
Venus	-8450-12-12 21:07 J	-1364593.79	-1364593.62	-1364593.44	0.0509	0.0239
Moon	-8449-11-17 12:14 J	-1364253.18	-1364252.99	-1364252.79	0.0503	0.0244
Earth	-8449-11-17 15:21 J	-1364253.06	-1364252.86	-1364252.65	0.0503	0.0238 *
Mercury	-8445-02-11 01:40 J	-1363072.61	-1363072.43	-1363072.25	0.0502	0.0176
Venus	-8443-06-04 06:28 J	-1362228.43	-1362228.23	-1362228.04	0.0519	0.0173
Mars	-8440-06-01 13:26 J	-1361135.09	-1361134.94	-1361134.78	0.0526	0.0434
Mercury	-8440-10-10 21:35 J	-1361003.69	-1361003.60	-1361003.51	0.0525	0.0369
Mercury	-8439-01-08 02:09 J	-1360914.52	-1360914.41	-1360914.29	0.0523	0.0176
Venus	-8438-08-17 19:55 J	-1360327.75	-1360327.67	-1360327.58	0.0511	0.0459
Venus	-8437-04-10 07:26 J	-1360091.34	-1360091.19	-1360091.03	0.0506	0.0319
Earth	-8437-11-22 02:09 J	-1359865.64	-1359865.41	-1359865.18	0.0502	0.0099
Moon	-8437-11-22 06:00 J	-1359865.47	-1359865.25	-1359865.03	0.0502	0.0132 *
Mercury	-8434-11-29 21:50 J	-1358762.71	-1358762.59	-1358762.46	0.0501	0.0362
Mercury	-8433-02-28 11:02 J	-1358672.16	-1358672.04	-1358671.92	0.0502	0.0387
Venus	-8431-02-06 22:04 J	-1357962.78	-1357962.58	-1357962.37	0.0517	0.0068
Mercury	-8428-07-30 01:55 J	-1356693.45	-1356693.42	-1356693.39	0.0525	0.0505
Mercury	-8428-10-27 06:57 J	-1356604.34	-1356604.21	-1356604.09	0.0524	0.0045
Venus	-8426-12-15 08:52 J	-1355825.32	-1355825.13	-1355824.93	0.0507	0.0111
Moon	-8425-11-26 10:19 J	-1355478.16	-1355478.07	-1355477.96	0.0501	0.0449
Earth	-8425-11-26 14:09 J	-1355478.02	-1355477.91	-1355477.79	0.0501	0.0437 *
Mars	-8422-05-23 04:33 J	-1354570.54	-1354570.31	-1354570.07	0.0499	0.0233
Mercury	-8422-12-17 06:00 J	-1354362.43	-1354362.25	-1354362.07	0.0502	0.0183
Venus	-8420-10-12 12:00 J	-1353697.16	-1353697.00	-1353696.83	0.0516	0.0310
Mercury	-8416-08-15 11:31 J	-1352294.15	-1352294.02	-1352293.90	0.0525	0.0094
Mercury	-8416-11-12 16:04 J	-1352204.89	-1352204.83	-1352204.77	0.0523	0.0448
Venus	-8414-08-20 09:35 J	-1351559.29	-1351559.10	-1351558.90	0.0509	0.0107
Mercury	-8410-10-05 02:09 J	-1350052.60	-1350052.41	-1350052.22	0.0501	0.0004
Venus	-8407-02-09 19:12 J	-1349193.87	-1349193.70	-1349193.54	0.0520	0.0309

Mars	-8404-03-08 20:09 J	-1348070.95	-1348070.66	-1348070.38	0.0526	0.0038
Mercury	-8404-06-03 15:50 J	-1347983.95	-1347983.84	-1347983.73	0.0525	0.0232
Mercury	-8404-08-31 20:24 J	-1347894.75	-1347894.65	-1347894.55	0.0523	0.0311
Venus	-8402-04-25 07:40 J	-1347293.33	-1347293.18	-1347293.03	0.0510	0.0330
Venus	-8402-12-17 17:45 J	-1347056.85	-1347056.76	-1347056.67	0.0505	0.0443
Mercury	-8398-07-23 22:33 J	-1345742.73	-1345742.56	-1345742.39	0.0501	0.0190
Venus	-8396-10-15 12:14 J	-1344928.19	-1344927.99	-1344927.78	0.0518	0.0071
Earth	-8395-05-22 09:35 J	-1344709.26	-1344709.10	-1344708.93	0.0523	0.0365
Moon	-8395-05-22 09:21 J	-1344709.25	-1344709.11	-1344708.95	0.0523	0.0395 *
Mercury	-8392-03-22 20:09 J	-1343673.75	-1343673.66	-1343673.57	0.0525	0.0370
Mercury	-8392-06-20 00:43 J	-1343584.58	-1343584.47	-1343584.35	0.0523	0.0176
Venus	-8390-08-22 18:00 J	-1342790.93	-1342790.75	-1342790.57	0.0506	0.0231
Mars	-8386-02-24 17:31 J	-1341509.03	-1341508.77	-1341508.51	0.0500	0.0120
Mercury	-8386-05-11 18:57 J	-1341432.83	-1341432.71	-1341432.58	0.0501	0.0374
Mercury	-8386-08-10 07:55 J	-1341342.29	-1341342.17	-1341342.04	0.0502	0.0376
Venus	-8384-06-20 04:19 J	-1340662.51	-1340662.32	-1340662.12	0.0517	0.0169
Earth	-8383-05-27 08:38 J	-1340321.37	-1340321.14	-1340320.90	0.0523	0.0027
Moon	-8383-05-27 10:47 J	-1340321.29	-1340321.05	-1340320.81	0.0523	0.0013 *
Mercury	-8380-01-09 00:00 J	-1339363.52	-1339363.50	-1339363.48	0.0525	0.0516
Mercury	-8380-04-08 05:02 J	-1339274.42	-1339274.29	-1339274.17	0.0524	0.0037
Venus	-8378-04-27 17:45 J	-1338524.96	-1338524.76	-1338524.56	0.0508	0.0015
Mercury	-8374-05-29 04:04 J	-1337032.50	-1337032.33	-1337032.15	0.0502	0.0185
Venus	-8372-02-22 20:52 J	-1336396.75	-1336396.63	-1336396.50	0.0515	0.0404
Venus	-8372-10-18 10:47 J	-1336159.15	-1336159.05	-1336158.95	0.0520	0.0450
Moon	-8371-06-01 04:04 J	-1335933.45	-1335933.33	-1335933.21	0.0524	0.0444
Earth	-8371-06-01 07:26 J	-1335933.33	-1335933.19	-1335933.05	0.0524	0.0417 *
Mars	-8369-12-13 21:35 J	-1335006.65	-1335006.60	-1335006.53	0.0525	0.0513
Mercury	-8368-01-25 09:21 J	-1334964.23	-1334964.11	-1334963.98	0.0524	0.0104
Mercury	-8368-04-24 13:55 J	-1334874.98	-1334874.92	-1334874.85	0.0523	0.0436
Venus	-8367-12-31 18:14 J	-1334258.92	-1334258.74	-1334258.55	0.0510	0.0202

Earth	-8366-11-17 19:26 J	-1333937.87	-1333937.69	-1333937.50	0.0503	0.0299
Moon	-8366-11-17 23:16 J	-1333937.71	-1333937.53	-1333937.34	0.0503	0.0293 *
Mercury	-8362-03-16 23:16 J	-1332722.72	-1332722.53	-1332722.34	0.0501	0.0017
Venus	-8360-06-22 23:31 J	-1331893.71	-1331893.52	-1331893.33	0.0519	0.0202
Mercury	-8357-11-13 13:55 J	-1330654.03	-1330653.92	-1330653.81	0.0525	0.0243
Mercury	-8356-02-10 18:28 J	-1330564.83	-1330564.73	-1330564.63	0.0524	0.0303
Venus	-8355-09-05 18:00 J	-1329992.85	-1329992.75	-1329992.63	0.0511	0.0422
Venus	-8354-04-30 05:31 J	-1329756.41	-1329756.27	-1329756.13	0.0506	0.0360
Moon	-8354-11-22 02:52 J	-1329550.61	-1329550.38	-1329550.14	0.0502	0.0071
Earth	-8354-11-22 06:43 J	-1329550.45	-1329550.22	-1329549.99	0.0502	0.0039 *
Mars	-8351-11-28 23:16 J	-1328447.63	-1328447.53	-1328447.43	0.0500	0.0458
Mercury	-8350-01-02 19:26 J	-1328412.86	-1328412.69	-1328412.52	0.0501	0.0203
Venus	-8348-02-25 16:04 J	-1327628.03	-1327627.83	-1327627.62	0.0517	0.0040
Mercury	-8345-09-01 18:00 J	-1326343.83	-1326343.75	-1326343.66	0.0525	0.0382
Mercury	-8345-11-29 22:47 J	-1326254.66	-1326254.55	-1326254.43	0.0524	0.0165
Venus	-8342-01-03 04:04 J	-1325490.52	-1325490.33	-1325490.14	0.0507	0.0140
Earth	-8342-11-26 13:40 J	-1325163.09	-1325162.93	-1325162.77	0.0501	0.0363
Moon	-8342-11-26 16:33 J	-1325162.96	-1325162.81	-1325162.66	0.0501	0.0375 *
Mercury	-8339-10-21 15:35 J	-1324102.96	-1324102.85	-1324102.73	0.0501	0.0391
Mercury	-8338-01-20 04:33 J	-1324012.44	-1324012.31	-1324012.18	0.0502	0.0358
Venus	-8337-10-31 10:04 J	-1323362.26	-1323362.08	-1323361.91	0.0516	0.0272
Mercury	-8333-06-20 22:33 J	-1322033.58	-1322033.56	-1322033.55	0.0525	0.0520
Mercury	-8333-09-18 03:21 J	-1321944.49	-1321944.36	-1321944.24	0.0524	0.0029
Venus	-8331-09-08 03:35 J	-1321224.55	-1321224.35	-1321224.15	0.0508	0.0079
Mercury	-8327-11-08 00:57 J	-1319702.64	-1319702.46	-1319702.28	0.0502	0.0171
Venus	-8325-07-06 03:07 J	-1319096.40	-1319096.37	-1319096.32	0.0514	0.0504
Venus	-8324-02-28 16:19 J	-1318858.97	-1318858.82	-1318858.66	0.0519	0.0348
Mercury	-8321-07-07 07:26 J	-1317634.32	-1317634.19	-1317634.07	0.0524	0.0117
Mercury	-8321-10-04 12:00 J	-1317545.07	-1317545.00	-1317544.93	0.0523	0.0424
Venus	-8319-05-14 01:55 J	-1316958.57	-1316958.42	-1316958.25	0.0510	0.0303

Venus	-8318-01-05 12:28 J	-1316722.04	-1316721.98	-1316721.91	0.0505	0.0476
Mercury	-8315-08-26 21:07 J	-1315392.81	-1315392.62	-1315392.44	0.0502	0.0021
Venus	-8313-11-03 07:26 J	-1314593.39	-1314593.19	-1314592.99	0.0518	0.0104
Earth	-8312-05-21 04:19 J	-1314394.43	-1314394.32	-1314394.20	0.0522	0.0454
Moon	-8312-05-21 05:45 J	-1314394.34	-1314394.26	-1314394.17	0.0522	0.0483 *
Mercury	-8309-04-25 11:45 J	-1313324.12	-1313324.01	-1313323.90	0.0525	0.0254
Mercury	-8309-07-23 16:19 J	-1313234.92	-1313234.82	-1313234.71	0.0523	0.0290
Venus	-8307-09-10 14:09 J	-1312456.08	-1312455.91	-1312455.73	0.0507	0.0268
Mercury	-8303-06-14 16:33 J	-1311082.98	-1311082.81	-1311082.64	0.0501	0.0214
Venus	-8301-07-08 21:07 J	-1310327.81	-1310327.62	-1310327.42	0.0516	0.0143
Moon	-8300-05-25 21:07 J	-1310006.84	-1310006.62	-1310006.39	0.0523	0.0095
Earth	-8300-05-26 00:00 J	-1310006.74	-1310006.50	-1310006.27	0.0523	0.0078 *
Mercury	-8297-02-12 16:04 J	-1309013.91	-1309013.83	-1309013.75	0.0526	0.0395
Mercury	-8297-05-11 20:52 J	-1308924.75	-1308924.63	-1308924.51	0.0524	0.0153
Venus	-8295-05-16 14:52 J	-1308190.08	-1308189.88	-1308189.68	0.0508	0.0052
Mercury	-8291-04-02 12:43 J	-1306773.08	-1306772.97	-1306772.86	0.0500	0.0401
Mercury	-8291-07-02 01:26 J	-1306682.57	-1306682.44	-1306682.30	0.0502	0.0344
Venus	-8289-03-13 14:24 J	-1306062.04	-1306061.90	-1306061.76	0.0515	0.0378
Venus	-8289-11-06 04:19 J	-1305824.39	-1305824.32	-1305824.24	0.0520	0.0481
Earth	-8288-05-31 00:43 J	-1305618.65	-1305618.47	-1305618.28	0.0524	0.0319
Moon	-8288-05-31 04:33 J	-1305618.48	-1305618.31	-1305618.13	0.0524	0.0349 *
Mars	-8286-08-25 15:50 J	-1304802.02	-1304801.84	-1304801.63	0.0527	0.0378
Mercury	-8285-02-29 01:12 J	-1304614.57	-1304614.45	-1304614.32	0.0524	0.0022
Venus	-8283-01-19 12:43 J	-1303924.16	-1303923.97	-1303923.78	0.0509	0.0175
Moon	-8283-11-16 14:09 J	-1303623.07	-1303622.91	-1303622.75	0.0503	0.0369
Earth	-8283-11-16 17:45 J	-1303622.91	-1303622.76	-1303622.60	0.0503	0.0375 *
Mercury	-8279-04-19 21:21 J	-1302372.79	-1302372.61	-1302372.43	0.0502	0.0152
Venus	-8277-07-11 21:07 J	-1301558.80	-1301558.62	-1301558.43	0.0519	0.0242
Mercury	-8274-12-18 05:45 J	-1300304.38	-1300304.26	-1300304.14	0.0524	0.0121
Mercury	-8273-03-16 10:19 J	-1300215.14	-1300215.07	-1300215.00	0.0523	0.0419

Venus	-8272-09-24 11:31 J	-1299658.14	-1299658.02	-1299657.89	0.0511	0.0398
Venus	-8271-05-18 22:33 J	-1299421.69	-1299421.56	-1299421.43	0.0506	0.0386
Earth	-8271-11-21 03:35 J	-1299235.59	-1299235.35	-1299235.12	0.0502	0.0043
Moon	-8271-11-21 06:28 J	-1299235.46	-1299235.23	-1299235.00	0.0502	0.0009 *
Mars	-8268-08-15 09:07 J	-1298237.37	-1298237.12	-1298236.87	0.0499	0.0181
Mercury	-8267-02-05 17:45 J	-1298062.95	-1298062.76	-1298062.57	0.0502	0.0034
Venus	-8265-03-16 13:26 J	-1297293.14	-1297292.94	-1297292.73	0.0517	0.0004
Mercury	-8262-10-06 09:50 J	-1295994.20	-1295994.09	-1295993.98	0.0525	0.0266
Mercury	-8261-01-03 14:24 J	-1295905.00	-1295904.90	-1295904.79	0.0523	0.0278
Venus	-8259-01-21 22:19 J	-1295155.76	-1295155.57	-1295155.38	0.0507	0.0170
Moon	-8259-11-25 11:31 J	-1294848.21	-1294848.02	-1294847.82	0.0502	0.0296
Earth	-8259-11-25 13:26 J	-1294848.13	-1294847.94	-1294847.75	0.0502	0.0290 *
Mercury	-8256-11-24 14:09 J	-1293753.08	-1293752.91	-1293752.75	0.0501	0.0221
Venus	-8254-11-20 05:31 J	-1293027.46	-1293027.27	-1293027.09	0.0516	0.0240
Mars	-8250-06-01 13:12 J	-1291738.23	-1291737.95	-1291737.67	0.0526	0.0091
Mercury	-8250-07-25 14:09 J	-1291683.99	-1291683.91	-1291683.84	0.0525	0.0406
Mercury	-8250-10-22 18:43 J	-1291594.84	-1291594.72	-1291594.59	0.0524	0.0142
Venus	-8248-09-26 23:02 J	-1290889.74	-1290889.54	-1290889.34	0.0509	0.0047
Mercury	-8244-09-12 09:50 J	-1289443.19	-1289443.09	-1289442.98	0.0500	0.0411
Mercury	-8244-12-11 22:33 J	-1289352.69	-1289352.56	-1289352.41	0.0502	0.0334
Venus	-8242-07-25 20:24 J	-1288761.71	-1288761.65	-1288761.57	0.0514	0.0480
Venus	-8241-03-19 09:21 J	-1288524.26	-1288524.11	-1288523.97	0.0519	0.0375
Mercury	-8238-08-10 23:16 J	-1287284.66	-1287284.53	-1287284.41	0.0525	0.0013
Venus	-8236-06-01 22:47 J	-1286623.72	-1286623.55	-1286623.38	0.0510	0.0268
Mars	-8232-05-19 19:40 J	-1285175.93	-1285175.68	-1285175.43	0.0500	0.0168
Mercury	-8232-09-29 18:43 J	-1285042.90	-1285042.72	-1285042.54	0.0501	0.0143
Venus	-8230-11-23 01:12 J	-1284258.65	-1284258.45	-1284258.25	0.0518	0.0133
Mercury	-8226-05-30 03:35 J	-1282974.47	-1282974.35	-1282974.23	0.0525	0.0134
Mercury	-8226-08-27 08:09 J	-1282885.23	-1282885.16	-1282885.08	0.0523	0.0407
Venus	-8224-02-04 20:24 J	-1282357.69	-1282357.65	-1282357.60	0.0511	0.0496

Venus	-8224-09-29 08:24 J	-1282121.31	-1282121.15	-1282120.99	0.0506	0.0295
Mercury	-8220-07-18 14:24 J	-1280733.09	-1280732.90	-1280732.71	0.0502	0.0051
Venus	-8218-07-28 18:43 J	-1279992.92	-1279992.72	-1279992.51	0.0517	0.0106
Earth	-8217-05-25 00:14 J	-1279691.71	-1279691.49	-1279691.26	0.0523	0.0148
Moon	-8217-05-25 03:50 J	-1279691.56	-1279691.34	-1279691.11	0.0523	0.0157 *
Mercury	-8214-03-18 08:09 J	-1278664.27	-1278664.16	-1278664.05	0.0525	0.0269
Mercury	-8214-06-15 12:43 J	-1278575.07	-1278574.97	-1278574.86	0.0523	0.0275
Venus	-8212-06-04 08:24 J	-1277855.35	-1277855.15	-1277854.95	0.0508	0.0077
Mercury	-8208-05-06 10:47 J	-1276423.21	-1276423.05	-1276422.88	0.0501	0.0235
Venus	-8206-04-02 12:00 J	-1275727.15	-1275727.00	-1275726.84	0.0515	0.0342
Moon	-8205-05-29 20:38 J	-1275303.84	-1275303.64	-1275303.44	0.0524	0.0273
Earth	-8205-05-30 00:14 J	-1275303.69	-1275303.49	-1275303.28	0.0524	0.0243 *
Mercury	-8202-01-04 12:14 J	-1274354.07	-1274353.99	-1274353.92	0.0525	0.0413
Mercury	-8202-04-03 17:02 J	-1274264.91	-1274264.79	-1274264.67	0.0524	0.0133
Venus	-8200-02-07 07:12 J	-1273589.39	-1273589.20	-1273589.00	0.0509	0.0147
Earth	-8200-11-15 17:31 J	-1273307.87	-1273307.77	-1273307.66	0.0504	0.0447
Moon	-8200-11-15 20:38 J	-1273307.75	-1273307.64	-1273307.53	0.0504	0.0439 *
Mercury	-8196-02-22 07:12 J	-1272113.30	-1272113.20	-1272113.09	0.0501	0.0418
Mercury	-8196-05-23 20:09 J	-1272022.80	-1272022.66	-1272022.52	0.0502	0.0329
Venus	-8194-07-31 17:16 J	-1271223.96	-1271223.78	-1271223.61	0.0519	0.0277
Mercury	-8190-01-20 21:21 J	-1269954.74	-1269954.61	-1269954.49	0.0524	0.0008
Venus	-8189-10-13 06:57 J	-1269323.34	-1269323.21	-1269323.07	0.0511	0.0367
Venus	-8188-06-06 18:28 J	-1269086.84	-1269086.73	-1269086.62	0.0506	0.0422
Moon	-8188-11-20 04:04 J	-1268920.57	-1268920.33	-1268920.09	0.0503	0.0078
Earth	-8188-11-20 06:00 J	-1268920.48	-1268920.25	-1268920.03	0.0503	0.0108 *
Mercury	-8184-03-11 16:04 J	-1267713.01	-1267712.83	-1267712.65	0.0501	0.0136
Venus	-8182-04-05 07:26 J	-1266958.39	-1266958.19	-1266957.98	0.0517	0.0029
Mercury	-8179-11-09 01:40 J	-1265644.55	-1265644.43	-1265644.31	0.0525	0.0145
Mercury	-8178-02-06 06:14 J	-1265555.32	-1265555.24	-1265555.16	0.0523	0.0398
Venus	-8176-02-09 19:26 J	-1264820.87	-1264820.69	-1264820.50	0.0507	0.0207

Earth	-8176-11-24 17:02 J	-1264532.99	-1264532.79	-1264532.58	0.0502	0.0231
Moon	-8176-11-24 17:02 J	-1264532.99	-1264532.79	-1264532.59	0.0502	0.0229 *
Mercury	-8173-12-28 12:14 J	-1263403.18	-1263402.99	-1263402.80	0.0501	0.0053
Venus	-8171-12-09 00:14 J	-1262692.67	-1262692.49	-1262692.30	0.0516	0.0211
Mercury	-8167-08-28 06:14 J	-1261334.35	-1261334.24	-1261334.14	0.0525	0.0281
Mercury	-8167-11-25 10:47 J	-1261245.15	-1261245.05	-1261244.94	0.0523	0.0264
Venus	-8165-10-15 18:14 J	-1260554.94	-1260554.74	-1260554.54	0.0508	0.0019
Mercury	-8161-10-16 07:40 J	-1259093.34	-1259093.18	-1259093.01	0.0501	0.0248
Mercury	-8160-01-14 20:52 J	-1259002.63	-1259002.63	-1259002.63	0.0503	0.0502
Venus	-8159-08-13 18:14 J	-1258426.83	-1258426.74	-1258426.63	0.0515	0.0445
Venus	-8158-04-08 07:40 J	-1258189.29	-1258189.18	-1258189.05	0.0520	0.0418
Mercury	-8155-06-16 10:47 J	-1257024.13	-1257024.05	-1257023.97	0.0525	0.0414
Mercury	-8155-09-13 15:35 J	-1256934.97	-1256934.85	-1256934.73	0.0524	0.0132
Venus	-8153-06-20 17:45 J	-1256288.94	-1256288.76	-1256288.58	0.0510	0.0240
Mars	-8149-02-04 00:00 J	-1254965.56	-1254965.50	-1254965.42	0.0499	0.0479
Mercury	-8149-08-04 04:19 J	-1254783.41	-1254783.32	-1254783.22	0.0501	0.0430
Mercury	-8149-11-02 17:16 J	-1254692.92	-1254692.78	-1254692.63	0.0502	0.0317
Venus	-8147-12-12 00:14 J	-1253923.68	-1253923.49	-1253923.30	0.0518	0.0176
Mercury	-8143-07-02 19:40 J	-1252624.80	-1252624.68	-1252624.55	0.0524	0.0017
Venus	-8141-02-24 16:04 J	-1252022.91	-1252022.83	-1252022.75	0.0511	0.0465
Venus	-8141-10-18 03:50 J	-1251786.48	-1251786.34	-1251786.18	0.0506	0.0330
Mercury	-8137-08-21 13:40 J	-1250383.11	-1250382.93	-1250382.74	0.0502	0.0132
Venus	-8135-08-16 16:19 J	-1249658.02	-1249657.82	-1249657.61	0.0517	0.0068
Moon	-8134-05-24 19:12 J	-1249376.91	-1249376.70	-1249376.49	0.0522	0.0232
Earth	-8134-05-24 22:47 J	-1249376.76	-1249376.55	-1249376.33	0.0522	0.0226 *
Mars	-8132-11-17 17:02 J	-1248469.01	-1248468.79	-1248468.56	0.0527	0.0309
Mercury	-8131-04-21 00:00 J	-1248314.62	-1248314.50	-1248314.37	0.0524	0.0149
Mercury	-8131-07-19 04:33 J	-1248225.38	-1248225.31	-1248225.22	0.0523	0.0394
Venus	-8129-06-23 04:47 J	-1247520.49	-1247520.30	-1247520.10	0.0508	0.0113
Mercury	-8125-06-09 10:04 J	-1246073.27	-1246073.08	-1246072.90	0.0501	0.0057

Venus	-8123-04-21 07:55 J	-1245392.33	-1245392.17	-1245392.00	0.0515	0.0310
Earth	-8122-05-29 19:40 J	-1244988.90	-1244988.68	-1244988.46	0.0523	0.0155
Moon	-8122-05-29 22:33 J	-1244988.77	-1244988.56	-1244988.34	0.0523	0.0189 *
Mercury	-8119-02-07 04:19 J	-1244004.42	-1244004.32	-1244004.21	0.0525	0.0288
Mercury	-8119-05-07 09:07 J	-1243915.23	-1243915.12	-1243915.01	0.0524	0.0257
Venus	-8117-02-27 05:16 J	-1243254.47	-1243254.28	-1243254.08	0.0510	0.0108
Moon	-8117-11-14 20:52 J	-1242992.68	-1242992.63	-1242992.57	0.0504	0.0489
Earth	-8117-11-14 22:47 J	-1242992.57	-1242992.55	-1242992.52	0.0504	0.0500 *
Mars	-8114-11-08 19:55 J	-1241903.93	-1241903.67	-1241903.41	0.0499	0.0116
Mercury	-8113-03-28 06:14 J	-1241763.40	-1241763.24	-1241763.07	0.0501	0.0242
Venus	-8111-08-19 13:40 J	-1240889.09	-1240888.93	-1240888.76	0.0519	0.0314
Mercury	-8108-11-26 08:52 J	-1239694.20	-1239694.13	-1239694.05	0.0525	0.0422
Mercury	-8107-02-23 13:40 J	-1239605.05	-1239604.93	-1239604.80	0.0524	0.0126
Venus	-8106-11-02 03:50 J	-1238988.49	-1238988.34	-1238988.19	0.0511	0.0335
Venus	-8105-06-25 14:38 J	-1238751.98	-1238751.89	-1238751.80	0.0505	0.0454
Earth	-8105-11-19 06:57 J	-1238605.42	-1238605.21	-1238604.99	0.0503	0.0174
Moon	-8105-11-19 06:57 J	-1238605.42	-1238605.21	-1238604.99	0.0503	0.0148 *
Mercury	-8101-01-15 01:40 J	-1237453.52	-1237453.43	-1237453.34	0.0501	0.0438
Mercury	-8101-04-14 14:38 J	-1237363.04	-1237362.89	-1237362.74	0.0502	0.0308
Venus	-8099-04-24 06:43 J	-1236623.42	-1236623.22	-1236623.01	0.0518	0.0073
Mars	-8096-08-25 04:04 J	-1235404.59	-1235404.33	-1235404.06	0.0526	0.0179
Mercury	-8096-12-12 18:28 J	-1235294.85	-1235294.73	-1235294.60	0.0524	0.0014
Venus	-8093-02-29 15:35 J	-1234486.03	-1234485.85	-1234485.67	0.0507	0.0240
Earth	-8093-11-23 17:45 J	-1234217.98	-1234217.76	-1234217.54	0.0502	0.0162
Moon	-8093-11-23 19:40 J	-1234217.90	-1234217.68	-1234217.44	0.0502	0.0152 *
Mercury	-8089-02-01 11:02 J	-1233053.22	-1233053.04	-1233052.85	0.0502	0.0125
Venus	-8088-12-28 00:14 J	-1232357.68	-1232357.49	-1232357.29	0.0516	0.0166
Mercury	-8084-09-30 22:47 J	-1230984.67	-1230984.55	-1230984.43	0.0524	0.0146
Mercury	-8084-12-29 03:21 J	-1230895.44	-1230895.36	-1230895.28	0.0523	0.0394
Venus	-8082-11-04 15:07 J	-1230220.07	-1230219.87	-1230219.66	0.0508	0.0023



Moon	-8081-11-28 00:57 J	-1229830.54	-1229830.46	-1229830.37	0.0501	0.0460
Earth	-8081-11-28 04:04 J	-1229830.36	-1229830.33	-1229830.28	0.0501	0.0492
Mars	-8078-08-13 07:40 J	-1228842.41	-1228842.18	-1228841.95	0.0500	0.0239
Mercury	-8078-11-20 07:55 J	-1228743.36	-1228743.17	-1228742.99	0.0502	0.0058
Venus	-8076-09-01 17:45 J	-1228091.88	-1228091.76	-1228091.63	0.0515	0.0402
Venus	-8075-04-27 06:57 J	-1227854.29	-1227854.21	-1227854.11	0.0520	0.0464
Mercury	-8072-07-20 03:07 J	-1226674.48	-1226674.37	-1226674.27	0.0525	0.0285
Mercury	-8072-10-17 07:40 J	-1226585.28	-1226585.18	-1226585.07	0.0523	0.0260
Venus	-8070-07-10 15:21 J	-1225954.04	-1225953.86	-1225953.67	0.0510	0.0202
Mercury	-8066-09-08 04:19 J	-1224433.48	-1224433.32	-1224433.15	0.0501	0.0240
Venus	-8064-12-30 21:50 J	-1223588.78	-1223588.59	-1223588.41	0.0518	0.0215
Mercury	-8060-05-08 07:26 J	-1222364.26	-1222364.19	-1222364.12	0.0525	0.0425
Mercury	-8060-08-05 12:14 J	-1222275.11	-1222274.99	-1222274.87	0.0524	0.0122
Venus	-8058-03-15 15:07 J	-1221687.98	-1221687.87	-1221687.76	0.0512	0.0426
Venus	-8058-11-07 03:21 J	-1221451.50	-1221451.36	-1221451.23	0.0507	0.0372
Mercury	-8054-06-27 00:43 J	-1220123.56	-1220123.47	-1220123.37	0.0501	0.0424
Mercury	-8054-09-25 13:40 J	-1220033.08	-1220032.93	-1220032.79	0.0502	0.0321
Venus	-8052-09-04 14:38 J	-1219323.09	-1219322.89	-1219322.68	0.0517	0.0028
Earth	-8051-05-23 23:31 J	-1219061.72	-1219061.52	-1219061.33	0.0522	0.0293
Moon	-8051-05-24 02:38 J	-1219061.58	-1219061.39	-1219061.19	0.0522	0.0290 *
Mercury	-8048-05-24 17:02 J	-1217964.92	-1217964.79	-1217964.67	0.0524	0.0010
Venus	-8046-07-13 02:52 J	-1217185.57	-1217185.38	-1217185.18	0.0507	0.0152
Mercury	-8042-07-14 08:52 J	-1215723.31	-1215723.13	-1215722.95	0.0502	0.0122
Venus	-8040-05-10 07:55 J	-1215057.34	-1215057.17	-1215056.99	0.0516	0.0266
Moon	-8039-05-29 00:14 J	-1214673.72	-1214673.49	-1214673.26	0.0524	0.0137
Earth	-8039-05-29 02:09 J	-1214673.64	-1214673.41	-1214673.18	0.0524	0.0104 *
Mercury	-8036-03-12 21:50 J	-1213654.71	-1213654.59	-1213654.47	0.0524	0.0138
Mercury	-8036-06-10 02:24 J	-1213565.48	-1213565.40	-1213565.32	0.0523	0.0403
Venus	-8034-03-18 03:35 J	-1212919.55	-1212919.35	-1212919.15	0.0509	0.0069
Mercury	-8030-05-02 05:31 J	-1211413.45	-1211413.27	-1211413.08	0.0502	0.0060

Venus	-8028-01-13 02:38 J	-1210791.44	-1210791.39	-1210791.34	0.0514	0.0497
Venus	-8028-09-07 15:21 J	-1210554.00	-1210553.86	-1210553.71	0.0520	0.0368
Earth	-8027-06-03 03:50 J	-1210285.40	-1210285.34	-1210285.26	0.0524	0.0501
Moon	-8027-06-03 03:50 J	-1210285.39	-1210285.34	-1210285.27	0.0524	0.0503 *
Mercury	-8025-12-30 02:09 J	-1209344.52	-1209344.41	-1209344.30	0.0524	0.0277
Mercury	-8024-03-29 06:43 J	-1209255.32	-1209255.22	-1209255.11	0.0523	0.0266
Venus	-8023-11-21 02:38 J	-1208653.55	-1208653.39	-1208653.22	0.0510	0.0293
Venus	-8022-07-15 13:12 J	-1208416.97	-1208416.95	-1208416.91	0.0505	0.0498
Earth	-8022-11-19 13:26 J	-1208290.15	-1208289.94	-1208289.74	0.0503	0.0226
Moon	-8022-11-19 15:21 J	-1208290.08	-1208289.86	-1208289.64	0.0503	0.0202 *
Mercury	-8018-02-18 02:24 J	-1207103.56	-1207103.40	-1207103.23	0.0501	0.0238
Venus	-8016-05-13 07:55 J	-1206288.36	-1206288.17	-1206287.96	0.0518	0.0124
Mercury	-8013-10-18 06:28 J	-1205034.30	-1205034.23	-1205034.15	0.0525	0.0415
Mercury	-8012-01-15 11:16 J	-1204945.15	-1204945.03	-1204944.91	0.0524	0.0130
Venus	-8010-03-20 14:38 J	-1204151.05	-1204150.89	-1204150.72	0.0507	0.0285
Moon	-8010-11-23 22:19 J	-1203902.79	-1203902.57	-1203902.34	0.0502	0.0098
Earth	-8010-11-24 01:40 J	-1203902.65	-1203902.43	-1203902.20	0.0502	0.0114 *
Mercury	-8007-12-06 23:16 J	-1202793.63	-1202793.53	-1202793.42	0.0501	0.0417
Mercury	-8006-03-07 12:00 J	-1202703.13	-1202703.00	-1202702.85	0.0502	0.0329
Venus	-8004-01-16 00:00 J	-1202022.70	-1202022.50	-1202022.30	0.0516	0.0122
Mercury	-8001-11-03 15:35 J	-1200634.97	-1200634.85	-1200634.72	0.0524	0.0015

# 8TH MILLENNIUM BCE

This is a list of transits visible from Jupiter in the 8th millennium BCE.

PLANET	MAX-	C	START	MAX	END	SUNRAD	DEPTH	S
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## TRANSIT

## TIME

Venus	-7999-11-23 15:50 J	-1199885.04	-1199884.84	-1199884.64	0.0508	0.0067
Earth	-7998-11-28 13:55 J	-1199515.02	-1199514.92	-1199514.82	0.0502	0.0452
Moon	-7998-11-28 17:45 J	-1199514.88	-1199514.76	-1199514.63	0.0502	0.0421 *
Mars	-7995-04-30 03:07 J	-1198631.53	-1198631.37	-1198631.19	0.0499	0.0385
Mercury	-7995-12-24 08:38 J	-1198393.32	-1198393.14	-1198392.96	0.0502	0.0143
Venus	-7993-09-20 17:45 J	-1197756.90	-1197756.76	-1197756.61	0.0515	0.0359
Venus	-7992-05-16 07:12 J	-1197519.24	-1197519.20	-1197519.17	0.0520	0.0510
Mercury	-7989-08-22 20:24 J	-1196324.77	-1196324.65	-1196324.52	0.0524	0.0138
Mercury	-7989-11-20 00:57 J	-1196235.53	-1196235.46	-1196235.38	0.0523	0.0405
Venus	-7987-07-29 15:35 J	-1195619.04	-1195618.85	-1195618.66	0.0509	0.0157
Mercury	-7983-10-12 03:35 J	-1194083.53	-1194083.35	-1194083.16	0.0502	0.0059
Venus	-7980-01-18 23:31 J	-1193253.70	-1193253.52	-1193253.34	0.0519	0.0268
Mars	-7977-02-12 08:24 J	-1192134.41	-1192134.15	-1192133.88	0.0526	0.0176
Mercury	-7977-06-11 01:26 J	-1192014.55	-1192014.44	-1192014.33	0.0525	0.0264
Mercury	-7977-09-08 06:00 J	-1191925.35	-1191925.25	-1191925.14	0.0523	0.0279
Venus	-7975-04-03 15:50 J	-1191352.97	-1191352.84	-1191352.70	0.0511	0.0379
Venus	-7975-11-26 02:52 J	-1191116.49	-1191116.38	-1191116.26	0.0506	0.0416
Mercury	-7971-07-31 00:28 J	-1189773.64	-1189773.48	-1189773.31	0.0502	0.0237
Venus	-7969-09-23 17:16 J	-1188987.99	-1188987.78	-1188987.57	0.0518	0.0028
Moon	-7968-05-23 06:28 J	-1188746.41	-1188746.23	-1188746.04	0.0523	0.0328
Earth	-7968-05-23 08:38 J	-1188746.31	-1188746.14	-1188745.95	0.0523	0.0337 *
Mercury	-7965-03-30 05:45 J	-1187704.34	-1187704.26	-1187704.18	0.0525	0.0403
Mercury	-7965-06-27 10:33 J	-1187615.18	-1187615.06	-1187614.94	0.0523	0.0143
Venus	-7963-08-01 03:21 J	-1186850.54	-1186850.36	-1186850.17	0.0507	0.0200
Mars	-7959-02-01 19:55 J	-1185569.94	-1185569.67	-1185569.40	0.0500	0.0023
Mercury	-7959-05-18 21:35 J	-1185463.70	-1185463.60	-1185463.49	0.0501	0.0412
Mercury	-7959-08-17 10:33 J	-1185373.19	-1185373.06	-1185372.92	0.0503	0.0336
Venus	-7957-05-29 10:47 J	-1184722.23	-1184722.05	-1184721.86	0.0516	0.0212

Earth	-7956-05-28 10:04 J	-1184358.32	-1184358.08	-1184357.85	0.0523	0.0057
Moon	-7956-05-28 10:19 J	-1184358.29	-1184358.07	-1184357.85	0.0523	0.0088 *
Mercury	-7953-04-15 14:52 J	-1183305.00	-1183304.88	-1183304.75	0.0524	0.0019
Venus	-7951-04-06 04:04 J	-1182584.53	-1182584.33	-1182584.13	0.0509	0.0021
Mercury	-7947-06-05 07:26 J	-1181063.37	-1181063.19	-1181063.01	0.0502	0.0154
Venus	-7945-02-02 04:19 J	-1180456.42	-1180456.32	-1180456.22	0.0514	0.0449
Venus	-7945-09-26 16:47 J	-1180218.92	-1180218.80	-1180218.68	0.0519	0.0418
Earth	-7944-06-02 08:38 J	-1179970.26	-1179970.14	-1179970.01	0.0524	0.0443
Moon	-7944-06-02 10:47 J	-1179970.19	-1179970.05	-1179969.92	0.0524	0.0434 *
Mars	-7942-11-19 10:47 J	-1179070.28	-1179070.05	-1179069.82	0.0526	0.0301
Mercury	-7941-02-02 19:26 J	-1178994.81	-1178994.69	-1178994.57	0.0524	0.0131
Mercury	-7941-05-02 00:00 J	-1178905.58	-1178905.50	-1178905.42	0.0523	0.0410
Venus	-7940-12-10 04:19 J	-1178318.50	-1178318.32	-1178318.14	0.0510	0.0244
Moon	-7939-11-18 21:21 J	-1177974.80	-1177974.61	-1177974.40	0.0504	0.0241
Earth	-7939-11-19 00:43 J	-1177974.66	-1177974.47	-1177974.26	0.0504	0.0260 *
Mercury	-7935-03-24 03:50 J	-1176753.52	-1176753.34	-1176753.15	0.0502	0.0032
Venus	-7933-06-01 09:21 J	-1175953.30	-1175953.11	-1175952.91	0.0518	0.0174
Mercury	-7930-11-22 00:14 J	-1174684.60	-1174684.49	-1174684.38	0.0525	0.0260
Mercury	-7929-02-19 05:02 J	-1174595.40	-1174595.29	-1174595.19	0.0523	0.0284
Venus	-7928-08-15 04:04 J	-1174052.41	-1174052.33	-1174052.25	0.0511	0.0467
Venus	-7927-04-08 16:04 J	-1173815.98	-1173815.83	-1173815.68	0.0506	0.0334
Earth	-7927-11-23 10:47 J	-1173587.28	-1173587.05	-1173586.82	0.0502	0.0072
Moon	-7927-11-23 14:52 J	-1173587.11	-1173586.88	-1173586.65	0.0502	0.0052 *
Mars	-7924-11-06 09:21 J	-1172508.31	-1172508.11	-1172507.91	0.0500	0.0334
Mercury	-7923-01-09 23:02 J	-1172443.70	-1172443.54	-1172443.37	0.0501	0.0230
Venus	-7921-02-05 01:55 J	-1171687.62	-1171687.42	-1171687.21	0.0517	0.0070
Mercury	-7918-09-10 05:16 J	-1170374.37	-1170374.28	-1170374.20	0.0525	0.0387
Mercury	-7918-12-08 09:50 J	-1170285.20	-1170285.09	-1170284.97	0.0524	0.0160
Venus	-7916-12-12 17:31 J	-1169549.96	-1169549.77	-1169549.57	0.0507	0.0118
Moon	-7915-11-27 18:57 J	-1169199.86	-1169199.71	-1169199.56	0.0501	0.0376

Earth	-7915-11-27 22:47 J	-1169199.68	-1169199.55	-1169199.42	0.0501	0.0407 *
Mercury	-7912-10-28 19:55 J	-1168133.77	-1168133.67	-1168133.55	0.0501	0.0407
Mercury	-7911-01-27 09:07 J	-1168043.26	-1168043.12	-1168042.99	0.0503	0.0341
Venus	-7910-10-10 20:24 J	-1167421.81	-1167421.65	-1167421.48	0.0516	0.0306
Mercury	-7906-06-29 09:35 J	-1166064.10	-1166064.10	-1166064.10	0.0525	0.0525
Mercury	-7906-09-26 14:24 J	-1165975.02	-1165974.90	-1165974.77	0.0524	0.0025
Venus	-7904-08-17 17:31 J	-1165283.97	-1165283.77	-1165283.58	0.0509	0.0106
Mercury	-7900-11-15 06:00 J	-1163733.42	-1163733.25	-1163733.07	0.0502	0.0164
Venus	-7897-02-08 03:50 J	-1162918.50	-1162918.34	-1162918.18	0.0519	0.0329
Mercury	-7894-07-15 18:57 J	-1161664.83	-1161664.71	-1161664.59	0.0524	0.0113
Mercury	-7894-10-12 23:31 J	-1161575.59	-1161575.52	-1161575.45	0.0523	0.0426
Venus	-7892-04-22 17:02 J	-1161017.93	-1161017.79	-1161017.63	0.0511	0.0331
Venus	-7892-12-15 04:19 J	-1160781.39	-1160781.32	-1160781.24	0.0506	0.0468
Mercury	-7888-09-03 03:07 J	-1159423.56	-1159423.37	-1159423.18	0.0502	0.0017
Venus	-7886-10-13 19:55 J	-1158652.87	-1158652.67	-1158652.46	0.0517	0.0083
Earth	-7885-05-22 16:04 J	-1158430.98	-1158430.83	-1158430.67	0.0522	0.0383
Moon	-7885-05-22 17:02 J	-1158430.95	-1158430.79	-1158430.63	0.0522	0.0371 *
Mercury	-7882-05-03 23:16 J	-1157354.64	-1157354.53	-1157354.42	0.0525	0.0252
Mercury	-7882-08-01 03:50 J	-1157265.44	-1157265.34	-1157265.23	0.0523	0.0293
Venus	-7880-08-20 06:00 J	-1156515.42	-1156515.25	-1156515.07	0.0507	0.0253
Mercury	-7876-06-21 23:45 J	-1155113.68	-1155113.51	-1155113.34	0.0501	0.0198
Venus	-7874-06-18 13:12 J	-1154387.14	-1154386.95	-1154386.75	0.0516	0.0160
Earth	-7873-05-27 17:45 J	-1154043.00	-1154042.76	-1154042.53	0.0523	0.0013
Moon	-7873-05-27 19:12 J	-1154042.95	-1154042.70	-1154042.46	0.0523	0.0038 *
Mercury	-7870-02-20 04:04 J	-1153044.41	-1153044.33	-1153044.24	0.0525	0.0380
Mercury	-7870-05-20 08:52 J	-1152955.25	-1152955.13	-1152955.01	0.0524	0.0166
Venus	-7868-04-25 06:57 J	-1152249.41	-1152249.21	-1152249.01	0.0508	0.0034
Mercury	-7864-04-09 18:57 J	-1150803.83	-1150803.71	-1150803.60	0.0501	0.0397
Mercury	-7864-07-09 07:40 J	-1150713.31	-1150713.18	-1150713.04	0.0502	0.0350
Venus	-7862-02-21 05:45 J	-1150121.38	-1150121.26	-1150121.13	0.0515	0.0401

Venus	-7862-10-16 19:40 J	-1149883.76	-1149883.68	-1149883.60	0.0520	0.0476
Moon	-7861-06-01 16:04 J	-1149654.99	-1149654.83	-1149654.68	0.0525	0.0385
Earth	-7861-06-01 19:12 J	-1149654.84	-1149654.70	-1149654.54	0.0525	0.0403 *
Mars	-7859-08-02 06:57 J	-1148863.28	-1148863.21	-1148863.12	0.0527	0.0502
Mercury	-7859-12-09 09:07 J	-1148734.15	-1148734.12	-1148734.09	0.0525	0.0508
Mercury	-7858-03-08 13:55 J	-1148645.04	-1148644.92	-1148644.79	0.0524	0.0042
Venus	-7857-12-29 07:55 J	-1147983.35	-1147983.17	-1147982.98	0.0509	0.0187
Earth	-7856-11-18 12:28 J	-1147659.16	-1147658.98	-1147658.79	0.0503	0.0294
Moon	-7856-11-18 16:33 J	-1147659.00	-1147658.81	-1147658.61	0.0503	0.0277 *
Mercury	-7852-04-27 04:33 J	-1146403.49	-1146403.31	-1146403.13	0.0502	0.0170
Venus	-7850-06-21 13:12 J	-1145618.13	-1145617.95	-1145617.77	0.0519	0.0235
Mercury	-7847-12-25 18:28 J	-1144334.85	-1144334.73	-1144334.61	0.0524	0.0095
Mercury	-7846-03-24 23:02 J	-1144245.60	-1144245.54	-1144245.48	0.0522	0.0443
Venus	-7845-09-03 06:57 J	-1143717.32	-1143717.21	-1143717.09	0.0511	0.0414
Venus	-7844-04-27 18:43 J	-1143480.85	-1143480.72	-1143480.60	0.0506	0.0388
Moon	-7844-11-22 19:26 J	-1143271.92	-1143271.69	-1143271.45	0.0502	0.0015
Earth	-7844-11-22 23:16 J	-1143271.76	-1143271.53	-1143271.30	0.0502	0.0037 *
Mars	-7841-07-24 13:40 J	-1142297.14	-1142296.93	-1142296.70	0.0499	0.0275
Mercury	-7840-02-13 01:40 J	-1142093.61	-1142093.43	-1142093.24	0.0502	0.0013
Venus	-7838-02-24 06:57 J	-1141352.41	-1141352.21	-1141352.00	0.0517	0.0013
Mercury	-7835-10-13 22:47 J	-1140024.66	-1140024.55	-1140024.43	0.0524	0.0233
Mercury	-7834-01-11 03:35 J	-1139935.45	-1139935.35	-1139935.25	0.0523	0.0310
Venus	-7833-12-31 19:26 J	-1139214.88	-1139214.69	-1139214.50	0.0507	0.0171
Earth	-7832-11-27 11:02 J	-1138884.19	-1138884.04	-1138883.88	0.0502	0.0372
Moon	-7832-11-27 13:26 J	-1138884.09	-1138883.94	-1138883.77	0.0502	0.0353 *
Mercury	-7829-12-01 22:47 J	-1137783.72	-1137783.55	-1137783.37	0.0501	0.0184
Venus	-7827-10-30 00:14 J	-1137086.67	-1137086.49	-1137086.31	0.0515	0.0250
Mars	-7823-05-09 07:55 J	-1135799.45	-1135799.17	-1135798.89	0.0526	0.0027
Mercury	-7823-08-02 03:07 J	-1135714.45	-1135714.37	-1135714.28	0.0525	0.0371
Mercury	-7823-10-30 07:55 J	-1135625.28	-1135625.17	-1135625.05	0.0524	0.0176

Venus	-7821-09-05 20:24 J	-1134948.85	-1134948.65	-1134948.45	0.0509	0.0051
Mercury	-7817-09-19 19:26 J	-1133473.81	-1133473.69	-1133473.56	0.0501	0.0364
Mercury	-7817-12-19 08:24 J	-1133383.27	-1133383.15	-1133383.03	0.0502	0.0383
Venus	-7815-07-04 18:14 J	-1132820.80	-1132820.74	-1132820.67	0.0514	0.0485
Venus	-7814-02-27 06:43 J	-1132583.35	-1132583.22	-1132583.08	0.0519	0.0386
Mercury	-7811-05-21 07:55 J	-1131404.20	-1131404.17	-1131404.13	0.0525	0.0501
Mercury	-7811-08-18 12:57 J	-1131315.08	-1131314.96	-1131314.83	0.0524	0.0049
Venus	-7809-05-11 21:07 J	-1130682.79	-1130682.62	-1130682.45	0.0510	0.0273
Mars	-7805-04-28 06:28 J	-1129235.49	-1129235.23	-1129234.97	0.0500	0.0089
Mercury	-7805-10-07 03:21 J	-1129073.53	-1129073.36	-1129073.18	0.0502	0.0180
Venus	-7803-11-01 22:04 J	-1128317.78	-1128317.58	-1128317.38	0.0518	0.0138
Earth	-7802-05-23 01:12 J	-1128115.58	-1128115.45	-1128115.31	0.0523	0.0429
Moon	-7802-05-23 02:09 J	-1128115.56	-1128115.41	-1128115.25	0.0523	0.0409 *
Mercury	-7799-06-06 18:00 J	-1127004.87	-1127004.75	-1127004.63	0.0524	0.0078
Mercury	-7799-09-03 22:33 J	-1126915.62	-1126915.56	-1126915.50	0.0523	0.0462
Venus	-7797-01-15 21:35 J	-1126416.65	-1126416.60	-1126416.55	0.0511	0.0496
Venus	-7797-09-08 09:35 J	-1126180.25	-1126180.10	-1126179.93	0.0506	0.0311
Mercury	-7793-07-26 00:14 J	-1124763.68	-1124763.49	-1124763.30	0.0502	0.0005
Venus	-7791-07-07 16:04 J	-1124052.03	-1124051.83	-1124051.62	0.0517	0.0103
Moon	-7790-05-28 01:40 J	-1123727.66	-1123727.43	-1123727.20	0.0524	0.0012
Earth	-7790-05-28 04:47 J	-1123727.53	-1123727.30	-1123727.06	0.0524	0.0032 *
Mars	-7787-02-14 06:00 J	-1122734.36	-1122734.25	-1122734.15	0.0525	0.0486
Mercury	-7787-03-25 22:33 J	-1122694.68	-1122694.56	-1122694.45	0.0524	0.0214
Mercury	-7787-06-23 03:07 J	-1122605.47	-1122605.37	-1122605.27	0.0523	0.0328
Venus	-7785-05-14 09:50 J	-1121914.29	-1121914.09	-1121913.89	0.0508	0.0089
Mercury	-7781-05-13 21:35 J	-1120453.78	-1120453.60	-1120453.43	0.0502	0.0175
Venus	-7779-03-12 11:02 J	-1119786.19	-1119786.04	-1119785.88	0.0515	0.0340
Earth	-7778-06-02 07:12 J	-1119339.36	-1119339.20	-1119339.02	0.0524	0.0367
Moon	-7778-06-02 11:31 J	-1119339.20	-1119339.02	-1119338.85	0.0524	0.0341 *
Mercury	-7775-01-12 02:52 J	-1118384.47	-1118384.38	-1118384.28	0.0525	0.0351

Mercury	-7775-04-11 07:40 J	-1118295.30	-1118295.18	-1118295.06	0.0523	0.0194
Venus	-7773-01-18 09:50 J	-1117648.28	-1117648.09	-1117647.89	0.0509	0.0136
Moon	-7773-11-17 20:52 J	-1117343.81	-1117343.63	-1117343.45	0.0503	0.0317
Earth	-7773-11-18 00:43 J	-1117343.64	-1117343.47	-1117343.30	0.0503	0.0329 *
Mars	-7769-02-01 09:07 J	-1116173.21	-1116173.12	-1116173.03	0.0501	0.0467
Mercury	-7769-03-01 18:43 J	-1116143.85	-1116143.72	-1116143.59	0.0501	0.0351
Mercury	-7769-05-31 07:26 J	-1116053.30	-1116053.19	-1116053.07	0.0503	0.0397
Venus	-7767-07-10 16:47 J	-1115282.97	-1115282.80	-1115282.63	0.0519	0.0294
Mercury	-7764-10-31 07:12 J	-1114074.24	-1114074.20	-1114074.16	0.0525	0.0491
Mercury	-7763-01-28 12:00 J	-1113985.12	-1113985.00	-1113984.87	0.0524	0.0058
Venus	-7762-09-23 09:50 J	-1113382.23	-1113382.09	-1113381.95	0.0511	0.0362
Venus	-7761-05-16 21:21 J	-1113145.70	-1113145.61	-1113145.51	0.0506	0.0444
Earth	-7761-11-22 12:57 J	-1112956.20	-1112955.96	-1112955.73	0.0503	0.0011
Moon	-7761-11-22 15:21 J	-1112956.09	-1112955.86	-1112955.64	0.0503	0.0018 *
Mercury	-7757-03-19 04:04 J	-1111743.50	-1111743.33	-1111743.16	0.0502	0.0213
Venus	-7755-03-15 09:50 J	-1111017.30	-1111017.09	-1111016.89	0.0517	0.0048
Mercury	-7752-11-16 17:02 J	-1109674.92	-1109674.79	-1109674.67	0.0524	0.0071
Mercury	-7751-02-13 21:35 J	-1109585.65	-1109585.60	-1109585.55	0.0523	0.0469
Venus	-7749-01-20 23:02 J	-1108879.71	-1108879.54	-1108879.35	0.0507	0.0229
Moon	-7749-11-26 23:31 J	-1108568.70	-1108568.52	-1108568.33	0.0501	0.0325
Earth	-7749-11-27 00:00 J	-1108568.66	-1108568.50	-1108568.32	0.0501	0.0338 *
Mercury	-7745-01-05 23:02 J	-1107433.73	-1107433.54	-1107433.35	0.0502	0.0011
Venus	-7744-11-18 00:57 J	-1106751.64	-1106751.46	-1106751.27	0.0516	0.0200
Mercury	-7740-09-04 21:50 J	-1105364.70	-1105364.59	-1105364.47	0.0525	0.0199
Mercury	-7740-12-03 02:38 J	-1105275.49	-1105275.39	-1105275.30	0.0523	0.0344
Venus	-7738-09-26 00:43 J	-1104613.67	-1104613.47	-1104613.26	0.0508	0.0013
Mercury	-7734-10-24 19:55 J	-1103123.85	-1103123.67	-1103123.49	0.0501	0.0170
Venus	-7732-07-23 19:55 J	-1102485.77	-1102485.67	-1102485.56	0.0515	0.0435
Venus	-7731-03-18 09:21 J	-1102248.20	-1102248.11	-1102248.00	0.0520	0.0447
Mercury	-7728-06-24 02:24 J	-1101054.50	-1101054.40	-1101054.30	0.0525	0.0335



Mercury	-7728-09-21 07:12 J	-1100965.32	-1100965.20	-1100965.09	0.0523	0.0210
Venus	-7726-06-01 00:00 J	-1100347.68	-1100347.50	-1100347.32	0.0510	0.0219
Mercury	-7722-08-12 17:02 J	-1098813.92	-1098813.79	-1098813.65	0.0501	0.0345
Mercury	-7722-11-11 06:00 J	-1098723.36	-1098723.25	-1098723.14	0.0503	0.0404
Venus	-7720-11-21 02:52 J	-1097982.57	-1097982.38	-1097982.19	0.0519	0.0202
Moon	-7719-05-22 10:19 J	-1097800.19	-1097800.07	-1097799.95	0.0522	0.0440
Earth	-7719-05-22 12:57 J	-1097800.06	-1097799.96	-1097799.85	0.0522	0.0463 *
Mercury	-7716-04-12 06:43 J	-1096744.27	-1096744.22	-1096744.16	0.0525	0.0472
Mercury	-7716-07-10 11:31 J	-1096655.14	-1096655.02	-1096654.89	0.0524	0.0077
Venus	-7714-02-03 23:02 J	-1096081.63	-1096081.54	-1096081.44	0.0511	0.0447
Venus	-7714-09-28 11:02 J	-1095845.17	-1095845.04	-1095844.89	0.0506	0.0363
Mercury	-7710-08-30 02:52 J	-1094413.55	-1094413.38	-1094413.21	0.0502	0.0224
Venus	-7708-07-26 19:40 J	-1093716.88	-1093716.68	-1093716.47	0.0517	0.0046
Earth	-7707-05-27 12:57 J	-1093412.19	-1093411.96	-1093411.72	0.0523	0.0077
Moon	-7707-05-27 17:02 J	-1093412.02	-1093411.79	-1093411.56	0.0523	0.0061 *
Mars	-7705-10-27 06:43 J	-1092528.42	-1092528.22	-1092528.01	0.0527	0.0355
Mercury	-7704-04-28 15:50 J	-1092344.96	-1092344.84	-1092344.71	0.0524	0.0066
Mercury	-7704-07-26 20:24 J	-1092255.70	-1092255.65	-1092255.60	0.0523	0.0475
Venus	-7702-06-03 12:00 J	-1091579.19	-1091579.00	-1091578.81	0.0508	0.0143
Mercury	-7698-06-17 23:31 J	-1090103.71	-1090103.52	-1090103.34	0.0502	0.0040
Venus	-7696-03-31 12:57 J	-1089451.12	-1089450.96	-1089450.78	0.0515	0.0289
Moon	-7695-06-01 10:33 J	-1089024.26	-1089024.06	-1089023.86	0.0524	0.0285
Earth	-7695-06-01 14:09 J	-1089024.09	-1089023.91	-1089023.72	0.0524	0.0315 *
Mercury	-7692-02-14 20:38 J	-1088034.75	-1088034.64	-1088034.52	0.0525	0.0194
Mercury	-7692-05-15 01:26 J	-1087945.53	-1087945.44	-1087945.35	0.0523	0.0349
Venus	-7690-02-06 13:26 J	-1087313.14	-1087312.94	-1087312.74	0.0509	0.0078
Earth	-7690-11-18 13:40 J	-1087028.08	-1087027.93	-1087027.76	0.0503	0.0361
Moon	-7690-11-18 16:04 J	-1087027.98	-1087027.83	-1087027.67	0.0503	0.0359 *
Mars	-7687-10-19 01:26 J	-1085962.70	-1085962.44	-1085962.19	0.0499	0.0165
Mercury	-7686-04-05 18:28 J	-1085793.91	-1085793.73	-1085793.55	0.0501	0.0162

Venus	-7684-07-29 17:02 J	-1084947.94	-1084947.79	-1084947.63	0.0520	0.0346
Mercury	-7681-12-04 01:26 J	-1083724.53	-1083724.44	-1083724.34	0.0525	0.0325
Mercury	-7680-03-03 06:28 J	-1083635.35	-1083635.23	-1083635.12	0.0524	0.0223
Venus	-7679-10-12 14:09 J	-1083047.07	-1083046.91	-1083046.75	0.0510	0.0302
Venus	-7678-06-06 00:43 J	-1082810.49	-1082810.47	-1082810.44	0.0505	0.0501
Moon	-7678-11-23 01:26 J	-1082640.68	-1082640.44	-1082640.20	0.0502	0.0054
Earth	-7678-11-23 01:55 J	-1082640.65	-1082640.42	-1082640.19	0.0502	0.0026 *
Mercury	-7674-01-22 15:21 J	-1081484.00	-1081483.86	-1081483.72	0.0501	0.0342
Mercury	-7674-04-23 04:04 J	-1081393.43	-1081393.33	-1081393.22	0.0502	0.0406
Venus	-7672-04-03 10:47 J	-1080682.25	-1080682.05	-1080681.85	0.0518	0.0102
Mars	-7669-08-03 21:35 J	-1079463.87	-1079463.60	-1079463.33	0.0526	0.0144
Mercury	-7669-09-22 06:00 J	-1079414.31	-1079414.25	-1079414.19	0.0525	0.0461
Mercury	-7669-12-20 10:47 J	-1079325.17	-1079325.05	-1079324.92	0.0524	0.0089
Venus	-7666-02-09 00:57 J	-1078544.63	-1078544.46	-1078544.29	0.0507	0.0281
Moon	-7666-11-27 09:50 J	-1078253.27	-1078253.09	-1078252.91	0.0501	0.0294
Earth	-7666-11-27 11:02 J	-1078253.22	-1078253.04	-1078252.85	0.0501	0.0298 *
Mercury	-7662-02-09 01:12 J	-1077083.62	-1077083.45	-1077083.28	0.0502	0.0226
Venus	-7661-12-07 05:02 J	-1076416.49	-1076416.29	-1076416.09	0.0517	0.0141
Mercury	-7657-10-08 15:21 J	-1075014.99	-1075014.86	-1075014.74	0.0524	0.0049
Mercury	-7656-01-05 19:55 J	-1074925.71	-1074925.67	-1074925.63	0.0522	0.0489
Venus	-7655-10-15 01:12 J	-1074278.65	-1074278.45	-1074278.25	0.0508	0.0057
Mars	-7651-07-24 01:55 J	-1072900.66	-1072900.42	-1072900.18	0.0500	0.0213
Mercury	-7651-11-27 22:04 J	-1072773.77	-1072773.58	-1072773.40	0.0502	0.0047
Venus	-7649-08-11 22:47 J	-1072150.68	-1072150.55	-1072150.41	0.0515	0.0382
Venus	-7648-04-06 11:45 J	-1071913.05	-1071913.01	-1071912.95	0.0520	0.0502
Mercury	-7645-07-27 19:40 J	-1070704.80	-1070704.68	-1070704.57	0.0525	0.0191
Mercury	-7645-10-25 00:14 J	-1070615.58	-1070615.49	-1070615.40	0.0523	0.0352
Venus	-7643-06-20 00:43 J	-1070012.65	-1070012.47	-1070012.27	0.0510	0.0171
Mercury	-7639-09-15 18:28 J	-1068463.91	-1068463.73	-1068463.55	0.0501	0.0138
Venus	-7637-12-10 03:50 J	-1067647.52	-1067647.34	-1067647.16	0.0519	0.0253

Earth	-7636-05-21 17:31 J	-1067484.79	-1067484.77	-1067484.75	0.0522	0.0519
Moon	-7636-05-21 21:35 J	-1067484.69	-1067484.60	-1067484.52	0.0522	0.0486
Mercury	-7633-05-16 00:14 J	-1066394.59	-1066394.49	-1066394.39	0.0525	0.0322
Mercury	-7633-08-13 05:02 J	-1066305.40	-1066305.29	-1066305.18	0.0524	0.0224
Venus	-7631-02-23 01:26 J	-1065746.56	-1065746.44	-1065746.31	0.0511	0.0395
Venus	-7631-10-17 13:12 J	-1065510.05	-1065509.95	-1065509.83	0.0506	0.0418
Mercury	-7627-07-04 13:40 J	-1064154.07	-1064153.93	-1064153.79	0.0501	0.0337
Mercury	-7627-10-03 02:24 J	-1064063.50	-1064063.40	-1064063.29	0.0502	0.0409
Venus	-7625-08-14 18:14 J	-1063381.95	-1063381.74	-1063381.54	0.0517	0.0012
Moon	-7624-05-26 11:31 J	-1063097.25	-1063097.02	-1063096.79	0.0524	0.0132
Earth	-7624-05-26 15:21 J	-1063097.08	-1063096.86	-1063096.63	0.0524	0.0145 *
Mercury	-7621-03-04 05:02 J	-1062084.35	-1062084.29	-1062084.23	0.0526	0.0455
Mercury	-7621-06-01 09:50 J	-1061995.21	-1061995.09	-1061994.96	0.0524	0.0095
Venus	-7619-06-22 14:52 J	-1061244.07	-1061243.88	-1061243.70	0.0507	0.0199
Mercury	-7615-07-21 22:47 J	-1059753.71	-1059753.55	-1059753.37	0.0502	0.0225
Venus	-7613-04-19 12:00 J	-1059116.17	-1059116.00	-1059115.81	0.0516	0.0244
Earth	-7612-05-31 18:28 J	-1058708.93	-1058708.73	-1058708.52	0.0525	0.0251
Moon	-7612-05-31 21:21 J	-1058708.82	-1058708.61	-1058708.41	0.0525	0.0223 *
Mercury	-7609-03-20 14:24 J	-1057685.03	-1057684.90	-1057684.78	0.0524	0.0043
Mercury	-7609-06-17 18:57 J	-1057595.75	-1057595.71	-1057595.68	0.0523	0.0497
Venus	-7607-02-25 14:09 J	-1056978.12	-1056977.91	-1056977.71	0.0509	0.0031
Moon	-7607-11-17 22:04 J	-1056712.71	-1056712.58	-1056712.44	0.0503	0.0412
Earth	-7607-11-17 22:33 J	-1056712.69	-1056712.56	-1056712.42	0.0503	0.0405 *
Mercury	-7603-05-09 19:55 J	-1055443.86	-1055443.67	-1055443.49	0.0502	0.0045
Venus	-7602-12-24 07:12 J	-1054850.27	-1054850.20	-1054850.12	0.0514	0.0480
Venus	-7601-08-17 19:55 J	-1054612.79	-1054612.67	-1054612.54	0.0520	0.0403
Mercury	-7597-01-07 18:43 J	-1053374.84	-1053374.72	-1053374.60	0.0525	0.0180
Mercury	-7597-04-05 23:16 J	-1053285.61	-1053285.53	-1053285.44	0.0523	0.0363
Venus	-7596-10-31 13:12 J	-1052712.12	-1052711.95	-1052711.78	0.0510	0.0260
Moon	-7595-11-22 07:26 J	-1052325.40	-1052325.19	-1052324.97	0.0502	0.0108

Earth	-7595-11-22 08:52 J	-1052325.36	-1052325.13	-1052324.90	0.0502	0.0077 *
Mercury	-7591-02-25 16:33 J	-1051133.99	-1051133.81	-1051133.63	0.0501	0.0137
Venus	-7589-04-22 12:14 J	-1050347.19	-1050346.99	-1050346.79	0.0518	0.0154
Mercury	-7586-10-26 22:47 J	-1049064.65	-1049064.55	-1049064.45	0.0525	0.0322
Mercury	-7585-01-24 03:35 J	-1048975.46	-1048975.35	-1048975.24	0.0524	0.0223
Venus	-7584-07-06 11:45 J	-1048446.06	-1048446.01	-1048445.96	0.0512	0.0491
Venus	-7583-02-28 00:28 J	-1048209.63	-1048209.48	-1048209.32	0.0507	0.0327
Earth	-7583-11-26 19:26 J	-1047937.89	-1047937.69	-1047937.49	0.0502	0.0252
Moon	-7583-11-26 22:04 J	-1047937.78	-1047937.58	-1047937.37	0.0502	0.0253 *
Mercury	-7580-12-14 12:57 J	-1046824.10	-1046823.96	-1046823.81	0.0501	0.0321
Mercury	-7579-03-15 01:40 J	-1046733.52	-1046733.43	-1046733.32	0.0502	0.0428
Venus	-7578-12-27 04:33 J	-1046081.51	-1046081.31	-1046081.11	0.0516	0.0096
Mercury	-7574-08-15 03:21 J	-1044754.42	-1044754.36	-1044754.30	0.0526	0.0457
Mercury	-7574-11-12 08:23 J	-1044665.28	-1044665.15	-1044665.03	0.0524	0.0093
Venus	-7572-11-03 01:55 J	-1043943.61	-1043943.42	-1043943.22	0.0508	0.0109
Mars	-7568-04-09 08:38 J	-1042690.26	-1042690.14	-1042690.01	0.0498	0.0440
Mercury	-7568-12-31 20:52 J	-1042423.80	-1042423.63	-1042423.46	0.0502	0.0223
Venus	-7566-08-31 19:26 J	-1041815.85	-1041815.69	-1041815.54	0.0515	0.0346
Mercury	-7562-08-31 12:57 J	-1040355.08	-1040354.96	-1040354.83	0.0525	0.0042
Mercury	-7562-11-28 17:31 J	-1040265.80	-1040265.77	-1040265.73	0.0523	0.0500
Venus	-7560-07-09 02:38 J	-1039677.58	-1039677.39	-1039677.19	0.0509	0.0118
Mercury	-7556-10-19 17:16 J	-1038113.97	-1038113.78	-1038113.59	0.0501	0.0038
Venus	-7554-12-30 01:26 J	-1037312.60	-1037312.44	-1037312.27	0.0519	0.0297
Mars	-7550-01-21 22:33 J	-1036193.82	-1036193.56	-1036193.31	0.0527	0.0230
Mercury	-7550-06-19 17:16 J	-1036044.89	-1036044.78	-1036044.66	0.0525	0.0180
Mercury	-7550-09-16 22:04 J	-1035955.67	-1035955.58	-1035955.49	0.0523	0.0364
Venus	-7548-03-14 00:43 J	-1035411.61	-1035411.47	-1035411.32	0.0511	0.0352
Venus	-7548-11-05 12:00 J	-1035175.07	-1035175.00	-1035174.91	0.0506	0.0461
Mercury	-7544-08-07 13:55 J	-1033804.10	-1033803.92	-1033803.74	0.0501	0.0145
Venus	-7542-09-03 19:26 J	-1033046.90	-1033046.69	-1033046.49	0.0518	0.0051

Earth	-7541-05-25 20:38 J	-1032781.85	-1032781.64	-1032781.42	0.0523	0.0200
Moon	-7541-05-26 00:00 J	-1032781.72	-1032781.50	-1032781.29	0.0523	0.0189 *
Mercury	-7538-04-07 21:50 J	-1031734.69	-1031734.59	-1031734.49	0.0525	0.0317
Mercury	-7538-07-06 02:23 J	-1031645.51	-1031645.40	-1031645.28	0.0523	0.0230
Venus	-7536-07-11 12:14 J	-1030909.17	-1030908.99	-1030908.81	0.0507	0.0238
Mars	-7532-01-12 06:00 J	-1029628.52	-1029628.25	-1029627.98	0.0499	0.0068
Mercury	-7532-05-26 10:47 J	-1029494.19	-1029494.05	-1029493.91	0.0501	0.0325
Mercury	-7532-08-24 23:31 J	-1029403.62	-1029403.52	-1029403.42	0.0502	0.0422
Venus	-7530-05-09 12:14 J	-1028781.17	-1028780.99	-1028780.79	0.0516	0.0197
Moon	-7529-05-30 19:12 J	-1028393.93	-1028393.70	-1028393.46	0.0524	0.0155
Earth	-7529-05-30 20:38 J	-1028393.86	-1028393.64	-1028393.42	0.0524	0.0184 *
Mercury	-7526-01-25 01:40 J	-1027424.48	-1027424.43	-1027424.37	0.0525	0.0462
Mercury	-7526-04-24 06:43 J	-1027335.34	-1027335.22	-1027335.10	0.0524	0.0087
Venus	-7524-03-16 11:45 J	-1026643.21	-1026643.01	-1026642.81	0.0509	0.0013
Moon	-7524-11-17 02:23 J	-1026397.46	-1026397.40	-1026397.32	0.0504	0.0478
Earth	-7524-11-17 04:04 J	-1026397.42	-1026397.33	-1026397.24	0.0504	0.0460 *
Mercury	-7520-06-12 19:40 J	-1025093.84	-1025093.68	-1025093.51	0.0502	0.0234
Venus	-7518-01-12 05:31 J	-1024515.37	-1024515.27	-1024515.17	0.0514	0.0440
Venus	-7518-09-06 17:45 J	-1024277.86	-1024277.76	-1024277.65	0.0519	0.0446
Mars	-7515-10-28 19:55 J	-1023129.92	-1023129.67	-1023129.42	0.0526	0.0252
Mercury	-7514-02-10 11:16 J	-1023025.16	-1023025.03	-1023024.91	0.0525	0.0047
Mercury	-7514-05-10 15:50 J	-1022935.88	-1022935.84	-1022935.80	0.0523	0.0493
Venus	-7513-11-19 12:14 J	-1022377.17	-1022376.99	-1022376.80	0.0510	0.0216
Earth	-7512-11-21 16:19 J	-1022010.04	-1022009.82	-1022009.60	0.0503	0.0128
Moon	-7512-11-21 18:57 J	-1022009.93	-1022009.71	-1022009.48	0.0503	0.0157 *
Mercury	-7508-03-31 14:52 J	-1020784.06	-1020783.88	-1020783.69	0.0501	0.0034
Venus	-7506-05-12 07:12 J	-1020012.39	-1020012.20	-1020012.01	0.0518	0.0188
Mercury	-7503-11-29 15:50 J	-1018714.96	-1018714.84	-1018714.72	0.0525	0.0184
Mercury	-7502-02-26 20:23 J	-1018625.73	-1018625.65	-1018625.56	0.0524	0.0362
Venus	-7501-07-25 12:00 J	-1018111.10	-1018111.00	-1018110.90	0.0512	0.0446

Venus	-7500-03-19 00:28 J	-1017874.61	-1017874.48	-1017874.34	0.0506	0.0375
Moon	-7500-11-25 23:45 J	-1017622.71	-1017622.51	-1017622.30	0.0501	0.0204
Earth	-7500-11-26 03:21 J	-1017622.57	-1017622.36	-1017622.15	0.0501	0.0202 *
Mars	-7497-10-16 17:16 J	-1016567.00	-1016566.78	-1016566.56	0.0499	0.0287
Mercury	-7496-01-17 11:16 J	-1016474.21	-1016474.03	-1016473.85	0.0501	0.0153
Venus	-7494-01-15 00:14 J	-1015746.69	-1015746.49	-1015746.28	0.0517	0.0060
Mercury	-7491-09-17 20:09 J	-1014404.76	-1014404.66	-1014404.56	0.0525	0.0322
Mercury	-7491-12-16 00:57 J	-1014315.57	-1014315.46	-1014315.35	0.0524	0.0225
Venus	-7489-11-21 23:16 J	-1013608.72	-1013608.53	-1013608.33	0.0508	0.0146
Mercury	-7485-11-05 07:40 J	-1012164.31	-1012164.18	-1012164.04	0.0501	0.0337
Mercury	-7484-02-03 20:38 J	-1012073.75	-1012073.64	-1012073.54	0.0502	0.0410
Venus	-7483-09-19 18:43 J	-1011480.88	-1011480.72	-1011480.55	0.0515	0.0303
Mercury	-7479-07-07 00:28 J	-1010094.54	-1010094.48	-1010094.42	0.0526	0.0461
Mercury	-7479-10-04 05:16 J	-1010005.40	-1010005.28	-1010005.15	0.0524	0.0089
Venus	-7477-07-27 22:33 J	-1009342.76	-1009342.56	-1009342.36	0.0509	0.0084
Mercury	-7473-11-22 16:47 J	-1007763.96	-1007763.80	-1007763.62	0.0502	0.0225
Venus	-7470-01-18 00:14 J	-1006977.64	-1006977.49	-1006977.33	0.0519	0.0341
Mercury	-7467-07-23 09:21 J	-1005695.23	-1005695.11	-1005694.98	0.0524	0.0056
Mercury	-7467-10-20 13:55 J	-1005605.96	-1005605.92	-1005605.87	0.0523	0.0484
Venus	-7465-04-01 20:38 J	-1005076.79	-1005076.64	-1005076.47	0.0511	0.0319
Venus	-7465-11-24 08:23 J	-1004840.18	-1004840.15	-1004840.12	0.0506	0.0498
Mercury	-7461-09-10 13:12 J	-1003454.14	-1003453.95	-1003453.76	0.0501	0.0037
Venus	-7459-09-22 16:04 J	-1002712.04	-1002711.83	-1002711.63	0.0517	0.0089
Moon	-7458-05-25 15:07 J	-1002467.07	-1002466.87	-1002466.66	0.0523	0.0273
Earth	-7458-05-25 17:31 J	-1002466.97	-1002466.77	-1002466.57	0.0523	0.0282 *
Mercury	-7455-05-11 13:55 J	-1001385.04	-1001384.92	-1001384.81	0.0525	0.0193
Mercury	-7455-08-08 18:28 J	-1001295.82	-1001295.73	-1001295.64	0.0524	0.0352
Venus	-7453-07-30 09:50 J	-1000574.25	-1000574.09	-1000573.92	0.0507	0.0280
Mercury	-7449-06-29 08:38 J	-999144.32	-999144.14	-999143.96	0.0500	0.0161
Venus	-7447-05-28 06:00 J	-998446.44	-998446.25	-998446.06	0.0516	0.0169

Moon	-7446-05-30 13:12 J	-998079.17	-998078.95	-998078.72	0.0524	0.0059
Earth	-7446-05-30 13:26 J	-998079.17	-998078.94	-998078.70	0.0524	0.0088 *
Mercury	-7443-02-27 18:14 J	-997074.84	-997074.74	-997074.65	0.0526	0.0332
Mercury	-7443-05-27 23:02 J	-996985.65	-996985.54	-996985.42	0.0524	0.0216
Venus	-7441-04-04 10:33 J	-996308.26	-996308.06	-996307.86	0.0509	0.0054
Mercury	-7437-04-17 05:02 J	-994834.43	-994834.29	-994834.16	0.0500	0.0346
Mercury	-7437-07-16 17:31 J	-994743.88	-994743.77	-994743.66	0.0502	0.0397
Venus	-7435-01-30 23:45 J	-994180.63	-994180.51	-994180.39	0.0514	0.0412
Venus	-7435-09-25 12:28 J	-993943.06	-993942.98	-993942.91	0.0520	0.0480
Earth	-7434-06-04 15:07 J	-993690.96	-993690.87	-993690.77	0.0525	0.0476
Moon	-7434-06-04 18:00 J	-993690.85	-993690.75	-993690.65	0.0525	0.0476 *
Mercury	-7432-12-16 22:19 J	-992764.62	-992764.57	-992764.51	0.0526	0.0472
Mercury	-7431-03-16 03:21 J	-992675.48	-992675.36	-992675.23	0.0524	0.0081
Venus	-7430-12-09 08:23 J	-992042.34	-992042.15	-992041.96	0.0510	0.0183
Moon	-7429-11-20 13:40 J	-991695.13	-991694.93	-991694.72	0.0503	0.0226
Earth	-7429-11-20 17:02 J	-991695.00	-991694.79	-991694.57	0.0503	0.0195 *
Mercury	-7425-05-04 13:40 J	-990434.10	-990433.93	-990433.76	0.0502	0.0208
Venus	-7423-05-31 05:31 J	-989677.45	-989677.27	-989677.08	0.0518	0.0231
Mercury	-7419-01-02 07:55 J	-988365.30	-988365.17	-988365.05	0.0525	0.0059
Mercury	-7419-04-01 12:28 J	-988276.03	-988275.98	-988275.93	0.0523	0.0481
Venus	-7418-08-14 06:43 J	-987776.33	-987776.22	-987776.11	0.0512	0.0418
Venus	-7417-04-06 18:57 J	-987539.83	-987539.71	-987539.59	0.0506	0.0405
Earth	-7417-11-25 02:09 J	-987307.63	-987307.41	-987307.18	0.0502	0.0129
Moon	-7417-11-25 06:00 J	-987307.47	-987307.25	-987307.03	0.0502	0.0139 *
Mars	-7414-07-03 20:09 J	-986356.84	-986356.66	-986356.48	0.0498	0.0373
Mercury	-7413-02-21 10:04 J	-986124.27	-986124.08	-986123.89	0.0501	0.0023
Venus	-7411-02-02 22:19 J	-985411.78	-985411.57	-985411.37	0.0517	0.0019
Mercury	-7408-10-21 12:00 J	-984055.12	-984055.00	-984054.89	0.0525	0.0204
Mercury	-7407-01-18 16:33 J	-983965.90	-983965.81	-983965.71	0.0523	0.0340
Venus	-7406-12-11 18:14 J	-983273.93	-983273.74	-983273.55	0.0508	0.0179

Moon	-7405-11-29 08:23 J	-982920.22	-982920.15	-982920.08	0.0501	0.0477
Earth	-7405-11-29 11:31 J	-982920.11	-982920.02	-982919.91	0.0501	0.0449 *
Mercury	-7402-12-10 06:28 J	-981814.41	-981814.23	-981814.06	0.0501	0.0164
Venus	-7400-10-08 14:38 J	-981146.06	-981145.89	-981145.71	0.0515	0.0269
Mars	-7396-04-15 23:45 J	-979860.78	-979860.51	-979860.25	0.0527	0.0162
Mercury	-7396-08-09 16:04 J	-979744.92	-979744.83	-979744.73	0.0526	0.0343
Mercury	-7396-11-06 21:07 J	-979655.74	-979655.62	-979655.51	0.0524	0.0205
Venus	-7394-08-16 18:43 J	-979007.92	-979007.72	-979007.52	0.0510	0.0049
Mercury	-7390-09-28 02:09 J	-977504.54	-977504.41	-977504.28	0.0500	0.0356
Mercury	-7390-12-27 14:38 J	-977414.00	-977413.89	-977413.77	0.0501	0.0386
Venus	-7387-02-05 17:16 J	-976642.93	-976642.78	-976642.64	0.0519	0.0369
Mercury	-7384-05-28 20:23 J	-975434.70	-975434.65	-975434.60	0.0526	0.0485
Mercury	-7384-08-26 01:26 J	-975345.57	-975345.44	-975345.32	0.0525	0.0067
Venus	-7382-04-21 18:14 J	-974741.91	-974741.74	-974741.57	0.0511	0.0282
Mars	-7378-04-07 10:33 J	-973295.33	-973295.06	-973294.79	0.0498	0.0013
Mercury	-7378-10-15 10:47 J	-973104.22	-973104.05	-973103.88	0.0501	0.0197
Venus	-7376-10-11 09:36 J	-972377.30	-972377.10	-972376.90	0.0517	0.0117
Earth	-7375-05-24 10:33 J	-972152.22	-972152.06	-972151.90	0.0522	0.0375
Moon	-7375-05-24 11:02 J	-972152.19	-972152.04	-972151.88	0.0522	0.0373 *
Mercury	-7372-06-14 05:45 J	-971035.38	-971035.26	-971035.13	0.0525	0.0073
Mercury	-7372-09-11 10:33 J	-970946.12	-970946.06	-970946.01	0.0523	0.0470
Venus	-7370-08-19 04:47 J	-970239.46	-970239.30	-970239.14	0.0507	0.0310
Mercury	-7366-08-03 06:43 J	-968794.41	-968794.22	-968794.03	0.0501	0.0006
Venus	-7364-06-16 03:21 J	-968111.56	-968111.36	-968111.16	0.0516	0.0131
Earth	-7363-05-29 13:26 J	-967764.18	-967763.94	-967763.71	0.0524	0.0019
Moon	-7363-05-29 15:21 J	-967764.10	-967763.86	-967763.61	0.0524	0.0016 *
Mars	-7360-01-21 00:14 J	-966796.71	-966796.49	-966796.26	0.0526	0.0319
Mercury	-7360-04-02 10:19 J	-966725.19	-966725.07	-966724.96	0.0525	0.0208
Mercury	-7360-06-30 14:52 J	-966635.97	-966635.88	-966635.78	0.0523	0.0336
Venus	-7358-04-24 04:04 J	-965973.52	-965973.33	-965973.13	0.0508	0.0082



Mercury	-7354-05-22 03:07 J	-964484.54	-964484.37	-964484.19	0.0501	0.0179
Venus	-7352-02-18 21:07 J	-963845.75	-963845.62	-963845.47	0.0514	0.0375
Moon	-7351-06-03 09:50 J	-963376.23	-963376.09	-963375.94	0.0524	0.0398
Earth	-7351-06-03 13:26 J	-963376.09	-963375.94	-963375.79	0.0524	0.0398 *
Mercury	-7348-01-19 14:09 J	-962415.00	-962414.91	-962414.82	0.0525	0.0354
Mercury	-7348-04-18 18:57 J	-962325.82	-962325.71	-962325.59	0.0524	0.0194
Venus	-7347-12-28 02:23 J	-961707.59	-961707.40	-961707.20	0.0510	0.0154
Earth	-7346-11-20 16:33 J	-961380.00	-961379.81	-961379.61	0.0503	0.0267
Moon	-7346-11-20 20:23 J	-961379.84	-961379.65	-961379.46	0.0503	0.0291 *
Mars	-7342-01-09 23:31 J	-960233.70	-960233.52	-960233.32	0.0500	0.0349
Mercury	-7342-03-09 23:31 J	-960174.65	-960174.52	-960174.39	0.0501	0.0363
Mercury	-7342-06-08 12:00 J	-960084.11	-960084.00	-960083.87	0.0502	0.0382
Venus	-7340-06-19 00:57 J	-959342.63	-959342.46	-959342.28	0.0518	0.0266
Mercury	-7337-11-07 18:28 J	-958104.77	-958104.73	-958104.69	0.0526	0.0495
Mercury	-7336-02-04 23:16 J	-958015.65	-958015.53	-958015.40	0.0524	0.0059
Venus	-7335-09-02 01:55 J	-957441.55	-957441.42	-957441.29	0.0512	0.0387
Venus	-7334-04-26 14:23 J	-957204.99	-957204.90	-957204.79	0.0507	0.0442
Moon	-7334-11-25 00:57 J	-956992.69	-956992.46	-956992.22	0.0502	0.0077
Earth	-7334-11-25 04:19 J	-956992.55	-956992.32	-956992.09	0.0502	0.0063 *
Mercury	-7330-03-27 07:55 J	-955774.35	-955774.17	-955774.00	0.0501	0.0186
Venus	-7328-02-21 15:21 J	-955077.07	-955076.86	-955076.66	0.0516	0.0011
Mercury	-7325-11-24 03:36 J	-953705.47	-953705.35	-953705.22	0.0525	0.0086
Mercury	-7324-02-21 08:23 J	-953616.21	-953616.15	-953616.09	0.0524	0.0458
Venus	-7323-12-30 15:07 J	-952939.05	-952938.87	-952938.69	0.0508	0.0216
Earth	-7322-11-29 14:52 J	-952605.02	-952604.88	-952604.73	0.0501	0.0389
Moon	-7322-11-29 17:02 J	-952604.91	-952604.79	-952604.66	0.0501	0.0418 *
Mercury	-7318-01-13 04:04 J	-951464.52	-951464.33	-951464.15	0.0501	0.0010
Venus	-7317-10-27 08:23 J	-950811.33	-950811.15	-950810.97	0.0515	0.0242
Mercury	-7313-09-12 08:09 J	-949395.28	-949395.16	-949395.05	0.0525	0.0222
Mercury	-7313-12-10 12:43 J	-949306.06	-949305.97	-949305.87	0.0524	0.0324

Venus	-7311-09-04 13:26 J	-948673.14	-948672.94	-948672.74	0.0509	0.0021
Mercury	-7307-10-31 23:45 J	-947154.68	-947154.51	-947154.34	0.0501	0.0196
Venus	-7305-07-02 02:38 J	-946545.45	-946545.39	-946545.32	0.0514	0.0484
Venus	-7304-02-24 14:38 J	-946308.01	-946307.89	-946307.76	0.0519	0.0410
Mercury	-7301-07-01 12:28 J	-945085.07	-945084.98	-945084.88	0.0525	0.0358
Mercury	-7301-09-28 17:31 J	-944995.89	-944995.77	-944995.66	0.0524	0.0190
Venus	-7299-05-10 12:14 J	-944407.17	-944406.99	-944406.82	0.0511	0.0255
Mercury	-7295-08-19 20:09 J	-942844.77	-942844.66	-942844.53	0.0501	0.0379
Mercury	-7295-11-18 08:52 J	-942754.25	-942754.13	-942754.00	0.0502	0.0366
Venus	-7293-10-30 07:12 J	-942042.39	-942042.20	-942042.00	0.0518	0.0158
Earth	-7292-05-23 09:50 J	-941837.21	-941837.09	-941836.97	0.0522	0.0446
Moon	-7292-05-23 11:02 J	-941837.16	-941837.04	-941836.91	0.0522	0.0450 *
Mercury	-7289-04-19 16:33 J	-940774.84	-940774.81	-940774.78	0.0526	0.0503
Mercury	-7289-07-17 21:36 J	-940685.73	-940685.60	-940685.48	0.0524	0.0047
Venus	-7287-01-13 09:36 J	-940141.15	-940141.10	-940141.05	0.0512	0.0493
Venus	-7287-09-06 23:02 J	-939904.68	-939904.54	-939904.39	0.0507	0.0342
Mercury	-7283-09-06 05:16 J	-938444.46	-938444.28	-938444.10	0.0502	0.0179
Venus	-7281-07-04 23:31 J	-937776.72	-937776.52	-937776.32	0.0516	0.0095
Moon	-7280-05-28 06:00 J	-937449.48	-937449.25	-937449.03	0.0523	0.0103
Earth	-7280-05-28 08:52 J	-937449.36	-937449.13	-937448.89	0.0523	0.0069 *
Mercury	-7277-05-06 01:55 J	-936375.55	-936375.42	-936375.30	0.0525	0.0094
Mercury	-7277-08-03 06:28 J	-936286.29	-936286.23	-936286.17	0.0523	0.0449
Venus	-7275-05-12 23:31 J	-935638.72	-935638.52	-935638.32	0.0509	0.0115
Mercury	-7271-06-25 01:26 J	-934134.63	-934134.44	-934134.26	0.0501	0.0015
Venus	-7269-03-09 15:07 J	-933511.02	-933510.87	-933510.71	0.0514	0.0348
Earth	-7268-06-02 05:16 J	-933061.47	-933061.28	-933061.08	0.0524	0.0300
Moon	-7268-06-02 09:21 J	-933061.30	-933061.11	-933060.92	0.0524	0.0302 *
Mercury	-7265-02-23 06:00 J	-932065.36	-932065.25	-932065.14	0.0526	0.0235
Mercury	-7265-05-22 10:47 J	-931976.15	-931976.05	-931975.95	0.0524	0.0312
Venus	-7263-01-15 23:02 J	-931372.73	-931372.54	-931372.34	0.0510	0.0119

Moon	-7263-11-19 16:33 J	-931064.97	-931064.81	-931064.64	0.0504	0.0347
Earth	-7263-11-19 19:55 J	-931064.84	-931064.67	-931064.49	0.0504	0.0325 *
Mars	-7260-09-26 00:28 J	-930023.69	-930023.48	-930023.27	0.0498	0.0316
Mercury	-7259-04-12 21:36 J	-929824.77	-929824.60	-929824.43	0.0500	0.0199
Venus	-7257-07-07 19:12 J	-929007.86	-929007.70	-929007.53	0.0518	0.0298
Mercury	-7254-12-12 10:33 J	-927755.15	-927755.06	-927754.97	0.0526	0.0371
Mercury	-7253-03-10 15:21 J	-927665.98	-927665.86	-927665.74	0.0524	0.0178
Venus	-7252-09-20 21:07 J	-927106.76	-927106.62	-927106.48	0.0512	0.0358
Venus	-7251-05-15 09:21 J	-926870.18	-926870.11	-926870.04	0.0506	0.0472
Earth	-7251-11-24 03:21 J	-926677.59	-926677.36	-926677.13	0.0502	0.0009
Moon	-7251-11-24 05:31 J	-926677.49	-926677.27	-926677.04	0.0502	0.0016 *
Mercury	-7247-01-29 17:02 J	-925514.90	-925514.79	-925514.67	0.0500	0.0393
Mercury	-7247-04-30 05:45 J	-925424.39	-925424.26	-925424.13	0.0502	0.0351
Venus	-7245-03-12 12:43 J	-924742.17	-924741.97	-924741.76	0.0517	0.0048
Mars	-7242-07-10 04:04 J	-923527.60	-923527.33	-923527.05	0.0527	0.0092
Mercury	-7242-09-30 15:07 J	-923444.90	-923444.87	-923444.84	0.0526	0.0506
Mercury	-7242-12-28 20:09 J	-923355.79	-923355.66	-923355.54	0.0524	0.0049
Venus	-7239-01-18 09:21 J	-922604.28	-922604.11	-922603.93	0.0508	0.0246
Moon	-7239-11-28 12:00 J	-922290.18	-922290.00	-922289.83	0.0501	0.0340
Earth	-7239-11-28 12:57 J	-922290.13	-922289.96	-922289.77	0.0501	0.0314 *
Mercury	-7235-02-16 02:09 J	-921114.59	-921114.41	-921114.23	0.0502	0.0166
Venus	-7234-11-16 06:28 J	-920476.42	-920476.23	-920476.04	0.0515	0.0201
Mercury	-7230-10-17 00:14 J	-919045.62	-919045.49	-919045.37	0.0525	0.0098
Mercury	-7229-01-14 04:47 J	-918956.36	-918956.30	-918956.24	0.0523	0.0443
Venus	-7228-09-23 08:23 J	-918338.35	-918338.15	-918337.94	0.0509	0.0016
Mars	-7224-06-30 14:52 J	-916962.15	-916961.88	-916961.61	0.0499	0.0049
Mercury	-7224-12-04 22:47 J	-916804.74	-916804.55	-916804.36	0.0501	0.0019
Venus	-7222-07-22 00:00 J	-916210.59	-916210.50	-916210.39	0.0513	0.0447
Venus	-7221-03-15 11:31 J	-915973.11	-915973.02	-915972.91	0.0519	0.0451
Mercury	-7218-08-05 04:19 J	-914735.43	-914735.32	-914735.20	0.0525	0.0239

Mercury	-7218-11-02 09:07 J	-914646.22	-914646.12	-914646.02	0.0524	0.0307
Venus	-7216-05-29 07:40 J	-914072.36	-914072.18	-914071.99	0.0511	0.0222
Mercury	-7212-09-22 19:12 J	-912494.87	-912494.70	-912494.53	0.0500	0.0203
Venus	-7210-11-19 02:09 J	-911707.60	-911707.41	-911707.21	0.0517	0.0192
Mars	-7206-04-15 18:43 J	-910463.91	-910463.72	-910463.52	0.0527	0.0378
Mercury	-7206-05-24 08:38 J	-910425.23	-910425.14	-910425.06	0.0526	0.0381
Mercury	-7206-08-21 13:26 J	-910336.06	-910335.94	-910335.82	0.0524	0.0169
Venus	-7204-02-01 06:28 J	-909806.31	-909806.23	-909806.13	0.0513	0.0459
Venus	-7204-09-25 20:23 J	-909569.77	-909569.65	-909569.51	0.0507	0.0381
Mercury	-7200-07-11 15:21 J	-908184.97	-908184.86	-908184.74	0.0500	0.0388
Mercury	-7200-10-10 03:50 J	-908094.47	-908094.34	-908094.20	0.0502	0.0354
Venus	-7198-07-24 19:12 J	-907441.90	-907441.70	-907441.49	0.0516	0.0062
Earth	-7197-05-27 05:02 J	-907134.52	-907134.29	-907134.06	0.0523	0.0150
Moon	-7197-05-27 08:52 J	-907134.35	-907134.13	-907133.91	0.0523	0.0183 *
Mercury	-7194-03-12 12:57 J	-906114.98	-906114.96	-906114.93	0.0526	0.0516
Mercury	-7194-06-09 18:00 J	-906025.87	-906025.75	-906025.62	0.0525	0.0041
Venus	-7192-05-31 19:26 J	-905303.88	-905303.69	-905303.49	0.0508	0.0149
Mars	-7188-04-04 00:57 J	-903900.61	-903900.46	-903900.30	0.0500	0.0405
Mercury	-7188-07-28 23:16 J	-903784.71	-903784.53	-903784.35	0.0502	0.0156
Venus	-7186-03-29 12:57 J	-903176.12	-903175.96	-903175.79	0.0515	0.0309
Moon	-7185-06-01 04:04 J	-902746.54	-902746.33	-902746.12	0.0524	0.0239
Earth	-7185-06-01 07:55 J	-902746.37	-902746.17	-902745.95	0.0524	0.0239 *
Mercury	-7182-03-28 22:47 J	-901715.67	-901715.55	-901715.42	0.0525	0.0096
Mercury	-7182-06-26 03:36 J	-901626.42	-901626.35	-901626.29	0.0523	0.0446
Venus	-7180-02-03 19:26 J	-901037.89	-901037.69	-901037.49	0.0510	0.0084
Earth	-7180-11-18 20:23 J	-900749.79	-900749.65	-900749.51	0.0504	0.0391
Moon	-7180-11-18 22:33 J	-900749.68	-900749.56	-900749.42	0.0504	0.0408 *
Mercury	-7176-05-16 19:55 J	-899474.86	-899474.67	-899474.48	0.0501	0.0027
Venus	-7174-07-27 18:57 J	-898672.86	-898672.71	-898672.56	0.0519	0.0346
Mercury	-7170-01-15 03:07 J	-897405.49	-897405.37	-897405.26	0.0525	0.0238

Mercury	-7170-04-14 07:40 J	-897316.28	-897316.18	-897316.07	0.0523	0.0307
Venus	-7169-10-09 17:31 J	-896771.92	-896771.77	-896771.61	0.0511	0.0322
Moon	-7168-11-23 05:02 J	-896362.53	-896362.29	-896362.05	0.0503	0.0048
Earth	-7168-11-23 06:14 J	-896362.47	-896362.24	-896362.01	0.0503	0.0071 *
Mercury	-7164-03-04 16:33 J	-895164.97	-895164.81	-895164.63	0.0501	0.0208
Venus	-7162-04-01 11:31 J	-894407.22	-894407.02	-894406.81	0.0517	0.0093
Mercury	-7159-11-03 07:12 J	-893095.28	-893095.20	-893095.11	0.0525	0.0378
Mercury	-7158-01-31 12:14 J	-893006.11	-893005.99	-893005.87	0.0524	0.0170
Venus	-7156-02-06 06:28 J	-892269.40	-892269.23	-892269.06	0.0508	0.0285
Moon	-7156-11-27 17:16 J	-891974.96	-891974.78	-891974.59	0.0502	0.0282
Earth	-7156-11-27 17:31 J	-891974.96	-891974.77	-891974.57	0.0502	0.0257 *
Mercury	-7153-12-21 13:26 J	-890855.05	-890854.94	-890854.82	0.0500	0.0388
Mercury	-7152-03-22 01:55 J	-890764.55	-890764.42	-890764.29	0.0502	0.0354
Venus	-7151-12-05 03:36 J	-890141.54	-890141.35	-890141.15	0.0515	0.0164
Mercury	-7147-08-22 11:31 J	-888785.04	-888785.02	-888785.01	0.0526	0.0522
Mercury	-7147-11-19 16:33 J	-888695.94	-888695.81	-888695.69	0.0525	0.0034
Venus	-7145-10-12 06:43 J	-888003.42	-888003.22	-888003.02	0.0509	0.0055
Mercury	-7140-01-07 22:04 J	-886454.75	-886454.58	-886454.40	0.0501	0.0167
Venus	-7139-08-09 21:36 J	-885875.72	-885875.60	-885875.47	0.0513	0.0409
Venus	-7138-04-04 09:07 J	-885638.18	-885638.12	-885638.05	0.0519	0.0491
Mercury	-7135-09-07 21:07 J	-884385.74	-884385.62	-884385.49	0.0525	0.0102
Mercury	-7135-12-06 01:55 J	-884296.49	-884296.42	-884296.36	0.0523	0.0441
Venus	-7133-06-17 05:45 J	-883737.45	-883737.26	-883737.07	0.0511	0.0182
Mercury	-7129-10-26 17:31 J	-882144.96	-882144.77	-882144.58	0.0501	0.0032
Venus	-7127-12-08 01:40 J	-881372.61	-881372.43	-881372.24	0.0518	0.0239
Mars	-7124-12-27 02:23 J	-880257.52	-880257.40	-880257.27	0.0528	0.0468
Mercury	-7123-06-27 01:55 J	-880075.53	-880075.42	-880075.31	0.0525	0.0232
Mercury	-7123-09-24 06:43 J	-879986.32	-879986.22	-879986.12	0.0524	0.0313
Venus	-7121-02-21 05:16 J	-879471.39	-879471.28	-879471.16	0.0512	0.0417
Venus	-7121-10-14 18:00 J	-879234.86	-879234.75	-879234.64	0.0506	0.0421

Mercury	-7117-08-14 14:09 J	-877835.07	-877834.91	-877834.74	0.0501	0.0213
Venus	-7115-08-12 19:40 J	-877106.88	-877106.68	-877106.47	0.0517	0.0014
Moon	-7114-05-27 06:43 J	-876819.42	-876819.22	-876819.00	0.0523	0.0238
Earth	-7114-05-27 10:47 J	-876819.26	-876819.05	-876818.83	0.0523	0.0203 *
Mercury	-7111-04-15 06:14 J	-875765.33	-875765.24	-875765.15	0.0525	0.0372
Mercury	-7111-07-13 11:02 J	-875676.16	-875676.04	-875675.92	0.0524	0.0175
Venus	-7109-06-19 17:31 J	-874968.95	-874968.77	-874968.58	0.0508	0.0191
Mars	-7106-12-20 13:55 J	-873690.16	-873689.92	-873689.68	0.0499	0.0238
Mercury	-7105-06-02 11:16 J	-873525.14	-873525.03	-873524.91	0.0501	0.0389
Mercury	-7105-08-31 23:45 J	-873434.64	-873434.51	-873434.37	0.0502	0.0355
Venus	-7103-04-17 13:40 J	-872841.10	-872840.93	-872840.75	0.0515	0.0260
Earth	-7102-06-01 11:45 J	-872431.23	-872431.01	-872430.79	0.0524	0.0179
Moon	-7102-06-01 14:52 J	-872431.10	-872430.88	-872430.67	0.0524	0.0190 *
Mercury	-7099-02-01 10:19 J	-871455.09	-871455.07	-871455.04	0.0526	0.0512
Mercury	-7099-05-01 15:21 J	-871365.98	-871365.86	-871365.73	0.0524	0.0041
Venus	-7097-02-23 17:45 J	-870702.96	-870702.76	-870702.56	0.0510	0.0043
Moon	-7097-11-18 01:26 J	-870434.53	-870434.44	-870434.33	0.0504	0.0454
Earth	-7097-11-18 02:38 J	-870434.50	-870434.39	-870434.28	0.0504	0.0443 *
Mercury	-7093-06-19 20:38 J	-869124.82	-869124.64	-869124.47	0.0501	0.0172
Venus	-7092-12-21 07:26 J	-868575.22	-868575.19	-868575.16	0.0513	0.0506
Venus	-7091-08-15 17:45 J	-868337.89	-868337.76	-868337.62	0.0518	0.0391
Mars	-7088-10-02 18:00 J	-867194.03	-867193.75	-867193.47	0.0527	0.0006
Mercury	-7087-02-17 19:40 J	-867055.80	-867055.68	-867055.56	0.0525	0.0102
Mercury	-7087-05-18 00:28 J	-866966.55	-866966.48	-866966.42	0.0523	0.0441
Venus	-7086-10-29 17:02 J	-866436.96	-866436.79	-866436.62	0.0512	0.0278
Moon	-7085-11-22 14:09 J	-866047.12	-866046.91	-866046.68	0.0503	0.0090
Earth	-7085-11-22 14:38 J	-866047.11	-866046.89	-866046.66	0.0503	0.0114 *
Mercury	-7081-04-07 17:02 J	-864814.98	-864814.79	-864814.60	0.0501	0.0013
Venus	-7079-04-20 10:47 J	-864072.25	-864072.05	-864071.85	0.0517	0.0137
Mercury	-7076-12-07 00:28 J	-862745.59	-862745.48	-862745.37	0.0525	0.0233

Mercury	-7075-03-06 05:16 J	-862656.38	-862656.28	-862656.18	0.0524	0.0313
Venus	-7073-02-26 05:45 J	-861934.41	-861934.26	-861934.11	0.0507	0.0330
Earth	-7073-11-26 23:31 J	-861659.73	-861659.52	-861659.31	0.0502	0.0205
Moon	-7073-11-27 01:40 J	-861659.64	-861659.43	-861659.22	0.0502	0.0223 *
Mars	-7070-09-24 06:00 J	-860628.51	-860628.25	-860627.99	0.0499	0.0131
Mercury	-7069-01-25 12:14 J	-860505.16	-860504.99	-860504.82	0.0501	0.0212
Venus	-7068-12-24 03:36 J	-859806.55	-859806.35	-859806.15	0.0516	0.0116
Mercury	-7064-09-25 05:16 J	-858435.37	-858435.28	-858435.19	0.0525	0.0362
Mercury	-7064-12-23 10:04 J	-858346.19	-858346.08	-858345.96	0.0524	0.0187
Venus	-7062-11-01 06:43 J	-857668.42	-857668.22	-857668.02	0.0509	0.0102
Mercury	-7058-11-13 09:07 J	-856195.23	-856195.12	-856195.00	0.0501	0.0390
Mercury	-7057-02-11 21:36 J	-856104.72	-856104.60	-856104.46	0.0502	0.0356
Venus	-7056-08-28 22:47 J	-855540.70	-855540.55	-855540.40	0.0514	0.0360
Mars	-7052-07-10 07:55 J	-854129.22	-854129.17	-854129.12	0.0526	0.0516
Mercury	-7052-07-14 09:36 J	-854125.13	-854125.10	-854125.07	0.0526	0.0501
Mercury	-7052-10-11 14:38 J	-854036.02	-854035.89	-854035.77	0.0524	0.0049
Venus	-7050-07-07 05:45 J	-853402.45	-853402.26	-853402.07	0.0510	0.0134
Mercury	-7046-11-30 18:43 J	-851794.89	-851794.72	-851794.54	0.0502	0.0176
Venus	-7044-12-27 04:04 J	-851037.49	-851037.33	-851037.16	0.0518	0.0296
Mercury	-7040-07-30 18:57 J	-849725.83	-849725.71	-849725.58	0.0525	0.0089
Mercury	-7040-10-27 23:31 J	-849636.57	-849636.52	-849636.45	0.0523	0.0453
Venus	-7038-03-12 04:47 J	-849136.43	-849136.30	-849136.16	0.0512	0.0372
Venus	-7038-11-03 17:31 J	-848899.83	-848899.77	-848899.69	0.0507	0.0469
Mercury	-7034-09-18 15:50 J	-847485.03	-847484.84	-847484.66	0.0501	0.0012
Venus	-7032-08-31 20:38 J	-846771.84	-846771.64	-846771.43	0.0516	0.0041
Earth	-7031-05-26 14:52 J	-846504.08	-846503.88	-846503.68	0.0522	0.0259
Moon	-7031-05-26 18:14 J	-846503.93	-846503.74	-846503.54	0.0522	0.0286 *
Mercury	-7028-05-18 23:16 J	-845415.64	-845415.53	-845415.42	0.0525	0.0229
Mercury	-7028-08-16 04:04 J	-845326.43	-845326.33	-845326.23	0.0524	0.0317
Venus	-7026-07-09 18:43 J	-844633.90	-844633.72	-844633.55	0.0508	0.0242

Mercury	-7022-07-07 12:14 J	-843175.16	-843174.99	-843174.81	0.0501	0.0187
Venus	-7020-05-06 14:23 J	-842506.08	-842505.90	-842505.71	0.0515	0.0212
Moon	-7019-05-31 14:52 J	-842116.12	-842115.88	-842115.65	0.0523	0.0140
Earth	-7019-05-31 16:33 J	-842116.04	-842115.81	-842115.58	0.0523	0.0123 *
Mercury	-7016-03-07 04:04 J	-841105.42	-841105.33	-841105.24	0.0526	0.0359
Mercury	-7016-06-04 08:52 J	-841016.24	-841016.13	-841016.01	0.0524	0.0190
Venus	-7014-03-14 18:57 J	-840367.91	-840367.71	-840367.51	0.0509	0.0010
Moon	-7014-11-18 11:16 J	-840119.06	-840119.03	-840118.98	0.0504	0.0493
Earth	-7014-11-18 11:45 J	-840119.06	-840119.01	-840118.94	0.0504	0.0484 *
Mercury	-7010-04-25 07:26 J	-838865.30	-838865.19	-838865.06	0.0501	0.0385
Mercury	-7010-07-24 20:09 J	-838774.79	-838774.66	-838774.53	0.0502	0.0359
Venus	-7008-01-09 07:40 J	-838240.27	-838240.18	-838240.09	0.0514	0.0460
Venus	-7008-09-03 19:26 J	-838002.79	-838002.69	-838002.59	0.0519	0.0447
Earth	-7007-06-05 18:43 J	-837727.77	-837727.72	-837727.66	0.0525	0.0508
Mercury	-7005-12-24 08:52 J	-836795.17	-836795.13	-836795.08	0.0526	0.0488
Mercury	-7004-03-23 13:55 J	-836706.04	-836705.92	-836705.79	0.0524	0.0063
Venus	-7003-11-17 19:26 J	-836101.87	-836101.69	-836101.51	0.0511	0.0223
Earth	-7002-11-22 23:45 J	-835731.72	-835731.51	-835731.28	0.0503	0.0157
Moon	-7002-11-23 01:55 J	-835731.65	-835731.42	-835731.18	0.0503	0.0128 *

# 7TH MILLENNIUM BCE

This is a list of transits visible from Jupiter in the 7th millennium BCE.

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
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Mercury	-6998-05-12 17:02 J	-834464.97	-834464.79	-834464.61	0.0502	0.0179
Venus	-6996-05-09 13:26 J	-833737.13	-833736.94	-833736.75	0.0518	0.0196
Mercury	-6992-01-09 18:28 J	-832395.86	-832395.73	-832395.61	0.0524	0.0074
Mercury	-6992-04-08 23:02 J	-832306.59	-832306.54	-832306.49	0.0523	0.0466
Venus	-6991-07-23 17:45 J	-831835.84	-831835.76	-831835.67	0.0512	0.0462
Venus	-6990-03-17 06:57 J	-831599.33	-831599.21	-831599.07	0.0507	0.0383
Moon	-6990-11-27 06:43 J	-831344.43	-831344.22	-831344.01	0.0502	0.0175
Earth	-6990-11-27 10:04 J	-831344.30	-831344.08	-831343.86	0.0502	0.0165 *
Mercury	-6986-02-28 14:09 J	-830155.10	-830154.91	-830154.72	0.0502	0.0006
Venus	-6984-01-12 07:40 J	-829471.39	-829471.18	-829470.98	0.0516	0.0056
Mercury	-6981-10-28 22:47 J	-828085.66	-828085.55	-828085.43	0.0525	0.0211
Mercury	-6980-01-26 03:36 J	-827996.45	-827996.35	-827996.26	0.0523	0.0333
Venus	-6979-11-20 07:26 J	-827333.38	-827333.19	-827332.99	0.0509	0.0153
Earth	-6978-12-01 21:21 J	-826956.65	-826956.61	-826956.56	0.0501	0.0490
Moon	-6978-12-02 01:12 J	-826956.53	-826956.45	-826956.35	0.0501	0.0461
Mercury	-6975-12-17 11:16 J	-825845.20	-825845.03	-825844.85	0.0501	0.0174
Venus	-6973-09-17 01:26 J	-825205.60	-825205.44	-825205.28	0.0514	0.0306
Mars	-6969-03-22 15:07 J	-823923.07	-823922.87	-823922.65	0.0527	0.0336
Mercury	-6969-08-17 03:07 J	-823775.47	-823775.37	-823775.28	0.0526	0.0352
Mercury	-6969-11-14 07:55 J	-823686.29	-823686.17	-823686.05	0.0524	0.0196
Venus	-6967-07-26 07:40 J	-823067.38	-823067.18	-823066.98	0.0510	0.0081
Mercury	-6963-10-05 07:55 J	-821535.29	-821535.17	-821535.03	0.0501	0.0355
Mercury	-6962-01-03 20:23 J	-821444.76	-821444.65	-821444.52	0.0502	0.0390
Venus	-6960-01-15 06:14 J	-820702.39	-820702.24	-820702.09	0.0518	0.0351
Mercury	-6957-06-05 07:55 J	-819465.22	-819465.17	-819465.13	0.0526	0.0482
Mercury	-6957-09-02 12:43 J	-819376.09	-819375.97	-819375.84	0.0524	0.0072
Venus	-6955-03-31 07:40 J	-818801.33	-818801.18	-818801.02	0.0511	0.0316
Mars	-6951-03-15 18:28 J	-817355.99	-817355.73	-817355.46	0.0499	0.0132
Mercury	-6951-10-22 15:36 J	-817135.02	-817134.85	-817134.67	0.0502	0.0188
Venus	-6949-09-19 22:19 J	-816436.77	-816436.57	-816436.37	0.0517	0.0094

Moon	-6948-05-25 20:52 J	-816188.81	-816188.63	-816188.43	0.0523	0.0327
Earth	-6948-05-25 23:02 J	-816188.73	-816188.54	-816188.35	0.0523	0.0305 *
Mercury	-6945-06-21 17:45 J	-815065.88	-815065.76	-815065.63	0.0525	0.0059
Mercury	-6945-09-18 22:33 J	-814976.61	-814976.56	-814976.52	0.0523	0.0483
Venus	-6943-07-28 21:36 J	-814298.75	-814298.60	-814298.43	0.0507	0.0301
Mercury	-6939-08-10 12:43 J	-812825.16	-812824.97	-812824.79	0.0501	0.0013
Venus	-6937-05-25 17:02 J	-812170.99	-812170.79	-812170.59	0.0516	0.0155
Moon	-6936-05-31 02:52 J	-811800.60	-811800.38	-811800.15	0.0524	0.0109
Earth	-6936-05-31 03:21 J	-811800.60	-811800.36	-811800.13	0.0524	0.0083 *
Mars	-6934-12-29 05:02 J	-810858.55	-810858.29	-810858.02	0.0526	0.0178
Mercury	-6933-04-09 22:19 J	-810755.69	-810755.57	-810755.45	0.0525	0.0194
Mercury	-6933-07-08 03:07 J	-810666.47	-810666.37	-810666.28	0.0523	0.0350
Venus	-6931-04-02 21:36 J	-810032.80	-810032.60	-810032.40	0.0509	0.0066
Mercury	-6927-05-29 09:50 J	-808515.26	-808515.09	-808514.91	0.0501	0.0166
Venus	-6925-01-29 12:28 J	-807905.11	-807904.98	-807904.85	0.0514	0.0399
Venus	-6925-09-23 00:28 J	-807667.51	-807667.48	-807667.45	0.0519	0.0513
Earth	-6924-06-05 06:00 J	-807412.35	-807412.25	-807412.14	0.0525	0.0470
Moon	-6924-06-05 08:09 J	-807412.23	-807412.16	-807412.07	0.0525	0.0492 *
Mercury	-6921-01-28 02:38 J	-806445.48	-806445.39	-806445.29	0.0525	0.0331
Mercury	-6921-04-26 07:40 J	-806356.30	-806356.18	-806356.07	0.0524	0.0216
Venus	-6920-12-06 21:07 J	-805766.81	-805766.62	-805766.43	0.0511	0.0170
Moon	-6919-11-22 07:55 J	-805416.38	-805416.17	-805415.95	0.0503	0.0164
Earth	-6919-11-22 11:31 J	-805416.24	-805416.02	-805415.81	0.0503	0.0192 *
Mars	-6916-12-19 03:07 J	-804293.59	-804293.37	-804293.14	0.0500	0.0264
Mercury	-6915-03-17 07:12 J	-804205.34	-804205.20	-804205.06	0.0501	0.0341
Mercury	-6915-06-15 19:40 J	-804114.78	-804114.68	-804114.56	0.0502	0.0404
Venus	-6913-05-28 16:47 J	-803401.98	-803401.80	-803401.62	0.0518	0.0256
Mercury	-6910-11-16 06:57 J	-802135.26	-802135.21	-802135.16	0.0526	0.0472
Mercury	-6909-02-13 12:00 J	-802046.13	-802046.00	-802045.88	0.0524	0.0078
Venus	-6908-08-11 20:23 J	-801500.77	-801500.65	-801500.53	0.0512	0.0409

Venus	-6907-04-05 09:50 J	-801264.19	-801264.09	-801263.99	0.0507	0.0439
Earth	-6907-11-26 23:16 J	-801028.75	-801028.53	-801028.30	0.0502	0.0136
Moon	-6907-11-27 03:07 J	-801028.59	-801028.37	-801028.14	0.0502	0.0137 *
Mercury	-6903-04-03 16:19 J	-799804.99	-799804.82	-799804.65	0.0502	0.0221
Venus	-6901-02-01 10:19 J	-799136.28	-799136.07	-799135.86	0.0516	0.0001
Mercury	-6898-12-02 16:47 J	-797735.92	-797735.80	-797735.67	0.0525	0.0050
Mercury	-6897-02-29 21:21 J	-797646.64	-797646.61	-797646.56	0.0523	0.0491
Venus	-6896-12-09 11:02 J	-796998.22	-796998.04	-796997.86	0.0508	0.0213
Moon	-6895-12-01 06:28 J	-796641.35	-796641.23	-796641.10	0.0501	0.0422
Earth	-6895-12-01 10:04 J	-796641.17	-796641.08	-796640.98	0.0501	0.0455 *
Mercury	-6891-01-20 11:31 J	-795495.21	-795495.02	-795494.83	0.0501	0.0019
Venus	-6890-10-07 02:23 J	-794870.58	-794870.40	-794870.22	0.0515	0.0255
Mercury	-6886-09-20 21:50 J	-793425.71	-793425.59	-793425.47	0.0525	0.0177
Mercury	-6886-12-19 02:38 J	-793336.48	-793336.39	-793336.30	0.0524	0.0367
Venus	-6884-08-14 12:14 J	-792732.19	-792731.99	-792731.78	0.0509	0.0021
Mercury	-6880-11-08 08:23 J	-791185.32	-791185.15	-791184.97	0.0501	0.0159
Venus	-6878-06-11 21:50 J	-790604.63	-790604.59	-790604.54	0.0514	0.0497
Venus	-6877-02-04 09:21 J	-790367.22	-790367.11	-790366.98	0.0519	0.0415
Mercury	-6874-07-10 02:09 J	-789115.50	-789115.41	-789115.30	0.0525	0.0314
Mercury	-6874-10-07 07:12 J	-789026.31	-789026.20	-789026.09	0.0524	0.0233
Venus	-6872-04-19 11:02 J	-788466.21	-788466.04	-788465.86	0.0511	0.0258
Mercury	-6868-08-27 05:45 J	-786875.39	-786875.26	-786875.12	0.0501	0.0333
Mercury	-6868-11-25 18:28 J	-786784.83	-786784.73	-786784.62	0.0502	0.0413
Venus	-6866-10-10 03:36 J	-786101.55	-786101.35	-786101.15	0.0517	0.0160
Earth	-6865-05-25 11:16 J	-785873.20	-785873.03	-785872.84	0.0522	0.0338
Moon	-6865-05-25 11:31 J	-785873.18	-785873.02	-785872.85	0.0522	0.0352 *
Mercury	-6862-04-28 06:43 J	-784805.28	-784805.22	-784805.16	0.0526	0.0451
Mercury	-6862-07-26 11:31 J	-784716.14	-784716.02	-784715.89	0.0524	0.0100
Venus	-6861-12-23 09:50 J	-784200.13	-784200.09	-784200.04	0.0513	0.0497
Venus	-6860-08-16 23:45 J	-783963.65	-783963.51	-783963.37	0.0507	0.0355

Mercury	-6856-09-13 15:36 J	-782475.02	-782474.85	-782474.69	0.0502	0.0235
Venus	-6854-06-14 21:07 J	-781835.82	-781835.62	-781835.42	0.0516	0.0094
Earth	-6853-05-30 12:14 J	-781485.23	-781484.99	-781484.76	0.0523	0.0041
Moon	-6853-05-30 14:09 J	-781485.15	-781484.91	-781484.67	0.0523	0.0070 *
Mercury	-6850-05-14 15:50 J	-780405.96	-780405.84	-780405.71	0.0525	0.0044
Mercury	-6850-08-11 20:38 J	-780316.68	-780316.64	-780316.61	0.0523	0.0500
Venus	-6848-04-22 00:14 J	-779697.69	-779697.49	-779697.29	0.0509	0.0123
Mercury	-6844-07-02 12:14 J	-778165.18	-778164.99	-778164.81	0.0501	0.0053
Venus	-6842-02-17 15:21 J	-777570.01	-777569.86	-777569.71	0.0514	0.0344
Moon	-6841-06-04 10:47 J	-777097.17	-777097.05	-777096.92	0.0524	0.0441
Earth	-6841-06-04 13:55 J	-777097.05	-777096.92	-777096.78	0.0524	0.0423 *
Mercury	-6838-03-02 20:38 J	-776095.75	-776095.64	-776095.52	0.0525	0.0171
Mercury	-6838-05-31 01:26 J	-776006.52	-776006.44	-776006.35	0.0524	0.0375
Venus	-6837-12-26 00:57 J	-775431.65	-775431.46	-775431.26	0.0510	0.0110
Earth	-6836-11-22 01:12 J	-775100.65	-775100.45	-775100.24	0.0503	0.0222
Moon	-6836-11-22 05:02 J	-775100.50	-775100.29	-775100.08	0.0503	0.0192 *
Mars	-6833-09-04 10:47 J	-774083.22	-774083.05	-774082.88	0.0498	0.0392
Mercury	-6832-04-20 07:12 J	-773855.37	-773855.20	-773855.01	0.0501	0.0149
Venus	-6830-06-17 18:00 J	-773066.91	-773066.75	-773066.58	0.0519	0.0312
Mercury	-6827-12-20 01:40 J	-771785.53	-771785.43	-771785.33	0.0526	0.0299
Mercury	-6826-03-19 06:28 J	-771696.34	-771696.23	-771696.12	0.0524	0.0249
Venus	-6825-08-31 01:40 J	-771165.58	-771165.43	-771165.28	0.0512	0.0344
Venus	-6824-04-24 13:55 J	-770928.94	-770928.92	-770928.89	0.0506	0.0501
Moon	-6824-11-26 10:04 J	-770713.31	-770713.08	-770712.85	0.0502	0.0101
Earth	-6824-11-26 13:26 J	-770713.17	-770712.94	-770712.71	0.0502	0.0105 *
Mercury	-6820-02-06 04:19 J	-769545.46	-769545.32	-769545.18	0.0501	0.0325
Mercury	-6820-05-07 17:02 J	-769454.90	-769454.79	-769454.69	0.0502	0.0420
Venus	-6818-02-20 12:28 J	-768801.19	-768800.98	-768800.78	0.0517	0.0059
Mars	-6815-06-18 09:21 J	-767587.37	-767587.11	-767586.84	0.0527	0.0155
Mercury	-6815-10-08 06:00 J	-767475.31	-767475.25	-767475.18	0.0526	0.0436

Mercury	-6814-01-05 11:02 J	-767386.16	-767386.04	-767385.91	0.0524	0.0115
Venus	-6813-12-28 13:55 J	-766663.08	-766662.92	-766662.74	0.0508	0.0271
Earth	-6812-11-30 22:47 J	-766325.67	-766325.55	-766325.42	0.0501	0.0422
Moon	-6812-12-01 01:12 J	-766325.59	-766325.45	-766325.31	0.0501	0.0393 *
Mercury	-6809-11-25 01:40 J	-765235.44	-765235.43	-765235.41	0.0500	0.0498
Mercury	-6808-02-23 14:09 J	-765145.08	-765144.91	-765144.75	0.0502	0.0242
Venus	-6807-10-26 07:26 J	-764535.38	-764535.19	-764535.00	0.0515	0.0191
Mercury	-6803-10-24 15:36 J	-763075.98	-763075.85	-763075.72	0.0524	0.0021
Mercury	-6802-01-21 20:09 J	-762986.67	-762986.66	-762986.65	0.0523	0.0518
Venus	-6801-09-02 14:09 J	-762397.11	-762396.91	-762396.71	0.0509	0.0036
Mars	-6797-06-09 19:26 J	-761020.96	-761020.69	-761020.42	0.0499	0.0006
Mercury	-6797-12-12 11:02 J	-760835.22	-760835.04	-760834.85	0.0501	0.0065
Venus	-6795-07-01 01:55 J	-760269.52	-760269.42	-760269.31	0.0513	0.0439
Venus	-6794-02-23 13:12 J	-760032.02	-760031.95	-760031.86	0.0519	0.0476
Mercury	-6791-08-12 19:55 J	-758765.79	-758765.67	-758765.55	0.0525	0.0162
Mercury	-6791-11-10 00:28 J	-758676.56	-758676.48	-758676.39	0.0523	0.0383
Venus	-6789-05-08 13:26 J	-758131.13	-758130.94	-758130.76	0.0511	0.0203
Mercury	-6785-09-30 07:55 J	-756525.36	-756525.17	-756524.99	0.0501	0.0118
Venus	-6783-10-29 06:00 J	-755766.44	-755766.25	-755766.06	0.0517	0.0218
Earth	-6782-05-25 18:43 J	-755557.88	-755557.72	-755557.56	0.0522	0.0384
Moon	-6782-05-25 20:09 J	-755557.81	-755557.66	-755557.49	0.0522	0.0392 *
Mars	-6779-03-25 10:19 J	-754523.27	-754523.07	-754522.85	0.0527	0.0347
Mercury	-6779-06-01 00:28 J	-754455.58	-754455.48	-754455.37	0.0526	0.0293
Mercury	-6779-08-29 05:31 J	-754366.38	-754366.27	-754366.16	0.0524	0.0255
Venus	-6777-01-12 13:40 J	-753865.04	-753864.93	-753864.83	0.0512	0.0439
Venus	-6777-09-05 03:21 J	-753628.48	-753628.36	-753628.25	0.0507	0.0415
Mercury	-6773-07-19 03:07 J	-752215.51	-752215.37	-752215.22	0.0500	0.0316
Mercury	-6773-10-17 15:36 J	-752124.94	-752124.85	-752124.75	0.0502	0.0428
Venus	-6771-07-03 20:52 J	-751500.83	-751500.63	-751500.42	0.0516	0.0044
Moon	-6770-05-30 14:38 J	-751170.12	-751169.89	-751169.66	0.0524	0.0014

Earth	-6770-05-30 17:31 J	-751170.00	-751169.77	-751169.53	0.0524	0.0018 *
Mercury	-6767-03-20 05:16 J	-750145.35	-750145.28	-750145.20	0.0526	0.0424
Mercury	-6767-06-17 10:19 J	-750056.19	-750056.07	-750055.94	0.0525	0.0129
Venus	-6765-05-11 04:47 J	-749362.49	-749362.30	-749362.12	0.0508	0.0187
Mars	-6761-03-14 12:14 J	-747959.16	-747958.99	-747958.81	0.0499	0.0377
Mercury	-6761-05-07 00:14 J	-747905.52	-747905.49	-747905.46	0.0500	0.0492
Mercury	-6761-08-05 12:14 J	-747815.15	-747814.99	-747814.82	0.0502	0.0247
Venus	-6759-03-08 15:50 J	-747235.00	-747234.84	-747234.67	0.0515	0.0294
Earth	-6758-06-04 21:36 J	-746781.76	-746781.60	-746781.43	0.0525	0.0372
Moon	-6758-06-05 01:40 J	-746781.59	-746781.43	-746781.27	0.0525	0.0380 *
Mercury	-6755-04-05 14:52 J	-745746.00	-745745.88	-745745.75	0.0525	0.0012
Venus	-6753-01-15 03:50 J	-745096.54	-745096.34	-745096.14	0.0510	0.0054
Moon	-6753-11-21 10:04 J	-744785.29	-744785.08	-744784.87	0.0503	0.0227
Earth	-6753-11-21 13:12 J	-744785.14	-744784.95	-744784.75	0.0503	0.0256 *
Mercury	-6749-05-24 09:21 J	-743505.29	-743505.11	-743504.92	0.0501	0.0070
Venus	-6747-07-06 22:33 J	-742731.70	-742731.56	-742731.42	0.0519	0.0376
Mercury	-6743-01-22 19:26 J	-741435.81	-741435.69	-741435.57	0.0525	0.0145
Mercury	-6743-04-22 00:00 J	-741346.58	-741346.50	-741346.42	0.0523	0.0399
Venus	-6742-09-20 02:38 J	-740830.55	-740830.39	-740830.22	0.0511	0.0294
Earth	-6741-11-25 23:31 J	-740397.75	-740397.52	-740397.29	0.0502	0.0066
Moon	-6741-11-26 01:40 J	-740397.65	-740397.43	-740397.21	0.0502	0.0057 *
Mercury	-6737-03-12 06:28 J	-739195.41	-739195.23	-739195.04	0.0501	0.0109
Venus	-6735-03-11 15:50 J	-738466.04	-738465.84	-738465.64	0.0517	0.0119
Mercury	-6732-11-10 23:31 J	-737125.63	-737125.52	-737125.42	0.0525	0.0287
Mercury	-6731-02-08 04:19 J	-737036.43	-737036.32	-737036.21	0.0524	0.0261
Venus	-6729-01-17 15:21 J	-736328.01	-736327.86	-736327.70	0.0508	0.0324
Moon	-6729-11-30 09:50 J	-736010.25	-736010.09	-736009.91	0.0501	0.0358
Earth	-6729-11-30 10:33 J	-736010.21	-736010.06	-736009.92	0.0501	0.0386 *
Mercury	-6726-12-30 03:07 J	-734885.52	-734885.37	-734885.21	0.0501	0.0290
Mercury	-6725-03-29 15:36 J	-734794.92	-734794.85	-734794.76	0.0502	0.0455

Venus	-6724-11-14 08:52 J	-734200.32	-734200.13	-734199.93	0.0515	0.0138
Mercury	-6720-08-30 04:04 J	-732815.40	-732815.33	-732815.25	0.0526	0.0420
Mercury	-6720-11-27 09:07 J	-732726.24	-732726.12	-732726.00	0.0524	0.0131
Venus	-6718-09-22 16:47 J	-732062.00	-732061.80	-732061.60	0.0509	0.0094
Mercury	-6714-10-17 22:33 J	-730575.59	-730575.56	-730575.51	0.0500	0.0486
Mercury	-6713-01-16 10:47 J	-730485.21	-730485.05	-730484.89	0.0501	0.0252
Venus	-6712-07-20 00:28 J	-729934.61	-729934.48	-729934.35	0.0514	0.0397
Mercury	-6708-09-15 13:55 J	-728416.05	-728415.92	-728415.79	0.0525	0.0002
Venus	-6706-05-28 17:16 J	-727795.97	-727795.78	-727795.58	0.0511	0.0143
Mercury	-6702-11-04 07:26 J	-726175.37	-726175.19	-726175.00	0.0501	0.0070
Venus	-6700-11-17 05:45 J	-725431.44	-725431.26	-725431.09	0.0518	0.0269
Moon	-6699-05-24 20:23 J	-725242.76	-725242.65	-725242.53	0.0523	0.0453
Earth	-6699-05-24 22:47 J	-725242.66	-725242.55	-725242.42	0.0523	0.0445 *
Mars	-6697-12-06 06:00 J	-724316.32	-724316.25	-724316.17	0.0528	0.0505
Mercury	-6696-07-04 18:28 J	-724105.85	-724105.73	-724105.61	0.0525	0.0136
Mercury	-6696-10-01 23:02 J	-724016.61	-724016.54	-724016.46	0.0524	0.0408
Venus	-6694-01-31 15:21 J	-723529.99	-723529.86	-723529.73	0.0512	0.0388
Venus	-6694-09-25 04:19 J	-723293.39	-723293.32	-723293.24	0.0506	0.0468
Mercury	-6690-08-23 04:33 J	-721865.49	-721865.31	-721865.13	0.0501	0.0109
Venus	-6688-07-23 00:14 J	-721165.70	-721165.49	-721165.28	0.0516	0.0014
Earth	-6687-05-30 02:38 J	-720854.62	-720854.39	-720854.16	0.0523	0.0059
Moon	-6687-05-30 06:28 J	-720854.47	-720854.23	-720854.00	0.0523	0.0027 *
Mercury	-6684-04-22 22:47 J	-719795.66	-719795.55	-719795.44	0.0525	0.0274
Mercury	-6684-07-21 03:36 J	-719706.45	-719706.35	-719706.24	0.0524	0.0273
Venus	-6682-05-31 04:19 J	-719027.50	-719027.32	-719027.14	0.0508	0.0234
Mars	-6679-11-30 03:50 J	-717748.57	-717748.34	-717748.11	0.0498	0.0271
Mercury	-6678-06-11 01:26 J	-717555.59	-717555.44	-717555.28	0.0501	0.0287
Mercury	-6678-09-09 14:09 J	-717464.99	-717464.91	-717464.84	0.0502	0.0459
Venus	-6676-03-27 18:14 J	-716899.92	-716899.74	-716899.55	0.0515	0.0239
Moon	-6675-06-04 00:14 J	-716466.68	-716466.49	-716466.30	0.0524	0.0317

Earth	-6675-06-04 03:36 J	-716466.53	-716466.35	-716466.16	0.0524	0.0318 *
Mercury	-6672-02-09 02:52 J	-715485.46	-715485.38	-715485.31	0.0526	0.0418
Mercury	-6672-05-09 07:55 J	-715396.29	-715396.17	-715396.05	0.0524	0.0133
Venus	-6670-02-03 03:36 J	-714761.55	-714761.35	-714761.14	0.0510	0.0011
Earth	-6670-11-21 22:19 J	-714469.76	-714469.57	-714469.39	0.0504	0.0299
Moon	-6670-11-22 00:14 J	-714469.68	-714469.49	-714469.30	0.0504	0.0275 *
Mercury	-6666-03-29 22:19 J	-713245.63	-713245.57	-713245.51	0.0500	0.0466
Mercury	-6666-06-28 10:33 J	-713155.22	-713155.06	-713154.90	0.0502	0.0273
Venus	-6665-11-30 12:14 J	-712634.04	-712633.99	-712633.93	0.0513	0.0489
Venus	-6664-07-25 22:47 J	-712396.66	-712396.55	-712396.44	0.0519	0.0427
Mars	-6661-09-12 00:00 J	-711252.78	-711252.50	-711252.23	0.0528	0.0018
Mercury	-6660-02-25 12:28 J	-711086.10	-711085.98	-711085.85	0.0525	0.0005
Venus	-6659-10-09 04:04 J	-710495.51	-710495.33	-710495.15	0.0511	0.0241
Moon	-6658-11-26 10:19 J	-710082.31	-710082.07	-710081.83	0.0502	0.0011
Earth	-6658-11-26 10:33 J	-710082.29	-710082.06	-710081.83	0.0502	0.0025 *
Mercury	-6654-04-16 05:45 J	-708845.45	-708845.26	-708845.07	0.0501	0.0072
Venus	-6652-03-30 12:43 J	-708131.16	-708130.97	-708130.77	0.0517	0.0161
Mercury	-6649-12-14 17:16 J	-706775.91	-706775.78	-706775.66	0.0526	0.0135
Mercury	-6648-03-13 21:50 J	-706686.66	-706686.59	-706686.51	0.0524	0.0412
Venus	-6647-06-14 03:21 J	-706229.42	-706229.36	-706229.29	0.0513	0.0483
Venus	-6646-02-05 17:45 J	-705992.89	-705992.76	-705992.63	0.0507	0.0380
Moon	-6646-11-30 19:55 J	-705694.84	-705694.67	-705694.50	0.0501	0.0323
Earth	-6646-11-30 21:36 J	-705694.76	-705694.60	-705694.43	0.0501	0.0346 *
Mars	-6643-09-03 22:04 J	-704686.84	-704686.58	-704686.31	0.0498	0.0102
Mercury	-6642-02-02 02:23 J	-704535.58	-704535.40	-704535.22	0.0500	0.0111
Venus	-6641-12-03 06:43 J	-703865.42	-703865.22	-703865.01	0.0516	0.0096
Mercury	-6637-10-02 21:36 J	-702465.71	-702465.60	-702465.49	0.0526	0.0271
Mercury	-6637-12-31 02:23 J	-702376.50	-702376.40	-702376.29	0.0524	0.0277
Venus	-6635-10-11 16:47 J	-701726.99	-701726.80	-701726.61	0.0509	0.0142
Mercury	-6631-11-20 23:02 J	-700225.68	-700225.54	-700225.38	0.0500	0.0292



Mercury	-6630-02-19 11:45 J	-700135.09	-700135.01	-700134.93	0.0502	0.0453
Venus	-6629-08-08 02:09 J	-699599.56	-699599.41	-699599.26	0.0514	0.0346
Mars	-6625-06-19 02:52 J	-698188.48	-698188.38	-698188.26	0.0526	0.0481
Mercury	-6625-07-22 01:55 J	-698155.50	-698155.42	-698155.34	0.0526	0.0410
Mercury	-6625-10-19 06:57 J	-698066.33	-698066.21	-698066.09	0.0524	0.0141
Venus	-6623-06-16 15:36 J	-697461.05	-697460.85	-697460.65	0.0510	0.0101
Mercury	-6619-09-08 20:09 J	-695915.72	-695915.66	-695915.60	0.0500	0.0469
Mercury	-6619-12-08 08:23 J	-695825.31	-695825.15	-695824.99	0.0502	0.0271
Venus	-6617-12-06 06:43 J	-695096.38	-695096.22	-695096.06	0.0518	0.0322
Earth	-6616-05-24 03:07 J	-694927.43	-694927.37	-694927.30	0.0522	0.0499
Moon	-6616-05-24 06:57 J	-694927.28	-694927.21	-694927.14	0.0522	0.0496
Mercury	-6613-08-07 11:02 J	-693756.17	-693756.04	-693755.91	0.0525	0.0003
Venus	-6611-02-19 13:40 J	-693195.08	-693194.93	-693194.78	0.0512	0.0346
Mars	-6607-06-08 20:09 J	-691624.72	-691624.66	-691624.59	0.0499	0.0484
Mercury	-6607-09-26 04:47 J	-691515.49	-691515.30	-691515.12	0.0501	0.0085
Venus	-6605-08-10 23:02 J	-690830.74	-690830.54	-690830.33	0.0516	0.0061
Moon	-6604-05-28 23:31 J	-690539.75	-690539.52	-690539.28	0.0523	0.0097
Earth	-6604-05-29 03:21 J	-690539.59	-690539.36	-690539.13	0.0523	0.0128 *
Mercury	-6601-05-26 15:36 J	-689445.98	-689445.85	-689445.73	0.0525	0.0138
Mercury	-6601-08-23 20:09 J	-689356.73	-689356.66	-689356.58	0.0524	0.0408
Venus	-6599-06-19 04:04 J	-688692.49	-688692.33	-688692.16	0.0508	0.0284
Mercury	-6595-07-15 00:14 J	-687205.67	-687205.49	-687205.31	0.0500	0.0113
Venus	-6593-04-15 13:55 J	-686565.11	-686564.92	-686564.73	0.0515	0.0205
Earth	-6592-06-03 00:00 J	-686151.71	-686151.50	-686151.29	0.0524	0.0234
Moon	-6592-06-03 02:38 J	-686151.59	-686151.39	-686151.18	0.0524	0.0231 *
Mercury	-6589-03-14 19:55 J	-685135.78	-685135.67	-685135.56	0.0526	0.0275
Mercury	-6589-06-12 00:57 J	-685046.57	-685046.46	-685046.36	0.0525	0.0275
Venus	-6587-02-22 04:33 J	-684426.51	-684426.31	-684426.10	0.0510	0.0048
Moon	-6587-11-21 07:26 J	-684154.37	-684154.19	-684154.00	0.0503	0.0321
Earth	-6587-11-21 07:40 J	-684154.35	-684154.18	-684154.01	0.0503	0.0340 *

Mercury	-6583-05-02 20:38 J	-682895.78	-682895.64	-682895.48	0.0500	0.0296
Mercury	-6583-08-01 09:07 J	-682805.20	-682805.12	-682805.04	0.0501	0.0446
Venus	-6582-12-20 08:23 J	-682299.24	-682299.15	-682299.06	0.0513	0.0455
Venus	-6581-08-13 19:12 J	-682061.78	-682061.70	-682061.61	0.0519	0.0468
Mercury	-6577-01-02 00:14 J	-680825.56	-680825.49	-680825.41	0.0526	0.0414
Mercury	-6577-03-31 05:16 J	-680736.40	-680736.28	-680736.15	0.0525	0.0139
Venus	-6576-10-28 02:38 J	-680160.58	-680160.39	-680160.21	0.0511	0.0200
Moon	-6575-11-25 13:55 J	-679767.14	-679766.92	-679766.70	0.0502	0.0051
Earth	-6575-11-25 15:36 J	-679767.08	-679766.85	-679766.62	0.0502	0.0028 *
Mercury	-6571-02-18 17:31 J	-678585.82	-678585.77	-678585.72	0.0500	0.0477
Mercury	-6571-05-20 05:31 J	-678495.43	-678495.27	-678495.11	0.0501	0.0261
Venus	-6569-04-18 13:12 J	-677796.14	-677795.95	-677795.76	0.0517	0.0211
Mercury	-6565-01-18 09:50 J	-676426.22	-676426.09	-676425.97	0.0525	0.0011
Venus	-6564-07-03 00:28 J	-675894.58	-675894.48	-675894.38	0.0513	0.0447
Venus	-6563-02-24 14:23 J	-675658.01	-675657.90	-675657.79	0.0507	0.0418
Earth	-6563-11-30 00:28 J	-675379.67	-675379.48	-675379.29	0.0501	0.0286
Moon	-6563-11-30 03:36 J	-675379.54	-675379.35	-675379.14	0.0501	0.0266 *
Mercury	-6559-03-08 02:09 J	-674185.59	-674185.41	-674185.22	0.0501	0.0078
Venus	-6558-12-23 06:28 J	-673530.43	-673530.23	-673530.02	0.0516	0.0048
Mercury	-6554-11-06 13:40 J	-672116.05	-672115.93	-672115.80	0.0525	0.0145
Mercury	-6553-02-03 18:28 J	-672026.80	-672026.73	-672026.65	0.0524	0.0401
Venus	-6552-10-30 13:26 J	-671392.13	-671391.94	-671391.75	0.0509	0.0181
Mercury	-6548-12-24 22:33 J	-669875.74	-669875.56	-669875.37	0.0501	0.0108
Venus	-6546-08-27 23:45 J	-669264.67	-669264.51	-669264.34	0.0514	0.0305
Mars	-6542-03-01 22:33 J	-667982.73	-667982.56	-667982.38	0.0528	0.0410
Mercury	-6542-08-25 18:14 J	-667805.85	-667805.74	-667805.64	0.0526	0.0282
Mercury	-6542-11-22 23:02 J	-667716.64	-667716.54	-667716.43	0.0524	0.0267
Venus	-6540-07-05 13:40 J	-667126.13	-667125.93	-667125.73	0.0511	0.0058
Mercury	-6536-10-12 18:14 J	-665565.88	-665565.74	-665565.59	0.0500	0.0302
Mercury	-6535-01-11 06:28 J	-665475.31	-665475.23	-665475.14	0.0501	0.0439

Venus	-6534-12-26 00:43 J	-664761.61	-664761.47	-664761.31	0.0518	0.0355
Mercury	-6530-06-13 22:19 J	-663495.64	-663495.57	-663495.49	0.0527	0.0424
Mercury	-6530-09-11 03:36 J	-663406.47	-663406.35	-663406.23	0.0525	0.0130
Venus	-6528-03-10 12:57 J	-662860.12	-662859.96	-662859.80	0.0512	0.0302
Mars	-6524-02-22 17:16 J	-661415.02	-661414.78	-661414.52	0.0497	0.0197
Mercury	-6524-07-31 14:52 J	-661255.92	-661255.88	-661255.84	0.0499	0.0484
Mercury	-6524-10-30 02:52 J	-661165.54	-661165.38	-661165.22	0.0501	0.0251
Venus	-6522-08-30 18:00 J	-660495.95	-660495.75	-660495.55	0.0516	0.0094
Earth	-6521-05-27 22:04 J	-660224.79	-660224.58	-660224.36	0.0523	0.0214
Moon	-6521-05-28 01:12 J	-660224.66	-660224.45	-660224.23	0.0523	0.0181 *
Mercury	-6518-06-30 07:55 J	-659096.29	-659096.17	-659096.04	0.0525	0.0012
Venus	-6516-07-08 00:43 J	-658357.62	-658357.47	-658357.31	0.0508	0.0321
Mercury	-6512-08-17 23:02 J	-656855.72	-656855.54	-656855.35	0.0501	0.0064
Venus	-6510-05-05 12:43 J	-656230.17	-656229.97	-656229.78	0.0515	0.0162
Moon	-6509-06-02 00:14 J	-655836.72	-655836.49	-655836.26	0.0524	0.0164
Earth	-6509-06-02 01:55 J	-655836.64	-655836.42	-655836.20	0.0524	0.0170 *
Mars	-6507-12-06 17:16 J	-654919.06	-654918.78	-654918.50	0.0528	0.0074
Mercury	-6506-04-18 12:14 J	-654786.11	-654785.99	-654785.86	0.0525	0.0147
Mercury	-6506-07-16 17:16 J	-654696.86	-654696.78	-654696.71	0.0524	0.0400
Venus	-6504-03-13 00:00 J	-654091.70	-654091.50	-654091.30	0.0509	0.0080
Moon	-6504-11-20 06:28 J	-653839.36	-653839.23	-653839.09	0.0504	0.0397
Earth	-6504-11-20 07:55 J	-653839.30	-653839.17	-653839.03	0.0504	0.0407 *
Mercury	-6500-06-05 19:40 J	-652545.86	-652545.68	-652545.50	0.0501	0.0119
Venus	-6498-01-08 06:57 J	-651964.33	-651964.21	-651964.09	0.0513	0.0414
Venus	-6498-09-02 17:45 J	-651726.78	-651726.76	-651726.73	0.0519	0.0514
Moon	-6497-06-07 01:55 J	-651448.46	-651448.42	-651448.37	0.0525	0.0514
Mercury	-6494-02-04 16:19 J	-650475.93	-650475.82	-650475.72	0.0526	0.0291
Mercury	-6494-05-04 21:07 J	-650386.72	-650386.62	-650386.51	0.0524	0.0259
Venus	-6493-11-15 21:50 J	-649825.78	-649825.59	-649825.40	0.0511	0.0167
Earth	-6492-11-24 17:02 J	-649452.02	-649451.79	-649451.56	0.0503	0.0093

Moon	-6492-11-24 20:09 J	-649451.89	-649451.66	-649451.43	0.0503	0.0121 *
Mars	-6489-11-27 13:26 J	-648353.19	-648352.94	-648352.69	0.0499	0.0181
Mercury	-6488-03-24 16:04 J	-648235.97	-648235.83	-648235.68	0.0500	0.0303
Mercury	-6488-06-23 04:33 J	-648145.40	-648145.31	-648145.22	0.0502	0.0439
Venus	-6486-05-08 09:36 J	-647461.28	-647461.10	-647460.92	0.0517	0.0250
Mercury	-6483-11-23 20:23 J	-646165.72	-646165.65	-646165.58	0.0526	0.0432
Mercury	-6482-02-21 01:40 J	-646076.56	-646076.43	-646076.31	0.0525	0.0121
Venus	-6481-07-21 20:38 J	-645559.75	-645559.64	-645559.52	0.0513	0.0412
Venus	-6480-03-15 11:02 J	-645323.12	-645323.04	-645322.95	0.0507	0.0459
Moon	-6480-11-29 00:28 J	-645064.68	-645064.48	-645064.26	0.0502	0.0205
Earth	-6480-11-29 04:33 J	-645064.52	-645064.31	-645064.10	0.0502	0.0226 *
Mercury	-6476-01-10 12:00 J	-643926.02	-643926.00	-643925.96	0.0499	0.0493
Mercury	-6476-04-11 00:00 J	-643835.66	-643835.50	-643835.33	0.0501	0.0243
Venus	-6474-01-11 00:00 J	-643195.71	-643195.50	-643195.29	0.0515	0.0020
Mercury	-6471-12-10 06:00 J	-641766.38	-641766.25	-641766.13	0.0526	0.0025
Venus	-6469-11-18 11:16 J	-641057.21	-641057.03	-641056.85	0.0509	0.0222
Mercury	-6464-01-27 20:23 J	-639525.84	-639525.65	-639525.47	0.0500	0.0055
Venus	-6463-09-15 17:45 J	-638929.93	-638929.76	-638929.58	0.0514	0.0277
Mercury	-6459-09-28 10:19 J	-637456.19	-637456.07	-637455.95	0.0526	0.0157
Mercury	-6459-12-26 15:07 J	-637366.95	-637366.87	-637366.79	0.0524	0.0389
Venus	-6457-07-24 09:21 J	-636791.31	-636791.11	-636790.91	0.0510	0.0025
Mercury	-6453-11-15 16:19 J	-635216.00	-635215.82	-635215.64	0.0500	0.0136
Venus	-6450-01-13 22:47 J	-634426.68	-634426.55	-634426.42	0.0518	0.0398
Mercury	-6447-07-17 14:38 J	-633145.99	-633145.89	-633145.79	0.0526	0.0295
Mercury	-6447-10-14 19:40 J	-633056.79	-633056.68	-633056.57	0.0524	0.0254
Venus	-6445-03-29 07:26 J	-632525.36	-632525.19	-632525.02	0.0512	0.0273
Mercury	-6441-09-03 12:57 J	-630906.10	-630905.96	-630905.81	0.0500	0.0317
Mercury	-6441-12-03 01:12 J	-630815.54	-630815.45	-630815.35	0.0502	0.0425
Venus	-6439-09-18 15:50 J	-630161.04	-630160.84	-630160.64	0.0516	0.0137
Moon	-6438-05-27 19:12 J	-629909.91	-629909.70	-629909.48	0.0522	0.0251

Earth	-6438-05-27 21:36 J	-629909.80	-629909.60	-629909.41	0.0522	0.0284 *
Mercury	-6435-05-05 18:28 J	-628835.79	-628835.73	-628835.66	0.0526	0.0442
Mercury	-6435-08-02 23:45 J	-628746.64	-628746.51	-628746.39	0.0525	0.0112
Venus	-6433-07-26 19:26 J	-628022.83	-628022.69	-628022.55	0.0508	0.0354
Mercury	-6429-06-22 09:36 J	-626596.11	-626596.10	-626596.09	0.0500	0.0499
Mercury	-6429-09-20 21:36 J	-626505.76	-626505.60	-626505.43	0.0501	0.0237
Venus	-6427-05-24 08:38 J	-625895.34	-625895.14	-625894.94	0.0515	0.0126
Earth	-6426-06-01 20:52 J	-625521.86	-625521.63	-625521.40	0.0523	0.0085
Moon	-6426-06-01 21:07 J	-625521.84	-625521.62	-625521.39	0.0523	0.0079 *
Mercury	-6423-05-22 03:50 J	-624436.46	-624436.34	-624436.21	0.0525	0.0035
Mercury	-6423-08-19 08:38 J	-624347.16	-624347.14	-624347.12	0.0524	0.0513
Venus	-6421-03-31 19:26 J	-623756.89	-623756.69	-623756.49	0.0510	0.0115
Earth	-6421-11-19 09:50 J	-623524.17	-623524.09	-623524.01	0.0504	0.0471
Moon	-6421-11-19 12:43 J	-623524.05	-623523.97	-623523.87	0.0504	0.0466 *
Mercury	-6417-07-09 17:31 J	-622195.96	-622195.77	-622195.58	0.0500	0.0044
Venus	-6415-01-27 00:28 J	-621629.61	-621629.48	-621629.35	0.0513	0.0388
Earth	-6414-06-06 17:02 J	-621133.91	-621133.79	-621133.66	0.0524	0.0445
Moon	-6414-06-06 18:57 J	-621133.85	-621133.71	-621133.56	0.0524	0.0415 *
Mercury	-6411-03-10 08:09 J	-620126.28	-620126.16	-620126.04	0.0526	0.0172
Mercury	-6411-06-07 12:57 J	-620037.04	-620036.96	-620036.87	0.0525	0.0376
Venus	-6410-12-05 18:28 J	-619490.92	-619490.73	-619490.53	0.0512	0.0131
Moon	-6409-11-23 16:47 J	-619137.01	-619136.80	-619136.58	0.0503	0.0182
Earth	-6409-11-23 20:38 J	-619136.86	-619136.64	-619136.42	0.0503	0.0150 *
Mercury	-6405-04-27 13:40 J	-617886.11	-617885.93	-617885.75	0.0500	0.0143
Venus	-6403-05-27 03:07 J	-617126.54	-617126.37	-617126.20	0.0517	0.0279
Mercury	-6400-12-27 12:28 J	-615816.08	-615815.98	-615815.88	0.0526	0.0310
Mercury	-6399-03-26 17:31 J	-615726.88	-615726.77	-615726.66	0.0525	0.0241
Venus	-6398-08-10 15:50 J	-615224.97	-615224.84	-615224.70	0.0513	0.0382
Venus	-6397-04-03 05:45 J	-614988.30	-614988.26	-614988.21	0.0507	0.0490
Earth	-6397-11-28 03:36 J	-614749.57	-614749.35	-614749.13	0.0502	0.0157

Moon	-6397-11-28 07:26 J	-614749.41	-614749.19	-614748.96	0.0502	0.0139 *
Mercury	-6393-02-14 09:36 J	-613576.23	-613576.10	-613575.96	0.0500	0.0334
Mercury	-6393-05-14 21:50 J	-613485.69	-613485.59	-613485.48	0.0502	0.0407
Venus	-6391-01-29 21:07 J	-612860.83	-612860.62	-612860.42	0.0516	0.0020
Mars	-6388-05-25 02:52 J	-611649.58	-611649.38	-611649.17	0.0528	0.0342
Mercury	-6388-10-15 16:47 J	-611505.86	-611505.80	-611505.73	0.0526	0.0447
Mercury	-6387-01-12 22:04 J	-611416.70	-611416.58	-611416.46	0.0525	0.0106
Venus	-6386-12-08 05:16 J	-610722.45	-610722.28	-610722.10	0.0508	0.0251
Moon	-6385-12-02 09:07 J	-610362.18	-610362.12	-610362.06	0.0501	0.0484
Earth	-6385-12-02 12:14 J	-610362.06	-610361.99	-610361.90	0.0501	0.0467 *
Mercury	-6381-03-02 18:14 J	-609175.90	-609175.74	-609175.57	0.0501	0.0222
Venus	-6380-10-04 15:07 J	-608595.05	-608594.87	-608594.68	0.0514	0.0238
Mercury	-6376-11-01 02:09 J	-607106.54	-607106.41	-607106.29	0.0525	0.0040
Mercury	-6375-01-29 06:43 J	-607017.25	-607017.22	-607017.19	0.0523	0.0504
Venus	-6374-08-13 03:36 J	-606456.55	-606456.35	-606456.15	0.0510	0.0007
Mars	-6370-05-18 20:38 J	-605081.89	-605081.64	-605081.37	0.0498	0.0136
Mercury	-6370-12-20 14:52 J	-604866.07	-604865.88	-604865.70	0.0501	0.0037
Venus	-6368-06-09 09:07 J	-604329.17	-604329.12	-604329.06	0.0512	0.0491
Venus	-6367-02-01 18:43 J	-604091.83	-604091.72	-604091.61	0.0518	0.0436
Mercury	-6364-08-20 06:14 J	-602796.36	-602796.24	-602796.12	0.0526	0.0179
Mercury	-6364-11-17 11:02 J	-602707.12	-602707.04	-602706.95	0.0524	0.0368
Venus	-6362-04-18 02:09 J	-602190.58	-602190.41	-602190.23	0.0512	0.0241
Mercury	-6358-10-08 11:02 J	-600556.22	-600556.04	-600555.86	0.0500	0.0151
Venus	-6356-10-07 09:21 J	-599826.30	-599826.11	-599825.91	0.0516	0.0165
Earth	-6355-05-26 12:57 J	-599595.12	-599594.96	-599594.79	0.0522	0.0375
Moon	-6355-05-26 14:09 J	-599595.08	-599594.91	-599594.74	0.0522	0.0345 *
Mars	-6352-02-28 08:09 J	-598586.43	-598586.16	-598585.89	0.0528	0.0125
Mercury	-6352-06-08 10:19 J	-598486.17	-598486.07	-598485.97	0.0527	0.0324
Mercury	-6352-09-05 15:21 J	-598396.97	-598396.86	-598396.75	0.0525	0.0228
Venus	-6351-12-22 00:14 J	-597924.54	-597924.49	-597924.43	0.0514	0.0491

Venus	-6350-08-15 16:04 J	-597687.96	-597687.83	-597687.71	0.0508	0.0392
Mercury	-6346-07-27 07:26 J	-596246.33	-596246.19	-596246.05	0.0500	0.0336
Mercury	-6346-10-25 19:26 J	-596155.80	-596155.69	-596155.58	0.0501	0.0402
Venus	-6344-06-12 02:38 J	-595560.59	-595560.39	-595560.19	0.0515	0.0096
Earth	-6343-05-31 13:40 J	-595207.16	-595206.93	-595206.69	0.0523	0.0012
Moon	-6343-05-31 14:52 J	-595207.13	-595206.88	-595206.64	0.0523	0.0014 *
Mercury	-6340-03-27 14:38 J	-594175.94	-594175.89	-594175.83	0.0527	0.0462
Mercury	-6340-06-24 19:55 J	-594086.79	-594086.67	-594086.55	0.0525	0.0093
Venus	-6338-04-20 14:23 J	-593422.09	-593421.90	-593421.71	0.0509	0.0147
Mars	-6334-02-20 10:19 J	-592020.30	-592020.07	-592019.82	0.0498	0.0234
Mercury	-6334-08-13 15:07 J	-591846.04	-591845.87	-591845.70	0.0501	0.0206
Venus	-6332-02-14 20:52 J	-591294.77	-591294.63	-591294.47	0.0513	0.0353
Moon	-6331-06-05 13:40 J	-590819.09	-590818.93	-590818.75	0.0524	0.0348
Earth	-6331-06-05 17:02 J	-590818.95	-590818.79	-590818.63	0.0524	0.0376 *
Mercury	-6328-04-13 00:28 J	-589776.61	-589776.48	-589776.35	0.0525	0.0041
Mercury	-6328-07-11 05:16 J	-589687.31	-589687.28	-589687.25	0.0524	0.0501
Venus	-6327-12-24 13:26 J	-589156.14	-589155.94	-589155.75	0.0511	0.0099
Earth	-6326-11-23 18:43 J	-588821.92	-588821.72	-588821.51	0.0503	0.0222
Moon	-6326-11-23 22:47 J	-588821.75	-588821.55	-588821.35	0.0503	0.0252 *
Mercury	-6322-06-01 11:31 J	-587536.20	-587536.02	-587535.83	0.0501	0.0024
Venus	-6320-06-15 00:57 J	-586791.62	-586791.46	-586791.30	0.0518	0.0323
Mercury	-6316-01-30 04:33 J	-585466.43	-585466.31	-585466.19	0.0526	0.0185
Mercury	-6316-04-29 09:21 J	-585377.20	-585377.11	-585377.02	0.0524	0.0361
Venus	-6315-08-29 10:33 J	-584890.20	-584890.06	-584889.91	0.0513	0.0350
Moon	-6314-11-28 00:14 J	-584434.72	-584434.49	-584434.25	0.0503	0.0070
Earth	-6314-11-28 03:50 J	-584434.57	-584434.34	-584434.11	0.0503	0.0088 *
Mercury	-6310-03-20 08:09 J	-583226.33	-583226.16	-583225.98	0.0500	0.0160
Venus	-6308-02-17 18:00 J	-582525.95	-582525.75	-582525.55	0.0516	0.0059
Mercury	-6305-11-18 08:38 J	-581156.24	-581156.14	-581156.04	0.0526	0.0327
Mercury	-6304-02-15 13:40 J	-581067.04	-581066.93	-581066.82	0.0525	0.0223

Venus	-6303-12-27 00:43 J	-580387.64	-580387.47	-580387.31	0.0509	0.0287
Earth	-6302-12-02 14:38 J	-580047.02	-580046.89	-580046.75	0.0502	0.0404
Moon	-6302-12-02 16:33 J	-580046.92	-580046.81	-580046.70	0.0502	0.0430 *
Mercury	-6298-01-06 04:47 J	-578916.43	-578916.30	-578916.16	0.0500	0.0343
Mercury	-6298-04-06 16:47 J	-578825.91	-578825.80	-578825.68	0.0501	0.0396
Venus	-6297-10-23 10:04 J	-578260.26	-578260.08	-578259.89	0.0514	0.0206
Mercury	-6293-09-06 12:43 J	-576846.02	-576845.97	-576845.92	0.0527	0.0473
Mercury	-6293-12-04 18:00 J	-576756.88	-576756.75	-576756.63	0.0525	0.0084
Venus	-6291-09-01 00:14 J	-576121.69	-576121.49	-576121.29	0.0511	0.0043
Mercury	-6286-01-23 13:12 J	-574516.12	-574515.95	-574515.78	0.0501	0.0207
Venus	-6285-06-28 04:19 J	-573994.41	-573994.32	-573994.23	0.0512	0.0460
Venus	-6284-02-20 13:40 J	-573757.01	-573756.93	-573756.84	0.0518	0.0470
Mercury	-6281-09-22 22:33 J	-572446.69	-572446.56	-572446.44	0.0526	0.0055
Mercury	-6281-12-21 03:07 J	-572357.40	-572357.37	-572357.32	0.0524	0.0491
Venus	-6279-05-06 22:19 J	-571855.76	-571855.57	-571855.39	0.0512	0.0206
Mercury	-6275-11-11 08:38 J	-570206.33	-570206.14	-570205.95	0.0501	0.0011
Venus	-6273-10-26 06:57 J	-569491.40	-569491.21	-569491.02	0.0517	0.0208
Moon	-6272-05-25 13:55 J	-569280.07	-569279.92	-569279.77	0.0522	0.0411
Earth	-6272-05-25 13:40 J	-569280.05	-569279.93	-569279.81	0.0522	0.0440 *
Mercury	-6269-07-12 03:07 J	-568136.49	-568136.37	-568136.25	0.0526	0.0186
Mercury	-6269-10-09 07:55 J	-568047.26	-568047.17	-568047.08	0.0524	0.0361
Venus	-6267-01-09 20:38 J	-567589.73	-567589.64	-567589.54	0.0513	0.0454
Venus	-6267-09-03 11:31 J	-567353.13	-567353.02	-567352.91	0.0508	0.0426
Mercury	-6263-08-30 05:16 J	-565896.45	-565896.28	-565896.10	0.0500	0.0171
Venus	-6261-07-01 00:57 J	-565225.66	-565225.46	-565225.25	0.0515	0.0052
Moon	-6260-05-30 13:12 J	-564892.18	-564891.95	-564891.73	0.0523	0.0086
Earth	-6260-05-30 15:50 J	-564892.08	-564891.84	-564891.61	0.0523	0.0067 *
Mercury	-6257-04-30 07:12 J	-563826.30	-563826.20	-563826.10	0.0526	0.0329
Mercury	-6257-07-28 12:14 J	-563737.10	-563736.99	-563736.88	0.0524	0.0221
Venus	-6255-05-09 10:19 J	-563087.26	-563087.07	-563086.88	0.0509	0.0184



Mars	-6252-11-06 06:00 J	-561810.36	-561810.25	-561810.13	0.0497	0.0449
Mercury	-6251-06-18 02:09 J	-561586.54	-561586.41	-561586.27	0.0500	0.0350
Mercury	-6251-09-16 14:23 J	-561496.01	-561495.90	-561495.78	0.0502	0.0391
Venus	-6249-03-05 19:12 J	-560959.86	-560959.70	-560959.53	0.0513	0.0310
Earth	-6248-06-04 16:19 J	-560504.01	-560503.82	-560503.63	0.0524	0.0303
Moon	-6248-06-04 20:09 J	-560503.85	-560503.66	-560503.45	0.0524	0.0279 *
Mercury	-6245-02-17 11:16 J	-559516.08	-559516.03	-559515.97	0.0526	0.0471
Mercury	-6245-05-16 16:33 J	-559426.94	-559426.81	-559426.69	0.0525	0.0082
Venus	-6243-01-12 09:21 J	-558821.31	-558821.11	-558820.91	0.0511	0.0062
Moon	-6243-11-22 18:14 J	-558506.92	-558506.74	-558506.55	0.0504	0.0313
Earth	-6243-11-22 21:50 J	-558506.78	-558506.59	-558506.40	0.0504	0.0282 *
Mercury	-6239-07-05 10:47 J	-557186.21	-557186.05	-557185.87	0.0501	0.0206
Venus	-6237-07-03 21:21 J	-556456.76	-556456.61	-556456.46	0.0517	0.0361
Mars	-6234-08-18 01:55 J	-555316.65	-555316.42	-555316.18	0.0528	0.0274
Mercury	-6233-03-04 20:38 J	-555116.76	-555116.64	-555116.51	0.0526	0.0060
Mercury	-6233-06-02 01:26 J	-555027.48	-555027.44	-555027.39	0.0524	0.0484
Venus	-6232-09-17 07:55 J	-554555.33	-554555.17	-554555.01	0.0513	0.0312
Earth	-6231-11-27 08:52 J	-554119.36	-554119.13	-554118.90	0.0503	0.0037
Moon	-6231-11-27 11:02 J	-554119.27	-554119.04	-554118.82	0.0503	0.0030 *
Mercury	-6227-04-23 07:12 J	-552876.38	-552876.20	-552876.01	0.0500	0.0021
Venus	-6225-03-08 14:38 J	-552191.09	-552190.89	-552190.69	0.0516	0.0098
Mercury	-6222-12-23 01:12 J	-550806.56	-550806.45	-550806.33	0.0526	0.0194
Mercury	-6221-03-21 06:14 J	-550717.33	-550717.24	-550717.15	0.0524	0.0354
Venus	-6219-01-14 21:36 J	-550052.75	-550052.60	-550052.44	0.0508	0.0327
Moon	-6219-12-01 16:33 J	-549731.97	-549731.81	-549731.64	0.0502	0.0370
Earth	-6219-12-01 17:02 J	-549731.96	-549731.79	-549731.62	0.0502	0.0343 *
Mars	-6216-08-11 01:12 J	-548748.72	-548748.45	-548748.18	0.0498	0.0069
Mercury	-6215-02-09 02:38 J	-548566.56	-548566.39	-548566.21	0.0500	0.0179
Venus	-6214-11-12 07:55 J	-547925.36	-547925.17	-547924.97	0.0515	0.0164
Mercury	-6210-10-11 06:00 J	-546496.35	-546496.25	-546496.15	0.0526	0.0325

Mercury	-6209-01-08 11:02 J	-546407.16	-546407.04	-546406.93	0.0524	0.0225
Venus	-6208-09-19 21:50 J	-545786.79	-545786.59	-545786.39	0.0510	0.0085
Mercury	-6204-11-27 23:31 J	-544256.65	-544256.52	-544256.39	0.0500	0.0357
Mercury	-6203-02-26 11:45 J	-544166.13	-544166.01	-544165.89	0.0502	0.0383
Venus	-6202-07-18 03:21 J	-543659.48	-543659.36	-543659.24	0.0513	0.0416
Mars	-6198-05-25 04:04 J	-542252.57	-542252.33	-542252.08	0.0527	0.0236
Mercury	-6198-07-30 10:04 J	-542186.13	-542186.08	-542186.02	0.0526	0.0467
Mercury	-6198-10-27 15:21 J	-542096.99	-542096.86	-542096.74	0.0525	0.0087
Venus	-6196-05-25 19:55 J	-541520.86	-541520.67	-541520.48	0.0511	0.0164
Mercury	-6192-12-15 08:38 J	-539856.31	-539856.14	-539855.97	0.0501	0.0203
Venus	-6190-11-15 06:43 J	-539156.39	-539156.22	-539156.04	0.0517	0.0259
Moon	-6189-05-24 14:23 J	-538964.98	-538964.90	-538964.80	0.0521	0.0477
Earth	-6189-05-24 16:33 J	-538964.87	-538964.81	-538964.74	0.0521	0.0498 *
Mercury	-6186-08-15 19:40 J	-537786.81	-537786.68	-537786.56	0.0525	0.0057
Mercury	-6186-11-13 00:14 J	-537697.53	-537697.49	-537697.44	0.0524	0.0489
Venus	-6184-01-28 18:00 J	-537254.86	-537254.75	-537254.63	0.0513	0.0415
Venus	-6184-09-22 09:07 J	-537018.20	-537018.12	-537018.05	0.0508	0.0469
Mars	-6180-05-16 05:45 J	-535686.46	-535686.26	-535686.05	0.0499	0.0327
Mercury	-6180-10-03 05:31 J	-535546.46	-535546.27	-535546.09	0.0501	0.0024
Venus	-6178-07-20 23:31 J	-534890.73	-534890.52	-534890.32	0.0515	0.0010
Earth	-6177-05-29 15:07 J	-534577.10	-534576.87	-534576.64	0.0522	0.0136
Moon	-6177-05-29 18:57 J	-534576.94	-534576.71	-534576.48	0.0522	0.0160 *
Mercury	-6174-06-03 23:45 J	-533476.63	-533476.51	-533476.40	0.0526	0.0197
Mercury	-6174-09-01 04:33 J	-533387.40	-533387.31	-533387.22	0.0524	0.0351
Venus	-6172-05-28 08:52 J	-532752.30	-532752.13	-532751.94	0.0510	0.0230
Mercury	-6168-07-22 01:55 J	-531236.59	-531236.42	-531236.24	0.0500	0.0162
Venus	-6166-03-25 17:31 J	-530624.94	-530624.77	-530624.59	0.0513	0.0267
Moon	-6165-06-03 12:28 J	-530189.19	-530188.98	-530188.76	0.0524	0.0207
Earth	-6165-06-03 16:33 J	-530189.01	-530188.81	-530188.60	0.0524	0.0236 *
Mercury	-6162-03-23 04:19 J	-529166.42	-529166.32	-529166.22	0.0526	0.0329

Mercury	-6162-06-20 09:21 J	-529077.22	-529077.11	-529076.99	0.0525	0.0222
Venus	-6160-01-31 08:23 J	-528486.35	-528486.15	-528485.95	0.0511	0.0018
Earth	-6160-11-22 03:07 J	-528191.54	-528191.37	-528191.19	0.0504	0.0334
Moon	-6160-11-22 05:16 J	-528191.43	-528191.28	-528191.12	0.0504	0.0363 *
Mercury	-6156-05-09 21:21 J	-526926.74	-526926.61	-526926.48	0.0500	0.0359
Mercury	-6156-08-08 09:36 J	-526836.22	-526836.10	-526835.98	0.0502	0.0381
Venus	-6154-07-23 20:38 J	-526121.76	-526121.64	-526121.51	0.0518	0.0412
Mercury	-6150-01-09 09:07 J	-524856.18	-524856.12	-524856.06	0.0527	0.0460
Mercury	-6150-04-08 14:23 J	-524767.03	-524766.90	-524766.78	0.0525	0.0095
Venus	-6149-10-06 07:55 J	-524220.34	-524220.17	-524219.99	0.0512	0.0262
Moon	-6148-11-26 14:23 J	-523804.14	-523803.90	-523803.66	0.0503	0.0017
Earth	-6148-11-26 14:38 J	-523804.13	-523803.89	-523803.66	0.0503	0.0018 *
Mercury	-6144-05-27 06:14 J	-522526.41	-522526.24	-522526.06	0.0501	0.0200
Venus	-6142-03-28 15:07 J	-521856.07	-521855.87	-521855.67	0.0517	0.0152
Mercury	-6138-01-25 18:43 J	-520456.85	-520456.72	-520456.60	0.0525	0.0047
Mercury	-6138-04-24 23:16 J	-520367.56	-520367.53	-520367.49	0.0523	0.0498
Venus	-6136-02-02 20:52 J	-519717.77	-519717.63	-519717.50	0.0508	0.0374
Moon	-6136-11-30 22:33 J	-519416.73	-519416.56	-519416.39	0.0502	0.0325
Earth	-6136-11-30 23:45 J	-519416.69	-519416.51	-519416.32	0.0502	0.0294 *
Mercury	-6132-03-15 03:21 J	-518216.55	-518216.36	-518216.17	0.0501	0.0023
Venus	-6131-12-01 09:36 J	-517590.30	-517590.10	-517589.90	0.0515	0.0109
Mercury	-6127-11-13 23:02 J	-516146.66	-516146.54	-516146.43	0.0526	0.0185
Mercury	-6126-02-11 03:50 J	-516057.43	-516057.34	-516057.25	0.0524	0.0362
Venus	-6125-10-08 20:38 J	-515451.83	-515451.64	-515451.44	0.0510	0.0132
Mercury	-6120-01-01 00:28 J	-513906.66	-513906.48	-513906.30	0.0500	0.0156
Venus	-6119-08-06 03:50 J	-513324.48	-513324.34	-513324.20	0.0513	0.0367
Mercury	-6115-09-02 03:07 J	-511836.47	-511836.37	-511836.27	0.0526	0.0327
Mercury	-6115-11-30 08:09 J	-511747.28	-511747.16	-511747.05	0.0525	0.0224
Venus	-6113-06-13 19:40 J	-511185.87	-511185.68	-511185.48	0.0512	0.0116
Mercury	-6109-10-19 21:07 J	-509596.75	-509596.62	-509596.48	0.0500	0.0336

Mercury	-6108-01-18 09:21 J	-509506.22	-509506.11	-509506.00	0.0501	0.0403
Venus	-6107-12-04 06:43 J	-508821.38	-508821.22	-508821.06	0.0517	0.0309
Mercury	-6103-06-21 07:40 J	-507526.24	-507526.18	-507526.12	0.0527	0.0460
Mercury	-6103-09-18 12:57 J	-507437.09	-507436.96	-507436.84	0.0525	0.0095
Venus	-6101-02-17 18:57 J	-506919.85	-506919.71	-506919.57	0.0513	0.0363
Mars	-6097-01-30 23:45 J	-505476.69	-505476.51	-505476.31	0.0497	0.0356
Mercury	-6097-11-06 04:33 J	-505196.48	-505196.31	-505196.14	0.0501	0.0202
Venus	-6095-08-08 23:16 J	-504555.74	-504555.53	-504555.33	0.0516	0.0043
Moon	-6094-05-29 16:48 J	-504262.02	-504261.80	-504261.59	0.0523	0.0217
Earth	-6094-05-29 20:52 J	-504261.85	-504261.63	-504261.41	0.0523	0.0189 *
Mercury	-6091-07-07 17:45 J	-503126.88	-503126.76	-503126.63	0.0525	0.0035
Mercury	-6091-10-04 22:33 J	-503037.58	-503037.56	-503037.53	0.0524	0.0509
Venus	-6089-06-16 10:19 J	-502417.24	-502417.07	-502416.90	0.0509	0.0284
Mercury	-6085-08-25 01:26 J	-500886.63	-500886.44	-500886.25	0.0501	0.0023
Venus	-6083-04-13 18:28 J	-500289.91	-500289.73	-500289.54	0.0514	0.0214
Earth	-6082-06-04 00:57 J	-499873.68	-499873.46	-499873.24	0.0524	0.0190
Moon	-6082-06-04 04:33 J	-499873.53	-499873.31	-499873.10	0.0524	0.0168 *
Mars	-6080-11-11 21:50 J	-498981.85	-498981.59	-498981.32	0.0528	0.0122
Mercury	-6079-04-25 22:19 J	-498816.69	-498816.57	-498816.46	0.0525	0.0172
Mercury	-6079-07-24 03:07 J	-498727.46	-498727.37	-498727.29	0.0524	0.0375
Venus	-6077-02-20 09:21 J	-498151.31	-498151.11	-498150.91	0.0510	0.0037
Earth	-6077-11-21 12:28 J	-497876.12	-497875.98	-497875.82	0.0504	0.0375
Moon	-6077-11-21 12:28 J	-497876.12	-497875.98	-497875.83	0.0504	0.0400 *
Mercury	-6073-06-12 22:33 J	-496576.73	-496576.56	-496576.38	0.0501	0.0153
Venus	-6072-12-17 14:23 J	-496023.98	-496023.90	-496023.81	0.0512	0.0466
Venus	-6071-08-12 00:00 J	-495786.58	-495786.50	-495786.42	0.0518	0.0474
Mercury	-6067-02-12 02:23 J	-494506.50	-494506.40	-494506.29	0.0526	0.0311
Mercury	-6067-05-12 07:26 J	-494417.30	-494417.19	-494417.07	0.0524	0.0240
Venus	-6066-10-26 08:09 J	-493885.34	-493885.16	-493884.97	0.0512	0.0212
Moon	-6065-11-25 22:19 J	-493488.79	-493488.57	-493488.34	0.0503	0.0052

Earth	-6065-11-25 23:45 J	-493488.73	-493488.51	-493488.28	0.0503	0.0059 *
Mars	-6062-11-05 12:28 J	-492414.25	-492413.98	-492413.71	0.0498	0.0054
Mercury	-6061-03-31 19:55 J	-492266.81	-492266.67	-492266.52	0.0500	0.0326
Mercury	-6061-06-30 08:09 J	-492176.26	-492176.16	-492176.05	0.0502	0.0414
Venus	-6059-04-16 17:02 J	-491520.98	-491520.79	-491520.60	0.0516	0.0208
Mercury	-6056-12-01 06:28 J	-490196.29	-490196.23	-490196.16	0.0526	0.0454
Mercury	-6055-02-28 11:45 J	-490107.13	-490107.01	-490106.89	0.0525	0.0100
Venus	-6054-07-01 06:28 J	-489619.32	-489619.23	-489619.15	0.0514	0.0464
Venus	-6053-02-22 22:04 J	-489382.69	-489382.58	-489382.47	0.0508	0.0428
Earth	-6053-11-30 11:02 J	-489101.23	-489101.04	-489100.84	0.0502	0.0258
Moon	-6053-11-30 13:40 J	-489101.12	-489100.93	-489100.73	0.0502	0.0291 *
Mercury	-6049-04-18 04:48 J	-487866.47	-487866.30	-487866.13	0.0501	0.0231
Venus	-6048-12-20 10:48 J	-487255.25	-487255.05	-487254.84	0.0515	0.0057
Mars	-6044-08-18 18:28 J	-485917.92	-485917.73	-485917.54	0.0527	0.0384
Mercury	-6044-12-17 16:33 J	-485796.93	-485796.81	-485796.68	0.0525	0.0031
Mercury	-6043-03-16 21:21 J	-485707.63	-485707.61	-485707.59	0.0524	0.0514
Venus	-6042-10-28 22:33 J	-485116.74	-485116.56	-485116.37	0.0509	0.0190
Mercury	-6037-02-05 00:00 J	-483556.69	-483556.50	-483556.31	0.0501	0.0030
Venus	-6036-08-25 03:50 J	-482989.50	-482989.34	-482989.18	0.0513	0.0318
Mercury	-6032-10-05 21:36 J	-481486.72	-481486.60	-481486.48	0.0526	0.0157
Mercury	-6031-01-03 02:23 J	-481397.48	-481397.40	-481397.31	0.0524	0.0390
Venus	-6030-07-03 23:16 J	-480850.73	-480850.53	-480850.33	0.0511	0.0054
Mars	-6026-08-10 07:11 J	-479352.32	-479352.20	-479352.06	0.0499	0.0436
Mercury	-6026-11-23 21:07 J	-479246.80	-479246.62	-479246.44	0.0500	0.0147
Venus	-6024-12-23 08:52 J	-478486.27	-478486.13	-478485.98	0.0518	0.0371
Mercury	-6020-07-25 01:55 J	-477176.52	-477176.42	-477176.31	0.0526	0.0294
Mercury	-6020-10-22 06:57 J	-477087.32	-477087.21	-477087.10	0.0524	0.0255
Venus	-6018-03-08 21:36 J	-476584.76	-476584.60	-476584.44	0.0512	0.0306
Mercury	-6014-09-11 18:28 J	-474936.87	-474936.73	-474936.59	0.0500	0.0320
Mercury	-6014-12-11 06:28 J	-474846.32	-474846.23	-474846.12	0.0502	0.0422

Venus	-6012-08-28 03:36 J	-474220.55	-474220.35	-474220.14	0.0516	0.0109
Earth	-6011-05-29 07:40 J	-473946.39	-473946.18	-473945.97	0.0522	0.0225
Moon	-6011-05-29 11:16 J	-473946.23	-473946.03	-473945.83	0.0522	0.0254 *
Mercury	-6008-05-13 06:14 J	-472866.31	-472866.24	-472866.17	0.0526	0.0433
Mercury	-6008-08-10 11:31 J	-472777.15	-472777.02	-472776.90	0.0525	0.0120
Venus	-6006-07-06 11:31 J	-472082.17	-472082.02	-472081.87	0.0508	0.0338
Mercury	-6002-06-30 15:50 J	-470626.86	-470626.84	-470626.80	0.0500	0.0492
Mercury	-6002-09-29 03:50 J	-470536.51	-470536.34	-470536.18	0.0501	0.0244

# 6TH MILLENNIUM BCE

This is a list of transits visible from Jupiter in the 6th millennium BCE.

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Venus	-6000-05-02 22:04 J	-469954.78	-469954.58	-469954.39	0.0514	0.0154		
Moon	-5999-06-03 06:28 J	-469558.47	-469558.23	-469557.99	0.0523	0.0125		
Earth	-5999-06-03 08:38 J	-469558.37	-469558.14	-469557.91	0.0523	0.0143 *		
Mercury	-5996-05-29 15:36 J	-468466.97	-468466.85	-468466.72	0.0525	0.0025		
Mercury	-5996-08-26 20:23 J	-468377.65	-468377.65	-468377.64	0.0524	0.0522		
Venus	-5994-03-11 11:16 J	-467816.22	-467816.03	-467815.83	0.0510	0.0094		
Moon	-5994-11-21 23:16 J	-467560.64	-467560.53	-467560.42	0.0505	0.0433		
Earth	-5994-11-22 00:57 J	-467560.59	-467560.46	-467560.32	0.0505	0.0407 *		
Mercury	-5990-07-18 00:28 J	-466226.66	-466226.48	-466226.29	0.0501	0.0062		
Venus	-5988-01-05 16:48 J	-465688.92	-465688.80	-465688.68	0.0512	0.0411		
Earth	-5987-06-08 10:33 J	-465170.09	-465170.06	-465170.01	0.0525	0.0516		

Mercury	-5984-03-17 20:23 J	-464156.77	-464156.65	-464156.53	0.0526	0.0151
Mercury	-5984-06-15 01:26 J	-464067.52	-464067.44	-464067.36	0.0524	0.0396
Venus	-5983-11-14 11:31 J	-463550.21	-463550.02	-463549.83	0.0512	0.0151
Earth	-5982-11-26 12:28 J	-463173.20	-463172.98	-463172.75	0.0503	0.0092
Moon	-5982-11-26 15:21 J	-463173.09	-463172.86	-463172.62	0.0503	0.0078 *
Mercury	-5978-05-05 19:55 J	-461916.85	-461916.67	-461916.49	0.0500	0.0138
Venus	-5976-05-05 18:00 J	-461185.93	-461185.75	-461185.58	0.0517	0.0264
Mercury	-5972-01-04 01:26 J	-459846.55	-459846.44	-459846.34	0.0526	0.0280
Mercury	-5972-04-03 06:14 J	-459757.34	-459757.24	-459757.13	0.0525	0.0272
Venus	-5971-07-20 11:31 J	-459284.14	-459284.02	-459283.89	0.0513	0.0398
Venus	-5970-03-14 02:09 J	-459047.46	-459047.41	-459047.36	0.0507	0.0492
Moon	-5970-11-30 20:52 J	-458785.82	-458785.63	-458785.43	0.0502	0.0255
Earth	-5970-12-01 00:28 J	-458785.69	-458785.48	-458785.28	0.0502	0.0225 *
Mercury	-5966-02-21 17:02 J	-457606.94	-457606.79	-457606.65	0.0500	0.0313
Mercury	-5966-05-23 05:02 J	-457516.38	-457516.29	-457516.19	0.0502	0.0428
Venus	-5964-01-08 12:57 J	-456920.17	-456919.96	-456919.76	0.0516	0.0005
Mars	-5961-05-02 06:28 J	-455710.35	-455710.23	-455710.08	0.0529	0.0457
Mercury	-5961-10-23 05:45 J	-455536.33	-455536.26	-455536.18	0.0526	0.0416
Mercury	-5960-01-20 11:02 J	-455447.17	-455447.04	-455446.92	0.0525	0.0137
Venus	-5959-11-17 01:40 J	-454781.60	-454781.43	-454781.25	0.0509	0.0249
Mercury	-5955-12-10 14:38 J	-453296.94	-453296.89	-453296.85	0.0500	0.0484
Mercury	-5954-03-11 02:23 J	-453206.56	-453206.40	-453206.24	0.0501	0.0251
Venus	-5953-09-13 08:38 J	-452654.31	-452654.14	-452653.96	0.0514	0.0255
Mercury	-5949-11-08 15:21 J	-451136.99	-451136.86	-451136.73	0.0525	0.0002
Venus	-5947-07-23 01:11 J	-450515.65	-450515.45	-450515.25	0.0511	0.0004
Mars	-5943-04-26 21:50 J	-449141.83	-449141.59	-449141.34	0.0498	0.0218
Mercury	-5943-12-27 23:31 J	-448896.70	-448896.52	-448896.33	0.0501	0.0076
Venus	-5941-05-19 04:04 J	-448388.34	-448388.33	-448388.30	0.0512	0.0508
Venus	-5940-01-11 12:57 J	-448151.07	-448150.96	-448150.85	0.0518	0.0434
Mercury	-5937-08-27 19:40 J	-446826.81	-446826.68	-446826.56	0.0526	0.0142

Mercury	-5937-11-25 00:28 J	-446737.56	-446737.48	-446737.40	0.0524	0.0405
Venus	-5935-03-27 23:45 J	-446249.68	-446249.51	-446249.33	0.0513	0.0250
Mercury	-5931-10-15 20:23 J	-444586.83	-444586.65	-444586.47	0.0500	0.0105
Venus	-5929-09-16 06:28 J	-443885.42	-443885.23	-443885.04	0.0516	0.0168
Moon	-5928-05-28 12:43 J	-443631.16	-443630.97	-443630.77	0.0522	0.0298
Earth	-5928-05-28 15:21 J	-443631.06	-443630.86	-443630.65	0.0522	0.0269 *
Mars	-5925-02-07 00:00 J	-442646.78	-442646.50	-442646.23	0.0528	0.0045
Mercury	-5925-06-16 00:14 J	-442516.59	-442516.49	-442516.38	0.0526	0.0272
Mercury	-5925-09-13 05:16 J	-442427.38	-442427.28	-442427.17	0.0525	0.0278
Venus	-5924-11-30 23:16 J	-441983.57	-441983.53	-441983.48	0.0514	0.0498
Venus	-5923-07-25 15:07 J	-441746.99	-441746.87	-441746.74	0.0508	0.0402
Mercury	-5919-08-03 15:50 J	-440276.99	-440276.84	-440276.69	0.0500	0.0302
Mercury	-5919-11-02 04:04 J	-440186.42	-440186.33	-440186.24	0.0501	0.0438
Venus	-5917-05-21 22:19 J	-439619.77	-439619.57	-439619.37	0.0515	0.0103
Earth	-5916-06-02 15:07 J	-439243.10	-439242.87	-439242.64	0.0524	0.0091
Moon	-5916-06-02 15:07 J	-439243.09	-439242.87	-439242.65	0.0524	0.0086 *
Mercury	-5913-04-04 05:02 J	-438206.37	-438206.29	-438206.21	0.0527	0.0403
Mercury	-5913-07-02 10:19 J	-438117.19	-438117.07	-438116.95	0.0525	0.0151
Venus	-5911-03-30 16:19 J	-437481.01	-437480.82	-437480.62	0.0510	0.0161
Earth	-5911-11-21 16:04 J	-437244.95	-437244.83	-437244.71	0.0504	0.0432
Moon	-5911-11-21 19:11 J	-437244.80	-437244.70	-437244.60	0.0504	0.0451 *
Mars	-5907-01-29 21:36 J	-436079.85	-436079.60	-436079.34	0.0498	0.0173
Mercury	-5907-05-22 12:57 J	-435967.00	-435966.96	-435966.90	0.0500	0.0477
Mercury	-5907-08-21 00:57 J	-435876.62	-435876.46	-435876.30	0.0501	0.0258
Venus	-5905-01-25 18:00 J	-435353.89	-435353.75	-435353.60	0.0513	0.0358
Earth	-5904-06-07 19:55 J	-434854.77	-434854.67	-434854.56	0.0525	0.0471
Moon	-5904-06-07 22:33 J	-434854.62	-434854.56	-434854.49	0.0525	0.0503 *
Mercury	-5901-04-20 14:52 J	-433807.01	-433806.88	-433806.75	0.0525	0.0017
Venus	-5900-12-03 15:07 J	-433215.07	-433214.87	-433214.67	0.0511	0.0091
Moon	-5899-11-25 22:04 J	-432857.80	-432857.58	-432857.35	0.0503	0.0106



Earth	-5899-11-26 01:40 J	-432857.65	-432857.43	-432857.20	0.0503	0.0122	*
Mercury	-5895-06-08 22:19 J	-431566.76	-431566.57	-431566.39	0.0501	0.0083	
Venus	-5893-05-24 23:02 J	-430850.69	-430850.54	-430850.38	0.0517	0.0333	
Mercury	-5889-02-07 19:11 J	-429496.82	-429496.70	-429496.57	0.0525	0.0122	
Mercury	-5889-05-07 00:14 J	-429407.56	-429407.49	-429407.42	0.0524	0.0425	
Venus	-5888-08-08 13:26 J	-428949.08	-428948.94	-428948.78	0.0513	0.0344	
Earth	-5887-11-30 12:00 J	-428470.21	-428470.00	-428469.78	0.0502	0.0190	
Moon	-5887-11-30 15:36 J	-428470.05	-428469.85	-428469.64	0.0502	0.0216	*
Mercury	-5883-03-27 19:26 J	-427256.87	-427256.69	-427256.51	0.0501	0.0093	
Venus	-5881-01-28 17:02 J	-426584.99	-426584.79	-426584.58	0.0515	0.0069	
Mercury	-5878-11-26 23:31 J	-425186.63	-425186.52	-425186.41	0.0526	0.0263	
Mercury	-5877-02-24 04:33 J	-425097.42	-425097.31	-425097.21	0.0524	0.0288	
Venus	-5876-12-06 03:50 J	-424446.50	-424446.34	-424446.18	0.0509	0.0307	
Moon	-5875-12-04 20:09 J	-424082.72	-424082.66	-424082.60	0.0501	0.0484	
Mercury	-5871-01-13 16:19 J	-422946.97	-422946.82	-422946.66	0.0500	0.0272	
Mercury	-5871-04-14 04:33 J	-422856.37	-422856.31	-422856.25	0.0502	0.0470	
Venus	-5870-10-03 11:16 J	-422319.21	-422319.03	-422318.83	0.0514	0.0197	
Mercury	-5866-09-15 04:04 J	-420876.41	-420876.33	-420876.25	0.0527	0.0396	
Mercury	-5866-12-13 09:21 J	-420787.23	-420787.11	-420786.99	0.0525	0.0159	
Venus	-5864-08-11 04:48 J	-420180.50	-420180.30	-420180.10	0.0510	0.0066	
Mercury	-5860-11-01 12:00 J	-418637.06	-418637.00	-418636.94	0.0499	0.0466	
Mercury	-5859-01-30 23:45 J	-418546.67	-418546.51	-418546.35	0.0501	0.0268	
Venus	-5858-06-08 03:36 J	-418053.43	-418053.35	-418053.26	0.0512	0.0462	
Venus	-5857-01-31 12:57 J	-417816.01	-417815.96	-417815.88	0.0518	0.0490	
Mercury	-5854-10-01 14:09 J	-416477.04	-416476.91	-416476.79	0.0526	0.0029	
Venus	-5852-04-16 05:02 J	-415914.47	-415914.29	-415914.10	0.0512	0.0183	
Mercury	-5848-11-18 20:38 J	-414236.83	-414236.64	-414236.46	0.0501	0.0088	
Venus	-5846-10-06 07:26 J	-413550.37	-413550.19	-413550.00	0.0517	0.0225	
Earth	-5845-05-27 22:19 J	-413315.76	-413315.57	-413315.38	0.0523	0.0320	
Moon	-5845-05-27 22:48 J	-413315.71	-413315.55	-413315.38	0.0523	0.0350	*

Mercury	-5842-07-20 18:43 J	-412166.85	-412166.72	-412166.60	0.0526	0.0107
Mercury	-5842-10-17 23:31 J	-412077.59	-412077.52	-412077.45	0.0524	0.0439
Venus	-5841-12-20 02:52 J	-411648.48	-411648.38	-411648.28	0.0514	0.0439
Venus	-5840-08-13 18:00 J	-411411.83	-411411.75	-411411.66	0.0508	0.0460
Mercury	-5836-09-06 17:45 J	-409926.94	-409926.76	-409926.57	0.0500	0.0089
Venus	-5834-06-11 02:52 J	-409284.59	-409284.38	-409284.18	0.0515	0.0038
Earth	-5833-06-02 02:38 J	-408927.62	-408927.39	-408927.15	0.0524	0.0057
Moon	-5833-06-02 04:48 J	-408927.54	-408927.30	-408927.05	0.0524	0.0064 *
Mercury	-5830-05-08 23:02 J	-407856.65	-407856.54	-407856.43	0.0526	0.0244
Mercury	-5830-08-06 04:04 J	-407767.43	-407767.33	-407767.23	0.0524	0.0305
Venus	-5828-04-18 17:45 J	-407145.94	-407145.76	-407145.58	0.0509	0.0215
Moon	-5828-11-20 23:02 J	-406929.59	-406929.54	-406929.49	0.0504	0.0488
Earth	-5828-11-21 02:38 J	-406929.47	-406929.39	-406929.31	0.0504	0.0469
Mars	-5825-10-16 05:45 J	-405869.26	-405869.26	-405869.25	0.0497	0.0497
Mercury	-5824-06-25 15:07 J	-405617.03	-405616.87	-405616.71	0.0500	0.0262
Mercury	-5824-09-24 03:21 J	-405526.41	-405526.36	-405526.31	0.0502	0.0480
Venus	-5822-02-13 21:50 J	-405018.75	-405018.59	-405018.42	0.0513	0.0298
Moon	-5821-06-07 00:43 J	-404539.57	-404539.47	-404539.36	0.0524	0.0459
Earth	-5821-06-07 04:19 J	-404539.45	-404539.32	-404539.18	0.0524	0.0425 *
Mercury	-5818-02-25 03:07 J	-403546.46	-403546.37	-403546.29	0.0526	0.0388
Mercury	-5818-05-25 08:09 J	-403457.28	-403457.16	-403457.04	0.0525	0.0166
Venus	-5817-12-22 16:33 J	-402880.01	-402879.81	-402879.61	0.0511	0.0035
Earth	-5816-11-25 13:11 J	-402542.17	-402541.95	-402541.73	0.0503	0.0157
Moon	-5816-11-25 16:48 J	-402542.02	-402541.80	-402541.58	0.0503	0.0132 *
Mercury	-5812-04-13 12:00 J	-401307.08	-401307.00	-401306.91	0.0500	0.0440
Mercury	-5812-07-13 00:00 J	-401216.65	-401216.50	-401216.35	0.0501	0.0296
Venus	-5810-06-14 01:11 J	-400515.59	-400515.45	-400515.32	0.0517	0.0391
Mars	-5807-07-28 05:02 J	-399375.51	-399375.29	-399375.06	0.0529	0.0302
Mercury	-5807-12-14 07:40 J	-399236.19	-399236.18	-399236.17	0.0527	0.0523
Mercury	-5806-03-13 12:57 J	-399147.09	-399146.96	-399146.83	0.0526	0.0034

Venus	-5805-08-27 16:33 J	-398613.98	-398613.81	-398613.64	0.0513	0.0284
Moon	-5804-11-29 22:48 J	-398154.77	-398154.55	-398154.32	0.0502	0.0174
Earth	-5804-11-30 01:26 J	-398154.66	-398154.44	-398154.22	0.0502	0.0157 *
Mercury	-5800-04-30 19:11 J	-396906.88	-396906.70	-396906.51	0.0500	0.0096
Venus	-5798-02-16 16:04 J	-396250.03	-396249.83	-396249.63	0.0516	0.0115
Mercury	-5795-12-30 17:45 J	-394836.89	-394836.76	-394836.64	0.0526	0.0099
Mercury	-5794-03-29 22:33 J	-394747.62	-394747.56	-394747.50	0.0524	0.0449
Venus	-5793-12-25 08:09 J	-394111.30	-394111.16	-394111.03	0.0508	0.0372
Earth	-5792-12-04 12:43 J	-393767.05	-393766.97	-393766.89	0.0501	0.0470
Moon	-5792-12-04 13:55 J	-393767.02	-393766.92	-393766.82	0.0501	0.0449 *
Mars	-5789-07-21 08:09 J	-392807.43	-392807.16	-392806.89	0.0497	0.0103
Mercury	-5788-02-16 16:04 J	-392597.01	-392596.83	-392596.64	0.0500	0.0084
Venus	-5787-10-22 11:02 J	-391984.24	-391984.04	-391983.85	0.0514	0.0148
Mercury	-5783-10-18 22:04 J	-390526.69	-390526.58	-390526.46	0.0526	0.0235
Mercury	-5782-01-16 03:07 J	-390437.47	-390437.37	-390437.27	0.0525	0.0315
Venus	-5781-08-30 06:57 J	-389845.40	-389845.21	-389845.01	0.0510	0.0122
Mercury	-5777-12-05 13:26 J	-388287.10	-388286.94	-388286.78	0.0500	0.0260
Mercury	-5776-03-06 01:26 J	-388196.49	-388196.44	-388196.39	0.0502	0.0481
Venus	-5775-06-27 06:57 J	-387718.33	-387718.21	-387718.08	0.0513	0.0404
Mars	-5771-05-04 04:19 J	-386311.57	-386311.32	-386311.06	0.0528	0.0206
Mercury	-5771-08-07 02:23 J	-386216.48	-386216.40	-386216.31	0.0526	0.0374
Mercury	-5771-11-04 07:40 J	-386127.30	-386127.18	-386127.06	0.0525	0.0180
Venus	-5769-05-05 05:31 J	-385579.46	-385579.27	-385579.07	0.0512	0.0133
Mercury	-5765-09-23 10:33 J	-383977.15	-383977.06	-383976.97	0.0500	0.0434
Mercury	-5765-12-22 22:19 J	-383886.71	-383886.57	-383886.42	0.0501	0.0302
Venus	-5763-10-25 10:19 J	-383215.23	-383215.07	-383214.89	0.0517	0.0286
Earth	-5762-05-28 05:45 J	-383000.42	-383000.26	-383000.09	0.0522	0.0364
Moon	-5762-05-28 07:26 J	-383000.35	-383000.19	-383000.03	0.0522	0.0391 *
Mercury	-5759-05-26 06:28 J	-381906.25	-381906.23	-381906.21	0.0527	0.0519
Mercury	-5759-08-23 11:45 J	-381817.13	-381817.01	-381816.88	0.0525	0.0038

Venus	-5757-01-09 03:07 J	-381313.50	-381313.37	-381313.24	0.0514	0.0390
Mars	-5753-04-25 14:38 J	-379745.10	-379744.89	-379744.67	0.0498	0.0302
Mercury	-5753-10-10 18:57 J	-379576.89	-379576.71	-379576.52	0.0501	0.0119
Venus	-5751-06-30 03:50 J	-378949.55	-378949.34	-378949.14	0.0515	0.0016
Moon	-5750-06-02 03:36 J	-378612.58	-378612.35	-378612.12	0.0523	0.0009
Earth	-5750-06-02 06:57 J	-378612.45	-378612.21	-378611.98	0.0523	0.0008 *
Mercury	-5747-06-11 16:19 J	-377506.94	-377506.82	-377506.69	0.0526	0.0097
Mercury	-5747-09-08 21:21 J	-377417.68	-377417.61	-377417.55	0.0524	0.0450
Venus	-5745-05-07 19:26 J	-376810.85	-376810.69	-376810.51	0.0509	0.0274
Mercury	-5741-07-29 14:38 J	-375267.08	-375266.89	-375266.71	0.0500	0.0079
Venus	-5739-03-04 19:26 J	-374683.87	-374683.69	-374683.51	0.0513	0.0257
Earth	-5738-06-07 04:33 J	-374224.48	-374224.31	-374224.14	0.0525	0.0354
Moon	-5738-06-07 08:38 J	-374224.30	-374224.14	-374223.98	0.0525	0.0389 *
Mercury	-5735-03-30 20:52 J	-373196.74	-373196.63	-373196.51	0.0527	0.0232
Mercury	-5735-06-28 01:55 J	-373107.51	-373107.42	-373107.32	0.0525	0.0320
Venus	-5733-01-11 19:55 J	-372544.88	-372544.67	-372544.47	0.0511	0.0028
Moon	-5733-11-24 23:31 J	-372226.74	-372226.52	-372226.29	0.0503	0.0161
Earth	-5733-11-25 02:09 J	-372226.62	-372226.41	-372226.20	0.0503	0.0189 *
Mercury	-5729-05-17 11:31 J	-370957.18	-370957.02	-370956.86	0.0499	0.0259
Mercury	-5729-08-15 23:31 J	-370866.57	-370866.52	-370866.47	0.0501	0.0480
Venus	-5727-07-02 23:31 J	-370180.62	-370180.52	-370180.41	0.0518	0.0439
Mercury	-5723-01-17 01:11 J	-368886.53	-368886.45	-368886.36	0.0527	0.0370
Mercury	-5723-04-16 06:28 J	-368797.35	-368797.23	-368797.11	0.0525	0.0185
Venus	-5722-09-16 17:45 J	-368278.94	-368278.76	-368278.58	0.0512	0.0233
Earth	-5721-11-29 10:19 J	-367839.29	-367839.07	-367838.84	0.0502	0.0116
Moon	-5721-11-29 11:31 J	-367839.24	-367839.02	-367838.81	0.0502	0.0129 *
Mercury	-5717-03-05 08:23 J	-366647.23	-366647.15	-366647.06	0.0499	0.0436
Mercury	-5717-06-03 20:09 J	-366556.81	-366556.66	-366556.51	0.0501	0.0299
Venus	-5715-03-07 18:28 J	-365914.92	-365914.73	-365914.54	0.0516	0.0174
Mercury	-5712-11-05 05:31 J	-364576.30	-364576.27	-364576.24	0.0527	0.0509

Mercury	-5711-02-02 11:02 J	-364487.17	-364487.04	-364486.92	0.0525	0.0051
Venus	-5710-05-22 15:07 J	-364012.92	-364012.87	-364012.81	0.0514	0.0491
Venus	-5709-01-14 06:57 J	-363776.32	-363776.21	-363776.09	0.0508	0.0418
Moon	-5709-12-03 19:40 J	-363451.82	-363451.68	-363451.53	0.0501	0.0396
Earth	-5709-12-03 19:26 J	-363451.81	-363451.69	-363451.56	0.0501	0.0422 *
Mercury	-5705-03-22 17:02 J	-362246.97	-362246.79	-362246.60	0.0501	0.0119
Venus	-5704-11-10 12:43 J	-361649.17	-361648.97	-361648.77	0.0514	0.0092
Mercury	-5700-11-21 14:52 J	-360177.00	-360176.88	-360176.75	0.0526	0.0097
Mercury	-5699-02-18 19:55 J	-360087.73	-360087.67	-360087.61	0.0524	0.0450
Venus	-5698-09-19 06:00 J	-359510.44	-359510.25	-359510.06	0.0510	0.0169
Mercury	-5693-01-09 13:40 J	-357937.11	-357936.93	-357936.74	0.0500	0.0065
Venus	-5692-07-16 06:57 J	-357383.36	-357383.21	-357383.06	0.0512	0.0356
Mercury	-5688-09-09 19:26 J	-355866.80	-355866.69	-355866.58	0.0526	0.0233
Mercury	-5688-12-08 00:28 J	-355777.58	-355777.48	-355777.38	0.0525	0.0318
Venus	-5686-05-25 05:45 J	-355244.46	-355244.26	-355244.06	0.0512	0.0081
Mercury	-5682-10-28 09:36 J	-353627.26	-353627.10	-353626.94	0.0499	0.0257
Mercury	-5681-01-26 21:21 J	-353536.65	-353536.61	-353536.56	0.0501	0.0480
Venus	-5680-11-13 06:28 J	-352880.38	-352880.23	-352880.07	0.0517	0.0325
Moon	-5679-05-27 00:14 J	-352685.59	-352685.49	-352685.40	0.0522	0.0472
Earth	-5679-05-27 02:52 J	-352685.50	-352685.38	-352685.25	0.0522	0.0440 *
Mercury	-5676-06-28 23:45 J	-351556.60	-351556.51	-351556.42	0.0527	0.0372
Mercury	-5676-09-26 05:02 J	-351467.41	-351467.29	-351467.17	0.0526	0.0184
Venus	-5674-01-28 04:48 J	-350978.45	-350978.30	-350978.15	0.0514	0.0337
Mars	-5670-01-10 06:28 J	-349535.38	-349535.23	-349535.06	0.0496	0.0399
Mercury	-5670-08-16 06:14 J	-349317.32	-349317.24	-349317.15	0.0499	0.0437
Mercury	-5670-11-14 17:45 J	-349226.90	-349226.76	-349226.60	0.0500	0.0296
Venus	-5668-07-19 00:28 J	-348614.68	-348614.48	-348614.27	0.0515	0.0057
Earth	-5667-06-01 05:31 J	-348297.51	-348297.27	-348297.04	0.0523	0.0073
Moon	-5667-06-01 09:21 J	-348297.35	-348297.11	-348296.87	0.0523	0.0061 *
Mercury	-5664-04-17 04:04 J	-347246.36	-347246.33	-347246.30	0.0527	0.0511

Mercury	-5664-07-15 09:36 J	-347157.23	-347157.10	-347156.98	0.0526	0.0049
Venus	-5662-05-27 18:43 J	-346475.88	-346475.72	-346475.56	0.0509	0.0320
Mercury	-5658-09-02 14:38 J	-344917.07	-344916.89	-344916.71	0.0500	0.0112
Venus	-5656-03-23 20:09 J	-344348.85	-344348.66	-344348.47	0.0514	0.0206
Moon	-5655-06-06 06:00 J	-343909.43	-343909.25	-343909.06	0.0524	0.0333
Earth	-5655-06-06 09:50 J	-343909.28	-343909.09	-343908.89	0.0524	0.0302 *
Mars	-5653-10-21 14:09 J	-343041.17	-343040.91	-343040.66	0.0529	0.0180
Mercury	-5652-05-03 13:55 J	-342847.05	-342846.92	-342846.80	0.0526	0.0091
Mercury	-5652-07-31 18:43 J	-342757.78	-342757.72	-342757.66	0.0524	0.0456
Venus	-5650-01-30 17:31 J	-342209.97	-342209.77	-342209.57	0.0511	0.0067
Earth	-5650-11-25 06:00 J	-341911.44	-341911.25	-341911.04	0.0504	0.0244
Moon	-5650-11-25 07:11 J	-341911.40	-341911.20	-341911.00	0.0504	0.0213 *
Mercury	-5646-06-21 11:31 J	-340607.21	-340607.02	-340606.84	0.0500	0.0069
Venus	-5645-11-26 15:21 J	-340082.94	-340082.86	-340082.77	0.0512	0.0464
Venus	-5644-07-22 00:00 J	-339845.56	-339845.50	-339845.44	0.0518	0.0492
Mercury	-5640-02-19 17:45 J	-338536.87	-338536.76	-338536.64	0.0526	0.0237
Mercury	-5640-05-19 22:48 J	-338447.65	-338447.55	-338447.45	0.0525	0.0314
Venus	-5639-10-05 14:52 J	-337944.06	-337943.88	-337943.69	0.0513	0.0192
Earth	-5638-11-29 15:21 J	-337524.09	-337523.86	-337523.63	0.0503	0.0062
Moon	-5638-11-29 15:36 J	-337524.08	-337523.85	-337523.61	0.0503	0.0072 *
Mars	-5635-10-15 10:33 J	-336473.33	-336473.06	-336472.78	0.0497	0.0004
Mercury	-5634-04-09 08:09 J	-336297.32	-336297.16	-336297.00	0.0500	0.0250
Mercury	-5634-07-08 20:09 J	-336206.70	-336206.66	-336206.62	0.0501	0.0490
Venus	-5632-03-26 16:48 J	-335579.99	-335579.80	-335579.62	0.0516	0.0220
Mercury	-5629-12-08 22:04 J	-334226.67	-334226.58	-334226.49	0.0527	0.0377
Mercury	-5628-03-08 03:21 J	-334137.48	-334137.36	-334137.24	0.0525	0.0178
Venus	-5627-06-10 13:11 J	-333678.04	-333677.95	-333677.85	0.0514	0.0449
Venus	-5626-02-02 05:45 J	-333441.34	-333441.26	-333441.18	0.0508	0.0466
Moon	-5626-12-04 00:57 J	-333136.62	-333136.46	-333136.29	0.0502	0.0347
Earth	-5626-12-04 02:38 J	-333136.54	-333136.39	-333136.23	0.0502	0.0373 *

Mercury	-5622-01-26 04:04 J	-331987.41	-331987.33	-331987.24	0.0499	0.0440
Mercury	-5622-04-26 15:36 J	-331897.00	-331896.85	-331896.69	0.0500	0.0292
Venus	-5621-11-29 07:40 J	-331314.39	-331314.18	-331313.98	0.0514	0.0059
Mars	-5617-07-27 22:19 J	-329977.78	-329977.57	-329977.34	0.0529	0.0307
Mercury	-5617-09-27 02:09 J	-329916.42	-329916.41	-329916.39	0.0528	0.0520
Mercury	-5617-12-25 07:40 J	-329827.30	-329827.18	-329827.05	0.0526	0.0041
Venus	-5615-10-08 05:45 J	-329175.44	-329175.26	-329175.07	0.0510	0.0219
Mercury	-5610-02-12 12:00 J	-327587.18	-327587.00	-327586.81	0.0500	0.0107
Venus	-5609-08-04 02:23 J	-327048.56	-327048.40	-327048.24	0.0512	0.0323
Mercury	-5605-10-13 12:14 J	-325517.12	-325516.99	-325516.87	0.0526	0.0099
Mercury	-5604-01-10 17:02 J	-325427.85	-325427.79	-325427.73	0.0525	0.0450
Venus	-5603-06-13 03:36 J	-324909.55	-324909.35	-324909.15	0.0512	0.0040
Mars	-5599-07-20 04:33 J	-323411.48	-323411.31	-323411.13	0.0498	0.0380
Mercury	-5599-12-01 08:38 J	-323277.33	-323277.14	-323276.96	0.0500	0.0080
Venus	-5597-12-02 06:00 J	-322545.39	-322545.25	-322545.11	0.0517	0.0374
Earth	-5596-05-26 05:45 J	-322370.33	-322370.26	-322370.19	0.0522	0.0495
Mercury	-5593-08-01 16:33 J	-321206.93	-321206.81	-321206.70	0.0526	0.0236
Mercury	-5593-10-29 21:36 J	-321117.70	-321117.60	-321117.50	0.0525	0.0315
Venus	-5591-02-16 01:11 J	-320643.61	-320643.45	-320643.28	0.0513	0.0300
Mercury	-5587-09-19 05:16 J	-318967.44	-318967.28	-318967.12	0.0500	0.0260
Mercury	-5587-12-18 17:16 J	-318876.83	-318876.78	-318876.73	0.0501	0.0480
Venus	-5585-08-06 23:45 J	-318279.71	-318279.51	-318279.31	0.0515	0.0105
Moon	-5584-05-31 03:07 J	-317982.60	-317982.37	-317982.14	0.0523	0.0126
Earth	-5584-05-31 06:57 J	-317982.43	-317982.21	-317981.98	0.0523	0.0135 *
Mercury	-5581-05-20 20:23 J	-316896.74	-316896.65	-316896.57	0.0527	0.0383
Mercury	-5581-08-18 01:40 J	-316807.55	-316807.43	-316807.32	0.0525	0.0172
Venus	-5579-06-15 14:38 J	-316141.03	-316140.89	-316140.75	0.0509	0.0358
Mercury	-5575-07-08 02:09 J	-314657.50	-314657.41	-314657.32	0.0499	0.0439
Mercury	-5575-10-06 13:40 J	-314567.08	-314566.93	-314566.78	0.0501	0.0294
Venus	-5573-04-11 17:31 J	-314013.97	-314013.77	-314013.58	0.0513	0.0165

Earth	-5572-06-05 06:57 J	-313594.42	-313594.21	-313594.00	0.0524	0.0225
Moon	-5572-06-05 09:36 J	-313594.29	-313594.10	-313593.89	0.0524	0.0254 *
Mercury	-5569-03-09 00:28 J	-312586.49	-312586.48	-312586.48	0.0527	0.0526
Mercury	-5569-06-06 05:45 J	-312497.38	-312497.26	-312497.13	0.0526	0.0038
Venus	-5567-02-18 14:23 J	-311875.10	-311874.90	-311874.71	0.0511	0.0108
Moon	-5567-11-24 10:48 J	-311596.25	-311596.05	-311595.84	0.0504	0.0267
Earth	-5567-11-24 10:33 J	-311596.24	-311596.06	-311595.87	0.0504	0.0299 *
Mercury	-5563-07-25 09:36 J	-310257.28	-310257.10	-310256.92	0.0500	0.0099
Venus	-5562-12-16 09:50 J	-309748.20	-309748.09	-309747.99	0.0511	0.0436
Mercury	-5557-03-25 10:04 J	-308187.20	-308187.08	-308186.96	0.0527	0.0109
Mercury	-5557-06-22 15:07 J	-308097.94	-308097.87	-308097.80	0.0525	0.0440
Venus	-5556-10-24 12:57 J	-307609.15	-307608.96	-307608.76	0.0513	0.0150
Moon	-5555-11-28 19:40 J	-307208.90	-307208.68	-307208.45	0.0503	0.0019
Earth	-5555-11-28 21:21 J	-307208.84	-307208.61	-307208.37	0.0503	0.0017 *
Mercury	-5551-05-13 06:00 J	-305947.43	-305947.25	-305947.07	0.0499	0.0086
Venus	-5549-04-14 11:02 J	-305245.22	-305245.04	-305244.86	0.0516	0.0252
Mercury	-5545-01-12 14:23 J	-303877.01	-303876.90	-303876.79	0.0527	0.0248
Mercury	-5545-04-10 19:40 J	-303787.79	-303787.68	-303787.58	0.0525	0.0305
Venus	-5544-06-29 09:50 J	-303343.20	-303343.09	-303342.97	0.0514	0.0413
Venus	-5543-02-21 01:55 J	-303106.45	-303106.42	-303106.39	0.0508	0.0502
Earth	-5543-12-03 04:19 J	-302821.50	-302821.32	-302821.14	0.0502	0.0312
Moon	-5543-12-03 07:26 J	-302821.38	-302821.19	-302820.99	0.0502	0.0283 *
Mercury	-5539-03-01 02:09 J	-301637.56	-301637.41	-301637.25	0.0499	0.0273
Mercury	-5539-05-30 14:09 J	-301546.98	-301546.91	-301546.84	0.0501	0.0465
Venus	-5538-12-19 05:31 J	-300979.47	-300979.27	-300979.06	0.0515	0.0019
Mercury	-5534-10-31 18:43 J	-299566.80	-299566.72	-299566.63	0.0527	0.0386
Mercury	-5533-01-29 00:00 J	-299477.62	-299477.50	-299477.38	0.0525	0.0169
Venus	-5532-10-27 00:43 J	-298840.64	-298840.47	-298840.29	0.0510	0.0253
Mercury	-5528-12-17 23:02 J	-297327.61	-297327.54	-297327.46	0.0499	0.0452
Mercury	-5527-03-18 10:33 J	-297237.21	-297237.06	-297236.90	0.0501	0.0281



Venus	-5526-08-24 00:28 J	-296713.65	-296713.48	-296713.31	0.0513	0.0280
Mercury	-5522-11-17 04:04 J	-295167.46	-295167.33	-295167.21	0.0526	0.0025
Venus	-5520-07-01 22:19 J	-294574.77	-294574.57	-294574.36	0.0512	0.0010
Mars	-5516-04-04 15:36 J	-293202.05	-293201.85	-293201.64	0.0497	0.0324
Mercury	-5515-01-04 07:11 J	-292927.38	-292927.20	-292927.02	0.0500	0.0095
Venus	-5514-12-22 02:23 J	-292210.52	-292210.40	-292210.28	0.0517	0.0414
Mercury	-5510-09-05 08:09 J	-290857.28	-290857.16	-290857.03	0.0526	0.0118
Mercury	-5510-12-03 13:11 J	-290768.02	-290767.95	-290767.88	0.0525	0.0431
Venus	-5508-03-06 20:38 J	-290308.81	-290308.64	-290308.46	0.0514	0.0265
Mercury	-5504-10-23 03:21 J	-288617.54	-288617.36	-288617.18	0.0499	0.0094
Venus	-5502-08-26 17:16 J	-287944.97	-287944.78	-287944.58	0.0515	0.0134
Earth	-5501-05-29 22:04 J	-287667.79	-287667.58	-287667.36	0.0522	0.0226
Moon	-5501-05-30 01:40 J	-287667.64	-287667.43	-287667.22	0.0522	0.0210 *
Mars	-5498-01-14 10:33 J	-286708.33	-286708.06	-286707.80	0.0530	0.0121
Mercury	-5498-06-24 12:14 J	-286547.10	-286546.99	-286546.88	0.0527	0.0262
Mercury	-5498-09-21 17:31 J	-286457.88	-286457.77	-286457.67	0.0526	0.0292
Venus	-5496-07-04 11:45 J	-285806.13	-285806.01	-285805.89	0.0509	0.0399
Mercury	-5492-08-10 23:45 J	-284307.66	-284307.51	-284307.35	0.0499	0.0278
Mercury	-5492-11-09 11:31 J	-284217.09	-284217.02	-284216.95	0.0500	0.0457
Venus	-5490-05-01 11:16 J	-283679.22	-283679.03	-283678.83	0.0513	0.0136
Moon	-5489-06-03 21:50 J	-283279.83	-283279.59	-283279.36	0.0523	0.0161
Earth	-5489-06-03 23:31 J	-283279.75	-283279.52	-283279.29	0.0523	0.0136 *
Mercury	-5486-04-12 16:33 J	-282236.89	-282236.81	-282236.73	0.0527	0.0401
Mercury	-5486-07-10 21:50 J	-282147.71	-282147.59	-282147.47	0.0526	0.0156
Venus	-5484-03-09 09:50 J	-281540.29	-281540.09	-281539.90	0.0511	0.0142
Moon	-5484-11-23 09:07 J	-281281.28	-281281.12	-281280.95	0.0504	0.0334
Earth	-5484-11-23 10:48 J	-281281.21	-281281.05	-281280.89	0.0504	0.0362 *
Mars	-5480-01-07 11:16 J	-280140.30	-280140.03	-280139.75	0.0497	0.0061
Mercury	-5480-05-29 19:40 J	-279997.73	-279997.68	-279997.61	0.0499	0.0467
Mercury	-5480-08-28 07:11 J	-279907.35	-279907.20	-279907.03	0.0501	0.0265

Venus	-5478-01-04 06:28 J	-279413.36	-279413.23	-279413.10	0.0512	0.0399
Moon	-5477-06-09 02:38 J	-278891.47	-278891.39	-278891.31	0.0525	0.0489
Earth	-5477-06-09 03:07 J	-278891.43	-278891.37	-278891.31	0.0525	0.0507 *
Mercury	-5474-04-29 02:23 J	-277837.53	-277837.40	-277837.27	0.0526	0.0020
Venus	-5473-11-12 07:55 J	-277274.37	-277274.17	-277273.97	0.0512	0.0117
Earth	-5472-11-27 19:55 J	-276893.90	-276893.67	-276893.44	0.0503	0.0057
Moon	-5472-11-27 23:02 J	-276893.77	-276893.54	-276893.30	0.0503	0.0059 *
Mercury	-5468-06-16 03:50 J	-275597.52	-275597.34	-275597.15	0.0500	0.0081
Venus	-5466-05-04 08:38 J	-274910.30	-274910.14	-274909.97	0.0516	0.0297
Mars	-5463-10-21 01:11 J	-273644.63	-273644.45	-273644.25	0.0528	0.0385
Mercury	-5462-02-15 06:14 J	-273527.36	-273527.24	-273527.11	0.0526	0.0127
Mercury	-5462-05-15 11:16 J	-273438.10	-273438.03	-273437.95	0.0524	0.0422
Venus	-5461-07-18 04:19 J	-273008.45	-273008.32	-273008.18	0.0514	0.0382
Moon	-5460-12-02 00:28 J	-272506.69	-272506.48	-272506.27	0.0502	0.0212
Earth	-5460-12-02 04:04 J	-272506.52	-272506.33	-272506.12	0.0502	0.0245 *
Mercury	-5456-04-04 00:28 J	-271287.66	-271287.48	-271287.29	0.0500	0.0103
Venus	-5454-01-07 01:55 J	-270644.62	-270644.42	-270644.21	0.0514	0.0025
Mercury	-5451-12-04 10:19 J	-269217.17	-269217.07	-269216.96	0.0527	0.0270
Mercury	-5450-03-03 15:36 J	-269127.96	-269127.85	-269127.75	0.0525	0.0284
Venus	-5449-11-14 19:40 J	-268505.84	-268505.68	-268505.51	0.0510	0.0288
Mars	-5445-10-12 11:16 J	-267078.13	-267078.03	-267077.91	0.0498	0.0453
Mercury	-5444-01-20 21:07 J	-266977.77	-266977.62	-266977.47	0.0499	0.0287
Mercury	-5444-04-21 08:38 J	-266887.22	-266887.14	-266887.05	0.0500	0.0448
Venus	-5443-09-11 18:28 J	-266378.90	-266378.73	-266378.55	0.0512	0.0251
Mercury	-5439-09-22 14:23 J	-264906.98	-264906.90	-264906.83	0.0528	0.0416
Mercury	-5439-12-20 19:40 J	-264817.80	-264817.68	-264817.56	0.0526	0.0142
Venus	-5437-07-20 18:43 J	-264239.92	-264239.72	-264239.52	0.0512	0.0032
Mercury	-5433-11-08 17:45 J	-262667.82	-262667.76	-262667.70	0.0499	0.0469
Mercury	-5432-02-07 04:48 J	-262577.45	-262577.30	-262577.13	0.0500	0.0260
Venus	-5430-01-09 20:09 J	-261875.75	-261875.66	-261875.55	0.0517	0.0446

Mercury	-5427-10-09 00:14 J	-260507.62	-260507.49	-260507.37	0.0526	0.0010
Venus	-5425-03-25 16:04 J	-259974.01	-259973.83	-259973.65	0.0513	0.0232
Mercury	-5421-11-26 00:43 J	-258267.66	-258267.47	-258267.29	0.0500	0.0066
Venus	-5419-09-14 14:09 J	-257610.10	-257609.91	-257609.72	0.0515	0.0175
Moon	-5418-05-29 18:43 J	-257352.92	-257352.72	-257352.51	0.0522	0.0274
Earth	-5418-05-29 21:07 J	-257352.80	-257352.62	-257352.42	0.0522	0.0294 *
Mercury	-5415-07-28 04:48 J	-256197.43	-256197.30	-256197.18	0.0526	0.0131
Mercury	-5415-10-25 09:35 J	-256108.17	-256108.10	-256108.02	0.0525	0.0419
Venus	-5414-11-29 13:26 J	-255707.99	-255707.94	-255707.88	0.0515	0.0495
Venus	-5413-07-23 06:14 J	-255471.34	-255471.24	-255471.13	0.0509	0.0432
Mercury	-5409-09-13 21:21 J	-253957.79	-253957.61	-253957.43	0.0500	0.0117
Venus	-5407-05-20 08:38 J	-253344.34	-253344.14	-253343.93	0.0514	0.0094
Earth	-5406-06-03 23:16 J	-252964.76	-252964.53	-252964.29	0.0523	0.0068
Moon	-5406-06-03 23:31 J	-252964.74	-252964.52	-252964.29	0.0523	0.0092 *
Mercury	-5403-05-16 08:38 J	-251887.24	-251887.14	-251887.03	0.0527	0.0275
Mercury	-5403-08-13 13:55 J	-251798.03	-251797.92	-251797.82	0.0525	0.0277
Venus	-5401-03-28 04:19 J	-251205.51	-251205.32	-251205.13	0.0511	0.0176
Earth	-5401-11-22 10:33 J	-250966.18	-250966.06	-250965.95	0.0505	0.0430
Moon	-5401-11-22 13:11 J	-250966.09	-250965.95	-250965.80	0.0505	0.0401 *
Mercury	-5397-07-02 18:14 J	-249647.89	-249647.74	-249647.59	0.0499	0.0297
Mercury	-5397-10-01 06:00 J	-249557.34	-249557.25	-249557.16	0.0501	0.0440
Venus	-5395-01-23 03:21 J	-249078.50	-249078.36	-249078.21	0.0512	0.0359
Earth	-5394-06-08 23:31 J	-248576.65	-248576.52	-248576.38	0.0524	0.0428
Moon	-5394-06-09 01:11 J	-248576.60	-248576.45	-248576.29	0.0524	0.0406 *
Mercury	-5391-03-04 12:43 J	-247577.04	-247576.97	-247576.89	0.0527	0.0419
Mercury	-5391-06-01 18:00 J	-247487.87	-247487.75	-247487.63	0.0526	0.0138
Venus	-5390-12-02 02:38 J	-246939.59	-246939.39	-246939.19	0.0513	0.0084
Moon	-5389-11-26 17:31 J	-246578.99	-246578.77	-246578.55	0.0504	0.0131
Earth	-5389-11-26 21:07 J	-246578.84	-246578.62	-246578.39	0.0504	0.0121 *
Mercury	-5385-04-20 15:07 J	-245337.92	-245337.87	-245337.82	0.0499	0.0476

Mercury	-5385-07-20 02:24 J	-245247.56	-245247.40	-245247.24	0.0500	0.0253
Venus	-5383-05-23 03:21 J	-244575.52	-244575.36	-244575.21	0.0516	0.0329
Mercury	-5379-03-20 22:04 J	-243177.71	-243177.58	-243177.45	0.0526	0.0009
Venus	-5378-08-07 00:14 J	-242673.63	-242673.49	-242673.34	0.0515	0.0347
Earth	-5377-12-01 07:40 J	-242191.39	-242191.18	-242190.97	0.0503	0.0188
Moon	-5377-12-01 11:16 J	-242191.24	-242191.03	-242190.81	0.0503	0.0158 *
Mercury	-5373-05-07 22:48 J	-240937.74	-240937.55	-240937.37	0.0500	0.0067
Venus	-5371-01-25 20:52 J	-240309.84	-240309.63	-240309.43	0.0514	0.0057
Mercury	-5367-01-07 02:38 J	-238867.51	-238867.39	-238867.27	0.0527	0.0143
Mercury	-5367-04-06 07:40 J	-238778.26	-238778.18	-238778.10	0.0525	0.0407
Venus	-5366-12-04 15:21 J	-238171.01	-238170.86	-238170.70	0.0510	0.0324
Moon	-5365-12-05 11:31 J	-237804.08	-237804.02	-237803.94	0.0501	0.0476
Earth	-5365-12-05 15:07 J	-237803.93	-237803.87	-237803.81	0.0501	0.0483
Mars	-5362-06-28 13:55 J	-236869.14	-236868.92	-236868.68	0.0496	0.0264
Mercury	-5361-02-24 18:14 J	-236627.92	-236627.74	-236627.56	0.0500	0.0130
Venus	-5360-09-30 14:52 J	-236044.06	-236043.88	-236043.69	0.0513	0.0213
Mercury	-5356-10-26 07:11 J	-234557.31	-234557.20	-234557.09	0.0527	0.0277
Mercury	-5355-01-23 12:14 J	-234468.09	-234467.99	-234467.88	0.0525	0.0276
Venus	-5354-08-09 14:38 J	-233905.09	-233904.89	-233904.69	0.0511	0.0069
Mercury	-5350-12-13 15:07 J	-232318.01	-232317.87	-232317.72	0.0499	0.0309
Mercury	-5349-03-13 02:52 J	-232227.48	-232227.38	-232227.28	0.0501	0.0427
Venus	-5348-06-05 10:33 J	-231778.13	-231778.06	-231777.98	0.0511	0.0473
Venus	-5347-01-28 18:43 J	-231540.78	-231540.72	-231540.67	0.0517	0.0494
Mars	-5344-04-08 19:55 J	-230374.95	-230374.67	-230374.40	0.0529	0.0029
Mercury	-5344-08-14 11:02 J	-230247.11	-230247.04	-230246.96	0.0527	0.0422
Mercury	-5344-11-11 16:33 J	-230157.93	-230157.81	-230157.69	0.0525	0.0135
Venus	-5342-04-14 11:45 J	-229639.20	-229639.01	-229638.83	0.0513	0.0196
Mercury	-5338-10-01 12:14 J	-228008.03	-228007.99	-228007.95	0.0499	0.0485
Mercury	-5338-12-30 23:31 J	-227917.68	-227917.52	-227917.35	0.0501	0.0245
Venus	-5336-10-03 12:00 J	-227275.18	-227275.00	-227274.81	0.0515	0.0220

Earth	-5335-05-28 20:24 J	-227037.82	-227037.65	-227037.48	0.0521	0.0362
Moon	-5335-05-28 21:21 J	-227037.78	-227037.61	-227037.44	0.0521	0.0337 *
Mercury	-5332-08-30 20:38 J	-225847.77	-225847.64	-225847.51	0.0526	0.0008
Venus	-5331-12-18 08:52 J	-225373.22	-225373.13	-225373.04	0.0515	0.0460
Venus	-5330-08-12 02:09 J	-225136.49	-225136.41	-225136.34	0.0509	0.0470
Mars	-5326-04-02 21:07 J	-223806.88	-223806.62	-223806.36	0.0497	0.0144
Mercury	-5326-10-18 20:24 J	-223607.84	-223607.65	-223607.47	0.0500	0.0063
Venus	-5324-06-08 04:48 J	-223009.50	-223009.30	-223009.09	0.0513	0.0058
Earth	-5323-06-02 18:28 J	-222649.97	-222649.73	-222649.50	0.0522	0.0015
Moon	-5323-06-02 19:11 J	-222649.94	-222649.70	-222649.45	0.0522	0.0012 *
Mercury	-5320-06-19 00:43 J	-221537.59	-221537.47	-221537.35	0.0527	0.0152
Mercury	-5320-09-16 05:45 J	-221448.34	-221448.26	-221448.18	0.0525	0.0398
Venus	-5318-04-17 01:11 J	-220870.63	-220870.45	-220870.27	0.0511	0.0216
Moon	-5318-11-22 10:48 J	-220651.14	-220651.05	-220650.96	0.0506	0.0460
Earth	-5318-11-22 14:09 J	-220650.96	-220650.91	-220650.84	0.0506	0.0485 *
Mercury	-5314-08-06 16:48 J	-219297.98	-219297.80	-219297.62	0.0499	0.0122
Venus	-5312-02-10 23:31 J	-218743.67	-218743.52	-218743.36	0.0512	0.0323
Moon	-5311-06-07 17:02 J	-218261.97	-218261.79	-218261.61	0.0524	0.0328
Earth	-5311-06-07 19:26 J	-218261.86	-218261.69	-218261.51	0.0524	0.0350 *
Mars	-5308-01-13 05:02 J	-217311.41	-217311.29	-217311.17	0.0528	0.0471
Mercury	-5308-04-07 05:02 J	-217227.39	-217227.29	-217227.18	0.0527	0.0288
Mercury	-5308-07-05 10:19 J	-217138.18	-217138.07	-217137.96	0.0525	0.0266
Venus	-5307-12-20 23:31 J	-216604.72	-216604.52	-216604.32	0.0512	0.0043
Earth	-5306-11-26 23:16 J	-216263.75	-216263.53	-216263.31	0.0504	0.0180
Moon	-5306-11-27 02:52 J	-216263.59	-216263.38	-216263.16	0.0504	0.0196 *
Mercury	-5302-05-25 12:28 J	-214988.13	-214987.98	-214987.84	0.0499	0.0318
Mercury	-5302-08-24 00:00 J	-214897.60	-214897.50	-214897.40	0.0501	0.0418
Venus	-5300-06-11 00:43 J	-214240.61	-214240.47	-214240.33	0.0517	0.0375
Mercury	-5296-01-24 09:50 J	-212917.17	-212917.09	-212917.02	0.0527	0.0421
Mercury	-5296-04-23 15:07 J	-212827.99	-212827.87	-212827.75	0.0526	0.0136

Venus	-5295-08-25 22:19 J	-212338.73	-212338.57	-212338.41	0.0514	0.0303
Moon	-5294-12-01 06:28 J	-211876.46	-211876.23	-211876.00	0.0503	0.0094
Earth	-5294-12-01 09:50 J	-211876.32	-211876.09	-211875.87	0.0503	0.0127 *
Mercury	-5290-03-13 09:21 J	-210678.13	-210678.11	-210678.08	0.0499	0.0494
Mercury	-5290-06-11 20:52 J	-210587.80	-210587.63	-210587.47	0.0501	0.0236
Venus	-5288-02-13 19:26 J	-209974.89	-209974.69	-209974.49	0.0515	0.0105
Mercury	-5284-02-09 19:26 J	-208517.82	-208517.69	-208517.57	0.0526	0.0013
Venus	-5283-12-23 12:28 J	-207836.12	-207835.98	-207835.84	0.0509	0.0366
Earth	-5282-12-05 18:14 J	-207488.86	-207488.74	-207488.61	0.0502	0.0425
Moon	-5282-12-05 20:09 J	-207488.77	-207488.66	-207488.54	0.0502	0.0427 *
Mercury	-5278-03-30 17:45 J	-206277.95	-206277.76	-206277.57	0.0500	0.0056
Venus	-5277-10-19 14:09 J	-205709.10	-205708.91	-205708.71	0.0513	0.0165
Mercury	-5273-11-28 23:31 J	-204207.64	-204207.52	-204207.40	0.0526	0.0146
Mercury	-5272-02-26 04:33 J	-204118.39	-204118.31	-204118.23	0.0525	0.0402
Venus	-5271-08-28 11:16 J	-203570.22	-203570.03	-203569.83	0.0511	0.0110
Mercury	-5266-01-16 14:52 J	-201968.06	-201967.88	-201967.70	0.0500	0.0123
Venus	-5265-06-24 08:52 J	-201443.24	-201443.13	-201443.02	0.0511	0.0430
Mercury	-5261-09-17 03:21 J	-199897.46	-199897.36	-199897.25	0.0527	0.0293
Mercury	-5261-12-15 08:38 J	-199808.24	-199808.14	-199808.03	0.0525	0.0262
Venus	-5259-05-03 09:21 J	-199304.30	-199304.11	-199303.92	0.0513	0.0153
Mercury	-5255-11-04 11:31 J	-197658.17	-197658.02	-197657.87	0.0499	0.0303
Mercury	-5254-02-02 23:02 J	-197567.63	-197567.54	-197567.44	0.0501	0.0431
Venus	-5253-10-22 09:35 J	-196940.28	-196940.10	-196939.92	0.0515	0.0263
Moon	-5252-05-27 19:26 J	-196722.84	-196722.69	-196722.53	0.0521	0.0400
Earth	-5252-05-27 19:11 J	-196722.83	-196722.70	-196722.56	0.0521	0.0428 *
Mercury	-5249-07-06 07:55 J	-195587.24	-195587.17	-195587.09	0.0527	0.0428
Mercury	-5249-10-03 13:26 J	-195498.06	-195497.94	-195497.82	0.0526	0.0130
Venus	-5247-01-06 07:11 J	-195038.31	-195038.20	-195038.07	0.0515	0.0415
Mercury	-5243-08-23 07:11 J	-193348.21	-193348.20	-193348.19	0.0499	0.0497
Mercury	-5243-11-21 18:14 J	-193257.90	-193257.74	-193257.57	0.0500	0.0232

Venus	-5241-06-27 02:38 J	-192674.59	-192674.39	-192674.18	0.0514	0.0012
Moon	-5240-06-01 18:43 J	-192334.95	-192334.72	-192334.50	0.0523	0.0053
Earth	-5240-06-01 20:38 J	-192334.87	-192334.64	-192334.40	0.0523	0.0073 *
Mercury	-5237-07-22 18:14 J	-191187.87	-191187.74	-191187.61	0.0526	0.0003
Venus	-5235-05-06 00:28 J	-190535.65	-190535.48	-190535.31	0.0510	0.0266
Mercury	-5231-09-09 15:21 J	-188948.05	-188947.86	-188947.68	0.0500	0.0052
Venus	-5229-03-01 22:33 J	-188408.73	-188408.56	-188408.39	0.0513	0.0275
Earth	-5228-06-07 00:28 J	-187946.67	-187946.48	-187946.28	0.0524	0.0294
Moon	-5228-06-07 04:04 J	-187946.53	-187946.33	-187946.12	0.0524	0.0267 *
Mars	-5226-09-27 09:07 J	-187104.28	-187104.12	-187103.94	0.0530	0.0407
Mercury	-5225-05-10 22:33 J	-186877.68	-186877.56	-186877.44	0.0526	0.0140
Mercury	-5225-08-08 03:21 J	-186788.43	-186788.36	-186788.28	0.0524	0.0410
Venus	-5223-01-08 22:19 J	-186269.77	-186269.57	-186269.36	0.0512	0.0011
Moon	-5223-11-26 01:55 J	-185948.62	-185948.42	-185948.21	0.0504	0.0248
Earth	-5223-11-26 05:02 J	-185948.49	-185948.29	-185948.08	0.0504	0.0231 *
Mercury	-5219-06-28 12:28 J	-184638.16	-184637.98	-184637.80	0.0500	0.0125
Venus	-5217-06-30 01:40 J	-183905.54	-183905.43	-183905.32	0.0517	0.0432
Mercury	-5213-02-28 02:38 J	-182567.49	-182567.39	-182567.28	0.0527	0.0281
Mercury	-5213-05-27 07:55 J	-182478.28	-182478.17	-182478.07	0.0525	0.0272
Venus	-5212-09-13 20:24 J	-182003.82	-182003.65	-182003.47	0.0514	0.0258
Earth	-5211-11-30 15:50 J	-181561.07	-181560.84	-181560.62	0.0503	0.0077
Moon	-5211-11-30 17:45 J	-181560.98	-181560.76	-181560.54	0.0503	0.0049 *
Mars	-5208-09-21 13:26 J	-180535.20	-180534.94	-180534.67	0.0497	0.0157
Mercury	-5207-04-16 09:50 J	-180328.24	-180328.09	-180327.94	0.0499	0.0299
Mercury	-5207-07-15 21:21 J	-180237.69	-180237.61	-180237.52	0.0501	0.0437
Venus	-5205-03-04 19:11 J	-179639.90	-179639.70	-179639.50	0.0515	0.0156
Mercury	-5202-12-17 06:28 J	-178257.30	-178257.23	-178257.15	0.0527	0.0427
Mercury	-5201-03-15 12:00 J	-178168.12	-178168.00	-178167.88	0.0526	0.0131
Venus	-5199-01-11 11:31 J	-177501.13	-177501.02	-177500.90	0.0510	0.0415
Moon	-5199-12-05 02:24 J	-177173.55	-177173.40	-177173.25	0.0502	0.0389

Earth	-5199-12-05 02:24 J	-177173.54	-177173.40	-177173.25	0.0502	0.0382 *
Mercury	-5195-02-02 06:43 J	-176018.27	-176018.22	-176018.17	0.0499	0.0477
Mercury	-5195-05-03 18:00 J	-175927.91	-175927.75	-175927.59	0.0500	0.0252
Venus	-5194-11-08 13:26 J	-175374.14	-175373.94	-175373.74	0.0513	0.0116
Mars	-5190-07-03 18:00 J	-174041.02	-174040.75	-174040.48	0.0529	0.0093
Mercury	-5189-01-02 16:33 J	-173857.93	-173857.81	-173857.68	0.0526	0.0018
Venus	-5188-09-16 11:16 J	-173235.22	-173235.03	-173234.84	0.0511	0.0162
Mercury	-5183-02-19 13:11 J	-171618.13	-171617.95	-171617.76	0.0500	0.0054
Venus	-5182-07-14 06:57 J	-171108.34	-171108.21	-171108.07	0.0512	0.0386
Mercury	-5178-10-21 21:35 J	-169547.73	-169547.60	-169547.48	0.0527	0.0131
Mercury	-5177-01-19 02:38 J	-169458.47	-169458.39	-169458.32	0.0525	0.0419
Venus	-5176-05-22 10:48 J	-168969.24	-168969.05	-168968.85	0.0512	0.0096
Mars	-5172-06-26 12:14 J	-167473.22	-167472.99	-167472.74	0.0497	0.0241
Mercury	-5172-12-08 10:19 J	-167308.25	-167308.07	-167307.89	0.0500	0.0125
Venus	-5170-11-11 10:04 J	-166605.24	-166605.08	-166604.92	0.0516	0.0321
Moon	-5169-05-26 23:45 J	-166407.61	-166407.51	-166407.39	0.0521	0.0452
Earth	-5169-05-27 01:26 J	-166407.53	-166407.44	-166407.34	0.0521	0.0479 *
Mercury	-5166-08-10 01:55 J	-165237.53	-165237.42	-165237.31	0.0527	0.0270
Mercury	-5166-11-07 06:57 J	-165148.31	-165148.21	-165148.10	0.0525	0.0283
Venus	-5164-01-25 08:09 J	-164703.30	-164703.16	-164703.01	0.0514	0.0362
Mercury	-5160-09-26 07:40 J	-162998.32	-162998.18	-162998.02	0.0500	0.0299
Mercury	-5160-12-25 19:40 J	-162907.77	-162907.68	-162907.60	0.0501	0.0439
Venus	-5158-07-17 05:02 J	-162339.49	-162339.29	-162339.08	0.0514	0.0051
Earth	-5157-06-01 04:19 J	-162019.55	-162019.32	-162019.09	0.0522	0.0117
Moon	-5157-06-01 07:40 J	-162019.41	-162019.18	-162018.94	0.0522	0.0105 *
Mercury	-5154-05-29 06:00 J	-160927.33	-160927.25	-160927.17	0.0527	0.0411
Mercury	-5154-08-26 11:16 J	-160838.15	-160838.03	-160837.90	0.0525	0.0147
Venus	-5152-05-25 00:00 J	-160200.66	-160200.50	-160200.35	0.0510	0.0317
Mercury	-5148-07-15 05:16 J	-158688.34	-158688.28	-158688.22	0.0499	0.0469
Mercury	-5148-10-13 16:33 J	-158597.96	-158597.81	-158597.65	0.0501	0.0261



Venus	-5146-03-22 00:00 J	-158073.68	-158073.50	-158073.31	0.0512	0.0220
Moon	-5145-06-06 00:57 J	-157631.67	-157631.46	-157631.24	0.0523	0.0208
Earth	-5145-06-06 04:48 J	-157631.50	-157631.30	-157631.08	0.0523	0.0240 *
Mercury	-5142-06-14 15:35 J	-156527.98	-156527.85	-156527.73	0.0526	0.0012
Venus	-5140-01-27 22:33 J	-155934.76	-155934.56	-155934.35	0.0512	0.0060
Earth	-5140-11-25 14:52 J	-155633.08	-155632.88	-155632.69	0.0505	0.0270
Moon	-5140-11-25 16:33 J	-155632.99	-155632.81	-155632.62	0.0505	0.0291 *
Mercury	-5136-08-01 13:26 J	-154288.13	-154287.94	-154287.76	0.0500	0.0078
Venus	-5135-11-24 19:26 J	-153807.75	-153807.69	-153807.62	0.0511	0.0484
Venus	-5134-07-20 02:24 J	-153570.47	-153570.40	-153570.34	0.0517	0.0487
Mercury	-5130-04-02 20:09 J	-152217.78	-152217.66	-152217.53	0.0527	0.0129
Mercury	-5130-07-01 01:11 J	-152128.52	-152128.45	-152128.37	0.0525	0.0421
Venus	-5129-10-02 22:04 J	-151668.77	-151668.58	-151668.40	0.0513	0.0200
Moon	-5128-11-30 01:40 J	-151245.67	-151245.43	-151245.19	0.0503	0.0014
Earth	-5128-11-30 01:40 J	-151245.66	-151245.43	-151245.20	0.0503	0.0036 *
Mercury	-5124-05-20 08:52 J	-149978.31	-149978.13	-149977.95	0.0500	0.0120
Venus	-5122-03-24 18:43 J	-149304.91	-149304.72	-149304.53	0.0516	0.0209
Mercury	-5118-01-20 00:57 J	-147907.57	-147907.46	-147907.35	0.0527	0.0259
Mercury	-5118-04-19 06:14 J	-147818.34	-147818.24	-147818.14	0.0525	0.0295
Venus	-5117-06-07 20:52 J	-147402.71	-147402.63	-147402.53	0.0515	0.0462
Venus	-5116-01-30 14:09 J	-147165.98	-147165.91	-147165.84	0.0509	0.0476
Moon	-5116-12-04 11:02 J	-146858.19	-146858.04	-146857.88	0.0502	0.0361
Earth	-5116-12-04 13:11 J	-146858.12	-146857.95	-146857.78	0.0502	0.0342 *
Mercury	-5112-03-08 06:00 J	-145668.40	-145668.25	-145668.10	0.0499	0.0295
Mercury	-5112-06-06 17:45 J	-145577.85	-145577.76	-145577.67	0.0501	0.0441
Venus	-5111-11-27 14:09 J	-145039.11	-145038.91	-145038.70	0.0514	0.0061
Mercury	-5107-11-08 05:16 J	-143597.36	-143597.28	-143597.19	0.0527	0.0397
Mercury	-5106-02-05 10:48 J	-143508.17	-143508.05	-143507.93	0.0525	0.0160
Venus	-5105-10-05 13:11 J	-142900.13	-142899.95	-142899.77	0.0510	0.0221
Mercury	-5101-12-25 03:35 J	-141358.41	-141358.35	-141358.28	0.0499	0.0466

Mercury	-5100-03-25 14:52 J	-141268.03	-141267.88	-141267.72	0.0501	0.0266
Venus	-5099-08-02 10:33 J	-140773.21	-140773.06	-140772.90	0.0512	0.0325
Mercury	-5095-11-24 15:07 J	-139198.00	-139197.87	-139197.74	0.0526	0.0022
Venus	-5093-06-10 11:45 J	-138634.21	-138634.01	-138633.81	0.0512	0.0041
Mars	-5089-03-12 12:14 J	-137263.10	-137262.99	-137262.86	0.0496	0.0449
Mercury	-5088-01-11 12:14 J	-136958.17	-136957.99	-136957.80	0.0500	0.0090
Venus	-5087-11-30 12:57 J	-136270.10	-136269.96	-136269.82	0.0516	0.0383
Earth	-5086-05-27 09:07 J	-136092.12	-136092.12	-136092.12	0.0521	0.0520
Moon	-5086-05-27 12:14 J	-136092.07	-136091.99	-136091.91	0.0521	0.0488
Mercury	-5083-09-12 19:11 J	-134887.82	-134887.70	-134887.58	0.0526	0.0120
Mercury	-5083-12-11 00:14 J	-134798.56	-134798.49	-134798.42	0.0525	0.0429
Venus	-5081-02-14 09:35 J	-134368.26	-134368.10	-134367.94	0.0514	0.0306
Mercury	-5077-10-30 09:07 J	-132648.30	-132648.12	-132647.93	0.0500	0.0091
Venus	-5075-08-05 06:57 J	-132004.41	-132004.21	-132004.01	0.0514	0.0108
Moon	-5074-06-01 06:43 J	-131704.45	-131704.22	-131704.00	0.0522	0.0162
Earth	-5074-06-01 10:33 J	-131704.29	-131704.06	-131703.84	0.0522	0.0165 *
Mars	-5072-12-22 00:57 J	-130769.70	-130769.46	-130769.22	0.0530	0.0257
Mercury	-5071-07-01 23:45 J	-130577.62	-130577.51	-130577.39	0.0527	0.0254
Mercury	-5071-09-29 05:02 J	-130488.39	-130488.29	-130488.19	0.0525	0.0300
Venus	-5069-06-13 02:24 J	-129865.53	-129865.40	-129865.26	0.0510	0.0380
Mercury	-5065-08-18 04:47 J	-128338.45	-128338.30	-128338.15	0.0499	0.0286
Mercury	-5065-11-16 16:19 J	-128247.90	-128247.82	-128247.74	0.0501	0.0449
Venus	-5063-04-09 23:45 J	-127738.70	-127738.51	-127738.32	0.0513	0.0169
Earth	-5062-06-06 10:47 J	-127316.27	-127316.05	-127315.83	0.0524	0.0187
Moon	-5062-06-06 13:55 J	-127316.14	-127315.92	-127315.70	0.0524	0.0155 *
Mercury	-5059-04-20 04:33 J	-126267.39	-126267.31	-126267.22	0.0527	0.0384
Mercury	-5059-07-18 10:04 J	-126178.20	-126178.08	-126177.96	0.0526	0.0174
Venus	-5057-02-17 03:07 J	-125599.56	-125599.37	-125599.17	0.0511	0.0126
Earth	-5057-11-25 04:19 J	-125317.50	-125317.32	-125317.13	0.0504	0.0300
Moon	-5057-11-25 04:33 J	-125317.49	-125317.31	-125317.12	0.0504	0.0322 *

Mars	-5054-12-16 18:28 J	-124201.00	-124200.73	-124200.45	0.0497	0.0041
Mercury	-5053-06-06 02:09 J	-124028.48	-124028.41	-124028.34	0.0499	0.0459
Mercury	-5053-09-04 13:26 J	-123938.10	-123937.94	-123937.78	0.0501	0.0271
Venus	-5052-12-13 20:24 J	-123472.76	-123472.65	-123472.55	0.0511	0.0432
Mercury	-5047-02-06 09:07 J	-121957.14	-121957.12	-121957.11	0.0528	0.0522
Mercury	-5047-05-06 14:38 J	-121868.02	-121867.89	-121867.77	0.0526	0.0040
Venus	-5046-10-23 01:12 J	-121333.64	-121333.45	-121333.25	0.0513	0.0139
Moon	-5045-11-29 12:00 J	-120930.22	-120930.00	-120929.77	0.0503	0.0014
Earth	-5045-11-29 14:09 J	-120930.14	-120929.91	-120929.68	0.0503	0.0006 *
Mercury	-5041-06-23 10:47 J	-119628.23	-119628.05	-119627.87	0.0500	0.0096
Venus	-5039-04-12 23:16 J	-118969.70	-118969.53	-118969.35	0.0516	0.0278
Mars	-5036-09-28 00:28 J	-117705.72	-117705.48	-117705.24	0.0529	0.0267
Mercury	-5035-02-22 18:57 J	-117557.84	-117557.71	-117557.59	0.0526	0.0100
Mercury	-5035-05-23 00:00 J	-117468.56	-117468.50	-117468.44	0.0524	0.0448
Venus	-5034-06-27 22:47 J	-117067.67	-117067.55	-117067.42	0.0515	0.0406
Earth	-5033-12-04 00:14 J	-116542.67	-116542.49	-116542.30	0.0502	0.0306
Moon	-5033-12-04 03:35 J	-116542.51	-116542.35	-116542.16	0.0502	0.0334 *
Mercury	-5029-04-11 08:09 J	-115318.34	-115318.16	-115317.97	0.0500	0.0078
Venus	-5028-12-16 18:14 J	-114703.95	-114703.74	-114703.54	0.0514	0.0009
Mercury	-5024-12-11 23:02 J	-113247.65	-113247.54	-113247.43	0.0527	0.0243
Mercury	-5023-03-11 04:19 J	-113158.42	-113158.32	-113158.22	0.0525	0.0310
Venus	-5022-10-25 15:07 J	-112565.04	-112564.87	-112564.70	0.0511	0.0280
Mars	-5018-09-21 08:38 J	-111138.30	-111138.14	-111137.96	0.0498	0.0383
Mercury	-5017-01-29 05:16 J	-111008.44	-111008.28	-111008.12	0.0499	0.0255
Mercury	-5017-04-28 16:47 J	-110917.84	-110917.80	-110917.74	0.0501	0.0482
Venus	-5016-08-21 13:12 J	-110438.12	-110437.95	-110437.77	0.0512	0.0266
Mercury	-5012-09-30 03:35 J	-108937.44	-108937.35	-108937.26	0.0527	0.0377
Mercury	-5012-12-28 08:52 J	-108848.24	-108848.13	-108848.01	0.0526	0.0182
Venus	-5010-06-30 15:07 J	-108299.07	-108298.87	-108298.67	0.0512	0.0025
Mercury	-5006-11-17 00:57 J	-106698.54	-106698.46	-106698.38	0.0499	0.0448

Mercury	-5005-02-15 12:14 J	-106608.14	-106607.99	-106607.84	0.0500	0.0281
Venus	-5004-12-19 13:12 J	-105935.06	-105934.95	-105934.84	0.0517	0.0439

# 5TH MILLENNIUM BCE

This is a list of transits visible from Jupiter in the 5th millennium BCE.

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-5000-07-19 08:09 J		-104627.18	-104627.16	-104627.12	0.0528	0.0510	
Mercury	-5000-10-16 13:55 J		-104538.05	-104537.92	-104537.80	0.0526	0.0052	
Venus	-4998-03-05 15:07 J		-104033.05	-104032.87	-104032.69	0.0514	0.0236	
Mercury	-4994-12-04 09:21 J		-102298.29	-102298.11	-102297.93	0.0500	0.0103	
Venus	-4992-08-24 08:24 J		-101669.34	-101669.15	-101668.96	0.0515	0.0167	
Earth	-4991-05-31 18:14 J		-101388.95	-101388.74	-101388.52	0.0523	0.0212	
Moon	-4991-05-31 21:35 J		-101388.81	-101388.60	-101388.39	0.0523	0.0216	*
Mercury	-4988-08-04 18:28 J		-100227.86	-100227.73	-100227.61	0.0526	0.0084	
Mercury	-4988-11-01 23:31 J		-100138.58	-100138.52	-100138.47	0.0525	0.0465	
Venus	-4987-11-08 12:14 J		-99767.02	-99766.99	-99766.95	0.0515	0.0506	
Venus	-4986-07-03 05:45 J		-99530.35	-99530.26	-99530.16	0.0509	0.0442	
Mercury	-4982-09-22 06:43 J		-97988.40	-97988.22	-97988.03	0.0500	0.0071	
Venus	-4980-04-29 04:33 J		-97403.51	-97403.31	-97403.11	0.0513	0.0103	
Moon	-4979-06-05 20:52 J		-97000.87	-97000.63	-97000.39	0.0524	0.0121	
Earth	-4979-06-05 23:02 J		-97000.77	-97000.54	-97000.32	0.0524	0.0156	*
Mercury	-4976-05-23 22:47 J		-95917.67	-95917.55	-95917.44	0.0527	0.0222	

Mercury	-4976-08-21 03:50 J	-95828.43	-95828.34	-95828.24	0.0525	0.0330
Venus	-4974-03-08 05:02 J	-95264.48	-95264.29	-95264.10	0.0511	0.0184
Moon	-4974-11-25 13:40 J	-95002.08	-95001.93	-95001.78	0.0504	0.0363
Earth	-4974-11-25 15:50 J	-95002.01	-95001.84	-95001.66	0.0504	0.0333 *
Mercury	-4970-07-11 04:04 J	-93678.48	-93678.33	-93678.16	0.0499	0.0244
Mercury	-4970-10-09 16:04 J	-93587.86	-93587.83	-93587.81	0.0501	0.0495
Venus	-4968-01-02 00:28 J	-93137.61	-93137.48	-93137.33	0.0511	0.0369
Earth	-4967-06-11 00:57 J	-92612.50	-92612.46	-92612.41	0.0524	0.0514
Moon	-4967-06-11 00:57 J	-92612.49	-92612.46	-92612.42	0.0524	0.0516 *
Mercury	-4964-03-12 02:38 J	-91607.47	-91607.39	-91607.29	0.0527	0.0367
Mercury	-4964-06-09 08:09 J	-91518.28	-91518.16	-91518.04	0.0526	0.0190
Venus	-4963-11-11 03:07 J	-90998.57	-90998.37	-90998.17	0.0513	0.0081
Earth	-4962-11-30 02:38 J	-90614.62	-90614.39	-90614.16	0.0504	0.0030
Moon	-4962-11-30 06:14 J	-90614.48	-90614.24	-90614.01	0.0504	0.0035 *
Mercury	-4958-04-29 01:26 J	-89368.54	-89368.44	-89368.34	0.0499	0.0418
Mercury	-4958-07-28 12:43 J	-89278.11	-89277.97	-89277.82	0.0501	0.0312
Venus	-4956-05-02 01:55 J	-88634.57	-88634.42	-88634.26	0.0516	0.0340
Mercury	-4953-12-29 07:12 J	-87297.23	-87297.20	-87297.16	0.0528	0.0502
Mercury	-4952-03-28 12:43 J	-87208.09	-87207.97	-87207.84	0.0526	0.0061
Venus	-4951-07-17 02:38 J	-86732.54	-86732.39	-86732.24	0.0515	0.0342
Moon	-4950-12-04 10:19 J	-86227.25	-86227.07	-86226.88	0.0502	0.0303
Earth	-4950-12-04 14:24 J	-86227.09	-86226.90	-86226.71	0.0502	0.0275 *
Mercury	-4946-05-16 08:09 J	-84968.34	-84968.16	-84967.98	0.0500	0.0113
Venus	-4944-01-04 17:45 J	-84368.96	-84368.76	-84368.56	0.0514	0.0056
Mercury	-4940-01-14 17:31 J	-82897.89	-82897.77	-82897.64	0.0527	0.0073
Mercury	-4940-04-13 22:33 J	-82808.60	-82808.56	-82808.51	0.0525	0.0478
Venus	-4939-11-13 20:09 J	-82229.80	-82229.66	-82229.51	0.0510	0.0349
Mars	-4935-06-07 01:40 J	-80928.64	-80928.43	-80928.22	0.0496	0.0324
Mercury	-4934-03-04 05:16 J	-80658.46	-80658.28	-80658.09	0.0499	0.0064
Venus	-4933-09-09 13:40 J	-80103.11	-80102.93	-80102.74	0.0513	0.0213

Mercury	-4929-11-02 22:04 J	-78587.70	-78587.58	-78587.46	0.0527	0.0208
Mercury	-4928-01-31 03:21 J	-78498.46	-78498.36	-78498.27	0.0525	0.0345
Venus	-4927-07-19 18:43 J	-77963.92	-77963.72	-77963.52	0.0512	0.0088
Mercury	-4923-12-21 02:38 J	-76348.55	-76348.39	-76348.22	0.0499	0.0238
Mercury	-4922-03-21 14:24 J	-76257.91	-76257.90	-76257.89	0.0501	0.0500
Venus	-4921-05-15 10:47 J	-75837.12	-75837.05	-75836.97	0.0511	0.0475
Venus	-4920-01-07 18:00 J	-75599.78	-75599.75	-75599.71	0.0517	0.0508
Mars	-4917-03-18 11:02 J	-74434.31	-74434.04	-74433.77	0.0530	0.0082
Mercury	-4917-08-22 02:24 J	-74277.49	-74277.40	-74277.30	0.0527	0.0347
Mercury	-4917-11-19 07:40 J	-74188.29	-74188.18	-74188.06	0.0525	0.0209
Venus	-4915-03-24 17:02 J	-73697.98	-73697.79	-73697.61	0.0513	0.0180
Mercury	-4911-10-09 00:14 J	-72038.59	-72038.49	-72038.38	0.0499	0.0408
Mercury	-4910-01-07 11:31 J	-71948.16	-71948.02	-71947.87	0.0501	0.0323
Venus	-4909-09-12 12:28 J	-71334.16	-71333.98	-71333.79	0.0515	0.0233
Moon	-4908-05-31 01:12 J	-71073.66	-71073.45	-71073.23	0.0522	0.0257
Earth	-4908-05-31 03:50 J	-71073.55	-71073.34	-71073.13	0.0522	0.0249 *
Mercury	-4905-06-10 06:28 J	-69967.28	-69967.23	-69967.19	0.0528	0.0493
Mercury	-4905-09-07 12:00 J	-69878.13	-69878.00	-69877.88	0.0526	0.0070
Venus	-4904-11-27 13:40 J	-69432.02	-69431.93	-69431.83	0.0515	0.0450
Venus	-4903-07-22 07:26 J	-69195.22	-69195.19	-69195.15	0.0509	0.0500
Mars	-4899-03-12 16:33 J	-67866.08	-67865.81	-67865.54	0.0497	0.0103
Mercury	-4899-10-26 08:24 J	-67638.33	-67638.15	-67637.97	0.0500	0.0142
Venus	-4897-05-18 06:57 J	-67068.42	-67068.21	-67068.01	0.0513	0.0043
Earth	-4896-06-05 05:31 J	-66685.50	-66685.27	-66685.04	0.0523	0.0107
Moon	-4896-06-05 06:00 J	-66685.48	-66685.25	-66685.03	0.0523	0.0077 *
Mercury	-4893-06-26 16:33 J	-65567.94	-65567.81	-65567.69	0.0527	0.0067
Mercury	-4893-09-23 21:36 J	-65478.65	-65478.60	-65478.55	0.0525	0.0483
Venus	-4891-03-27 08:09 J	-64929.34	-64929.16	-64928.98	0.0511	0.0248
Earth	-4891-11-25 05:16 J	-64686.43	-64686.28	-64686.12	0.0505	0.0364
Moon	-4891-11-25 08:52 J	-64686.26	-64686.13	-64685.98	0.0505	0.0394 *

Mercury	-4887-08-14 04:04 J	-63328.51	-63328.33	-63328.14	0.0499	0.0055
Venus	-4885-01-21 23:16 J	-62802.68	-62802.53	-62802.36	0.0512	0.0323
Earth	-4884-06-10 04:04 J	-62297.45	-62297.33	-62297.21	0.0525	0.0453
Moon	-4884-06-10 06:00 J	-62297.36	-62297.25	-62297.13	0.0525	0.0463 *
Mars	-4882-12-24 02:23 J	-61370.54	-61370.40	-61370.23	0.0529	0.0435
Mercury	-4881-04-14 21:07 J	-61257.74	-61257.62	-61257.50	0.0527	0.0200
Mercury	-4881-07-13 02:23 J	-61168.49	-61168.40	-61168.31	0.0526	0.0354
Venus	-4880-11-30 08:09 J	-60663.37	-60663.16	-60662.96	0.0513	0.0014
Moon	-4879-11-29 13:40 J	-60299.16	-60298.93	-60298.70	0.0503	0.0059
Earth	-4879-11-29 17:45 J	-60298.99	-60298.76	-60298.53	0.0503	0.0054 *
Mercury	-4875-06-02 01:12 J	-59018.61	-59018.45	-59018.28	0.0499	0.0231
Venus	-4873-05-21 02:09 J	-58299.54	-58299.41	-58299.28	0.0516	0.0394
Mercury	-4869-02-02 01:40 J	-56947.53	-56947.43	-56947.34	0.0528	0.0337
Mercury	-4869-05-01 06:57 J	-56858.32	-56858.21	-56858.10	0.0526	0.0220
Venus	-4868-08-05 05:45 J	-56397.43	-56397.26	-56397.09	0.0514	0.0282
Earth	-4867-12-04 02:23 J	-55911.60	-55911.40	-55911.20	0.0502	0.0243
Moon	-4867-12-04 06:00 J	-55911.44	-55911.25	-55911.06	0.0502	0.0273 *
Mercury	-4863-03-20 22:33 J	-54708.66	-54708.56	-54708.45	0.0499	0.0404
Mercury	-4863-06-19 09:50 J	-54618.23	-54618.09	-54617.95	0.0500	0.0326
Venus	-4861-01-24 21:50 J	-54033.79	-54033.59	-54033.39	0.0515	0.0121
Mercury	-4858-11-21 05:45 J	-52637.31	-52637.26	-52637.20	0.0528	0.0477
Mercury	-4857-02-18 11:16 J	-52548.15	-52548.03	-52547.90	0.0526	0.0085
Venus	-4856-12-02 20:52 J	-51894.74	-51894.63	-51894.50	0.0510	0.0404
Mercury	-4851-04-07 06:57 J	-50308.39	-50308.21	-50308.03	0.0500	0.0149
Venus	-4850-09-29 17:16 J	-49767.98	-49767.78	-49767.59	0.0513	0.0151
Mercury	-4846-12-07 15:21 J	-48237.98	-48237.86	-48237.73	0.0526	0.0061
Mercury	-4845-03-05 20:23 J	-48148.69	-48148.65	-48148.60	0.0525	0.0488
Venus	-4844-08-07 19:26 J	-47628.88	-47628.69	-47628.50	0.0512	0.0142
Mercury	-4839-01-24 03:50 J	-45998.52	-45998.34	-45998.15	0.0500	0.0034
Venus	-4838-06-04 12:28 J	-45502.09	-45501.98	-45501.86	0.0511	0.0420

Mercury	-4834-09-25 19:55 J	-43927.79	-43927.67	-43927.55	0.0527	0.0196
Mercury	-4834-12-24 01:12 J	-43838.54	-43838.45	-43838.36	0.0525	0.0358
Venus	-4832-04-12 18:57 J	-43362.91	-43362.71	-43362.52	0.0513	0.0121
Mercury	-4828-11-11 23:45 J	-41688.67	-41688.51	-41688.34	0.0499	0.0224
Venus	-4826-10-02 10:19 J	-40999.23	-40999.07	-40998.89	0.0515	0.0280
Earth	-4825-05-30 03:50 J	-40758.52	-40758.34	-40758.15	0.0522	0.0315
Moon	-4825-05-30 05:02 J	-40758.46	-40758.29	-40758.11	0.0522	0.0326 *
Mercury	-4822-07-15 00:14 J	-39617.58	-39617.49	-39617.39	0.0528	0.0334
Mercury	-4822-10-12 05:45 J	-39528.37	-39528.26	-39528.15	0.0526	0.0225
Venus	-4821-12-16 17:31 J	-39096.90	-39096.77	-39096.63	0.0515	0.0388
Mercury	-4816-08-30 20:52 J	-37378.73	-37378.63	-37378.52	0.0498	0.0400
Mercury	-4816-11-29 07:55 J	-37288.30	-37288.17	-37288.02	0.0500	0.0328
Venus	-4814-06-07 05:31 J	-36733.48	-36733.27	-36733.07	0.0514	0.0008
Earth	-4813-06-04 07:40 J	-36370.42	-36370.18	-36369.95	0.0523	0.0047
Moon	-4813-06-04 08:52 J	-36370.37	-36370.13	-36369.88	0.0523	0.0020 *
Mercury	-4810-05-03 04:47 J	-35307.36	-35307.30	-35307.25	0.0528	0.0472
Mercury	-4810-07-31 10:19 J	-35218.20	-35218.07	-35217.95	0.0526	0.0090
Venus	-4808-04-15 09:36 J	-34594.25	-34594.10	-34593.93	0.0510	0.0304
Moon	-4808-11-24 11:45 J	-34371.13	-34371.01	-34370.89	0.0505	0.0431
Earth	-4808-11-24 15:36 J	-34370.98	-34370.85	-34370.70	0.0505	0.0398 *
Mercury	-4804-09-17 05:02 J	-32978.47	-32978.29	-32978.11	0.0500	0.0149
Venus	-4802-02-10 01:55 J	-32467.59	-32467.42	-32467.24	0.0512	0.0265
Moon	-4801-06-09 09:07 J	-31982.25	-31982.12	-31981.99	0.0525	0.0430
Earth	-4801-06-09 12:28 J	-31982.12	-31981.98	-31981.83	0.0525	0.0412 *
Mars	-4799-09-06 14:52 J	-31163.01	-31162.88	-31162.73	0.0530	0.0449
Mercury	-4798-05-19 14:38 J	-30908.01	-30907.89	-30907.76	0.0527	0.0048
Mercury	-4798-08-16 19:40 J	-30818.71	-30818.68	-30818.64	0.0525	0.0500
Venus	-4797-12-19 07:55 J	-30328.37	-30328.17	-30327.96	0.0512	0.0040
Earth	-4796-11-29 01:11 J	-29983.67	-29983.45	-29983.22	0.0503	0.0098
Moon	-4796-11-29 04:48 J	-29983.52	-29983.30	-29983.07	0.0503	0.0096 *



Mercury	-4792-07-06 02:09 J	-28668.60	-28668.41	-28668.22	0.0500	0.0029
Venus	-4790-06-10 04:33 J	-27964.41	-27964.31	-27964.22	0.0516	0.0455
Mercury	-4786-03-07 18:43 J	-26597.84	-26597.72	-26597.61	0.0527	0.0194
Mercury	-4786-06-04 23:45 J	-26508.60	-26508.51	-26508.42	0.0525	0.0360
Venus	-4785-08-24 05:02 J	-26062.47	-26062.29	-26062.11	0.0514	0.0233
Moon	-4784-12-03 08:09 J	-25596.37	-25596.16	-25595.95	0.0503	0.0227
Earth	-4784-12-03 10:33 J	-25596.27	-25596.06	-25595.84	0.0503	0.0199 *
Mars	-4781-08-31 15:36 J	-24594.11	-24593.85	-24593.60	0.0496	0.0197
Mercury	-4780-04-23 23:02 J	-24358.70	-24358.54	-24358.37	0.0499	0.0208
Venus	-4778-02-12 22:04 J	-23698.77	-23698.58	-23698.38	0.0514	0.0175
Mercury	-4775-12-24 23:02 J	-22287.64	-22287.54	-22287.45	0.0528	0.0333
Mercury	-4774-03-24 04:19 J	-22198.43	-22198.32	-22198.20	0.0526	0.0225
Venus	-4773-04-29 02:52 J	-21796.42	-21796.38	-21796.33	0.0516	0.0502
Venus	-4773-12-21 21:36 J	-21559.68	-21559.60	-21559.51	0.0510	0.0460
Earth	-4772-12-07 22:04 J	-21208.59	-21208.58	-21208.56	0.0501	0.0499
Mercury	-4768-02-09 19:11 J	-20048.81	-20048.70	-20048.59	0.0498	0.0397
Mercury	-4768-05-11 06:14 J	-19958.38	-19958.24	-19958.10	0.0500	0.0331
Venus	-4767-10-18 13:55 J	-19433.12	-19432.92	-19432.72	0.0512	0.0111
Mars	-4763-06-12 19:26 J	-18099.96	-18099.69	-18099.42	0.0530	0.0046
Mercury	-4763-10-13 03:07 J	-17977.42	-17977.37	-17977.31	0.0529	0.0475
Mercury	-4762-01-10 08:52 J	-17888.26	-17888.13	-17888.01	0.0527	0.0089
Venus	-4761-08-26 21:36 J	-17293.78	-17293.60	-17293.41	0.0512	0.0201
Mercury	-4756-02-27 03:07 J	-15648.55	-15648.37	-15648.19	0.0499	0.0148
Venus	-4755-06-23 09:35 J	-15167.23	-15167.10	-15166.96	0.0511	0.0381
Mercury	-4751-10-29 13:11 J	-13578.07	-13577.95	-13577.82	0.0527	0.0052
Mercury	-4750-01-26 18:14 J	-13488.77	-13488.74	-13488.70	0.0525	0.0502
Venus	-4749-05-01 19:11 J	-13027.90	-13027.70	-13027.50	0.0513	0.0070
Mars	-4745-06-05 18:00 J	-11532.00	-11531.75	-11531.49	0.0496	0.0205
Mercury	-4745-12-15 23:45 J	-11338.69	-11338.51	-11338.32	0.0499	0.0035
Venus	-4743-10-21 11:45 J	-10664.16	-10664.01	-10663.85	0.0516	0.0336

Earth	-4742-05-30 10:04 J	-10443.24	-10443.08	-10442.90	0.0522	0.0359
Moon	-4742-05-30 10:48 J	-10443.22	-10443.05	-10442.88	0.0522	0.0374 *
Mercury	-4739-08-17 17:31 J	-9267.88	-9267.77	-9267.65	0.0527	0.0187
Mercury	-4739-11-14 22:48 J	-9178.64	-9178.55	-9178.46	0.0525	0.0367
Venus	-4737-01-05 16:19 J	-8761.97	-8761.82	-8761.67	0.0515	0.0342
Mercury	-4733-10-03 20:52 J	-7028.79	-7028.63	-7028.46	0.0499	0.0210
Venus	-4731-06-26 06:28 J	-6398.43	-6398.23	-6398.02	0.0514	0.0060
Moon	-4730-06-04 09:21 J	-6055.34	-6055.11	-6054.88	0.0523	0.0031
Earth	-4730-06-04 12:14 J	-6055.23	-6054.99	-6054.75	0.0523	0.0006 *
Mercury	-4727-06-05 21:35 J	-4957.70	-4957.60	-4957.51	0.0528	0.0334
Mercury	-4727-09-03 02:52 J	-4868.49	-4868.38	-4868.27	0.0526	0.0224
Venus	-4725-05-04 07:40 J	-4259.33	-4259.18	-4259.04	0.0510	0.0350
Earth	-4725-11-23 20:52 J	-4055.73	-4055.63	-4055.52	0.0505	0.0449
Moon	-4725-11-24 00:28 J	-4055.55	-4055.48	-4055.41	0.0505	0.0478 *
Mercury	-4721-07-22 18:00 J	-2718.87	-2718.75	-2718.64	0.0499	0.0387
Mercury	-4721-10-21 05:02 J	-2628.42	-2628.29	-2628.15	0.0500	0.0342
Venus	-4719-03-01 01:12 J	-2132.63	-2132.45	-2132.26	0.0512	0.0216
Earth	-4718-06-09 12:43 J	-1667.14	-1666.97	-1666.79	0.0524	0.0345
Moon	-4718-06-09 16:48 J	-1666.96	-1666.80	-1666.63	0.0524	0.0371 *
Mercury	-4715-03-25 01:40 J	-647.48	-647.43	-647.38	0.0528	0.0476
Mercury	-4715-06-22 07:11 J	-558.32	-558.20	-558.07	0.0527	0.0087
Venus	-4713-01-08 06:43 J	6.59	6.78	6.98	0.0512	0.0089
Moon	-4713-11-28 06:28 J	331.54	331.77	332.00	0.0504	0.0137
Earth	-4713-11-28 08:52 J	331.65	331.87	332.09	0.0504	0.0144 *
Mercury	-4709-08-09 00:57 J	1681.36	1681.54	1681.72	0.0499	0.0147
Venus	-4708-11-03 18:14 J	2133.21	2133.26	2133.31	0.0510	0.0494
Venus	-4707-06-28 23:45 J	2370.43	2370.49	2370.55	0.0516	0.0492
Mercury	-4703-04-10 11:31 J	3751.85	3751.98	3752.11	0.0527	0.0054
Mercury	-4703-07-08 16:33 J	3841.16	3841.19	3841.23	0.0526	0.0498
Venus	-4702-09-13 05:31 J	4272.54	4272.73	4272.92	0.0514	0.0182

Earth	-4701-12-02 19:55 J	4719.12	4719.33	4719.55	0.0503	0.0160
Moon	-4701-12-02 20:24 J	4719.14	4719.35	4719.56	0.0503	0.0187 *
Mercury	-4697-05-27 21:35 J	5991.22	5991.40	5991.59	0.0499	0.0036
Venus	-4695-03-03 18:00 J	6636.06	6636.25	6636.44	0.0515	0.0213
Mercury	-4691-01-27 15:50 J	8062.05	8062.16	8062.28	0.0528	0.0193
Mercury	-4691-04-26 21:07 J	8151.29	8151.38	8151.47	0.0526	0.0363
Venus	-4690-05-19 01:40 J	8538.49	8538.57	8538.67	0.0516	0.0458
Venus	-4689-01-10 20:09 J	8775.32	8775.34	8775.36	0.0509	0.0505
Earth	-4689-12-07 03:07 J	9106.54	9106.63	9106.74	0.0501	0.0450
Moon	-4689-12-07 04:19 J	9106.58	9106.68	9106.80	0.0501	0.0444 *
Mercury	-4685-03-15 18:14 J	10301.10	10301.26	10301.43	0.0499	0.0218
Venus	-4684-11-06 13:26 J	10901.86	10902.06	10902.27	0.0513	0.0062
Mercury	-4680-11-15 20:09 J	12372.24	12372.34	12372.44	0.0528	0.0332
Mercury	-4679-02-13 01:40 J	12461.45	12461.57	12461.68	0.0526	0.0227
Venus	-4678-09-15 18:43 J	13041.10	13041.28	13041.46	0.0511	0.0242
Mercury	-4673-01-02 15:21 J	14611.03	14611.14	14611.25	0.0499	0.0395
Mercury	-4673-04-02 02:24 J	14701.47	14701.60	14701.74	0.0500	0.0334
Venus	-4672-07-12 09:07 J	15167.73	15167.88	15168.04	0.0511	0.0333
Mercury	-4668-09-04 00:00 J	16682.45	16682.50	16682.55	0.0528	0.0480
Mercury	-4668-12-02 05:31 J	16771.61	16771.73	16771.86	0.0526	0.0083
Venus	-4666-05-21 15:36 J	17306.95	17307.15	17307.35	0.0513	0.0029
Mercury	-4661-01-19 23:02 J	19011.29	19011.46	19011.64	0.0500	0.0151
Venus	-4660-11-09 09:36 J	19670.77	19670.90	19671.04	0.0515	0.0382
Moon	-4659-05-29 06:43 J	19871.68	19871.78	19871.90	0.0521	0.0449
Earth	-4659-05-29 09:07 J	19871.75	19871.88	19872.02	0.0521	0.0425 *
Mercury	-4656-09-20 09:50 J	21081.78	21081.91	21082.04	0.0527	0.0059
Mercury	-4656-12-18 14:52 J	21171.08	21171.12	21171.16	0.0525	0.0491
Venus	-4654-01-24 13:11 J	21572.89	21573.05	21573.22	0.0515	0.0302
Mercury	-4650-11-07 19:11 J	23321.12	23321.30	23321.49	0.0499	0.0042
Venus	-4648-07-15 00:57 J	23936.34	23936.54	23936.75	0.0513	0.0093

Earth	-4647-06-03 05:02 J	24259.48	24259.71	24259.94	0.0522	0.0090
Moon	-4647-06-03 08:52 J	24259.64	24259.87	24260.11	0.0522	0.0111 *
Mars	-4645-11-29 23:31 J	25170.29	25170.48	25170.68	0.0531	0.0367
Mercury	-4644-07-09 13:55 J	25391.96	25392.08	25392.20	0.0528	0.0204
Mercury	-4644-10-06 19:11 J	25481.21	25481.30	25481.39	0.0526	0.0353
Venus	-4642-05-24 06:14 J	26075.64	26075.76	26075.89	0.0511	0.0398
Earth	-4642-11-24 03:36 J	26259.61	26259.65	26259.70	0.0506	0.0493
Mercury	-4638-08-26 16:04 J	27631.00	27631.17	27631.33	0.0498	0.0222
Venus	-4636-03-19 19:55 J	28202.14	28202.33	28202.53	0.0512	0.0184
Moon	-4635-06-08 02:52 J	28647.42	28647.62	28647.82	0.0524	0.0284
Earth	-4635-06-08 07:11 J	28647.59	28647.80	28648.00	0.0524	0.0263 *
Mercury	-4632-04-27 18:14 J	29702.16	29702.26	29702.36	0.0528	0.0343
Mercury	-4632-07-25 23:45 J	29791.37	29791.49	29791.60	0.0526	0.0217
Venus	-4630-01-27 03:50 J	30341.47	30341.66	30341.86	0.0512	0.0129
Earth	-4630-11-28 11:45 J	30646.78	30646.99	30647.20	0.0504	0.0198
Moon	-4630-11-28 12:28 J	30646.81	30647.02	30647.22	0.0504	0.0184 *
Mars	-4627-11-25 02:09 J	31739.33	31739.59	31739.87	0.0496	0.0118
Mercury	-4626-06-14 12:28 J	31940.92	31941.02	31941.13	0.0498	0.0405
Mercury	-4626-09-12 23:16 J	32031.34	32031.47	32031.62	0.0500	0.0322
Venus	-4625-11-22 16:04 J	32468.08	32468.17	32468.26	0.0510	0.0452
Mercury	-4620-02-13 22:33 J	34012.39	34012.44	34012.49	0.0528	0.0483
Mercury	-4620-05-14 04:04 J	34101.55	34101.67	34101.80	0.0527	0.0081
Venus	-4619-10-02 01:26 J	34607.37	34607.56	34607.76	0.0514	0.0144
Earth	-4618-12-02 20:52 J	35034.14	35034.37	35034.59	0.0503	0.0098
Moon	-4618-12-02 21:50 J	35034.19	35034.41	35034.65	0.0503	0.0125 *
Mercury	-4614-07-01 20:09 J	36341.16	36341.34	36341.52	0.0500	0.0139
Venus	-4612-03-22 16:33 J	36971.02	36971.19	36971.37	0.0515	0.0261
Mars	-4609-09-05 08:38 J	38233.60	38233.86	38234.13	0.0530	0.0144
Mercury	-4608-03-02 08:09 J	38411.71	38411.84	38411.96	0.0527	0.0068
Mercury	-4608-05-30 13:12 J	38501.00	38501.05	38501.09	0.0525	0.0484

Venus	-4607-06-06 21:07 J	38873.26	38873.38	38873.49	0.0516	0.0423
Moon	-4606-12-07 02:23 J	39421.46	39421.60	39421.75	0.0502	0.0382
Earth	-4606-12-07 04:47 J	39421.56	39421.70	39421.85	0.0502	0.0388 *
Mercury	-4602-04-19 17:02 J	40651.02	40651.21	40651.39	0.0499	0.0044
Venus	-4601-11-25 10:33 J	41236.73	41236.94	41237.15	0.0513	0.0019
Mercury	-4597-12-19 12:14 J	42721.89	42722.01	42722.12	0.0528	0.0210
Mercury	-4596-03-18 17:31 J	42811.13	42811.23	42811.32	0.0526	0.0346
Venus	-4595-10-04 14:38 J	43375.94	43376.11	43376.27	0.0511	0.0282
Mars	-4591-08-30 06:57 J	44801.57	44801.79	44802.02	0.0496	0.0291
Mercury	-4590-02-05 13:26 J	44960.89	44961.06	44961.22	0.0498	0.0228
Venus	-4589-07-31 03:36 J	45502.49	45502.65	45502.82	0.0510	0.0302
Mercury	-4585-10-07 16:04 J	47032.08	47032.17	47032.26	0.0528	0.0357
Mercury	-4584-01-04 21:36 J	47121.28	47121.40	47121.51	0.0527	0.0204
Venus	-4583-06-09 12:43 J	47641.82	47642.03	47642.23	0.0514	0.0015
Mercury	-4579-11-24 10:04 J	49270.82	49270.92	49271.03	0.0498	0.0409
Mercury	-4578-02-22 20:52 J	49361.23	49361.37	49361.52	0.0499	0.0316
Venus	-4577-11-28 03:36 J	50005.53	50005.65	50005.77	0.0515	0.0414
Earth	-4576-05-28 01:55 J	50186.53	50186.58	50186.64	0.0520	0.0505
Mercury	-4573-07-26 20:09 J	51342.31	51342.34	51342.38	0.0529	0.0498
Mercury	-4573-10-24 01:55 J	51431.46	51431.58	51431.71	0.0527	0.0067
Venus	-4571-02-12 09:21 J	51907.72	51907.89	51908.07	0.0515	0.0265
Mercury	-4567-12-11 17:02 J	53671.03	53671.21	53671.39	0.0499	0.0125
Venus	-4565-08-02 22:19 J	54271.23	54271.43	54271.63	0.0514	0.0135
Moon	-4564-06-02 00:28 J	54574.30	54574.52	54574.75	0.0522	0.0179
Earth	-4564-06-02 04:47 J	54574.47	54574.70	54574.93	0.0522	0.0154 *
Mercury	-4561-08-12 06:28 J	55741.64	55741.77	55741.89	0.0527	0.0072
Mercury	-4561-11-09 11:31 J	55830.93	55830.98	55831.03	0.0525	0.0480
Venus	-4559-06-12 01:12 J	56410.45	56410.55	56410.66	0.0510	0.0433
Mercury	-4555-09-29 13:40 J	57980.89	57981.07	57981.26	0.0499	0.0058
Venus	-4553-04-07 17:31 J	58537.03	58537.23	58537.43	0.0512	0.0140

Earth	-4552-06-07 06:43 J	58962.57	58962.78	58963.01	0.0523	0.0197
Moon	-4552-06-07 10:19 J	58962.73	58962.93	58963.14	0.0523	0.0221 *
Mercury	-4549-05-31 10:19 J	60051.81	60051.93	60052.04	0.0527	0.0217
Mercury	-4549-08-28 15:36 J	60141.05	60141.15	60141.25	0.0526	0.0338
Venus	-4547-02-14 22:33 J	60676.25	60676.44	60676.63	0.0512	0.0163
Earth	-4547-11-27 11:31 J	60961.79	60961.98	60962.18	0.0505	0.0264
Moon	-4547-11-27 12:43 J	60961.82	60962.03	60962.24	0.0505	0.0242 *
Mercury	-4543-07-18 10:33 J	62290.78	62290.94	62291.11	0.0499	0.0237
Mercury	-4543-10-16 22:04 J	62381.40	62381.42	62381.44	0.0500	0.0497
Venus	-4542-12-12 12:43 J	62802.92	62803.03	62803.15	0.0510	0.0414
Mercury	-4537-03-19 14:09 J	64362.00	64362.09	64362.19	0.0528	0.0363
Mercury	-4537-06-16 19:40 J	64451.21	64451.32	64451.44	0.0526	0.0198
Venus	-4536-10-20 20:09 J	64942.15	64942.34	64942.54	0.0514	0.0110
Moon	-4535-12-01 19:55 J	65349.11	65349.33	65349.55	0.0504	0.0063
Earth	-4535-12-01 22:19 J	65349.20	65349.43	65349.66	0.0504	0.0036 *
Mercury	-4531-05-06 07:26 J	66600.71	66600.81	66600.91	0.0498	0.0417
Mercury	-4531-08-04 18:14 J	66691.12	66691.26	66691.41	0.0499	0.0308
Venus	-4529-04-10 10:33 J	67305.77	67305.94	67306.11	0.0514	0.0293
Mercury	-4525-01-06 18:00 J	68672.22	68672.25	68672.28	0.0529	0.0513
Mercury	-4525-04-04 23:45 J	68761.37	68761.49	68761.62	0.0527	0.0052
Venus	-4524-06-25 16:47 J	69208.07	69208.20	69208.34	0.0516	0.0388
Earth	-4523-12-06 08:09 J	69736.68	69736.84	69737.02	0.0503	0.0335
Moon	-4523-12-06 11:31 J	69736.81	69736.98	69737.16	0.0503	0.0323 *
Mercury	-4519-05-23 14:38 J	71000.93	71001.11	71001.29	0.0499	0.0121
Venus	-4518-12-15 04:33 J	71571.49	71571.69	71571.90	0.0512	0.0015
Mercury	-4513-01-23 04:04 J	73071.55	73071.67	73071.80	0.0527	0.0087
Mercury	-4513-04-21 09:21 J	73160.84	73160.89	73160.95	0.0526	0.0467
Venus	-4512-10-23 09:50 J	73710.75	73710.91	73711.07	0.0511	0.0318
Mars	-4508-05-14 22:19 J	75010.33	75010.43	75010.54	0.0495	0.0457
Mercury	-4507-03-11 10:33 J	75310.76	75310.94	75311.13	0.0499	0.0071

Venus	-4506-08-19 23:45 J	75837.31	75837.49	75837.67	0.0511	0.0264
Mercury	-4502-11-11 08:38 J	77381.74	77381.86	77381.97	0.0528	0.0222
Mercury	-4501-02-08 13:55 J	77470.99	77471.08	77471.18	0.0526	0.0334
Venus	-4500-06-28 07:55 J	77976.63	77976.83	77977.03	0.0513	0.0049
Mercury	-4496-12-28 07:26 J	79620.65	79620.81	79620.97	0.0499	0.0251
Mercury	-4495-03-28 18:43 J	79711.23	79711.28	79711.33	0.0500	0.0482
Venus	-4494-12-18 00:57 J	80340.46	80340.54	80340.64	0.0516	0.0461
Mars	-4490-02-23 06:43 J	81503.56	81503.78	81504.02	0.0530	0.0279
Mercury	-4490-08-30 12:28 J	81691.93	81692.02	81692.11	0.0528	0.0369
Mercury	-4490-11-27 18:00 J	81781.13	81781.25	81781.37	0.0526	0.0191
Venus	-4488-03-03 04:04 J	82242.49	82242.67	82242.86	0.0515	0.0231
Mercury	-4484-10-16 04:33 J	83930.60	83930.69	83930.78	0.0498	0.0428
Mercury	-4483-01-14 15:21 J	84020.99	84021.14	84021.29	0.0500	0.0298
Venus	-4482-08-22 18:57 J	84606.10	84606.29	84606.49	0.0514	0.0178
Earth	-4481-06-01 01:40 J	84889.36	84889.57	84889.79	0.0521	0.0227
Moon	-4481-06-01 05:45 J	84889.54	84889.74	84889.95	0.0521	0.0247 *
Mercury	-4478-06-18 16:19 J	86002.16	86002.18	86002.21	0.0528	0.0516
Mercury	-4478-09-15 22:04 J	86091.30	86091.42	86091.55	0.0527	0.0049
Venus	-4477-11-06 00:14 J	86508.49	86508.51	86508.55	0.0517	0.0510
Venus	-4476-06-30 20:09 J	86745.26	86745.34	86745.41	0.0510	0.0469
Mars	-4472-02-17 08:38 J	88072.59	88072.86	88073.14	0.0496	0.0037
Mercury	-4472-11-02 12:00 J	88330.82	88331.00	88331.18	0.0499	0.0114
Venus	-4470-04-27 12:28 J	88871.82	88872.02	88872.22	0.0511	0.0106
Moon	-4469-06-05 20:24 J	89277.12	89277.35	89277.59	0.0522	0.0132
Earth	-4469-06-05 23:16 J	89277.24	89277.47	89277.70	0.0522	0.0111 *
Mercury	-4466-07-05 01:55 J	90401.46	90401.58	90401.71	0.0528	0.0100
Mercury	-4466-10-02 07:12 J	90490.74	90490.80	90490.86	0.0526	0.0454
Venus	-4464-03-05 18:28 J	91011.08	91011.27	91011.45	0.0513	0.0202
Moon	-4464-11-26 11:45 J	91276.82	91276.99	91277.18	0.0506	0.0298
Earth	-4464-11-26 14:09 J	91276.91	91277.09	91277.27	0.0506	0.0321 *

Mercury	-4460-08-21 08:38 J	92640.67	92640.86	92641.04	0.0499	0.0071
Venus	-4459-12-31 07:40 J	93137.68	93137.82	93137.95	0.0510	0.0381
Earth	-4457-06-11 00:00 J	93665.40	93665.50	93665.62	0.0524	0.0461
Moon	-4457-06-11 00:14 J	93665.42	93665.51	93665.60	0.0524	0.0477 *
Mars	-4455-11-29 06:14 J	94566.52	94566.76	94567.01	0.0530	0.0218
Mercury	-4454-04-23 06:14 J	94711.65	94711.76	94711.88	0.0528	0.0238
Mercury	-4454-07-21 11:45 J	94800.89	94800.99	94801.09	0.0526	0.0320
Venus	-4453-11-08 15:50 J	95276.96	95277.16	95277.36	0.0514	0.0072
Earth	-4452-11-30 22:33 J	95664.21	95664.44	95664.67	0.0504	0.0029
Moon	-4452-12-01 01:55 J	95664.35	95664.58	95664.82	0.0504	0.0003 *
Mercury	-4448-06-09 04:19 J	96950.52	96950.68	96950.84	0.0499	0.0263
Mercury	-4448-09-07 15:35 J	97041.08	97041.15	97041.21	0.0500	0.0468
Venus	-4446-04-30 06:57 J	97640.63	97640.79	97640.94	0.0515	0.0335
Mercury	-4442-02-09 10:47 J	99021.86	99021.95	99022.04	0.0528	0.0373
Mercury	-4442-05-09 16:19 J	99111.07	99111.18	99111.30	0.0526	0.0188
Venus	-4441-07-14 13:26 J	99542.91	99543.06	99543.21	0.0516	0.0347
Moon	-4440-12-05 04:33 J	100051.50	100051.69	100051.89	0.0502	0.0254
Earth	-4440-12-05 08:09 J	100051.65	100051.84	100052.04	0.0502	0.0269 *
Mars	-4437-11-22 06:00 J	101134.58	101134.75	101134.95	0.0496	0.0365
Mercury	-4436-03-28 01:26 J	101260.48	101260.56	101260.64	0.0498	0.0440
Mercury	-4436-06-26 12:14 J	101350.86	101351.01	101351.16	0.0500	0.0285
Venus	-4434-01-03 01:55 J	101906.38	101906.58	101906.79	0.0513	0.0057
Mercury	-4431-11-28 14:38 J	103332.10	103332.11	103332.13	0.0528	0.0520
Mercury	-4430-02-25 20:24 J	103421.23	103421.35	103421.48	0.0527	0.0046
Venus	-4429-11-11 05:02 J	104045.57	104045.71	104045.86	0.0511	0.0356
Mercury	-4424-04-14 09:07 J	105660.70	105660.88	105661.06	0.0499	0.0104
Venus	-4423-09-07 21:21 J	106172.20	106172.39	106172.57	0.0511	0.0220
Mercury	-4419-12-15 00:28 J	107731.40	107731.52	107731.65	0.0527	0.0100
Mercury	-4418-03-14 05:45 J	107820.68	107820.74	107820.80	0.0525	0.0453
Venus	-4417-07-17 03:07 J	108311.43	108311.63	108311.83	0.0513	0.0085



Mercury	-4412-01-31 06:00 J	109970.57	109970.75	109970.94	0.0499	0.0077
Venus	-4411-05-13 16:19 J	110438.14	110438.18	110438.23	0.0509	0.0494
Venus	-4410-01-05 20:52 J	110675.32	110675.37	110675.42	0.0515	0.0499
Mercury	-4407-10-03 04:19 J	112041.57	112041.68	112041.79	0.0528	0.0248
Mercury	-4407-12-31 09:50 J	112130.81	112130.91	112131.01	0.0526	0.0310
Venus	-4405-03-22 00:14 J	112577.32	112577.51	112577.69	0.0515	0.0193
Mercury	-4401-11-19 02:52 J	114280.46	114280.62	114280.78	0.0498	0.0257
Mercury	-4400-02-17 13:55 J	114371.02	114371.08	114371.14	0.0500	0.0472
Venus	-4399-09-10 14:38 J	114940.93	114941.11	114941.30	0.0514	0.0216
Moon	-4398-05-31 17:31 J	115204.05	115204.23	115204.43	0.0521	0.0323
Earth	-4398-05-31 21:07 J	115204.19	115204.38	115204.57	0.0521	0.0302 *
Mercury	-4395-07-22 08:38 J	116351.78	116351.86	116351.95	0.0528	0.0386
Mercury	-4395-10-19 14:24 J	116440.98	116441.10	116441.22	0.0527	0.0176
Venus	-4394-11-25 20:52 J	116843.29	116843.37	116843.46	0.0517	0.0470
Mercury	-4389-09-06 22:33 J	118590.37	118590.44	118590.52	0.0498	0.0450
Mercury	-4389-12-06 09:21 J	118680.73	118680.89	118681.05	0.0500	0.0274
Venus	-4387-05-16 08:38 J	119206.66	119206.86	119207.07	0.0512	0.0066
Earth	-4386-06-05 22:33 J	119592.21	119592.44	119592.68	0.0523	0.0045
Moon	-4386-06-05 23:31 J	119592.26	119592.48	119592.71	0.0523	0.0071 *
Mercury	-4383-05-10 13:12 J	120662.04	120662.05	120662.07	0.0529	0.0521
Mercury	-4383-08-07 18:57 J	120751.17	120751.29	120751.42	0.0527	0.0045
Venus	-4381-03-24 15:35 J	121345.98	121346.15	121346.33	0.0512	0.0246
Earth	-4381-11-25 16:19 J	121592.03	121592.18	121592.33	0.0505	0.0380
Moon	-4381-11-25 19:40 J	121592.15	121592.32	121592.49	0.0505	0.0351 *
Mercury	-4377-09-24 06:14 J	122990.58	122990.76	122990.94	0.0499	0.0094
Venus	-4375-01-19 05:02 J	123472.56	123472.71	123472.86	0.0511	0.0338
Earth	-4374-06-11 01:55 J	123980.44	123980.58	123980.74	0.0524	0.0399
Moon	-4374-06-11 03:35 J	123980.51	123980.65	123980.81	0.0524	0.0408 *
Mercury	-4371-05-26 23:16 J	125061.34	125061.47	125061.59	0.0527	0.0100
Mercury	-4371-08-24 04:19 J	125150.62	125150.68	125150.74	0.0525	0.0453

Venus	-4370-11-28 12:28 J	125611.82	125612.02	125612.23	0.0514	0.0032
Moon	-4369-11-29 21:35 J	125979.17	125979.40	125979.63	0.0504	0.0065
Earth	-4369-11-30 01:12 J	125979.32	125979.55	125979.78	0.0504	0.0086 *
Mercury	-4365-07-13 03:21 J	127300.46	127300.64	127300.82	0.0499	0.0084
Venus	-4363-05-19 05:45 J	127975.61	127975.74	127975.87	0.0515	0.0386
Mercury	-4359-03-15 03:07 J	129371.52	129371.63	129371.75	0.0528	0.0243
Mercury	-4359-06-12 08:38 J	129460.76	129460.86	129460.96	0.0526	0.0314
Venus	-4358-08-03 09:21 J	129877.74	129877.89	129878.06	0.0516	0.0309
Earth	-4357-12-04 11:16 J	130366.76	130366.97	130367.18	0.0503	0.0211
Moon	-4357-12-04 14:38 J	130366.90	130367.11	130367.32	0.0503	0.0191 *
Mars	-4354-08-08 11:02 J	131343.78	131343.96	131344.15	0.0495	0.0365
Mercury	-4353-05-01 00:28 J	131610.37	131610.52	131610.68	0.0498	0.0260
Mercury	-4353-07-30 11:45 J	131700.93	131700.99	131701.05	0.0500	0.0471
Venus	-4351-01-21 23:31 J	132241.28	132241.48	132241.68	0.0513	0.0101
Mercury	-4347-01-01 06:57 J	133681.71	133681.79	133681.88	0.0528	0.0392
Mercury	-4347-03-31 12:28 J	133770.90	133771.02	133771.14	0.0527	0.0171
Venus	-4346-12-01 02:09 J	134380.47	134380.59	134380.72	0.0511	0.0400
Moon	-4345-12-08 18:57 J	134754.22	134754.29	134754.36	0.0502	0.0479
Mercury	-4341-02-17 21:21 J	135920.31	135920.39	135920.48	0.0498	0.0438
Mercury	-4341-05-18 08:09 J	136010.69	136010.84	136011.00	0.0499	0.0286
Venus	-4340-09-26 18:28 J	136507.08	136507.27	136507.46	0.0511	0.0178
Mars	-4336-05-18 14:24 J	137836.85	137837.10	137837.36	0.0531	0.0185
Mercury	-4335-01-17 17:02 J	138081.09	138081.21	138081.34	0.0527	0.0039
Venus	-4334-08-06 00:57 J	138646.34	138646.54	138646.73	0.0513	0.0132
Mercury	-4329-03-06 03:35 J	140320.47	140320.65	140320.84	0.0499	0.0088
Venus	-4328-06-01 12:43 J	140772.95	140773.03	140773.13	0.0510	0.0455
Mercury	-4324-11-05 21:50 J	142391.29	142391.41	142391.53	0.0527	0.0096
Mercury	-4323-02-03 03:07 J	142480.57	142480.63	142480.69	0.0526	0.0457
Venus	-4322-04-10 23:31 J	142912.29	142912.48	142912.68	0.0514	0.0140
Mars	-4318-05-13 13:26 J	144405.78	144406.06	144406.34	0.0496	0.0046

Mercury	-4318-12-24 00:43 J	144630.35	144630.53	144630.71	0.0499	0.0090
Venus	-4316-09-29 13:26 J	145275.89	145276.06	145276.24	0.0514	0.0267
Earth	-4315-05-31 00:00 J	145519.33	145519.50	145519.67	0.0521	0.0360
Moon	-4315-05-31 01:40 J	145519.41	145519.57	145519.73	0.0521	0.0371 *
Mercury	-4312-08-25 01:55 J	146701.47	146701.58	146701.70	0.0528	0.0238
Mercury	-4312-11-22 07:26 J	146790.71	146790.81	146790.91	0.0526	0.0319
Venus	-4311-12-14 19:40 J	147178.21	147178.32	147178.44	0.0516	0.0422
Mercury	-4306-10-11 22:04 J	148940.27	148940.42	148940.58	0.0499	0.0265
Mercury	-4305-01-10 09:07 J	149030.82	149030.88	149030.95	0.0500	0.0468
Venus	-4304-06-04 08:52 J	149541.67	149541.87	149542.08	0.0513	0.0013
Earth	-4303-06-05 02:24 J	149907.36	149907.60	149907.84	0.0522	0.0011
Moon	-4303-06-05 03:21 J	149907.39	149907.64	149907.89	0.0522	0.0020 *
Mars	-4300-02-22 03:21 J	150900.44	150900.64	150900.86	0.0530	0.0339
Mercury	-4300-06-13 06:00 J	151011.67	151011.75	151011.84	0.0528	0.0381
Mercury	-4300-09-10 11:31 J	151100.87	151100.98	151101.10	0.0526	0.0181
Venus	-4298-04-13 13:11 J	151680.88	151681.05	151681.21	0.0512	0.0291
Moon	-4298-11-25 17:02 J	151907.08	151907.21	151907.35	0.0506	0.0407
Earth	-4298-11-25 20:38 J	151907.25	151907.36	151907.49	0.0506	0.0433 *
Mercury	-4294-07-30 19:26 J	153250.23	153250.31	153250.41	0.0498	0.0436
Mercury	-4294-10-29 06:14 J	153340.61	153340.76	153340.92	0.0500	0.0289
Venus	-4292-02-07 04:33 J	153807.52	153807.69	153807.86	0.0510	0.0288
Moon	-4291-06-09 23:31 J	154295.31	154295.48	154295.66	0.0523	0.0344
Earth	-4291-06-10 02:09 J	154295.41	154295.59	154295.78	0.0523	0.0333 *
Mercury	-4288-06-29 15:35 J	155411.03	155411.15	155411.28	0.0527	0.0035
Venus	-4287-12-17 10:48 J	155946.75	155946.95	155947.15	0.0514	0.0019
Earth	-4286-11-30 07:26 J	156294.59	156294.81	156295.03	0.0505	0.0134
Moon	-4286-11-30 10:48 J	156294.73	156294.95	156295.17	0.0505	0.0120 *
Mars	-4282-02-16 02:09 J	157468.52	157468.59	157468.68	0.0497	0.0473
Mercury	-4282-08-17 03:07 J	157650.45	157650.63	157650.81	0.0499	0.0106
Venus	-4280-06-07 04:04 J	158310.57	158310.67	158310.79	0.0515	0.0435

Mercury	-4276-04-17 20:09 J	159721.22	159721.34	159721.47	0.0527	0.0100
Mercury	-4276-07-16 01:26 J	159810.50	159810.56	159810.62	0.0526	0.0453
Venus	-4275-08-22 08:52 J	160212.70	160212.87	160213.05	0.0515	0.0256
Moon	-4274-12-04 15:21 J	160681.91	160682.14	160682.36	0.0503	0.0134
Earth	-4274-12-04 17:45 J	160682.02	160682.24	160682.46	0.0503	0.0161 *
Mercury	-4270-06-04 22:33 J	161960.26	161960.44	161960.63	0.0499	0.0092
Venus	-4268-02-09 21:21 J	162576.19	162576.39	162576.59	0.0514	0.0149
Mercury	-4264-02-04 00:57 J	164031.43	164031.54	164031.65	0.0528	0.0231
Mercury	-4264-05-04 06:14 J	164120.67	164120.76	164120.86	0.0526	0.0326
Venus	-4263-12-20 02:52 J	164715.53	164715.62	164715.71	0.0510	0.0456
Earth	-4262-12-09 04:33 J	165069.60	165069.69	165069.79	0.0502	0.0457
Moon	-4262-12-09 05:31 J	165069.63	165069.73	165069.85	0.0502	0.0438 *
Mercury	-4258-03-23 19:55 J	166270.17	166270.33	166270.49	0.0499	0.0266
Mercury	-4258-06-22 06:57 J	166360.73	166360.79	166360.86	0.0500	0.0465
Venus	-4257-10-15 17:31 J	166842.03	166842.23	166842.43	0.0512	0.0128
Mercury	-4253-11-23 05:16 J	168341.63	168341.72	168341.81	0.0528	0.0372
Mercury	-4252-02-20 10:48 J	168430.83	168430.95	168431.07	0.0526	0.0189
Venus	-4251-08-25 00:57 J	168981.35	168981.54	168981.73	0.0512	0.0186
Mercury	-4246-01-09 17:31 J	170580.14	170580.23	170580.32	0.0498	0.0437
Mercury	-4246-04-10 04:04 J	170670.53	170670.67	170670.83	0.0500	0.0288
Venus	-4245-06-20 14:09 J	171107.97	171108.09	171108.23	0.0510	0.0399
Mercury	-4241-09-11 09:21 J	172651.86	172651.89	172651.91	0.0528	0.0515
Mercury	-4241-12-09 14:52 J	172741.00	172741.12	172741.25	0.0527	0.0053
Venus	-4239-04-29 22:33 J	173247.24	173247.44	173247.64	0.0514	0.0090
Mercury	-4234-01-27 01:40 J	174980.38	174980.57	174980.75	0.0499	0.0113
Venus	-4233-10-18 14:24 J	175610.94	175611.10	175611.26	0.0514	0.0325
Earth	-4232-05-30 04:04 J	175834.53	175834.67	175834.82	0.0520	0.0411
Moon	-4232-05-30 04:19 J	175834.54	175834.68	175834.84	0.0520	0.0411 *
Mercury	-4229-09-27 18:57 J	177051.17	177051.29	177051.42	0.0527	0.0096
Mercury	-4229-12-26 00:14 J	177140.45	177140.51	177140.57	0.0526	0.0456

Venus	-4227-01-02 18:57 J	177513.15	177513.29	177513.43	0.0516	0.0371
Mercury	-4223-11-14 22:33 J	179290.25	179290.44	179290.62	0.0499	0.0068
Venus	-4221-06-23 09:07 J	179876.67	179876.88	179877.08	0.0512	0.0044
Moon	-4220-06-04 03:07 J	180222.40	180222.63	180222.86	0.0522	0.0034
Earth	-4220-06-04 05:16 J	180222.49	180222.72	180222.96	0.0522	0.0067 *
Mercury	-4217-07-16 23:31 J	181361.37	181361.48	181361.59	0.0528	0.0231
Mercury	-4217-10-14 04:48 J	181450.61	181450.70	181450.80	0.0526	0.0327
Venus	-4215-05-02 13:55 J	182015.94	182016.08	182016.23	0.0511	0.0350
Earth	-4215-11-25 05:45 J	182222.67	182222.74	182222.83	0.0506	0.0475
Moon	-4215-11-25 09:07 J	182222.79	182222.88	182223.00	0.0506	0.0445 *
Mercury	-4211-09-02 18:14 J	183600.10	183600.26	183600.41	0.0498	0.0263
Mercury	-4211-12-02 05:16 J	183690.65	183690.72	183690.78	0.0500	0.0467
Venus	-4209-02-27 02:38 J	184142.43	184142.61	184142.79	0.0511	0.0242
Earth	-4208-06-09 05:45 J	184610.55	184610.74	184610.95	0.0524	0.0276
Moon	-4208-06-09 09:35 J	184610.70	184610.90	184611.10	0.0524	0.0282 *
Mercury	-4205-05-05 04:04 J	185671.58	185671.67	185671.77	0.0528	0.0364
Mercury	-4205-08-02 09:50 J	185760.79	185760.91	185761.03	0.0527	0.0199
Venus	-4203-01-05 13:40 J	186281.87	186282.07	186282.27	0.0513	0.0083
Moon	-4203-11-29 16:04 J	186609.95	186610.17	186610.39	0.0504	0.0164
Earth	-4203-11-29 18:28 J	186610.05	186610.27	186610.48	0.0504	0.0170 *
Mars	-4200-11-01 06:14 J	187677.52	187677.76	187678.00	0.0495	0.0260
Mercury	-4199-06-21 15:35 J	187910.06	187910.15	187910.24	0.0498	0.0435
Mercury	-4199-09-20 02:09 J	188000.44	188000.59	188000.75	0.0500	0.0290
Venus	-4197-06-26 04:48 J	188645.64	188645.70	188645.75	0.0516	0.0494
Mercury	-4193-02-22 08:24 J	189981.82	189981.85	189981.89	0.0528	0.0503
Mercury	-4193-05-21 14:09 J	190070.97	190071.09	190071.22	0.0527	0.0063
Venus	-4192-09-10 11:02 J	190547.77	190547.96	190548.14	0.0515	0.0197
Earth	-4191-12-04 03:50 J	190997.44	190997.66	190997.88	0.0503	0.0123
Moon	-4191-12-04 04:48 J	190997.48	190997.70	190997.92	0.0503	0.0094 *
Mercury	-4187-07-08 23:45 J	192310.31	192310.49	192310.67	0.0500	0.0115

Venus	-4185-03-01 00:28 J	192911.34	192911.52	192911.71	0.0514	0.0214
Mars	-4182-08-13 09:35 J	194171.63	194171.90	194172.17	0.0530	0.0028
Mercury	-4181-03-09 18:28 J	194381.15	194381.27	194381.40	0.0527	0.0078
Mercury	-4181-06-06 23:45 J	194470.44	194470.49	194470.54	0.0525	0.0473
Venus	-4180-05-16 07:26 J	194813.74	194813.81	194813.89	0.0517	0.0478
Earth	-4179-12-08 13:40 J	195384.95	195385.07	195385.20	0.0502	0.0417
Moon	-4179-12-08 14:09 J	195384.95	195385.09	195385.24	0.0502	0.0399 *
Mercury	-4175-04-26 21:07 J	196620.20	196620.38	196620.57	0.0499	0.0060
Venus	-4174-11-04 19:55 J	197177.13	197177.33	197177.54	0.0512	0.0067
Mercury	-4170-12-27 22:33 J	198691.32	198691.44	198691.55	0.0528	0.0224
Mercury	-4169-03-26 03:50 J	198780.57	198780.66	198780.76	0.0526	0.0333
Venus	-4168-09-13 01:40 J	199316.39	199316.57	199316.75	0.0512	0.0243
Mars	-4164-08-07 01:11 J	200740.30	200740.55	200740.81	0.0496	0.0181
Mercury	-4163-02-12 18:14 J	200930.10	200930.26	200930.43	0.0499	0.0236
Mercury	-4163-05-14 05:31 J	201020.71	201020.73	201020.75	0.0500	0.0496
Venus	-4162-07-10 15:50 J	201443.01	201443.16	201443.31	0.0510	0.0342
Mercury	-4158-10-16 02:52 J	203001.53	203001.62	203001.72	0.0528	0.0360
Mercury	-4157-01-13 08:38 J	203090.74	203090.86	203090.97	0.0527	0.0203
Venus	-4156-05-19 00:43 J	203582.33	203582.53	203582.73	0.0514	0.0027
Mercury	-4152-12-01 14:09 J	205240.00	205240.09	205240.19	0.0498	0.0427
Mercury	-4151-03-02 00:43 J	205330.39	205330.53	205330.69	0.0500	0.0297
Venus	-4150-11-07 13:40 J	205945.93	205946.07	205946.21	0.0515	0.0379
Moon	-4149-05-29 06:00 J	206149.66	206149.75	206149.86	0.0521	0.0465
Earth	-4149-05-29 07:55 J	206149.73	206149.83	206149.94	0.0521	0.0466 *
Mars	-4146-05-20 00:00 J	207235.43	207235.50	207235.59	0.0530	0.0504
Mercury	-4146-08-04 07:40 J	207311.78	207311.82	207311.86	0.0529	0.0492
Mercury	-4146-11-01 13:26 J	207400.94	207401.06	207401.19	0.0527	0.0074
Venus	-4144-01-21 23:45 J	207848.32	207848.49	207848.65	0.0516	0.0302
Mercury	-4140-12-18 22:04 J	209640.24	209640.42	209640.60	0.0499	0.0120
Venus	-4138-07-13 09:35 J	210211.70	210211.90	210212.10	0.0513	0.0100

Earth	-4137-06-03 12:14 J	210537.78	210538.01	210538.24	0.0522	0.0114
Moon	-4137-06-03 15:35 J	210537.91	210538.15	210538.39	0.0522	0.0080 *
Mercury	-4134-08-20 18:00 J	211711.12	211711.25	211711.37	0.0527	0.0064
Mercury	-4134-11-17 23:02 J	211800.42	211800.46	211800.51	0.0525	0.0489
Venus	-4132-05-21 16:48 J	212351.08	212351.20	212351.32	0.0511	0.0413
Moon	-4132-11-24 15:50 J	212538.09	212538.16	212538.25	0.0506	0.0473
Earth	-4132-11-24 18:14 J	212538.24	212538.26	212538.28	0.0506	0.0504 *
Mercury	-4128-10-06 19:40 J	213950.13	213950.32	213950.50	0.0499	0.0053
Venus	-4126-03-18 06:28 J	214477.58	214477.77	214477.97	0.0511	0.0177
Moon	-4125-06-08 13:11 J	214925.84	214926.05	214926.25	0.0523	0.0241
Earth	-4125-06-08 16:48 J	214926.00	214926.20	214926.42	0.0523	0.0242 *
Mercury	-4122-06-08 22:04 J	216021.31	216021.42	216021.54	0.0528	0.0204
Mercury	-4122-09-06 03:35 J	216110.56	216110.65	216110.74	0.0526	0.0353
Venus	-4120-01-24 14:52 J	216616.93	216617.12	216617.32	0.0513	0.0142
Earth	-4120-11-29 04:48 J	216925.49	216925.70	216925.91	0.0505	0.0206
Moon	-4120-11-29 05:31 J	216925.53	216925.73	216925.93	0.0505	0.0207 *
Mercury	-4116-07-25 17:16 J	218260.06	218260.22	218260.39	0.0499	0.0224
Venus	-4115-11-21 03:21 J	218743.55	218743.64	218743.74	0.0509	0.0447
Mercury	-4110-03-28 02:09 J	220331.49	220331.59	220331.68	0.0528	0.0349
Mercury	-4110-06-25 07:40 J	220420.71	220420.82	220420.94	0.0526	0.0212
Venus	-4109-09-29 12:14 J	220882.82	220883.01	220883.21	0.0515	0.0138
Earth	-4108-12-03 15:21 J	221312.91	221313.14	221313.37	0.0504	0.0089
Moon	-4108-12-03 15:50 J	221312.93	221313.16	221313.40	0.0504	0.0059 *
Mercury	-4104-05-13 14:38 J	222570.00	222570.11	222570.22	0.0498	0.0398
Mercury	-4104-08-12 01:11 J	222660.42	222660.55	222660.70	0.0500	0.0328
Venus	-4102-03-21 02:38 J	223246.44	223246.61	223246.79	0.0514	0.0277
Mercury	-4098-01-14 06:28 J	224641.73	224641.77	224641.82	0.0529	0.0486
Mercury	-4098-04-13 12:14 J	224730.89	224731.01	224731.14	0.0527	0.0082
Venus	-4097-06-04 10:33 J	225148.82	225148.94	225149.06	0.0517	0.0414
Moon	-4096-12-08 00:28 J	225700.38	225700.52	225700.68	0.0502	0.0375

Earth	-4096-12-08 02:52 J	225700.47	225700.62	225700.77	0.0502	0.0383 *
Mercury	-4092-05-30 20:52 J	226970.19	226970.37	226970.55	0.0499	0.0129
Venus	-4091-11-23 19:26 J	227512.10	227512.31	227512.51	0.0512	0.0018
Mercury	-4086-01-30 17:02 J	229041.09	229041.21	229041.34	0.0528	0.0053
Mercury	-4086-04-29 22:19 J	229130.40	229130.43	229130.47	0.0526	0.0502
Venus	-4085-10-02 06:43 J	229651.62	229651.78	229651.94	0.0512	0.0315
Mercury	-4080-03-18 18:14 J	231280.07	231280.26	231280.45	0.0499	0.0046
Venus	-4079-07-29 16:04 J	231778.01	231778.17	231778.35	0.0511	0.0290
Mercury	-4075-11-18 21:35 J	233351.28	233351.40	233351.52	0.0528	0.0188
Mercury	-4074-02-16 02:52 J	233440.54	233440.62	233440.71	0.0526	0.0369
Venus	-4073-06-07 04:33 J	233917.49	233917.69	233917.89	0.0513	0.0039
Mercury	-4068-01-04 15:50 J	235589.99	235590.16	235590.33	0.0499	0.0217
Venus	-4067-11-26 18:14 J	236281.17	236281.26	236281.37	0.0515	0.0451
Earth	-4066-05-29 19:55 J	236465.27	236465.33	236465.41	0.0520	0.0494
Moon	-4066-05-29 23:31 J	236465.39	236465.48	236465.57	0.0520	0.0482 *
Mars	-4063-02-01 01:55 J	237443.39	237443.58	237443.77	0.0531	0.0378
Mercury	-4063-09-07 01:55 J	237661.48	237661.58	237661.68	0.0528	0.0328
Mercury	-4063-12-05 07:26 J	237750.70	237750.81	237750.92	0.0526	0.0233
Venus	-4061-02-11 01:55 J	238183.40	238183.58	238183.76	0.0515	0.0242
Mercury	-4057-10-23 13:26 J	239899.95	239900.06	239900.18	0.0498	0.0386
Mercury	-4056-01-22 00:14 J	239990.38	239990.51	239990.65	0.0500	0.0340
Venus	-4055-08-01 13:40 J	240546.88	240547.07	240547.27	0.0513	0.0168
Moon	-4054-06-03 18:14 J	240853.04	240853.26	240853.50	0.0521	0.0120
Earth	-4054-06-03 22:19 J	240853.20	240853.43	240853.65	0.0521	0.0151 *
Mercury	-4051-06-26 05:45 J	241971.69	241971.74	241971.79	0.0528	0.0474
Mercury	-4051-09-23 11:31 J	242060.85	242060.98	242061.10	0.0527	0.0090
Venus	-4049-06-09 18:28 J	242686.20	242686.27	242686.34	0.0511	0.0474
Mars	-4045-01-27 03:35 J	244012.37	244012.65	244012.92	0.0495	0.0112
Mercury	-4045-11-09 21:21 J	244300.21	244300.39	244300.57	0.0499	0.0161
Venus	-4043-04-06 09:21 J	244812.69	244812.89	244813.09	0.0511	0.0114



Earth	-4042-06-09 00:00 J	245241.28	245241.50	245241.72	0.0523	0.0196
Moon	-4042-06-09 03:21 J	245241.42	245241.64	245241.85	0.0523	0.0186 *
Mercury	-4039-07-12 16:04 J	246371.04	246371.17	246371.30	0.0527	0.0044
Mercury	-4039-10-09 21:21 J	246460.36	246460.39	246460.42	0.0526	0.0508
Venus	-4037-02-13 18:14 J	246952.08	246952.26	246952.45	0.0513	0.0209
Earth	-4037-11-28 18:28 J	247241.07	247241.27	247241.48	0.0505	0.0236
Moon	-4037-11-28 19:26 J	247241.10	247241.31	247241.52	0.0505	0.0242 *
Mercury	-4033-08-28 17:02 J	248610.03	248610.21	248610.40	0.0499	0.0037
Venus	-4032-12-10 02:38 J	249078.49	249078.61	249078.74	0.0510	0.0399
Moon	-4030-06-13 21:35 J	249629.34	249629.40	249629.48	0.0525	0.0502
Mars	-4028-11-07 11:02 J	250506.70	250506.96	250507.22	0.0531	0.0143
Mercury	-4027-04-30 20:52 J	250681.25	250681.37	250681.49	0.0528	0.0178
Mercury	-4027-07-29 02:09 J	250770.51	250770.59	250770.68	0.0526	0.0381
Venus	-4026-10-19 18:00 J	251218.05	251218.25	251218.45	0.0515	0.0065
Moon	-4025-12-03 05:02 J	251628.48	251628.71	251628.93	0.0503	0.0038
Earth	-4025-12-03 07:11 J	251628.57	251628.80	251629.03	0.0503	0.0066 *
Mercury	-4021-06-16 14:24 J	252919.94	252920.10	252920.27	0.0498	0.0209
Venus	-4019-04-09 03:21 J	253581.49	253581.64	253581.80	0.0515	0.0334
Mercury	-4015-02-17 01:11 J	254991.45	254991.55	254991.65	0.0528	0.0314
Mercury	-4015-05-17 06:43 J	255080.67	255080.78	255080.89	0.0527	0.0248
Venus	-4014-06-24 14:52 J	255483.97	255484.12	255484.27	0.0516	0.0348
Earth	-4013-12-07 16:04 J	256016.01	256016.17	256016.34	0.0502	0.0355
Moon	-4013-12-07 19:40 J	256016.16	256016.32	256016.49	0.0502	0.0360 *
Mars	-4010-11-01 13:40 J	257074.86	257075.07	257075.29	0.0496	0.0310
Mercury	-4009-04-04 12:14 J	257229.89	257230.01	257230.13	0.0498	0.0379
Mercury	-4009-07-03 22:48 J	257320.32	257320.45	257320.59	0.0500	0.0346
Venus	-4008-12-13 00:00 J	257847.29	257847.50	257847.70	0.0513	0.0055
Mercury	-4004-12-06 05:31 J	259301.67	259301.73	259301.79	0.0529	0.0454
Mercury	-4003-03-05 11:16 J	259390.84	259390.97	259391.09	0.0527	0.0111
Venus	-4002-10-22 08:38 J	259986.72	259986.86	259986.99	0.0511	0.0375

# 4TH MILLENNIUM BCE

This is a list of transits visible from Jupiter in the 4th millennium BCE.

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-3997-04-21 20:09 J		261630.17	261630.34	261630.52	0.0499	0.0173	
Venus	-3996-08-17 20:38 J		262113.17	262113.36	262113.54	0.0511	0.0223	
Mercury	-3992-12-22 15:21 J		263701.01	263701.14	263701.26	0.0527	0.0038	
Mercury	-3991-03-21 20:23 J		263790.34	263790.35	263790.37	0.0525	0.0518	
Venus	-3990-06-27 06:00 J		264252.56	264252.75	264252.95	0.0513	0.0099	
Mercury	-3985-02-08 17:31 J		265940.04	265940.23	265940.41	0.0499	0.0012	
Venus	-3984-04-22 17:02 J		266379.17	266379.21	266379.25	0.0509	0.0496	
Venus	-3984-12-15 20:52 J		266616.36	266616.37	266616.39	0.0515	0.0514	
Mercury	-3980-10-10 19:40 J		268011.20	268011.32	268011.44	0.0528	0.0170	
Mercury	-3979-01-08 01:11 J		268100.46	268100.55	268100.63	0.0526	0.0387	
Venus	-3978-03-02 05:02 J		268518.52	268518.71	268518.90	0.0515	0.0177	
Mercury	-3974-11-27 13:26 J		270249.89	270250.06	270250.23	0.0498	0.0198	
Venus	-3972-08-20 12:43 J		270881.85	270882.03	270882.22	0.0514	0.0219	
Earth	-3971-06-03 00:43 J		271168.32	271168.53	271168.75	0.0522	0.0208	
Moon	-3971-06-03 04:19 J		271168.46	271168.68	271168.90	0.0522	0.0179	*
Mercury	-3968-07-30 00:14 J		272321.41	272321.51	272321.61	0.0529	0.0306	
Mercury	-3968-10-27 05:45 J		272410.63	272410.74	272410.85	0.0527	0.0257	
Venus	-3967-11-05 03:07 J		272784.54	272784.63	272784.73	0.0517	0.0458	
Mercury	-3962-09-15 10:48 J		274559.83	274559.95	274560.07	0.0498	0.0371	

Mercury	-3962-12-14 21:21 J	274650.26	274650.39	274650.52	0.0499	0.0353
Venus	-3960-04-25 09:07 J	275147.67	275147.88	275148.08	0.0512	0.0063
Moon	-3959-06-08 03:07 J	275556.40	275556.63	275556.87	0.0523	0.0126
Earth	-3959-06-08 05:16 J	275556.49	275556.72	275556.94	0.0523	0.0145 *
Mercury	-3956-05-18 04:33 J	276631.63	276631.69	276631.76	0.0529	0.0444
Mercury	-3956-08-15 10:19 J	276720.81	276720.93	276721.06	0.0527	0.0123
Venus	-3954-03-04 21:50 J	277287.24	277287.41	277287.58	0.0512	0.0272
Moon	-3954-11-29 05:02 J	277556.53	277556.71	277556.90	0.0505	0.0277
Earth	-3954-11-29 07:40 J	277556.62	277556.82	277557.02	0.0505	0.0262 *
Mercury	-3950-10-02 18:43 J	278960.10	278960.28	278960.45	0.0499	0.0177
Venus	-3949-12-29 06:28 J	279413.62	279413.77	279413.93	0.0510	0.0336
Moon	-3947-06-13 10:19 J	279944.84	279944.93	279945.03	0.0525	0.0475
Earth	-3947-06-13 10:33 J	279944.87	279944.94	279945.01	0.0525	0.0501 *
Mercury	-3944-06-03 14:52 J	281030.99	281031.12	281031.24	0.0527	0.0024
Venus	-3943-11-07 19:40 J	281553.11	281553.32	281553.52	0.0514	0.0013
Earth	-3942-12-03 17:31 J	281944.00	281944.23	281944.46	0.0504	0.0032
Moon	-3942-12-03 21:07 J	281944.15	281944.38	281944.62	0.0504	0.0009 *
Mercury	-3938-07-21 16:04 J	283269.99	283270.17	283270.36	0.0499	0.0005
Venus	-3936-04-28 07:11 J	283916.68	283916.80	283916.93	0.0515	0.0402
Mercury	-3932-03-22 18:43 J	285341.16	285341.28	285341.40	0.0528	0.0161
Mercury	-3932-06-20 00:00 J	285430.42	285430.50	285430.59	0.0526	0.0395
Venus	-3931-07-13 15:50 J	285818.99	285819.16	285819.33	0.0516	0.0292
Moon	-3930-12-07 23:16 J	286331.30	286331.47	286331.64	0.0503	0.0329
Earth	-3930-12-08 03:07 J	286331.45	286331.63	286331.81	0.0503	0.0319 *
Mars	-3927-07-18 02:09 J	287284.44	287284.59	287284.74	0.0495	0.0414
Mercury	-3926-05-09 13:11 J	287579.88	287580.05	287580.23	0.0498	0.0174
Venus	-3924-01-01 01:55 J	288182.38	288182.58	288182.78	0.0513	0.0115
Mercury	-3920-01-08 23:02 J	289651.36	289651.46	289651.57	0.0528	0.0300
Mercury	-3920-04-08 04:33 J	289740.59	289740.69	289740.80	0.0527	0.0263
Venus	-3919-11-10 10:33 J	290321.85	290321.94	290322.05	0.0511	0.0439

Mercury	-3914-02-25 09:36 J	291889.77	291889.90	291890.03	0.0498	0.0362
Mercury	-3914-05-26 19:55 J	291980.21	291980.33	291980.47	0.0499	0.0361
Venus	-3913-09-05 18:57 J	292448.10	292448.29	292448.48	0.0511	0.0177
Mars	-3909-04-27 19:11 J	293778.06	293778.30	293778.54	0.0532	0.0230
Mercury	-3909-10-28 03:21 J	293961.57	293961.64	293961.71	0.0529	0.0440
Mercury	-3908-01-25 09:21 J	294050.76	294050.89	294051.01	0.0528	0.0128
Venus	-3907-07-16 10:19 J	294587.74	294587.93	294588.12	0.0513	0.0167
Mercury	-3902-03-14 17:02 J	296290.04	296290.21	296290.39	0.0499	0.0182
Venus	-3901-05-11 15:50 J	296714.07	296714.16	296714.25	0.0509	0.0451
Mercury	-3897-11-13 13:40 J	298360.95	298361.07	298361.20	0.0528	0.0015
Venus	-3895-03-21 07:40 J	298853.62	298853.82	298854.02	0.0515	0.0116
Mars	-3891-04-22 13:26 J	300346.78	300347.06	300347.34	0.0495	0.0013
Mercury	-3891-12-31 14:23 J	300599.91	300600.10	300600.28	0.0499	0.0007
Venus	-3889-09-08 16:04 J	301217.00	301217.17	301217.34	0.0514	0.0283
Moon	-3888-06-02 07:55 J	301483.61	301483.83	301484.06	0.0521	0.0219
Earth	-3888-06-02 10:33 J	301483.73	301483.94	301484.15	0.0521	0.0242 *
Mercury	-3885-09-01 18:00 J	302671.13	302671.25	302671.38	0.0528	0.0149
Mercury	-3885-11-29 23:31 J	302760.40	302760.48	302760.56	0.0526	0.0409
Venus	-3884-11-24 04:04 J	303119.55	303119.67	303119.80	0.0517	0.0403
Mercury	-3879-10-19 11:45 J	304909.82	304909.99	304910.16	0.0498	0.0169
Venus	-3877-05-14 12:00 J	305482.80	305483.00	305483.21	0.0512	0.0004
Earth	-3876-06-07 12:57 J	305871.81	305872.04	305872.28	0.0523	0.0103
Moon	-3876-06-07 13:26 J	305871.84	305872.06	305872.29	0.0523	0.0080 *
Mars	-3873-02-02 03:36 J	306841.44	306841.65	306841.88	0.0530	0.0298
Mercury	-3873-06-20 21:50 J	306981.31	306981.41	306981.52	0.0528	0.0296
Mercury	-3873-09-18 03:36 J	307070.54	307070.65	307070.76	0.0527	0.0266
Venus	-3871-03-23 21:36 J	307622.25	307622.40	307622.56	0.0512	0.0327
Earth	-3871-11-28 16:04 J	307871.99	307872.17	307872.35	0.0506	0.0304
Moon	-3871-11-28 19:40 J	307872.14	307872.32	307872.50	0.0506	0.0325 *
Mercury	-3867-08-07 08:52 J	309219.74	309219.87	309220.01	0.0498	0.0344

Mercury	-3867-11-05 19:40 J	309310.20	309310.32	309310.44	0.0500	0.0381
Venus	-3865-01-18 07:55 J	309748.65	309748.83	309749.00	0.0510	0.0280
Earth	-3864-06-12 14:23 J	310259.98	310260.10	310260.22	0.0524	0.0446
Moon	-3864-06-12 15:50 J	310260.02	310260.16	310260.31	0.0524	0.0421 *
Mercury	-3861-04-09 02:09 J	311291.52	311291.59	311291.66	0.0529	0.0436
Mercury	-3861-07-07 07:55 J	311380.71	311380.83	311380.96	0.0527	0.0130
Venus	-3860-11-26 20:23 J	311888.15	311888.35	311888.55	0.0514	0.0051
Moon	-3859-12-03 00:43 J	312259.30	312259.53	312259.76	0.0504	0.0031
Earth	-3859-12-03 04:33 J	312259.46	312259.69	312259.92	0.0504	0.0006 *
Mars	-3855-01-25 23:16 J	313409.35	313409.47	313409.61	0.0495	0.0435
Mercury	-3855-08-24 15:36 J	313619.98	313620.15	313620.32	0.0499	0.0187
Venus	-3853-05-17 04:33 J	314251.59	314251.69	314251.79	0.0515	0.0446
Mercury	-3849-04-25 12:14 J	315690.89	315691.01	315691.14	0.0528	0.0022
Venus	-3848-08-01 18:43 J	316154.10	316154.28	316154.46	0.0516	0.0231
Earth	-3847-12-07 15:50 J	316646.98	316647.16	316647.35	0.0503	0.0290
Moon	-3847-12-07 18:57 J	316647.12	316647.29	316647.47	0.0503	0.0308 *
Mercury	-3843-06-12 12:28 J	317929.84	317930.02	317930.21	0.0498	0.0015
Venus	-3841-01-20 23:45 J	318517.30	318517.49	318517.69	0.0513	0.0161
Mercury	-3837-02-12 16:48 J	320001.08	320001.20	320001.32	0.0528	0.0146
Mercury	-3837-05-11 22:19 J	320090.35	320090.43	320090.50	0.0527	0.0412
Venus	-3836-11-29 11:45 J	320656.94	320656.99	320657.04	0.0511	0.0493
Mercury	-3831-03-31 09:36 J	322239.73	322239.90	322240.08	0.0498	0.0170
Venus	-3830-09-25 20:38 J	322783.16	322783.36	322783.56	0.0511	0.0120
Mercury	-3826-12-01 21:07 J	324311.27	324311.38	324311.48	0.0529	0.0286
Mercury	-3825-02-29 02:38 J	324400.50	324400.61	324400.72	0.0527	0.0276
Venus	-3824-08-04 09:50 J	324922.73	324922.91	324923.09	0.0513	0.0218
Mercury	-3819-01-17 06:57 J	326549.66	326549.79	326549.93	0.0498	0.0344
Mercury	-3819-04-17 17:31 J	326640.12	326640.23	326640.35	0.0500	0.0381
Venus	-3818-05-31 17:16 J	327049.10	327049.22	327049.35	0.0509	0.0396
Mercury	-3814-09-20 00:43 J	328621.46	328621.53	328621.61	0.0529	0.0435

Mercury	-3814-12-18 06:43 J	328710.65	328710.78	328710.90	0.0527	0.0132
Venus	-3812-04-09 06:14 J	329188.56	329188.76	329188.96	0.0515	0.0068
Mercury	-3807-02-03 14:23 J	330949.93	330950.10	330950.28	0.0499	0.0200
Venus	-3806-09-28 16:04 J	331552.02	331552.17	331552.32	0.0514	0.0337
Earth	-3805-06-01 12:43 J	331798.84	331799.03	331799.23	0.0521	0.0297
Moon	-3805-06-01 13:40 J	331798.88	331799.07	331799.27	0.0521	0.0278 *
Mercury	-3802-10-06 10:48 J	333020.83	333020.95	333021.08	0.0528	0.0020
Venus	-3801-12-13 03:21 J	333454.49	333454.64	333454.79	0.0517	0.0353
Mercury	-3796-11-22 10:48 J	335259.76	335259.95	335260.13	0.0498	0.0011
Venus	-3794-06-03 08:23 J	335817.64	335817.85	335818.05	0.0512	0.0041
Earth	-3793-06-06 09:07 J	336186.64	336186.88	336187.11	0.0522	0.0029
Moon	-3793-06-06 09:50 J	336186.66	336186.91	336187.15	0.0522	0.0006 *
Mercury	-3790-07-25 15:07 J	337331.01	337331.13	337331.25	0.0529	0.0152
Mercury	-3790-10-22 20:38 J	337420.28	337420.36	337420.44	0.0527	0.0408
Venus	-3788-04-11 22:48 J	337957.32	337957.45	337957.58	0.0512	0.0384
Moon	-3788-11-27 22:48 J	338187.29	338187.45	338187.61	0.0506	0.0366
Earth	-3788-11-28 02:23 J	338187.44	338187.60	338187.78	0.0506	0.0338 *
Mercury	-3784-09-10 07:40 J	339569.65	339569.82	339570.00	0.0498	0.0169
Venus	-3782-02-06 04:19 J	340083.50	340083.68	340083.86	0.0510	0.0242
Moon	-3781-06-11 09:07 J	340574.72	340574.88	340575.05	0.0524	0.0354
Earth	-3781-06-11 11:45 J	340574.83	340574.99	340575.16	0.0524	0.0375 *
Mercury	-3778-05-13 19:26 J	341641.20	341641.31	341641.41	0.0529	0.0291
Mercury	-3778-08-11 00:57 J	341730.44	341730.54	341730.65	0.0527	0.0273
Venus	-3777-12-15 19:55 J	342223.14	342223.33	342223.53	0.0514	0.0103
Earth	-3776-12-02 11:16 J	342574.74	342574.97	342575.20	0.0504	0.0049
Moon	-3776-12-02 14:23 J	342574.87	342575.10	342575.32	0.0504	0.0069 *
Mars	-3773-10-11 00:28 J	343618.30	343618.52	343618.74	0.0494	0.0308
Mercury	-3772-06-29 04:33 J	343879.56	343879.69	343879.83	0.0498	0.0348
Mercury	-3772-09-27 15:07 J	343970.01	343970.13	343970.25	0.0499	0.0375
Venus	-3770-06-06 04:48 J	344586.67	344586.70	344586.75	0.0515	0.0502

Mercury	-3766-03-01 23:31 J	345951.41	345951.48	345951.56	0.0529	0.0431
Mercury	-3766-05-30 05:31 J	346040.61	346040.73	346040.85	0.0527	0.0136
Venus	-3765-08-20 17:02 J	346489.02	346489.21	346489.40	0.0516	0.0184
Moon	-3764-12-06 18:00 J	346962.05	346962.25	346962.46	0.0503	0.0254
Earth	-3764-12-06 20:23 J	346962.15	346962.35	346962.55	0.0503	0.0238 *
Mercury	-3760-07-16 12:14 J	348279.83	348280.01	348280.18	0.0499	0.0195
Venus	-3758-02-09 00:14 J	348852.32	348852.51	348852.70	0.0513	0.0216
Mars	-3755-07-22 21:36 J	350112.14	350112.40	350112.66	0.0531	0.0104
Mercury	-3754-03-18 09:21 J	350350.76	350350.89	350351.02	0.0528	0.0011
Venus	-3753-04-25 11:45 J	350754.92	350754.99	350755.07	0.0518	0.0477
Mercury	-3748-05-04 09:07 J	352589.69	352589.88	352590.07	0.0498	0.0015
Venus	-3747-10-14 19:11 J	353118.10	353118.30	353118.51	0.0511	0.0072
Mercury	-3742-01-04 13:26 J	354660.94	354661.06	354661.18	0.0528	0.0154
Mercury	-3742-04-03 18:57 J	354750.21	354750.29	354750.37	0.0527	0.0405
Venus	-3741-08-23 07:26 J	355257.64	355257.81	355257.99	0.0513	0.0265
Mars	-3737-07-16 12:14 J	356680.74	356681.01	356681.29	0.0495	0.0121
Mercury	-3736-02-20 05:31 J	356899.56	356899.73	356899.91	0.0497	0.0171
Venus	-3735-06-19 12:57 J	357383.90	357384.04	357384.19	0.0509	0.0360
Mercury	-3731-10-23 17:31 J	358971.12	358971.23	358971.33	0.0529	0.0301
Mercury	-3730-01-20 23:02 J	359060.36	359060.46	359060.57	0.0528	0.0265
Venus	-3729-04-28 05:16 J	359523.52	359523.72	359523.92	0.0515	0.0019
Mercury	-3725-12-09 02:23 J	361209.48	361209.60	361209.74	0.0497	0.0349
Mercury	-3724-03-09 12:57 J	361299.92	361300.04	361300.16	0.0499	0.0372
Venus	-3723-10-17 11:16 J	361886.83	361886.97	361887.11	0.0514	0.0374
Moon	-3722-06-01 07:55 J	362113.65	362113.83	362114.01	0.0520	0.0349
Earth	-3722-06-01 07:40 J	362113.66	362113.82	362113.99	0.0520	0.0370 *
Mars	-3719-04-27 22:48 J	363175.28	363175.45	363175.62	0.0531	0.0410
Mercury	-3719-08-11 21:36 J	363281.34	363281.40	363281.47	0.0530	0.0441
Mercury	-3719-11-09 03:36 J	363370.53	363370.65	363370.77	0.0528	0.0127
Venus	-3717-01-02 01:26 J	363789.40	363789.56	363789.72	0.0517	0.0308

Mercury	-3713-12-26 09:21 J	365609.72	365609.89	365610.06	0.0499	0.0185
Venus	-3711-06-22 06:57 J	366152.59	366152.79	366152.99	0.0512	0.0089
Moon	-3710-06-06 09:07 J	366501.66	366501.88	366502.11	0.0522	0.0053
Earth	-3710-06-06 11:16 J	366501.73	366501.97	366502.21	0.0522	0.0026 *
Mercury	-3707-08-28 07:55 J	367680.70	367680.83	367680.96	0.0528	0.0011
Venus	-3705-04-30 19:11 J	368292.20	368292.30	368292.42	0.0512	0.0426
Earth	-3705-11-27 04:33 J	368502.55	368502.69	368502.83	0.0506	0.0393
Moon	-3705-11-27 07:26 J	368502.70	368502.81	368502.94	0.0506	0.0424 *
Mercury	-3701-10-14 06:14 J	369919.58	369919.76	369919.95	0.0498	0.0011
Venus	-3699-02-25 03:07 J	370418.44	370418.63	370418.82	0.0510	0.0193
Earth	-3698-06-11 13:40 J	370889.88	370890.07	370890.26	0.0523	0.0315
Moon	-3698-06-11 17:16 J	370890.03	370890.22	370890.42	0.0523	0.0304 *
Mercury	-3695-06-16 11:45 J	371990.87	371990.99	371991.11	0.0528	0.0159
Mercury	-3695-09-13 17:16 J	372080.14	372080.22	372080.30	0.0526	0.0399
Venus	-3693-01-04 15:50 J	372557.97	372558.16	372558.35	0.0514	0.0142
Moon	-3693-12-01 10:48 J	372889.72	372889.95	372890.18	0.0505	0.0127
Earth	-3693-12-01 12:57 J	372889.82	372890.04	372890.27	0.0505	0.0108 *
Mercury	-3689-08-02 03:21 J	374229.47	374229.64	374229.81	0.0498	0.0173
Venus	-3688-10-30 23:16 J	374684.40	374684.47	374684.55	0.0508	0.0471
Mercury	-3683-04-04 15:50 J	376301.05	376301.16	376301.26	0.0529	0.0304
Mercury	-3683-07-02 21:21 J	376390.29	376390.39	376390.50	0.0527	0.0260
Venus	-3682-09-09 12:57 J	376823.85	376824.04	376824.24	0.0516	0.0144
Earth	-3681-12-06 00:00 J	377277.28	377277.50	377277.71	0.0504	0.0184
Moon	-3681-12-06 00:28 J	377277.32	377277.52	377277.72	0.0504	0.0205 *
Mercury	-3677-05-21 00:14 J	378539.38	378539.51	378539.64	0.0497	0.0353
Mercury	-3677-08-19 10:19 J	378629.81	378629.93	378630.06	0.0499	0.0367
Venus	-3675-02-27 18:43 J	379187.11	379187.28	379187.47	0.0512	0.0251
Mercury	-3671-01-21 19:26 J	380611.25	380611.31	380611.38	0.0530	0.0455
Mercury	-3671-04-21 01:26 J	380700.44	380700.56	380700.68	0.0528	0.0114
Venus	-3670-05-15 08:52 J	381089.77	381089.87	381089.98	0.0518	0.0436



Earth	-3669-12-10 10:04 J	381664.85	381664.92	381665.00	0.0502	0.0473
Moon	-3669-12-10 11:45 J	381664.94	381664.99	381665.04	0.0502	0.0490 *
Mercury	-3665-06-07 06:57 J	382939.62	382939.79	382939.97	0.0498	0.0182
Venus	-3664-11-02 13:55 J	383452.87	383453.08	383453.28	0.0511	0.0038
Mercury	-3659-02-07 05:45 J	385010.62	385010.74	385010.87	0.0528	0.0025
Venus	-3658-09-12 04:04 J	385592.51	385592.67	385592.83	0.0513	0.0306
Mercury	-3653-03-26 03:21 J	387249.45	387249.64	387249.82	0.0498	0.0008
Venus	-3652-07-08 09:50 J	387718.76	387718.91	387719.07	0.0509	0.0319
Mercury	-3648-11-26 10:04 J	389320.80	389320.92	389321.04	0.0529	0.0163
Mercury	-3647-02-23 15:36 J	389410.07	389410.15	389410.24	0.0527	0.0397
Venus	-3646-05-18 01:26 J	389858.35	389858.56	389858.76	0.0515	0.0024
Mercury	-3641-01-13 00:14 J	391559.34	391559.51	391559.69	0.0498	0.0185
Venus	-3640-11-05 09:21 J	392221.78	392221.89	392222.01	0.0514	0.0423
Moon	-3639-05-31 06:57 J	392428.67	392428.79	392428.94	0.0520	0.0415
Earth	-3639-05-31 08:38 J	392428.73	392428.86	392428.99	0.0520	0.0429 *
Mars	-3636-01-09 05:31 J	393382.69	393382.73	393382.79	0.0532	0.0522
Mercury	-3636-09-14 13:55 J	393630.98	393631.08	393631.19	0.0529	0.0311
Mercury	-3636-12-12 19:40 J	393720.21	393720.32	393720.43	0.0527	0.0252
Venus	-3634-01-20 20:23 J	394124.18	394124.35	394124.53	0.0517	0.0272
Mercury	-3630-10-31 21:36 J	395869.27	395869.40	395869.52	0.0498	0.0361
Mercury	-3629-01-30 07:40 J	395959.70	395959.82	395959.96	0.0499	0.0361
Venus	-3628-07-11 03:50 J	396487.47	396487.66	396487.86	0.0512	0.0133
Earth	-3627-06-05 08:23 J	396816.62	396816.85	396817.09	0.0521	0.0096
Moon	-3627-06-05 11:45 J	396816.76	396816.99	396817.23	0.0521	0.0124 *
Mercury	-3624-07-03 17:45 J	397941.18	397941.24	397941.31	0.0529	0.0459
Mercury	-3624-09-30 23:45 J	398030.37	398030.49	398030.61	0.0528	0.0110
Venus	-3622-05-20 14:23 J	398627.03	398627.10	398627.19	0.0512	0.0465
Moon	-3622-11-27 03:07 J	398817.57	398817.63	398817.71	0.0507	0.0483
Earth	-3622-11-27 05:31 J	398817.64	398817.73	398817.84	0.0507	0.0454 *
Mars	-3618-01-04 11:02 J	399951.71	399951.96	399952.22	0.0494	0.0217

Mercury	-3618-11-18 04:33 J	400269.51	400269.69	400269.86	0.0498	0.0175
Venus	-3616-03-15 22:04 J	400753.22	400753.42	400753.61	0.0510	0.0159
Moon	-3615-06-10 01:26 J	401204.34	401204.56	401204.77	0.0522	0.0217
Earth	-3615-06-10 05:16 J	401204.51	401204.72	401204.93	0.0522	0.0230 *
Mercury	-3612-07-20 03:36 J	402340.52	402340.65	402340.78	0.0529	0.0039
Mercury	-3612-10-17 08:52 J	402429.86	402429.87	402429.90	0.0527	0.0518
Venus	-3610-01-23 12:00 J	402892.81	402893.00	402893.19	0.0514	0.0183
Earth	-3610-12-01 16:19 J	403204.97	403205.18	403205.40	0.0506	0.0161
Moon	-3610-12-01 17:02 J	403205.00	403205.21	403205.42	0.0506	0.0174 *
Mercury	-3606-09-06 01:11 J	404579.36	404579.55	404579.73	0.0498	0.0013
Venus	-3605-11-18 18:00 J	405019.15	405019.25	405019.35	0.0508	0.0439
Mars	-3601-10-14 22:19 J	406445.16	406445.43	406445.70	0.0532	0.0024
Mercury	-3600-05-08 07:55 J	406650.71	406650.83	406650.95	0.0529	0.0178
Mercury	-3600-08-05 13:26 J	406739.98	406740.06	406740.15	0.0527	0.0383
Venus	-3599-09-28 08:38 J	407158.67	407158.86	407159.06	0.0516	0.0106
Earth	-3598-12-06 00:43 J	407592.31	407592.53	407592.76	0.0504	0.0123
Moon	-3598-12-06 02:09 J	407592.36	407592.59	407592.82	0.0504	0.0149 *
Mercury	-3594-06-24 21:07 J	408889.22	408889.38	408889.55	0.0498	0.0198
Venus	-3592-03-18 15:21 J	409521.97	409522.14	409522.30	0.0513	0.0293
Mercury	-3588-02-24 12:14 J	410960.91	410961.01	410961.11	0.0529	0.0316
Mercury	-3588-05-24 18:00 J	411050.14	411050.25	411050.36	0.0527	0.0248
Venus	-3587-06-03 05:02 J	411424.59	411424.71	411424.84	0.0518	0.0396
Moon	-3586-12-10 06:57 J	411979.67	411979.79	411979.91	0.0502	0.0424
Earth	-3586-12-10 09:36 J	411979.78	411979.90	411980.05	0.0502	0.0409 *
Mars	-3583-10-09 13:40 J	413013.82	413014.07	413014.33	0.0495	0.0203
Mercury	-3582-04-12 18:14 J	413199.15	413199.26	413199.39	0.0497	0.0374
Mercury	-3582-07-12 04:33 J	413289.56	413289.69	413289.83	0.0499	0.0347
Venus	-3581-11-21 11:02 J	413787.75	413787.96	413788.16	0.0511	0.0014
Mercury	-3577-12-13 16:04 J	415271.11	415271.17	415271.23	0.0529	0.0465
Mercury	-3576-03-12 22:04 J	415360.29	415360.42	415360.54	0.0528	0.0105

Venus	-3575-09-30 22:48 J	415927.30	415927.45	415927.60	0.0513	0.0343
Mercury	-3570-04-30 01:26 J	417599.39	417599.56	417599.74	0.0499	0.0166
Venus	-3569-07-27 06:57 J	418053.62	418053.79	418053.96	0.0509	0.0277
Mars	-3565-07-21 01:11 J	419508.46	419508.55	419508.65	0.0531	0.0497
Mercury	-3565-12-30 01:55 J	419670.46	419670.58	419670.71	0.0528	0.0042
Mercury	-3564-03-29 07:11 J	419759.78	419759.80	419759.83	0.0526	0.0514
Venus	-3563-06-05 19:55 J	420193.12	420193.33	420193.53	0.0515	0.0059
Mercury	-3558-02-15 22:33 J	421909.25	421909.44	421909.62	0.0498	0.0019
Venus	-3557-11-24 04:04 J	422556.58	422556.67	422556.76	0.0513	0.0459
Earth	-3556-05-30 01:55 J	422743.53	422743.58	422743.63	0.0519	0.0505
Moon	-3556-05-30 04:19 J	422743.61	422743.68	422743.76	0.0519	0.0493 *
Mercury	-3553-10-18 05:45 J	423980.62	423980.74	423980.85	0.0529	0.0193
Mercury	-3552-01-15 11:16 J	424069.88	424069.97	424070.06	0.0527	0.0369
Venus	-3551-02-08 15:50 J	424458.98	424459.16	424459.34	0.0517	0.0235
Mercury	-3547-12-04 19:11 J	426219.13	426219.30	426219.47	0.0497	0.0197
Venus	-3545-07-29 22:33 J	426822.24	426822.44	426822.63	0.0512	0.0168
Moon	-3544-06-03 21:36 J	427131.19	427131.40	427131.62	0.0520	0.0208
Earth	-3544-06-04 01:26 J	427131.34	427131.56	427131.79	0.0520	0.0176 *
Mercury	-3541-08-06 09:50 J	428290.82	428290.91	428291.01	0.0529	0.0333
Mercury	-3541-11-03 15:50 J	428380.04	428380.16	428380.27	0.0528	0.0234
Venus	-3539-06-08 10:04 J	428961.89	428961.92	428961.95	0.0512	0.0504
Mercury	-3535-09-22 15:21 J	430529.02	430529.14	430529.25	0.0497	0.0386
Mercury	-3535-12-22 01:26 J	430619.42	430619.56	430619.70	0.0499	0.0333
Venus	-3533-04-03 17:31 J	431088.03	431088.23	431088.43	0.0510	0.0120
Earth	-3532-06-09 03:21 J	431519.42	431519.64	431519.87	0.0522	0.0163
Moon	-3532-06-09 07:11 J	431519.58	431519.80	431520.02	0.0522	0.0154 *
Mercury	-3529-05-25 14:23 J	432601.04	432601.10	432601.15	0.0530	0.0471
Mercury	-3529-08-22 20:23 J	432690.22	432690.35	432690.47	0.0528	0.0100
Venus	-3527-02-11 08:09 J	433227.66	433227.84	433228.02	0.0514	0.0225
Earth	-3527-11-30 16:48 J	433519.99	433520.20	433520.41	0.0506	0.0223

Moon	-3527-11-30 18:00 J	433520.04	433520.25	433520.46	0.0506	0.0228 *
Mercury	-3523-10-09 22:19 J	434929.25	434929.43	434929.61	0.0499	0.0152
Venus	-3522-12-08 14:23 J	435353.97	435354.10	435354.22	0.0509	0.0399
Earth	-3520-06-14 06:28 J	435907.72	435907.77	435907.84	0.0524	0.0504
Mercury	-3517-06-11 00:14 J	437000.39	437000.51	437000.64	0.0528	0.0047
Mercury	-3517-09-08 05:45 J	437089.71	437089.74	437089.77	0.0526	0.0508
Venus	-3516-10-17 04:04 J	437493.47	437493.67	437493.87	0.0516	0.0067
Moon	-3515-12-04 22:19 J	437907.21	437907.43	437907.66	0.0504	0.0090
Earth	-3515-12-05 01:11 J	437907.32	437907.55	437907.78	0.0504	0.0060 *
Mercury	-3511-07-28 19:26 J	439239.13	439239.31	439239.50	0.0498	0.0027
Venus	-3509-04-06 12:28 J	439856.87	439857.02	439857.18	0.0513	0.0340
Mercury	-3505-03-30 04:19 J	441310.56	441310.68	441310.80	0.0529	0.0192
Mercury	-3505-06-27 09:50 J	441399.82	441399.91	441400.00	0.0527	0.0368
Venus	-3504-06-21 23:45 J	441759.35	441759.49	441759.64	0.0518	0.0361
Earth	-3503-12-09 10:48 J	442294.79	442294.95	442295.12	0.0503	0.0347
Moon	-3503-12-09 14:38 J	442294.95	442295.11	442295.28	0.0503	0.0362 *
Mercury	-3499-05-16 16:33 J	443549.03	443549.19	443549.36	0.0498	0.0203
Venus	-3498-12-11 06:43 J	444122.58	444122.78	444122.99	0.0511	0.0047
Mercury	-3493-01-17 07:55 J	445620.73	445620.83	445620.92	0.0529	0.0344
Mercury	-3493-04-15 13:40 J	445709.96	445710.07	445710.19	0.0528	0.0222
Venus	-3492-10-19 18:28 J	446262.14	446262.27	446262.40	0.0513	0.0384
Mercury	-3487-03-04 13:40 J	447858.95	447859.07	447859.19	0.0497	0.0381
Mercury	-3487-06-02 23:45 J	447949.35	447949.49	447949.63	0.0499	0.0337
Venus	-3486-08-16 02:23 J	448388.42	448388.60	448388.78	0.0509	0.0239
Mars	-3482-04-04 04:33 J	449715.55	449715.69	449715.84	0.0532	0.0445
Mercury	-3482-11-05 12:00 J	449930.96	449931.00	449931.05	0.0530	0.0485
Mercury	-3481-02-02 18:00 J	450020.13	450020.25	450020.38	0.0528	0.0088
Venus	-3480-06-24 15:50 J	450527.96	450528.16	450528.36	0.0515	0.0100
Mercury	-3475-03-21 19:26 J	452259.13	452259.31	452259.49	0.0498	0.0141
Venus	-3474-12-13 23:45 J	452891.46	452891.49	452891.54	0.0514	0.0504

Mercury	-3470-11-21 22:48 J	454330.32	454330.45	454330.57	0.0528	0.0051
Mercury	-3469-02-19 04:04 J	454419.64	454419.67	454419.70	0.0526	0.0507
Venus	-3468-02-27 13:26 J	454793.87	454794.06	454794.25	0.0517	0.0188
Mars	-3464-03-29 08:38 J	456284.59	456284.86	456285.13	0.0494	0.0141
Mercury	-3463-01-07 16:33 J	456569.00	456569.19	456569.37	0.0498	0.0040
Venus	-3462-08-18 19:40 J	457157.13	457157.32	457157.51	0.0512	0.0215
Earth	-3461-06-03 02:09 J	457446.38	457446.59	457446.80	0.0521	0.0238
Moon	-3461-06-03 06:00 J	457446.55	457446.75	457446.95	0.0521	0.0271 *
Mercury	-3458-09-10 02:38 J	458640.50	458640.61	458640.73	0.0528	0.0194
Mercury	-3458-12-08 08:23 J	458729.76	458729.85	458729.94	0.0527	0.0367
Venus	-3457-11-02 08:23 J	459059.78	459059.85	459059.92	0.0518	0.0485
Mercury	-3452-10-26 13:40 J	460878.91	460879.07	460879.24	0.0498	0.0213
Venus	-3450-04-23 15:50 J	461422.95	461423.16	461423.36	0.0510	0.0072
Moon	-3449-06-08 00:43 J	461834.29	461834.53	461834.77	0.0522	0.0088
Earth	-3449-06-08 03:50 J	461834.43	461834.66	461834.90	0.0522	0.0099 *
Mars	-3446-01-08 08:09 J	462778.57	462778.84	462779.10	0.0531	0.0076
Mercury	-3446-06-29 06:43 J	462950.68	462950.78	462950.87	0.0529	0.0340
Mercury	-3446-09-26 12:28 J	463039.90	463040.02	463040.13	0.0527	0.0225
Venus	-3444-03-02 03:50 J	463562.49	463562.66	463562.83	0.0514	0.0265
Moon	-3444-11-29 15:36 J	463834.97	463835.15	463835.34	0.0506	0.0283
Earth	-3444-11-29 18:14 J	463835.08	463835.26	463835.46	0.0506	0.0283 *
Mercury	-3440-08-14 11:16 J	465188.86	465188.97	465189.09	0.0497	0.0385
Mercury	-3440-11-12 21:21 J	465279.25	465279.39	465279.53	0.0499	0.0334
Venus	-3439-12-27 11:45 J	465688.85	465688.99	465689.14	0.0508	0.0355
Earth	-3437-06-13 02:38 J	466222.48	466222.61	466222.75	0.0523	0.0429
Moon	-3437-06-13 03:36 J	466222.56	466222.65	466222.77	0.0523	0.0460 *
Mercury	-3434-04-17 10:19 J	467260.88	467260.93	467260.97	0.0530	0.0493
Mercury	-3434-07-15 16:19 J	467350.05	467350.18	467350.30	0.0528	0.0079
Venus	-3433-11-05 00:14 J	467828.31	467828.51	467828.71	0.0516	0.0026
Earth	-3432-12-04 04:48 J	468222.47	468222.70	468222.93	0.0505	0.0010

Moon	-3432-12-04 08:23 J	468222.62	468222.85	468223.09	0.0505	0.0041 *
Mars	-3428-01-02 00:43 J	469347.31	469347.53	469347.76	0.0495	0.0300
Mercury	-3428-08-31 18:00 J	469589.08	469589.25	469589.43	0.0498	0.0151
Venus	-3426-04-26 08:52 J	470191.74	470191.87	470192.01	0.0513	0.0383
Mercury	-3422-05-03 20:38 J	471660.24	471660.36	471660.49	0.0528	0.0059
Mercury	-3422-08-01 02:09 J	471749.55	471749.59	471749.63	0.0527	0.0497
Venus	-3421-07-10 21:07 J	472094.22	472094.38	472094.54	0.0518	0.0315
Moon	-3420-12-08 10:04 J	472609.74	472609.92	472610.11	0.0503	0.0304
Earth	-3420-12-08 14:09 J	472609.90	472610.09	472610.28	0.0503	0.0290 *
Mercury	-3416-06-19 13:40 J	473898.89	473899.07	473899.26	0.0498	0.0047
Venus	-3415-12-30 02:52 J	474457.42	474457.62	474457.82	0.0511	0.0089
Mercury	-3410-02-20 01:11 J	475970.43	475970.55	475970.67	0.0529	0.0193
Mercury	-3410-05-20 06:57 J	476059.70	476059.79	476059.88	0.0527	0.0368
Venus	-3409-11-07 17:02 J	476597.11	476597.21	476597.32	0.0512	0.0435
Mercury	-3404-04-07 11:02 J	478208.80	478208.96	478209.13	0.0498	0.0221
Venus	-3403-09-03 23:45 J	478723.30	478723.49	478723.68	0.0510	0.0194
Mercury	-3399-12-09 05:16 J	480280.63	480280.72	480280.82	0.0529	0.0337
Mercury	-3398-03-08 11:02 J	480369.85	480369.96	480370.08	0.0527	0.0229
Venus	-3397-07-13 13:55 J	480862.89	480863.08	480863.27	0.0514	0.0148
Mercury	-3392-01-24 08:38 J	482518.75	482518.86	482518.97	0.0497	0.0393
Mercury	-3392-04-24 18:43 J	482609.14	482609.28	482609.42	0.0499	0.0327
Venus	-3391-05-09 21:07 J	482989.31	482989.38	482989.46	0.0508	0.0472
Mercury	-3387-09-27 09:21 J	484590.84	484590.89	484590.94	0.0529	0.0483
Mercury	-3387-12-25 15:21 J	484680.01	484680.14	484680.26	0.0528	0.0087
Venus	-3385-03-18 10:19 J	485128.74	485128.93	485129.13	0.0516	0.0144
Mercury	-3380-02-10 16:04 J	486918.99	486919.17	486919.35	0.0498	0.0151
Venus	-3379-09-06 18:28 J	487492.10	487492.27	487492.45	0.0512	0.0266
Moon	-3378-06-02 22:33 J	487761.26	487761.44	487761.63	0.0520	0.0332
Earth	-3378-06-03 02:09 J	487761.40	487761.59	487761.79	0.0520	0.0298 *
Mercury	-3375-10-13 19:11 J	488990.17	488990.30	488990.42	0.0528	0.0064

Mercury	-3374-01-11 00:28 J	489079.48	489079.52	489079.56	0.0527	0.0495
Venus	-3374-11-22 05:31 J	489394.63	489394.73	489394.83	0.0519	0.0442
Mercury	-3369-11-29 12:57 J	491228.86	491229.04	491229.23	0.0498	0.0030
Venus	-3367-05-12 13:55 J	491757.87	491758.08	491758.28	0.0510	0.0026
Earth	-3366-06-08 02:52 J	492149.38	492149.62	492149.85	0.0521	0.0034
Moon	-3366-06-08 04:33 J	492149.47	492149.69	492149.92	0.0521	0.0031 *
Mercury	-3363-08-01 23:31 J	493300.36	493300.48	493300.60	0.0529	0.0200
Mercury	-3363-10-30 05:02 J	493389.62	493389.71	493389.80	0.0527	0.0363
Venus	-3361-03-21 02:23 J	493897.44	493897.60	493897.76	0.0514	0.0318
Earth	-3361-11-28 23:45 J	494150.32	494150.49	494150.66	0.0506	0.0334
Moon	-3361-11-29 03:36 J	494150.47	494150.65	494150.83	0.0506	0.0325 *
Mercury	-3357-09-17 08:52 J	495538.70	495538.87	495539.03	0.0498	0.0224
Venus	-3355-01-15 08:09 J	496023.69	496023.84	496024.01	0.0509	0.0314
Earth	-3354-06-13 03:21 J	496537.48	496537.64	496537.81	0.0523	0.0366
Moon	-3354-06-13 04:19 J	496537.52	496537.68	496537.84	0.0523	0.0394 *
Mercury	-3351-05-21 04:04 J	497610.57	497610.67	497610.77	0.0529	0.0334
Mercury	-3351-08-18 09:50 J	497699.80	497699.91	497700.03	0.0528	0.0233
Venus	-3350-11-25 00:57 J	498163.34	498163.54	498163.74	0.0515	0.0034
Moon	-3349-12-03 07:55 J	498537.60	498537.83	498538.06	0.0505	0.0010
Earth	-3349-12-03 12:00 J	498537.77	498538.00	498538.23	0.0505	0.0041 *
Mars	-3346-09-17 10:04 J	499555.86	499555.92	499556.00	0.0494	0.0478
Mercury	-3345-07-06 06:14 J	499848.65	499848.76	499848.87	0.0497	0.0396
Mercury	-3345-10-04 16:19 J	499939.04	499939.18	499939.32	0.0499	0.0322
Venus	-3343-05-15 07:40 J	500526.72	500526.82	500526.93	0.0514	0.0437
Mercury	-3339-03-09 08:09 J	501920.79	501920.84	501920.90	0.0529	0.0476
Mercury	-3339-06-06 14:09 J	502009.97	502010.09	502010.22	0.0528	0.0095
Venus	-3338-07-30 21:07 J	502429.21	502429.38	502429.56	0.0517	0.0260
Earth	-3337-12-07 20:38 J	502925.16	502925.36	502925.57	0.0503	0.0244
Moon	-3337-12-08 00:14 J	502925.31	502925.51	502925.71	0.0503	0.0252 *
Mercury	-3333-07-23 13:40 J	504248.89	504249.07	504249.25	0.0499	0.0147

Venus	-3331-01-18 03:50 J	504792.47	504792.66	504792.86	0.0512	0.0149
Mars	-3328-06-28 09:50 J	506049.71	506049.91	506050.14	0.0532	0.0313
Mercury	-3327-03-25 18:28 J	506320.14	506320.27	506320.39	0.0528	0.0052
Mercury	-3327-06-22 23:45 J	506409.46	506409.49	506409.52	0.0526	0.0506
Venus	-3326-11-27 15:21 J	506932.08	506932.14	506932.20	0.0512	0.0484
Moon	-3325-12-12 04:19 J	507312.66	507312.68	507312.71	0.0502	0.0498
Mercury	-3321-05-11 11:16 J	508558.78	508558.97	508559.16	0.0498	0.0026
Venus	-3320-09-23 00:14 J	509058.32	509058.51	509058.71	0.0510	0.0138
Mercury	-3315-01-11 22:04 J	510630.31	510630.42	510630.54	0.0529	0.0198
Mercury	-3315-04-11 03:50 J	510719.57	510719.66	510719.75	0.0527	0.0364
Venus	-3314-08-02 12:28 J	511197.84	511198.02	511198.21	0.0515	0.0200
Mars	-3310-06-23 09:07 J	512618.60	512618.88	512619.17	0.0495	0.0023
Mercury	-3309-02-28 08:23 J	512868.68	512868.85	512869.02	0.0498	0.0203
Venus	-3308-05-28 20:52 J	513324.26	513324.37	513324.48	0.0508	0.0420
Mercury	-3304-10-31 02:23 J	514940.51	514940.60	514940.70	0.0529	0.0336
Mercury	-3303-01-28 08:23 J	515029.74	515029.85	515029.96	0.0528	0.0231
Venus	-3302-04-07 10:33 J	515463.74	515463.94	515464.14	0.0516	0.0087
Mercury	-3298-12-17 04:19 J	517178.57	517178.68	517178.80	0.0497	0.0394
Mercury	-3297-03-16 14:23 J	517268.96	517269.10	517269.24	0.0499	0.0324
Venus	-3296-09-25 16:04 J	517827.01	517827.17	517827.34	0.0513	0.0316
Earth	-3295-06-02 03:21 J	518076.47	518076.64	518076.82	0.0520	0.0359
Moon	-3295-06-02 06:00 J	518076.60	518076.75	518076.90	0.0520	0.0391 *
Mars	-3292-04-03 14:38 J	519112.87	519113.11	519113.35	0.0532	0.0217
Mercury	-3292-08-19 06:57 J	519250.74	519250.79	519250.85	0.0530	0.0471
Mercury	-3292-11-16 13:11 J	519339.92	519340.05	519340.17	0.0528	0.0101
Venus	-3291-12-11 08:09 J	519729.71	519729.84	519729.99	0.0518	0.0376
Mercury	-3285-01-03 11:45 J	521578.81	521578.99	521579.16	0.0498	0.0147
Venus	-3284-05-31 12:43 J	522092.83	522093.03	522093.24	0.0511	0.0029
Moon	-3283-06-07 07:26 J	522464.56	522464.81	522465.06	0.0522	0.0017
Earth	-3283-06-07 07:26 J	522464.57	522464.81	522465.05	0.0522	0.0019 *



Mercury	-3280-09-04 17:31 J	523650.10	523650.23	523650.36	0.0528	0.0038
Mercury	-3280-12-02 23:02 J	523739.44	523739.46	523739.48	0.0526	0.0517
Venus	-3278-04-10 03:36 J	524232.52	524232.65	524232.79	0.0513	0.0377
Moon	-3278-11-29 05:16 J	524465.56	524465.72	524465.88	0.0506	0.0364
Earth	-3278-11-29 09:07 J	524465.73	524465.88	524466.04	0.0506	0.0372 *
Mars	-3274-03-28 18:43 J	525681.14	525681.28	525681.45	0.0495	0.0409
Mercury	-3274-10-22 09:21 J	525888.70	525888.89	525889.07	0.0498	0.0027
Venus	-3272-02-03 10:33 J	526358.76	526358.94	526359.11	0.0509	0.0253
Moon	-3271-06-12 08:52 J	526852.71	526852.87	526853.04	0.0523	0.0354
Earth	-3271-06-12 11:31 J	526852.80	526852.98	526853.17	0.0523	0.0324 *
Mercury	-3268-06-23 21:36 J	527960.28	527960.40	527960.52	0.0529	0.0181
Mercury	-3268-09-21 03:21 J	528049.55	528049.64	528049.72	0.0527	0.0380
Venus	-3267-12-14 00:43 J	528498.34	528498.53	528498.73	0.0515	0.0090
Earth	-3266-12-03 19:40 J	528853.09	528853.32	528853.55	0.0505	0.0083
Moon	-3266-12-03 23:02 J	528853.24	528853.46	528853.69	0.0505	0.0051 *
Mercury	-3262-08-10 06:57 J	530198.62	530198.79	530198.96	0.0498	0.0196
Venus	-3260-06-03 09:36 J	530861.86	530861.90	530861.95	0.0514	0.0500
Mercury	-3256-04-12 01:26 J	532270.46	532270.56	532270.66	0.0529	0.0329
Mercury	-3256-07-10 07:12 J	532359.69	532359.80	532359.92	0.0527	0.0237
Venus	-3255-08-18 20:52 J	532764.19	532764.37	532764.56	0.0517	0.0206
Moon	-3254-12-08 03:50 J	533240.44	533240.66	533240.88	0.0504	0.0202
Earth	-3254-12-08 06:00 J	533240.54	533240.75	533240.96	0.0504	0.0203 *
Mercury	-3250-05-29 04:19 J	534508.56	534508.68	534508.81	0.0497	0.0369
Mercury	-3250-08-27 14:23 J	534598.97	534599.10	534599.24	0.0499	0.0350
Venus	-3248-02-06 04:47 J	535127.51	535127.70	535127.89	0.0512	0.0207
Mercury	-3244-01-29 05:45 J	536580.68	536580.74	536580.80	0.0530	0.0468
Mercury	-3244-04-28 11:45 J	536669.87	536669.99	536670.12	0.0528	0.0104
Venus	-3243-04-23 17:45 J	537030.20	537030.24	537030.30	0.0519	0.0498
Moon	-3242-12-12 17:02 J	537628.13	537628.21	537628.30	0.0502	0.0458
Earth	-3242-12-12 16:47 J	537628.15	537628.20	537628.26	0.0502	0.0486 *

Mercury	-3238-06-15 10:04 J	538908.75	538908.92	538909.10	0.0498	0.0153
Venus	-3237-10-11 22:33 J	539393.23	539393.44	539393.64	0.0510	0.0090
Mercury	-3232-02-14 16:33 J	540980.07	540980.19	540980.32	0.0529	0.0030
Venus	-3231-08-21 16:19 J	541533.01	541533.18	541533.36	0.0514	0.0271
Mercury	-3226-04-03 07:26 J	543218.63	543218.81	543219.00	0.0498	0.0025
Venus	-3225-06-16 19:55 J	543659.20	543659.33	543659.48	0.0508	0.0370
Mercury	-3221-12-03 20:52 J	545290.25	545290.37	545290.49	0.0529	0.0168
Mercury	-3220-03-03 02:38 J	545379.53	545379.61	545379.69	0.0527	0.0394
Venus	-3219-04-26 13:26 J	545798.86	545799.06	545799.26	0.0516	0.0021
Mercury	-3214-01-20 05:16 J	547528.55	547528.72	547528.89	0.0498	0.0192
Venus	-3213-10-14 19:40 J	548162.19	548162.32	548162.46	0.0513	0.0384
Moon	-3212-06-01 12:57 J	548391.90	548392.04	548392.19	0.0520	0.0419
Earth	-3212-06-01 13:40 J	548391.92	548392.07	548392.23	0.0520	0.0391 *
Mercury	-3209-09-22 01:12 J	549600.44	549600.55	549600.65	0.0529	0.0309
Mercury	-3209-12-20 06:57 J	549689.68	549689.79	549689.90	0.0527	0.0256
Venus	-3208-12-30 09:36 J	550064.74	550064.90	550065.06	0.0518	0.0317
Mercury	-3203-11-08 03:07 J	551838.51	551838.63	551838.76	0.0497	0.0360
Mercury	-3202-02-06 13:12 J	551928.93	551929.05	551929.18	0.0499	0.0360
Venus	-3201-06-19 15:50 J	552427.96	552428.16	552428.37	0.0511	0.0096
Moon	-3200-06-06 13:26 J	552779.84	552780.06	552780.29	0.0521	0.0048
Earth	-3200-06-06 15:36 J	552779.91	552780.15	552780.39	0.0521	0.0060 *
Mercury	-3197-07-11 04:47 J	553910.64	553910.70	553910.77	0.0529	0.0458
Mercury	-3197-10-08 10:47 J	553999.83	553999.95	554000.08	0.0528	0.0113
Venus	-3195-04-29 04:19 J	554567.58	554567.68	554567.79	0.0513	0.0437
Earth	-3195-11-28 18:57 J	554781.16	554781.29	554781.43	0.0507	0.0409
Moon	-3195-11-28 22:33 J	554781.30	554781.44	554781.58	0.0507	0.0395 *
Mars	-3192-12-12 01:26 J	555890.35	555890.56	555890.77	0.0494	0.0336
Mercury	-3191-11-25 10:19 J	556238.76	556238.93	556239.11	0.0498	0.0182
Venus	-3189-02-23 12:14 J	556693.83	556694.01	556694.21	0.0509	0.0193
Earth	-3188-06-11 17:02 J	557168.01	557168.21	557168.41	0.0522	0.0275

Moon	-3188-06-11 20:52 J	557168.18	557168.37	557168.57	0.0522	0.0306 *
Mercury	-3185-07-27 15:21 J	558310.01	558310.14	558310.27	0.0528	0.0024
Venus	-3183-01-02 03:07 J	558833.44	558833.63	558833.83	0.0515	0.0156
Moon	-3183-12-03 05:45 J	559168.51	559168.74	559168.98	0.0505	0.0090
Earth	-3183-12-03 07:55 J	559168.60	559168.83	559169.05	0.0505	0.0117 *
Mercury	-3179-09-13 06:14 J	560548.58	560548.76	560548.95	0.0498	0.0013
Venus	-3178-10-29 06:43 J	560959.72	560959.78	560959.84	0.0507	0.0483
Mars	-3174-09-23 05:02 J	562384.46	562384.71	562384.97	0.0533	0.0154
Mercury	-3173-05-15 20:09 J	562620.21	562620.34	562620.46	0.0529	0.0158
Mercury	-3173-08-13 01:40 J	562709.49	562709.57	562709.65	0.0527	0.0405
Venus	-3172-09-07 01:55 J	563099.39	563099.58	563099.78	0.0517	0.0132
Earth	-3171-12-07 20:23 J	563556.14	563556.35	563556.57	0.0504	0.0177
Moon	-3171-12-07 20:23 J	563556.14	563556.35	563556.56	0.0504	0.0164 *
Mercury	-3167-07-02 03:50 J	564858.49	564858.66	564858.83	0.0497	0.0185
Venus	-3165-02-26 05:02 J	565462.53	565462.71	565462.88	0.0512	0.0264
Mercury	-3161-03-04 00:28 J	566930.41	566930.52	566930.62	0.0529	0.0295
Mercury	-3161-06-01 06:14 J	567019.65	567019.76	567019.87	0.0527	0.0271
Venus	-3160-05-12 22:04 J	567365.31	567365.42	567365.54	0.0518	0.0430
Earth	-3159-12-12 05:31 J	567943.64	567943.73	567943.83	0.0502	0.0458
Moon	-3159-12-12 07:12 J	567943.68	567943.80	567943.93	0.0502	0.0426 *
Mars	-3156-09-16 17:16 J	568952.94	568953.22	568953.49	0.0494	0.0106
Mercury	-3155-04-20 01:40 J	569168.44	569168.57	569168.70	0.0497	0.0354
Mercury	-3155-07-19 11:31 J	569258.86	569258.98	569259.11	0.0499	0.0366
Venus	-3154-11-01 02:23 J	569728.40	569728.60	569728.81	0.0511	0.0022
Mercury	-3150-12-22 04:33 J	571240.62	571240.69	571240.76	0.0529	0.0437
Mercury	-3149-03-20 10:33 J	571329.82	571329.94	571330.07	0.0528	0.0133
Venus	-3148-09-09 18:14 J	571868.11	571868.26	571868.41	0.0513	0.0332
Mercury	-3143-05-07 09:21 J	573568.72	573568.89	573569.06	0.0499	0.0193
Venus	-3142-07-06 23:45 J	573994.34	573994.49	573994.66	0.0508	0.0304
Mars	-3138-06-29 10:04 J	575447.74	575447.92	575448.11	0.0531	0.0382

Mercury	-3137-01-07 14:38 J	575639.98	575640.11	575640.23	0.0528	0.0016
Venus	-3136-05-15 14:38 J	576133.91	576134.11	576134.32	0.0516	0.0042
Mercury	-3131-02-23 06:43 J	577878.59	577878.78	577878.96	0.0498	0.0020
Venus	-3130-11-03 22:04 J	578497.33	578497.42	578497.52	0.0513	0.0449
Moon	-3129-05-31 19:40 J	578707.21	578707.32	578707.42	0.0519	0.0458
Earth	-3129-05-31 21:07 J	578707.25	578707.38	578707.51	0.0519	0.0431 *
Mercury	-3126-10-26 18:57 J	579950.17	579950.29	579950.41	0.0529	0.0150
Mercury	-3125-01-24 00:43 J	580039.45	580039.53	580039.60	0.0527	0.0411
Venus	-3124-01-18 12:28 J	580399.85	580400.02	580400.20	0.0518	0.0251
Mercury	-3120-12-12 02:38 J	582188.44	582188.61	582188.79	0.0497	0.0175
Venus	-3118-07-09 14:52 J	582762.93	582763.12	582763.32	0.0511	0.0147
Earth	-3117-06-05 18:28 J	583095.04	583095.27	583095.50	0.0521	0.0115
Moon	-3117-06-05 21:50 J	583095.18	583095.41	583095.65	0.0521	0.0094 *
Mercury	-3114-08-14 23:31 J	584260.38	584260.48	584260.59	0.0530	0.0286
Mercury	-3114-11-12 05:31 J	584349.62	584349.73	584349.83	0.0528	0.0282
Venus	-3112-05-18 09:36 J	584902.89	584902.90	584902.91	0.0513	0.0511
Moon	-3112-11-28 09:07 J	585096.75	585096.88	585097.03	0.0507	0.0408
Earth	-3112-11-28 11:02 J	585096.84	585096.96	585097.09	0.0507	0.0429 *
Mercury	-3108-09-30 00:14 J	586498.39	586498.51	586498.65	0.0497	0.0345
Mercury	-3108-12-29 10:19 J	586588.81	586588.93	586589.05	0.0499	0.0373
Venus	-3106-03-14 12:14 J	587028.81	587029.01	587029.21	0.0510	0.0140
Moon	-3105-06-10 18:43 J	587483.08	587483.28	587483.49	0.0523	0.0257
Earth	-3105-06-10 23:02 J	587483.25	587483.46	587483.67	0.0523	0.0226 *
Mercury	-3102-06-03 03:50 J	588570.59	588570.66	588570.74	0.0530	0.0424
Mercury	-3102-08-31 09:50 J	588659.79	588659.91	588660.04	0.0528	0.0148
Venus	-3100-01-21 07:26 J	589168.62	589168.81	589168.99	0.0514	0.0225
Earth	-3100-12-02 21:21 J	589484.17	589484.39	589484.61	0.0505	0.0141
Moon	-3100-12-02 21:07 J	589484.17	589484.38	589484.60	0.0505	0.0122 *
Mercury	-3096-10-17 07:55 J	590898.66	590898.83	590899.00	0.0498	0.0199
Venus	-3095-11-17 10:33 J	591294.83	591294.94	591295.06	0.0508	0.0418

Mercury	-3090-06-19 14:23 J	592969.97	592970.10	592970.22	0.0528	0.0020
Venus	-3089-09-26 04:19 J	593434.48	593434.68	593434.88	0.0516	0.0069
Earth	-3088-12-07 07:40 J	593871.60	593871.82	593872.04	0.0504	0.0144
Moon	-3088-12-07 09:21 J	593871.66	593871.89	593872.12	0.0504	0.0124 *
Mercury	-3084-08-05 05:31 J	595208.54	595208.73	595208.91	0.0498	0.0028
Venus	-3082-03-17 09:07 J	595797.73	595797.88	595798.04	0.0513	0.0336
Mercury	-3078-04-07 18:14 J	597280.14	597280.26	597280.38	0.0529	0.0139
Mercury	-3078-07-05 23:45 J	597369.42	597369.49	597369.57	0.0527	0.0422
Venus	-3077-05-31 23:31 J	597700.34	597700.48	597700.62	0.0518	0.0370
Moon	-3076-12-11 14:23 J	598258.97	598259.10	598259.24	0.0503	0.0395
Earth	-3076-12-11 17:02 J	598259.10	598259.21	598259.34	0.0503	0.0424 *
Mercury	-3072-05-24 02:52 J	599518.45	599518.62	599518.80	0.0498	0.0147
Venus	-3071-11-20 05:02 J	600063.50	600063.71	600063.91	0.0510	0.0043
Mercury	-3066-01-24 22:33 J	601590.33	601590.44	601590.55	0.0529	0.0278
Mercury	-3066-04-24 04:19 J	601679.58	601679.68	601679.79	0.0528	0.0288
Venus	-3065-09-28 20:52 J	602203.25	602203.37	602203.50	0.0514	0.0400
Mercury	-3060-03-11 23:16 J	603828.34	603828.47	603828.61	0.0497	0.0334
Mercury	-3060-06-10 09:07 J	603918.77	603918.88	603919.00	0.0498	0.0384
Venus	-3059-07-25 22:47 J	604329.28	604329.45	604329.63	0.0508	0.0255
Mars	-3055-03-13 23:02 J	605656.41	605656.46	605656.52	0.0533	0.0521
Mercury	-3055-11-13 02:52 J	605900.54	605900.62	605900.70	0.0530	0.0417
Mercury	-3054-02-10 08:52 J	605989.75	605989.87	605989.99	0.0529	0.0156
Venus	-3053-06-03 19:55 J	606469.14	606469.33	606469.53	0.0516	0.0115
Mercury	-3048-03-29 06:28 J	608228.60	608228.77	608228.94	0.0498	0.0207
Venus	-3047-11-22 22:04 J	608832.39	608832.42	608832.45	0.0514	0.0505
Earth	-3046-06-01 01:26 J	609022.47	609022.56	609022.65	0.0519	0.0480
Moon	-3046-06-01 04:19 J	609022.63	609022.68	609022.76	0.0519	0.0500 *
Mercury	-3043-11-29 13:26 J	610299.93	610300.06	610300.19	0.0529	0.0020
Venus	-3041-02-07 16:47 J	610735.01	610735.20	610735.39	0.0517	0.0183
Mars	-3037-03-07 14:52 J	612224.87	612225.12	612225.39	0.0494	0.0200

Mercury	-3036-01-15 04:04 J	612538.48	612538.67	612538.85	0.0498	0.0035
Venus	-3035-07-28 18:57 J	613098.11	613098.29	613098.48	0.0512	0.0216
Moon	-3034-06-06 01:55 J	613410.35	613410.58	613410.81	0.0521	0.0122
Earth	-3034-06-06 06:00 J	613410.52	613410.75	613410.98	0.0521	0.0143 *
Mercury	-3031-09-17 17:45 J	614610.12	614610.24	614610.36	0.0529	0.0120
Mercury	-3031-12-15 23:31 J	614699.41	614699.48	614699.54	0.0527	0.0440
Venus	-3030-10-13 12:28 J	615000.95	615001.02	615001.10	0.0519	0.0483
Moon	-3029-11-27 21:21 J	615412.28	615412.39	615412.51	0.0507	0.0435
Earth	-3029-11-27 21:36 J	615412.31	615412.40	615412.50	0.0507	0.0461 *
Mercury	-3025-11-03 01:40 J	616848.39	616848.57	616848.75	0.0498	0.0137
Venus	-3023-04-02 16:04 J	617363.97	617364.17	617364.38	0.0510	0.0072
Earth	-3022-06-11 08:52 J	617798.65	617798.87	617799.09	0.0522	0.0190
Moon	-3022-06-11 12:28 J	617798.81	617799.02	617799.24	0.0522	0.0218 *
Mars	-3020-12-18 03:07 J	618719.36	618719.63	618719.89	0.0532	0.0017
Mercury	-3019-07-06 21:36 J	618920.29	618920.40	618920.51	0.0529	0.0268
Mercury	-3019-10-04 03:21 J	619009.54	619009.64	619009.75	0.0527	0.0298
Venus	-3017-02-10 08:23 J	619503.68	619503.85	619504.02	0.0514	0.0285
Earth	-3017-12-02 07:40 J	619799.61	619799.82	619800.04	0.0506	0.0177
Moon	-3017-12-02 09:36 J	619799.68	619799.90	619800.13	0.0506	0.0162 *
Mercury	-3013-08-21 23:16 J	621158.33	621158.47	621158.61	0.0497	0.0310
Mercury	-3013-11-20 09:07 J	621248.78	621248.88	621248.99	0.0499	0.0410
Venus	-3012-12-06 12:57 J	621629.90	621630.04	621630.19	0.0508	0.0357
Moon	-3010-06-16 08:38 J	622186.80	622186.86	622186.93	0.0524	0.0502
Mercury	-3007-04-25 01:55 J	623230.50	623230.58	623230.66	0.0530	0.0409
Mercury	-3007-07-23 07:55 J	623319.71	623319.83	623319.95	0.0528	0.0162
Venus	-3006-10-16 06:28 J	623769.57	623769.77	623769.97	0.0516	0.0005
Moon	-3005-12-06 17:31 J	624187.01	624187.23	624187.45	0.0504	0.0090
Earth	-3005-12-06 20:23 J	624187.13	624187.35	624187.57	0.0504	0.0113 *
Mars	-3002-12-12 09:36 J	625287.66	625287.90	625288.15	0.0494	0.0247
Mercury	-3001-06-09 19:55 J	625468.31	625468.33	625468.35	0.0496	0.0492

Mercury -3001-09-08 05:16 J 625558.55 625558.72 625558.89 0.0498 0.0217

# 3RD MILLENNIUM BCE

This is a list of transits visible from Jupiter in the 3rd millennium BCE.

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Venus	-2999-04-05 07:40 J		626132.69	626132.82	626132.95	0.0513	0.0385	
Mercury	-2995-05-11 12:14 J		627629.89	627630.01	627630.14	0.0529	0.0030	
Venus	-2994-06-21 04:04 J		628035.50	628035.67	628035.83	0.0519	0.0300	
Earth	-2993-12-11 08:09 J		628574.71	628574.84	628574.99	0.0503	0.0401	
Moon	-2993-12-11 11:45 J		628574.85	628574.99	628575.15	0.0503	0.0378	*
Mercury	-2989-06-27 02:38 J		629868.42	629868.61	629868.79	0.0497	0.0041	
Venus	-2988-12-09 04:04 J		630398.47	630398.67	630398.87	0.0511	0.0094	
Mercury	-2983-02-27 16:47 J		631940.07	631940.20	631940.32	0.0529	0.0113	
Mercury	-2983-05-27 22:19 J		632029.37	632029.43	632029.50	0.0527	0.0449	
Venus	-2982-10-19 00:00 J		632538.42	632538.50	632538.59	0.0513	0.0464	
Mercury	-2977-04-15 00:00 J		634178.33	634178.50	634178.68	0.0497	0.0133	
Venus	-2976-08-14 01:55 J		634664.39	634664.58	634664.77	0.0509	0.0192	
Mercury	-2972-12-16 21:07 J		636250.27	636250.38	636250.49	0.0529	0.0253	
Mercury	-2971-03-16 02:52 J		636339.52	636339.62	636339.72	0.0528	0.0313	
Venus	-2970-06-23 21:21 J		636804.20	636804.39	636804.58	0.0515	0.0174	
Mercury	-2965-02-01 21:50 J		638488.26	638488.41	638488.55	0.0497	0.0303	
Mercury	-2965-05-02 07:40 J		638578.72	638578.82	638578.92	0.0499	0.0416	
Venus	-2964-04-19 00:00 J		638930.43	638930.50	638930.58	0.0507	0.0471	

Earth	-2963-05-31 10:47 J	639337.92	639337.95	639337.99	0.0519	0.0513
Mercury	-2960-10-05 00:43 J	640560.45	640560.53	640560.62	0.0530	0.0402
Mercury	-2959-01-02 06:43 J	640649.67	640649.78	640649.90	0.0528	0.0169
Venus	-2958-02-26 17:02 J	641070.01	641070.21	641070.40	0.0517	0.0126
Mercury	-2954-11-20 19:26 J	642798.26	642798.31	642798.36	0.0497	0.0474
Mercury	-2953-02-19 04:47 J	642888.54	642888.70	642888.87	0.0498	0.0238
Venus	-2952-08-16 20:23 J	643433.19	643433.35	643433.53	0.0512	0.0277
Earth	-2951-06-05 11:16 J	643725.75	643725.97	643726.19	0.0520	0.0189
Moon	-2951-06-05 15:07 J	643725.91	643726.13	643726.36	0.0520	0.0163 *
Mercury	-2948-10-21 11:02 J	644959.84	644959.96	644960.09	0.0529	0.0033
Venus	-2947-11-01 13:26 J	645335.95	645336.06	645336.18	0.0519	0.0425
Earth	-2946-11-28 08:09 J	645727.80	645727.84	645727.89	0.0508	0.0496
Moon	-2946-11-28 10:33 J	645727.84	645727.94	645728.04	0.0508	0.0462 *
Mercury	-2942-12-08 01:12 J	647198.37	647198.55	647198.74	0.0497	0.0049
Venus	-2940-04-21 13:55 J	647698.88	647699.08	647699.29	0.0509	0.0028
Moon	-2939-06-10 05:02 J	648113.48	648113.71	648113.95	0.0522	0.0148
Earth	-2939-06-10 07:55 J	648113.60	648113.83	648114.06	0.0522	0.0127 *
Mercury	-2936-08-09 15:21 J	649270.02	649270.14	649270.26	0.0530	0.0112
Mercury	-2936-11-06 21:07 J	649359.32	649359.38	649359.44	0.0528	0.0451
Venus	-2934-03-01 11:31 J	649838.84	649838.98	649839.13	0.0514	0.0351
Moon	-2934-12-02 18:00 J	650115.05	650115.25	650115.46	0.0506	0.0191
Earth	-2934-12-02 21:21 J	650115.18	650115.39	650115.60	0.0506	0.0202 *
Mercury	-2930-09-25 22:33 J	651508.26	651508.44	651508.62	0.0497	0.0127
Venus	-2929-12-25 11:16 J	651964.81	651964.97	651965.13	0.0508	0.0312
Moon	-2927-06-15 11:31 J	652501.86	652501.98	652502.10	0.0524	0.0439
Earth	-2927-06-15 11:16 J	652501.87	652501.97	652502.08	0.0524	0.0465 *
Mercury	-2924-05-28 19:40 J	653580.21	653580.32	653580.43	0.0530	0.0251
Mercury	-2924-08-26 01:40 J	653669.47	653669.57	653669.67	0.0528	0.0317
Venus	-2923-11-04 08:23 J	654104.65	654104.85	654105.05	0.0516	0.0057
Earth	-2922-12-07 06:43 J	654502.55	654502.78	654503.01	0.0505	0.0081



Moon	-2922-12-07 10:19 J	654502.70	654502.93	654503.16	0.0505	0.0055 *
Mercury	-2918-07-14 19:55 J	655818.18	655818.33	655818.47	0.0497	0.0302
Mercury	-2918-10-13 05:45 J	655908.64	655908.74	655908.84	0.0498	0.0416
Venus	-2916-04-24 09:50 J	656467.81	656467.91	656468.01	0.0513	0.0448
Mercury	-2912-03-17 00:00 J	657890.41	657890.50	657890.58	0.0530	0.0392
Mercury	-2912-06-14 06:00 J	657979.63	657979.75	657979.87	0.0528	0.0179
Venus	-2911-07-10 04:33 J	658370.52	658370.69	658370.87	0.0518	0.0244
Moon	-2910-12-11 12:28 J	658889.85	658890.02	658890.19	0.0503	0.0341
Earth	-2910-12-11 15:50 J	658890.01	658890.16	658890.33	0.0503	0.0360 *
Mercury	-2906-05-02 17:31 J	660128.18	660128.23	660128.29	0.0497	0.0471
Mercury	-2906-08-01 03:07 J	660218.47	660218.63	660218.79	0.0498	0.0240
Venus	-2905-12-28 06:14 J	660733.56	660733.76	660733.95	0.0511	0.0156
Mars	-2901-06-07 13:40 J	661990.88	661991.07	661991.26	0.0533	0.0369
Mercury	-2900-04-02 09:50 J	662289.79	662289.91	662290.04	0.0529	0.0035
Mercury	-2894-05-20 00:14 J	664528.33	664528.51	664528.70	0.0498	0.0063
Venus	-2893-09-02 02:38 J	664999.41	664999.61	664999.80	0.0509	0.0136
Mercury	-2888-01-19 14:09 J	666599.96	666600.09	666600.21	0.0529	0.0110
Mercury	-2888-04-18 19:40 J	666689.26	666689.32	666689.39	0.0527	0.0452
Venus	-2887-07-12 20:52 J	667139.19	667139.37	667139.55	0.0515	0.0230
Mars	-2883-06-02 01:12 J	668559.27	668559.55	668559.83	0.0493	0.0067
Mercury	-2882-03-07 20:52 J	668838.19	668838.37	668838.55	0.0497	0.0123
Venus	-2881-05-07 21:21 J	669265.29	669265.39	669265.50	0.0507	0.0429
Mercury	-2877-11-07 18:00 J	670910.14	670910.25	670910.36	0.0530	0.0256
Mercury	-2876-02-05 00:00 J	670999.40	670999.50	670999.60	0.0528	0.0313
Venus	-2875-03-17 18:14 J	671405.06	671405.26	671405.46	0.0518	0.0067
Mercury	-2871-12-24 18:14 J	673148.11	673148.26	673148.41	0.0496	0.0297
Mercury	-2870-03-25 04:04 J	673238.57	673238.67	673238.76	0.0498	0.0418
Venus	-2869-09-04 17:31 J	673768.08	673768.23	673768.40	0.0512	0.0321
Moon	-2868-06-04 06:14 J	674040.54	674040.76	674040.98	0.0520	0.0228
Earth	-2868-06-04 09:36 J	674040.69	674040.90	674041.11	0.0520	0.0252 *

Mars	-2865-03-13 11:45 J	675053.73	675053.99	675054.24	0.0533	0.0156
Mercury	-2865-08-26 22:19 J	675220.35	675220.43	675220.52	0.0530	0.0396
Mercury	-2865-11-24 04:33 J	675309.57	675309.69	675309.81	0.0529	0.0178
Venus	-2864-11-20 13:55 J	675670.94	675671.08	675671.23	0.0519	0.0371
Moon	-2863-11-27 13:12 J	676043.02	676043.05	676043.08	0.0508	0.0501
Mercury	-2859-10-12 15:21 J	677458.09	677458.14	677458.20	0.0496	0.0473
Mercury	-2858-01-11 00:43 J	677548.37	677548.53	677548.70	0.0498	0.0237
Venus	-2857-05-10 14:23 J	678033.90	678034.10	678034.31	0.0510	0.0032
Earth	-2856-06-09 13:26 J	678428.83	678429.06	678429.30	0.0522	0.0083
Moon	-2856-06-09 14:23 J	678428.87	678429.10	678429.32	0.0522	0.0095 *
Mercury	-2853-09-12 08:52 J	679619.74	679619.87	679619.99	0.0529	0.0040
Venus	-2851-03-20 10:19 J	680173.81	680173.93	680174.06	0.0514	0.0403
Earth	-2851-12-02 02:38 J	680430.41	680430.61	680430.81	0.0506	0.0247
Moon	-2851-12-02 06:28 J	680430.56	680430.77	680430.97	0.0506	0.0240 *
Mars	-2847-03-07 13:40 J	681621.90	681622.07	681622.26	0.0494	0.0378
Mercury	-2847-10-29 22:04 J	681858.23	681858.42	681858.60	0.0498	0.0060
Venus	-2845-01-14 11:45 J	682299.82	682299.99	682300.17	0.0508	0.0257
Earth	-2844-06-14 16:19 J	682817.04	682817.18	682817.32	0.0523	0.0415
Moon	-2844-06-14 17:45 J	682817.08	682817.24	682817.41	0.0523	0.0384 *
Mercury	-2841-07-01 12:43 J	683929.90	683930.03	683930.15	0.0529	0.0110
Mercury	-2841-09-28 18:14 J	684019.20	684019.26	684019.33	0.0527	0.0452
Venus	-2840-11-23 06:00 J	684439.56	684439.75	684439.95	0.0516	0.0105
Moon	-2839-12-06 07:55 J	684817.60	684817.83	684818.07	0.0505	0.0010
Earth	-2839-12-06 11:31 J	684817.75	684817.98	684818.21	0.0505	0.0032 *
Mercury	-2835-08-17 19:26 J	686168.13	686168.31	686168.49	0.0497	0.0116
Venus	-2833-05-13 09:07 J	686802.85	686802.88	686802.92	0.0513	0.0502
Mercury	-2829-04-19 16:33 J	688240.08	688240.19	688240.31	0.0530	0.0255
Mercury	-2829-07-17 22:33 J	688329.34	688329.44	688329.54	0.0528	0.0313
Venus	-2828-07-29 02:38 J	688705.42	688705.61	688705.80	0.0518	0.0196
Earth	-2827-12-10 22:33 J	689205.27	689205.44	689205.63	0.0504	0.0315

Moon	-2827-12-11 01:12 J	689205.37	689205.55	689205.73	0.0504	0.0307 *
Mercury	-2823-06-05 16:19 J	690478.03	690478.18	690478.32	0.0496	0.0296
Mercury	-2823-09-04 01:55 J	690568.48	690568.58	690568.68	0.0498	0.0419
Venus	-2821-01-17 02:23 J	691068.41	691068.60	691068.79	0.0510	0.0196
Mercury	-2817-02-06 20:23 J	692550.27	692550.35	692550.43	0.0531	0.0405
Mercury	-2817-05-06 02:38 J	692639.49	692639.61	692639.73	0.0529	0.0169
Venus	-2816-04-02 21:50 J	692971.37	692971.41	692971.47	0.0521	0.0503
Mercury	-2811-03-24 13:40 J	694788.01	694788.07	694788.12	0.0496	0.0470
Mercury	-2811-06-22 22:47 J	694878.29	694878.45	694878.61	0.0497	0.0237
Venus	-2810-09-21 22:47 J	695334.24	695334.45	695334.65	0.0509	0.0097
Mercury	-2805-02-23 06:57 J	696949.66	696949.79	696949.92	0.0529	0.0031
Venus	-2804-07-31 19:40 J	697474.15	697474.32	697474.49	0.0515	0.0280
Mercury	-2799-04-10 19:26 J	699188.13	699188.31	699188.50	0.0497	0.0054
Venus	-2798-05-27 19:55 J	699600.20	699600.33	699600.47	0.0507	0.0382
Mercury	-2794-12-12 11:16 J	701259.84	701259.97	701260.09	0.0529	0.0109
Mercury	-2793-03-10 17:02 J	701349.14	701349.21	701349.27	0.0528	0.0454
Venus	-2792-04-05 16:19 J	701739.98	701740.18	701740.38	0.0517	0.0020
Mercury	-2787-01-27 16:47 J	703498.02	703498.20	703498.38	0.0497	0.0122
Venus	-2786-09-24 17:02 J	704103.08	704103.21	704103.36	0.0512	0.0376
Earth	-2785-06-03 12:43 J	704355.84	704356.03	704356.23	0.0520	0.0303
Moon	-2785-06-03 14:23 J	704355.91	704356.10	704356.30	0.0520	0.0275 *
Mercury	-2782-09-30 15:07 J	705570.02	705570.13	705570.24	0.0530	0.0258
Mercury	-2782-12-28 20:52 J	705659.27	705659.37	705659.47	0.0528	0.0309
Venus	-2781-12-09 10:19 J	706005.78	706005.93	706006.09	0.0519	0.0328
Mercury	-2776-11-15 14:09 J	707807.94	707808.09	707808.24	0.0497	0.0297
Mercury	-2775-02-13 23:45 J	707898.40	707898.49	707898.60	0.0498	0.0420
Venus	-2774-05-30 12:43 J	708368.83	708369.03	708369.24	0.0510	0.0079
Earth	-2773-06-08 12:57 J	708743.81	708744.04	708744.28	0.0521	0.0023
Moon	-2773-06-08 13:55 J	708743.83	708744.08	708744.32	0.0521	0.0029 *
Mercury	-2770-07-19 18:43 J	709880.21	709880.28	709880.37	0.0530	0.0407

Mercury	-2770-10-17 00:57 J	709969.42	709969.54	709969.66	0.0529	0.0167
Venus	-2768-04-08 06:57 J	710508.70	710508.79	710508.89	0.0514	0.0447
Moon	-2768-12-01 02:23 J	710745.42	710745.60	710745.80	0.0507	0.0300
Earth	-2768-12-01 06:14 J	710745.58	710745.76	710745.95	0.0507	0.0300 *
Mars	-2765-11-20 01:40 J	711830.42	711830.57	711830.74	0.0493	0.0407
Mercury	-2764-09-03 11:16 J	712117.92	712117.97	712118.03	0.0496	0.0473
Mercury	-2764-12-02 20:23 J	712208.19	712208.35	712208.52	0.0497	0.0235
Venus	-2762-02-02 07:40 J	712634.63	712634.82	712635.00	0.0507	0.0219
Moon	-2761-06-13 06:57 J	713131.61	713131.79	713131.98	0.0522	0.0306
Earth	-2761-06-13 09:21 J	713131.72	713131.89	713132.08	0.0522	0.0337 *
Mercury	-2758-08-05 04:47 J	714279.58	714279.70	714279.83	0.0530	0.0023
Venus	-2757-12-12 03:50 J	714774.47	714774.66	714774.85	0.0517	0.0151
Earth	-2756-12-05 17:31 J	715133.00	715133.23	715133.46	0.0506	0.0014
Moon	-2756-12-05 19:55 J	715133.11	715133.33	715133.55	0.0506	0.0043 *
Mercury	-2752-09-20 17:31 J	716518.04	716518.23	716518.41	0.0497	0.0054
Venus	-2751-10-08 04:33 J	716900.68	716900.69	716900.71	0.0506	0.0504
Mars	-2747-09-01 00:57 J	718324.31	718324.54	718324.77	0.0534	0.0270
Mercury	-2746-05-24 09:07 J	718589.76	718589.88	718590.01	0.0530	0.0121
Mercury	-2746-08-21 14:52 J	718679.06	718679.12	718679.19	0.0528	0.0443
Venus	-2745-08-16 23:45 J	719040.30	719040.49	719040.69	0.0518	0.0151
Moon	-2744-12-10 00:43 J	719520.33	719520.53	719520.73	0.0504	0.0255
Earth	-2744-12-10 02:09 J	719520.39	719520.59	719520.78	0.0504	0.0262 *
Mercury	-2740-07-09 13:55 J	720827.90	720828.08	720828.26	0.0497	0.0132
Venus	-2738-02-05 00:00 J	721403.32	721403.50	721403.68	0.0511	0.0244
Mercury	-2734-03-12 13:26 J	722899.95	722900.06	722900.17	0.0530	0.0261
Mercury	-2734-06-09 19:26 J	722989.21	722989.31	722989.41	0.0528	0.0308
Venus	-2733-04-21 19:12 J	723306.21	723306.30	723306.40	0.0520	0.0457
Mars	-2729-08-25 11:45 J	724892.71	724892.99	724893.27	0.0493	0.0035
Mercury	-2728-04-27 11:16 J	725137.83	725137.97	725138.11	0.0497	0.0307
Mercury	-2728-07-26 20:52 J	725228.27	725228.37	725228.48	0.0498	0.0409

Venus	-2727-10-10 20:38 J	725669.16	725669.36	725669.56	0.0509	0.0048
Mercury	-2723-12-29 17:02 J	727210.14	727210.21	727210.29	0.0530	0.0412
Mercury	-2722-03-28 23:16 J	727299.35	727299.47	727299.59	0.0528	0.0161
Venus	-2721-08-19 15:07 J	727808.98	727809.13	727809.29	0.0515	0.0321
Mercury	-2716-02-13 08:38 J	729447.82	729447.86	729447.91	0.0496	0.0480
Mercury	-2716-05-14 18:00 J	729538.09	729538.25	729538.42	0.0498	0.0229
Venus	-2715-06-15 17:31 J	729935.08	729935.23	729935.38	0.0507	0.0337
Mars	-2711-06-06 21:21 J	731387.16	731387.39	731387.63	0.0532	0.0258
Mercury	-2710-01-15 03:21 J	731609.51	731609.64	731609.76	0.0529	0.0022
Venus	-2709-04-24 11:31 J	732074.77	732074.98	732075.18	0.0517	0.0022
Mercury	-2704-03-02 14:52 J	733847.94	733848.12	733848.31	0.0497	0.0048
Venus	-2703-10-13 12:00 J	734437.89	734438.00	734438.13	0.0511	0.0413
Moon	-2702-06-03 05:45 J	734670.56	734670.74	734670.93	0.0518	0.0345
Earth	-2702-06-03 06:00 J	734670.59	734670.75	734670.92	0.0518	0.0377 *
Mercury	-2699-11-03 06:57 J	735919.67	735919.79	735919.91	0.0530	0.0135
Mercury	-2698-01-31 12:43 J	736008.96	736009.03	736009.10	0.0528	0.0430
Venus	-2698-12-29 06:28 J	736340.60	736340.77	736340.94	0.0520	0.0288
Mars	-2693-05-31 01:40 J	737955.52	737955.57	737955.65	0.0494	0.0479
Mercury	-2693-12-19 12:00 J	738157.82	738158.00	738158.17	0.0496	0.0133
Venus	-2691-06-18 07:26 J	738703.61	738703.81	738704.01	0.0509	0.0115
Moon	-2690-06-08 04:19 J	739058.45	739058.68	739058.91	0.0520	0.0049
Earth	-2690-06-08 06:00 J	739058.52	739058.75	739058.99	0.0520	0.0056 *
Mercury	-2687-08-22 11:02 J	740229.85	740229.96	740230.07	0.0530	0.0277
Mercury	-2687-11-19 17:02 J	740319.11	740319.21	740319.32	0.0529	0.0294
Venus	-2685-04-27 02:52 J	740843.57	740843.62	740843.69	0.0514	0.0491
Earth	-2685-11-30 07:26 J	741060.66	741060.81	741060.98	0.0508	0.0358
Moon	-2685-11-30 10:04 J	741060.78	741060.92	741061.08	0.0508	0.0366 *
Mercury	-2681-10-07 08:09 J	742467.71	742467.84	742467.99	0.0496	0.0318
Mercury	-2680-01-05 17:45 J	742558.14	742558.24	742558.36	0.0498	0.0397
Venus	-2679-02-21 03:36 J	742969.46	742969.65	742969.85	0.0508	0.0178

Earth	-2678-06-13 08:23 J	743446.65	743446.85	743447.05	0.0522	0.0273
Moon	-2678-06-13 11:31 J	743446.77	743446.98	743447.20	0.0522	0.0241 *
Mercury	-2675-06-10 15:21 J	744540.06	744540.14	744540.22	0.0531	0.0417
Mercury	-2675-09-07 21:36 J	744629.28	744629.40	744629.52	0.0529	0.0157
Venus	-2673-01-01 00:14 J	745109.32	745109.51	745109.70	0.0516	0.0196
Moon	-2673-12-04 16:33 J	745447.96	745448.19	745448.43	0.0506	0.0105
Earth	-2673-12-04 18:00 J	745448.03	745448.25	745448.48	0.0506	0.0074 *
Mercury	-2669-07-26 05:31 J	746777.72	746777.73	746777.76	0.0496	0.0491
Mercury	-2669-10-24 14:52 J	746867.95	746868.12	746868.29	0.0498	0.0216
Venus	-2668-10-27 01:12 J	747235.48	747235.55	747235.64	0.0506	0.0462
Mercury	-2663-06-27 01:26 J	748939.44	748939.56	748939.69	0.0529	0.0015
Venus	-2662-09-05 19:12 J	749375.10	749375.30	749375.49	0.0518	0.0112
Earth	-2661-12-09 02:09 J	749835.38	749835.59	749835.80	0.0505	0.0200
Moon	-2661-12-09 02:23 J	749835.39	749835.60	749835.80	0.0505	0.0198 *
Mercury	-2657-08-12 12:00 J	751177.82	751178.00	751178.19	0.0497	0.0039
Venus	-2655-02-23 21:07 J	751738.21	751738.38	751738.55	0.0511	0.0290
Mercury	-2651-04-15 05:16 J	753249.60	753249.72	753249.85	0.0530	0.0138
Mercury	-2651-07-13 11:16 J	753338.89	753338.97	753339.04	0.0528	0.0427
Venus	-2650-05-11 13:40 J	753640.96	753641.07	753641.19	0.0520	0.0422
Earth	-2649-12-13 12:00 J	754222.93	754223.00	754223.07	0.0503	0.0477
Mercury	-2645-05-31 09:21 J	755487.71	755487.89	755488.06	0.0497	0.0139
Venus	-2644-10-29 16:04 J	756003.96	756004.17	756004.37	0.0509	0.0012
Mercury	-2639-02-01 08:52 J	757559.76	757559.87	757559.98	0.0530	0.0291
Mercury	-2639-05-01 14:52 J	757649.02	757649.12	757649.23	0.0529	0.0280
Venus	-2638-09-08 10:33 J	758143.80	758143.94	758144.09	0.0515	0.0361
Mercury	-2633-03-19 06:28 J	759797.63	759797.77	759797.91	0.0496	0.0316
Mercury	-2633-06-17 15:50 J	759888.05	759888.16	759888.27	0.0498	0.0396
Venus	-2632-07-04 12:28 J	760269.85	760270.02	760270.18	0.0507	0.0301
Mercury	-2628-11-20 12:57 J	761869.97	761870.04	761870.12	0.0531	0.0434
Mercury	-2627-02-17 19:12 J	761959.18	761959.30	761959.43	0.0529	0.0143

Venus	-2626-05-14 07:12 J	762409.60	762409.80	762410.00	0.0517	0.0063
Mercury	-2621-04-05 11:45 J	764197.82	764197.99	764198.16	0.0497	0.0203
Venus	-2620-11-01 07:55 J	764772.74	764772.83	764772.92	0.0512	0.0456
Moon	-2619-06-02 02:38 J	764985.47	764985.61	764985.75	0.0519	0.0412
Earth	-2619-06-02 03:36 J	764985.53	764985.65	764985.77	0.0519	0.0443 *
Mercury	-2616-12-06 23:45 J	766269.36	766269.49	766269.62	0.0529	0.0005
Venus	-2614-01-17 03:21 J	766675.46	766675.64	766675.82	0.0519	0.0242
Mars	-2610-02-12 23:16 J	768163.27	768163.47	768163.69	0.0493	0.0326
Mercury	-2609-01-23 08:52 J	768507.69	768507.87	768508.06	0.0497	0.0025
Venus	-2608-07-07 04:04 J	769038.48	769038.67	769038.86	0.0510	0.0161
Earth	-2607-06-07 05:31 J	769373.50	769373.73	769373.96	0.0520	0.0119
Moon	-2607-06-07 08:23 J	769373.61	769373.85	769374.09	0.0520	0.0113 *
Mercury	-2604-09-25 03:36 J	770579.53	770579.65	770579.78	0.0530	0.0142
Mercury	-2604-12-23 09:21 J	770668.82	770668.89	770668.97	0.0528	0.0422
Moon	-2602-11-30 05:45 J	771375.63	771375.74	771375.88	0.0508	0.0430
Earth	-2602-11-30 07:26 J	771375.69	771375.81	771375.95	0.0508	0.0419 *
Mercury	-2598-11-11 06:14 J	772817.59	772817.76	772817.94	0.0497	0.0151
Venus	-2596-03-12 00:57 J	773304.34	773304.54	773304.74	0.0508	0.0133
Moon	-2595-06-12 02:52 J	773761.40	773761.62	773761.84	0.0521	0.0174
Earth	-2595-06-12 06:28 J	773761.56	773761.77	773762.00	0.0521	0.0207 *
Mars	-2593-11-24 06:43 J	774657.54	774657.78	774658.04	0.0533	0.0176
Mercury	-2592-07-14 07:26 J	774889.71	774889.81	774889.92	0.0530	0.0290
Mercury	-2592-10-11 13:26 J	774978.96	774979.06	774979.17	0.0528	0.0279
Venus	-2590-01-19 18:43 J	775444.10	775444.28	775444.46	0.0516	0.0233
Earth	-2590-12-04 18:00 J	775763.03	775763.25	775763.48	0.0507	0.0136
Moon	-2590-12-04 18:14 J	775763.05	775763.26	775763.47	0.0507	0.0167 *
Mercury	-2586-08-30 03:36 J	777127.52	777127.65	777127.80	0.0496	0.0324
Mercury	-2586-11-28 13:12 J	777217.94	777218.05	777218.17	0.0498	0.0390
Venus	-2585-11-14 21:36 J	777570.29	777570.40	777570.51	0.0506	0.0421
Mercury	-2580-05-02 10:47 J	779199.89	779199.95	779200.02	0.0531	0.0447

Mercury	-2580-07-30 17:16 J	779289.09	779289.22	779289.34	0.0529	0.0130
Venus	-2579-09-24 14:09 J	779709.89	779710.09	779710.29	0.0518	0.0074
Earth	-2578-12-09 04:19 J	780150.46	780150.68	780150.90	0.0505	0.0144
Moon	-2578-12-09 05:31 J	780150.51	780150.73	780150.96	0.0505	0.0146 *
Mars	-2575-11-18 19:40 J	781226.05	781226.32	781226.59	0.0493	0.0131
Mercury	-2574-09-16 10:04 J	781527.75	781527.92	781528.09	0.0497	0.0207
Venus	-2572-03-14 16:04 J	782073.02	782073.17	782073.33	0.0511	0.0330
Mercury	-2568-05-18 21:21 J	783599.27	783599.39	783599.52	0.0530	0.0021
Venus	-2567-05-30 09:36 J	783975.76	783975.90	783976.04	0.0520	0.0380
Moon	-2566-12-13 10:33 J	784537.84	784537.94	784538.04	0.0504	0.0446
Earth	-2566-12-13 13:12 J	784537.93	784538.05	784538.18	0.0504	0.0417 *
Mercury	-2562-07-05 06:00 J	785837.56	785837.75	785837.93	0.0497	0.0016
Venus	-2561-11-17 11:02 J	786338.76	786338.96	786339.17	0.0509	0.0031
Mars	-2557-08-30 04:33 J	787720.49	787720.69	787720.89	0.0533	0.0357
Mercury	-2556-03-07 01:55 J	787909.46	787909.58	787909.70	0.0530	0.0146
Mercury	-2556-06-04 07:40 J	787998.75	787998.82	787998.90	0.0528	0.0419
Venus	-2555-09-27 07:55 J	788478.71	788478.83	788478.95	0.0515	0.0409
Mercury	-2550-04-23 03:07 J	790147.46	790147.63	790147.81	0.0497	0.0162
Venus	-2549-07-23 08:23 J	790604.68	790604.85	790605.03	0.0507	0.0260
Mercury	-2545-12-24 05:45 J	792219.64	792219.74	792219.85	0.0530	0.0293
Mercury	-2544-03-23 12:00 J	792308.89	792309.00	792309.10	0.0528	0.0277
Venus	-2543-06-02 03:21 J	792744.44	792744.64	792744.84	0.0517	0.0106
Mercury	-2538-02-09 00:43 J	794457.40	794457.53	794457.67	0.0496	0.0335
Mercury	-2538-05-10 10:19 J	794547.81	794547.93	794548.05	0.0498	0.0380
Venus	-2537-11-20 05:45 J	795107.72	795107.74	795107.77	0.0512	0.0506
Earth	-2536-06-01 04:04 J	795300.61	795300.67	795300.73	0.0518	0.0499
Moon	-2536-06-01 06:14 J	795300.66	795300.76	795300.87	0.0518	0.0464 *
Mercury	-2533-10-12 09:36 J	796529.83	796529.90	796529.97	0.0530	0.0442
Mercury	-2532-01-09 15:50 J	796619.04	796619.16	796619.29	0.0529	0.0133
Venus	-2531-02-04 22:33 J	797010.26	797010.44	797010.63	0.0519	0.0203



Mercury	-2526-02-26 07:26 J	798857.65	798857.81	798857.99	0.0497	0.0204
Venus	-2525-07-26 00:57 J	799373.36	799373.54	799373.73	0.0510	0.0206
Moon	-2524-06-05 22:47 J	799688.23	799688.45	799688.67	0.0519	0.0184
Earth	-2524-06-06 02:09 J	799688.38	799688.59	799688.82	0.0519	0.0187 *
Mercury	-2521-10-28 19:40 J	800929.19	800929.32	800929.44	0.0529	0.0025
Venus	-2520-10-10 16:19 J	801276.17	801276.18	801276.21	0.0521	0.0517
Earth	-2519-11-29 09:21 J	801690.82	801690.89	801690.98	0.0509	0.0476
Moon	-2519-11-29 09:36 J	801690.86	801690.90	801690.96	0.0509	0.0493 *
Mercury	-2515-12-15 04:33 J	803167.51	803167.69	803167.88	0.0497	0.0022
Venus	-2513-03-30 21:21 J	803639.18	803639.39	803639.59	0.0508	0.0090
Earth	-2512-06-11 02:09 J	804076.36	804076.59	804076.82	0.0521	0.0134
Moon	-2512-06-11 06:00 J	804076.52	804076.75	804076.98	0.0521	0.0103 *
Mercury	-2509-08-16 23:45 J	805239.37	805239.49	805239.62	0.0530	0.0159
Mercury	-2509-11-14 05:45 J	805328.66	805328.74	805328.82	0.0528	0.0407
Venus	-2507-02-07 15:21 J	805778.97	805779.14	805779.31	0.0516	0.0280
Earth	-2507-12-03 20:38 J	806078.15	806078.36	806078.57	0.0507	0.0194
Moon	-2507-12-03 21:50 J	806078.20	806078.41	806078.63	0.0507	0.0222 *
Mercury	-2503-10-03 00:28 J	807477.35	807477.52	807477.70	0.0497	0.0170
Venus	-2502-12-04 16:33 J	807905.06	807905.19	807905.33	0.0506	0.0384
Moon	-2500-06-16 00:14 J	808464.40	808464.51	808464.63	0.0523	0.0455
Earth	-2500-06-16 02:52 J	808464.52	808464.62	808464.74	0.0523	0.0455 *
Mercury	-2497-06-05 04:19 J	809549.57	809549.68	809549.79	0.0530	0.0295
Mercury	-2497-09-02 10:19 J	809638.83	809638.93	809639.04	0.0529	0.0276
Venus	-2496-10-13 12:57 J	810044.84	810045.04	810045.24	0.0518	0.0019
Moon	-2495-12-08 05:31 J	810465.51	810465.73	810465.95	0.0505	0.0098
Earth	-2495-12-08 08:23 J	810465.62	810465.85	810466.07	0.0505	0.0091 *
Mercury	-2491-07-21 22:04 J	811787.29	811787.42	811787.55	0.0496	0.0343
Mercury	-2491-10-20 07:26 J	811877.69	811877.81	811877.93	0.0498	0.0370
Venus	-2489-04-02 13:12 J	812407.92	812408.05	812408.19	0.0511	0.0378
Mercury	-2485-03-24 08:23 J	813859.78	813859.85	813859.92	0.0530	0.0441

Mercury	-2485-06-21 14:38 J	813948.98	813949.11	813949.23	0.0529	0.0135
Venus	-2484-06-18 07:40 J	814310.67	814310.82	814310.98	0.0519	0.0331
Earth	-2483-12-12 16:47 J	814853.04	814853.20	814853.36	0.0504	0.0363
Moon	-2483-12-12 20:23 J	814853.21	814853.35	814853.50	0.0504	0.0394 *
Mercury	-2479-08-08 04:47 J	816187.53	816187.70	816187.87	0.0498	0.0194
Venus	-2478-12-07 10:04 J	816673.72	816673.92	816674.12	0.0509	0.0083
Mercury	-2473-04-09 18:28 J	818259.15	818259.27	818259.40	0.0529	0.0019
Venus	-2472-10-16 04:19 J	818813.59	818813.68	818813.77	0.0515	0.0454
Mercury	-2467-05-27 02:23 J	820497.41	820497.60	820497.78	0.0497	0.0021
Venus	-2466-08-12 07:12 J	820939.61	820939.80	820939.99	0.0507	0.0209
Mercury	-2461-01-27 22:04 J	822569.30	822569.42	822569.54	0.0530	0.0163
Mercury	-2461-04-26 04:04 J	822658.59	822658.67	822658.75	0.0528	0.0403
Venus	-2460-06-20 23:45 J	823079.30	823079.49	823079.69	0.0517	0.0152
Mars	-2456-05-08 13:26 J	824496.81	824497.06	824497.32	0.0493	0.0219
Mercury	-2455-03-14 23:31 J	824807.31	824807.48	824807.66	0.0497	0.0157
Venus	-2454-04-17 04:33 J	825205.66	825205.69	825205.73	0.0505	0.0496
Mercury	-2450-11-16 02:23 J	826879.50	826879.60	826879.70	0.0530	0.0304
Mercury	-2449-02-13 08:23 J	826968.75	826968.85	826968.96	0.0529	0.0268
Venus	-2448-02-23 20:38 J	827345.17	827345.36	827345.55	0.0519	0.0151
Mercury	-2444-12-31 19:40 J	829117.19	829117.32	829117.45	0.0496	0.0347
Mercury	-2443-04-01 05:02 J	829207.58	829207.71	829207.83	0.0498	0.0365
Venus	-2442-08-14 21:07 J	829708.20	829708.38	829708.56	0.0510	0.0250
Earth	-2441-06-05 00:57 J	830003.34	830003.54	830003.75	0.0519	0.0252
Moon	-2441-06-05 04:47 J	830003.50	830003.70	830003.91	0.0519	0.0257 *
Mars	-2438-02-18 00:14 J	830991.25	830991.51	830991.77	0.0533	0.0060
Mercury	-2438-09-04 06:43 J	831189.72	831189.78	831189.86	0.0531	0.0441
Mercury	-2438-12-02 13:12 J	831278.93	831279.05	831279.17	0.0529	0.0136
Venus	-2437-10-29 17:16 J	831611.13	831611.22	831611.32	0.0521	0.0457
Mercury	-2431-01-18 02:09 J	833517.42	833517.59	833517.77	0.0497	0.0189
Venus	-2430-04-19 18:28 J	833974.07	833974.27	833974.48	0.0509	0.0043

Moon	-2429-06-10 01:26 J	834391.32	834391.56	834391.80	0.0521	0.0043
Earth	-2429-06-10 04:33 J	834391.45	834391.69	834391.92	0.0521	0.0076 *
Mercury	-2426-09-20 17:16 J	835589.10	835589.22	835589.35	0.0529	0.0019
Venus	-2424-02-26 14:38 J	836113.97	836114.11	836114.27	0.0515	0.0336
Moon	-2424-12-03 00:00 J	836393.31	836393.50	836393.69	0.0507	0.0265
Earth	-2424-12-03 02:38 J	836393.41	836393.61	836393.81	0.0507	0.0239 *
Mars	-2420-02-11 02:38 J	837559.36	837559.61	837559.86	0.0494	0.0226
Mercury	-2420-11-05 23:45 J	837827.31	837827.49	837827.68	0.0497	0.0020
Venus	-2419-12-23 16:47 J	838240.05	838240.20	838240.36	0.0507	0.0330
Earth	-2417-06-15 07:26 J	838779.67	838779.81	838779.96	0.0522	0.0405
Moon	-2417-06-15 08:52 J	838779.73	838779.87	838780.01	0.0522	0.0412 *
Mercury	-2414-07-09 21:21 J	839899.27	839899.39	839899.51	0.0530	0.0150
Mercury	-2414-10-07 03:07 J	839988.56	839988.63	839988.71	0.0528	0.0415
Venus	-2413-11-01 10:47 J	840379.75	840379.95	840380.16	0.0517	0.0033
Earth	-2412-12-07 12:57 J	840780.81	840781.04	840781.27	0.0506	0.0041
Moon	-2412-12-07 16:47 J	840780.97	840781.20	840781.43	0.0506	0.0060 *
Mercury	-2408-08-24 21:36 J	842137.23	842137.40	842137.58	0.0497	0.0155
Venus	-2406-04-22 13:12 J	842742.95	842743.05	842743.16	0.0511	0.0436
Mars	-2403-11-23 18:00 J	844054.13	844054.25	844054.38	0.0532	0.0470
Mercury	-2402-04-28 00:57 J	844209.44	844209.54	844209.65	0.0530	0.0302
Mercury	-2402-07-26 06:57 J	844298.69	844298.79	844298.90	0.0528	0.0270
Venus	-2401-07-07 05:31 J	844645.56	844645.73	844645.90	0.0520	0.0282
Moon	-2400-12-11 18:57 J	845168.13	845168.29	845168.46	0.0505	0.0346
Earth	-2400-12-11 22:47 J	845168.28	845168.45	845168.63	0.0505	0.0316 *
Mercury	-2396-06-12 18:57 J	846447.16	846447.29	846447.43	0.0496	0.0329
Mercury	-2396-09-11 04:19 J	846537.57	846537.68	846537.80	0.0498	0.0385
Venus	-2395-12-26 09:07 J	847008.68	847008.88	847009.08	0.0509	0.0136
Mercury	-2390-02-14 05:02 J	848519.65	848519.71	848519.78	0.0531	0.0445
Mercury	-2390-05-14 11:31 J	848608.86	848608.98	848609.10	0.0529	0.0132
Venus	-2389-11-04 03:21 J	849148.63	849148.64	849148.67	0.0514	0.0512

Mercury	-2384-06-30 00:14 J	850847.34	850847.51	850847.68	0.0497	0.0188
Venus	-2383-08-31 03:50 J	851274.47	851274.66	851274.85	0.0508	0.0166
Mercury	-2378-03-02 16:04 J	852919.05	852919.17	852919.30	0.0530	0.0018
Venus	-2377-07-10 01:55 J	853414.40	853414.58	853414.77	0.0516	0.0218
Mercury	-2372-04-17 21:50 J	855157.22	855157.41	855157.59	0.0497	0.0017
Venus	-2371-05-06 02:09 J	855540.51	855540.59	855540.69	0.0506	0.0451
Mercury	-2367-12-19 20:23 J	857229.23	857229.35	857229.48	0.0530	0.0142
Mercury	-2366-03-19 02:23 J	857318.52	857318.60	857318.67	0.0528	0.0424
Venus	-2365-03-14 22:04 J	857680.22	857680.42	857680.62	0.0518	0.0090
Mercury	-2360-02-03 19:26 J	859467.14	859467.31	859467.49	0.0497	0.0157
Venus	-2359-09-02 22:47 J	860043.30	860043.45	860043.62	0.0511	0.0314
Moon	-2358-06-05 05:02 J	860318.52	860318.71	860318.91	0.0519	0.0303
Earth	-2358-06-05 08:23 J	860318.66	860318.85	860319.05	0.0519	0.0291 *
Mercury	-2355-10-08 00:28 J	861539.41	861539.52	861539.63	0.0530	0.0286
Mercury	-2354-01-05 06:28 J	861628.67	861628.77	861628.88	0.0528	0.0285
Venus	-2354-11-18 17:02 J	861946.08	861946.21	861946.34	0.0520	0.0402
Mercury	-2349-11-22 17:31 J	863777.09	863777.23	863777.37	0.0496	0.0323
Mercury	-2348-02-21 02:52 J	863867.51	863867.62	863867.74	0.0498	0.0391
Venus	-2347-05-08 20:09 J	864309.13	864309.34	864309.54	0.0509	0.0020
Earth	-2346-06-10 09:36 J	864706.66	864706.90	864707.14	0.0520	0.0028
Moon	-2346-06-10 11:31 J	864706.75	864706.98	864707.21	0.0520	0.0003 *
Mercury	-2343-07-27 04:04 J	865849.60	865849.67	865849.74	0.0531	0.0438
Mercury	-2343-10-24 10:19 J	865938.81	865938.93	865939.05	0.0529	0.0138
Venus	-2341-03-17 13:55 J	866448.95	866449.08	866449.21	0.0515	0.0391
Earth	-2341-12-02 09:50 J	866708.72	866708.91	866709.10	0.0508	0.0283
Moon	-2341-12-02 13:26 J	866708.88	866709.06	866709.25	0.0508	0.0301 *
Mercury	-2337-09-10 15:07 J	868087.12	868087.13	868087.15	0.0496	0.0493
Mercury	-2337-12-10 00:00 J	868177.34	868177.50	868177.67	0.0497	0.0212
Venus	-2335-01-11 17:16 J	868575.05	868575.22	868575.39	0.0507	0.0273
Moon	-2334-06-15 10:33 J	869094.76	869094.94	869095.12	0.0522	0.0358

Earth	-2334-06-15 10:33 J	869094.77	869094.94	869095.12	0.0522	0.0350	*
Mercury	-2331-08-12 14:38 J	870248.99	870249.11	870249.24	0.0530	0.0020	
Venus	-2330-11-21 11:31 J	870714.78	870714.98	870715.18	0.0517	0.0093	
Moon	-2329-12-06 18:43 J	871096.05	871096.28	871096.51	0.0506	0.0021	
Earth	-2329-12-06 22:33 J	871096.21	871096.44	871096.67	0.0506	0.0006	*
Mercury	-2325-09-27 20:09 J	872487.15	872487.34	872487.52	0.0497	0.0021	
Venus	-2323-05-11 11:02 J	873077.90	873077.96	873078.02	0.0512	0.0486	
Mars	-2320-08-08 13:12 J	874262.91	874263.05	874263.19	0.0534	0.0448	
Mercury	-2319-05-31 19:26 J	874559.18	874559.31	874559.43	0.0530	0.0135	
Mercury	-2319-08-29 01:12 J	874648.48	874648.55	874648.62	0.0528	0.0432	
Venus	-2318-07-27 09:21 J	874980.70	874980.89	874981.07	0.0519	0.0210	
Earth	-2317-12-11 10:47 J	875483.77	875483.95	875484.15	0.0504	0.0283	
Moon	-2317-12-11 13:55 J	875483.91	875484.08	875484.26	0.0504	0.0312	*
Mercury	-2313-07-16 17:45 J	876797.06	876797.24	876797.41	0.0496	0.0153	
Venus	-2311-01-14 08:09 J	877343.65	877343.84	877344.03	0.0510	0.0190	
Mercury	-2307-03-19 23:31 J	878869.38	878869.48	878869.59	0.0530	0.0275	
Mercury	-2307-06-17 05:45 J	878958.63	878958.74	878958.84	0.0528	0.0296	
Mars	-2302-08-02 12:00 J	880830.73	880831.00	880831.29	0.0493	0.0102	
Mercury	-2301-05-04 15:36 J	881107.02	881107.15	881107.29	0.0496	0.0321	
Mercury	-2301-08-03 00:57 J	881197.43	881197.54	881197.66	0.0498	0.0393	
Venus	-2300-09-19 06:28 J	881609.57	881609.77	881609.97	0.0508	0.0101	
Mercury	-2295-01-06 03:36 J	883179.58	883179.65	883179.73	0.0531	0.0419	
Mercury	-2295-04-05 09:50 J	883268.79	883268.91	883269.04	0.0529	0.0158	
Venus	-2294-07-30 02:52 J	883749.45	883749.62	883749.79	0.0516	0.0278	
Mercury	-2289-02-21 13:40 J	885417.04	885417.07	885417.11	0.0496	0.0485	
Mercury	-2289-05-21 22:47 J	885507.28	885507.45	885507.62	0.0498	0.0221	
Venus	-2288-05-25 05:02 J	885875.58	885875.71	885875.84	0.0506	0.0387	
Mars	-2284-05-14 10:04 J	887325.66	887325.92	887326.18	0.0533	0.0090	
Mercury	-2283-01-22 13:55 J	887578.95	887579.08	887579.20	0.0529	0.0021	
Venus	-2282-04-03 22:04 J	888015.22	888015.42	888015.63	0.0518	0.0033	

Mercury	-2277-03-09 20:09 J	889817.16	889817.34	889817.53	0.0497	0.0045
Venus	-2276-09-22 00:28 J	890378.38	890378.52	890378.66	0.0511	0.0377
Earth	-2275-06-04 14:09 J	890633.91	890634.09	890634.27	0.0518	0.0335
Moon	-2275-06-04 16:19 J	890634.02	890634.18	890634.35	0.0518	0.0354 *
Mercury	-2272-11-10 18:14 J	891889.13	891889.26	891889.38	0.0530	0.0131
Mercury	-2271-02-08 00:00 J	891978.43	891978.50	891978.57	0.0528	0.0436
Venus	-2271-12-07 18:43 J	892281.13	892281.28	892281.43	0.0520	0.0338
Mars	-2266-05-08 07:26 J	893893.61	893893.81	893894.00	0.0493	0.0355
Mercury	-2266-12-27 16:19 J	894127.01	894127.18	894127.36	0.0496	0.0145
Venus	-2264-05-27 18:14 J	894644.06	894644.26	894644.47	0.0509	0.0070
Moon	-2263-06-09 11:02 J	895021.71	895021.96	895022.20	0.0520	0.0058
Earth	-2263-06-09 11:45 J	895021.75	895021.99	895022.22	0.0520	0.0029 *
Mercury	-2260-08-29 22:33 J	896199.33	896199.44	896199.55	0.0531	0.0267
Mercury	-2260-11-27 04:47 J	896288.60	896288.70	896288.80	0.0529	0.0306
Venus	-2258-04-06 18:28 J	896784.19	896784.27	896784.36	0.0515	0.0466
Moon	-2258-12-02 20:38 J	897024.19	897024.36	897024.55	0.0508	0.0322
Earth	-2258-12-03 00:28 J	897024.34	897024.52	897024.70	0.0508	0.0307 *
Mercury	-2254-10-15 14:09 J	898436.95	898437.09	898437.24	0.0496	0.0314
Mercury	-2253-01-13 23:31 J	898527.37	898527.48	898527.59	0.0498	0.0398
Venus	-2252-01-30 16:33 J	898910.01	898910.19	898910.38	0.0507	0.0222
Moon	-2251-06-14 14:09 J	899409.92	899410.09	899410.28	0.0522	0.0317
Earth	-2251-06-14 16:04 J	899409.98	899410.17	899410.36	0.0522	0.0302 *
Mercury	-2248-06-18 02:52 J	900509.54	900509.62	900509.70	0.0531	0.0407
Mercury	-2248-09-15 09:21 J	900598.77	900598.89	900599.01	0.0529	0.0170
Venus	-2247-12-10 15:21 J	901049.95	901050.14	901050.33	0.0517	0.0163
Earth	-2246-12-07 11:02 J	901411.73	901411.96	901412.19	0.0506	0.0028
Moon	-2246-12-07 13:55 J	901411.86	901412.08	901412.31	0.0506	0.0011 *
Mercury	-2242-08-03 12:14 J	902746.97	902747.01	902747.06	0.0496	0.0480
Mercury	-2242-11-01 21:07 J	902837.22	902837.38	902837.55	0.0498	0.0226
Venus	-2241-10-05 16:04 J	903176.16	903176.17	903176.18	0.0505	0.0505

Mercury	-2236-07-04 13:26 J	904908.94	904909.06	904909.19	0.0529	0.0032
Venus	-2235-08-15 11:16 J	905315.78	905315.97	905316.17	0.0519	0.0146
Moon	-2234-12-11 19:26 J	905799.11	905799.31	905799.51	0.0505	0.0272
Earth	-2234-12-11 21:21 J	905799.19	905799.39	905799.59	0.0505	0.0249 *
Mercury	-2230-08-20 18:57 J	907147.11	907147.29	907147.48	0.0497	0.0056
Venus	-2228-02-02 12:00 J	907678.82	907679.00	907679.17	0.0510	0.0261
Mercury	-2224-04-22 17:16 J	909219.10	909219.22	909219.35	0.0530	0.0119
Mercury	-2224-07-20 23:16 J	909308.40	909308.47	909308.53	0.0528	0.0446
Venus	-2223-04-20 05:16 J	909581.64	909581.72	909581.81	0.0521	0.0464
Moon	-2222-12-16 06:57 J	910186.79	910186.79	910186.79	0.0503	0.0503
Mercury	-2218-06-08 16:33 J	911457.01	911457.19	911457.37	0.0497	0.0117
Venus	-2217-10-08 08:52 J	911944.66	911944.87	911945.07	0.0508	0.0037
Mercury	-2212-02-08 21:36 J	913529.29	913529.40	913529.51	0.0530	0.0259
Mercury	-2212-05-09 03:36 J	913618.55	913618.65	913618.76	0.0529	0.0312
Venus	-2211-08-18 05:16 J	914084.57	914084.72	914084.87	0.0516	0.0346
Mercury	-2206-03-27 12:57 J	915766.90	915767.04	915767.19	0.0496	0.0304
Mercury	-2206-06-25 22:19 J	915857.33	915857.43	915857.54	0.0497	0.0408
Venus	-2205-06-13 03:36 J	916210.50	916210.65	916210.81	0.0506	0.0339
Mercury	-2201-11-28 01:55 J	917839.50	917839.58	917839.66	0.0531	0.0399
Mercury	-2200-02-25 08:23 J	917928.73	917928.85	917928.97	0.0530	0.0179
Venus	-2199-04-23 03:36 J	918350.45	918350.65	918350.85	0.0518	0.0046
Mercury	-2194-01-13 11:02 J	920076.91	920076.96	920077.02	0.0496	0.0470
Mercury	-2194-04-13 19:40 J	920167.16	920167.32	920167.49	0.0497	0.0234
Venus	-2193-10-11 00:14 J	920713.41	920713.51	920713.62	0.0511	0.0434
Moon	-2192-06-03 17:45 J	920949.09	920949.24	920949.40	0.0519	0.0400
Earth	-2192-06-03 18:43 J	920949.13	920949.28	920949.45	0.0519	0.0382 *
Mercury	-2189-12-14 12:43 J	922238.91	922239.03	922239.16	0.0530	0.0043
Venus	-2188-12-26 23:16 J	922616.30	922616.47	922616.65	0.0520	0.0266
Mars	-2183-01-21 02:52 J	924102.48	924102.62	924102.77	0.0493	0.0423
Mercury	-2182-01-30 17:31 J	924477.05	924477.23	924477.42	0.0497	0.0062

Venus	-2181-06-15 22:19 J	924979.23	924979.43	924979.63	0.0509	0.0139
Moon	-2180-06-08 22:04 J	925337.19	925337.42	925337.65	0.0520	0.0079
Earth	-2180-06-08 23:16 J	925337.24	925337.47	925337.71	0.0520	0.0055 *
Mercury	-2177-10-02 17:02 J	926549.08	926549.21	926549.33	0.0530	0.0098
Mercury	-2177-12-30 22:47 J	926638.40	926638.45	926638.51	0.0528	0.0467
Earth	-2175-12-02 11:16 J	927339.80	927339.97	927340.14	0.0508	0.0338
Moon	-2175-12-02 14:09 J	927339.93	927340.09	927340.26	0.0508	0.0346 *
Mercury	-2171-11-18 15:21 J	928786.97	928787.14	928787.33	0.0497	0.0107
Venus	-2169-02-19 20:38 J	929245.17	929245.36	929245.56	0.0507	0.0152
Earth	-2168-06-14 02:09 J	929725.39	929725.59	929725.79	0.0522	0.0267
Moon	-2168-06-14 05:31 J	929725.54	929725.73	929725.93	0.0522	0.0293 *
Mars	-2166-11-03 09:21 J	930597.67	930597.89	930598.12	0.0534	0.0278
Mercury	-2165-07-21 20:38 J	930859.25	930859.36	930859.48	0.0530	0.0248
Mercury	-2165-10-19 02:52 J	930948.52	930948.62	930948.72	0.0528	0.0323
Venus	-2164-12-29 16:33 J	931385.01	931385.19	931385.38	0.0517	0.0227
Moon	-2163-12-06 19:55 J	931727.09	931727.33	931727.57	0.0507	0.0036
Earth	-2163-12-06 21:36 J	931727.18	931727.40	931727.63	0.0507	0.0062 *
Mercury	-2159-09-06 13:12 J	933096.90	933097.05	933097.20	0.0496	0.0277
Mercury	-2159-12-05 22:33 J	933187.35	933187.44	933187.53	0.0498	0.0437
Venus	-2158-10-25 18:28 J	933511.18	933511.27	933511.37	0.0505	0.0442
Mercury	-2153-05-10 00:57 J	935169.45	935169.54	935169.62	0.0531	0.0390
Mercury	-2153-08-07 07:12 J	935258.68	935258.80	935258.92	0.0529	0.0187
Venus	-2152-09-03 13:55 J	935650.88	935651.08	935651.28	0.0519	0.0079
Moon	-2151-12-11 10:04 J	936114.73	936114.92	936115.12	0.0505	0.0233
Earth	-2151-12-11 10:33 J	936114.73	936114.94	936115.15	0.0505	0.0219 *
Mars	-2148-10-27 04:19 J	937165.40	937165.68	937165.97	0.0493	0.0046
Mercury	-2147-06-25 10:04 J	937406.85	937406.92	937406.99	0.0495	0.0458
Mercury	-2147-09-23 18:43 J	937497.12	937497.28	937497.44	0.0497	0.0245
Venus	-2145-02-22 10:47 J	938013.79	938013.95	938014.11	0.0510	0.0313
Mercury	-2141-05-26 11:45 J	939568.86	939568.99	939569.12	0.0530	0.0050



Venus	-2140-05-09 10:33 J	939916.81	939916.94	939917.08	0.0521	0.0389
Earth	-2139-12-15 22:47 J	940502.43	940502.45	940502.49	0.0503	0.0499
Moon	-2139-12-16 01:26 J	940502.48	940502.56	940502.64	0.0503	0.0471 *
Mercury	-2135-07-12 16:19 J	941807.00	941807.18	941807.36	0.0497	0.0072
Venus	-2134-10-28 08:23 J	942279.64	942279.85	942280.05	0.0508	0.0017
Mars	-2130-08-09 14:23 J	943660.88	943661.10	943661.33	0.0534	0.0276
Mercury	-2129-03-14 16:04 J	943879.05	943879.17	943879.30	0.0530	0.0090
Mercury	-2129-06-11 22:04 J	943968.37	943968.42	943968.47	0.0528	0.0479
Venus	-2128-09-06 09:36 J	944419.78	944419.90	944420.01	0.0515	0.0418
Mercury	-2123-04-30 14:09 J	946116.91	946117.09	946117.27	0.0496	0.0099
Venus	-2122-07-03 07:12 J	946545.63	946545.80	946545.97	0.0507	0.0272
Mercury	-2117-01-01 20:23 J	948189.24	948189.35	948189.47	0.0530	0.0228
Mercury	-2117-03-31 02:23 J	948278.51	948278.60	948278.70	0.0529	0.0343
Venus	-2116-05-12 06:00 J	948685.55	948685.75	948685.95	0.0517	0.0112
Mercury	-2111-02-16 12:00 J	950426.85	950427.00	950427.16	0.0496	0.0267
Mercury	-2111-05-17 21:21 J	950517.31	950517.39	950517.47	0.0498	0.0447
Venus	-2110-10-31 04:33 J	951048.67	951048.69	951048.71	0.0512	0.0507
Moon	-2109-06-03 05:02 J	951264.60	951264.71	951264.84	0.0518	0.0435
Earth	-2109-06-03 05:45 J	951264.60	951264.74	951264.89	0.0518	0.0410 *
Mercury	-2106-10-21 00:00 J	952499.42	952499.50	952499.59	0.0531	0.0379
Mercury	-2105-01-18 06:28 J	952588.65	952588.77	952588.89	0.0529	0.0197
Venus	-2104-01-15 00:28 J	952951.34	952951.52	952951.71	0.0520	0.0204
Mercury	-2100-12-05 09:50 J	954736.83	954736.91	954737.00	0.0496	0.0435
Mercury	-2099-03-05 18:43 J	954827.13	954827.28	954827.44	0.0497	0.0271
Venus	-2098-07-06 00:43 J	955314.34	955314.53	955314.72	0.0509	0.0205
Earth	-2097-06-08 06:28 J	955652.54	955652.77	955653.00	0.0520	0.0095
Moon	-2097-06-08 09:36 J	955652.66	955652.90	955653.14	0.0520	0.0109 *
Mercury	-2094-08-09 04:04 J	956809.66	956809.67	956809.69	0.0531	0.0523
Mercury	-2094-11-06 10:47 J	956898.82	956898.95	956899.07	0.0530	0.0059
Venus	-2093-09-19 20:09 J	957217.33	957217.34	957217.37	0.0522	0.0518

Moon	-2092-12-01 21:50 J	957655.25	957655.41	957655.58	0.0508	0.0372
Earth	-2092-12-01 23:16 J	957655.32	957655.47	957655.64	0.0508	0.0369 *
Mercury	-2088-12-22 15:07 J	959136.95	959137.13	959137.32	0.0496	0.0083
Venus	-2086-03-10 19:26 J	959580.11	959580.31	959580.51	0.0507	0.0103
Moon	-2085-06-12 23:02 J	960040.26	960040.46	960040.68	0.0521	0.0238
Earth	-2085-06-13 03:07 J	960040.42	960040.63	960040.85	0.0521	0.0210 *
Mercury	-2082-08-25 15:07 J	961209.00	961209.13	961209.25	0.0531	0.0084
Mercury	-2082-11-22 20:52 J	961298.33	961298.37	961298.42	0.0529	0.0485
Venus	-2080-01-17 21:07 J	961720.22	961720.38	961720.55	0.0517	0.0301
Moon	-2080-12-06 12:43 J	962042.81	962043.03	962043.25	0.0507	0.0054
Earth	-2080-12-06 13:12 J	962042.82	962043.05	962043.28	0.0507	0.0082 *
Mercury	-2076-10-10 12:57 J	963446.85	963447.04	963447.22	0.0496	0.0090
Venus	-2075-11-13 17:45 J	963846.11	963846.24	963846.37	0.0505	0.0392
Mercury	-2070-06-13 19:26 J	965519.19	965519.31	965519.42	0.0531	0.0221
Mercury	-2070-09-11 01:26 J	965608.47	965608.56	965608.66	0.0529	0.0351
Venus	-2069-09-22 17:45 J	965986.03	965986.24	965986.44	0.0519	0.0011
Earth	-2068-12-10 23:16 J	966430.26	966430.47	966430.69	0.0505	0.0194
Moon	-2068-12-11 01:55 J	966430.36	966430.58	966430.80	0.0505	0.0195 *
Mercury	-2064-07-29 10:33 J	967756.78	967756.94	967757.10	0.0496	0.0260
Mercury	-2064-10-27 19:40 J	967847.25	967847.32	967847.40	0.0498	0.0452
Venus	-2062-03-13 14:09 J	968348.96	968349.09	968349.23	0.0511	0.0382
Mercury	-2058-04-01 23:31 J	969829.39	969829.48	969829.57	0.0531	0.0363
Mercury	-2058-06-30 05:45 J	969918.63	969918.74	969918.86	0.0529	0.0214
Venus	-2057-05-28 12:57 J	970251.88	970252.04	970252.20	0.0520	0.0324
Moon	-2056-12-15 05:31 J	970817.62	970817.73	970817.85	0.0504	0.0434
Earth	-2056-12-15 09:07 J	970817.80	970817.88	970817.97	0.0504	0.0465 *
Mercury	-2052-05-17 08:38 J	972066.77	972066.86	972066.95	0.0496	0.0427
Mercury	-2052-08-15 17:16 J	972157.07	972157.22	972157.38	0.0497	0.0279
Venus	-2051-11-16 11:45 J	972614.79	972614.99	972615.19	0.0509	0.0086
Mercury	-2046-01-19 03:07 J	974139.60	974139.63	974139.66	0.0531	0.0514

Mercury	-2046-04-18 09:50 J	974228.78	974228.91	974229.03	0.0530	0.0068
Venus	-2045-09-25 10:04 J	974754.84	974754.92	974754.99	0.0515	0.0478
Mercury	-2040-06-03 14:52 J	976466.94	976467.12	976467.30	0.0497	0.0104
Venus	-2039-07-22 09:07 J	976880.70	976880.88	976881.07	0.0507	0.0210
Mercury	-2034-02-04 13:55 J	978538.95	978539.08	978539.21	0.0530	0.0075
Mercury	-2034-05-04 19:55 J	978628.28	978628.33	978628.37	0.0528	0.0491
Venus	-2033-05-31 07:12 J	979020.61	979020.80	979020.99	0.0518	0.0175
Mars	-2029-04-16 19:40 J	980437.09	980437.32	980437.57	0.0492	0.0272
Mercury	-2028-03-22 11:31 J	980776.80	980776.98	980777.17	0.0496	0.0081
Earth	-2026-06-03 06:00 J	981579.65	981579.75	981579.85	0.0517	0.0464
Moon	-2026-06-03 08:23 J	981579.77	981579.85	981579.93	0.0517	0.0490 *
Mercury	-2023-11-23 18:00 J	982849.13	982849.25	982849.37	0.0531	0.0220
Mercury	-2022-02-21 00:14 J	982938.42	982938.51	982938.60	0.0529	0.0354
Venus	-2021-02-04 03:50 J	983286.46	983286.66	983286.86	0.0520	0.0136
Mercury	-2016-01-08 09:21 J	985086.73	985086.89	985087.04	0.0495	0.0252
Mercury	-2016-04-08 18:14 J	985177.20	985177.26	985177.33	0.0497	0.0459
Venus	-2015-07-24 23:02 J	985649.29	985649.46	985649.64	0.0509	0.0256
Moon	-2014-06-08 03:50 J	985967.44	985967.66	985967.89	0.0519	0.0161
Earth	-2014-06-08 07:40 J	985967.60	985967.82	985968.05	0.0519	0.0149 *
Mars	-2011-01-28 02:52 J	986932.36	986932.62	986932.88	0.0534	0.0115
Mercury	-2011-09-11 22:19 J	987159.34	987159.43	987159.52	0.0532	0.0360
Mercury	-2011-12-10 04:33 J	987248.58	987248.69	987248.81	0.0530	0.0219
Venus	-2010-10-09 23:02 J	987552.37	987552.46	987552.56	0.0522	0.0453
Moon	-2009-12-01 10:19 J	987970.80	987970.93	987971.07	0.0509	0.0392
Earth	-2009-12-01 10:47 J	987970.81	987970.95	987971.10	0.0509	0.0396 *
Mercury	-2005-10-27 06:57 J	989396.69	989396.79	989396.88	0.0495	0.0423
Mercury	-2004-01-25 15:36 J	989487.00	989487.15	989487.30	0.0497	0.0281
Venus	-2003-03-29 21:21 J	989915.19	989915.39	989915.60	0.0508	0.0040
Earth	-2002-06-13 12:00 J	990355.77	990356.00	990356.22	0.0521	0.0175
Moon	-2002-06-13 15:50 J	990355.95	990356.16	990356.37	0.0521	0.0209 *

# 2ND MILLENNIUM BCE

This is a list of transits visible from Jupiter in the 2nd millennium BCE.

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-1999-07-01 02:23 J		991469.56	991469.60	991469.64	0.0532	0.0503	
Mercury	-1999-09-28 08:52 J		991558.75	991558.87	991559.00	0.0530	0.0081	
Venus	-1997-02-06 22:04 J		992055.28	992055.42	992055.57	0.0516	0.0361	
Earth	-1997-12-05 21:36 J		992358.18	992358.40	992358.63	0.0507	0.0119	
Moon	-1997-12-06 00:14 J		992358.28	992358.51	992358.74	0.0507	0.0089	*
Mars	-1993-01-21 18:00 J		993500.00	993500.25	993500.52	0.0493	0.0201	
Mercury	-1993-11-13 13:12 J		993796.87	993797.05	993797.23	0.0497	0.0108	
Venus	-1992-12-02 19:55 J		994181.18	994181.33	994181.48	0.0506	0.0330	
Moon	-1990-06-18 12:14 J		994743.97	994744.01	994744.06	0.0523	0.0512	
Earth	-1990-06-18 15:07 J		994744.06	994744.13	994744.20	0.0523	0.0497	*
Mercury	-1987-07-17 12:43 J		995868.91	995869.03	995869.16	0.0530	0.0072	
Mercury	-1987-10-14 18:43 J		995958.24	995958.28	995958.32	0.0528	0.0496	
Venus	-1986-10-12 17:16 J		996321.01	996321.22	996321.42	0.0518	0.0049	
Moon	-1985-12-10 03:36 J		996745.43	996745.65	996745.86	0.0506	0.0150	
Earth	-1985-12-10 06:57 J		996745.58	996745.79	996746.01	0.0506	0.0153	*
Mercury	-1981-09-01 10:47 J		998106.76	998106.95	998107.13	0.0496	0.0066	
Venus	-1979-04-01 15:07 J		998684.03	998684.13	998684.23	0.0511	0.0443	
Mars	-1976-11-02 23:31 J		999995.34	999995.48	999995.65	0.0533	0.0432	
Mercury	-1975-05-05 16:47 J		1000179.09	1000179.20	1000179.32	0.0531	0.0214	

Mercury	-1975-08-02 23:02 J	1000268.37	1000268.46	1000268.55	0.0529	0.0358
Venus	-1974-06-17 12:43 J	1000586.86	1000587.03	1000587.21	0.0521	0.0268
Earth	-1973-12-14 18:43 J	1001133.16	1001133.28	1001133.40	0.0504	0.0428
Moon	-1973-12-14 22:33 J	1001133.31	1001133.44	1001133.59	0.0504	0.0397 *
Mercury	-1969-06-20 07:40 J	1002416.67	1002416.82	1002416.98	0.0495	0.0245
Mercury	-1969-09-18 16:33 J	1002507.14	1002507.19	1002507.26	0.0497	0.0465
Venus	-1968-12-05 09:21 J	1002949.69	1002949.89	1002950.09	0.0508	0.0132
Mercury	-1963-02-21 20:38 J	1004489.27	1004489.36	1004489.45	0.0532	0.0364
Mercury	-1963-05-22 03:07 J	1004578.51	1004578.63	1004578.75	0.0530	0.0215
Mercury	-1957-04-08 05:31 J	1006726.63	1006726.73	1006726.83	0.0495	0.0415
Mercury	-1957-07-07 13:55 J	1006816.93	1006817.08	1006817.23	0.0496	0.0287
Venus	-1956-08-10 06:57 J	1007215.59	1007215.79	1007215.98	0.0506	0.0165
Mercury	-1952-12-11 00:43 J	1008799.50	1008799.53	1008799.57	0.0532	0.0506
Mercury	-1951-03-10 07:26 J	1008888.69	1008888.81	1008888.94	0.0530	0.0078
Venus	-1950-06-20 08:09 J	1009355.66	1009355.84	1009356.02	0.0517	0.0236
Mercury	-1945-04-25 11:02 J	1011126.78	1011126.96	1011127.14	0.0496	0.0108
Venus	-1944-04-15 05:31 J	1011481.65	1011481.73	1011481.82	0.0505	0.0453
Earth	-1943-06-02 12:28 J	1011894.97	1011895.02	1011895.08	0.0517	0.0502
Mercury	-1940-12-27 11:45 J	1013198.86	1013198.99	1013199.12	0.0530	0.0062
Mercury	-1939-03-26 17:45 J	1013288.20	1013288.24	1013288.27	0.0529	0.0504
Venus	-1938-02-23 04:04 J	1013621.47	1013621.67	1013621.87	0.0519	0.0078
Mercury	-1933-02-12 08:38 J	1015436.68	1015436.86	1015437.04	0.0496	0.0065
Venus	-1932-08-13 00:28 J	1015984.36	1015984.52	1015984.68	0.0510	0.0317
Earth	-1931-06-07 14:09 J	1016282.87	1016283.09	1016283.31	0.0519	0.0190
Moon	-1931-06-07 18:14 J	1016283.04	1016283.26	1016283.48	0.0519	0.0195 *
Mercury	-1928-10-15 15:21 J	1017509.03	1017509.14	1017509.26	0.0531	0.0213
Mercury	-1927-01-12 21:36 J	1017598.31	1017598.40	1017598.49	0.0529	0.0359
Venus	-1927-10-28 21:36 J	1017887.27	1017887.40	1017887.53	0.0521	0.0402
Earth	-1926-12-01 15:50 J	1018286.05	1018286.16	1018286.27	0.0509	0.0443
Moon	-1926-12-01 18:14 J	1018286.14	1018286.26	1018286.39	0.0509	0.0425 *

Mercury	-1922-12-01 06:14 J	1019746.60	1019746.76	1019746.92	0.0496	0.0238
Mercury	-1921-02-29 15:21 J	1019837.09	1019837.14	1019837.20	0.0497	0.0475
Venus	-1920-04-17 21:21 J	1020250.19	1020250.39	1020250.60	0.0508	0.0017
Moon	-1919-06-12 11:16 J	1020670.74	1020670.97	1020671.21	0.0520	0.0154
Earth	-1919-06-12 14:38 J	1020670.88	1020671.11	1020671.34	0.0520	0.0124 *
Mercury	-1916-08-03 19:26 J	1021819.21	1021819.31	1021819.40	0.0531	0.0360
Mercury	-1916-11-01 01:40 J	1021908.46	1021908.57	1021908.69	0.0530	0.0218
Venus	-1914-02-25 20:38 J	1022390.24	1022390.36	1022390.48	0.0516	0.0414
Moon	-1914-12-06 00:43 J	1022673.31	1022673.53	1022673.75	0.0508	0.0133
Earth	-1914-12-06 04:19 J	1022673.46	1022673.68	1022673.90	0.0508	0.0162 *
Mercury	-1910-09-19 03:36 J	1024056.55	1024056.65	1024056.75	0.0495	0.0412
Mercury	-1910-12-18 12:00 J	1024146.86	1024147.00	1024147.16	0.0496	0.0290
Venus	-1909-12-21 17:02 J	1024516.05	1024516.21	1024516.38	0.0505	0.0287
Earth	-1907-06-17 10:47 J	1025058.82	1025058.95	1025059.09	0.0522	0.0427
Moon	-1907-06-17 12:14 J	1025058.89	1025059.01	1025059.13	0.0522	0.0439 *
Mercury	-1904-05-22 22:47 J	1026129.43	1026129.45	1026129.49	0.0532	0.0514
Mercury	-1904-08-20 05:45 J	1026218.61	1026218.74	1026218.86	0.0531	0.0073
Venus	-1903-10-31 17:02 J	1026656.01	1026656.21	1026656.41	0.0519	0.0104
Earth	-1902-12-10 16:19 J	1027060.96	1027061.18	1027061.40	0.0506	0.0118
Moon	-1902-12-10 20:23 J	1027061.12	1027061.35	1027061.57	0.0506	0.0112 *
Mercury	-1898-10-06 09:21 J	1028456.71	1028456.89	1028457.07	0.0496	0.0111
Venus	-1896-04-20 11:31 J	1029018.93	1029018.98	1029019.05	0.0510	0.0486
Mars	-1893-07-18 06:28 J	1030203.73	1030203.77	1030203.82	0.0535	0.0526
Mercury	-1892-06-08 09:50 J	1030528.79	1030528.91	1030529.04	0.0531	0.0071
Mercury	-1892-09-05 15:50 J	1030618.13	1030618.16	1030618.20	0.0529	0.0499
Venus	-1891-07-06 12:14 J	1030921.83	1030922.01	1030922.20	0.0521	0.0213
Moon	-1890-12-14 21:36 J	1031448.25	1031448.40	1031448.58	0.0504	0.0355
Earth	-1890-12-15 01:26 J	1031448.42	1031448.56	1031448.71	0.0504	0.0386 *
Mercury	-1886-07-25 06:28 J	1032766.58	1032766.77	1032766.95	0.0496	0.0070
Venus	-1885-12-24 08:38 J	1033284.67	1033284.86	1033285.05	0.0509	0.0186

Mercury	-1880-03-27 14:09 J	1034838.97	1034839.09	1034839.21	0.0531	0.0210
Mercury	-1880-06-24 20:23 J	1034928.26	1034928.35	1034928.44	0.0529	0.0363
Mars	-1875-07-11 17:45 J	1036770.97	1036771.24	1036771.52	0.0492	0.0143
Mercury	-1874-05-13 03:50 J	1037076.51	1037076.66	1037076.83	0.0496	0.0242
Mercury	-1874-08-11 12:57 J	1037166.99	1037167.04	1037167.10	0.0497	0.0470
Venus	-1873-08-29 06:28 J	1037550.57	1037550.77	1037550.97	0.0507	0.0110
Mercury	-1868-01-13 17:45 J	1039149.15	1039149.24	1039149.34	0.0531	0.0362
Mercury	-1868-04-13 00:14 J	1039238.40	1039238.51	1039238.63	0.0529	0.0216
Venus	-1867-07-09 05:16 J	1039690.55	1039690.72	1039690.89	0.0517	0.0284
Mercury	-1862-03-01 01:26 J	1041386.47	1041386.56	1041386.67	0.0495	0.0413
Mercury	-1862-05-30 10:04 J	1041476.78	1041476.92	1041477.08	0.0497	0.0292
Venus	-1861-05-04 04:33 J	1041816.57	1041816.69	1041816.81	0.0505	0.0403
Mars	-1857-04-22 22:47 J	1043266.19	1043266.45	1043266.72	0.0534	0.0011
Mercury	-1857-11-01 21:36 J	1043459.37	1043459.40	1043459.43	0.0532	0.0512
Mercury	-1856-01-30 04:19 J	1043548.55	1043548.68	1043548.80	0.0530	0.0072
Venus	-1855-03-14 00:57 J	1043956.34	1043956.54	1043956.74	0.0519	0.0032
Mercury	-1850-03-18 07:12 J	1045786.62	1045786.80	1045786.98	0.0496	0.0111
Venus	-1849-08-31 20:23 J	1046319.21	1046319.35	1046319.50	0.0509	0.0359
Moon	-1848-06-06 05:31 J	1046597.53	1046597.73	1046597.94	0.0518	0.0266
Earth	-1848-06-06 09:21 J	1046597.69	1046597.89	1046598.10	0.0518	0.0257 *
Mercury	-1845-11-18 07:55 J	1047858.70	1047858.83	1047858.96	0.0531	0.0080
Mercury	-1844-02-15 13:55 J	1047948.04	1047948.08	1047948.13	0.0529	0.0489
Venus	-1844-11-16 19:12 J	1048222.15	1048222.30	1048222.44	0.0522	0.0355
Moon	-1843-11-30 18:14 J	1048601.17	1048601.26	1048601.35	0.0510	0.0466
Earth	-1843-11-30 21:50 J	1048601.34	1048601.41	1048601.47	0.0510	0.0487 *
Mars	-1839-04-16 15:07 J	1049833.92	1049834.13	1049834.35	0.0492	0.0324
Mercury	-1838-01-04 04:33 J	1050096.51	1050096.69	1050096.87	0.0495	0.0067
Venus	-1837-05-06 17:16 J	1050585.01	1050585.22	1050585.42	0.0507	0.0057
Earth	-1836-06-11 09:35 J	1050985.66	1050985.90	1050986.14	0.0520	0.0053
Moon	-1836-06-11 11:45 J	1050985.76	1050985.99	1050986.21	0.0520	0.0084 *

Mercury	-1833-09-06 12:00 J	1052168.89	1052169.00	1052169.12	0.0531	0.0222
Mercury	-1833-12-04 18:14 J	1052258.17	1052258.26	1052258.36	0.0530	0.0353
Venus	-1831-03-16 18:28 J	1052725.19	1052725.27	1052725.36	0.0516	0.0465
Earth	-1831-12-05 08:24 J	1052988.64	1052988.85	1052989.06	0.0508	0.0210
Moon	-1831-12-05 12:28 J	1052988.80	1052989.02	1052989.23	0.0508	0.0181 *
Mercury	-1827-10-23 01:12 J	1054406.40	1054406.55	1054406.71	0.0495	0.0249
Mercury	-1826-01-21 10:19 J	1054496.86	1054496.93	1054497.00	0.0497	0.0461
Venus	-1825-01-10 14:38 J	1054850.93	1054851.11	1054851.29	0.0506	0.0240
Earth	-1824-06-16 12:14 J	1055373.85	1055374.01	1055374.18	0.0522	0.0372
Moon	-1824-06-16 12:43 J	1055373.87	1055374.03	1055374.21	0.0522	0.0373 *
Mercury	-1821-06-25 16:19 J	1056479.08	1056479.18	1056479.27	0.0532	0.0364
Mercury	-1821-09-22 22:47 J	1056568.33	1056568.45	1056568.56	0.0530	0.0216
Venus	-1820-11-19 14:38 J	1056990.92	1056991.11	1056991.30	0.0518	0.0154
Moon	-1819-12-09 15:21 J	1057375.91	1057376.14	1057376.37	0.0506	0.0057
Earth	-1819-12-09 19:12 J	1057376.07	1057376.30	1057376.53	0.0506	0.0065 *
Mercury	-1815-08-10 22:47 J	1058716.36	1058716.45	1058716.55	0.0495	0.0420
Mercury	-1815-11-09 07:26 J	1058806.66	1058806.81	1058806.96	0.0497	0.0283
Mercury	-1809-04-13 19:55 J	1060789.30	1060789.33	1060789.36	0.0532	0.0516
Mercury	-1809-07-12 02:38 J	1060878.48	1060878.61	1060878.73	0.0530	0.0069
Venus	-1808-07-25 08:24 J	1061256.66	1061256.85	1061257.05	0.0520	0.0170
Earth	-1807-12-14 03:07 J	1061763.46	1061763.63	1061763.81	0.0505	0.0331
Moon	-1807-12-14 05:45 J	1061763.56	1061763.74	1061763.92	0.0505	0.0303 *
Mercury	-1803-08-28 04:47 J	1063116.52	1063116.70	1063116.88	0.0496	0.0106
Venus	-1801-01-13 06:28 J	1063619.59	1063619.77	1063619.95	0.0509	0.0236
Mercury	-1797-04-30 06:28 J	1065188.64	1065188.77	1065188.89	0.0531	0.0082
Mercury	-1797-07-28 12:28 J	1065277.97	1065278.02	1065278.06	0.0529	0.0487
Venus	-1796-03-30 02:24 J	1065522.54	1065522.60	1065522.66	0.0522	0.0494
Mercury	-1791-06-16 02:09 J	1067426.41	1067426.59	1067426.77	0.0496	0.0071
Venus	-1790-09-18 02:24 J	1067885.40	1067885.60	1067885.81	0.0506	0.0069
Mercury	-1785-02-17 09:50 J	1069498.80	1069498.91	1069499.03	0.0532	0.0236



Mercury	-1785-05-16 16:04 J	1069588.08	1069588.17	1069588.27	0.0530	0.0340
Venus	-1784-07-28 01:40 J	1070025.42	1070025.57	1070025.73	0.0518	0.0329
Mercury	-1779-04-03 23:31 J	1071736.32	1071736.48	1071736.63	0.0495	0.0246
Mercury	-1779-07-03 08:09 J	1071826.78	1071826.84	1071826.91	0.0497	0.0461
Venus	-1778-05-23 23:45 J	1072151.36	1072151.49	1072151.64	0.0504	0.0366
Mercury	-1774-12-06 13:55 J	1073808.99	1073809.08	1073809.17	0.0532	0.0380
Mercury	-1773-03-04 20:24 J	1073898.24	1073898.35	1073898.47	0.0530	0.0201
Venus	-1772-04-01 21:21 J	1074291.19	1074291.39	1074291.59	0.0520	0.0016
Mercury	-1767-01-20 20:09 J	1076046.25	1076046.34	1076046.43	0.0495	0.0428
Mercury	-1767-04-21 04:33 J	1076136.54	1076136.69	1076136.85	0.0496	0.0272
Venus	-1766-09-20 17:02 J	1076654.09	1076654.21	1076654.34	0.0510	0.0405
Earth	-1765-06-05 08:24 J	1076912.67	1076912.85	1076913.04	0.0518	0.0317
Moon	-1765-06-05 11:16 J	1076912.79	1076912.97	1076913.15	0.0518	0.0322 *
Mercury	-1762-09-24 18:00 J	1078119.23	1078119.25	1078119.28	0.0532	0.0522
Mercury	-1762-12-23 00:57 J	1078208.41	1078208.54	1078208.66	0.0530	0.0066
Venus	-1761-12-05 16:33 J	1078557.03	1078557.19	1078557.35	0.0521	0.0306
Mercury	-1755-02-07 01:55 J	1080446.40	1080446.58	1080446.76	0.0496	0.0095
Venus	-1754-05-26 14:24 J	1080919.90	1080920.10	1080920.30	0.0508	0.0104
Moon	-1753-06-10 09:50 J	1081300.66	1081300.91	1081301.15	0.0520	0.0025
Earth	-1753-06-10 10:04 J	1081300.69	1081300.92	1081301.16	0.0520	0.0008 *
Mercury	-1750-10-11 04:33 J	1082518.57	1082518.69	1082518.82	0.0531	0.0088
Mercury	-1749-01-08 10:47 J	1082607.90	1082607.95	1082608.00	0.0529	0.0482
Venus	-1748-04-04 13:55 J	1083060.05	1083060.08	1083060.12	0.0516	0.0506
Moon	-1748-12-04 04:47 J	1083303.50	1083303.70	1083303.91	0.0509	0.0242
Earth	-1748-12-04 08:38 J	1083303.67	1083303.86	1083304.06	0.0509	0.0270 *
Mercury	-1744-11-25 23:16 J	1084756.29	1084756.47	1084756.65	0.0496	0.0080
Venus	-1742-01-29 12:00 J	1085185.81	1085186.00	1085186.19	0.0506	0.0194
Moon	-1741-06-15 08:38 J	1085688.68	1085688.86	1085689.04	0.0521	0.0305
Earth	-1741-06-15 10:47 J	1085688.76	1085688.95	1085689.14	0.0521	0.0308 *
Mars	-1739-10-11 15:50 J	1086537.00	1086537.16	1086537.31	0.0534	0.0424

Mercury	-1738-07-30 08:24 J	1086828.74	1086828.85	1086828.96	0.0531	0.0236
Mercury	-1738-10-27 14:38 J	1086918.02	1086918.11	1086918.21	0.0529	0.0338
Venus	-1737-12-08 09:21 J	1087325.70	1087325.89	1087326.08	0.0518	0.0193
Earth	-1736-12-08 19:26 J	1087691.08	1087691.31	1087691.54	0.0507	0.0009
Moon	-1736-12-08 22:04 J	1087691.20	1087691.42	1087691.65	0.0507	0.0013 *
Mercury	-1732-09-13 20:52 J	1089066.21	1089066.37	1089066.53	0.0495	0.0252
Mercury	-1732-12-13 05:31 J	1089156.67	1089156.73	1089156.81	0.0497	0.0456
Venus	-1731-10-04 09:35 J	1089451.85	1089451.90	1089451.95	0.0503	0.0487
Mercury	-1726-05-18 11:45 J	1091138.90	1091138.99	1091139.07	0.0532	0.0394
Mercury	-1726-08-15 18:14 J	1091228.14	1091228.26	1091228.38	0.0530	0.0187
Venus	-1725-08-13 03:35 J	1091591.45	1091591.65	1091591.84	0.0521	0.0130
Moon	-1724-12-13 04:47 J	1092078.50	1092078.70	1092078.92	0.0506	0.0251
Earth	-1724-12-13 05:45 J	1092078.56	1092078.74	1092078.94	0.0506	0.0278 *
Mars	-1721-10-04 04:04 J	1093104.39	1093104.67	1093104.96	0.0492	0.0037
Mercury	-1720-07-02 18:14 J	1093376.17	1093376.26	1093376.35	0.0495	0.0426
Mercury	-1720-10-01 02:38 J	1093466.46	1093466.61	1093466.76	0.0496	0.0273
Venus	-1718-02-01 01:26 J	1093954.39	1093954.56	1093954.74	0.0508	0.0275
Mercury	-1714-06-03 22:33 J	1095538.31	1095538.44	1095538.56	0.0531	0.0047
Venus	-1713-04-17 22:04 J	1095857.32	1095857.42	1095857.52	0.0523	0.0453
Mercury	-1708-07-19 22:47 J	1097776.27	1097776.45	1097776.63	0.0496	0.0084
Venus	-1707-10-06 21:50 J	1098220.20	1098220.41	1098220.61	0.0507	0.0030
Mars	-1703-07-17 05:31 J	1099599.48	1099599.73	1099599.99	0.0534	0.0112
Mercury	-1702-03-23 02:52 J	1099848.49	1099848.62	1099848.74	0.0531	0.0092
Mercury	-1702-06-20 08:52 J	1099937.82	1099937.87	1099937.92	0.0529	0.0477
Venus	-1701-08-15 22:33 J	1100360.31	1100360.44	1100360.58	0.0517	0.0378
Mercury	-1696-05-07 20:09 J	1102086.16	1102086.34	1102086.52	0.0496	0.0092
Venus	-1695-06-11 19:55 J	1102486.17	1102486.33	1102486.49	0.0505	0.0324
Mercury	-1690-01-09 06:43 J	1104158.66	1104158.78	1104158.89	0.0531	0.0241
Mercury	-1690-04-08 12:57 J	1104247.94	1104248.04	1104248.14	0.0529	0.0333
Venus	-1689-04-20 17:02 J	1104626.01	1104626.21	1104626.41	0.0519	0.0057

Mars	-1685-07-09 15:21 J	1106166.99	1106167.14	1106167.29	0.0493	0.0414
Mercury	-1684-02-23 17:45 J	1106396.09	1106396.24	1106396.40	0.0495	0.0264
Mercury	-1684-05-25 02:38 J	1106486.53	1106486.61	1106486.69	0.0497	0.0444
Venus	-1683-10-09 14:24 J	1106989.01	1106989.10	1106989.20	0.0510	0.0454
Moon	-1682-06-05 06:00 J	1107227.59	1107227.75	1107227.93	0.0517	0.0375
Earth	-1682-06-05 07:40 J	1107227.66	1107227.82	1107227.98	0.0517	0.0376 *
Mercury	-1679-10-28 10:19 J	1108468.84	1108468.93	1108469.02	0.0532	0.0392
Mercury	-1678-01-25 16:47 J	1108558.08	1108558.20	1108558.32	0.0530	0.0187
Venus	-1678-12-25 11:02 J	1108891.79	1108891.96	1108892.14	0.0521	0.0268
Mercury	-1673-12-12 15:35 J	1110706.07	1110706.15	1110706.24	0.0495	0.0433
Mercury	-1672-03-13 00:00 J	1110796.34	1110796.50	1110796.66	0.0496	0.0267
Venus	-1671-06-14 10:19 J	1111254.74	1111254.93	1111255.13	0.0507	0.0148
Moon	-1670-06-10 03:35 J	1111615.42	1111615.65	1111615.88	0.0518	0.0048
Earth	-1670-06-10 04:47 J	1111615.47	1111615.70	1111615.93	0.0518	0.0077 *
Mercury	-1667-11-13 20:24 J	1112868.22	1112868.35	1112868.47	0.0531	0.0035
Earth	-1665-12-03 09:21 J	1113618.72	1113618.89	1113619.07	0.0510	0.0329
Moon	-1665-12-03 12:14 J	1113618.83	1113619.01	1113619.19	0.0510	0.0305 *
Mercury	-1661-12-29 21:07 J	1115106.20	1115106.38	1115106.56	0.0496	0.0087
Venus	-1659-02-17 07:26 J	1115520.62	1115520.81	1115521.01	0.0505	0.0154
Earth	-1658-06-15 04:04 J	1116003.46	1116003.67	1116003.88	0.0520	0.0232
Moon	-1658-06-15 07:26 J	1116003.59	1116003.81	1116004.03	0.0520	0.0226 *
Mercury	-1655-09-02 00:28 J	1117178.39	1117178.52	1117178.65	0.0531	0.0108
Mercury	-1655-11-30 06:43 J	1117267.72	1117267.78	1117267.84	0.0529	0.0462
Venus	-1654-12-28 05:02 J	1117660.53	1117660.71	1117660.89	0.0518	0.0238
Moon	-1653-12-07 19:12 J	1118006.07	1118006.30	1118006.54	0.0508	0.0073
Earth	-1653-12-07 20:24 J	1118006.13	1118006.35	1118006.58	0.0508	0.0055 *
Mercury	-1649-10-17 17:16 J	1119416.04	1119416.22	1119416.40	0.0496	0.0103
Venus	-1648-10-23 04:04 J	1119786.58	1119786.67	1119786.76	0.0504	0.0452
Moon	-1646-06-20 01:26 J	1120391.51	1120391.56	1120391.61	0.0522	0.0509
Mercury	-1643-06-21 04:47 J	1121488.59	1121488.70	1121488.82	0.0531	0.0247

Mercury	-1643-09-18 11:16 J	1121577.87	1121577.97	1121578.06	0.0530	0.0329
Venus	-1642-09-02 01:12 J	1121926.35	1121926.55	1121926.75	0.0520	0.0079
Moon	-1641-12-12 06:57 J	1122393.59	1122393.79	1122394.00	0.0506	0.0196
Earth	-1641-12-12 07:40 J	1122393.62	1122393.82	1122394.03	0.0506	0.0220 *
Mercury	-1637-08-05 14:52 J	1123725.97	1123726.12	1123726.27	0.0495	0.0276
Mercury	-1637-11-03 23:31 J	1123816.39	1123816.48	1123816.57	0.0497	0.0432
Venus	-1635-02-19 21:50 J	1124289.25	1124289.41	1124289.57	0.0509	0.0321
Mercury	-1631-04-09 08:38 J	1125798.78	1125798.86	1125798.95	0.0532	0.0396
Mercury	-1631-07-07 15:07 J	1125888.02	1125888.13	1125888.25	0.0530	0.0185
Venus	-1630-05-07 18:43 J	1126192.16	1126192.28	1126192.41	0.0522	0.0407
Earth	-1629-12-16 15:50 J	1126781.10	1126781.16	1126781.23	0.0504	0.0482
Moon	-1629-12-16 18:00 J	1126781.21	1126781.25	1126781.29	0.0504	0.0495 *
Mercury	-1625-05-24 12:28 J	1128035.95	1128036.02	1128036.11	0.0495	0.0445
Mercury	-1625-08-22 20:52 J	1128126.22	1128126.37	1128126.53	0.0497	0.0255
Venus	-1624-10-25 19:26 J	1128555.10	1128555.31	1128555.51	0.0507	0.0022
Mercury	-1619-04-25 19:12 J	1130198.17	1130198.30	1130198.42	0.0530	0.0042
Venus	-1618-09-04 17:31 J	1130695.12	1130695.23	1130695.36	0.0517	0.0418
Mercury	-1613-06-10 18:28 J	1132436.09	1132436.27	1132436.46	0.0496	0.0082
Venus	-1612-06-30 17:02 J	1132821.04	1132821.21	1132821.38	0.0505	0.0277
Mercury	-1607-02-11 22:33 J	1134508.31	1134508.44	1134508.56	0.0531	0.0118
Mercury	-1607-05-12 04:33 J	1134597.63	1134597.69	1134597.76	0.0529	0.0453
Venus	-1606-05-10 12:00 J	1134960.80	1134961.00	1134961.20	0.0520	0.0098
Mars	-1602-03-24 10:33 J	1136374.79	1136374.94	1136375.10	0.0492	0.0412
Mercury	-1601-03-29 15:50 J	1136745.98	1136746.16	1136746.34	0.0495	0.0096
Venus	-1600-10-28 10:19 J	1137323.89	1137323.93	1137323.97	0.0509	0.0497
Moon	-1599-06-04 03:07 J	1137542.51	1137542.63	1137542.75	0.0516	0.0436
Earth	-1599-06-04 03:21 J	1137542.53	1137542.64	1137542.77	0.0516	0.0443 *
Mercury	-1596-12-01 02:38 J	1138818.50	1138818.61	1138818.72	0.0532	0.0262
Mercury	-1595-02-28 08:52 J	1138907.77	1138907.87	1138907.98	0.0530	0.0316
Venus	-1594-01-13 07:12 J	1139226.62	1139226.80	1139226.98	0.0521	0.0222

Mercury	-1589-01-16 12:00 J	1141055.85	1141056.00	1141056.15	0.0495	0.0284
Mercury	-1589-04-15 20:38 J	1141146.27	1141146.36	1141146.46	0.0497	0.0422
Venus	-1588-07-03 05:16 J	1141589.53	1141589.72	1141589.91	0.0508	0.0188
Earth	-1587-06-09 01:40 J	1141930.34	1141930.57	1141930.80	0.0519	0.0144
Moon	-1587-06-09 04:19 J	1141930.44	1141930.68	1141930.92	0.0519	0.0113 *
Mars	-1584-01-03 23:31 J	1142870.28	1142870.48	1142870.69	0.0535	0.0327
Mercury	-1584-09-19 06:57 J	1143128.71	1143128.79	1143128.87	0.0532	0.0401
Mercury	-1584-12-17 13:26 J	1143217.95	1143218.06	1143218.18	0.0530	0.0182
Moon	-1582-12-03 12:00 J	1143933.83	1143934.00	1143934.17	0.0509	0.0363
Earth	-1582-12-03 13:12 J	1143933.90	1143934.05	1143934.21	0.0509	0.0380 *
Mercury	-1578-11-04 09:50 J	1145365.84	1145365.91	1145365.98	0.0495	0.0454
Mercury	-1577-02-02 18:00 J	1145456.09	1145456.25	1145456.41	0.0496	0.0245
Venus	-1576-03-08 03:21 J	1145855.44	1145855.64	1145855.84	0.0506	0.0111
Moon	-1575-06-14 00:28 J	1146318.30	1146318.52	1146318.74	0.0520	0.0165
Earth	-1575-06-14 04:04 J	1146318.45	1146318.67	1146318.90	0.0520	0.0171 *
Mercury	-1572-10-05 17:31 J	1147528.11	1147528.23	1147528.36	0.0530	0.0040
Venus	-1570-01-16 02:38 J	1147995.44	1147995.61	1147995.77	0.0518	0.0288
Moon	-1570-12-07 22:33 J	1148321.23	1148321.44	1148321.66	0.0508	0.0132
Earth	-1570-12-07 23:16 J	1148321.24	1148321.47	1148321.69	0.0508	0.0107 *
Mars	-1567-12-28 03:07 J	1149437.35	1149437.63	1149437.92	0.0492	0.0049
Mercury	-1566-11-21 15:35 J	1149765.97	1149766.15	1149766.33	0.0496	0.0071
Venus	-1565-11-11 02:24 J	1150121.47	1150121.60	1150121.72	0.0504	0.0404
Earth	-1563-06-19 06:14 J	1150706.68	1150706.76	1150706.85	0.0522	0.0487
Moon	-1563-06-19 10:04 J	1150706.82	1150706.92	1150707.04	0.0522	0.0456 *
Mercury	-1560-07-24 21:21 J	1151838.27	1151838.39	1151838.52	0.0531	0.0112
Mercury	-1560-10-22 03:35 J	1151927.59	1151927.65	1151927.71	0.0529	0.0459
Venus	-1559-09-20 21:21 J	1152261.19	1152261.39	1152261.59	0.0520	0.0034
Earth	-1558-12-12 09:21 J	1152708.68	1152708.89	1152709.11	0.0506	0.0165
Moon	-1558-12-12 11:31 J	1152708.75	1152708.98	1152709.21	0.0506	0.0141 *
Mercury	-1554-09-09 13:26 J	1154075.88	1154076.06	1154076.24	0.0496	0.0099

Venus	-1552-03-10 19:40 J	1154624.19	1154624.32	1154624.47	0.0509	0.0373
Mars	-1549-10-09 08:38 J	1155932.62	1155932.86	1155933.10	0.0534	0.0202
Mercury	-1548-05-13 00:43 J	1156148.43	1156148.53	1156148.65	0.0531	0.0268
Mercury	-1548-08-10 07:12 J	1156237.70	1156237.80	1156237.90	0.0530	0.0310
Venus	-1547-05-26 14:09 J	1156526.95	1156527.09	1156527.24	0.0522	0.0365
Moon	-1546-12-16 16:19 J	1157096.08	1157096.18	1157096.28	0.0505	0.0444
Earth	-1546-12-16 19:12 J	1157096.18	1157096.30	1157096.42	0.0505	0.0429 *
Mercury	-1542-06-28 10:47 J	1158385.80	1158385.95	1158386.11	0.0495	0.0273
Mercury	-1542-09-26 19:40 J	1158476.23	1158476.32	1158476.41	0.0497	0.0434
Venus	-1541-11-13 16:33 J	1158889.98	1158890.19	1158890.39	0.0507	0.0068
Mercury	-1536-03-01 04:47 J	1160458.62	1160458.70	1160458.78	0.0532	0.0411
Mercury	-1536-05-29 11:31 J	1160547.86	1160547.98	1160548.10	0.0530	0.0171
Venus	-1535-09-23 14:52 J	1161030.04	1161030.12	1161030.20	0.0517	0.0469
Mercury	-1530-04-16 07:12 J	1162695.74	1162695.80	1162695.87	0.0495	0.0459
Mercury	-1530-07-15 15:21 J	1162785.99	1162786.14	1162786.31	0.0496	0.0239
Venus	-1529-07-19 12:00 J	1163155.82	1163156.00	1163156.18	0.0505	0.0239
Mercury	-1524-03-17 16:04 J	1164858.04	1164858.17	1164858.30	0.0531	0.0036
Venus	-1523-05-29 12:00 J	1165295.81	1165296.00	1165296.20	0.0519	0.0159
Mercury	-1518-05-03 12:57 J	1167095.86	1167096.04	1167096.23	0.0496	0.0065
Earth	-1516-06-03 03:50 J	1167857.61	1167857.66	1167857.72	0.0517	0.0500
Moon	-1516-06-03 06:14 J	1167857.67	1167857.76	1167857.84	0.0517	0.0483 *
Mercury	-1512-01-03 20:09 J	1169168.22	1169168.34	1169168.47	0.0531	0.0107
Mercury	-1512-04-03 02:24 J	1169257.54	1169257.60	1169257.66	0.0529	0.0463
Venus	-1511-02-01 06:43 J	1169561.59	1169561.78	1169561.97	0.0521	0.0166
Mercury	-1506-02-19 10:47 J	1171405.77	1171405.95	1171406.13	0.0496	0.0106
Venus	-1505-07-22 04:47 J	1171924.53	1171924.70	1171924.88	0.0508	0.0245
Moon	-1504-06-08 02:09 J	1172245.37	1172245.59	1172245.81	0.0518	0.0160
Earth	-1504-06-08 05:45 J	1172245.52	1172245.74	1172245.96	0.0518	0.0191 *
Mercury	-1501-10-23 00:00 J	1173478.39	1173478.50	1173478.61	0.0531	0.0255
Mercury	-1500-01-20 06:28 J	1173567.67	1173567.77	1173567.87	0.0529	0.0321

Venus	-1500-10-07 00:14 J	1173827.46	1173827.51	1173827.58	0.0523	0.0496
Moon	-1499-12-02 16:04 J	1174249.05	1174249.17	1174249.29	0.0510	0.0422
Earth	-1499-12-02 16:33 J	1174249.07	1174249.19	1174249.31	0.0510	0.0430 *
Mercury	-1495-12-08 08:52 J	1175715.72	1175715.87	1175716.02	0.0495	0.0273
Mercury	-1494-03-08 17:31 J	1175806.15	1175806.23	1175806.32	0.0497	0.0435
Venus	-1493-03-27 02:52 J	1176190.42	1176190.62	1176190.83	0.0506	0.0056
Earth	-1492-06-13 05:45 J	1176633.51	1176633.74	1176633.97	0.0519	0.0114
Moon	-1492-06-13 09:35 J	1176633.67	1176633.90	1176634.14	0.0519	0.0106 *
Mercury	-1489-08-11 03:21 J	1177788.56	1177788.64	1177788.72	0.0532	0.0412
Mercury	-1489-11-08 10:04 J	1177877.80	1177877.92	1177878.04	0.0530	0.0170
Venus	-1487-02-03 23:31 J	1178330.33	1178330.48	1178330.64	0.0518	0.0338
Earth	-1487-12-07 03:07 J	1178636.42	1178636.63	1178636.85	0.0509	0.0159
Moon	-1487-12-07 05:02 J	1178636.50	1178636.71	1178636.94	0.0509	0.0187 *
Mercury	-1483-09-26 06:28 J	1180025.70	1180025.77	1180025.86	0.0495	0.0443
Mercury	-1483-12-25 14:52 J	1180115.96	1180116.12	1180116.27	0.0496	0.0256
Venus	-1482-12-01 00:57 J	1180456.39	1180456.54	1180456.68	0.0504	0.0352
Moon	-1480-06-18 02:52 J	1181021.46	1181021.62	1181021.78	0.0521	0.0393
Earth	-1480-06-18 06:00 J	1181021.62	1181021.75	1181021.89	0.0521	0.0424 *
Mercury	-1477-08-27 14:24 J	1182187.97	1182188.10	1182188.22	0.0531	0.0033
Venus	-1476-10-09 19:55 J	1182596.13	1182596.33	1182596.53	0.0520	0.0022
Moon	-1475-12-11 12:28 J	1183023.80	1183024.02	1183024.24	0.0507	0.0093
Earth	-1475-12-11 15:21 J	1183023.92	1183024.14	1183024.37	0.0507	0.0115 *
Mercury	-1471-10-13 10:47 J	1184425.77	1184425.95	1184426.14	0.0496	0.0064
Venus	-1469-03-29 15:50 J	1184959.05	1184959.16	1184959.28	0.0509	0.0418
Mercury	-1465-06-15 18:43 J	1186498.16	1186498.28	1186498.41	0.0531	0.0107
Mercury	-1465-09-13 00:57 J	1186587.48	1186587.54	1186587.60	0.0529	0.0466
Venus	-1464-06-14 16:04 J	1186862.01	1186862.17	1186862.34	0.0522	0.0299
Earth	-1463-12-16 03:35 J	1187411.51	1187411.65	1187411.80	0.0505	0.0388
Moon	-1463-12-16 07:26 J	1187411.68	1187411.81	1187411.94	0.0505	0.0410 *
Mercury	-1459-08-01 08:38 J	1188735.68	1188735.86	1188736.04	0.0496	0.0108

Venus	-1458-12-03 13:55 J	1189224.88	1189225.08	1189225.28	0.0507	0.0116
Mercury	-1453-04-03 23:02 J	1190808.34	1190808.46	1190808.57	0.0531	0.0249
Mercury	-1453-07-02 05:16 J	1190897.62	1190897.72	1190897.82	0.0530	0.0328
Mars	-1448-06-16 21:50 J	1192708.19	1192708.41	1192708.64	0.0492	0.0310
Mercury	-1447-05-20 06:28 J	1193045.62	1193045.77	1193045.93	0.0495	0.0277
Mercury	-1447-08-18 15:07 J	1193136.05	1193136.13	1193136.23	0.0497	0.0431
Venus	-1446-08-08 12:57 J	1193490.85	1193491.04	1193491.23	0.0506	0.0181
Mercury	-1441-01-22 02:52 J	1195118.53	1195118.62	1195118.70	0.0532	0.0396
Mercury	-1441-04-20 09:21 J	1195207.77	1195207.89	1195208.01	0.0530	0.0186
Venus	-1440-06-17 11:02 J	1195630.78	1195630.96	1195631.15	0.0519	0.0215
Mercury	-1435-03-08 04:47 J	1197355.62	1197355.70	1197355.79	0.0495	0.0440
Mercury	-1435-06-06 12:57 J	1197445.89	1197446.04	1197446.20	0.0497	0.0260
Venus	-1434-04-13 12:14 J	1197756.95	1197757.01	1197757.09	0.0504	0.0470
Mars	-1430-03-30 21:35 J	1199204.16	1199204.40	1199204.65	0.0534	0.0201
Mercury	-1429-02-07 12:57 J	1199517.92	1199518.04	1199518.17	0.0530	0.0040
Venus	-1428-02-20 05:02 J	1199896.51	1199896.71	1199896.91	0.0521	0.0113
Mercury	-1423-03-25 10:33 J	1201755.76	1201755.94	1201756.12	0.0496	0.0084
Venus	-1422-08-11 04:47 J	1202259.54	1202259.70	1202259.86	0.0508	0.0303
Earth	-1421-06-07 08:24 J	1202560.64	1202560.85	1202561.06	0.0517	0.0242
Moon	-1421-06-07 12:28 J	1202560.80	1202561.02	1202561.24	0.0517	0.0211 *
Mercury	-1418-11-26 17:16 J	1203828.09	1203828.22	1203828.35	0.0531	0.0107
Mercury	-1417-02-23 23:31 J	1203917.42	1203917.48	1203917.54	0.0529	0.0465
Venus	-1417-10-26 00:14 J	1204162.40	1204162.51	1204162.62	0.0523	0.0437
Earth	-1416-12-02 00:14 J	1204564.43	1204564.51	1204564.60	0.0510	0.0473
Moon	-1416-12-02 02:24 J	1204564.51	1204564.60	1204564.70	0.0510	0.0467 *
Mars	-1412-03-22 21:21 J	1205771.12	1205771.39	1205771.67	0.0492	0.0165
Mercury	-1411-01-11 06:43 J	1206065.61	1206065.78	1206065.96	0.0495	0.0106
Venus	-1410-04-15 23:45 J	1206525.29	1206525.49	1206525.70	0.0506	0.0012
Moon	-1409-06-12 02:09 J	1206948.35	1206948.59	1206948.83	0.0520	0.0042
Earth	-1409-06-12 05:45 J	1206948.50	1206948.74	1206948.98	0.0520	0.0055 *



Mercury	-1406-09-14 21:35 J	1208138.29	1208138.40	1208138.52	0.0532	0.0245
Mercury	-1406-12-13 04:04 J	1208227.58	1208227.67	1208227.77	0.0530	0.0334
Venus	-1404-02-23 02:38 J	1208665.49	1208665.61	1208665.73	0.0518	0.0409
Moon	-1404-12-06 11:45 J	1208951.79	1208951.99	1208952.20	0.0509	0.0221
Earth	-1404-12-06 14:52 J	1208951.91	1208952.12	1208952.33	0.0509	0.0190 *
Mercury	-1400-10-30 04:47 J	1210375.55	1210375.70	1210375.85	0.0495	0.0273
Mercury	-1399-01-28 13:12 J	1210465.97	1210466.05	1210466.15	0.0497	0.0432
Venus	-1399-12-19 22:47 J	1210791.29	1210791.45	1210791.61	0.0505	0.0305
Earth	-1397-06-17 09:21 J	1211336.73	1211336.89	1211337.06	0.0522	0.0372
Moon	-1397-06-17 10:47 J	1211336.79	1211336.95	1211337.12	0.0522	0.0348 *
Mars	-1394-01-04 00:14 J	1212267.32	1212267.51	1212267.70	0.0534	0.0367
Mercury	-1394-07-04 01:55 J	1212448.49	1212448.58	1212448.67	0.0532	0.0386
Mercury	-1394-10-01 08:38 J	1212537.74	1212537.86	1212537.97	0.0530	0.0196
Venus	-1393-10-28 22:33 J	1212931.24	1212931.44	1212931.64	0.0519	0.0090
Earth	-1392-12-11 01:40 J	1213339.34	1213339.57	1213339.79	0.0507	0.0082
Moon	-1392-12-11 05:16 J	1213339.49	1213339.72	1213339.95	0.0507	0.0069 *
Mercury	-1388-08-18 02:52 J	1214685.54	1214685.62	1214685.71	0.0495	0.0439
Mercury	-1388-11-16 11:02 J	1214775.81	1214775.96	1214776.12	0.0496	0.0260
Venus	-1386-04-18 18:14 J	1215294.20	1215294.26	1215294.32	0.0510	0.0485
Mercury	-1382-07-20 12:43 J	1216847.90	1216848.03	1216848.15	0.0530	0.0054
Venus	-1381-07-03 17:02 J	1217197.03	1217197.21	1217197.39	0.0521	0.0237
Moon	-1380-12-15 08:24 J	1217726.70	1217726.85	1217727.01	0.0505	0.0375
Earth	-1380-12-15 12:00 J	1217726.84	1217727.00	1217727.17	0.0505	0.0349 *
Mercury	-1376-09-04 09:07 J	1219085.70	1219085.88	1219086.06	0.0496	0.0091
Venus	-1375-12-22 16:04 J	1219559.98	1219560.17	1219560.36	0.0508	0.0183
Mercury	-1370-05-08 16:19 J	1221158.05	1221158.18	1221158.31	0.0531	0.0098
Mercury	-1370-08-05 22:33 J	1221247.38	1221247.44	1221247.49	0.0529	0.0472
Mercury	-1364-06-23 06:43 J	1223395.60	1223395.78	1223395.96	0.0496	0.0081
Venus	-1363-08-27 13:55 J	1223825.88	1223826.08	1223826.28	0.0505	0.0120
Mercury	-1358-02-24 20:24 J	1225468.24	1225468.35	1225468.47	0.0532	0.0241

Mercury	-1358-05-25 02:52 J	1225557.52	1225557.62	1225557.72	0.0530	0.0336
Venus	-1357-07-06 12:14 J	1225965.84	1225966.01	1225966.18	0.0519	0.0280
Mercury	-1352-04-11 03:21 J	1227705.49	1227705.64	1227705.79	0.0495	0.0267
Mercury	-1352-07-10 11:45 J	1227795.91	1227795.99	1227796.08	0.0497	0.0438
Venus	-1351-05-02 10:04 J	1228091.81	1228091.92	1228092.03	0.0504	0.0425
Mercury	-1347-12-14 00:43 J	1229778.44	1229778.53	1229778.62	0.0532	0.0381
Mercury	-1346-03-13 07:26 J	1229867.69	1229867.81	1229867.93	0.0531	0.0203
Venus	-1345-03-11 09:21 J	1230231.69	1230231.89	1230232.10	0.0521	0.0038
Mercury	-1340-01-28 01:26 J	1232015.48	1232015.56	1232015.65	0.0495	0.0432
Mercury	-1340-04-28 09:35 J	1232105.74	1232105.90	1232106.05	0.0496	0.0265
Venus	-1339-08-30 03:35 J	1232594.51	1232594.65	1232594.80	0.0509	0.0358
Moon	-1338-06-07 08:38 J	1232875.65	1232875.86	1232876.06	0.0518	0.0263
Earth	-1338-06-07 12:14 J	1232875.82	1232876.01	1232876.21	0.0518	0.0290 *
Mercury	-1335-10-02 05:02 J	1234088.69	1234088.71	1234088.73	0.0532	0.0523
Mercury	-1335-12-30 11:45 J	1234177.87	1234177.99	1234178.12	0.0531	0.0067
Venus	-1334-11-15 04:19 J	1234497.53	1234497.68	1234497.82	0.0522	0.0365
Moon	-1333-12-01 09:35 J	1234879.86	1234879.90	1234879.95	0.0510	0.0499
Earth	-1333-12-01 12:43 J	1234879.99	1234880.03	1234880.08	0.0510	0.0498
Mercury	-1328-02-14 07:26 J	1236415.63	1236415.81	1236415.99	0.0496	0.0095
Venus	-1327-05-05 02:38 J	1236860.41	1236860.61	1236860.82	0.0507	0.0059
Earth	-1326-06-12 16:04 J	1237263.93	1237264.17	1237264.40	0.0519	0.0025
Moon	-1326-06-12 18:00 J	1237264.02	1237264.25	1237264.48	0.0519	0.0006 *
Mercury	-1323-10-18 16:04 J	1238488.04	1238488.17	1238488.29	0.0531	0.0080
Mercury	-1322-01-15 22:04 J	1238577.38	1238577.42	1238577.47	0.0529	0.0492
Venus	-1321-03-14 04:04 J	1239000.60	1239000.67	1239000.76	0.0517	0.0474
Earth	-1321-12-06 00:28 J	1239267.31	1239267.52	1239267.73	0.0509	0.0223
Moon	-1321-12-06 04:04 J	1239267.47	1239267.67	1239267.87	0.0509	0.0253 *
Mercury	-1317-12-03 05:31 J	1240725.55	1240725.73	1240725.91	0.0496	0.0072
Venus	-1315-01-08 01:55 J	1241126.40	1241126.58	1241126.76	0.0505	0.0237
Moon	-1314-06-17 18:28 J	1241652.07	1241652.27	1241652.47	0.0521	0.0312

Earth	-1314-06-17 18:14 J	1241652.09	1241652.26	1241652.45	0.0521	0.0335 *
Mercury	-1311-08-06 19:40 J	1242798.20	1242798.32	1242798.43	0.0531	0.0230
Mercury	-1311-11-04 01:55 J	1242887.49	1242887.58	1242887.68	0.0530	0.0347
Venus	-1310-11-17 23:02 J	1243266.26	1243266.46	1243266.65	0.0519	0.0153
Moon	-1309-12-10 07:40 J	1243654.59	1243654.82	1243655.05	0.0507	0.0038
Earth	-1309-12-10 11:02 J	1243654.73	1243654.96	1243655.19	0.0507	0.0045 *
Mercury	-1305-09-21 03:21 J	1245035.48	1245035.64	1245035.80	0.0495	0.0241
Mercury	-1305-12-20 12:00 J	1245125.94	1245126.00	1245126.06	0.0497	0.0466
Mercury	-1299-05-25 23:45 J	1247108.40	1247108.49	1247108.58	0.0532	0.0374
Mercury	-1299-08-23 06:14 J	1247197.65	1247197.76	1247197.88	0.0530	0.0209
Venus	-1298-07-23 18:43 J	1247532.10	1247532.28	1247532.48	0.0522	0.0171
Earth	-1297-12-14 23:45 J	1248042.31	1248042.49	1248042.67	0.0506	0.0316
Moon	-1297-12-15 01:55 J	1248042.43	1248042.58	1248042.75	0.0506	0.0349 *
Mars	-1294-09-11 09:07 J	1249042.61	1249042.88	1249043.15	0.0491	0.0166
Mercury	-1293-07-10 00:14 J	1249345.42	1249345.51	1249345.61	0.0494	0.0422
Mercury	-1293-10-08 08:09 J	1249435.69	1249435.84	1249436.00	0.0496	0.0275
Venus	-1291-01-10 14:38 J	1249894.93	1249895.11	1249895.29	0.0508	0.0234
Mercury	-1287-03-14 03:50 J	1251418.63	1251418.66	1251418.69	0.0533	0.0517
Mercury	-1287-06-11 10:47 J	1251507.82	1251507.95	1251508.08	0.0531	0.0072
Venus	-1286-03-28 14:52 J	1251798.06	1251798.12	1251798.18	0.0524	0.0496
Mercury	-1281-07-27 06:00 J	1253745.57	1253745.75	1253745.93	0.0496	0.0104
Venus	-1280-09-15 13:26 J	1254160.85	1254161.06	1254161.26	0.0506	0.0067
Mars	-1276-06-24 22:19 J	1255539.17	1255539.43	1255539.69	0.0535	0.0020
Mercury	-1275-03-30 15:07 J	1255818.00	1255818.13	1255818.26	0.0531	0.0066
Mercury	-1275-06-27 21:21 J	1255907.36	1255907.39	1255907.43	0.0529	0.0505
Venus	-1274-07-26 16:33 J	1256301.04	1256301.19	1256301.34	0.0518	0.0355
Mercury	-1269-05-15 04:04 J	1258055.49	1258055.67	1258055.85	0.0495	0.0065
Venus	-1268-05-21 13:12 J	1258426.91	1258427.05	1258427.19	0.0504	0.0359
Mercury	-1263-01-16 19:12 J	1260128.19	1260128.30	1260128.42	0.0532	0.0210
Mercury	-1263-04-16 01:40 J	1260217.48	1260217.57	1260217.66	0.0530	0.0367

Venus	-1262-03-31 12:00 J	1260566.80	1260567.00	1260567.21	0.0520	0.0034
Mars	-1258-06-17 16:19 J	1262105.97	1262106.18	1262106.40	0.0492	0.0332
Mercury	-1257-03-03 02:09 J	1262365.43	1262365.59	1262365.76	0.0495	0.0230
Mercury	-1257-06-01 10:47 J	1262455.90	1262455.95	1262456.00	0.0497	0.0477
Venus	-1256-09-18 07:40 J	1262929.72	1262929.82	1262929.93	0.0509	0.0432
Earth	-1255-06-06 23:16 J	1263191.28	1263191.47	1263191.65	0.0517	0.0318
Moon	-1255-06-07 01:40 J	1263191.38	1263191.57	1263191.76	0.0517	0.0301 *
Mercury	-1252-11-04 22:47 J	1264438.36	1264438.45	1264438.55	0.0532	0.0362
Mercury	-1251-02-02 05:31 J	1264527.62	1264527.73	1264527.85	0.0530	0.0221
Venus	-1251-12-04 05:16 J	1264832.56	1264832.72	1264832.89	0.0522	0.0302
Mercury	-1246-12-21 00:14 J	1266675.41	1266675.51	1266675.62	0.0495	0.0397
Mercury	-1245-03-20 08:24 J	1266765.70	1266765.85	1266766.00	0.0496	0.0302
Venus	-1244-05-24 05:16 J	1267195.52	1267195.72	1267195.92	0.0507	0.0125
Moon	-1243-06-11 23:02 J	1267579.22	1267579.46	1267579.71	0.0519	0.0042
Earth	-1243-06-11 23:31 J	1267579.24	1267579.48	1267579.72	0.0519	0.0014 *
Mercury	-1240-08-24 02:52 J	1268748.58	1268748.62	1268748.66	0.0532	0.0507
Mercury	-1240-11-21 09:50 J	1268837.78	1268837.91	1268838.03	0.0531	0.0081
Moon	-1238-12-06 09:07 J	1269582.69	1269582.88	1269583.08	0.0509	0.0284
Earth	-1238-12-06 12:28 J	1269582.83	1269583.02	1269583.22	0.0509	0.0254 *
Mercury	-1233-01-07 05:02 J	1271075.53	1271075.71	1271075.89	0.0495	0.0115
Venus	-1232-01-27 00:57 J	1271461.35	1271461.54	1271461.73	0.0505	0.0186
Moon	-1231-06-16 18:43 J	1271967.08	1271967.28	1271967.48	0.0521	0.0261
Earth	-1231-06-16 19:55 J	1271967.14	1271967.33	1271967.53	0.0521	0.0282 *
Mercury	-1228-09-09 14:09 J	1273147.96	1273148.09	1273148.21	0.0532	0.0060
Mercury	-1228-12-07 20:24 J	1273237.32	1273237.35	1273237.38	0.0530	0.0513
Venus	-1227-12-07 04:04 J	1273601.49	1273601.67	1273601.85	0.0519	0.0231
Earth	-1226-12-11 02:52 J	1273970.39	1273970.62	1273970.85	0.0508	0.0026
Moon	-1226-12-11 05:02 J	1273970.49	1273970.71	1273970.93	0.0508	0.0032 *
Mercury	-1222-10-26 02:52 J	1275385.44	1275385.62	1275385.80	0.0495	0.0055
Venus	-1221-10-02 00:28 J	1275727.47	1275727.52	1275727.59	0.0503	0.0479

Mercury	-1216-06-28 18:28 J	1277458.15	1277458.27	1277458.39	0.0532	0.0199
Mercury	-1216-09-26 00:57 J	1277547.45	1277547.54	1277547.62	0.0530	0.0379
Venus	-1215-08-11 23:45 J	1277867.29	1277867.49	1277867.69	0.0521	0.0094
Moon	-1214-12-15 12:43 J	1278357.85	1278358.03	1278358.22	0.0506	0.0324
Earth	-1214-12-15 13:40 J	1278357.88	1278358.07	1278358.26	0.0506	0.0293 *
Mercury	-1210-08-14 00:43 J	1279695.37	1279695.53	1279695.70	0.0495	0.0223
Mercury	-1210-11-12 09:21 J	1279785.85	1279785.89	1279785.93	0.0497	0.0484
Venus	-1208-01-29 18:14 J	1280230.10	1280230.26	1280230.42	0.0508	0.0306
Mercury	-1204-04-16 22:33 J	1281768.34	1281768.44	1281768.54	0.0532	0.0342
Mercury	-1204-07-15 05:02 J	1281857.60	1281857.71	1281857.83	0.0530	0.0241
Venus	-1203-04-16 18:00 J	1282133.14	1282133.25	1282133.37	0.0523	0.0425
Mercury	-1198-06-01 23:02 J	1284005.35	1284005.46	1284005.58	0.0495	0.0386
Mercury	-1198-08-31 07:12 J	1284095.66	1284095.80	1284095.94	0.0496	0.0313
Venus	-1197-10-04 17:16 J	1284496.01	1284496.22	1284496.42	0.0506	0.0012
Mercury	-1192-02-03 02:09 J	1286078.54	1286078.59	1286078.63	0.0532	0.0495
Mercury	-1192-05-03 08:52 J	1286167.75	1286167.87	1286168.00	0.0531	0.0094
Venus	-1191-08-14 17:45 J	1286636.12	1286636.24	1286636.36	0.0518	0.0419
Mercury	-1186-06-19 04:47 J	1288405.53	1288405.70	1288405.88	0.0496	0.0141
Venus	-1185-06-09 15:35 J	1288761.99	1288762.15	1288762.32	0.0504	0.0294
Mercury	-1180-02-19 13:12 J	1290477.92	1290478.05	1290478.17	0.0531	0.0052
Mercury	-1180-05-19 19:26 J	1290567.29	1290567.31	1290567.32	0.0529	0.0521
Venus	-1179-04-19 14:09 J	1290901.89	1290902.09	1290902.29	0.0520	0.0100
Mercury	-1174-04-07 01:55 J	1292715.39	1292715.58	1292715.76	0.0495	0.0044
Venus	-1173-10-07 06:28 J	1293264.72	1293264.77	1293264.84	0.0509	0.0484
Moon	-1172-06-05 23:31 J	1293506.31	1293506.48	1293506.67	0.0517	0.0354
Earth	-1172-06-06 00:43 J	1293506.37	1293506.53	1293506.70	0.0517	0.0367 *
Mercury	-1169-12-08 17:16 J	1294788.10	1294788.22	1294788.34	0.0532	0.0195
Mercury	-1168-03-07 23:45 J	1294877.40	1294877.49	1294877.57	0.0531	0.0385
Venus	-1168-12-23 09:50 J	1295167.73	1295167.91	1295168.10	0.0523	0.0226
Mercury	-1162-01-23 23:45 J	1297025.33	1297025.49	1297025.66	0.0495	0.0211

Mercury	-1162-04-24 08:09 J	1297115.83	1297115.84	1297115.86	0.0496	0.0493
Venus	-1161-06-12 04:33 J	1297530.50	1297530.69	1297530.88	0.0507	0.0179
Moon	-1160-06-11 01:40 J	1297894.35	1297894.57	1297894.80	0.0519	0.0091
Earth	-1160-06-11 02:38 J	1297894.37	1297894.61	1297894.85	0.0519	0.0061 *
Mars	-1158-12-14 21:21 J	1298811.23	1298811.39	1298811.57	0.0536	0.0404
Mercury	-1157-09-26 21:21 J	1299098.30	1299098.39	1299098.49	0.0533	0.0335
Mercury	-1157-12-25 04:04 J	1299187.56	1299187.67	1299187.79	0.0531	0.0250
Earth	-1155-12-06 01:55 J	1299898.39	1299898.58	1299898.77	0.0509	0.0276
Moon	-1155-12-06 03:50 J	1299898.48	1299898.66	1299898.84	0.0509	0.0303 *
Mercury	-1151-11-11 21:50 J	1301335.29	1301335.41	1301335.52	0.0494	0.0378
Mercury	-1150-02-10 05:45 J	1301425.60	1301425.74	1301425.88	0.0496	0.0320
Venus	-1149-02-16 03:50 J	1301796.47	1301796.66	1301796.86	0.0505	0.0120
Earth	-1148-06-16 06:43 J	1302282.58	1302282.78	1302282.99	0.0521	0.0253
Moon	-1148-06-16 09:35 J	1302282.69	1302282.90	1302283.12	0.0521	0.0239 *
Mercury	-1145-07-16 01:26 J	1303408.51	1303408.56	1303408.62	0.0533	0.0478
Mercury	-1145-10-13 08:24 J	1303497.73	1303497.85	1303497.98	0.0531	0.0110
Venus	-1144-12-26 06:28 J	1303936.61	1303936.77	1303936.94	0.0519	0.0300
Moon	-1143-12-10 12:43 J	1304285.79	1304286.03	1304286.27	0.0508	0.0006
Earth	-1143-12-10 13:26 J	1304285.83	1304286.06	1304286.29	0.0508	0.0005 *
Mars	-1140-12-06 05:45 J	1305377.46	1305377.74	1305378.03	0.0492	0.0011
Mercury	-1139-11-29 03:35 J	1305735.48	1305735.65	1305735.83	0.0496	0.0150
Venus	-1138-10-22 03:35 J	1306062.54	1306062.65	1306062.77	0.0503	0.0412
Mercury	-1133-08-01 12:14 J	1307807.88	1307808.01	1307808.14	0.0531	0.0040
Venus	-1132-08-31 00:28 J	1308202.32	1308202.52	1308202.72	0.0521	0.0031
Moon	-1131-12-14 22:33 J	1308673.26	1308673.44	1308673.62	0.0506	0.0288
Earth	-1131-12-14 23:16 J	1308673.27	1308673.47	1308673.66	0.0506	0.0258 *
Mercury	-1127-09-17 01:26 J	1310045.38	1310045.56	1310045.74	0.0495	0.0022
Venus	-1125-02-18 20:24 J	1310565.22	1310565.35	1310565.49	0.0508	0.0373
Mars	-1122-09-19 15:07 J	1311873.88	1311874.13	1311874.38	0.0535	0.0153
Mercury	-1121-05-20 16:19 J	1312118.06	1312118.18	1312118.30	0.0532	0.0185

Mercury	-1121-08-17 22:47 J	1312207.36	1312207.45	1312207.53	0.0530	0.0393
Venus	-1120-05-05 19:12 J	1312468.16	1312468.30	1312468.45	0.0523	0.0362
Mercury	-1115-07-05 22:33 J	1314355.28	1314355.44	1314355.61	0.0494	0.0201
Venus	-1114-10-24 15:50 J	1314830.96	1314831.16	1314831.36	0.0506	0.0056
Mercury	-1109-03-08 20:09 J	1316428.24	1316428.34	1316428.44	0.0533	0.0333
Mercury	-1109-06-06 02:52 J	1316517.51	1316517.62	1316517.73	0.0531	0.0252
Venus	-1108-09-02 21:21 J	1316971.33	1316971.39	1316971.45	0.0518	0.0492
Mars	-1104-09-11 09:07 J	1318440.88	1318440.88	1318440.91	0.0491	0.0491
Mercury	-1103-04-23 20:38 J	1318665.24	1318665.36	1318665.48	0.0494	0.0367
Mercury	-1103-07-23 04:33 J	1318755.55	1318755.69	1318755.83	0.0496	0.0329
Venus	-1102-06-29 14:38 J	1319096.93	1319097.11	1319097.29	0.0504	0.0243
Mercury	-1098-12-27 00:14 J	1320738.46	1320738.51	1320738.57	0.0533	0.0475
Mercury	-1097-03-25 07:12 J	1320827.68	1320827.80	1320827.93	0.0531	0.0115
Venus	-1096-05-08 17:16 J	1321237.03	1321237.22	1321237.41	0.0520	0.0171
Mercury	-1091-05-11 01:55 J	1323065.41	1323065.58	1323065.76	0.0495	0.0155
Moon	-1089-06-05 09:21 J	1323821.75	1323821.89	1323822.04	0.0516	0.0391
Earth	-1089-06-05 10:04 J	1323821.77	1323821.92	1323822.07	0.0516	0.0397 *
Mercury	-1085-01-12 11:31 J	1325137.85	1325137.98	1325138.11	0.0532	0.0026
Venus	-1084-01-11 12:00 J	1325502.81	1325503.00	1325503.19	0.0522	0.0158
Mercury	-1079-02-27 00:00 J	1327375.31	1327375.50	1327375.68	0.0495	0.0017
Venus	-1078-07-02 07:12 J	1327865.62	1327865.80	1327865.98	0.0507	0.0248
Earth	-1077-06-10 11:45 J	1328209.76	1328209.99	1328210.23	0.0518	0.0095
Moon	-1077-06-10 14:24 J	1328209.86	1328210.10	1328210.34	0.0518	0.0124 *
Mercury	-1074-10-31 15:07 J	1329448.01	1329448.13	1329448.26	0.0532	0.0178
Mercury	-1073-01-28 21:35 J	1329537.32	1329537.40	1329537.48	0.0530	0.0399
Venus	-1073-09-16 04:33 J	1329768.64	1329768.69	1329768.76	0.0524	0.0499
Moon	-1072-12-05 08:52 J	1330213.70	1330213.87	1330214.05	0.0510	0.0339
Earth	-1072-12-05 09:35 J	1330213.72	1330213.90	1330214.08	0.0510	0.0315 *
Mercury	-1068-12-15 21:50 J	1331685.24	1331685.41	1331685.58	0.0495	0.0185
Venus	-1066-03-07 05:31 J	1332131.52	1332131.73	1332131.93	0.0505	0.0057

Moon	-1065-06-15 08:38 J	1332597.65	1332597.86	1332598.08	0.0520	0.0202
Earth	-1065-06-15 12:28 J	1332597.80	1332598.02	1332598.24	0.0520	0.0209 *
Mercury	-1062-08-19 18:57 J	1333758.19	1333758.29	1333758.40	0.0532	0.0325
Mercury	-1062-11-17 01:40 J	1333847.46	1333847.57	1333847.68	0.0531	0.0259
Venus	-1060-01-14 06:43 J	1334271.64	1334271.78	1334271.92	0.0519	0.0361
Moon	-1060-12-09 21:50 J	1334601.19	1334601.41	1334601.63	0.0508	0.0026
Earth	-1060-12-09 22:33 J	1334601.22	1334601.44	1334601.67	0.0508	0.0042 *
Mercury	-1056-10-03 19:12 J	1335995.18	1335995.30	1335995.43	0.0494	0.0359
Mercury	-1055-01-02 03:07 J	1336085.50	1336085.63	1336085.77	0.0495	0.0337
Venus	-1055-11-10 02:09 J	1336397.45	1336397.59	1336397.73	0.0503	0.0363
Earth	-1053-06-20 08:38 J	1336985.80	1336985.86	1336985.92	0.0521	0.0502
Mercury	-1050-06-07 22:33 J	1338068.39	1338068.44	1338068.50	0.0533	0.0478
Mercury	-1050-09-05 05:45 J	1338157.61	1338157.74	1338157.86	0.0532	0.0113
Venus	-1049-09-19 02:24 J	1338537.40	1338537.60	1338537.80	0.0522	0.0035
Earth	-1048-12-14 11:31 J	1338988.78	1338988.98	1338989.19	0.0507	0.0232
Moon	-1048-12-14 14:09 J	1338988.89	1338989.09	1338989.29	0.0507	0.0258 *
Mercury	-1044-10-21 00:43 J	1340395.35	1340395.53	1340395.70	0.0495	0.0163
Venus	-1042-03-09 18:28 J	1340900.16	1340900.27	1340900.39	0.0508	0.0422
Mercury	-1038-06-24 10:04 J	1342467.79	1342467.92	1342468.05	0.0532	0.0029
Venus	-1037-05-24 20:52 J	1342803.21	1342803.37	1342803.54	0.0523	0.0297
Moon	-1036-12-18 17:45 J	1343376.19	1343376.24	1343376.32	0.0505	0.0480
Earth	-1036-12-18 21:35 J	1343376.36	1343376.40	1343376.45	0.0505	0.0493
Mercury	-1032-08-08 22:04 J	1344705.24	1344705.42	1344705.60	0.0495	0.0013
Venus	-1031-11-12 16:47 J	1345166.00	1345166.20	1345166.40	0.0506	0.0118
Mercury	-1026-04-12 14:09 J	1346777.97	1346778.09	1346778.21	0.0532	0.0169
Mercury	-1026-07-10 20:38 J	1346867.28	1346867.36	1346867.44	0.0530	0.0409
Mars	-1021-05-26 08:24 J	1348648.65	1348648.85	1348649.07	0.0491	0.0337
Mercury	-1020-05-27 19:55 J	1349015.16	1349015.33	1349015.50	0.0495	0.0182
Venus	-1019-07-18 15:50 J	1349431.97	1349432.16	1349432.35	0.0504	0.0181
Mercury	-1014-01-29 17:45 J	1351088.14	1351088.24	1351088.35	0.0532	0.0321



Mercury	-1014-04-29 00:28 J	1351177.41	1351177.52	1351177.63	0.0531	0.0262
Venus	-1013-05-27 16:04 J	1351571.99	1351572.17	1351572.35	0.0520	0.0228
Mercury	-1008-03-15 18:00 J	1353325.12	1353325.25	1353325.38	0.0494	0.0350
Mercury	-1008-06-14 01:55 J	1353415.45	1353415.58	1353415.71	0.0496	0.0348
Venus	-1007-03-23 15:07 J	1353698.07	1353698.13	1353698.19	0.0502	0.0477
Earth	-1006-06-05 14:38 J	1354136.99	1354137.11	1354137.24	0.0516	0.0438
Moon	-1006-06-05 16:33 J	1354137.07	1354137.19	1354137.33	0.0516	0.0434 *
Mars	-1003-03-10 05:02 J	1355145.48	1355145.71	1355145.94	0.0535	0.0253
Mercury	-1003-11-17 21:35 J	1355398.34	1355398.40	1355398.46	0.0533	0.0471
Mercury	-1002-02-15 04:33 J	1355487.56	1355487.69	1355487.81	0.0531	0.0118
Venus	-1001-01-31 10:47 J	1355837.75	1355837.95	1355838.15	0.0522	0.0104

# 1ST MILLENNIUM BCE

This is a list of transits visible from Jupiter in the 1st millennium BCE.

PLANET	MAX- TRANSIT TIME	C	START	MAX	END	SUNRAD	DEPTH	S
Mercury	-996-04-01 23:02 J	1357725.29	1357725.46	1357725.63	0.0495	0.0168		
Venus	-995-07-21 04:33 J	1358200.53	1358200.69	1358200.86	0.0507	0.0296		
Moon	-994-06-10 06:14 J	1358524.55	1358524.76	1358524.98	0.0517	0.0185		
Earth	-994-06-10 09:35 J	1358524.67	1358524.90	1358525.13	0.0517	0.0153 *		
Mercury	-991-12-04 08:09 J	1359797.72	1359797.84	1359797.97	0.0532	0.0037		
Venus	-990-10-06 04:19 J	1360103.58	1360103.68	1360103.79	0.0525	0.0442		
Moon	-989-12-04 17:31 J	1360529.09	1360529.23	1360529.39	0.0511	0.0372		
Earth	-989-12-04 18:28 J	1360529.11	1360529.27	1360529.44	0.0511	0.0349 *		

Mars	-985-03-01 14:24 J	1361711.82	1361712.10	1361712.37	0.0491	0.0156
Mercury	-984-01-18 20:38 J	1362035.18	1362035.36	1362035.54	0.0494	0.0007
Venus	-983-03-26 02:38 J	1362466.41	1362466.61	1362466.82	0.0505	0.0016
Earth	-982-06-15 10:04 J	1362912.69	1362912.92	1362913.15	0.0519	0.0148
Moon	-982-06-15 13:55 J	1362912.85	1362913.08	1362913.30	0.0519	0.0151 *
Mercury	-979-09-22 12:28 J	1364107.90	1364108.02	1364108.14	0.0533	0.0175
Mercury	-979-12-20 18:57 J	1364197.21	1364197.29	1364197.37	0.0531	0.0405
Venus	-977-02-03 06:43 J	1364606.67	1364606.78	1364606.90	0.0519	0.0422
Earth	-977-12-09 06:14 J	1364916.53	1364916.76	1364916.99	0.0509	0.0080
Moon	-977-12-09 08:38 J	1364916.63	1364916.86	1364917.10	0.0509	0.0058 *
Mercury	-973-11-06 18:00 J	1366345.08	1366345.25	1366345.42	0.0494	0.0183
Venus	-972-11-29 01:26 J	1366732.40	1366732.56	1366732.72	0.0503	0.0309
Moon	-970-06-20 10:04 J	1367300.85	1367300.92	1367301.01	0.0521	0.0489
Earth	-970-06-20 13:12 J	1367300.94	1367301.05	1367301.17	0.0521	0.0457 *
Mars	-968-12-13 21:07 J	1368208.17	1368208.38	1368208.60	0.0535	0.0307
Mercury	-967-07-11 16:33 J	1368418.09	1368418.19	1368418.29	0.0533	0.0317
Mercury	-967-10-08 23:16 J	1368507.36	1368507.47	1368507.58	0.0531	0.0267
Venus	-966-10-09 02:09 J	1368872.39	1368872.59	1368872.79	0.0521	0.0096
Moon	-965-12-13 13:40 J	1369303.87	1369304.07	1369304.28	0.0507	0.0210
Earth	-965-12-13 17:16 J	1369304.01	1369304.22	1369304.44	0.0507	0.0188 *
Mercury	-961-08-25 15:50 J	1370655.03	1370655.16	1370655.29	0.0494	0.0351
Mercury	-961-11-23 23:45 J	1370745.36	1370745.49	1370745.62	0.0496	0.0346
Venus	-959-03-28 18:43 J	1371235.22	1371235.28	1371235.34	0.0508	0.0483
Mercury	-955-04-29 20:09 J	1372728.28	1372728.34	1372728.40	0.0533	0.0471
Mercury	-955-07-28 03:07 J	1372817.51	1372817.63	1372817.75	0.0531	0.0118
Venus	-954-06-13 18:57 J	1373138.11	1373138.29	1373138.47	0.0523	0.0245
Earth	-953-12-18 01:40 J	1373691.47	1373691.57	1373691.69	0.0505	0.0446
Moon	-953-12-18 05:31 J	1373691.62	1373691.73	1373691.86	0.0505	0.0427 *
Mercury	-949-09-11 21:07 J	1375055.21	1375055.38	1375055.56	0.0495	0.0172
Venus	-948-12-01 16:04 J	1375500.98	1375501.17	1375501.37	0.0506	0.0175

Mercury	-943-05-16 06:57 J	1377127.66	1377127.79	1377127.92	0.0532	0.0030
Mercury	-937-06-30 18:43 J	1379365.09	1379365.28	1379365.46	0.0494	0.0009
Venus	-936-08-06 12:57 J	1379766.85	1379767.04	1379767.24	0.0504	0.0136
Mercury	-931-03-04 10:19 J	1381437.81	1381437.93	1381438.05	0.0533	0.0185
Mercury	-931-06-01 17:02 J	1381527.13	1381527.21	1381527.29	0.0531	0.0396
Venus	-930-06-16 14:24 J	1381906.93	1381907.10	1381907.27	0.0520	0.0281
Mercury	-925-04-18 16:19 J	1383675.01	1383675.18	1383675.35	0.0494	0.0178
Venus	-924-04-11 12:00 J	1384032.90	1384033.00	1384033.10	0.0502	0.0433
Moon	-923-06-04 08:38 J	1384451.81	1384451.86	1384451.92	0.0515	0.0498
Earth	-923-06-04 11:31 J	1384451.93	1384451.98	1384452.05	0.0515	0.0497
Mercury	-920-12-21 14:24 J	1385748.00	1385748.10	1385748.20	0.0533	0.0329
Mercury	-919-03-20 21:21 J	1385837.28	1385837.39	1385837.50	0.0531	0.0257
Venus	-918-02-19 09:07 J	1386172.68	1386172.88	1386173.09	0.0522	0.0051
Mercury	-913-02-05 13:26 J	1387984.93	1387985.06	1387985.18	0.0494	0.0355
Mercury	-913-05-05 21:07 J	1388075.25	1388075.38	1388075.51	0.0495	0.0340
Venus	-912-08-09 02:38 J	1388535.47	1388535.61	1388535.76	0.0507	0.0348
Earth	-911-06-09 11:31 J	1388839.77	1388839.98	1388840.20	0.0517	0.0204
Moon	-911-06-09 15:21 J	1388839.94	1388840.14	1388840.36	0.0517	0.0234 *
Mercury	-908-10-09 18:28 J	1390058.22	1390058.27	1390058.33	0.0533	0.0472
Mercury	-907-01-07 01:40 J	1390147.44	1390147.57	1390147.69	0.0532	0.0119
Venus	-907-10-25 03:21 J	1390438.51	1390438.64	1390438.78	0.0524	0.0385
Earth	-906-12-04 22:19 J	1390844.30	1390844.43	1390844.58	0.0511	0.0397
Moon	-906-12-05 00:43 J	1390844.40	1390844.53	1390844.67	0.0511	0.0411 *
Mercury	-901-02-22 18:43 J	1392385.10	1392385.28	1392385.45	0.0495	0.0166
Venus	-900-04-14 01:12 J	1392801.35	1392801.55	1392801.75	0.0505	0.0044
Moon	-899-06-14 09:50 J	1393227.67	1393227.91	1393228.15	0.0519	0.0102
Earth	-899-06-14 13:12 J	1393227.82	1393228.05	1393228.29	0.0519	0.0099 *
Mercury	-896-10-26 05:16 J	1394457.59	1394457.72	1394457.85	0.0532	0.0034
Venus	-894-02-22 03:21 J	1394941.56	1394941.64	1394941.73	0.0519	0.0470
Moon	-894-12-09 05:02 J	1395231.49	1395231.71	1395231.93	0.0509	0.0108

Earth	-894-12-09 08:24 J	1395231.63	1395231.85	1395232.07	0.0509	0.0133	*
Mercury	-890-12-11 16:19 J	1396695.00	1396695.18	1396695.36	0.0495	0.0008	
Venus	-889-12-17 23:45 J	1397067.32	1397067.49	1397067.67	0.0503	0.0259	
Earth	-887-06-19 13:26 J	1397615.92	1397616.06	1397616.22	0.0520	0.0400	
Moon	-887-06-19 15:21 J	1397616.02	1397616.14	1397616.27	0.0520	0.0434	*
Mercury	-884-08-14 09:07 J	1398767.76	1398767.88	1398768.00	0.0532	0.0183	
Mercury	-884-11-11 15:35 J	1398857.07	1398857.15	1398857.23	0.0530	0.0396	
Venus	-883-10-27 22:04 J	1399207.23	1399207.42	1399207.62	0.0521	0.0141	
Earth	-882-12-13 19:55 J	1399619.10	1399619.33	1399619.55	0.0508	0.0136	
Moon	-882-12-13 23:31 J	1399619.27	1399619.48	1399619.70	0.0508	0.0156	*
Mercury	-878-09-29 13:55 J	1401004.91	1401005.08	1401005.25	0.0494	0.0180	
Mercury	-872-06-02 12:14 J	1403077.92	1403078.01	1403078.11	0.0533	0.0342	
Mercury	-872-08-30 19:12 J	1403167.19	1403167.30	1403167.41	0.0532	0.0245	
Venus	-871-07-02 15:07 J	1403472.95	1403473.13	1403473.32	0.0524	0.0200	
Moon	-870-12-18 03:07 J	1404006.48	1404006.63	1404006.79	0.0506	0.0379	
Earth	-870-12-18 06:43 J	1404006.65	1404006.78	1404006.92	0.0506	0.0400	*
Mars	-867-08-20 04:04 J	1404982.41	1404982.67	1404982.94	0.0491	0.0209	
Mercury	-866-07-18 11:45 J	1405314.86	1405314.99	1405315.11	0.0494	0.0351	
Mercury	-866-10-16 19:12 J	1405405.17	1405405.30	1405405.44	0.0495	0.0343	
Venus	-865-12-20 12:00 J	1405835.81	1405836.00	1405836.18	0.0506	0.0217	
Mercury	-860-03-21 16:19 J	1407388.13	1407388.18	1407388.23	0.0534	0.0488	
Mercury	-860-06-18 23:16 J	1407477.35	1407477.47	1407477.60	0.0532	0.0106	
Mercury	-854-08-04 15:50 J	1409714.99	1409715.16	1409715.34	0.0495	0.0158	
Venus	-853-08-25 09:35 J	1410101.69	1410101.90	1410102.10	0.0504	0.0091	
Mars	-849-06-02 18:57 J	1411479.04	1411479.29	1411479.54	0.0536	0.0136	
Mercury	-848-04-07 03:35 J	1411787.52	1411787.65	1411787.78	0.0532	0.0037	
Venus	-847-07-05 12:00 J	1412241.85	1412242.00	1412242.16	0.0520	0.0334	
Mercury	-842-05-23 13:26 J	1414024.88	1414025.06	1414025.25	0.0495	0.0018	
Venus	-841-04-30 08:38 J	1414367.74	1414367.86	1414368.00	0.0502	0.0389	
Mercury	-836-01-24 07:26 J	1416097.69	1416097.81	1416097.93	0.0532	0.0187	

Mercury	-836-04-23 13:55 J	1416187.00	1416187.08	1416187.16	0.0530	0.0392
Venus	-835-03-10 05:31 J	1416507.53	1416507.73	1416507.93	0.0522	0.0003
Mars	-831-05-25 21:50 J	1418045.17	1418045.41	1418045.66	0.0491	0.0264
Mercury	-830-03-11 11:16 J	1418334.80	1418334.97	1418335.14	0.0494	0.0188
Venus	-829-08-28 00:28 J	1418870.40	1418870.52	1418870.65	0.0507	0.0399
Moon	-828-06-08 08:09 J	1419154.64	1419154.84	1419155.04	0.0516	0.0290
Earth	-828-06-08 11:45 J	1419154.79	1419154.99	1419155.20	0.0516	0.0257 *
Mercury	-825-11-12 11:02 J	1420407.86	1420407.96	1420408.05	0.0533	0.0340
Mercury	-824-02-09 17:45 J	1420497.13	1420497.24	1420497.35	0.0531	0.0246
Venus	-824-11-12 22:33 J	1420773.29	1420773.44	1420773.59	0.0524	0.0345
Moon	-823-12-03 19:12 J	1421159.21	1421159.30	1421159.39	0.0512	0.0467
Earth	-823-12-03 22:33 J	1421159.34	1421159.44	1421159.54	0.0512	0.0455 *
Mercury	-819-12-28 09:07 J	1422644.76	1422644.88	1422645.01	0.0494	0.0356
Mercury	-818-03-28 16:47 J	1422735.07	1422735.20	1422735.34	0.0495	0.0338
Venus	-817-05-02 21:21 J	1423136.19	1423136.39	1423136.60	0.0505	0.0089
Earth	-816-06-13 07:55 J	1423542.60	1423542.83	1423543.07	0.0518	0.0031
Moon	-816-06-13 10:33 J	1423542.71	1423542.94	1423543.17	0.0518	0.0036 *
Mars	-813-03-07 20:38 J	1424541.18	1424541.36	1424541.54	0.0535	0.0393
Mercury	-813-08-31 13:55 J	1424718.04	1424718.08	1424718.13	0.0533	0.0502
Mercury	-813-11-28 21:07 J	1424807.26	1424807.38	1424807.51	0.0532	0.0091
Venus	-811-03-12 22:47 J	1425276.43	1425276.45	1425276.48	0.0519	0.0514
Earth	-811-12-08 09:50 J	1425546.70	1425546.91	1425547.13	0.0510	0.0188
Moon	-811-12-08 13:40 J	1425546.86	1425547.07	1425547.29	0.0510	0.0156 *
Mercury	-806-01-14 14:09 J	1427044.91	1427045.09	1427045.26	0.0495	0.0160
Venus	-805-01-06 19:40 J	1427402.13	1427402.32	1427402.50	0.0503	0.0217
Moon	-804-06-18 06:14 J	1427930.58	1427930.76	1427930.94	0.0519	0.0356
Earth	-804-06-18 06:57 J	1427930.61	1427930.79	1427930.98	0.0519	0.0326 *
Mercury	-801-09-17 01:12 J	1429117.42	1429117.55	1429117.68	0.0532	0.0053
Mercury	-801-12-15 07:40 J	1429206.80	1429206.82	1429206.84	0.0531	0.0523
Venus	-800-11-15 18:00 J	1429542.06	1429542.25	1429542.44	0.0521	0.0187

Moon	-799-12-12 18:00 J	1429934.02	1429934.25	1429934.48	0.0508	0.0097
Earth	-799-12-12 21:21 J	1429934.17	1429934.39	1429934.62	0.0508	0.0080 *
Mercury	-795-11-02 10:33 J	1431354.76	1431354.94	1431355.13	0.0495	0.0027
Mercury	-789-07-06 05:31 J	1433427.61	1433427.73	1433427.85	0.0533	0.0194
Mercury	-789-10-03 12:00 J	1433516.92	1433517.00	1433517.09	0.0531	0.0387
Venus	-788-07-21 12:57 J	1433807.85	1433808.04	1433808.24	0.0523	0.0146
Earth	-787-12-17 08:24 J	1434321.69	1434321.85	1434322.02	0.0506	0.0344
Moon	-787-12-17 11:02 J	1434321.79	1434321.96	1434322.13	0.0506	0.0324 *
Mercury	-783-08-21 08:24 J	1435664.68	1435664.85	1435665.01	0.0494	0.0199
Venus	-781-01-09 08:24 J	1436170.67	1436170.85	1436171.02	0.0506	0.0264
Mercury	-777-04-24 09:07 J	1437737.79	1437737.88	1437737.98	0.0533	0.0345
Mercury	-777-07-22 16:04 J	1437827.05	1437827.17	1437827.28	0.0531	0.0241
Venus	-776-03-26 05:16 J	1438073.66	1438073.72	1438073.79	0.0525	0.0492
Mercury	-771-06-09 06:14 J	1439974.64	1439974.76	1439974.88	0.0494	0.0367
Mercury	-771-09-07 13:40 J	1440064.94	1440065.07	1440065.22	0.0496	0.0328
Venus	-770-09-14 06:57 J	1440436.58	1440436.79	1440436.99	0.0504	0.0042
Mercury	-765-02-11 12:43 J	1442047.99	1442048.03	1442048.07	0.0533	0.0499
Mercury	-765-05-10 19:55 J	1442137.20	1442137.33	1442137.45	0.0531	0.0094
Venus	-764-07-24 06:43 J	1442576.65	1442576.78	1442576.93	0.0520	0.0375
Mercury	-759-06-26 11:31 J	1444374.81	1444374.98	1444375.15	0.0495	0.0154
Venus	-758-05-20 05:31 J	1444702.58	1444702.73	1444702.88	0.0502	0.0343
Mercury	-753-02-27 23:02 J	1446447.34	1446447.46	1446447.59	0.0532	0.0066
Mercury	-753-05-27 05:31 J	1446536.70	1446536.73	1446536.76	0.0531	0.0510
Venus	-752-03-29 00:00 J	1446842.30	1446842.50	1446842.70	0.0522	0.0037
Mercury	-747-04-14 08:52 J	1448684.69	1448684.87	1448685.05	0.0494	0.0023
Venus	-746-09-16 19:55 J	1449205.24	1449205.33	1449205.43	0.0507	0.0442
Earth	-745-06-07 06:28 J	1449469.59	1449469.77	1449469.96	0.0515	0.0325
Moon	-745-06-07 09:35 J	1449469.73	1449469.90	1449470.07	0.0515	0.0356 *
Mercury	-742-12-17 03:07 J	1450757.51	1450757.63	1450757.75	0.0533	0.0211
Mercury	-741-03-15 09:50 J	1450846.82	1450846.91	1450847.00	0.0531	0.0371

Venus	-741-12-01 17:45 J	1451108.08	1451108.24	1451108.41	0.0524	0.0302
Mercury	-735-01-31 05:31 J	1452994.56	1452994.73	1452994.89	0.0494	0.0209
Mercury	-735-05-01 13:26 J	1453085.04	1453085.06	1453085.08	0.0496	0.0492
Venus	-734-05-22 16:04 J	1453470.98	1453471.17	1453471.37	0.0505	0.0129
Moon	-733-06-12 03:07 J	1453857.38	1453857.63	1453857.88	0.0518	0.0032
Earth	-733-06-12 04:47 J	1453857.46	1453857.70	1453857.94	0.0518	0.0037 *
Mercury	-730-10-05 07:12 J	1455067.71	1455067.80	1455067.90	0.0533	0.0353
Mercury	-729-01-02 14:09 J	1455156.98	1455157.09	1455157.21	0.0531	0.0235
Moon	-728-12-07 08:38 J	1455861.66	1455861.86	1455862.08	0.0510	0.0211
Earth	-728-12-07 12:14 J	1455861.81	1455862.01	1455862.22	0.0510	0.0242 *
Mercury	-724-11-19 03:21 J	1457304.52	1457304.64	1457304.75	0.0494	0.0378
Mercury	-723-02-17 10:47 J	1457394.81	1457394.95	1457395.09	0.0495	0.0315
Venus	-722-01-25 15:07 J	1457736.94	1457737.13	1457737.32	0.0504	0.0175
Moon	-721-06-17 05:31 J	1458245.54	1458245.73	1458245.92	0.0520	0.0294
Earth	-721-06-17 06:28 J	1458245.57	1458245.77	1458245.97	0.0520	0.0265 *
Mercury	-718-07-24 11:02 J	1459377.92	1459377.96	1459378.00	0.0533	0.0503
Mercury	-718-10-21 18:14 J	1459467.13	1459467.26	1459467.38	0.0532	0.0090
Venus	-717-12-04 14:38 J	1459876.93	1459877.11	1459877.29	0.0521	0.0234
Earth	-716-12-11 22:19 J	1460249.20	1460249.43	1460249.66	0.0509	0.0023
Moon	-716-12-12 00:57 J	1460249.32	1460249.54	1460249.76	0.0509	0.0039 *
Mars	-713-11-12 01:55 J	1461315.30	1461315.58	1461315.86	0.0491	0.0122
Mercury	-712-12-06 08:24 J	1461704.68	1461704.85	1461705.03	0.0495	0.0141
Venus	-711-09-30 14:52 J	1462003.06	1462003.12	1462003.19	0.0502	0.0473
Mercury	-706-08-09 21:50 J	1463777.28	1463777.41	1463777.54	0.0532	0.0062
Mercury	-706-11-07 04:04 J	1463866.65	1463866.67	1463866.71	0.0530	0.0514
Venus	-705-08-09 08:09 J	1464142.64	1464142.84	1464143.04	0.0523	0.0105
Moon	-704-12-16 07:26 J	1464636.61	1464636.81	1464637.02	0.0507	0.0263
Earth	-704-12-16 08:38 J	1464636.67	1464636.86	1464637.05	0.0507	0.0286 *
Mercury	-700-09-24 06:14 J	1466014.58	1466014.76	1466014.95	0.0495	0.0030
Venus	-698-01-28 05:16 J	1466505.56	1466505.72	1466505.88	0.0506	0.0312

Mars	-695-08-26 17:31 J	1467811.97	1467812.23	1467812.49	0.0535	0.0055
Mercury	-694-05-29 00:57 J	1468087.43	1468087.54	1468087.66	0.0533	0.0222
Mercury	-694-08-26 07:40 J	1468176.73	1468176.82	1468176.92	0.0531	0.0361
Venus	-693-04-13 23:16 J	1468408.38	1468408.47	1468408.58	0.0525	0.0456
Mercury	-688-07-13 03:50 J	1470324.50	1470324.66	1470324.83	0.0494	0.0202
Venus	-687-10-03 03:07 J	1470771.42	1470771.63	1470771.83	0.0504	0.0009
Mercury	-682-03-17 05:02 J	1472397.61	1472397.71	1472397.80	0.0533	0.0368
Mercury	-682-06-14 12:00 J	1472486.88	1472487.00	1472487.11	0.0532	0.0221
Venus	-681-08-12 02:38 J	1472911.50	1472911.61	1472911.73	0.0520	0.0423
Mars	-677-08-17 21:50 J	1474378.23	1474378.41	1474378.62	0.0491	0.0358
Mercury	-676-05-01 00:28 J	1474634.41	1474634.52	1474634.63	0.0494	0.0386
Mercury	-676-07-30 07:55 J	1474724.69	1474724.83	1474724.98	0.0495	0.0306
Venus	-675-06-07 23:45 J	1475037.33	1475037.49	1475037.65	0.0502	0.0307
Mercury	-670-01-03 09:07 J	1476707.85	1476707.88	1476707.91	0.0534	0.0510
Mercury	-670-04-02 16:19 J	1476797.05	1476797.18	1476797.31	0.0532	0.0083
Venus	-669-04-16 22:33 J	1477177.24	1477177.44	1477177.64	0.0522	0.0094
Mercury	-664-05-18 05:31 J	1479034.55	1479034.73	1479034.91	0.0495	0.0131
Venus	-663-10-05 15:50 J	1479540.11	1479540.16	1479540.22	0.0508	0.0488
Moon	-662-06-07 03:07 J	1479784.50	1479784.63	1479784.78	0.0516	0.0415
Earth	-662-06-07 05:16 J	1479784.58	1479784.72	1479784.89	0.0516	0.0385 *
Mars	-659-06-01 13:55 J	1480875.02	1480875.08	1480875.15	0.0535	0.0518
Mercury	-658-01-19 20:24 J	1481107.22	1481107.35	1481107.47	0.0532	0.0065
Mercury	-658-04-19 02:38 J	1481196.58	1481196.61	1481196.64	0.0530	0.0512
Venus	-658-12-21 15:50 J	1481442.98	1481443.16	1481443.34	0.0524	0.0249
Mercury	-652-03-06 03:21 J	1483344.46	1483344.64	1483344.82	0.0495	0.0040
Venus	-651-06-10 14:09 J	1483805.90	1483806.09	1483806.29	0.0506	0.0180
Earth	-650-06-12 06:00 J	1484172.52	1484172.75	1484172.99	0.0517	0.0090
Moon	-650-06-12 06:00 J	1484172.53	1484172.75	1484172.98	0.0517	0.0079 *
Mercury	-647-11-08 00:00 J	1485417.38	1485417.50	1485417.62	0.0532	0.0214
Mercury	-646-02-05 06:43 J	1485506.69	1485506.78	1485506.87	0.0531	0.0367



Earth	-645-12-06 12:57 J	1486176.85	1486177.04	1486177.22	0.0511	0.0298
Moon	-645-12-06 15:35 J	1486176.96	1486177.15	1486177.34	0.0511	0.0267 *
Mercury	-641-12-23 01:26 J	1487654.40	1487654.56	1487654.73	0.0494	0.0206
Mercury	-640-03-23 09:21 J	1487744.89	1487744.89	1487744.90	0.0496	0.0495
Venus	-639-02-13 13:12 J	1488071.85	1488072.05	1488072.25	0.0503	0.0124
Earth	-638-06-17 04:47 J	1488560.49	1488560.70	1488560.92	0.0518	0.0202
Moon	-638-06-17 07:26 J	1488560.59	1488560.81	1488561.03	0.0518	0.0228 *
Mercury	-635-08-27 03:07 J	1489727.54	1489727.63	1489727.72	0.0533	0.0374
Mercury	-635-11-24 10:04 J	1489816.81	1489816.92	1489817.04	0.0531	0.0214
Venus	-634-12-24 09:35 J	1490211.74	1490211.90	1490212.08	0.0521	0.0279
Moon	-633-12-10 22:04 J	1490564.19	1490564.42	1490564.66	0.0510	0.0025
Earth	-633-12-10 23:31 J	1490564.25	1490564.48	1490564.71	0.0510	0.0035 *
Mercury	-629-10-10 23:16 J	1491964.36	1491964.47	1491964.59	0.0494	0.0377
Mercury	-628-01-09 06:43 J	1492054.64	1492054.78	1492054.92	0.0495	0.0316
Venus	-628-10-19 12:00 J	1492337.89	1492338.00	1492338.11	0.0501	0.0426
Moon	-626-06-22 00:28 J	1492948.44	1492948.52	1492948.61	0.0520	0.0482
Earth	-626-06-22 04:19 J	1492948.62	1492948.68	1492948.75	0.0520	0.0499
Mercury	-623-06-15 06:57 J	1494037.77	1494037.79	1494037.81	0.0533	0.0522
Mercury	-623-09-12 14:09 J	1494126.97	1494127.09	1494127.22	0.0532	0.0073
Venus	-622-08-29 04:33 J	1494477.49	1494477.69	1494477.89	0.0523	0.0056
Moon	-621-12-15 10:47 J	1494951.75	1494951.95	1494952.15	0.0508	0.0204
Earth	-621-12-15 11:31 J	1494951.78	1494951.98	1494952.19	0.0508	0.0230 *
Mercury	-617-10-28 02:52 J	1496364.45	1496364.62	1496364.80	0.0495	0.0125
Venus	-615-02-16 00:14 J	1496840.37	1496840.51	1496840.66	0.0506	0.0353
Mercury	-611-07-01 18:43 J	1498437.15	1498437.28	1498437.40	0.0532	0.0068
Mercury	-611-09-29 01:12 J	1498526.52	1498526.55	1498526.58	0.0531	0.0510
Venus	-610-05-03 23:31 J	1498743.35	1498743.48	1498743.61	0.0525	0.0394
Earth	-609-12-19 23:31 J	1499339.45	1499339.48	1499339.54	0.0506	0.0494
Moon	-609-12-20 02:24 J	1499339.54	1499339.60	1499339.67	0.0506	0.0482 *
Mercury	-605-08-16 00:43 J	1500674.35	1500674.53	1500674.71	0.0494	0.0047

Venus	-604-10-21 23:02 J	1501106.25	1501106.46	1501106.66	0.0505	0.0047
Mercury	-599-04-19 22:33 J	1502747.32	1502747.44	1502747.56	0.0533	0.0212
Mercury	-599-07-18 05:16 J	1502836.63	1502836.72	1502836.81	0.0531	0.0369
Venus	-598-09-01 01:40 J	1503246.49	1503246.57	1503246.64	0.0519	0.0478
Mercury	-593-06-03 22:47 J	1504984.29	1504984.45	1504984.61	0.0494	0.0215
Mercury	-593-09-02 06:28 J	1505074.75	1505074.77	1505074.81	0.0496	0.0486
Venus	-592-06-26 22:33 J	1505372.26	1505372.44	1505372.62	0.0503	0.0255
Mercury	-587-02-06 02:24 J	1507057.50	1507057.60	1507057.69	0.0533	0.0363
Mercury	-587-05-06 09:07 J	1507146.77	1507146.88	1507147.00	0.0531	0.0225
Venus	-586-05-06 19:40 J	1507512.13	1507512.32	1507512.52	0.0521	0.0144
Mercury	-581-03-22 21:07 J	1509294.27	1509294.38	1509294.50	0.0494	0.0378
Mercury	-581-06-21 04:33 J	1509384.55	1509384.69	1509384.83	0.0495	0.0315
Earth	-579-06-06 07:26 J	1510099.69	1510099.81	1510099.95	0.0515	0.0434
Moon	-579-06-06 08:09 J	1510099.75	1510099.84	1510099.95	0.0515	0.0462 *
Mars	-576-02-14 02:24 J	1511083.50	1511083.60	1511083.73	0.0535	0.0481
Mercury	-576-11-25 05:31 J	1511367.71	1511367.73	1511367.75	0.0533	0.0523
Mercury	-575-02-22 12:43 J	1511456.90	1511457.03	1511457.16	0.0532	0.0070
Venus	-574-01-09 11:45 J	1511777.81	1511777.99	1511778.18	0.0524	0.0203
Mercury	-569-04-09 01:55 J	1513694.41	1513694.58	1513694.76	0.0495	0.0139
Venus	-568-06-29 12:14 J	1514140.83	1514141.01	1514141.20	0.0505	0.0233
Earth	-567-06-11 05:45 J	1514487.51	1514487.74	1514487.97	0.0516	0.0146
Moon	-567-06-11 07:40 J	1514487.58	1514487.82	1514488.06	0.0516	0.0127 *
Mercury	-564-12-11 16:47 J	1515767.07	1515767.20	1515767.32	0.0532	0.0075
Mercury	-563-03-10 23:16 J	1515856.43	1515856.47	1515856.51	0.0531	0.0503
Moon	-562-12-06 15:35 J	1516491.97	1516492.15	1516492.34	0.0512	0.0319
Earth	-562-12-06 17:02 J	1516492.05	1516492.21	1516492.39	0.0512	0.0350 *
Mars	-558-02-05 09:21 J	1517648.60	1517648.89	1517649.18	0.0491	0.0018
Mercury	-557-01-26 22:33 J	1518004.25	1518004.44	1518004.62	0.0494	0.0051
Venus	-556-03-04 08:38 J	1518406.65	1518406.86	1518407.06	0.0504	0.0085
Moon	-555-06-15 22:47 J	1518875.23	1518875.45	1518875.68	0.0519	0.0164

Earth	-555-06-16 02:24 J	1518875.38	1518875.60	1518875.83	0.0519	0.0139	*
Mercury	-552-09-29 21:07 J	1520077.26	1520077.38	1520077.50	0.0533	0.0214	
Mercury	-552-12-28 03:50 J	1520166.57	1520166.66	1520166.75	0.0531	0.0370	
Venus	-550-01-12 10:47 J	1520546.81	1520546.95	1520547.11	0.0520	0.0346	
Moon	-550-12-11 06:57 J	1520879.58	1520879.79	1520880.01	0.0510	0.0073	
Earth	-550-12-11 07:40 J	1520879.60	1520879.82	1520880.05	0.0510	0.0074	*
Mercury	-546-11-14 20:24 J	1522314.19	1522314.35	1522314.52	0.0494	0.0218	
Mercury	-545-02-13 04:04 J	1522404.64	1522404.67	1522404.72	0.0496	0.0482	
Venus	-545-11-07 08:09 J	1522672.72	1522672.84	1522672.98	0.0502	0.0384	
Earth	-543-06-21 05:16 J	1523263.60	1523263.72	1523263.85	0.0521	0.0443	
Moon	-543-06-21 09:35 J	1523263.77	1523263.90	1523264.04	0.0521	0.0425	*
Mars	-541-11-19 21:07 J	1524146.13	1524146.38	1524146.64	0.0536	0.0089	
Mercury	-540-07-19 00:57 J	1524387.45	1524387.54	1524387.64	0.0533	0.0359	
Mercury	-540-10-16 07:55 J	1524476.72	1524476.83	1524476.95	0.0531	0.0231	
Venus	-539-09-17 05:31 J	1524812.52	1524812.73	1524812.93	0.0522	0.0010	
Earth	-538-12-15 18:28 J	1525267.06	1525267.27	1525267.49	0.0508	0.0190	
Moon	-538-12-15 21:07 J	1525267.16	1525267.38	1525267.61	0.0508	0.0159	*
Mercury	-534-09-02 18:43 J	1526624.17	1526624.28	1526624.39	0.0494	0.0383	
Mercury	-534-12-02 02:09 J	1526714.44	1526714.59	1526714.73	0.0495	0.0309	
Venus	-532-03-07 00:28 J	1527175.41	1527175.52	1527175.64	0.0507	0.0414	
Mercury	-528-05-07 04:47 J	1528697.66	1528697.70	1528697.73	0.0533	0.0509	
Mercury	-528-08-04 12:00 J	1528786.87	1528787.00	1528787.13	0.0532	0.0084	
Venus	-527-05-22 22:33 J	1529078.29	1529078.44	1529078.60	0.0524	0.0337	
Moon	-526-12-20 01:12 J	1529654.45	1529654.55	1529654.67	0.0506	0.0438	
Earth	-526-12-20 04:47 J	1529654.60	1529654.70	1529654.81	0.0506	0.0448	*
Mars	-523-11-11 17:31 J	1530712.22	1530712.23	1530712.27	0.0492	0.0490	
Mercury	-522-09-20 00:14 J	1531024.33	1531024.51	1531024.68	0.0495	0.0141	
Venus	-521-11-09 23:16 J	1531441.27	1531441.47	1531441.67	0.0505	0.0108	
Mercury	-516-05-23 15:21 J	1533097.02	1533097.14	1533097.27	0.0532	0.0073	
Mercury	-516-08-20 21:50 J	1533186.38	1533186.41	1533186.45	0.0530	0.0506	

Mercury	-510-07-08 21:50 J	1535334.23	1535334.41	1535334.60	0.0495	0.0032
Venus	-509-07-15 22:04 J	1535707.23	1535707.42	1535707.60	0.0503	0.0199
Mercury	-504-03-11 19:26 J	1537407.19	1537407.31	1537407.43	0.0533	0.0216
Mercury	-504-06-09 02:09 J	1537496.50	1537496.59	1537496.68	0.0531	0.0367
Venus	-503-05-25 18:57 J	1537847.10	1537847.29	1537847.47	0.0522	0.0204
Mercury	-498-04-26 18:28 J	1539644.11	1539644.27	1539644.44	0.0494	0.0217
Mercury	-498-07-26 02:09 J	1539734.56	1539734.59	1539734.64	0.0495	0.0483
Earth	-496-06-05 06:28 J	1540414.70	1540414.77	1540414.84	0.0515	0.0490
Moon	-496-06-05 07:40 J	1540414.79	1540414.82	1540414.85	0.0515	0.0510 *
Mercury	-493-12-28 23:45 J	1541717.39	1541717.49	1541717.58	0.0534	0.0358
Mercury	-492-03-28 06:43 J	1541806.67	1541806.78	1541806.90	0.0532	0.0232
Venus	-491-01-28 14:38 J	1542112.92	1542113.11	1542113.31	0.0524	0.0131
Mercury	-486-02-12 16:47 J	1543954.09	1543954.20	1543954.32	0.0494	0.0381
Mercury	-486-05-14 00:00 J	1544044.36	1544044.50	1544044.65	0.0495	0.0310
Venus	-485-07-18 09:50 J	1544475.74	1544475.91	1544476.08	0.0506	0.0282
Moon	-484-06-10 04:04 J	1544802.46	1544802.67	1544802.90	0.0517	0.0176
Earth	-484-06-10 07:26 J	1544802.59	1544802.81	1544803.03	0.0517	0.0198 *
Mercury	-481-10-17 03:35 J	1546027.62	1546027.65	1546027.70	0.0534	0.0503
Mercury	-480-01-14 11:02 J	1546116.83	1546116.96	1546117.08	0.0532	0.0092
Venus	-480-10-03 08:24 J	1546378.77	1546378.85	1546378.94	0.0525	0.0475
Moon	-479-12-06 02:09 J	1546807.43	1546807.59	1546807.75	0.0512	0.0354
Earth	-479-12-06 02:38 J	1546807.46	1546807.61	1546807.77	0.0512	0.0381 *
Mercury	-474-03-01 22:04 J	1548354.24	1548354.42	1548354.60	0.0495	0.0140
Venus	-473-03-23 09:35 J	1548741.70	1548741.90	1548742.11	0.0504	0.0024
Earth	-472-06-15 10:04 J	1549190.69	1549190.92	1549191.15	0.0518	0.0102
Moon	-472-06-15 14:09 J	1549190.86	1549191.09	1549191.32	0.0518	0.0128 *
Mercury	-469-11-02 14:52 J	1550427.00	1550427.12	1550427.25	0.0532	0.0056
Mercury	-468-01-30 21:21 J	1550516.38	1550516.39	1550516.41	0.0530	0.0522
Venus	-467-01-31 11:02 J	1550881.84	1550881.96	1550882.09	0.0520	0.0407
Earth	-467-12-10 14:38 J	1551194.89	1551195.11	1551195.34	0.0510	0.0113

Moon	-467-12-10 17:16 J	1551195.00	1551195.22	1551195.45	0.0510	0.0122	*
Mercury	-463-12-18 20:24 J	1552664.16	1552664.35	1552664.53	0.0495	0.0028	
Venus	-462-11-27 09:50 J	1553007.75	1553007.91	1553008.07	0.0502	0.0320	
Moon	-460-06-20 07:40 J	1553578.67	1553578.82	1553578.99	0.0520	0.0380	
Earth	-460-06-20 11:31 J	1553578.84	1553578.98	1553579.14	0.0520	0.0400	*
Mercury	-457-08-21 18:28 J	1554737.15	1554737.27	1554737.39	0.0533	0.0209	
Mercury	-457-11-19 01:12 J	1554826.46	1554826.55	1554826.64	0.0531	0.0374	
Venus	-456-10-06 04:19 J	1555147.48	1555147.68	1555147.88	0.0522	0.0066	
Moon	-455-12-14 21:50 J	1555582.19	1555582.41	1555582.63	0.0508	0.0113	
Earth	-455-12-15 01:12 J	1555582.34	1555582.55	1555582.78	0.0508	0.0147	*
Mercury	-451-10-06 18:14 J	1556974.10	1556974.26	1556974.43	0.0494	0.0195	
Venus	-449-03-26 00:57 J	1557510.48	1557510.54	1557510.61	0.0507	0.0477	
Mercury	-445-06-09 22:19 J	1559047.34	1559047.43	1559047.53	0.0533	0.0355	
Mercury	-445-09-07 05:16 J	1559136.61	1559136.72	1559136.84	0.0532	0.0234	
Venus	-444-06-10 22:47 J	1559413.28	1559413.45	1559413.62	0.0524	0.0275	
Earth	-443-12-19 13:55 J	1559969.95	1559970.08	1559970.22	0.0507	0.0409	
Moon	-443-12-19 17:45 J	1559970.11	1559970.24	1559970.39	0.0507	0.0405	*
Mars	-440-07-26 06:43 J	1560919.61	1560919.78	1560919.98	0.0491	0.0380	
Mercury	-439-07-25 15:21 J	1561284.02	1561284.14	1561284.25	0.0493	0.0375	
Mercury	-439-10-23 22:33 J	1561374.30	1561374.44	1561374.58	0.0495	0.0315	
Venus	-438-11-29 20:38 J	1561776.16	1561776.36	1561776.55	0.0505	0.0155	
Mercury	-433-03-29 02:24 J	1563357.56	1563357.60	1563357.65	0.0534	0.0499	
Mercury	-433-06-26 09:50 J	1563446.78	1563446.91	1563447.03	0.0532	0.0097	
Mercury	-427-08-11 20:24 J	1565684.18	1565684.35	1565684.53	0.0495	0.0145	
Venus	-426-08-04 20:09 J	1566042.15	1566042.34	1566042.54	0.0503	0.0149	
Mars	-422-05-11 18:14 J	1567418.06	1567418.26	1567418.47	0.0536	0.0315	
Mercury	-421-04-14 13:55 J	1567756.96	1567757.08	1567757.21	0.0533	0.0048	
Venus	-420-06-13 22:19 J	1568182.26	1568182.43	1568182.60	0.0521	0.0278	
Mercury	-415-05-30 18:28 J	1569994.09	1569994.27	1569994.45	0.0494	0.0024	
Venus	-414-04-09 20:52 J	1570308.29	1570308.37	1570308.47	0.0501	0.0445	

Mercury	-409-02-01 18:00 J	1572067.13	1572067.25	1572067.37	0.0533	0.0189
Mercury	-409-05-01 00:43 J	1572156.45	1572156.53	1572156.62	0.0531	0.0393
Venus	-408-02-16 16:33 J	1572447.99	1572448.19	1572448.39	0.0523	0.0063
Mars	-404-05-01 19:12 J	1573983.03	1573983.30	1573983.59	0.0491	0.0140
Mercury	-403-03-18 16:47 J	1574304.04	1574304.20	1574304.37	0.0494	0.0187
Venus	-402-08-07 12:28 J	1574810.88	1574811.02	1574811.17	0.0506	0.0354
Earth	-401-06-09 16:47 J	1575117.98	1575118.20	1575118.41	0.0516	0.0230
Moon	-401-06-09 20:52 J	1575118.15	1575118.37	1575118.59	0.0516	0.0200 *
Mercury	-398-11-20 21:21 J	1576377.30	1576377.39	1576377.49	0.0533	0.0345
Mercury	-397-02-18 04:33 J	1576466.57	1576466.69	1576466.80	0.0531	0.0245
Venus	-397-10-22 08:24 J	1576713.73	1576713.85	1576713.98	0.0525	0.0414
Earth	-396-12-05 10:19 J	1577122.80	1577122.93	1577123.06	0.0512	0.0420
Moon	-396-12-05 12:43 J	1577122.89	1577123.03	1577123.19	0.0512	0.0395 *
Mercury	-391-01-04 15:07 J	1578614.01	1578614.13	1578614.26	0.0494	0.0352
Mercury	-391-04-04 22:19 J	1578704.30	1578704.43	1578704.57	0.0495	0.0341
Venus	-390-04-12 11:16 J	1579076.76	1579076.97	1579077.17	0.0504	0.0044
Moon	-389-06-14 12:28 J	1579505.78	1579506.02	1579506.25	0.0518	0.0084
Earth	-389-06-14 16:19 J	1579505.95	1579506.18	1579506.42	0.0518	0.0061 *
Mars	-386-02-14 05:45 J	1580480.51	1580480.74	1580480.97	0.0536	0.0247
Mercury	-386-09-09 01:12 J	1580687.51	1580687.55	1580687.60	0.0534	0.0493
Mercury	-386-12-07 08:38 J	1580776.73	1580776.86	1580776.98	0.0532	0.0102
Venus	-384-02-19 12:14 J	1581216.94	1581217.01	1581217.10	0.0520	0.0474
Moon	-384-12-09 21:21 J	1581510.18	1581510.39	1581510.61	0.0510	0.0162
Earth	-384-12-10 01:12 J	1581510.33	1581510.55	1581510.77	0.0510	0.0148 *
Mercury	-379-01-21 19:12 J	1583014.12	1583014.30	1583014.47	0.0494	0.0154
Venus	-379-12-16 07:55 J	1583342.66	1583342.83	1583343.00	0.0502	0.0272
Earth	-377-06-19 12:14 J	1583893.84	1583894.01	1583894.19	0.0520	0.0346
Moon	-377-06-19 14:52 J	1583893.95	1583894.12	1583894.30	0.0520	0.0325 *
Mercury	-374-09-25 12:57 J	1585086.91	1585087.04	1585087.16	0.0533	0.0040
Venus	-373-10-25 08:52 J	1585482.68	1585482.87	1585483.07	0.0522	0.0145

Earth	-372-12-14 15:50 J	1585897.94	1585898.16	1585898.39	0.0509	0.0126
Moon	-372-12-14 19:55 J	1585898.10	1585898.33	1585898.56	0.0509	0.0094 *
Mercury	-368-11-09 17:16 J	1587324.04	1587324.22	1587324.40	0.0494	0.0015
Mercury	-362-07-14 17:02 J	1589397.09	1589397.21	1589397.34	0.0533	0.0179
Mercury	-362-10-11 23:45 J	1589486.42	1589486.49	1589486.58	0.0531	0.0405
Venus	-361-06-30 03:21 J	1589748.45	1589748.64	1589748.83	0.0524	0.0197
Moon	-360-12-18 23:31 J	1590285.34	1590285.48	1590285.64	0.0507	0.0384
Earth	-360-12-19 03:07 J	1590285.49	1590285.63	1590285.78	0.0507	0.0385 *
Mercury	-356-08-28 15:21 J	1591633.97	1591634.14	1591634.31	0.0494	0.0181
Venus	-355-12-18 23:16 J	1592111.29	1592111.47	1592111.66	0.0505	0.0225
Mercury	-350-05-02 21:07 J	1593707.28	1593707.38	1593707.48	0.0533	0.0324
Mercury	-350-07-31 04:04 J	1593796.56	1593796.67	1593796.78	0.0532	0.0264
Mercury	-344-06-16 13:55 J	1595943.95	1595944.08	1595944.21	0.0494	0.0342
Mercury	-344-09-14 21:21 J	1596034.26	1596034.39	1596034.51	0.0495	0.0351
Venus	-343-08-23 23:31 J	1596377.28	1596377.48	1596377.68	0.0503	0.0079
Mercury	-338-02-19 00:28 J	1598017.47	1598017.52	1598017.58	0.0533	0.0480
Mercury	-338-05-19 07:55 J	1598106.70	1598106.83	1598106.95	0.0532	0.0115
Venus	-337-07-02 23:02 J	1598517.31	1598517.46	1598517.61	0.0521	0.0343
Mercury	-332-07-03 19:12 J	1600344.13	1600344.30	1600344.47	0.0495	0.0179
Venus	-331-04-28 23:16 J	1600643.34	1600643.47	1600643.60	0.0501	0.0380
Mercury	-326-03-07 11:45 J	1602416.87	1602416.99	1602417.12	0.0533	0.0034
Venus	-325-03-07 18:14 J	1602783.06	1602783.26	1602783.46	0.0523	0.0006
Mercury	-320-04-21 16:04 J	1604653.99	1604654.17	1604654.35	0.0494	0.0005
Venus	-319-08-26 11:16 J	1605145.85	1605145.97	1605146.09	0.0506	0.0406
Moon	-318-06-09 14:09 J	1605432.89	1605433.09	1605433.30	0.0515	0.0250
Earth	-318-06-09 18:28 J	1605433.07	1605433.27	1605433.47	0.0515	0.0278 *
Mercury	-315-12-24 15:50 J	1606727.04	1606727.16	1606727.29	0.0534	0.0175
Mercury	-314-03-23 22:47 J	1606816.37	1606816.45	1606816.53	0.0532	0.0411
Venus	-314-11-11 13:12 J	1607048.89	1607049.05	1607049.20	0.0525	0.0337
Moon	-313-12-04 21:50 J	1607438.29	1607438.41	1607438.55	0.0513	0.0416

Earth	-313-12-05 01:40 J	1607438.45	1607438.57	1607438.69	0.0513	0.0438	*
Mercury	-308-02-07 14:24 J	1608963.93	1608964.10	1608964.27	0.0494	0.0170	
Venus	-307-05-01 10:33 J	1609411.74	1609411.94	1609412.14	0.0504	0.0098	
Earth	-306-06-14 19:55 J	1609821.09	1609821.33	1609821.57	0.0518	0.0017	
Moon	-306-06-14 22:47 J	1609821.22	1609821.45	1609821.68	0.0518	0.0034	*
Mercury	-303-10-12 20:09 J	1611037.24	1611037.34	1611037.44	0.0534	0.0315	
Mercury	-302-01-10 03:07 J	1611126.53	1611126.63	1611126.74	0.0532	0.0276	
Earth	-301-12-09 14:52 J	1611825.90	1611826.12	1611826.34	0.0511	0.0168	
Moon	-301-12-09 18:43 J	1611826.07	1611826.28	1611826.50	0.0511	0.0186	*
Mercury	-297-11-26 12:28 J	1613273.89	1613274.02	1613274.16	0.0494	0.0334	
Mercury	-296-02-24 19:40 J	1613364.20	1613364.32	1613364.45	0.0495	0.0358	
Venus	-295-01-04 10:47 J	1613677.77	1613677.95	1613678.14	0.0502	0.0204	
Moon	-294-06-19 23:02 J	1614209.27	1614209.46	1614209.67	0.0520	0.0291	
Earth	-294-06-19 23:45 J	1614209.30	1614209.49	1614209.67	0.0520	0.0319	*
Mercury	-291-08-01 00:00 J	1615347.44	1615347.50	1615347.57	0.0534	0.0461	
Mercury	-291-10-29 07:26 J	1615436.68	1615436.81	1615436.93	0.0532	0.0134	
Venus	-290-11-14 12:00 J	1615817.81	1615818.00	1615818.18	0.0522	0.0218	
Moon	-289-12-13 23:31 J	1616213.25	1616213.48	1616213.72	0.0509	0.0066	
Earth	-289-12-14 03:07 J	1616213.40	1616213.63	1616213.85	0.0509	0.0096	*
Mars	-286-10-21 02:24 J	1617254.34	1617254.60	1617254.87	0.0491	0.0202	
Mercury	-285-12-13 18:00 J	1617674.08	1617674.25	1617674.42	0.0495	0.0190	
Venus	-284-09-09 12:00 J	1617943.99	1617944.00	1617944.01	0.0501	0.0499	
Mercury	-279-08-17 11:02 J	1619746.83	1619746.96	1619747.09	0.0532	0.0018	
Venus	-278-07-20 04:33 J	1620083.50	1620083.69	1620083.89	0.0524	0.0131	
Earth	-277-12-18 12:57 J	1620600.88	1620601.04	1620601.21	0.0507	0.0350	
Moon	-277-12-18 14:38 J	1620600.97	1620601.11	1620601.27	0.0507	0.0364	*
Mercury	-273-10-01 15:50 J	1621983.98	1621984.16	1621984.35	0.0494	0.0024	
Venus	-271-01-07 01:55 J	1622446.42	1622446.58	1622446.75	0.0505	0.0294	
Mars	-268-08-05 10:19 J	1623752.68	1623752.93	1623753.18	0.0536	0.0141	
Mercury	-267-06-05 15:07 J	1624057.00	1624057.13	1624057.25	0.0533	0.0163	



Mercury	-267-09-02 21:50 J	1624146.33	1624146.41	1624146.49	0.0531	0.0420
Venus	-266-03-24 22:19 J	1624349.35	1624349.43	1624349.51	0.0526	0.0478
Mercury	-261-07-20 13:12 J	1626293.88	1626294.05	1626294.23	0.0493	0.0157
Venus	-260-09-11 22:33 J	1626712.24	1626712.44	1626712.65	0.0503	0.0026
Mercury	-255-03-24 18:57 J	1628367.18	1628367.29	1628367.39	0.0534	0.0311
Mercury	-255-06-22 01:55 J	1628456.48	1628456.58	1628456.69	0.0532	0.0281
Venus	-254-07-23 03:21 J	1628852.53	1628852.64	1628852.76	0.0521	0.0422
Mars	-250-07-27 12:57 J	1630317.82	1630318.04	1630318.27	0.0490	0.0308
Mercury	-249-05-08 11:31 J	1630603.85	1630603.98	1630604.12	0.0493	0.0321
Mercury	-249-08-06 18:43 J	1630694.16	1630694.28	1630694.40	0.0495	0.0369
Venus	-248-05-17 22:33 J	1630978.29	1630978.44	1630978.60	0.0501	0.0328
Mercury	-243-01-10 23:02 J	1632677.40	1632677.46	1632677.53	0.0534	0.0453
Mercury	-243-04-10 06:28 J	1632766.64	1632766.77	1632766.89	0.0533	0.0143
Venus	-242-03-27 22:47 J	1633118.25	1633118.45	1633118.65	0.0523	0.0085
Mercury	-237-02-25 09:50 J	1634913.88	1634913.91	1634913.94	0.0493	0.0485
Mercury	-237-05-25 16:33 J	1635004.02	1635004.19	1635004.36	0.0495	0.0197
Venus	-236-09-14 14:24 J	1635481.04	1635481.10	1635481.17	0.0507	0.0478
Earth	-235-06-09 05:02 J	1635748.52	1635748.71	1635748.91	0.0515	0.0304
Moon	-235-06-09 08:24 J	1635748.65	1635748.85	1635749.05	0.0515	0.0274 *
Mars	-232-05-11 06:28 J	1636815.64	1636815.77	1636815.92	0.0536	0.0445
Mercury	-231-01-27 10:33 J	1637076.81	1637076.94	1637077.07	0.0533	0.0007
Venus	-231-11-30 16:19 J	1637384.01	1637384.18	1637384.36	0.0525	0.0263
Earth	-230-12-05 12:14 J	1637753.92	1637754.01	1637754.11	0.0513	0.0466
Moon	-230-12-05 16:04 J	1637754.07	1637754.17	1637754.29	0.0513	0.0446 *
Mercury	-225-03-13 14:38 J	1639313.93	1639314.11	1639314.30	0.0494	0.0031
Venus	-224-05-20 13:40 J	1639746.88	1639747.07	1639747.27	0.0505	0.0171
Moon	-223-06-14 05:45 J	1640136.50	1640136.74	1640136.99	0.0517	0.0007
Earth	-223-06-14 06:57 J	1640136.55	1640136.79	1640137.02	0.0517	0.0014 *
Mercury	-220-11-15 14:09 J	1641386.97	1641387.09	1641387.22	0.0533	0.0152
Mercury	-219-02-12 20:52 J	1641476.30	1641476.37	1641476.45	0.0531	0.0431

Moon	-218-12-09 20:09 J	1642141.13	1642141.34	1642141.55	0.0511	0.0224
Earth	-218-12-09 23:45 J	1642141.28	1642141.49	1642141.70	0.0511	0.0203 *
Mercury	-214-12-31 12:43 J	1643623.86	1643624.03	1643624.21	0.0494	0.0138
Venus	-212-01-23 13:12 J	1644012.85	1644013.05	1644013.25	0.0503	0.0137
Moon	-211-06-19 05:45 J	1644524.54	1644524.74	1644524.94	0.0519	0.0250
Earth	-211-06-19 07:12 J	1644524.60	1644524.80	1644525.00	0.0519	0.0281 *
Mercury	-208-09-03 18:00 J	1645697.15	1645697.25	1645697.36	0.0534	0.0300
Mercury	-208-12-02 00:57 J	1645786.44	1645786.54	1645786.65	0.0532	0.0290
Venus	-207-12-03 13:12 J	1646152.88	1646153.05	1646153.22	0.0522	0.0285
Earth	-206-12-14 13:40 J	1646528.84	1646529.07	1646529.30	0.0509	0.0064
Moon	-206-12-14 15:21 J	1646528.92	1646529.14	1646529.37	0.0509	0.0045 *
Mercury	-202-10-19 10:33 J	1647933.80	1647933.94	1647934.08	0.0493	0.0310
Mercury	-201-01-17 17:31 J	1648024.12	1648024.23	1648024.35	0.0494	0.0380
Venus	-201-09-28 11:16 J	1648278.88	1648278.97	1648279.06	0.0500	0.0446
Mercury	-196-06-22 21:35 J	1650007.34	1650007.40	1650007.47	0.0535	0.0453
Mercury	-196-09-20 05:02 J	1650096.59	1650096.71	1650096.83	0.0533	0.0145
Venus	-195-08-08 07:55 J	1650418.63	1650418.83	1650419.03	0.0524	0.0057
Earth	-194-12-19 03:35 J	1650916.47	1650916.65	1650916.82	0.0508	0.0330
Moon	-194-12-19 03:35 J	1650916.48	1650916.65	1650916.82	0.0508	0.0350 *
Mercury	-190-08-07 08:52 J	1652243.82	1652243.87	1652243.92	0.0493	0.0472
Mercury	-190-11-05 15:21 J	1652333.98	1652334.14	1652334.31	0.0494	0.0209
Venus	-188-01-26 00:57 J	1652781.40	1652781.54	1652781.69	0.0505	0.0349
Mercury	-184-07-09 09:21 J	1654406.76	1654406.89	1654407.02	0.0533	0.0006
Venus	-183-04-13 01:55 J	1654684.45	1654684.58	1654684.71	0.0526	0.0404
Mercury	-178-08-24 13:12 J	1656643.87	1656644.05	1656644.23	0.0494	0.0037
Venus	-177-10-01 00:43 J	1657047.33	1657047.53	1657047.73	0.0504	0.0042
Mercury	-172-04-27 13:26 J	1658716.94	1658717.06	1658717.19	0.0533	0.0137
Mercury	-172-07-25 20:09 J	1658806.28	1658806.34	1658806.41	0.0531	0.0446
Venus	-171-08-11 05:45 J	1659187.68	1659187.74	1659187.81	0.0520	0.0493
Mercury	-166-06-12 11:16 J	1660953.80	1660953.97	1660954.15	0.0494	0.0130

Venus	-165-06-06 00:57 J	1661313.37	1661313.54	1661313.72	0.0502	0.0261
Mercury	-160-02-13 17:02 J	1663027.10	1663027.21	1663027.32	0.0533	0.0291
Mercury	-160-05-14 00:00 J	1663116.40	1663116.50	1663116.61	0.0532	0.0298
Venus	-159-04-15 23:02 J	1663453.27	1663453.46	1663453.66	0.0523	0.0148
Mercury	-154-03-31 09:35 J	1665263.76	1665263.90	1665264.05	0.0493	0.0295
Mercury	-154-06-29 16:47 J	1665354.10	1665354.20	1665354.31	0.0495	0.0398
Moon	-152-06-08 10:33 J	1666063.75	1666063.94	1666064.15	0.0515	0.0309
Earth	-152-06-08 12:28 J	1666063.84	1666064.02	1666064.20	0.0515	0.0338 *
Mars	-149-01-25 11:16 J	1667024.96	1667024.97	1667024.99	0.0536	0.0535
Mercury	-149-12-02 20:38 J	1667337.29	1667337.36	1667337.44	0.0534	0.0442
Mercury	-148-03-02 04:04 J	1667426.55	1667426.67	1667426.79	0.0532	0.0154
Venus	-148-12-19 16:47 J	1667719.01	1667719.20	1667719.39	0.0525	0.0200
Moon	-147-12-04 17:02 J	1668069.14	1668069.21	1668069.29	0.0514	0.0485
Earth	-147-12-04 20:38 J	1668069.32	1668069.36	1668069.41	0.0514	0.0501
Mercury	-142-01-17 07:40 J	1669573.76	1669573.82	1669573.88	0.0493	0.0463
Mercury	-142-04-17 14:09 J	1669663.93	1669664.09	1669664.25	0.0494	0.0218
Venus	-141-06-08 12:28 J	1670081.84	1670082.02	1670082.20	0.0504	0.0223
Moon	-140-06-13 06:00 J	1670451.53	1670451.75	1670451.98	0.0516	0.0066
Earth	-140-06-13 06:57 J	1670451.55	1670451.79	1670452.02	0.0516	0.0064 *
Mercury	-137-12-19 07:55 J	1671736.70	1671736.83	1671736.95	0.0533	0.0017
Earth	-135-12-09 11:31 J	1672456.78	1672456.98	1672457.19	0.0512	0.0230
Moon	-135-12-09 13:26 J	1672456.87	1672457.06	1672457.26	0.0512	0.0255 *
Mars	-131-01-14 18:43 J	1673588.99	1673589.28	1673589.58	0.0490	0.0031
Mercury	-130-02-03 12:00 J	1673973.82	1673974.00	1673974.18	0.0494	0.0048
Venus	-129-02-12 12:00 J	1674347.80	1674348.00	1674348.20	0.0502	0.0085
Earth	-128-06-18 07:26 J	1674839.60	1674839.81	1674840.02	0.0518	0.0229
Moon	-128-06-18 10:04 J	1674839.70	1674839.92	1674840.15	0.0518	0.0196 *
Mercury	-125-10-07 12:00 J	1676046.88	1676047.00	1676047.13	0.0534	0.0138
Mercury	-124-01-04 18:57 J	1676136.22	1676136.29	1676136.35	0.0532	0.0447
Venus	-124-12-22 15:21 J	1676487.99	1676488.14	1676488.28	0.0522	0.0356

Earth	-123-12-14 00:28 J	1676844.29	1676844.52	1676844.75	0.0510	0.0035
Moon	-123-12-14 00:43 J	1676844.29	1676844.53	1676844.76	0.0510	0.0023 *
Mercury	-119-11-22 09:50 J	1678283.73	1678283.91	1678284.08	0.0493	0.0124
Venus	-118-10-18 12:00 J	1678613.87	1678614.00	1678614.13	0.0501	0.0386
Mars	-114-10-31 00:14 J	1680087.26	1680087.51	1680087.77	0.0537	0.0036
Mercury	-113-07-26 16:04 J	1680357.06	1680357.17	1680357.28	0.0534	0.0281
Mercury	-113-10-23 23:02 J	1680446.36	1680446.46	1680446.57	0.0532	0.0309
Venus	-112-08-27 09:50 J	1680753.70	1680753.91	1680754.11	0.0524	0.0016
Moon	-111-12-18 10:19 J	1681231.76	1681231.93	1681232.11	0.0508	0.0320
Earth	-111-12-18 12:00 J	1681231.82	1681232.00	1681232.19	0.0508	0.0294 *
Mercury	-107-09-10 07:55 J	1682593.69	1682593.83	1682593.98	0.0493	0.0290
Mercury	-107-12-09 15:07 J	1682684.03	1682684.13	1682684.24	0.0495	0.0402
Venus	-105-02-15 02:38 J	1683116.50	1683116.61	1683116.73	0.0506	0.0417
Mercury	-101-05-14 19:40 J	1684667.24	1684667.32	1684667.39	0.0534	0.0436
Mercury	-101-08-12 02:52 J	1684756.50	1684756.62	1684756.74	0.0532	0.0160
Venus	-100-05-02 01:26 J	1685019.41	1685019.56	1685019.72	0.0526	0.0344
Mars	-96-10-20 22:47 J	1686652.38	1686652.45	1686652.54	0.0491	0.0471
Mercury	-95-06-29 06:14 J	1686903.70	1686903.76	1686903.83	0.0493	0.0454
Mercury	-95-09-27 12:57 J	1686993.88	1686994.04	1686994.20	0.0494	0.0230
Venus	-94-10-21 01:40 J	1687382.37	1687382.57	1687382.77	0.0504	0.0105
Mercury	-89-05-31 06:43 J	1689066.65	1689066.78	1689066.91	0.0533	0.0015
Mercury	-83-07-16 10:33 J	1691303.76	1691303.94	1691304.12	0.0493	0.0055
Venus	-82-06-25 23:16 J	1691648.29	1691648.47	1691648.66	0.0501	0.0209
Mercury	-77-03-19 10:19 J	1693376.80	1693376.93	1693377.05	0.0534	0.0143
Mercury	-77-06-16 17:02 J	1693466.15	1693466.21	1693466.28	0.0532	0.0444
Venus	-76-05-04 23:16 J	1693788.29	1693788.47	1693788.66	0.0523	0.0212
Mercury	-71-05-04 08:24 J	1695613.68	1695613.85	1695614.03	0.0493	0.0115
Moon	-69-06-07 11:45 J	1696378.83	1696378.99	1696379.15	0.0514	0.0361
Earth	-69-06-07 12:00 J	1696378.84	1696379.00	1696379.15	0.0514	0.0389 *
Mercury	-65-01-06 14:24 J	1697686.99	1697687.10	1697687.20	0.0534	0.0287

Mercury	-65-04-04 21:21 J	1697776.29	1697776.39	1697776.50	0.0533	0.0305
Venus	-64-01-07 17:16 J	1698054.03	1698054.22	1698054.42	0.0525	0.0135
Mercury	-59-02-20 06:00 J	1699923.61	1699923.75	1699923.90	0.0493	0.0288
Mercury	-59-05-21 12:57 J	1700013.94	1700014.04	1700014.15	0.0494	0.0402
Venus	-58-06-28 12:14 J	1700416.84	1700417.01	1700417.18	0.0505	0.0283
Earth	-57-06-12 12:14 J	1700766.78	1700767.01	1700767.24	0.0516	0.0104
Moon	-57-06-12 14:38 J	1700766.87	1700767.11	1700767.35	0.0516	0.0110 *
Mercury	-54-10-25 18:14 J	1701997.19	1701997.26	1701997.34	0.0534	0.0432
Mercury	-53-01-23 01:40 J	1702086.45	1702086.57	1702086.69	0.0533	0.0165
Venus	-53-09-12 10:33 J	1702319.87	1702319.94	1702320.02	0.0527	0.0487
Earth	-52-12-08 18:14 J	1702772.07	1702772.26	1702772.46	0.0512	0.0270
Moon	-52-12-08 18:28 J	1702772.08	1702772.27	1702772.46	0.0512	0.0298 *
Mercury	-48-12-09 04:19 J	1704233.61	1704233.68	1704233.75	0.0493	0.0452
Mercury	-47-03-09 10:47 J	1704323.79	1704323.95	1704324.12	0.0494	0.0230
Venus	-46-03-03 12:00 J	1704682.79	1704683.00	1704683.20	0.0503	0.0025
Moon	-45-06-17 10:04 J	1705154.70	1705154.92	1705155.15	0.0518	0.0153
Earth	-45-06-17 13:40 J	1705154.85	1705155.07	1705155.29	0.0518	0.0187 *
Mercury	-42-11-11 05:31 J	1706396.60	1706396.73	1706396.85	0.0533	0.0024
Venus	-40-01-10 13:40 J	1706822.95	1706823.07	1706823.19	0.0521	0.0412
Moon	-40-12-13 03:21 J	1707159.41	1707159.64	1707159.86	0.0510	0.0023
Earth	-40-12-13 04:47 J	1707159.47	1707159.70	1707159.93	0.0510	0.0014 *
Mercury	-36-12-26 08:52 J	1708633.69	1708633.87	1708634.05	0.0494	0.0060
Venus	-35-11-06 11:45 J	1708948.84	1708948.99	1708949.15	0.0501	0.0330
Earth	-33-06-22 13:40 J	1709542.99	1709543.07	1709543.17	0.0520	0.0478
Moon	-33-06-22 17:31 J	1709543.15	1709543.23	1709543.32	0.0520	0.0482 *
Mercury	-30-08-30 09:07 J	1710706.75	1710706.88	1710707.00	0.0533	0.0137
Mercury	-30-11-27 15:50 J	1710796.10	1710796.16	1710796.23	0.0532	0.0448
Venus	-29-09-15 07:26 J	1711088.61	1711088.81	1711089.01	0.0524	0.0066
Earth	-28-12-17 17:02 J	1711547.02	1711547.21	1711547.42	0.0509	0.0250
Moon	-28-12-17 19:55 J	1711547.14	1711547.33	1711547.53	0.0509	0.0277 *

Mercury	-24-10-14 06:43 J	1712943.60	1712943.78	1712943.95	0.0493	0.0112
Venus	-22-03-06 00:00 J	1713451.43	1713451.50	1713451.59	0.0505	0.0467
Mercury	-18-06-18 12:14 J	1715016.91	1715017.01	1715017.12	0.0534	0.0296
Mercury	-18-09-15 19:26 J	1715106.21	1715106.31	1715106.42	0.0533	0.0297
Venus	-17-05-20 23:31 J	1715354.31	1715354.48	1715354.65	0.0526	0.0290
Earth	-16-12-22 04:47 J	1715934.70	1715934.70	1715934.73	0.0507	0.0506
Mars	-13-07-04 10:19 J	1716859.77	1716859.93	1716860.12	0.0490	0.0396
Mercury	-12-08-02 04:33 J	1717253.55	1717253.69	1717253.84	0.0493	0.0280
Mercury	-12-10-31 11:31 J	1717343.88	1717343.98	1717344.08	0.0494	0.0408
Venus	-11-11-08 22:33 J	1717717.25	1717717.44	1717717.64	0.0503	0.0152
Mercury	-6-04-06 16:19 J	1719327.11	1719327.18	1719327.25	0.0535	0.0443
Mercury	-6-07-04 23:45 J	1719416.37	1719416.49	1719416.61	0.0533	0.0156